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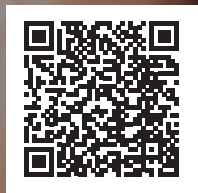
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« China's EHang has been vividly demonstrating the potential for eVTOL aircraft to be a force for good, by making its Model 216 Autonomous Aerial Vehicle available to deliver medical supplies to the main hospital in the city of Hezhou in Guangxi province. The company has suggested that the aircraft could also be used to transport essential medical personnel helping coronavirus patients.

Aviation community struggles under evolving restrictions

by AIN Staff

The aviation community has been grappling with the rapidly changing environment surrounding the pervasive Covid-19 outbreak as it has faced evolving restrictions, sharp drop-offs in demand, and a multitude of event cancellations—including the massive Farnborough International Airshow and business aviation's European hallmark EBACE. Perhaps most daunting of all for the industry has been the uncertainty of how long the crisis may continue.

Airlines were among the first to feel the brunt, initially with restrictions on flights to and from China. In addition, companies there were restricted throughout the

region, resulting in officials turning to use of other technologies, such as EHang drone deliveries of medical supplies.

But as the virus spread its tentacles globally, various countries and regions began to close their borders or bar travel from other regions. Notably, the U.S. stopped accepting entry of the vast majority of citizens from Europe and then recommended against all international travel. Europe, meanwhile, followed with a closure of borders to most nonresidents. Similar steps, whether outright travel bans or recommendations, rippled globally, from Canada to Australia.

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Read Our **SPECIAL REPORT**

Asia-Pac post-Covid

The global Covid-19 pandemic claimed this month's ABACE as a casualty, one of many shows forced to close this year. Nonetheless, as the illness abated, operators in the region looked ahead to the future.

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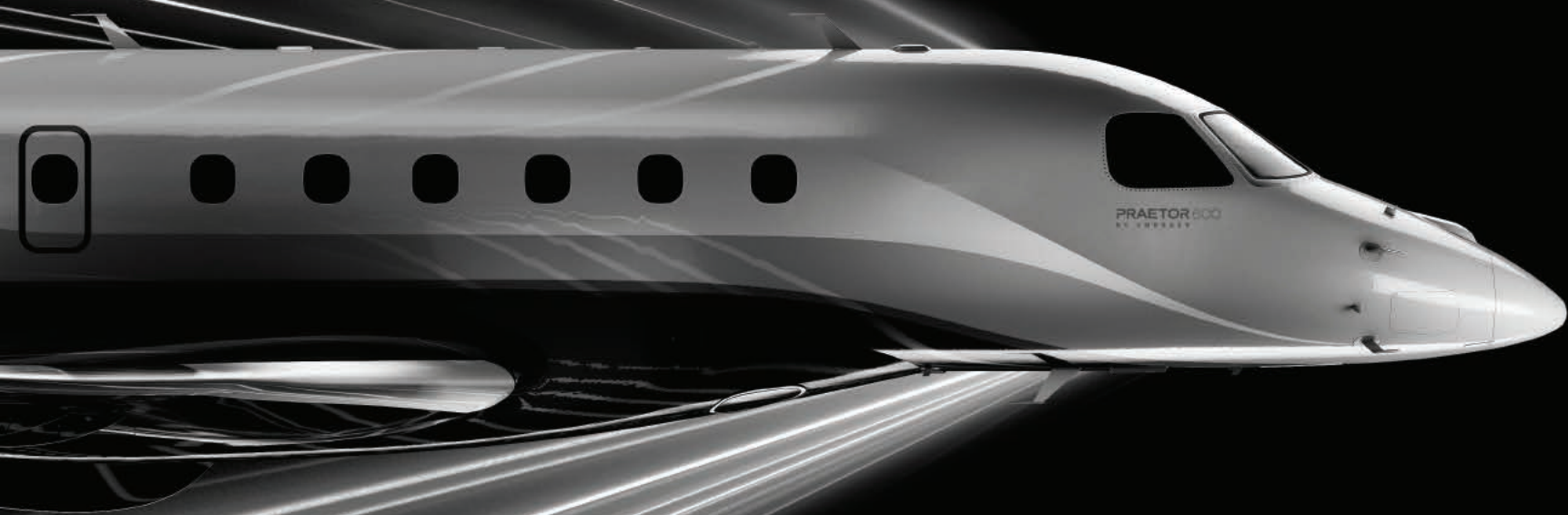


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Important Events Note

While there have been many cancellations and postponements of important events during the Covid-19 crisis, AIN remains committed to covering the business aviation industry. Please send any news and press releases, especially related to events you had been planning to attend, to ctrautvetter@ainonline.com and we will endeavor to help share your news.

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As We Go To Press

RELIEF BILL SETS ASIDE BILLIONS FOR AVIATION INDUSTRY

At press time, the U.S. House of Representatives was poised to pass a massive Covid-19 package after the U.S. Senate unanimously cleared it on March 25. The Coronavirus Aid, Relief, and Economic Security (CARES) Act will provide billions in loans and grants to flow to cash-strapped air carriers, including Part 135 operators, along with numerous other aviation businesses. Lawmakers specifically are directing almost \$80 billion in loans and grants for certain aviation segments, as well as \$10 billion in airport grants with \$100 million set aside for general aviation facilities. Further, they set aside a loan pool of \$454 billion that could be available to states, municipalities, and businesses in general, including aviation entities. Grants provided to airlines and other businesses are specifically for employee salaries and benefits. The act would provide up to \$25 billion in grants to commercial passenger carriers, including Part 135 operations. Other grants include \$4 billion to cargo carriers and \$3 billion for contractors, which could cover FBOs providing ground handling for airlines and caterers, NATA said. The loans provide another \$25 billion for commercial carriers (including Part 135) and Part 145 MROs and \$17 billion for aviation entities involved in national security, primarily aimed at Boeing.

BOMBARDIER, EMBRAER PAUSE AIRCRAFT PRODUCTION

Bombardier has suspended work—including aircraft production—at most of its operations in Canada in support of recent mandates from the governments of Quebec and Ontario to slow the spread of the Covid-19 pandemic. The suspension will last through April 26, the Canadian airframer said. Meanwhile, Embraer on March 23 sent its employees in Brazil home on paid leave through March 31 as it attempts to protect the well-being of its employees during the Covid-19 pandemic. Both are keeping their respective service center networks open during the temporary production stoppage.

FOLEY: DOWNTURN WILL BE 'SOFTER BLOW' FOR BIZJET OEMs

Business aviation analyst Brian Foley argues that, despite the sharp downturn in aviation activity because of the Covid-19 pandemic, business aviation is poised to better weather this setback than during the 2008 financial crisis. The U.S. economy is healthier this time around, with a GDP of 2.1 percent, higher corporate profits, and a stock market that is up 67 percent compared with the financial crisis, Foley wrote. Financial system reforms since then have also strengthened banks' reserves

and led to tighter lending standards that have increased their liquidity and reduced the risk in their loan portfolios. While business jet OEMs have smaller backlogs, "they aren't stacked with as many speculators." He concluded, "While there's always a worst-case scenario, it's possible that the positives going into this downturn will at least help to soften the inevitable blow."

EMBRAER TO MAKE VENTILATOR PARTS TO COMBAT COVID-19

Embraer is manufacturing parts for the ventilator and respirator industry under a coalition of companies and research centers that aims to increase the availability of equipment and solutions to combat Covid-19 in Brazil. It will also work to help develop high-efficiency filtration systems that could turn regular hospital beds into intensive care beds that employ filters already used in air conditioning systems on Embraer aircraft.

STANDARDAERO LAUNCHES ENGINE EXCHANGE PROGRAM

StandardAero has launched an engine exchange program that lets aircraft owners exchange their engines or purchase replacement engines with less flight time to extend the life of their aircraft. "As aircraft get older, you can see engine events where to get the engine back into full-flying condition, it's going to cost more money than the whole aircraft is worth," StandardAero business aviation division president Marc Drobny told *AIN*. "So situations like that are really incumbent upon folks like us to come up with options so we can keep the aircraft flying." Currently, the program applies to specific engine models—Honeywell TFE731 and CFE738 and Pratt & Whitney PW305—as well as Honeywell 36-100/150-series APUs.

HARRODS TEMPORARILY CLOSING LONDON FBO/MROs

Harrods Aviation is taking "the unprecedented and regrettable decision to temporarily close its FBO and maintenance facilities at its London Luton and London Stansted bases" in response to the UK government's Covid-19 guidelines. Its two locations closed on March 27 through at least April 17, when Harrods said it will review the situation.

LARGE-BIZJET DEMAND COULD FALL 20% IN 2020

Large-cabin business jet demand could drop 20 percent later this year as a result of the Covid-19 pandemic, while the light and midsize segments could "hit a new low," according to Teal Group v-p of analysis Richard Aboulafia. "Watch fuel prices—resource-rich countries and energy-extraction companies drive large-cabin demand, so that segment will likely be hit the hardest," he said.

CAE cuts exec salary, staff

by Kerry Lynch

Preparing for what it believes could be an extended crisis from the Covid-19 outbreak, CAE is laying off workers, cutting salaries throughout the company, curbing hours, and restricting research and development and other capital investment.

The company on March 20 issued its initial notifications of temporary layoffs to 465 employees, but CAE president and CEO Marc Parent said during a call with RBC Capital Markets on March 23 that more will be evaluated and issued in the "coming days." In addition, the senior leadership is taking a 50 percent pay cut, while vice presidents will see salaries reduced by 30 percent. Managers and directors will receive 20 percent cuts, while all others will see their salaries reduced by 10 percent. The company has more than 10,000 employees worldwide in over 35 countries.

In addition, the company said it has reduced capital expenditures to "minimum levels," reduced operating hours and adjusted staffing at centers with lower demand and asked all employees who can work from home to do so.

Parent stressed that the company is entering the crisis in a position of liquidity strength, but said, "This crisis of unprecedented speed and magnitude has caused pretty dramatic disruptions to the global transportation system...We're assuming a very tough period ahead."

While he added "we definitely believe it will be temporary," how long is uncertain. "This is significantly worse than anything we have seen."

Its training centers are facing lower demand and varying closures. The situation



CAE president and CEO
Marc Parent

remains fluid, said Andrew Arnovitz, CAE v-p of strategy and investor relations, pointing to closures at its centers in Peru, the Philippines, Brussels, and Milan. Others have reopened. "Asia is generally opening up," said Arnovitz. In fact, Parent said he was encouraged by orders received just last week for simulators from China and Singapore.

A major issue, Parent added, is the ability for trainees to get to the centers in the face of travel restrictions. Business aviation centers are all running, albeit with lower volume focused on recurrent training.

On the training front, CAE has somewhat of a buffer since training is a regulatory requirement, he said. In addition, CAE has healthy backlogs for the simulators it builds. Since orders come with substantial upfront deposits that fund the build, CAE doesn't typically see cancellations, Parent said. A few customers have asked for delays in taking delivery, however.

"We're planning for a severe impact that could run for a number of quarters," said CFO Sonya Branco, but added, "I am confident that CAE has the tools and the ability to weather the storm and resume growth once the episode is behind us." ■

Textron Aviation's Covid-19 response includes furloughs



Textron Aviation officials declined to say if workers at its 11 U.S. service centers are affected by the furloughs.

Textron Aviation will furlough most of its U.S. employees for four weeks in response to the Covid-19 pandemic, adding that it's also adjusting its production to align with anticipated market demand. Furloughs will be staggered and occur over a roughly 10-week period, beginning March 23 and ending May 29.

"This decision will allow us to do our part in mitigating and containing the spread of Covid-19 through social distancing, while continuing to support our customers," the Cessna and Beechcraft airframer said in a statement. "As difficult as this situation is, the safety and well-being of our employees and customers remains our top priority."

Textron officials declined to say if the furloughs were limited to production and non-production employees, or if they

extend to workers at the Wichita-based company's 11 U.S. service centers. In Kansas, the company employs 10,000 people. Other measures the company has taken in response to the pandemic have included limiting large group meetings, increasing daily cleaning of its facilities, restricting travel, and canceling its participation in several global meetings and events.

"We continue monitoring the guidance of the CDC and local governing health authorities to ensure we are developing the best policies and practices for our company," Textron Aviation said. J.S.

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Textron Aviation has successfully completed initial ground engine tests of the Cessna SkyCourier's two Pratt & Whitney Canada PT6A-65SC turboprop engines (inset close-up). FedEx is the launch customer for the utility twin, with a firm order for 50 and options for 50 more.

SkyCourier completes ground engine tests

by Jerry Siebenmark

Textron Aviation reached a major milestone in its Cessna SkyCourier development program last month with the successful completion of initial ground engine tests on the prototype airplane. The ground tests verified the functionality of the utility twin's fuel system and two Pratt & Whitney PT6A-65SC engines, as well as the interface with the avionics and electrical systems.

"The successful engine run tests are a pivotal step toward proving the maturity of

the aircraft and its systems as we prepare for first flight," said Textron Aviation senior v-p of programs and engineering Chris Hearne. "We continue to meet each important milestone in our development schedule, and we look forward to having an outstanding aircraft for our customers."

Ground tests such as these are increasingly important as new aircraft more completely incorporate engine data with the avionics systems. In the past, more engine

testing was performed on test stands, but the large amount of performance data now available electronically in flight has made it more important to perform tests on the wing.

Development Progress

Officials of the Wichita-based airframer said the development program continues to advance with the assembly of five additional flight and ground test aircraft. Wings were successfully mated to the prototype in December, followed by a powering of its electrical system in January and tail assembly attachment in February.

With Skycourier's optional configurations as a 6,000-pound freighter, a 19-passenger transport, or as a combination passenger/freighter version, FedEx is the launch customer for the turboprop twin, with 50 firm orders and options for 50 more. It will have a maximum cruise speed of 200 kts and 900-nm range.

FedEx's input figured prominently in the design of the Skycourier, similarly to the design of the Caravan in the early 1980s. FedEx was also the launch customer for Cessna's utility turboprop single, which has since gone on to great success in a number of roles. At a time when light aircraft manufacturing had come to almost a complete standstill, the Caravan program was a shining light in the industry.

Taking square aim at the market for a rugged utility aircraft equally adept at passenger or cargo service, the SkyCourier also shows promise for military or special-missions applications. Cessna already markets its Grand Caravan EX as a surveillance aircraft. And the company also has air ambulance versions of most of its turbine-powered aircraft, from the Grand Caravan and King Air series to the Citation Latitude. ■

Flexjet to ferry pilots aboard its own aircraft

Flexjet is implementing a new policy in light of the Covid-19 outbreak to use its own fleet to ferry the fractional operator's pilots and other flight crewmembers. Flexjet crews have regularly flown aboard commercial airlines from their home base to reach their flight assignment destination, but Flexjet chairman Kenn Ricci said, "Given the threat posed by the novel coronavirus and the illness Covid-19, we felt it was in the best interests of our owners and flight crews to take this risk out of the equation and transport our flight crews on our own aircraft."

Flexjet added that the decision also enables it to comply with CDC-recommended group size limits of no more than 10 people. Named Project Lift, the Flexjet initiative applies to all U.S. domestic flights, as well as internationally-bound flights that are still permitted. The operator has established a shuttle system involving seven strategically located hubs around the country to ferry its pilots and crewmembers.



Kenn Ricci,
Flexjet
chairman

In addition, the operator recently had MRO provider and sister company Constant Aviation treat the Flexjet fleet with MicroShield 360, a protective coating that kills 99.99 percent of pathogens.

Ricci further said he is offering to help others in the industry to design safety measures. "Decisions about safety can never be made based on their impact on the bottom line," said Ricci. "There's no doubt that this will have a cost impact on Flexjet, but it's the right thing to do for our employees and it's the right thing to do for our owners as we move ahead through this global crisis." K.L.

News Briefs

Wheels Up Acquires Gama Aviation Signature

Wheels Up acquired U.S.-based business aircraft charter and management company Gama Aviation LLC (dba Gama Aviation Signature) on March 2, creating the second-largest private aviation company in North America. Financial terms were not disclosed. The deal follows Wheels Up's acquisitions last year of Delta Private Jets and Travel Management Company, as well as software developer Avianis Systems. Wheels Up's owned and managed fleet now numbers more than 300 airplanes. Using Argus figures, the combined entity logged more than 160,000 flight hours last year—more than number-two fractional provider Flexjet (111,189 hours). Gama Aviation Signature will operate as a wholly-owned subsidiary of Wheels Up, led by current president and CEO Tom Connelly. It will also continue to serve aircraft management and charter customers out of its current location in Shelton, Connecticut.

Sheltair Opens New Florida FBO

Sheltair has opened its FBO in the newly constructed terminal at Florida dedicated general aviation gateway Ocala International Airport-Jim Taylor Field (OCF). A combined private-public effort among the city of Ocala, the airport, the state Department of Transportation, and the service provider, the \$7 million 15,722-sq-ft facility houses the Sheltair FBO with offices, passenger and crew lounges, quiet room, and flight planning area, along with airport administration offices, rental car facilities, community event space, and a restaurant expected to debut next year. Given the airport's location in the heart of Florida horse-country, equine handling is also available. Sheltair also just broke ground at the Central Florida airport on a new 20,000-sq-ft hangar with 28-foot-high doors to accommodate ultra-long-range business jets.

Constant Treats Flexjet Fleet with MicroShield 360

MRO provider Constant Aviation last month treated Flexjet's entire fleet of more than 160 aircraft with the MicroShield 360 antimicrobial protective coating. Effective against more than 90 pathogens for one year after application, the clear, odorless, and non-toxic coating is EPA-registered and FDA approved, Constant Aviation said, adding that it kills 99.99 percent of bacteria. Aircraft must undergo a thorough cleaning before the three-step MicroShield 360 treatment. The process involves an initial application of an electrostatic disinfectant by certified MicroShield 360 technicians. This is followed by the application of a specially formulated quick-drying disinfectant to all surfaces. The final application involves a proprietary coating formula providing a biostatic finish to treated surfaces, preventing pathogens from living on them.

Covid-19 pandemic spells early end for SDC 2020

by Curt Epstein

Caught up in the growing tide of Covid-19-induced event cancellations and postponements that also included major sports events such as the NBA, MLB, NHL, and the elimination of the NCAA college basketball tournaments, NBAA's Schedulers & Dispatchers Conference (SDC2020) in Charlotte, North Carolina, was cut short by the organization's leadership, who felt they had no choice but to pull the plug on the show a day early.

According to NBAA, 90 percent of the approximately 500 scheduled exhibitors attended the show, a number that corresponds to an informal count of empty booths on the show floor conducted by **AIN**. While giveaways by exhibitors are typical at shows like SDC, those that handed out branded bottles or dispensers of hand sanitizer this year found themselves very popular. Among those companies choosing to sit out this year's show were mainstays such as Atlantic Aviation, Signature Flight Support, and Universal Weather and Aviation, which typically reserve large areas in prominent locations.

What was difficult to measure was the decline of attendees who either decided to skip the show or whose company travel restrictions precluded attendance. By one estimate provided to **AIN**, as many as 40 flight departments canceled. While the number of show-goers was definitely diminished, exhibitors who spoke with **AIN** said they had good interaction with the attendees. "The conversations at our booth seemed much more valuable," said Jodie Kaluza, director of Austin Executive Airport and general manager of Henriksen Jet Center, its FBO, adding that her booth staff felt less rushed and had time to develop more quality conversations with people. "I am fairly certain that we actually met more potential customers this year than last year."

A major part of the show is its educational component, and this year was no exception, according to SDC Committee co-chair Stephen Clark, who acknowledged the diminished number of attendees in his opening session comments. "The goal of the Schedulers & Dispatchers Committee is not to chase a number; it's not to get 10 more exhibitors or 100 more attendees every year," he told the audience. "It is to put on a world-class educational program for this industry." The opening session also featured an information session on Covid-19 by Dr. Clayton Cowl, chair of the Mayo Clinic's preventive, occupational, and aerospace medicine department and an expert in respiratory disease. He detailed the rise and spread of the virus, noting that everyone is going to be affected by it, either directly or indirectly.

SDC2020 initially offered a slate of 33 panel discussions, ranging from flight-planning around the world to security concerns, and from money-saving fueling tips to weather considerations for flight departments. This year's conference theme was resiliency, and that was demonstrated by the show organizers. Despite the need for substitutions for some presenters unable to attend, they ensured that quality information was given to the attendees.

The announcement to cancel the Friday programming came at the conclusion of the first set of educational sessions on Thursday. The afternoon's sessions continued for the most part, but the show floor, which was slated to close that afternoon, soon emptied. ■



After the announcement of the cancellation of Friday's programming at Schedulers & Dispatchers early Thursday afternoon, the exhibitor show floor, normally scheduled to close down at 4 p.m. on Thursday, quickly emptied as showgoers headed home.

NBAA event's charity initiative sees first decade

Before NBAA's 2011 Schedulers & Dispatchers Conference (SDC), held in Savannah, Georgia, several members of the S&D advisory council got together and decided that the show should leave a positive mark on the host city. The S&D Pay-It-Forward initiative—one of the event's hallmarks—was born. What celebrated its 10th anniversary at this year's show in Charlotte, North Carolina, started off as a clothing drive. Attendees are asked to scour their closets for gently-worn business attire, which is donated to a local charity. This year it was Dress For Success Charlotte, and Suit Up Charlotte. The advisory council has partnered with the local chapters of Dress for Success for the past eight years in each

of the cities SDC has visited. The first year, attendees donated a total of 74 garments.

That clothing is given to destitute people in the community "who are looking for jobs, just looking for a little bit of a hand up, so that they have the right clothing when they go out to interview for a new job and are appropriately dressed," said Debbi Laux manager of candidate services with industry recruitment specialist Aviation Personnel International. She estimates that Pay-It-Forward has gathered more than 18,000 items of clothing over the past decade. The event has gained steam, expanding from not only donations from individuals but also companywide drives from exhibitors who deliver crates of clothes at the show, as well

as outright donations of large quantities of brand-new garments.

At each SDC, Laux, who has shepherded the effort since its inception, typically gives a few comments at the start of the final day's grand prize luncheon, thanking those who contributed, the corporate sponsors, and informing them where their donations will go. A few years ago, after her comments, she was approached by a woman who thanked her for all that she did to organize the show's clothing drive. When Laux tried to defer the gratitude to the many people involved, the woman explained that, as a homeless person, she had personally benefited from the Pay-It-Forward initiative in her city. Through the local charity organization SDC had partnered with, she received a set of proper business attire, a professional review of her resume, and interview coaching, all of which she used to land a scheduling job with a corporate flight department. Years later she was at the show as an attendee. "I'm proud about where I've come," she told Laux, "because I might not have been alive today if it wasn't for someone giving that piece of clothing."

The Pay-It-Forward concept has expanded as well, with some years featuring initiatives such as packing backpacks with food to distribute through schools to at-risk children, assembling boxes of cleaning products for single mothers, and even a charity run. The latest addition has been organizing educational days ahead of the show's opening, introducing high school students to the prospect of a career in business aviation through visits to corporate flight departments or FBOs at local airports.

C.E.



In the span of a decade, the Pay-It-Forward charity initiative has become an integral part of NBAA's annual Schedulers & Dispatchers Conference. Debbi Laux (left), who has served as chair of the S&D advisory committee's Pay-It-Forward campaign since it began, shows off some of this year's donated clothing items along with NBAA president and CEO Ed Bolen and Pay-It-Forward vice chair Mi Kosasa, vice president of marketing with Air Service Hawaii.



Early last month, Compass expected cuts from American and Delta to reduce its flights, but the extent of the Covid-19 pandemic ultimately forced the airline to cease operations.

As American leaves LA, Compass Airlines to close

by Gregory Polek

Minneapolis-based regional carrier and Trans States Holdings subsidiary Compass Airlines will completely shut down on April 7, when code-share partner American Airlines removes its entire regional operation from Los Angeles. The memo to employees explaining the reasons for the closure came days after CEO Rick Leach communicated that St. Louis-based Trans States Airlines would accelerate its previously planned draw-down of operations and close on April 1. An earlier communique from Leach to Compass's employees had revealed the ending of all the airline's Delta Air Lines

contract flying at the end of March due to capacity cuts associated with the Covid-19 crisis.

Early last month American told Compass that it would have to absorb a 14 percent cut to its capacity in April. However, the Dallas-based major airline also said it would probably need to make more cuts.

"We are now faced with two insurmountable obstacles," wrote Leach in the memo. "All our remaining capacity will be completely cut for an undetermined period and our other, once viable, opportunities have been tabled for the foreseeable future due to the sweeping

impact of this crisis. These challenges, combined with the fact that our American contract would begin to reach its natural conclusion later this year, have forced us to make the incredibly difficult decision to pull down the Compass operation in conjunction with the temporary wind-down of American's regional operation in Los Angeles. We simply cannot keep an infrastructure in place without guarantees, nor clarity of additional flying to support it."

Leach has cited moves by U.S. major airlines to shift aircraft among their partners to simplify and create "critical mass" among fleet types and reduce geographic overlap of flying as a major reason for financial distress within the regional industry at large. United Airlines, for one, continues to consolidate and restructure 50-seat jet flying among its various regional affiliates, most recently announcing a major fleet addition at its ExpressJet partner.

The Compass closure now marks the third failure of a regional airline since the spread of the Covid-19 virus into Europe and North America. By the time Leach announced the closure of Trans States Airlines, the UK's Flybe had already stopped all flying on March 5. (See articles on page 53.) Compass operates 32 Embraer E175s, 12 as Delta Connection and 20 as American Eagle. Delta plans to transfer Compass's airplanes to Indianapolis-based Republic Airways and American plans to send the 20 jets Compass flew out of Los Angeles to Envoy Air. ■

News Briefs

Dassault Reports Strong 2019

Dassault Aviation chairman and CEO Eric Trappier reported solid performance for last year, attributing much of it to the delivery of 26 Rafale fighters to export customers. It also handed over 40 Falcon business jets (compared to 41 in 2018) and took orders for a further 40 last year (compared to 42 in 2018). The Falcon 2019 order intake represents €2.308 billion (around \$2.5 billion) compared with €2.314 billion in 2018. Falcon net sales for 2019 stood at €2.193 billion compared with €2.599 billion in 2018, "due to a decrease in the number of new and preowned aircraft delivered."

IADA Website Records 615 Aircraft Sales in First Year

More than \$5.4 billion in preowned aircraft sales were handled through the International Aircraft Dealers Association's (IADA) Aircraft Exchange website in its first year of operation. Since the site's launch on Feb. 1, 2019, sales of 615 aircraft—an average of about 1.7 aircraft per day—listed on the site have been recorded. "In just the past five months, nearly 400 aircraft worth \$3.8 billion listed on our site changed hands," said IADA executive director Wayne Starling. On average, more than 500 aircraft—jets, turboprops, pistons, and helicopters—are listed for sale on the website. Only IADA-accredited dealers are permitted to list an aircraft on the site.

FlightSafety Adds PC-24 Training at Paris Le Bourget

With a level-D simulator qualified by the FAA and EASA, FlightSafety International has begun offering training for the Pilatus PC-24 twinjet at its Paris Le Bourget learning center. PC-24 training is also offered at its Dallas training center. The new PC-24 simulator is equipped with the Honeywell Primus Apex avionics suite incorporating the SmartView synthetic-vision system. It also features FlightSafety's latest technology, including its CrewView collimated glass mirror display and Vital 1150 visual system.

Luxury Hangar Campus Planned Near Houston

Sky Harbour Group is developing a campus of private hangars for business aircraft based at Sugar Land Regional Airport (SGR) near Houston. The first phase, which it expects to open in June, comprises eight hangars, followed by six hangars in the second phase. Each climate-controlled hangar will be accessible only to the leaseholder and comes with a suite for offices and passenger lounge and is equipped with a kitchen, laundry, and bath. Hangars come in three sizes: 14,000 sq ft, with a 2,000-sq-ft suite; 8,000 sq ft, with a 1,600-sq-ft suite; and 7,000 sq ft, with a 1,400-sq-ft suite. Additional hangar development projects by Sky Harbour are currently underway in Miami and Nashville, Tennessee.

■ Textron Aviation, WSU, IAM form apprenticeship program

Textron Aviation has teamed up with the International Association of Machinists and Aerospace Workers and Wichita's WSU Tech to develop a collaborative apprenticeship program that is designed to ensure a long-term flow of skilled production tooling specialists.

The first of its kind in the region, the two-year apprenticeship program encompasses both factory and classroom training

to develop a range of skills involved with the design, building, and maintenance of production tooling, including everything from specialized hand-held tools to large jig assemblies that support aircraft parts and assemblies. Under the program, participants typically will train at WSU Tech for two days, while spending three days with assigned mentors at Textron Aviation facilities in South Central Kansas.

While participating in the program, apprentices will receive salary and benefits from Textron Aviation, as well as related tuition and fees at WSU Tech. Upon completion of the program, participants will earn a tooling associate of applied sciences degree from WSU Tech and become full-time Textron Aviation employees. Employees further have the option of tapping into Textron Aviation's tuition reimbursement program to work toward a bachelor's degree. The initial class will involve 15 students.

"Through the new apprenticeship program with WSU Tech, our students will get the benefit of an advanced curriculum designed specifically for this program, as well as learn on the job from our highly skilled tradespeople," said Maggie Topping, senior v-p of HR and communications at Textron Aviation.

"This program is another example of the innovation and disciplined business practices of the people of Kansas that have made us a global aerospace leader," said Kansas Gov. Laura Kelly, who visited the manufacturer for the announcement. "This kind of partnership is exactly the formula that helps attract talented people to work and live in Kansas." K.L.



Kansas Gov. Laura Kelly (center-right) visited Textron Aviation to celebrate a new two-year apprenticeship program with the IAM and WSU Tech to develop tooling expertise.



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Eric Martel coming back to retake helm at Bombardier

by Kerry Lynch

Bombardier is bringing back its former head of the Business Aircraft Division, Eric Martel, to run the company as president and CEO, succeeding Alain Bellemare. The leadership change, which is effective April 6, comes as Bombardier positions itself to become a solely business aviation-focused company, selling off its other divisions. The company last month announced the proposed sale of its Bombardier Transportation (BT) unit—one of the final divisions outside of business aviation that Bombardier



Alain Bellemare is leaving his position as president and CEO of Bombardier effective April 6.

had left to sell—in a deal that Bellemare called “transformational” and had previously said would conclude the company’s turnaround plan.

“With the turnaround chapter closed, it is a natural time for me to move on,” Bellemare said. “I am incredibly proud of the work our talented team has done addressing many challenges and setting a strong foundation for future success...I’m confident that the future is bright for Bombardier.” Bellemare stepped into the role five years ago as the company faced a massive debt load that came with the development of the C Series, as well as other programs such as the since-shelved Learjet 85.

Martel returns from Hydro-Québec, where he has served as president and CEO since July 2015. There, he steered one of the largest producers of hydro-electricity in the world. Before that, he held a number of leadership posts with Bombardier, including president of the Business Aircraft Division and president



Eric Martel is taking the reins at Bombardier, as the company turns its focus to business aviation.

of the Customer Services and Specialized Aircraft Division. Further, he has held key positions with Pratt & Whitney, Rolls-Royce, Procter & Gamble, and Kraft Foods.

“Eric is the right leader at the right time for Bombardier, as the company is completing its turnaround plan and focusing on growing its leading business aviation franchise,” said Bombardier chairman Pierre Beaudoin. “He is an engaging builder with a deep understanding of our organization and product portfolio as well as of the global business aircraft industry.”

He will be tasked with continuing the evolution of the company as it wraps up the sale of the train division next year. David Coleal, meanwhile, remains president of Bombardier Aviation, continuing to shepherd the company’s business aviation business as it continues to ramp up on the Global 7500, as well as 5500 and 6500 programs. ■

Court OKs Tamarack plan to emerge from bankruptcy

by Jerry Siebenmark

Tamarack Aerospace Group’s plan of reorganization has been approved, allowing the Sandpoint, Idaho-based manufacturer of active winglets to emerge from bankruptcy. The plan approved by the U.S. District Court for Eastern Washington calls for repayment of all creditors in full and affirms that the Tamarack shareholders remain intact, the company said last month.

“We continue to make significant progress in the reorganization as well as our general growth,” said Tamarack president Jacob Klinginsmith. “We have made a number of strategic changes to the business which have made us more resilient. Entering the voluntary bankruptcy was a difficult choice, but in the end, it has made us an even stronger



Tamarack president Jacob Klinginsmith

“We continue to make significant progress in the reorganization as well as our general growth”

company.” Tamarack announced its voluntary bankruptcy filing on June 7 following airworthiness directives (AD) from the FAA and European Union Aviation Safety Agency (EASA) that grounded Cessna CitationJets, CJ1s, CJ2s, and CJ3s equipped with its active load-alleviation system (Atlas) winglets. A month later, EASA lifted its AD followed by an FAA alternative method of compliance.

As Tamarack worked through the reorganization, it completed its 100th active winglet installation and recently added four new partners to its installation and service network, bringing the total to 20. Tamarack also noted it’s been meeting with the military, commercial airlines, and airplane OEMs about its active winglets. ■



With approval to emerge from bankruptcy, Tamarack Aerospace is growing the market for its Atlas active winglets with four new installation partners. It has completed its 100th active winglet installation and is now looking to new markets in airline and military applications.

News Briefs

Surf Air Targets Short-haul Flights with BlackBird Buy

Private aviation membership company Surf Air has acquired online charter and per-seat marketplace BlackBird to create Surf Air Mobility Corp., which will target short-haul charter flights ranging from 50 to 400 miles. “BlackBird has unlocked the potential of general aviation with a simple consumer experience and by tapping into an existing underutilized asset base to create affordable on-demand flying,” said Surf Air CEO Sudhin Shahani. “Combining this with our scheduled membership platform will bring increased value and options.”

Million Air Corporate Acquires Vancouver Location

REW Investments, the management company for Million Air’s corporate-owned FBO locations, has acquired Million Air Vancouver from its licensee. Acquisition plans call for a remodeling of the property to include updated amenities and a new look for the existing facility, one of two service providers at Vancouver International Airport (YVR) that serves Canada’s third-largest city. The FBO has 240,000 sq ft of ramp space and eight heated hangars, each capable of handling aircraft up to a Bombardier Global.

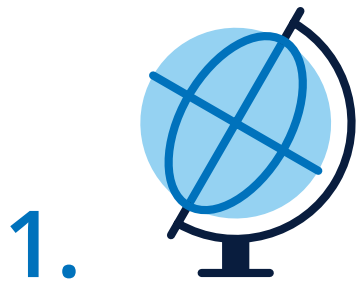
Daher Adds More Safety Features to TBMs

Daher is rolling out new features for the 2020 versions of its TBM 910 and 940, with the focus once again on further e-Copilot enhancements and cabin improvements. Following on the addition of automated icing protection for both models and autothrottle for the TBM 940 in 2019, this year’s e-Copilot extension is HomeSafe, an emergency autoland system—but only for the 940. HomeSafe is based on Garmin’s Autoland system and can autonomously guide the aircraft to a landing in the event of pilot incapacitation.

Argus: Bizav Flying Had Another Good Year

Business aviation flight activity last year in the U.S., Canada, and Caribbean increased 0.9 percent year-over-year, matching the growth rate from 2018 and eclipsing three million flights for the third consecutive year, according to the Argus Traqpak 2019 annual business aviation review. Flight activity was positive for most of 2019 and picked up steam later in the year, rising from 0.3 percent growth in the first half to 1.4 percent in the second half, Argus said. In fact, it added, the fourth quarter experienced the strongest year-on-year rise in flying, up 1.5 percent from fourth-quarter 2018. Fractional activity soared 5.9 percent year-over-year in 2019, followed by Part 91 with a 0.7 percent gain. Part 135 flying declined 0.6 percent last year. Midsize and light jet activity were up 3.1 percent and 0.6 percent, respectively, while large-cabin jet and turboprop flying were down 0.1 percent and 0.5 percent, respectively.

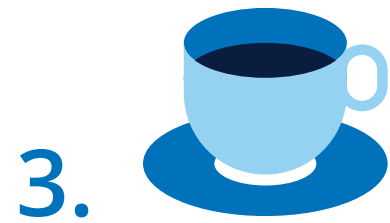
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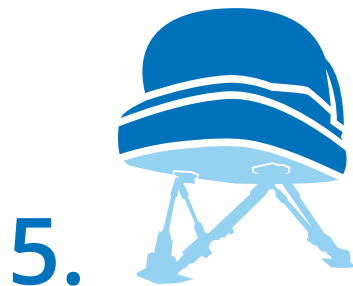
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After selling other business segments, Bombardier now a standalone bizjet OEM

by Jerry Siebenmark

Bombardier will be in rarified air should the proposed sale of its train business to Saint-Ouen, France-based Alstom close in the first half of 2021. The memorandum of understanding between the two companies, announced February 17 in conjunction with Bombardier's full-year 2019 financial results, would leave Bombardier as a standalone business jet manufacturer with more than 18,000 employees and a \$14.4 billion backlog.

Unlike competitors including Dassault, Embraer (for now), Gulfstream, and Textron Aviation that have parent companies with business in the commercial aviation, defense, and helicopter sectors, the Montreal-based airframer would be in the unique position as a pure-play business jet OEM. For business jet manufacturers, it's a business model that has yet to be tested—analysts noted—in terms of the ability to develop new products, including clean-sheet jets, as well as to withstand a downturn in the market.

"The business jet industry can be extremely cyclical, which makes for some very rewarding highs followed by bone-crushing lows," business aviation analyst Brian Foley explained about an OEM's reliance on a singular market. "The biggest unknown is just how the company will weather the next swoon with all of its eggs in one basket."

Teal Group v-p of analysis Richard Aboulafia agrees, but notes that the segment of the market that is the most profitable part of Bombardier's jet business—large-cabin, long-range aircraft—has remained relatively unscathed by downturns, including in 2008. "The top part of the market hasn't seen a downturn in decades—possibly by some definitions, never," Aboulafia told *AIN*. "But what if there was one and there was no counter-cyclical part of the company. Or there's no part of the company to cushion it?"

That's a question he said will be unanswered until such a scenario plays out. Foley, however, noted that a singular-market-focus business model didn't work out so well for general aviation manufacturers such as Eclipse, Piper, and Mooney, the last of which "just shut its doors again."

Bombardier could soon be tested on its ability to endure a suppressed market, business aviation analyst Rolland Vincent told *AIN*. "If we do go through a slowdown, which we are forecasting we are going to between 2021 and 2024...it's going to be a lean time for orders. And that usually means you've got to be very aggressive on pricing and all that other good stuff," Vincent said. "So I think it's going to be a test for this business model."

Aside from a slowdown in the market, analysts are split on Bombardier's ability to

finance new product development. Aboulafia doesn't think it will be a problem for Bombardier, largely because most of its aircraft—Globals and Challengers—are at the top end of the market, where margins are higher. "That's probably not a problem, just because, historically, returns from business jet companies are pretty good," he explained. "Typically, [companies that] have hard times financing new product development are in the lower margin parts of the aviation business, particularly regionals—that's notorious for not being able to generate the money needed, which is why we haven't had a new regional aircraft in a very long time."

But Vincent thinks it may be a while before Bombardier would invest in developing a new jet or even upgrading an existing model. First, it would need to retire

some of its \$9.3 billion in debt, much of which it plans to do with the completion of the sale of its train business to Alstom. Even then, it may be a while before Bombardier can invest in new products, especially the Challenger 650, which Vincent has previously said there's nowhere left to go for Bombardier in terms of upgrades. "I don't see any product development of any magnitude until they get through this," Vincent explained. "Even then, they've got to re-establish credit lines. None of that gets fixed until they not only close the deal with [Alstom], but after they pay off their debt. [And even then], it's going to be some time before they get their credit rating back in a healthy way. That opens up a pipeline for them to have capital again." ■



World Fuel Services completed its purchase of the UVair aircraft fueling business from Universal Weather and Aviation last month.

World Fuel completes UVair acquisition

Miami-based World Fuel Services has completed its \$170 million acquisition of the UVair fuel business from Universal Weather and Aviation, the companies said in mid-March. Announced in August, the deal also makes World Fuel the exclusive contract fuel provider for Universal Weather and Aviation.

World Fuel said the deal brings several benefits to UVair customers, including World Fuel Rewards, more contract fuel locations, and adding aviation retail credit card Avcard to their portfolio. Meanwhile, FBOs can use World Fuel Network's marketing tools and World Fuel Rewards to market their locations to an expanded audience.

As part of integrating the brands, World Fuel will be issuing a new contract card design—the World Fuel | UVair Contract card—that works just like the World Fuel Contract card, complete with rewards and global acceptance. Known as the "new black" card, it will be provided to heavy UVair Fueling card users, as well as a replacement for lost or expired UVair cards.

Universal chairman Greg Evans said the sale of UVair allows his company to focus on growth and expanding digital offerings, the latter of which includes the uvGO digital mission management platform. "We've got big plans moving forward...Universal has just begun to scratch the surface of where we're headed," he concluded. **C.I.**

News Briefs

Textron Aviation Turns to Wind Power for Factories

Textron Aviation last month signed a 20-year agreement with utility provider Evergy to receive 55 megawatts (MW) of power for its two Kansas plants in Independence and Wichita from a new wind farm under construction in Manhattan, Kansas. The Soldier Creek Wind Farm will generate 300 MW and is expected to be operational by year-end. A tariff passed in 2018 by the utility regulator Kansas Corporation Commission allows large commercial and industrial customers to buy wind energy at rates lower than Evergy's current offerings. For Textron Aviation, the rate will decrease from 2.3 cents per kilowatt-hour (kWh) to 1.8 cents per kWh, a nearly 22 percent savings.

EASA Proposes Rules for Tire Pressure Monitoring

EASA has issued a notice of proposed amendment (NPA) that would update large airplane certification (CS-25) rules to provide a means for ensuring that no tire is below its minimum serviceable inflation pressure during operation. Compliance can be achieved either by requiring operators to perform tire pressure checks at suitable time intervals or by installing a tire pressure monitoring system. Comments on the NPA are due June 6.

NATA Integrates Safety 1st Training with CrewID

Concluding an agreement made last year between the National Air Transportation Association (NATA) and industry credentialing provider CrewID, participants in NATA's Safety 1st Training Center can now receive a CrewID badge at no cost. The integration of the two programs allows parties such as flight crews and other airport personnel to quickly access an individual's Safety 1st ratings in real time through the CrewID platform by scanning it with any mobile device. The CrewID platform provides instant verification of training credentials, affiliation, and company position.

GE Aviation Integrates C-FOQA with Vector SMS

GE Aviation has integrated its Corporate Flight Operations Quality Assurance (C-FOQA) program with Polaris Aero's safety management system, Vector SMS. GE called the collaboration the first of its kind, enabling flight data to be automatically forwarded to Vector SMS through GE Aviation's application programming interface. GE's C-FOQA program enables operators to analyze and routinely review recorded flight data to better identify and eliminate potential hazards. Vector SMS, an app on Polaris Aero's Vocus Safety Intelligence platform, meanwhile, provides a simplified approach to report, analyze, audit, and trend safety concerns and facilitate engagement throughout an organization.

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U.S. Congress spotlights future aviation workforce

by Kerry Lynch

While the U.S. Congress passed comprehensive legislation in late 2018 to take a multifaceted approach to address workforce shortage concerns, lawmakers are keeping a spotlight on the issue as the numbers surrounding future employment needs remain daunting.

“Challenges in sustaining this workforce are looming, if not already upon us,” said House Transportation and Infrastructure Committee chairman Pete DeFazio (D-Oregon) in testimony for a recent aviation subcommittee hearing on the subject. Citing FAA data, DeFazio noted half of the 330,000 aviation maintenance technicians in the U.S. were between 50 and 70 years old at the end of 2018.

The Labor Department, meanwhile, is predicting that roughly 11,800 maintenance and technician jobs will need to be filled each year over the next decade, but the FAA certified only about 8,600 per year over the last four years. In all, the industry is estimating a need for 193,000 new mechanics and technicians in North America over the next 20 years, DeFazio added.

Workforce Diversity

Troubling to the lawmakers is the lack of diversity in the current workforce—3 percent of maintenance workers are women, for instance. “To expand the pipeline and meet the growing industry demand for FAA-certified workers, we can and must do better,” DeFazio said.

The FAA Reauthorization Act of 2018 included a number of measures to address the workforce in general and the diversity of the workforce. These include authorization of an aviation maintenance education and recruitment grant program, the establishment of a Women in Aviation Advisory Board, and the development of a Youth Access to American Jobs in Aviation Task Force to encourage apprenticeships.

“The future of America’s aviation maintenance and manufacturing workforce is bright, but it is clear Congress can do more to ensure the U.S. remains at the forefront of aviation and aerospace,” said House aviation subcommittee chairman Rick Larsen (D-Washington), adding that the hearing provides the subcommittee “the opportunity to reaffirm its commitment to supporting U.S. jobs and the aviation workforce.”

Larsen stressed that working to improve skills training and workforce diversification would be an “all-around win” for job seekers and the industry.

This is particularly critical, DeFazio added, since the current generation of airplanes has become extraordinarily complex. “There are between 60 and 70 miles

of electrical wire in a single Boeing 787. The Airbus A350 performed the world’s first fully automated takeoff last month. Gulfstream’s G650 is built using significantly different manufacturing techniques than previous designs, which required the company to provide specialized training to manufacturing workers,” he said.

As for the FAA’s part, one of Steve Dickson’s first acts as FAA administrator was to create a position to serve as a focal point to engage with industry, the academic community, and other government industry to collaborate on workforce issues, according to Catherine “Kate” Lang, senior advisor to the



House Transportation and Infrastructure Committee chairman Pete DeFazio (D-Oregon)

FAA administrator on aviation workforce outreach.

“The FAA is committed to partnering with industry, the academic community, and government agencies to remove unnecessary barriers to entry to the aviation workforce, enhance education pathways, and build the pipeline of qualified aviation professionals,” she said in her testimony to the subcommittee. Lang is steering a committee that is tasked with identifying concrete steps that can be taken to address shortages. And the

agency is taking a number of steps, from hosting a STEM symposium for future professionals to hosting a summit that gathers industry leaders to discuss potential solutions.

NBAA president and CEO Ed Bolen, meanwhile, told the subcommittee, “We must come together and take bold actions” given that worldwide demand for air travel is increasing.

Bolen offered support for a bill that Larsen introduced with fellow lawmakers—H.R.5118, the Promoting Service in Transportation Act—that would authorize the Department of Transportation to develop a series of broadcast, digital, and print public service announcements to promote transportation careers.

Bolen said, “While momentum around the future STEM workforce is strong, aircraft pilot and aviation technician careers are often not considered by students. That is why the passage of H.R.5118 is critical as it will help address these challenges.” ■

New study shows general aviation’s economic might

The general aviation industry provided a total of 1,179,200 jobs and contributed \$248.8 billion in total economic output in 2018, according to a new report on its contribution to the U.S. economy. A similar study conducted in 2013 found the industry supported 1,101,800 jobs with an economic output of \$218.6 billion.

The report from accounting firm PricewaterhouseCoopers was commissioned by seven of the alphabet organizations—NBAA, GAMA, NATA, HAI, AOPA, EAA, and AEA—with support from industry data providers JetNet and Conklin & de Decker.

“Studies and industry collaborations like these are invaluable to our efforts to demonstrate to policymakers at the local, state, and federal levels the impact of general aviation to communities,” stated Timothy Obitts, NATA president and CEO. “Our membership uses these tools nationwide to support initiatives that create workforce opportunities, build on responsible environmental stewardship, and grow commerce.”

The study considered four separate types of economic impacts: direct impact, activity within the GA industry; indirect impact, the industry’s supply chain; induced impact,

activity resulting from spending of income derived from aviation-related activities by its labor force; and enabled impact, destination expenditures from visitors associated with general aviation flights.

California led the study with 148,300 jobs directly or indirectly attributable to the general aviation industry, followed by Florida, Texas, Georgia, Ohio, New York, Illinois, Arizona, Kansas, and Pennsylvania. Combined, those 10 states accounted for more than half of the total jobs attributed to GA in the U.S. in 2018.

In terms of the industry’s impact on gross domestic product (GDP) per state, California led again with \$18.5 billion, followed by Florida (\$10.8 billion), Texas (\$9 billion), Georgia (\$6.1 billion), New York (\$5.4 billion), Ohio (\$5 billion), North Carolina (\$4.7 billion), Illinois (\$4.3 billion), Pennsylvania (\$3.8 billion), and Kansas (\$3.7 billion). Those states had 56 percent of the total GDP attributable to GA in the country in 2018.

“U.S. economic growth and opportunity coming from the general aviation industry is increasing, and this trend will only accelerate as supersonic and electrically propelled business aircraft drive deeper

into their development phases,” said GAMA president and CEO Pete Bunce. “This study confirms that general aviation continues to have a very significant impact on the U.S. economy. As an industry, we must continue to keep pace with innovation to improve safety and focus intently on workforce development by promoting the amazing career potential available to young people through general aviation.”

The FAA estimated that in 2018 there were 211,743 active aircraft in the U.S. general aviation fleet, including on-demand FAR Part 135 aircraft. Single-engine piston airplanes made up the majority of the fleet, accounting for 61 percent of active GA aircraft while twin-engine piston airplanes added another 6 percent to that total. For the year, the entire GA fleet logged 25.5 million flight hours, with single-engine piston airplanes accounting for 47 percent of that total.

Total sales of new, U.S.-manufactured general aviation aircraft amounted to \$12.2 billion in 2018, with jets representing nearly 80 percent of that value, while equaling 16 percent of the shipments by count. Turbo props had the second-highest share of sales dollars in 2018 at 9.4 percent, followed by piston-powered airplanes (5.8 percent).

“As this important study reminds us, general aviation remains an essential and powerful contributor to our nation’s economy, providing critical services to citizens, companies, and communities across the country,” said NBAA president Bolen. “Hundreds of lawmakers at the federal, state and local level have recognized the industry’s vital role in America’s economy and transportation system, a role that will only grow more important as the industry continues to innovate and evolve in the years to come.”

C.E.

General Aviation’s direct contribution to the U.S. economy, 2018

(Dollar amounts in billions)

Item	Aircraft and Component Manufacturing	Operations and Maintenance	Total	Percent of US Economy
Employment (Jobs) ⁽¹⁾	105,500	168,000	273,500	0.14%
Labor Income ⁽²⁾	\$11.0	\$14.5	\$25.5	0.20%
Output	\$46.4	\$43.7	\$90.1	0.26%
Contribution to GDP	\$18.4	\$23.2	\$41.6	0.20%

Source: PwC estimates based on data from GAMA, the FAA, and Conklin & de Decker.

Details may not sum to totals due to rounding.

(1) Employment is defined as the number of payroll and self-employed jobs, including part-time jobs.

(2) Labor income is defined as annual wages and salaries and benefits as well as proprietors’ income.



comlux



A BUSINESS JET HERITAGE

Comlux Aviation is innovative and responsive—and its capabilities are likely more wide-ranging than you realize.

Comlux Aviation is known as the world's largest operator of airliner-derived VIP business jets, but its fleet is much more diverse than its reputation might suggest. It includes everything from a Pilatus PC-24 light jet, the latest addition to the company's managed aircraft roster, to a Bombardier Challenger 604, the first airplane Comlux managed at its 2003 founding.

Since then, the company has logged more than 100,000 accident-free operations with about 60 aircraft, including more than two dozen models from Airbus, Beechcraft, Boeing, Bombardier, Dassault, Embraer, Gulfstream, Pilatus, and Sukhoi.





"Business Aviation is our heritage," noted Andrea Zanetto, CEO of the Malta-based firm, which is the operational arm of Switzerland's Comlux Group.

Today, the fleet is split about evenly between VIP-configured airliners and light to heavy business jets. Late last year, Comlux Group cemented its position as the top customer of Airbus Corporate Jets with its 20th ACJ order. Now, with its bizliner charter/management business expanding, Comlux Aviation aims to grow the rest of its fleet in tandem.

"We want the community to know we are open for business," said Zanetto. "We'd like to consider taking new aircraft under management—including business jets of all sizes."

Whatever the size of a client's aircraft, Comlux takes the same approach: "We listen," said Zanetto. "I wish to understand every client we serve—their [operational] goal; the offsetting charter revenue they want to achieve; the type of crew they want; and the asset- management timeline plan for the aircraft."

"This cannot be left to the customer-support team only," he added. "I want to be there when the client explains that."

The firm will likely have the expertise and resources to craft an effective solution, whatever the objective and requirements.

"We designed the Comlux Group to serve all the typical needs of a VIP client over time," services extending beyond aircraft

management, Zanetto explained. He cited its transaction division, which assists clients in buying and selling aircraft; its U.S.-based completion and refurbishment center; its global bespoke charter services; its engineering and design departments; its safety and security teams; and its maintenance capabilities.

"Depending on clients' needs or wants, they can enter Comlux through different doors," he said. "We try to give them the best experience possible, and they often come back with a new need."

Attesting to that fact, Zanetto said, several clients with a first or second aircraft under management initially came to Comlux as charter customers and moved into ownership as their requirements evolved.

Leveraging its wide breadth of offerings, the Group recently launched Comlux Tech, a program harnessing synergies across all operating divisions, to serve clients of any unit, as needed. For example, Comlux Aviation clients considering an interior upgrade can access Comlux Completion's interior design and engineering expertise.

"We can really make a difference here," said Zanetto. "Our experts can provide consultation to our clients and create solutions without even going to contract."

Similarly, the transaction division can provide input on market conditions and valuations for owners considering a change in aircraft and can provide technical assistance with operational cost analysis and inspection services.



A FOUNDATION OF INNOVATION

The Group's vertical integration reflects an innovative spirit that suffuses its range of operations and services.

"Innovation is simply about listening to the client—we innovate to meet their needs, not simply to be different," said Zanetto.

These innovations can be seen as expressions of the Comlux "Customer at Heart" philosophy, a concept that includes continually raising the bar in all service areas as customers come to accept yesterday's innovations as the new standard.

Here again, the VIP-configured airliners—particularly their luxurious Comlux Completion interiors, which have introduced numerous cabin-system firsts—often grab much of the attention for innovation.

But Comlux Aviation can also claim its share of operational milestones. By listening to clients and crafting solutions, in 2008 Comlux Aviation became the first international group to establish an AOC under Maltese registry (9H), now a staple of international business aviation operations; and in 2011 Comlux established the first in Aruba (P4). While both mandate safety and regulatory compliances equal to the most stringent international standards, registry in Malta can provide greater operational flexibility for European owners that EASA-registered aircraft enjoy. Meanwhile, Aruba's registry has provisions specifically covering operation of airliner-sized business jets, and it is the standard registry for Comlux's VIP transports.



ANDREA ZANETTO

CEO, COMLUX AVIATION



I wish to understand every client we serve—their [operational] goal; the offsetting charter revenue they want to achieve; the type of crew they want; and the asset-management timeline plan for the aircraft. ”

Here again Comlux Aviation has blazed a trail, as the largest private operator of wide-body executive airliners under any flag, with a fleet today including the Crystal Skye BBJ777-200LR, operated for Crystal Air Cruises; an ACJ330, for which Comlux handled the entry into service, including route proofing; and the company's own BBJ767-200ER; in addition to narrow-body ACJs and BBJs.

The company also has a Kazakhstan UP AOC, ideal for aircraft in Central Asia, and has operated aircraft under Cayman Islands, Bermuda, and Isle of Man registries, among others.

Adept at technological innovation as well, Comlux Aviation was among the first operators approved for paperless cockpit operations, far ahead of most peers on this critical digital transition. "We had a change in our thinking 10 years ago," Zanetto said. "Pilots needed safe, reliable support, and paper did not work."

Today, Comlux Aviation's digital innovations continue, with the introduction of a web-based client-services platform supporting immediate and paperless access to all operational and management data.

"The information we provide to the owners or representatives is now online in real time," Zanetto said.



A complementary owner's app, similar to online banking apps consumers have come to expect, brings the most critical and time-sensitive information to personal devices. The app also simplifies contact with customer-service staff, providing direct lines to needed support, 24/7. Concurrently, the technology reduces administrative requirements, freeing staff "to have more time to dedicate to client needs."

A PASSION FOR PERFORMANCE

The Group's "engineering luxury" ethos is likewise often associated with the VIP interiors but applies equally to operations.

"Most of us are either pilots or engineers," Zanetto, himself a former aeronautical engineer, said of the close-knit Comlux leadership team. "We like to design solutions. The solutions look luxurious, but these are engineering operations. Even in catering: the meal may look attractive on the table, but behind that is a process that needs to be reliably repeatable." He added, apropos of the attentiveness, "Our Swiss heritage makes the difference."



Comlux Aviation has also been among the vanguard in operating new executive airliner and business jet platforms. It was the launch customer for the Airbus ACJ318, for example, and was the first head-of-state ACJ319 operator, first Falcon 900LX charter, and first Sukhoi SBJ charter operator. The tradition continues as the company was among the first Gulfstream G650ER operators and one of Bombardier's Global 7500 launch customers. Now, in concert with growth plans for its business jet fleet, the company anticipates more launch milestones.

"We're going to receive new [aircraft] types, and we'll be disclosing those at the appropriate time," Zanetto said.

Zanetto foresees "more need for business aviation" over the next decade as well as increasing customer demand for upgrades to airframes, powerplants, and onboard systems. In the interim, Comlux is eager to hear from compatible owners who want to take full advantage of all the benefits business aviation and its management approach can provide.

"We are down-to-earth, family-oriented people, and we do like our customers," Zanetto said of the Comlux team. "We are happy to hear from potential clients. We'll start listening and develop a proposal."



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FAA AC outlines limits on web-based flight-sharing

by Kerry Lynch

The FAA released much-anticipated guidance early last month outlining when flight-sharing is permissible, but reinforcing policy that holding out to the general public through a website or app without an operator's certificate is prohibited. That guidance comes at the behest of Congress, which had asked the FAA to clarify regulations governing expense-sharing flights.

That measure, included in the 2018 FAA reauthorization act, was a compromise as certain organizations, including Flyte-Now, were making a strong push on Capitol Hill for legislation to open the door to online flight-sharing. Legislation was offered to alter the definitions of pilots,

compensation, and common carriage to facilitate such operations. But other organizations, including the National Air Transportation Association, expressed strong opposition, warning that such a measure would lead to illegal charter activity.

AC 61-142 states that "pilots may share operating expenses with passengers on a pro-rata basis when those expenses involve only fuel, oil, airport expenditures, or rental fees." But it specifies that private pilots who wish to share expenses may not "hold out" to the public as willing to offer transportation services.

"Holding out is accomplished by any means that communicates to the public that a transportation service is

indiscriminately available to the members of that segment of the public that it is designed to attract," the AC states.

While acknowledging that no specific rule provides criteria on how holding out is achieved, the FAA said that determination is assessed by available facts and that advertising in any form raises the question of holding out.

Key to this interpretation is whether the holding out is to a broad public sector or a limited group. "A pilot may invite passengers for expense-sharing flights; however, a pilot should be guided by whether he or she is reaching out to a defined and limited group comprised of people with whom he or she has an ongoing, pre-existing relationship," the agency said.

The FAA provided a number of examples of when it would and would not be acceptable. Posting a specific flight on a bulletin board may be acceptable as long as done to a defined and limited audience.

However, posting on the internet is a different story, the agency indicated. "The

internet has a virtually unlimited audience. Therefore, when advertising on the internet, one typically would expect to reach, at a minimum, a broad segment of the general public searching for the type of information posted," the FAA said. "Therefore, generally, an advertisement published on the internet would not meet the criteria of a limited and defined group."

Further, citing the expansive reach of the internet, the FAA said a posting of a flight on a website accessible to the general public, or a segment of the general public, would not be considered acceptable. "Pilots advertising flights on the website would be deemed to be holding out," the agency said.

The same holds true for apps, even in cases involving "memberships" that are publicly available, the agency said: "The app is designed to attract a broad segment of the public interested in transportation by air. Any prospective passenger searching for flights could access the app, sign up, search for flights, and readily arrange for travel. Therefore, the FAA would consider pilots advertising flights on the app to be holding out."

The National Air Transportation Association praised the AC, saying it reaffirms longstanding precedent and policy. "NATA hopes this enables pilots to make better decisions in this area to avoid enforcement actions that would jeopardize their future ability to fly," said NATA president and CEO Timothy Obitts. "This is another great example of the FAA working in concert with the industry to educate owners and pilots, and help put an end to uncertified charter operations." ■



Collins Aerospace's latest facility near Fort Worth, Texas, will enable the supplier/MRO provider to increase its operations in the area by 30 percent, producing landing gear for military aircraft and increasing its MRO capabilities for airliners.

Collins Aerospace expanding across landing systems

Collins Aerospace Systems held a ribbon-cutting ceremony in February for a 110,000-sq-ft landing systems facility outside Haltom City, Texas, near Fort Worth. The facility, which will generate 40 new jobs, will manufacture landing gear for military aircraft, as well as provide wheel and brake maintenance for airliners.

The facility is part of a \$255 million investment that Collins Aerospace is pouring into expansion at several of its Landing Systems facilities. This also includes its carbon brake manufacturing sites in Spokane, Washington, and Pueblo, Colorado. Collectively, they produce brake or landing gear components across the gamut of military, business, and commercial operations.

In Fort Worth, Collins Aerospace has provided military landing gear MRO for the past eight years. The latest facility, however, will enable the company to increase its operations by 30 percent. The site will become a

military landing gear center of excellence. In addition, it provides another location for Collins Aerospace airline customer MRO support. Previously, that work was primarily handled by its facilities in Louisville, Kentucky, and in Los Angeles.

Collins Aerospace, which is leasing the site, started initial operations there, after beginning to move equipment in late last year. The company expects to be fully operational in the next few months and was expected to shutter the existing Fort Worth facility in late March.

"Our multimillion-dollar investment in this new site will allow us to better serve our military landing gear and commercial wheel and brake customers in North Texas," said Ajay Mahajan, v-p of Landing Systems for Collins Aerospace. "We are committed to providing our customers with innovative, industry-leading solutions coupled with superior service, and this new facility will

help us further both of those objectives."

Near Lockheed Martin's F-35 production line, the expansion comes as Collins Aerospace increases its capacity to support its growing military business, as well as on the commercial aviation side. Fort Worth also positions the supplier/MRO provider to better serve customers such as American, Southwest, United, and Envoy, it said.

In Spokane, the company is planning a \$145 million expansion to increase its carbon brake manufacturing facility by 50 percent. That will encompass an additional 75,000 sq ft across three new buildings. Work is set to begin in 2021 and spur the addition of 50 new jobs.

Collins Aerospace also has been in the midst of a multi-year \$80 million expansion in Pueblo, Colorado, that is slated for completion in 2021. Some 40,000 sq ft has been added to that carbon brake manufacturing site. **K.L.**

NEWS note

The European Union Aviation Safety Agency (EASA) has published a safety information bulletin (SIB) addressing certain brand ELTs to ensure that the presence of fire (in case of a lithium ELT battery failure) cannot propagate from the battery compartment to surrounding material. The specific batteries in question are approved on various ELT models from H.R. Smith and Techtest.

According to the SIB, the affected ELT and battery packs, in case of a thermal runaway, may release gases on fire. As this fire eventually self-extinguishes, the design remains compliant with the criteria of technical standard orders. However, the presence of fire may affect the performance of surrounding equipment if an approved ELT has not been installed under a TC or STC.

Therefore, EASA recommends "operators of aircraft that have any affected ELT or battery pack(s) carried on board which are not part of the approved aircraft type design, or design change, as applicable, to ensure that the presence of fire (in case of an ELT battery failure) cannot propagate to the surrounding material." ■



Full-throttle opinion from
former NTSB member John Goglia

Too big to revoke?

Many of us will always remember the “too big to fail” argument that was used to protect some major financial institutions from going under during the financial crisis of 2008. Basically, the argument is that the government can’t allow certain major institutions to go under because they are so interwoven into the American economy that their failure will cause devastating ripple effects throughout the economy. The “too big to fail” policy is one that many believe allowed those most responsible for the financial crisis to escape accountability.

Reading the latest DOT Office of Inspector General’s report on the FAA’s oversight of Southwest Airlines made my blood boil. The report highlights an issue that has been percolating in aviation circles for as long as I can remember: are similar regulatory violations at the major carriers enforced differently by the FAA than they are against smaller airlines, especially Part 135 operators? And most especially when it comes to emergency revocation of Part 135 air carrier certificates? Is there such a thing as “too big to revoke” in the aviation industry?

Report Claims

The OIG’s report addresses the FAA’s oversight shortcomings but takes the opportunity to highlight Southwest’s alleged regulatory violations that demonstrate just how big those shortcomings are. The two biggest conclusions of the report are: “First, Southwest Airlines continues to fly aircraft with unresolved safety concerns” and second, “The FAA cannot provide assurance that the carrier operates at the highest degree of safety in the public’s interest, as required by law.”

As far as unresolved safety issues, this is what the report states:

For example, the FAA learned in 2018 that the carrier regularly and frequently communicated incorrect aircraft weight and balance data to its pilots—a violation of FAA regulations and an important safety issue. Southwest Airlines also operates aircraft in an unknown airworthiness state, including more than 150,000 flights on previously-owned aircraft that did not meet U.S. aviation standards—putting 17.2 million passengers at risk. In both cases, the carrier continues operating aircraft without ensuring compliance with regulations because the FAA accepted the air carrier’s justification that the issues identified were low safety risks.

Southwest has publicly disputed characterizations in the report about its safety culture and commitment to safety. The allegations related to incorrect weight

and balance data are now the subject of a recently announced proposed \$3.9 million FAA civil penalty.

In what universe would the FAA allow a small Part 121 or any Part 135 operation to fly with known violations of the federal aviation regulations? A look at recent revocations of Part 135 operators indicates the disparity in sanctions.

This past January, the FAA issued a press release announcing that it proposed to revoke a small carrier (I won’t name the carrier because I don’t know the status of the case, and I don’t want to give it more bad publicity if the case has been withdrawn or settled) for allegedly operating numerous Part 135 flights using aircraft not listed on its operations specifications, using aircraft that had not undergone safety inspections and with unqualified pilots. These violations are not that different from the ones alleged against Southwest.

Another recent FAA enforcement action involves the proposed revocation of a Part 135 operator’s certificate for allegedly operating numerous flights in a Learjet that was not on the company OpsSpecs and continuing to operate the aircraft even when the FAA notified them of discrepancies that didn’t allow the aircraft to be placed on the company’s OpsSpecs. These are significant safety violations that are not different from what the OIG has alleged against Southwest.

There are more similar cases against small carriers, many of whose certificates were revoked by emergency order. In other words, the FAA grounded them first and then they were given an opportunity to appeal, while not making any money.

I have no idea whether the allegations made by the DOT OIG against Southwest are true. And I don’t know whether they are too big to revoke. But at a minimum, the FAA should review whether individual aircraft that don’t meet the requirements of the regulations should be grounded. The FAA can do this in several ways, but ultimately by pulling the airworthiness certificate of the aircraft. At least then it would be protecting the safety of the traveling public and giving the appearance of treating small and big carriers the same when it comes to violations of the regulations. ■

The opinions expressed in this column are those of the author and not necessarily endorsed by AIN.

John Goglia is a safety consultant.

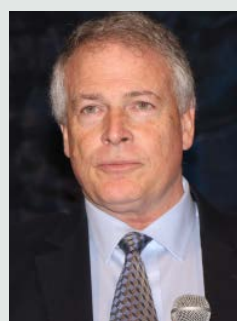
He welcomes your emails at:

✉ gogliaj@yahoo.com

As delegation authority receives scrutiny, perceptions remain a key industry concern

Business aviation leaders remain concerned about rhetoric and perceptions surrounding the use of delegation authority in product certifications and are stressing the need to impress upon Congress that sweeping changes would hamper, rather than improve safety.

At the annual General Aviation Manufacturers Association (GAMA) State of the Industry gathering on February 19, GAMA president and CEO Pete Bunce highlighted the many new traditional and non-traditional aircraft in the pipeline. “We have all of these companies working on new types of vehicles; it is literally going to change our world and it’s going to happen faster than people realize,” Bunce said. “When you look at the money that’s coming into the industry right now...this is not what we’ve seen in our industry in the last couple of decades.”



GAMA president and CEO Pete Bunce

But this is what makes the certification process so important, he added. In the aftermath of the Boeing Max crashes, certification has become a focus on Capitol Hill and in the general public. Bunce is concerned about misreporting or misunderstanding of the process.

“When people start talking about self-certification, they have no idea about how intricately and integrally involved the FAA is in each step of the process,” he stressed, highlighting a chart that GAMA created to help explain that process when industry executives meet with lawmakers. “You cannot take a complex system like certification and make it into an elevator speech—in an hour you are just scratching the surface.” The chart is one of the ways GAMA is hoping to ward off any attempts at wholesale changes, he said, stressing the need to get the message out about the importance of the delegation process.

“If we don’t delegate to experts that are out there in the industry and are overseen by the FAA, we are not able to refresh our products and make them safer,” Bunce said. “If we draw this process out longer and have longer cycles between new products in the system, it is not as safe.”

Textron Aviation president and CEO Ron Draper, who spoke on a panel at the GAMA event, was even more pointed,



Textron Aviation president and CEO Ron Draper

saying, “Without that level of cooperation and back and forth [through delegation], product development would grind to a halt in the industry. It simply would not happen—there’s not enough manpower.”

FAA-controlled Process

Draper also hoped to dispel the myth that the use of organization designation authorization (ODA) represents an abdication of the FAA’s responsibilities or the relaxation of oversight. He cited Textron Aviation’s recent experience with the certification of the Citation Longitude, saying, “The certification process with the FAA on this jet was the most rigorous certification process on any airplane that we’ve done in our history, and we’ve done quite a few airplanes.”

The word “delegation” is a misnomer, Draper suggested. “Those that are outside the industry and point to this as a problem don’t understand the whole certification process. It’s not really a delegation,” he said. “The entire process is managed and controlled by the FAA.”

The FAA provides approval for everything beginning from the certification plan at the start of the process up through meeting standards for every individual system, Draper said. “Sometimes on a system, they retain all approval in a traditional certification process; Sometimes they say, ‘This is the fourth time you’ve done this hydraulic system and it’s not changed from the last one—you still have to do all of the testing and show us the reports, but we let you do that work.’ So, the FAA orchestrates this like a conductor.”

Calling the system “very, very rigorous,” Draper said the data bears out the safety of the system. “It just gets safer and safer.” He agreed that there’s always room for improvement. “A productive dialog and debate on improving this absolutely should be had,” he said, but any movement to throw out the process and start over “would be a mistake.”

While the FAA has stressed the need for the system—and talk of eliminating it altogether seems to be quieter; for now—key lawmakers remain vocal about the need for changes.

K.L.

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WAI begins new chapter with 31st Annual Conference

by Kerry Lynch

Amid a clampdown on travel related to Covid-19 precautions, the 31st Annual International Women in Aviation Conference remained a strong draw with 4,500 professionals and students from 31 countries attending the three-day event held from March 5 to 7 in Orlando, Florida.

This year marked a new chapter for the organization and its hallmark event. Allison McKay cut the ribbon to open the conference for the first time as WAI CEO. McKay, the former v-p of the Helicopter Association International Foundation, became only the second CEO in the organization's more than 25 years after its founder Peggy Chabrian retired recently. "This was a very emotional day, because of the welcoming response of the members," McKay told *AIN* after the opening.

More than 180 companies and organizations were on-site in a sold-out exhibit hall that had very few cancellations. Exhibitors ranged from numerous airlines, many of which held recruiting sessions, to private aviation operations, such as Walmart, that

showed up to not only support Women in Aviation but also to educate attendees about business aviation. Uber returned for a second time with a larger presence to share its vision for urban air mobility. Meanwhile, the National Oceanic and Atmospheric Administration Commissioned Officer Corps was on hand to recruit individuals for its varied missions.

As important as the event is for hiring, Michelle Bauman, chief human resources officer for XOJet Aviation, said it also has served as an important venue for mentoring to help guide and foster the next generation. But XOJet Aviation also was looking for potential hires for roles across the company.

True to past form, WAI remained a key venue for scholarships. This year, WAI announced 151 awards valued at a total of \$831,365.

"Workforce development is the cornerstone to the future of WAI," McKay said. "The scholarship program that we currently have is probably one of the greatest assets



CHRIS MILLER/WAI

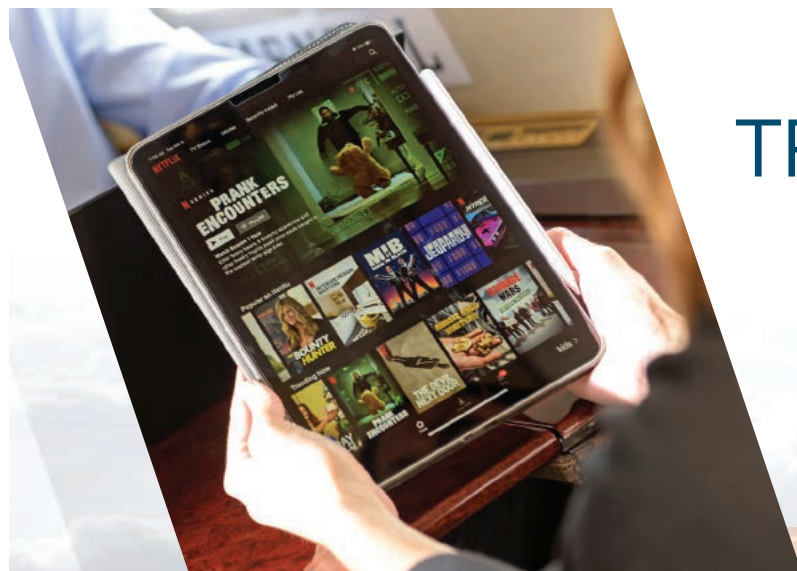
Attendees left the WAI event inspired and ready to meet the challenges of tomorrow.

to the industry...I only see it growing from here. The sky's the limit."

Meanwhile, the annual conference highlighted leading women in aviation and aerospace with JetSuite president Stephanie Chung, the first African American woman to lead a private aviation company, challenging attendees to "change the narrative," while Eileen Collins, the first female space shuttle pilot, provided insight into flight in space. Other key speakers, all of whom brought inspirational and motivational messages, included Boeing Global Services v-p and chief engineer

Joan Robinson-Berry, Maj. Gen. Jeannine Leavitt, U.S. Air Force Secretary Barbara Barrett, and combat helicopter pilot Amber Smith.

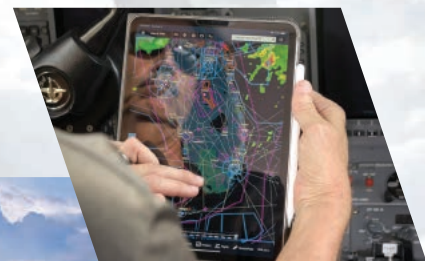
WAI hosted a membership meeting, naming Cape Air president Linda Markham WAI board chair. WAI also inducted the next slate into its International Pioneer Hall of Fame, including Leavitt, who was the first female U.S. Air Force fighter pilot and currently commander of the U.S. Air Force Recruiting Service; airshow legend Patty Wagner; and members of the U.S. Army's First Women Rotary Wing Aviators. ■



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WWII anniversary event postponed

by Kerry Lynch

The Arsenal of Democracy commemoration surrounding the 75th anniversary of the end of World War II joined the litany of events that have been delayed or canceled in recent weeks in response to the Covid-19 pandemic.

In the works over the past few years with the backing of the Bob Hope Legacy and Bob and Elizabeth Dole, along with aviation groups such as the General Aviation Manufacturers Association and the Commemorative Air Force, the celebration has been pushed back to the week of September 20.

Initially, an Arsenal of Democracy Flyover was to be held May 8 in remembrance of the end of the war in Europe (Victory in Europe or VE day), with events on September 2 in Washington, D.C., and Oahu, Hawaii, in remembrance of the end of the war in the Pacific. The flyover is scheduled to comprise more than 100 vintage warbirds of various types flying over the National Mall in 24 separate, historically sequenced formations.

The aerial tribute will now take place on September 25, and the week's activities will include a Victory Gala on September 24, culminating with the annual National Aviation Hall of Fame Enshrinement to be held on September 26 in Dayton, Ohio.

The decision to consolidate and move the activities came among a multitude of cancellations and postponements across aviation in recent weeks. Among them are all NBAA activities through the first part of the year, including its joint EBACE convention and exhibition; Aero Friedrichshafen; the Aircraft Electronics Association annual convention; Flight Safety Foundation's Business Aviation Safety Seminar; JetNet's iQ Summit; and AOPA's Fly-In in Texas, among many others. Some have been postponed with new dates, including Sun 'n' Fun

Aerospace Expo—which for now is pushed back by one month—and the Regional Air Cargo Carriers Association, now set to be held October 20-22.



JEFF BERLIN

The P-51C "Red Tail" of the Commemorative Air Force, a flying tribute to the Tuskegee Airmen, is one of the warbirds now slated to fly over Washington D.C., September 25.



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NEWS note

Despite the effects of the rapidly growing Covid-19 pandemic on business aviation, **International Aircraft Dealers Association** accredited-dealers assisted in the purchase or sale of **54** business aircraft and have another **120** under contract in a **19-day** period last month, the organization announced. ■

WAI hosts Girls in Aviation Day in Orlando

by Kerry Lynch

Women in Aviation International drew some 250 girls ages 8 to 17, along with another 100 chaperones, to Girls in Aviation Day Orlando last month. Held on the final day of the 31st annual Women

In Aviation International Conference at Disney's Coronado Springs Resort in Lake Buena Vista, Florida, the Girls in Aviation Day was designed to attract interest in a variety of aviation, aerospace, and STEM

careers in general while providing an overall view of WAI.

Participants roamed among 20 stations that provided hands-on activities ranging from designing an airport and learning the



MIKE ULLERY/WAI

Women from all sectors of aviation discussed the industry at the event.

aviation alphabet to flight simulator opportunities, as well as virtual reality stations providing insight in everything from experiencing an air traffic control center to what it is like to take a dunk into NASA's neutral buoyancy pool. The day also featured a career panel discussing some 10 different aviation careers, and a dozen aviation colleges were on hand to meet with prospective students.

Collaborative Effort

Volunteers from industry, government agencies, and armed forces worked the stations, interacting with attendees. Also, at least half of the 100 volunteers (who were in addition to the chaperones) signed up as they registered.

The day included busloads of students brought in, along with daughters of women already in the industry. One such participant, Shelton Speakes, marked her sixth appearance at a WAI conference alongside mom Julie Speakes, who represented Liberty University. But Julie Speakes noted that this was Shelton's first time as an official attendee at Girls in Aviation Day. Shelton Speakes said she was having fun and hoped to come back. But her interest is in a STEM career, rather than aviation. She hoped to become a doctor, complementing her sister, who is a nurse. She is no stranger to hospitals, spending time with children with a rare form of brain cancer at St. Jude Children's Research Hospital. Other participants expressed interest in everything from flying to engineering careers. Each participant received t-shirts, a drawstring bag, and a WAI Aviation Girl fun patch.

WAI will hold its international Girls in Aviation Day, which will feature similar events at venues worldwide on September 26, 2020. The 2019 version attracted nearly 20,000 attendees. ■



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DAVID MCINTOSH

Asia-Pacific addresses a post-Covid landscape

by James Wynbrandt

By mid-March, while much of the rest of the world was locking down to combat Covid-19, the Asia-Pacific (APAC) region was “beginning to see the light at the end of the tunnel,” said Asian Business Aviation Association (AsBAA) chairman and CEO Wu Zhendong. This despite restricted flight operations and unknown industry effects going forward. Yet any region anchored by a 4,000-year-old civilization takes a long-term view, and with the epidemic receding—having claimed this year’s ABACE trade show in Shanghai among its victims—its business aviation community is looking ahead.

Jason Liao, chairman and CEO of consultancy China Business Aviation Group in Beijing, expects the crisis to have “very negative” effects on the industry now, “but the long-term prospect is very positive: general aviation is playing a very active role in the war against coronavirus by providing transportation of critical supplies and key personnel—the first time in Chinese history it has played such a critical role,” he said. “The government, the public,

the media, and potential customers have realized the benefits of business aircraft.”

TAG Aviation Asia CEO Jolie Howard agreed. “The number of humanitarian flights showed we can help in many ways beyond just transporting VIPs.” She also noted that many Chinese students studying abroad, stranded by airline groundings, were repatriated by charter flights. “It has added good, positive visibility for our industry,” said Howard.

The 2002-03 SARS epidemic gave many regional providers experience that helped them operate during this current outbreak.

“I would say it caused this part of the world to react more quickly,” said Louis Smyth, a senior manager at Universal Weather and Aviation in Hong Kong. “We have a stock of masks and hand sanitizers, and we were able to quickly activate our emergency response and business continuity plans for each office.”

“We were actually doing very well in 2019—it was a record year for traffic,” Smyth added. “Obviously with Covid, the future is a guessing game.”

Regional Review

Southeast Asia is now the region’s presumptive growth driver, according to Asian Sky Group (ASG). Japan, Singapore, Thailand, and Vietnam all saw increased activity last year, with more than half (51 percent) of respondents in Southeast and North-east Asia reporting increased flying in last year’s final quarter. Mainland China, meanwhile, registered an “unquestionably quite gloomy” 2019, said Jeffrey Lowe, managing director of Hong Kong-based consultancy ASG. Business aviation operations fell 18 percent year-over-year in Greater China, the region’s largest decline, and the People’s Republic’s GDP growth in Q3 was the weakest in more than a quarter century.

AsBAA’s Zhendong sees some positives in China’s slowdown. “Five or six years ago, the government was encouraging people to get into general aviation, but people found out it’s not that easy to make money. Now, the industry has come down to reality,” he said. “It’s more professional, and that’s a healthy thing.”

Meanwhile, the Philippines, Indonesia,

and other “smaller regions,” report increased activity, he said.

AsBAA’s current policy issues include ongoing advocacy for greater availability of landing and parking slots for business aircraft at congested airports, and more immediately, against the reduced operating hours at Seletar Airport, Singapore’s general aviation [GA] facility. In tandem, AsBAA is focused on increasing membership to give the industry a louder voice, by opening membership to helicopter and light aircraft manufacturers and the other 80 percent of the GA industry that “is not in business jets,” Zhendong said, which includes more than 1,000 companies. Newly hired AsBAA COO Jeff Chiang heads this effort to grow the current membership of about 150.

In the absence this year of ABACE, its prime communication and meeting platform, AsBAA is teaming with ASG to host an online “Fleet Week” gathering on the web (April 21-23), anchored by the release of the consultancy’s annual Asia-Pacific Business Jet Fleet Report. Other AsBAA initiatives—its annual Safety Day programs staged in Hong Kong, Mainland China, Philippines, Singapore, and Malaysia; the in-school Discovery Program that educates students of all ages in the region about business aviation and career opportunities; and gender equality programs—remain on track.

The OEMs

Sales activity for new business aircraft in the region has ground to a halt, according to manufacturers, as their salespeople have ceased travel and prospects are reluctant to hold face-to-face meetings. Meanwhile, the cancellation of ABACE eliminates a platform where prospective customers could see aircraft side-by-side. OEMs are adjusting marketing plans and recalibrating sales projections while continuing to expand their less glamorous, but essential regional after-market support services.

Falcon Jet manufacturer Dassault Aviation was changing its regional marketing focus from the flagship Falcon 8X to the forthcoming Falcon 6X, slated to enter service in 2022 when Covid-19 emerged. Dassault displayed at the Singapore Air Show a cabin mockup of the 6X, touted as the widest and tallest cabin in a purpose-built business jet. “We got a lot of positive reaction,” said Jean-Michel Jacob, senior v-p, Falcon Sales for APAC. “People were amazed by the size.”

Australia, New Zealand, and other Southeast Asia markets are promising, but China sales already faced headwinds due to its economy and impact of the trade war with the U.S.

Dassault’s production is unaffected by Covid-19-related supply chain issues, said



Gulfstream's service center at Beijing Capital International Airport.

Carlos Brana, executive vice president of civil aircraft for Dassault Aviation. "We have constant communication with suppliers, and we're watching very carefully."

Meanwhile, Dassault has bolstered its already substantial regional aftermarket-services presence with the acquisition of ExecuJet's MRO business, which includes ExecuJet Malaysia at Subang Airport and four Australian locations and one New Zealand facility.

"It's absolutely clear that our customers appreciate our incredible investment [in regional support], and this will help us a lot in the future," Brana said.

Honda Aircraft Company has "rapidly expanded our footprint in Asia" over the past two years, said Michimasa Fujino, president and CEO of the HondaJet manufacturer. In this region, Honda is targeting "individuals who may have never considered the benefits of business aviation before," Fujino said, noting that 25 percent of its customers are first-time buyers.

Last year the light jet earned its type certification approvals from China and Japan, and deliveries have commenced. Five HondaJets went to Japan last year, with more than 10 more on order. Further deliveries to China await resolution of the Covid-19 crisis.

HondaJet China expects to receive China CCAR 135 certification for HondaJet charter operations for its FlightJoy aircraft charter and management venture, and approval for charter in Japan is also expected.

The upgraded HondaJet Elite, which entered service last August, made its regional debut at the Singapore Airshow in February, receiving "a very positive response," Fujino said, forecasting "significant growth in the China-APAC region going forward."

Bombardier sees "real growth opportunities in China and Asia-Pacific," with strong interest in both its new Global 7500 and recently introduced Global 5500/6500 aircraft in the region, the company said. With the sale of its rail transportation division, announced in February, the Canadian manufacturer of

Global, Challenger, and Learjet business jets will "focus all our capital, energy, and resources on accelerating growth and driving margin expansion in our market-leading \$7.0 billion business aircraft franchise," said Alain Bellemare, current president and CEO, soon to be replaced in that role by former business aviation division leader Eric Martel.

In late 2019, Bombardier delivered the first of four Global 6500s ordered by Hong Kong's HK Bellawings, which has also firmed up its order for four Global 7500s, with options for additional aircraft.

To support Globals, Challengers, and Learjets in the region, Bombardier is expanding its Singapore Service Centre at Seletar Airport and will more than quadruple the facility's footprint. The upgraded center will offer full interior finishing capabilities, enhanced maintenance and modification capabilities, a paint facility, parts depot, and flight- and ground-handling services.

Additionally, TAG Aviation's Hong Kong facility is now a Bombardier authorized service facility, offering line maintenance services for some Challenger and Global models, including the Global 7500.

At the light end of its fleet, the Canadian airframer sees "real potential growth for the Learjet 75 Liberty in China and Asia-Pacific." Launched last summer, the updated platform features a lower price (\$9.9 million) and a more comfortable cabin than its predecessor.

Gulfstream Aerospace planned to showcase at ABACE a scaled interactive cutaway model of its forthcoming flagship, the G700, unveiled at NBAA-ABACE in October. With the cancellation of ABACE, the U.S. airframer is highlighting its customer support network for the 345 Gulfstreams in the region's fleet, said a company spokeswoman.

The company-owned Gulfstream Beijing service center at Beijing Capital International Airport offers service for Gulfstreams registered in China, the U.S., Hong Kong, Macao, the Cayman Islands, Isle of Man, and Guernsey

and is complemented by Jet Aviation's Gulfstream-authorized maintenance facilities in Hong Kong and Singapore.

At Gulfstream's Asia Customer Support Contact Center near Hong Kong International Airport, the staff includes a computer maintenance program analyst, over-the-counter parts sales and warranty specialist, and a regional customer support manager. Beefing up its regional support, last year, Ernest Tai joined the Asia-Pacific team as managing director for customer support.

With sister company Jet Aviation's acquisition of Hawker Pacific, the latter's MRO station at Shanghai's Hongqiao International Airport is now a Gulfstream authorized warranty facility. The location, which hosts ABACE, last year received approvals from the CAAC and the Bailiwick of Guernsey to perform maintenance on the G650, said Louis Leong, v-p Asia and general manager for Gulfstream sister company Jet Aviation's Singapore location.

Textron Aviation, manufacturer of Cessna, Beechcraft, and (out-of-production) Hawker business aircraft, continues to see "strong customer interest" in the APAC region. Mike Shih, Textron v-p of strategy and business development for China, singled out the Cessna Grand Caravan EX single-engine turboprop and Beechcraft King Air 350i twin-turboprop as popular models, finding favor "in special-mission

the general aviation and business aviation markets, recently introduced a new version of its flagship M600 single-engine turboprop and two new "value-priced" piston trainers.

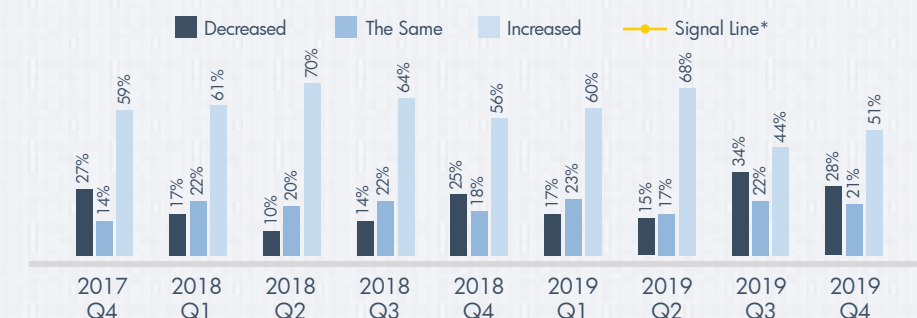
The M600/SLS (Safety, Luxury, and Support) includes its Piper's Halo system, featuring Garmin's Autoland as standard equipment. Autoland takes control of the aircraft in the event of pilot incapacitation, selects an appropriate airport, and then flies, lands, and stops the aircraft on the runway, all while autonomously communicating with air traffic control facilities and passengers.

Management and Charter

"To sum up, there's quite a bit of uncertainty," said Howard at TAG Aviation Asia, which has some 46 aircraft under management in locations including Mainland China, Hong Kong, Thailand, Malaysia, and Indonesia and offers charter, management, MRO, and transaction services. The virus came to wide attention in late January when many clients were on vacation for Chinese New Year.

"Quite a number of clients overseas decided to extend their stays, to see how things go," Howard said. Since then, flight restrictions have expanded in lockstep with the epidemic. "I don't think we're seeing the full impact yet," he added. "We've never seen these types of travel restrictions."

Southeast and Northeast Asia aircraft utilization



Source: Asian Sky Quarterly Q4 2020

operations, such as medical transport."

To support the fleet, Textron Aviation added three more company-owned service centers with the January acquisition of Australian MRO Premiair Aviation, which adds a trio of facilities on the island continent, where the airframer recently established a parts warehouse. Textron also recently opened a new service location in Manila in collaboration with PhilJets Aero Services and expanded its Singapore parts warehouse.

Meanwhile, whatever the current market in China, Textron Aviation and its sister company helicopter manufacturer Bell "continue to see firm support from the Chinese government in support of general aviation," said Shih.

U.S.-based and Brunei-owned Piper Aircraft, manufacturer of aircraft spanning

Among many unforeseen impacts: temporarily out-of-work airliners are taking up swaths of parking at prime airports, squeezing out business aircraft.

Meanwhile TAG continues a "transformation" that began three years ago, expanding from management-only to become a full-service provider, a change made possible by owners' willingness to make their aircraft available for charter.

"As the market matures, people realize the cost benefits" of generating charter revenues to offset operating expenses, said Howard.

Additionally, TAG's MRO services support its own fleet while also drawing other operators' customers for maintenance. And its on-airport operations—TAG opened a full-service FBO in Macao last

» continues on next page

year—serve as another customer portal.

Malaysia is among the region's burgeoning business aviation markets. Asia Jet Partners Malaysia (AJPM), the country's sole commercially registered private jet operator, is "growing our charter and managed fleet and bolstering our maintenance capability," said company CEO Stutijn van Till. AJPM is adding this spring a second Bombardier Global 5000 to its fleet, based at Subang Sultan Abdul Aziz Shah Airport in Kuala Lumpur, and plans to move into a new hangar facility as part of the airport's redevelopment masterplan.

Five-year-old AJPM has a 9M commercial air operator certificate from the Civil Aviation Authority of Malaysia and an air services permit from the Malaysian Aviation Commission.

"We are looking to establish a suite of business aviation services in Malaysia that will rival the excellent facilities at Seletar in Singapore," said van Till. "Mature Southeast Asia business hubs such as Hong Kong and Singapore are becoming congested and expensive. Our goal is to deliver a first-class experience for private jet companies coming into Subang, supported by modern facilities and excellent infrastructure."

Charter operator VistaJet is "cautiously optimistic" for 2020, "despite the unique challenges" Covid-19 presents, the company said. In March, the flagship service of parent company Dubai-based Vista Global Holding (VGH) reported a 16 percent increase in flights through the first 10 weeks of the year, a jump that "includes fliers looking for safer and cleaner alternatives to commercial flying," said VGH chairman and VistaJet founder Thomas Flohr.

This follows "a record" 2019, according to Vista. Globally, memberships rose 26 percent, flights increased 24 percent, and passenger count grew 35 percent. Memberships in Asia, which represent 11 percent of global demand, grew by 6 percent, with China, India, and Singapore leading the charge.

VistaJet operates only late-model, large-cabin Bombardiers, including the Global 7500, which joined the fleet this year.

Singapore-based charter broker Apertus Aviation specializes in smaller-cabin jets for charter flights within the APAC region and for Asian clients traveling within the U.S. and Europe.

Overcoming "cultural resistance to smaller planes is a constant battle," said managing director Ringo Fan. "But China is a fast learner; people adapt quickly. In business aviation as well, the next generation is realizing a large cabin isn't necessary with only two passengers."

The company has staff in Hong Kong, Beijing, and as of last year, London, in addition to its Singapore headquarters.



Dassault brought the mockup of the large-cabin 6X to the Singapore Airshow.

In addition to a network of vetted operators, Apertus is the exclusive charter agent for a G200 based in China, one of the smallest business jets available for charter in the People's Republic, according to Fan. Though demand in China "is dynamic, going up and down, one day to the next," he said, the 10-year-old brokerage has never felt the impact of austerity or anti-corruption campaigns.

"We've always focused on the less wealthy part—they're not multi-millionaires," said Fan of his customers. "That's a pocket of the population the government relies on to grow the economy steadily. These clients aren't flashing [expensive] watches around, they don't need the ramp presence of a G650."

Fan, whose parents are Chinese, was born and grew up in Australia and wants to fuse the best of those cultural differences in delivering the company's services. Its sister enterprise, 1903 Aviation (named for the year of the Wright Brothers' first powered-aircraft flight), is a membership program for international lift offered in collaboration with German operator Air Hamburg, providing customized block hour charter programs.

Flight Support Services

Coming out of 2019, flight handler Universal Weather and Aviation ranked Japan and Thailand as top blossoming regional markets, said Smyth. China dropped off the list last year, but Beijing, where Universal provides handling services for international flights (sans facilities) continues to register heavy traffic, said Cynthia Zhang, UA China Managing Director. Where it would usually handle about 30 flights in February, after the cancellations this year, it handled five.

Meanwhile, with more business aviation users employing flight-planning and filing software for their flight handling, Universal Weather and Aviation has been de-emphasizing its in-house handling and support services in favor of developing and providing

online tools and apps of its own, like its uvGO mobile flight-planning app. That shift was underscored by the recent sale of its UVair fuel subsidiary to World Fuel (now Universal's exclusive fuel provider).

"Fuel is a commodity, and margins are going to be lower and lower," said Smyth. "But traffic is increasing, so one of the best focus areas is technology. We want to hit the perfect full-service balance between high-touch and high-tech."

Jetex reported increased demand for charter and ground handling services in the APAC region, with charter flights up more than 20 percent in February, year-over-year, and expects the region's appetite for these services "will remain resilient." Bolstering that belief, Jetex points to recent research from the World Travel & Tourism Council. Examining previous economic calamities that impacted travel, the council reported that between 2001 and 2018, the post-crisis recovery time decreased from 26 months to 10 months, on average.

Preowned Market Effect

As with new aircraft, preowned sales in the region have come to a standstill, and the long-term impact of the crisis on inventory and pricing is unknown, but there are no signs of panic in the market. "We're not seeing a surge of aircraft for sale," said TAG's Howard, adding, "more uncertainty is going to play out."

David Dixon, president of aircraft transactions specialist Jetcraft Asia, believes this crisis will have more far-reaching effects on business as a whole than did SARS, due to the stronger connections between China and the rest of the world economy today. But it could have the opposite impact on preowned transactions. "If SARS is a pointer to the impact on business aircraft sales, there were, in my experience, some buyers who were unconvinced that they needed or wanted a private aircraft until the health threat changed everything," Dixon said. "I sold

a few arising from this problem. In that sense, it might not be all bad."

Going Forward

No doubt China remains the region's 800-pound sleeping gorilla at the moment, but no one sees the People's Republic as backing down on its private aviation bet.

"At the highest level in China there is still recognition and support and investment in general aviation," said Doug Carr, v-p of regulatory and international affairs for ABACE co-sponsor NBAA. "What that looks like on the front lines are more companies, more policies, and procedural changes" to encourage its growth.

The NBAA is already looking ahead to next year's Shanghai show, where it will "continue focusing on our core messages," those being increased access to airspace, technology innovation, safety training, and business aviation-friendly policies and procedures.

As for the cancellation of this year's event, "We always came at it with an eye toward the health, safety, and well-being of all show participants," said Carr. "We have a standard, and when we looked at the situation in late January and early February, we made the decision [to cancel] with transparency."

Among the good news for those who are or will be flying privately to China, operators are seeing "night-and-day improvements in business aviation operations," said Nat Iyengar, a Hong Kong-based captain for Jet Aviation. He cited improvements in ATC, handling and ground support services, and better access to airports and airspace.

"Operating is 100 times easier now than a decade ago, and I'd say almost 100 times easier than five years ago," Iyengar said. China's ATC is "reaching out to foreign ATC units—Eurocontrol, the FAA—and sending their people around the world, making the system more efficient."

One example: "For the first time in my life, we got cleared for a visual approach [in China]. That was not in the Chinese playbook."

Though the military controls China's airspace, pilots are now often receiving permission to remain at requested altitudes far longer before descents, and climbs to requested altitudes sooner after takeoffs, he said. Another change Iyengar observed: "You see a lot of business jets in China which are true company airplanes; you're not seeing the high-flying, ostentatious flamboyant spending. There's a very established wealthy, and middle class."

Summing up what could be advice for all of business aviation in China, Iyengar has one word of advice for passengers and crews: "Patience." Long delays on departure and for taxiing are common. ■

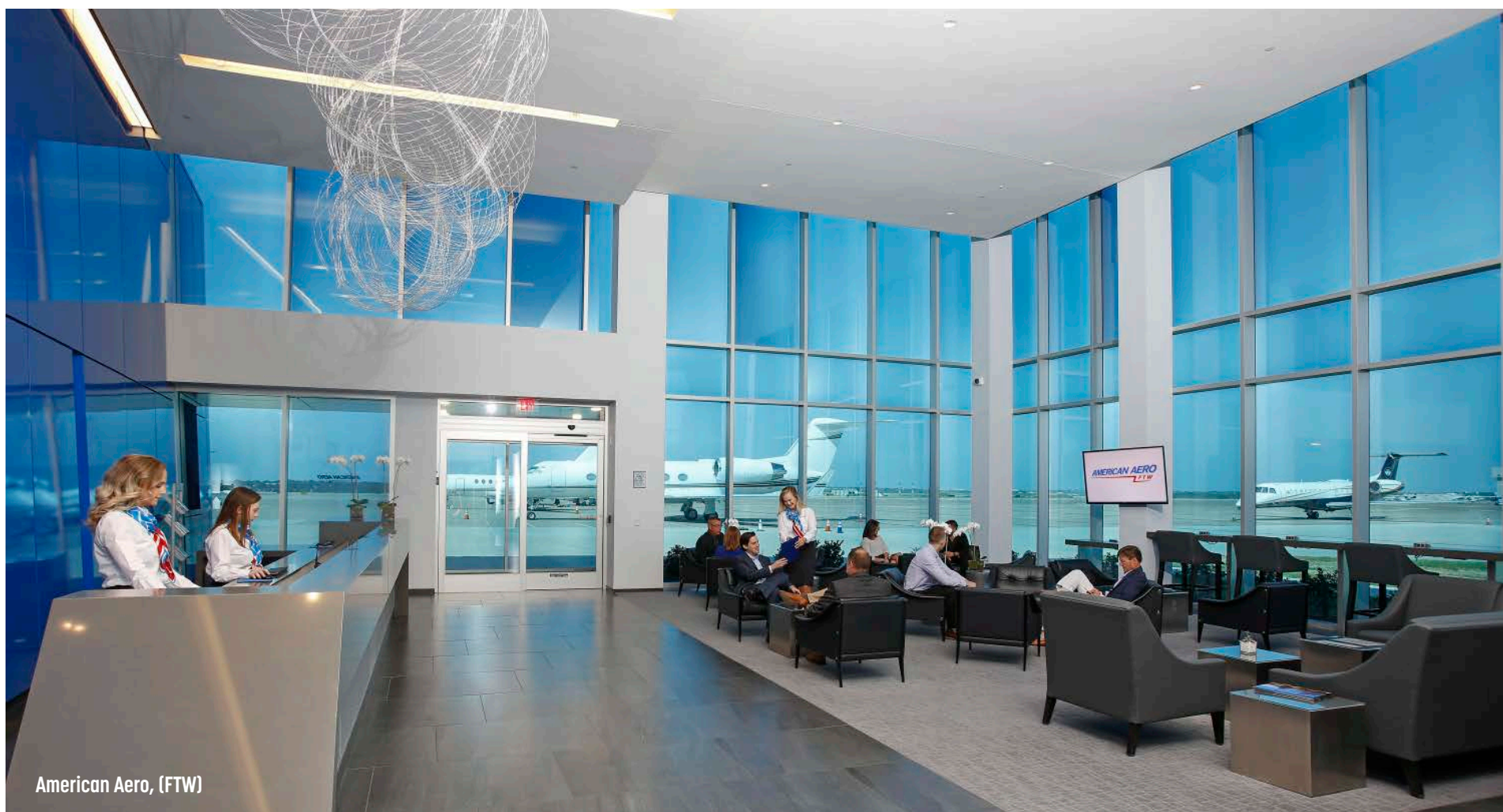
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FBO Survey 2020: Facilities serve growing market

Report by Curt Epstein, charts and data by Dave Leach

For the FBO industry, increased customer flying is the tide that lifts all boats, and for the third consecutive year business aviation in the U.S., Canada, and the Caribbean eclipsed three million flights, according to the Argus Traqpak 2019 annual business aviation review. Activity rose by nearly one percent year-over-year, matching the growth rate from 2018. While the company's analysts predict that 2020 will see continued positive growth, factors such as the increasing spread of the Covid-19 (Coronavirus) and its effects on global commerce and transport add a thick layer of uncertainty.

"Although we are holding in reserve our FBO industry forecast due to world health and economic landscape uncertainty, for the first six months of 2020 FBO operators should be prepared to weather turbulent times," said Ron Jackson, co-founder of Aviation Business Strategies Group (ABSG). "The good news is that travel by business aircraft is viewed to be a safer mode of transportation than the commercial airline carriers." He expects that to translate to an increase in charter flight activity, while Part 91 operators will continue to selectively use their aircraft to conduct important business and commerce.

In its annual FBO Fuel Sales Survey Results, released last month ahead of NBAA's Schedulers and Dispatchers

Conference, ABSG noted that more than half of the FBOs in the U.S. and Canada experienced an increase in fuel sales between 2018 and 2019, with 19 percent reporting more than 8 percent improvement.

This year's survey set a new record of economic confidence, with 73 percent of the respondents indicating they believe the economy is headed in the right direction, compared to 61 percent the year before. As a result, three-quarters of them said they anticipated increasing fuel sales in 2020, but that was before the Covid-19-related international travel disruptions.

Worldwide fuel volumes for business and executive aviation had been on a modest growth trend over the past year, according to industry consultant Stephen Dennis, CEO of Aviation Resource Group International. "I think we were continuing this trajectory as we began 2020; however, with the current Covid-19 threats, I believe we will see a significant reduction in transatlantic and trans-Asia activity as we go into Q2 and perhaps even Q3," he told *AIN*, adding that once the crisis subsides, he expects a return to that 2-to-3 percent growth rate the industry witnessed after recent events such as the dot-com meltdown at the turn of the century, and the 2008 global recession.

One of the trends reported by many of the FBO operators *AIN* spoke with

this year is that of their based customers upgrading to larger aircraft, pushing hangars to full capacity and beyond in some cases. "The new-generation aircraft entering the market are pushing the limits on hangar capacities currently available in terms of age and size," said Jet Aviation president David Paddock. "We first felt the need to invest in newer, larger hangars in the APAC region, where we tripled our hangar capacity in Singapore in 2014 and still opened a third new hangar in 2018."

While many locations are investing in new hangars to alleviate those overcapacity situations, others are cautiously waiting for the revision to NFPA 409, the code from the National Fire Protection Association related to aviation hangars, which is expected in 2021. Changes to the code could reduce or eliminate the demands for costly and potentially faulty foam fire-suppression units.

With industry awareness of environmental sustainability rapidly growing, FBOs will serve as the vanguard, as the availability of sustainable aviation fuel (SAF) slowly increases. After several demonstration events around the U.S. and in Europe, some FBOs have begun to offer the blended fuel. In its survey, ABSG asked FBOs if they would be offering SAF in 2020, and only 3 percent responded in the affirmative.

"While progress has been made in the past years, the need to accelerate the availability and adoption of SAF in support of climate change is a must if we want to further advance our contribution," said Paddock, who is also the chairman of the General Aviation Manufacturers Association. "I believe business and general aviation travelers are seeking a solution to not only the environmental impact, which is admittedly small compared to other industries, but also to the optics of the use of business aircraft," said Douglas Wilson, president of industry consultancy FBO Partners. While substantial SAF flow to the industry might be years away, he sees FBOs also making an environmental impact through carbon offset programs and "greener" infrastructure.

Still, the underlying standard for rating an FBO's performance is how well it treats its customers. In rankings such as *AIN*'s annual FBO survey, that element factors heavily in the location's score. "From a service and customer experience standpoint, some truly standout independent FBOs are giving established FBO chains a run for their money in this category," said Wilson, adding that he sees this driving the chains to redouble their efforts to personalize their service offerings. "Regardless of how this plays out, the ultimate beneficiary is the business and general aviation traveler." ■

FBO SURVEY RULES AND METHODOLOGY

This report of AIN’s FBO survey covers fixed-base operations worldwide.

History

AIN has been conducting surveys since 1981, asking about the service that FBOs provide their customers and reporting the results from these surveys. Initially, we sent out a paper survey questionnaire by mail to qualified subscribers in the U.S.–pilots, flight attendants, and dispatchers–the people who use or make arrangements with FBOs. In later years, qualified subscribers in the remainder of North America and the rest of the world were added.

In 2006 we moved the FBO survey online. We have continued to add FBOs each year and now offer respondents a comprehensive list of 4,500 FBOs worldwide.

The Survey

This year’s annual FBO Special Report marks the fifth in which we have reported overall averages on a cumulative basis and the second in which the FBO survey site was live for the entire year.

The survey site allows subscribers to keep a list of personalized FBOs and from this list they can easily change or affirm a prior rating and leave an updated comment. During this survey period we saw a dramatic increase in ratings compared with last year.

The scores in this report and on our website reflect the cumulative average of scores from 2013 through today. Only the most recent rating of an FBO is counted on a per-user basis and only FBOs that have received 30 or more ratings are eligible for their scores to be published.

From April 1, 2019, until Feb. 9, 2020, we asked subscribers to update and give new ratings for FBOs they had visited in the preceding 12 months. We contacted readers via e-mail, announcements in our e-newsletters, and in the January issue of **Aviation International News**. The bulk of this promotion took place from Dec. 1, 2019, through Feb. 9, 2020.

The site asks readers to evaluate FBOs they visited the previous year in five categories: line service; passenger amenities; pilot amenities; facilities; and customer service representatives (CSRs). For each of these categories, the participant is asked to assign a number from 1 to 5, 1 being the lowest and 5 being the highest.


Observations

Each year we review ratings to ensure their accuracy. On our new site we have a system to flag, review, and, if necessary, remove ratings identified as dubious by factors such as e-mail address, IP address, and concentration of scores.

Score Calculations

An FBO’s overall average is calculated by adding all the individual category ratings received by that FBO and dividing the resulting sum by the total number of all category ratings received by the FBO. In other words, if a particular FBO was evaluated by 50 people (and assuming that all 50 evaluators gave that FBO a rating in each of the five categories), then the FBO would receive a total of 250 category ratings. These 250 category ratings are added together and then the sum is divided by 250 to arrive at the overall average for this FBO.

Overall averages are calculated using the cumulative average of all ratings given from 2013 through the present. This year’s results will show an FBO’s increase or decrease versus that FBO’s cumulative rating from one year ago.



REMINDER

DON’T WAIT — AIN’s FBO survey is now open for year-round feedback. It takes only a minute, and you can do it while waiting for passengers, on the shuttle bus to/ from the hotel or any other time that is convenient for you. Log on to www.ainonline.com/fbosurvey to rate your experiences at the FBOs you visit.

Top Rated FBOs in the Americas (by overall average)

FBO	AIRPORT CODE	AIRPORT	OVERALL AVERAGE	CHANGE FROM LAST YEAR	
AMERICAN AERO	KFTW	FORT WORTH MEACHAM INTERNATIONAL	4.76	0.02	Top 5%
PENTASTAR AVIATION	KPTK	OAKLAND COUNTY INTERNATIONAL	4.75	0.00	Top 5%
WILSON AIR CENTER	KMEM	MEMPHIS INTERNATIONAL	4.75	0.01	Top 5%
JET AVIATION	KPBI	PALM BEACH INTERNATIONAL	4.74	0.00	Top 5%
SHELTAIR KTPA	KTPA	TAMPA INTL	4.74	0.00	Top 5%
GLOBAL SELECT	KSGR	SUGAR LAND REGIONAL	4.71	0.00	Top 5%
HENRIKSEN JET CENTER	KEDC	AUSTIN EXECUTIVE	4.71	-0.01	Top 5%
BUSINESS JET CENTER	KDAL	DALLAS LOVE FIELD	4.69	-0.01	Top 5%
WILSON AIR CENTER	KCHA	LOVELL FIELD	4.69	-0.01	Top 5%
BASE OPERATIONS AT PAGE FIELD	KFMY	PAGE FIELD	4.68	0.03	Top 5%
MERIDIAN TETERBORO	KTEB	TETERBORO	4.68	0.00	Top 5%
BANYAN AIR SERVICE	KFXE	FORT LAUDERDALE EXECUTIVE	4.67	0.00	Top 10%
FARGO JET CENTER	KFAR	HECTOR INTERNATIONAL	4.67	0.01	Top 10%
SHELTAIR	KFLL	FORT LAUDERDALE/HOLLYWOOD INTL	4.67	0.04	Top 10%
SKYSERVICE	CYYZ	LESTER B. PEARSON INTERNATIONAL	4.67	0.00	Top 10%
WESTERN AIRCRAFT	KBOI	BOISE AIR TERMINAL/GOWEN FIELD	4.67	N/A	Top 10%
ATLANTIC AVIATION	KMTJ	MONTROSE REGIONAL	4.66	-0.01	Top 10%
ATLANTIC AVIATION	KMKC	CHARLES B. WHEELER DOWNTOWN	4.66	-0.03	Top 10%
MONTEREY JET CENTER	KMRY	MONTEREY PENINSULA	4.66	0.00	Top 10%
STUART JET CENTER	KSUA	WITHAM FIELD	4.66	0.01	Top 10%
MODERN AVIATION	KAPA	CENTENNIAL	4.65	-0.02	Top 10%
J. A. AIR CENTER	KARR	AURORA MUNICIPAL	4.64	0.00	Top 10%
MILLION AIR	KADS	ADDISON	4.64	0.01	Top 10%
SHELTAIR	KJAX	JACKSONVILLE INTERNATIONAL	4.64	0.04	Top 10%
ATLANTIC AVIATION	KCRQ	MC CLELLAN-PALOMAR	4.63	-0.03	Top 20%
DEL MONTE AVIATION	KMRY	MONTEREY PENINSULA	4.63	0.05	Top 20%
HERITAGE AVIATION	KBTV	BURLINGTON INTERNATIONAL	4.63	-0.01	Top 20%
RECTRIX	KSRQ	SARASOTA/BRADENTON INTERNATIONAL	4.63	-0.01	Top 20%
SIGNATURE FLIGHT SUPPORT	KSDL	SCOTTSDALE	4.63	0.01	Top 20%
VAIL VALLEY JET CENTER	KEGE	EAGLE COUNTY REGIONAL	4.63	0.03	Top 20%
TEXAS JET	KFTW	FORT WORTH MEACHAM INTERNATIONAL	4.62	-0.01	Top 20%
ROSS AVIATION	KLGB	LONG BEACH /DAUGHERTY FIELD	4.61	0.01	Top 20%
SHELTAIR	KORL	ORLANDO EXECUTIVE	4.61	0.05	Top 20%
WILSON AIR CENTER	KCLT	CHARLOTTE/DOUGLAS INTERNATIONAL	4.61	0.01	Top 20%
EMBRAER FBO	SDCO	SOROCABA	4.60	0.05	Top 20%
MILLION AIR	KIND	INDIANAPOLIS INTERNATIONAL	4.60	-0.02	Top 20%
SHELTAIR	KDAB	DAYTONA BEACH INTL	4.60	0.08	Top 20%
SHELTAIR	KECP	NORTHWEST FLORIDA BEACHES INTERNATIONAL	4.59	0.02	Top 20%
SWIFT AVIATION SERVICES	KPHX	PHOENIX SKY HARBOR INTERNATIONAL	4.58	0.00	Top 20%
SHELTAIR	KSAV	SAVANNAH/HILTON HEAD INTL	4.57	0.05	Top 20%
MILLION AIR	KSAT	SAN ANTONIO INTERNATIONAL	4.56	0.01	Top 20%
SHELTAIR	KFOK	FRANCIS S GABRESKI	4.56	0.01	Top 20%
SIGNATURE FLIGHT SUPPORT	KSTP	ST PAUL DOWNTOWN HOLMAN FIELD	4.56	-0.01	Top 20%
CUTTER AVIATION	KPHX	PHOENIX SKY HARBOR INTERNATIONAL	4.55	-0.01	Top 20%
MILLION AIR	KHPN	WESTCHESTER COUNTY	4.55	0.28	Top 20%
NATIONAL JETS	KFLL	FORT LAUDERDALE/HOLLYWOOD INTERNATIONAL	4.55	0.00	Top 20%
YELLOWSTONE JETCENTER BY SIGNATURE	KBZN	BOZEMAN YELLOWSTONE INTERNATIONAL	4.55	-0.05	Top 20%

FBOs with same overall average are listed in alphabetical order

Most Improved FBOs over the Past 12 Months

FBO	AIRPORT CODE	AIRPORT	OVERALL AVERAGE	CHANGE FROM LAST YEAR
MILLION AIR	KHPN	WESTCHESTER COUNTY	4.27	0.28
SHELTAIR	KPIE	ST PETERSBURG-CLEARWATER INTERNATIONAL	4.37	0.14
NORTHEAST AIR	KPWM	PORTLAND INTERNATIONAL JETPORT	4.29	0.12
SHELTAIR	KLAL	LAKELAND LINDER REGIONAL	4.18	0.10
MILLION AIR	KTLH	TALLAHASSEE REGIONAL	4.08	0.10
EXECUJET AUSTRALIA	YSSY	SYDNEY KINGSFORD SMITH	4.31	0.09
TAC AIR	KAMA	RICK HUSBAND AMARILLO INTERNATIONAL	4.08	0.09
SHELTAIR	KOCF	OCALA INTERNATIONAL-JIM TAYLOR FIELD	4.33	0.08
SHELTAIR	KDAB	DAYTONA BEACH INTL	4.52	0.08
FONTAINEBLEAU AVIATION	KOPF	OPA-LOCKA EXECUTIVE	4.36	0.07
ATLANTIC AVIATION	KRNO	RENO/TAHOE INTERNATIONAL	3.98	0.06
GILL AVIATION	KDWH	DAVID WAYNE HOOKS MEMORIAL	4.04	0.06

*FBOs with same change are listed in alphabetical order

4.76 American Aero

Fort Worth Meacham International Airport (FTW),
Fort Worth, Texas

Though it only moved into its permanent facility in 2017, American Aero has quickly become a force to be reckoned with in the Dallas Metroplex area, earning top 5 percent slots in the **AIN** FBO Survey each year since.

The FBO’s 8,600-sq-ft terminal in the airport’s refurbished aviation department building has been wowing its customers since the day it opened, offering not just a full state of standard amenities but also several high-technology improvements that might fly under the radar. The lobby walls were designed with sound dampening material and embedded white noise speakers to mask extraneous noise and foster a relaxing environment.

That focus on relaxation extends to the pilot snooze room, which has been soundproofed, right down to the massive one-ton door, which glides effortlessly on silent hinges. Other amenities include a 25-seat A/V-equipped conference room, a dining room for crew (which can double as a second conference room) furnished with china and flatware, shower facilities, an abundant refreshment area, concierge service, 80 covered parking spaces for vehicles, new crew cars, and a TSA-approved, secure private lounge for use under the DASSP for flights into Washington Reagan National Airport, all of which translated into this year’s highest score in the Pilot Amenities category at 4.78. The front desk staff will even disinfect your cell phone using a UV device.



“The whole genesis of the FBO, from the structure, to the facilities, to the ramp space, to the people that we hire, is based on giving the best first impression, and continuing to maintain that impression so that they want to come back,” said company vice president Bob Agostino.

Safety has been a touchstone for the company since the day it opened, being the first in the world to achieve IS-BAH Stage I and Stage III registration.

The Signature Select facility has more than 300,000 sq ft of hangar space and is home to 41 turbine-powered aircraft ranging from a G650 to an Eclipse EA500. Over the past year, the Avfuel-branded location saw a 30 percent increase in fuel sales, to just under 2 million gallons.

4.75 Pentastar Aviation

Oakland County International Airport (PTK)
Pontiac, Michigan

Reaching the highest rungs of **AIN**’s Annual FBO Survey requires not only all around excellence in each of the five rated categories, but also consistency, as typified by Pentastar Aviation, which was the only FBO this year to score higher than 4.71 in all categories, a feat it repeated from last year.

“Our tagline is “Setting the Standard,” and we look at it a lot more seriously than just a marketing slogan,” said president and CEO Greg Schmidt. The FBO received its highest score (4.83) for its customer service representatives, who Schmidt says are encouraged to “not only meet the needs of the customers, but also to go above and beyond in anticipating them.” Customer service training is not just for the CSRs at Pentastar, but for every single employee.



The FBO began operations in 1984 and grew incrementally over the years. The company spends approximately \$700,000 a year on upkeep and improvement projects. It has a 6,000-sq-ft, two-story main terminal building that also houses Five-Star Gourmet, the company’s in-house catering department, which serves Pentastar’s customers as well as other operators on the airport and beyond. Other amenities include seven conference rooms ranging from four seats to 25, two snooze rooms, and a pilot lounge with massage chairs.

Another unique feature is the Stargate, a secondary 11,000-sq-ft terminal with what is likely the only FBO-owned jetway in the country. Equipped with its own baggage carousel, it handles large groups of passengers, such as sports teams.

A full-service FBO, the company offers Part 145 maintenance, avionics, and interiors, along with aircraft charter and management. It plans to expand the latter offerings to a pair of satellite offices in Grand Rapids and Traverse City later this year.

4.75 Wilson Air Center

Memphis International Airport (MEM)
Memphis, Tennessee

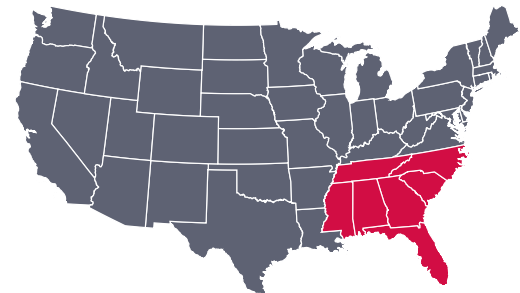
Wilson Air Center operates a chain of four FBOs in Tennessee, Texas, and North Carolina, and for the second year in a row, two of them have landed in the top 5 percent of **AIN**’s FBO Survey. The flagship facility, one of two service providers at Memphis International, occupies nearly 18 acres, and earned its highest scores this year in the customer-facing CSR category and line service categories.

“We pride ourselves on outstanding customer service and attention to detail,” David Peacock, the location’s general manager told **AIN**. “We have a policy that we never say no to a customer, and if they request



Top Rated FBOs in the Americas by Region

SOUTHEAST



FBO	AIRPORT CODE	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
ATLANTA			
EPSS AVIATION	KPDK	4.35	-0.01
ATLANTIC AVIATION	KPDK	4.24	0.00
SIGNATURE FLIGHT SUPPORT	KPDK	4.18	0.00
HILL AIRCRAFT	KFTY	4.12	0.00
SIGNATURE FLIGHT SUPPORT	KFTY	4.03	0.01
CHARLESTON			
SIGNATURE FLIGHT SUPPORT	KCHS	4.52	0.00
ATLANTIC AVIATION	KCHS	4.37	0.00
CHARLOTTE			
WILSON AIR CENTER	KCLT	4.61	0.01
CHATTANOOGA			
WILSON AIR CENTER	KCHA	4.69	-0.01
DAYTONA BEACH			
SHELTAIR	KDAB	4.60	0.08
FORT LAUDERDALE / PALM BEACH			
JET AVIATION	KPBI	4.74	0.00
BANYAN AIR SERVICE	KFXE	4.67	0.00
SHELTAIR	KFLL	4.67	0.04
STUART JET CENTER	KSUA	4.66	0.01
NATIONAL JETS	KFLL	4.55	0.00
FORT MYERS / NAPLES			
BASE OPERATIONS AT PAGE FIELD	KFMY	4.68	0.03
PRIVATE SKY AVIATION SERVICES	KRSW	4.35	0.00
NAPLES AIRPORT AUTHORITY	KAPF	4.31	0.00
JACKSONVILLE			
SHELTAIR	KJAX	4.64	0.04
MEMPHIS			
WILSON AIR CENTER	KMEM	4.75	0.01
SIGNATURE FLIGHT SUPPORT	KMEM	3.97	-0.03
MIAMI			
SIGNATURE FLIGHT SUPPORT	KBCT	4.49	-0.02
FONTAINEBLEAU AVIATION	KOPF	4.43	0.07
ATLANTIC AVIATION	KBCT	4.30	-0.02
ATLANTIC AVIATION	KOPF	4.30	-0.01
SIGNATURE FLIGHT SUPPORT	KMIA	4.24	-0.01
NASHVILLE			
ATLANTIC AVIATION	KBNA	4.12	-0.03
SIGNATURE FLIGHT SUPPORT	KBNA	4.05	0.00
NORTHWEST FLORIDA			
SHELTAIR	KECP	4.59	0.02
LYNX FBO DESTIN	KDTS	4.53	-0.06
MILLION AIR	KTLH	4.18	0.10
ORLANDO			
SHELTAIR	KORL	4.61	0.05
ATLANTIC AVIATION	KORL	4.54	0.03
ATLANTIC AVIATION	KMCO	4.51	0.00
SIGNATURE FLIGHT SUPPORT	KMCO	4.37	0.02
RALEIGH/DURHAM			
TAC AIR	KRDU	4.22	-0.04
SIGNATURE FLIGHT SUPPORT	KRDU	3.92	-0.03
TAMPA			
SHELTAIR	KTPA	4.74	0.00
SHELTAIR	KPIE	4.51	0.14
SIGNATURE FLIGHT SUPPORT	KTPA	3.95	-0.01
SAVANNAH			
SHELTAIR	KSAV	4.57	0.05
SARASOTA			
RECTRIX	KSRQ	4.63	-0.01

something out of the ordinary, we find out how to accommodate them the best we can.” On Tuesdays and Thursdays, passengers and crews alike are treated to breakfast, and staff members have been known to present favored pilots with frozen slabs of Memphis BBQ ribs on departure.

As at the other Wilson Air locations, at MEM, all arriving and departing aircraft are met by a concierge, “to take the stress out of the travel for the customer,” according to Peacock. That service member, who like the rest of the company’s service staff is NATA Safety 1st trained, can handle catering and rental car requests as well as any guest needs.

A fixture at MEM for nearly a quarter century, the Shell-branded facility features a 5,700-sq-ft terminal with a passenger lobby, refreshment area with ice cream, pilot lounge, snooze room, and two conference rooms. With an increasing focus on large professional and collegiate sports team charters, the facility has a separate 730-sq-ft VIP handling area with en suite bathroom. On tap is a major interior renovation project, which is expected to be completed by the summer.

One of the FBO’s highlights is the 26,000-sq-ft arrivals canopy, and its 109,000-sq-ft of heated hangar space is home to 26 turbine-powered aircraft ranging from a G500 to a Daher TBM 700.

4.74 Jet Aviation

Palm Beach International Airport (PBI)
West Palm Beach, Florida

Jet Aviation operates eight FBOs in the U.S. and another 24 locations scattered around the world, but its facility at Florida’s Palm Beach International Airport remains the company’s standout in the annual **AIN** FBO Survey, receiving a 4.74 score for the second consecutive year, led by a 4.80 in the CSR category, and a 4.77 in line service. “I believe our key differentiating factor is our people and their longevity,” said Nuno Da Silva, the location’s director and general manager, adding his average employee’s experience is 20 years. “Over the years, our team has contributed to a fun, family culture and environment, which enables us to maintain a very low turnover rate.”



That level of experience has enabled the location, which has a staff of 48, to establish a safety-driven environment, and it now holds Stage II registration under IBAC’s International Standard of Business Aviation Handling (IS-BAH).

The Phillips 66-branded FBO began operations at PBI in 1985, and its 25-acre leasehold features an 18,000-sq-ft, two-story terminal, with a pilot lounge and snooze room, shower facilities, and flight-planning area. The refreshment bar offers three varieties of freshly baked cookies, a range of hot beverages, house-made lemonade and iced coffee, tropical flavor Slurpees, and local favorite Rich’s ice cream.

Open 24/7, it currently has 160,000 sq ft of hangar space, which can shelter aircraft up to a BBJ. In the second quarter, that total will increase with the addition of a new 40,000-sq-ft hangar with 10,000 sq ft of tenant office space, plus a new 30,000-gallon-capacity fuel farm and additional offices and a customer lounge to be shared with sister company Gulfstream, which is adding a new service center at the airport.

4.74 Sheltair

Tampa International Airport (TPA), Tampa, Florida

Sheltair’s Tampa facility is no stranger to the highest echelons of the **AIN** FBO Survey, having spent most of its existence there dating back to its beginnings 15 years ago as the Tampa International Jet Center. It equaled its score from last year, tallying 4.78 in the Line Service and Facilities categories, the latter attributable to the constant care and upkeep that is lavished on the facility.



A current project includes refurbishing the two A/V-equipped conference rooms (seating four and 14), the operations center, and the kitchen for customers requiring more space for catering preparations. Other amenities include a pilot lounge, flight-planning area/business center, and a refreshment bar with freshly baked cookies. Based on customer request, the facility’s under-utilized snooze room was converted into a private gym over the past year. With its porte cochere in front and a large aircraft canopy rampside, on rainy days, customers can go from their vehicles, through the terminal, and onto their airplane without a single raindrop hitting them.

The facility also just earned its Stage II registration under IBAC’s International Standard for Business Aviation Handling (IS-BAH).

The FBO’s 150,000 sq ft of hangar space is currently at full capacity, so it is about to break ground on a \$20 million expansion project that will add another 75,000 sq ft of aircraft storage, along with 17,000 sq ft of offices, several acres of ramp, and an additional taxiway entrance to support future growth. “Tampa is growing in every sector,” said general manager Clayton Lackey. “We’ve seen increased demand for hangars from new customers and an uptick in transient traffic as well.” He noted that his facility had a 17 percent increase in fuel flowage last year, equating to a total of more than 3.7 million gallons pumped.

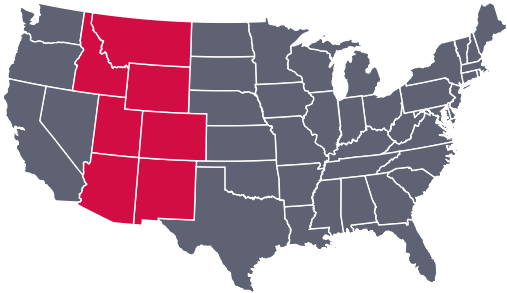
4.71 Global Select

Sugar Land Regional Airport (SGR),
Houston, Texas

For the past 14 years, Global Select, the airport-owned service provider at Houston-area Sugar Land Regional Airport has turned the notion that municipally operated FBOs can’t play the luxury FBO game on its head.

Top Rated FBOs in the Americas by Region

ROCKY MOUNTAIN



FBO	AIRPORT CODE	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
ALBUQUERQUE			
CUTTER AVIATION	KABQ	4.33	0.01
BOISE			
WESTERN AIRCRAFT	KBOI	4.67	N/A
JACKSON JET CENTER	KBOI	4.41	0.02
DENVER			
MODERN AVIATION	KAPA	4.65	-0.02
DENVER JETCENTER	KAPA	4.51	-0.02
SIGNATURE FLIGHT SUPPORT	KDEN	4.44	0.01
SIGNATURE FLIGHT SUPPORT	KAPA	4.26	0.03
TAC AIR	KAPA	4.14	-0.01
GLACIER & YELLOWSTONE			
YELLOWSTONE JETCENTER BY SIGNATURE	KBZN	4.55	-0.05
GLACIER JET CENTER	KGPI	4.38	0.00
GRAND JUNCTION			
WEST STAR AVIATION	KGJT	4.45	0.00
JACKSON HOLE			
JACKSON HOLE AVIATION	KJAC	3.77	-0.05
COLORADO MOUNTAINS			
ATLANTIC AVIATION	KMTJ	4.66	-0.01
VAIL VALLEY JET CENTER	KEGE	4.63	0.03
ATLANTIC AVIATION	KRIL	4.22	-0.03
TELLURIDE REGIONAL AIRPORT	KTEX	4.12	0.00
ATLANTIC AVIATION	KASE	4.08	-0.01
PHOENIX/SCOTTSDALE			
SIGNATURE FLIGHT SUPPORT	KSDL	4.63	0.01
SWIFT AVIATION SERVICES	KPHX	4.58	0.00
CUTTER AVIATION	KPHX	4.55	-0.01
ROSS AVIATION	KSDL	4.33	0.01
CUTTER AVIATION	KDVT	4.21	0.02
SALT LAKE CITY			
TAC AIR	KSLC	4.46	0.00
SUN VALLEY			
ATLANTIC AVIATION	KSUN	4.52	0.00
TUCSON			
ATLANTIC AVIATION	KTUS	4.34	0.00



According to SGR’s acting aviation director Elizabeth Rosenbaum, the airport is constantly working on the 20,000-sq-ft terminal so it looks refreshed and new. What may sound like minor tweaks, such as modifications to

AIN FBO survey 2020 » The Americas top 5 percent

the shower area in the crew suite or an upgrade to an 85-inch television in the theater room, are clearly appreciated by AIN's readership, which gave the facility its highest score (4.88) in the Facilities category.

"It's just small things like those examples that we try to focus on and make sure that this building is maintained and kept up," Rosenbaum told AIN. The building includes a café, a Texas-themed gift shop, and three conference rooms seating six, 12, and 24. Other touches included streamlining the crew car access process so customers only have to enter their information once into the computer to be able to grab the keys and go on future visits.

The Shell-branded facility saw more than 78,000 operations in 2019 and pumped more than 3.2 million gallons of fuel, a slight increase over the previous year. It has 81,000 sq ft of fully occupied corporate hangar space, which can shelter aircraft up to a G650. It is home to 43 jets (the largest a Falcon 2000), 13 turboprops and a pair of helicopters. While the airport itself has no current plans to build any new structures, a private developer is set to begin construction on seven new flight department hangars totaling 66,150 sq ft on a leased site off Taxiway Charlie. Once those are completed by mid-summer, work will begin on another two sites for an additional 56,000 sq ft of space.

4.71 Henriksen Jet Center

Austin Executive Airport (EDC), Austin, Texas

Privately owned bizav airports are somewhat rare in the U.S., and a privately owned airport's FBO making the top 5 percent in AIN's annual FBO Survey is even rarer, but that is what Henriksen Jet Center at Austin Executive Airport has done for the past three years. The facility, with its modern 22,500-sq-ft, two-story terminal, opened nine years ago and for the past three years earned the top score among FBOs in the passenger amenities category (4.80). It also tallied the same score for its facilities, including a 15,000-sq-ft arrivals canopy, which can shelter aircraft as large as a BBJ.



Full of natural light, the glass-sheathed lobby has as its focal point a Rolls-Royce/Snecma engine that once powered a supersonic Concorde. It has become a popular feature among the location's customers. "I've had plenty of offers of people wanting to buy it, but we will not be parting with it," said Jodie Kaluza, who serves as both manager of the dedicated general aviation airport as well as its FBO's general manager.

Other amenities include a theater room with stadium seating, a pilot lounge with two relaxation rooms, showers, a 12-seat A/V-equipped conference room, and a refreshment bar. Recently added was a Go Rentals car rental counter in the lobby.

With 140,000 sq ft of hangars, the facility is home to 51 turbine-powered aircraft, from a Global Express on down. But with Austin ranking in the top 20 fastest-growing cities in the world according to one respected survey, business at

the FBO is increasing, with a 14 percent rise in fuel flow-age year-over-year. "With so many companies relocating to Austin, we are having a bunch of people say, 'Hey, I have a fleet, where can you put me?'" Kaluza told AIN. As a result, the airport is in negotiations for the construction of its first privately owned flight department hangar.

4.69 Business Jet Center

Dallas Love Field (DAL), Dallas, Texas

Continuing the Lone Star State's theme of exceptional FBOs is Business Jet Center, which distinguishes itself among the five FBOs at Dallas Love Field, according to AIN's readers.



Occupying 53 acres on the field, the company last year opened its newest and largest hangar, which at 49,000 sq ft, is capable of handling aircraft up to the Bombardier Global 7500. It brought the facility (home to 55 jets and five turboprops) to 245,000 sq ft; still not enough space, as it plans to break ground on an additional two hangars later this year. "Business Jet Center continues to benefit from the strength of the North Texas economy and corporate relocations to the area," said managing partner Michael Wright. "This growth has enabled BJC to continue to construct hangar space, adding base tenants while continuing to serve its transient customers at a high level."

The family-owned FBO earned its highest score (4.74) in the Facilities category, and the centerpiece is its modern 33,000-sq-ft, three-story terminal with atrium lobby, three conference rooms, a large event room, three crew lounges, a trio of individual snooze rooms (each with private restroom), shower facilities, a nicely equipped game room, a well-stocked refreshment bar, a grassy pet relief area complete with fire hydrant, and an aircraft arrivals canopy large enough for a Gulfstream G450. Crew members also appreciate the location's three Mercedes Benz courtesy cars.

Open 24/7, 365 days a year, the Phillips 66-branded location, a member of the Paragon Aviation Network, has 75 NATA Safety 1st-trained staff.

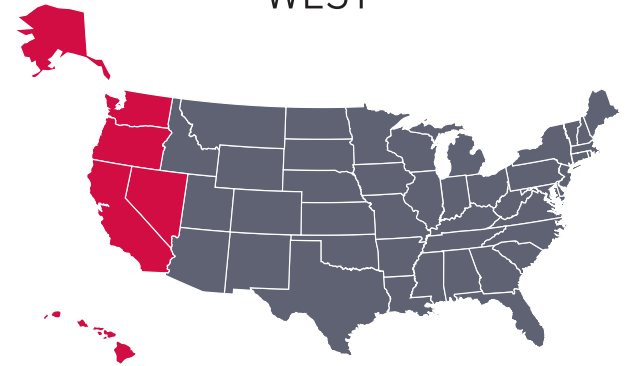
4.69 Wilson Air Center

Lovell Field Airport (CHA)
Chattanooga, Tennessee

The Wilson Air Center chain may only have four locations, but for the second straight year, half of them ranked in the top 5 percent of AIN's annual FBO survey. Since 2008, the company has been the sole provider at Chattanooga's Lovell Field, managing the airport-owned FBO and the 130,000 sq ft of hangar space on the field, enough to handle anything up to a G650. The facility is home to approximately 35 turbine-powered airplanes, ranging from a Gulfstream G450 to a Pilatus PC-12.

Top Rated FBOs in the Americas by Region

WEST



FBO	AIRPORT CODE	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
ANCHORAGE			
ROSS AVIATION	PANC	4.29	0.00
HONOLULU			
AIR SERVICE HAWAII	PHNL	4.41	-0.01
SIGNATURE FLIGHT SUPPORT	PHNL	4.24	0.00
LAS VEGAS			
SIGNATURE FLIGHT SUPPORT	KLAS	4.37	-0.02
ATLANTIC AVIATION	KLAS	4.30	0.00
HENDERSON EXECUTIVE AIRPORT	KHND	4.12	0.03
LOS ANGELES			
ROSS AVIATION	KLGB	4.61	0.01
MILLION AIR	KBUR	4.47	-0.02
ATLANTIC AVIATION	KSNA	4.37	0.00
CASTLE & COOKE AVIATION	KVNY	4.31	-0.03
ATLANTIC AVIATION	KLAX	4.26	0.01
PALM SPRINGS			
ATLANTIC AVIATION	KPSP	4.36	0.00
SIGNATURE FLIGHT SUPPORT	KPSP	4.32	0.00
ROSS AVIATION	KTRM	4.28	0.03
PORTLAND			
ATLANTIC AVIATION	KPDX	4.35	0.02
SAN DIEGO			
ATLANTIC AVIATION	KCRQ	4.63	-0.03
SIGNATURE FLIGHT SUPPORT	KSAN	3.78	0.02
SAN FRANCISCO			
MONTEREY JET CENTER	KMRY	4.66	0.00
DEL MONTE AVIATION	KMRY	4.63	0.05
SIGNATURE FLIGHT SUPPORT	KOAK	4.28	0.00
ATLANTIC AVIATION	KSJC	4.18	0.01
SEATTLE			
MODERN AVIATION	KBFI	4.24	0.01
SIGNATURE FLIGHT SUPPORT	KBFI	4.13	0.00

CANADA

FBO	AIRPORT	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
CALGARY			
SKYSERVICE	CYYC	4.47	-0.02
MONTREAL			
SIGNATURE FLIGHT SUPPORT	CYUL	4.50	-0.06
SKYSERVICE	CYUL	4.38	0.01
TORONTO			
SKYSERVICE	CYYZ	4.67	0.00
SIGNATURE FLIGHT SUPPORT	CYYZ	3.72	-0.06

“We have seen a gradual increase in based tenants for the area,” general manager Glenn Rivenbark told **AIN**. “We are currently at capacity, so we’re talking to the airport about getting some new hangars built.” Construction is about to start on a new 25,000-sq-ft hangar, but that structure will serve as direct replacement for some older hangars that are earmarked for demolition.



The 9,000-sq-ft terminal is the first ever to be awarded LEED Platinum certification for its energy efficiency. It features a pilot lounge with two snooze rooms and a relaxation room, flight planning area, internet café, a pair of 14-seat A/V-equipped conference rooms, a refreshment lounge featuring local favorites Moon Pies and RC Cola, with a custom coffee brewing machine, and crew cars. This past year, all the carpeting throughout the facility was replaced.

The NATA Safety 1st-trained line staff pumped 2 million gallons of fuel last year on the GA side alone, as the FBO also handles all the airport’s commercial airline fueling. In addition, the Wilson Air staff handles all the above- and below-wing services for Allegiant Air at the airport, including ticketing, gate operations, baggage handling, and pushback. “We’re a pretty diverse operation here,” Rivenbark told **AIN**. “Probably more so than the other three Wilson Air bases.

4.68 Base Operations at Page Field

Page Field Airport (FMY), Fort Myers, Florida

Now celebrating its ninth year in its \$16 million permanent facility, Base Operations at Page Field, the airport-owned and operated FBO, was designed to honor the airport’s heritage and service during World War II. A major flight-training base for the U.S. Army Air Forces, Page Field’s 20,000-sq-ft, two-story terminal is decorated with vintage photos of the airfield and the variety of aircraft deployed there, as well as memorabilia and artifacts. A replica P-51 Mustang fighter hangs from the lobby atrium ceiling, while outside, a fully restored WWII-vintage AT-6 Texan trainer is on display under a canopy.

Other amenities include a pilot lounge with snooze room, shower facilities, gift/pilot shop, pool table-equipped game room, refreshment bar, flight-planning



area, 12-seat conference room and 50 seat seminar room (both A/V-equipped), and crew cars, all of which served to give the location its highest score (4.81) in the Facilities category. “We want to provide our customers premiere aviation services and world class facilities at exceptional value,” general manager Jonathan Buff told **AIN**.

The Avfuel-branded facility is home to 48 turbine-powered aircraft, which are stored in its 80,000 sq ft of hangar space. Despite the October opening of a new \$7 million, 24,000-sq-ft hangar, which can shelter aircraft up to a Bombardier 6000, the location is 100 percent occupied, according to Buff. “We’re seeing customers upgrading to larger aircraft, that’s for sure, and a lot of folks are transitioning from pistons to single-engine turboprops.”

With a staff of 24, the facility is open every day from 6 a.m. until 10 p.m., and sees its peak season—fueled by the migratory snowbirds—starting before Thanksgiving and lasting through Easter.

4.68 Meridian, Teterboro Airport (TEB)

Teterboro, New Jersey

For the second consecutive year, Meridian, the only privately-owned FBO at New York City-area business aviation hub Teterboro Airport, is the airport’s only FBO to land in the top 5 percent in **AIN**’s annual FBO Survey.



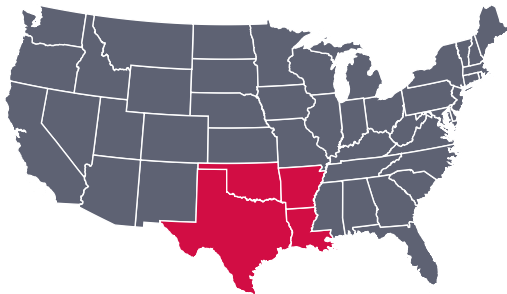
The company, which was founded in 1948, shares the field with some aviation service industry heavyweights. “We have good competition here at Teterboro,” said Steve Chandoha, the company’s FBO president. “Everyone really does a good job providing service, so we try to differentiate ourselves by being a little bit more boutique if we can.” It’s an approach that seems to resonate with **AIN**’s readership, which gave the facility its highest score this year in customer service (4.83).

As it works to constantly keep its facilities fresh, the company just wrapped up a \$250,000 renovation on its terminal, which includes a passenger lobby with coffee bar, two 14-seat A/V-equipped conference rooms, theater room, pilot lounge with billiard table, four snooze rooms, private gym with locker rooms and shower facilities, business center, concierge, flight-planning area, catering preparation area, kitchenette, and crew cars. It recently underwent its first audit under IBAC’s International Standard for Business Aviation Handling (IS-BAH).

A full-service location, the company has a Part 135 charter operation that is managed from a modern control center on the third floor of the terminal building, and it has its own Part 145 maintenance station to service not only its own aircraft but those of its customers as well. Despite its recently replacing an old 18,000-sq-ft hangar with a brand new 40,000-sq-ft structure located adjacent to the airport’s U.S. customs ramp, Chandoha noted the Shell-branded facility’s 100,000 sq ft of aircraft storage

Top Rated FBOs in the Americas by Region

SOUTH



FBO	AIRPORT CODE	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
AUSTIN/SAN ANTONIO			
HENRIKSEN JET CENTER	KEDC	4.71	-0.01
MILLION AIR	KSAT	4.56	0.01
ATLANTIC AVIATION	KAUS	4.34	-0.03
SIGNATURE FLIGHT SUPPORT - NORTH TERMINAL	KSAT	4.24	0.00
SIGNATURE FLIGHT SUPPORT	KAUS	4.20	0.00
DALLAS/FORT WORTH			
AMERICAN AERO	KFTW	4.76	0.02
BUSINESS JET CENTER	KDAL	4.69	-0.01
MILLION AIR	KADS	4.64	0.01
TEXAS JET	KFTW	4.62	-0.01
ALLIANCE AVIATION SERVICES	KAFW	4.35	-0.01
HOUSTON			
GLOBAL SELECT	KSGR	4.71	0.00
MILLION AIR	KHOU	4.53	0.00
JET AVIATION HOUSTON	KHOU	4.47	0.00
WILSON AIR CENTER	KHOU	4.33	0.00
ATLANTIC AVIATION	KIAH	4.30	0.00
LITTLE ROCK			
TAC AIR	KLIT	4.08	0.01
NEW ORLEANS			
SIGNATURE FLIGHT SUPPORT	KNEW	4.24	0.00
ATLANTIC AVIATION	KMSY	4.21	-0.04

BRAZIL

FBO	AIRPORT	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
SÃO PAULO			
EMBRAER FBO	SDCO	4.60	0.05
LIDER AVIAÇÃO	SBSP	3.80	0.01

CARIBBEAN

FBO	AIRPORT	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
CARIBBEAN			
ODYSSEY AVIATION	MYNN	4.40	0.00
JET AVIATION	MYNN	4.10	-0.01
TLC AVIATION	TNCM	3.69	0.00

space is near fully occupied as its customers continue to upgrade to larger and larger aircraft. “Another interesting trend is more transient customers are looking for hangar space, even if they are only here for a night or a couple of days,” he noted. With the opening of the company’s second FBO, and its first on the West Coast, the company is finding synergy from customers using both facilities as “bookend” bases.

4.67 Banyan Air Service

Fort Lauderdale Executive Airport (FXE),
Fort Lauderdale, Florida

Banyan Air Service, which recently celebrated its 40th anniversary, earned a high score for its facilities (4.76). The massive complex encompasses more than 1 million sq ft of hangar and office space over 85 acres at Fort Lauderdale Executive Airport in Florida. But Banyan is not done, expanding to the north side of the airport this year to support the addition of eight 20,000-sq-ft hangars. Banyan's Key West-style terminal features an 800-gallon saltwater aquarium and has amenities including customer lounge with snack bar, business center, conference



rooms, and four Tesla charging stations. Banyan also provides aircraft and parts sales, maintenance/modifications, and is home to the "world's largest pilot shop."

4.67 Fargo Jet Center

Hector International Airport (FAR), Fargo, North Dakota



Fargo Jet Center (FJC), marking its 25th anniversary this year, received a nod for line service, scoring 4.74. This comes as FJC saw a 9 percent increase in fuel sales in 2019, servicing nearly 20,000 aircraft. With 70 based aircraft, the Avfuel provider has 127,000 gallons of jet-A and 100LL storage and seven fuel trucks servicing airline, cargo, and transient military aircraft, along with GA. The company is updating its 15,000-sq-ft terminal this year. It also has 168,000 sq ft of hangar space (including 90,000 sq ft heated). Its most popular service is valet parking, particularly during harsh winter days, attending to more than 2,600 vehicles in 2019. A true full-service FBO, it also offers charter, maintenance, aircraft sales, completions, and training.

4.67 Sheltair

Fort Lauderdale/Hollywood International Airport (FLL), Fort Lauderdale, Florida

Sheltair at Florida's Fort Lauderdale/Hollywood International Airport (FLL) is the only one of four on-field FBOs that provides direct access to FLL's new 8,000-foot Runway



10R/28L, as well as the sole DCA Gateway facility at the airport. It offers a 17,538-sq-ft terminal with on-site café, executive conference rooms, passenger and pilot lounges, and gym and sauna. It also has more than 320,000 sq ft of hangar space. Services and amenities include 24-hour on-site U.S. Customs, concierge services, complimentary interior cleaning, catering, crew cars/shuttle, rental cars, and refreshments. The 24/7/365 FBO is also a TSA Arrival Gateway for access to nearby West Palm Beach International (PBI) when Presidential TFRs are active for the area.

4.67 Skyservice

Lester B. Pearson International Airport (YYZ),
Toronto, Canada



Even with an impressive showing in the 2020 AIN survey, the best is yet to come for Skyservice's Toronto Pearson International Airport location. Scores from this year, including a 4.78 rating for customer service representatives, reference Skyservice's midfield campus. That facility is soon to be augmented by a \$60 million addition on the airport's south side. The grand opening was imminent at press time. With easier highway access, the Canadian FBO provider's second location on the airport will add another 90,000 sq ft of hangar space (for a total of 350,000 sq ft) as well as a second luxurious 20,000-sq-ft passenger terminal.

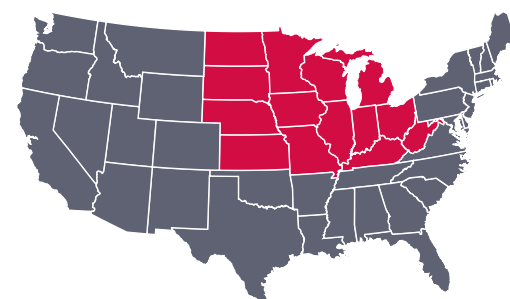
4.67 Western Aircraft

Boise Air Terminal/Gowen Field (BOI)
Boise, Idaho

With 260,000 sq ft of ramp space and a location just 15 minutes from downtown Boise, Avfuel-branded Western Aircraft is proud of its line crew and customer service representatives, scoring a solid 4.67 in the latter category. Western is also an FAA-certified Class-IV repair facility and offers AOG support. The location also offers aircraft sales, charter, management, interiors, and avionics services. Located in Idaho's Treasure Valley, Boise is home to Boise State University and close to Sun Valley, Silver

Top Rated FBOs in the Americas by Region

MIDWEST, GREAT LAKES



FBO	AIRPORT CODE	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
DES MOINES			
ELLIOTT AVIATION	KDSM	4.54	-0.02
FARGO			
FARGO JET CENTER	KFAR	4.67	0.01
KANSAS CITY			
ATLANTIC AVIATION	KMKC	4.66	-0.03
SIGNATURE FLIGHT SUPPORT	KMKC	3.87	-0.03
MINNEAPOLIS/ST. PAUL			
SIGNATURE FLIGHT SUPPORT	KSTP	4.56	-0.01
SIGNATURE FLIGHT SUPPORT	KMSP	4.54	0.01
ST PAUL FLIGHT CENTER	KSTP	4.41	N/A
PREMIER JET CENTER	KFCM	4.32	-0.04
SIGNATURE FLIGHT SUPPORT	KRST	4.15	0.00
OMAHA			
TAC AIR	KOMA	4.32	-0.04
ST LOUIS			
TAC AIR	KSUS	4.45	N/A
MILLION AIR	KSUS	4.41	-0.03
SIGNATURE FLIGHT SUPPORT	KSTL	3.91	0.03
WICHITA			
YINGLING AVIATION	KICT	4.33	0.00
FBO	AIRPORT CODE	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
CHICAGO			
J. A. AIR CENTER	KARR	4.64	0.00
ATLANTIC AVIATION	KPWK	4.50	0.00
SIGNATURE FLIGHT SUPPORT	KPWK	4.43	0.01
ATLANTIC AVIATION	KMDW	4.37	0.00
SIGNATURE FLIGHT SUPPORT	KUGN	4.36	0.00
CINCINNATI			
SIGNATURE FLIGHT SUPPORT	KLUK	3.98	0.00
CLEVELAND			
ATLANTIC AVIATION	KCLE	3.98	0.00
COLUMBUS			
LANE AVIATION	KCMH	4.28	0.01
DETROIT			
PENTASTAR AVIATION	KPTK	4.75	0.00
INDIANAPOLIS			
MILLION AIR	KIND	4.60	-0.02
SIGNATURE FLIGHT SUPPORT	KIND	4.30	0.00
FIRST WING JET CENTER	KTYQ	4.19	N/A
LEXINGTON/LOUISVILLE			
TAC AIR	KLEX	4.48	-0.01
ATLANTIC AVIATION	KSDF	4.17	-0.02
MILWAUKEE			
SIGNATURE FLIGHT SUPPORT	KMKE	4.21	0.00



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- 24/7 Mobile Maintenance
- Same-Day AOG Services
- Lavatory Service
- CAA Preferred FBO
- Rental Cars
- Complimentary Wi-Fi
- Catering Service
- Restaurant on Site

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Creek, Hell’s Canyon, Snake River, and the River of No Return Wilderness Area. One customer commented, “I visit close to 300 FBOs a year in my travels and this was truly a very positive visit.”

4.66 Atlantic Aviation

Montrose Regional Airport (MTJ)
Montrose, Colorado



Atlantic’s Montrose location offers convenient access not only to skiing in winter, but also fishing, hunting, white-water rafting, and golf in summer. The facility, which scored 4.81 in the customer service representative category, offers heated hangar space for aircraft up to the size of a Gulfstream G650. Manager Mitch Martin said, “We are very lucky to have a group of employees who are passionate, professional, and fun. They are truly cherished.”

“The excellent snowfall and skiing conditions for the last two seasons have been great for the city of Telluride. We serve as a gateway to this world-class resort. There are also several festivals during the summer along with the Colorado Tribute to Aviation in September.”

4.66 Atlantic Aviation

Charles B. Wheeler Downtown (MKC)
Kansas City, Missouri



Boasting an impressive 4.72 rating for its facilities, Atlantic’s Kansas City Downtown location is a regular at the top of the **AIN** FBO Survey rankings. With its recently added fourth hangar, the location has about maxed out its footprint at 64,000 sq ft of heated aircraft storage space. “Our top priority now would be working with the airport to secure more real estate to add hangar space,” said general manager Ben Moore.

One unusual feature is one hangar’s attached 7,000-sq-ft “self-service” terminal for based tenants. The newest hangar is also home to the airport’s U.S. Customs facility. And while last year’s AFC championship football game ended in frustration for the Kansas City Chiefs, this year’s game at Arrowhead Stadium (and its resulting bizav traffic), pushed the Chiefs on to the Super Bowl, where they took home all the marbles.

4.66 Monterey Jet Center,

Monterey Peninsula Airport (MRY)
Monterey, California



Monterey Jet Center (MJC) captured high scores in two customer-facing categories: line service (4.81) and CSR (4.80). The Avfuel-branded FBO says it strives to “be more than a pit stop,” offering concierge services and amenities such as a massage chair, courtesy crew cars, loaner golf clubs (and discounted rates at local courses), ice cream and freshly baked cookies, and numerous customer-appreciation events. The facility includes more than 200,000 sq ft of terminal and hangar space, capable of housing up to a DC-9. A favorite time at MJC is the Monterey Bay Area’s “Car Week,” which may bring more than 120 aircraft to the 10-acre ramp at any given time and keeps MJC representatives bustling.

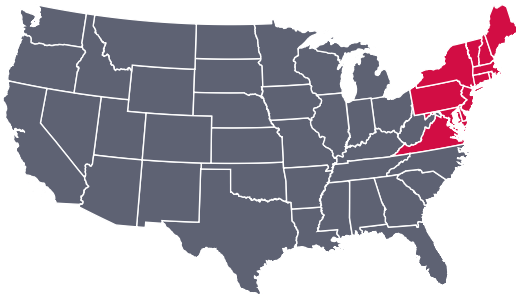
4.66 Stuart Jet Center

Witham Field (SUA), Stuart, Florida

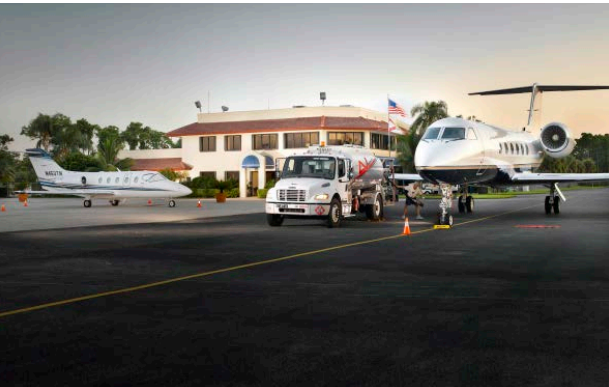
Stuart Jet Center at Florida’s Witham Field enjoys a particular advantage, lying just outside the temporary flight restriction zone when President Trump travels to his home in the state. But that isn’t the sole reason that customers patronize the Avfuel-supplied FBO, which offers amenities such as an adjacent U.S. Customs facility, a two-story terminal, and a Dassault Aviation maintenance facility. The FBO added two new hangars last year, accommodating up to a Global 7500, and a new FBO-wide security system with extensive camera coverage. Another three acres of ramp space will come online in the summer. In this year’s FBO Survey, Stuart Jet Center earned its top score in the line service category with an impressive 4.86.

Top Rated FBOs in the Americas by Region

NORTHEAST



FBO	AIRPORT CODE	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
ALBANY			
MILLION AIR	KALB	4.51	-0.02
BALTIMORE			
SIGNATURE FLIGHT SUPPORT	KBWI	4.01	-0.02
BOSTON			
JET AVIATION	KBED	4.28	0.02
SIGNATURE FLIGHT SUPPORT	KBED	3.97	-0.01
SIGNATURE FLIGHT SUPPORT	KBOS	3.64	-0.01
BURLINGTON			
HERITAGE AVIATION	KBTV	4.63	-0.01
LONG ISLAND			
SHELTAIR	KFOK	4.56	0.01
SHELTAIR	KISP	4.52	0.03
SHELTAIR	KFRG	4.40	0.04
ATLANTIC AVIATION	KFRG	4.27	0.00
MAINE			
NORTHEAST AIR	KPWM	4.41	0.12
BANGOR AVIATION SERVICES	KBGR	3.93	0.01
NEW YORK CITY			
MERIDIAN TETERBORO	KTEB	4.68	0.00
MILLION AIR	KHPN	4.55	0.28
JET AVIATION	KTEB	4.48	0.00
SIGNATURE FLIGHT SUPPORT - SOUTH TERMINAL	KTEB	4.41	0.01
SIGNATURE FLIGHT SUPPORT WEST	KHPN	4.34	-0.02
PHILADELPHIA			
ATLANTIC AVIATION	KPHL	3.99	0.02
PITTSBURGH			
ATLANTIC AVIATION	KPIT	4.50	-0.01
WASHINGTON D.C.			
SIGNATURE FLIGHT SUPPORT	KDCA	4.47	0.01
JET AVIATION	KIAD	4.30	0.01
APP JET CENTER	KHEF	4.29	-0.07
SIGNATURE FLIGHT SUPPORT	KIAD	4.26	-0.02



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4.65 Modern Aviation

Centennial Airport (APA), Denver, Colorado

With its customer service representatives rated a solid 4.73 in this year’s survey, Modern Aviation’s Colorado facility takes its place among the leaders. Offering a range of MRO services, hangar and office rentals, as well as a full range of ground handling support, Modern APA (formerly XJet) is one of three locations for the chain, which is pursuing further acquisitions to expand its network in the U.S. and Caribbean. In December, Modern

instituted a voluntary carbon offset program in collaboration with the Carbonfund Foundation. Aircraft operators can bundle carbon-offset contributions with their fuel purchases, benefiting a number of environmental initiatives to combat climate change.

4.64 J.A. Air Center

Aurora Municipal Airport (ARR), Aurora, Illinois

J.A. Air Center at Chicago-area Aurora Municipal Airport (ARR) is a regular among top facilities in the annual AIN FBO Survey. With an 11,000-sq-ft terminal and



100,000-sq-ft hangar, the independent FBO saw a nearly 16 percent year-over-year increase in the fuel volume sales last year. That’s thanks to the basing of a Phenom 300, Gulfstream GIV, Citation Bravo, Falcon 900, and Global Express there all within the last half of 2019, J.A. Air Center operations manager Randy Fank told AIN. Amenities at the Corporate Aircraft Association-Preferred FBO include a 20,000-sq-ft arrival canopy, gym with shower facility, snooze rooms, and pilot lounge.

4.64 Million Air

Addison Airport (ADS), Dallas, Texas

The facility that launched the Million Air brand in 1984, Million Air Dallas at Addison Airport drew high marks for line service, scoring 4.67. The facility recently launched a customer service campaign to “embrace and display luxury service” throughout, from the counter to its line service. A remodeling is planned in Q2 with updated furniture, flooring, wall coverings, and a new Million Air Café. Amenities include Cadillac/Mercedes crew cars, fresh cookies, theater room, and onsite Go Rentals cars. Its terminal spans 18,000 sq ft, joining 200,000 sq ft of hangar space that can house Gulfstream G650-size aircraft. The Avfuel dealer pumps 4.6 million gallons of jet-A annually and hosts 60 based aircraft.



4.64 Sheltair

Jacksonville International Airport (JAX)
Jacksonville, Florida

One of two FBOs at Florida’s Jacksonville International Airport (JAX), Sheltair offers a 31,000-sq-ft terminal with pilot and passenger lounges, gym, showers, and flight-planning and conference rooms, as well as a pair of 20,000-sq-ft hangars that can each house aircraft up to super-midsize jets. Services and amenities include U.S. Customs, crew cars/shuttle, catering, complimentary aircraft cleaning, refreshments/snacks, and concierge. “At Sheltair JAX, we pride ourselves on boundless passion for aviation and anticipating the needs of our customers,” said Sheltair JAX general manager Kirk Svoboda. “Our ability to soar above and beyond wouldn’t be possible without our team—an essential part of what makes us special.”



Top FBOs by Category-Americas

FBO	AIRPORT CODE	AIRPORT	LINE SERVICE
STUART JET CENTER	KSUA	WITHAM FIELD	4.86
WILSON AIR CENTER	KHOU	WILLIAM P HOBBY	4.82
MONTEREY JET CENTER	KMRY	MONTEREY PENINSULA	4.81
PREMIER JET CENTER	KFCM	FLYING CLOUD	4.80
SHELTAIR KTPA	KTPA	TAMPA INTL	4.78
WILSON AIR CENTER	KMEM	MEMPHIS INTERNATIONAL	4.78
			PASSENGER AMENITIES
HENRIKSEN JET CENTER	KEDC	AUSTIN EXECUTIVE	4.80
WILSON AIR CENTER	KMEM	MEMPHIS INTERNATIONAL	4.76
GLOBAL SELECT	KSGR	SUGAR LAND REGIONAL	4.75
AMERICAN AERO	KFTW	FORT WORTH MEACHAM INTERNATIONAL	4.74
SHELTAIR KTPA	KTPA	TAMPA INTL	4.74
			PILOT AMENITIES
AMERICAN AERO	KFTW	FORT WORTH MEACHAM INTERNATIONAL	4.78
GLOBAL SELECT	KSGR	SUGAR LAND REGIONAL	4.78
HENRIKSEN JET CENTER	KEDC	AUSTIN EXECUTIVE	4.73
JET AVIATION	KPBI	PALM BEACH INTERNATIONAL	4.71
MERIDIAN TETERBORO	KTEB	TETERBORO	4.71
PENTASTAR AVIATION	KPTK	OAKLAND COUNTY INTERNATIONAL	4.71
WILSON AIR CENTER	KCHA	LOVELL FIELD	4.71
			FACILITIES
GLOBAL SELECT	KSGR	SUGAR LAND REGIONAL	4.88
BASE OPERATIONS AT PAGE FIELD	KFMY	PAGE FIELD	4.81
HENRIKSEN JET CENTER	KEDC	AUSTIN EXECUTIVE	4.80
PENTASTAR AVIATION	KPTK	OAKLAND COUNTY INTERNATIONAL	4.80
SHELTAIR KTPA	KTPA	TAMPA INTL	4.78
			CSRs
SIGNATURE FLIGHT SUPPORT	KSTP	ST PAUL DOWNTOWN HOLMAN FIELD	4.90
AIR SERVICE HAWAII	PHNL	HONOLULU INTERNATIONAL	4.86
AMERICAN AERO	KFTW	FORT WORTH MEACHAM INTERNATIONAL	4.85
STUART JET CENTER	KSUA	WITHAM FIELD	4.84
MERIDIAN TETERBORO	KTEB	TETERBORO	4.83
PENTASTAR AVIATION	KPTK	OAKLAND COUNTY INTERNATIONAL	4.83

FBOs with same score are listed in alphabetical order



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4.67 Farnborough Airport

(EGLF), UK



Farnborough Airport has been under new ownership since September 2019, when Macquarie Infrastructure and Real Assets purchased the London-area bizav gateway, but the exceptional facility still appears to have the winning formula as it once again topped the annual **AIN** FBO survey outside of the Americas. Former owner TAG invested more than \$150 million in the former military site, transforming it into one of the world’s foremost dedicated business aviation airports.

Early indications are that Macquarie will continue this strategy as it seeks to build on last year’s 5.3 percent traffic growth to 32,366 movements. The group has investments in 12 commercial airports across Europe and Australia, and in 68 U.S. FBOs. Assured access seven-days-a-week continues to be one of Farnborough’s winning attributes, as well as easy access to the M3 highway with fast connections to central London and southern England. It is open from 7 a.m. to 10 p.m. on weekdays and from 8 a.m. to 8 p.m. at weekends, with just two days of full closure each year on December 25 and 26.

Passenger facilities now include a dedicated fast-track airside entrance with direct ramp access to aircraft. For those wanting to use the beautifully appointed terminal building, all the usual amenities are on offer, as well as concierge service, a private lounge, and meeting rooms. For visiting crew there are dedicated rest and snooze rooms, as well as a gym, plus laundry services, an ATM, showers, and a full operations team to provide support. The on-site Aviator hotel has proved to be a popular option for crew wishing to stay close to the airport.

In 2019 Farnborough achieved its goal of being fully carbon-neutral, laying claim to be the world’s first business aviation airport to achieve this level of environmental performance. It achieved this by introducing a wider array of energy efficiency measures and by offsetting carbon emissions by funding measures such as planting trees in its local community. Green initiatives include features such as charging points for electric cars, including dedicated Tesla units.

Farnborough Airport CEO Brandon O’Reilly is to retire from the role at the end of June 2020 and will join the company’s board as a non-executive director. He was appointed in 2006 and led the transformation of the facility into a modern business aviation hub. Macquarie says it will announce his successor “in due course.”

4.57 Universal Aviation

London Stansted Airport (EGSS), UK

It may be one of five FBOs at London Stansted but Universal Aviation’s FBO general manager there, Jason Hayward, says working together—even to the extent of “sharing ideas and equipment” has worked well for

Top Rated FBOs in Europe, the Middle East, Africa, and Asia-Pacific

FBO	AIRPORT CODE	AIRPORT	OVERALL AVERAGE	CHANGE FROM LAST YEAR	PERCENT
FARNBOROUGH AIRPORT	EGLF	FARNBOROUGH	4.67	0.01	Top 20%
UNIVERSAL AVIATION	EGSS	LONDON STANSTED	4.57	-0.01	Top 20%
GRAFAIR JET CENTER	ESSB	STOCKHOLM CITY/BROMMA	4.46	0.02	Top 20%
JET AVIATION	EHAM	AMSTERDAM SCHIPHOL	4.46	0.01	Top 20%
LONDON JET CENTRE (XJET)	EGSS	LONDON STANSTED	4.46	-0.01	Top 20%
TAG AVIATION	LSGG	GENEVA INTERNATIONAL	4.43	-0.01	Top 20%
MJETS FBO	VTBD	DON MUEANG INTERNATIONAL	4.42	0.03	Top 20%
EXECUJET AUSTRALIA	YSSY	SYDNEY KINGSFORD SMITH	4.40	0.09	Top 20%
EXECUJET EUROPE	LSZH	ZURICH	4.36	-0.04	
ECCELSA	LIEO	OLBIA COSTA SMERALDA	4.33	0.00	
JET AVIATION	LSGG	GENEVA INTERNATIONAL	4.33	-0.02	
HARRODS AVIATION	EGSS	LONDON STANSTED	4.31	0.00	
HARRODS AVIATION	EGGW	LONDON LUTON	4.30	-0.01	
JET AVIATION	YSSY	SYDNEY KINGSFORD SMITH	4.29	0.00	
BIGGIN HILL EXECUTIVE HANDLING	EGKB	BIGGIN HILL	4.26	0.03	
SIGNATURE FLIGHT SUPPORT	LFMN	NICE COTE D'AZUR INTERNATIONAL	4.24	-0.03	
SIGNATURE FLIGHT SUPPORT - TERMINAL 3	LFPB	PARIS LE BOURGET	4.24	0.00	
EXECUJET MIDDLE EAST	OMDB	DUBAI INTERNATIONAL	4.22	0.02	
ADVANCED AIR SUPPORT	LFPB	PARIS LE BOURGET	4.20	N/A	
DASSAULT FALCON SERVICES	LFPB	PARIS LE BOURGET	4.18	0.01	
HONG KONG BUSINESS AVIATION CENTER	VHHH	HONG KONG INTERNATIONAL	4.18	0.02	
UNIVERSAL AVIATION	LFPB	PARIS LE BOURGET	4.18	0.00	
EXECUJET BRUSSELS	EBBR	BRUSSELS NATIONAL	4.13	0.01	
SIGNATURE FLIGHT SUPPORT - TERMINAL 1	LFPB	PARIS LE BOURGET	4.13	0.00	
JET AVIATION	OMDB	DUBAI INTERNATIONAL	4.07	0.01	
SKY VALET CANNES	LFMD	CANNES-MANDELIEU	4.07	0.00	
SWISSPORT EXECUTIVE	LFMN	NICE COTE D'AZUR INTERNATIONAL	4.03	-0.01	
AVIAPARTNER EXECUTIVE	LFMN	NICE COTE D'AZUR INTERNATIONAL	4.01	0.05	
SIGNATURE FLIGHT SUPPORT - TERMINAL 1	EGGW	LONDON LUTON	4.00	0.01	
JET AVIATION	LSZH	ZURICH	3.94	0.01	
JET AVIATION	WSSL	SINGAPORE/SELETAR	3.93	0.01	
JETEX PARIS FBO	LFPB	PARIS LE BOURGET	3.93	0.01	
VIENNA AIRCRAFT HANDLING	LOWW	VIENNA INTERNATIONAL	3.86	0.02	
MILLION AIR/CJET	ZBAA	BEIJING/CAPITAL	3.29	-0.07	
VIPPORT VNUKOVO-3	UUWW	MOSCOW/VNUKOVO	3.28	0.01	

FBOs with same overall average are listed in alphabetical order

everybody’s customers. In addition, according to Sean Rafferty, the Houston, Texas-based company’s senior director and managing director, UK, “We all have our own types of business.”

The Universal FBO, which in May 2019 achieved IBAC’s IS-BAH Level II standard, consists of 11,000-sq-ft terminal building on two levels and 40,000-sq-ft private ramp. “That hasn’t changed,” said Hayward, who says the “major remodeling” of the FBO in 2012 for the Olympics (it was originally built in 1984) still “looks good as new.”

The day **AIN** spoke with Hayward and Rafferty, a new dedicated kitchen area had been opened for customers who want to use the FBO for meetings and longer stopovers. Rafferty said the FBO benefits from being part of an international chain of ground support operations in 25 countries, and from the Universal Weather and Aviation parent company’s flight planning and support subsidiary. The Stansted FBO is also home to Universal’s European Operations Centre (EOC). He noted that some 40 percent of FBO users also use UWA trip support services and software, while the other 60 percent increasingly do “DIY trip support” using various apps.

The airport itself has several advantages, said Hayward. For example, it has a 10,000-foot runway, and “Parking at Stansted is comparatively cheap compared to some

other airports in the London region,” and there is “a large supply of hangar space” available.

Rafferty added that being “at the top side” of the London airspace means less traffic and easier routes in and out for business aircraft operators from Europe and the U.S. In addition, slots are not a problem even with the summer night curfew, where they are limited in number—with sufficient forward planning for the latter.

Hayward said the general trend at Stansted has been away from VIP widebodies and toward long-range business jets, and these will benefit from a new low-noise category (Chapter 14) at Stansted later this year, which will mean even lower landing fees.



EUROPE



FBO	AIRPORT	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
GENEVA			
TAG AVIATION	LSGG	4.43	-0.01
JET AVIATION	LSGG	4.33	-0.02
LONDON			
FARNBOROUGH AIRPORT	EGLF	4.67	0.01
UNIVERSAL AVIATION	EGSS	4.57	-0.01
XJET	EGSS	4.46	-0.01
HARRODS AVIATION	EGGW	4.30	-0.01
HARRODS AVIATION	EGSS	4.31	0.00
PARIS			
SIGNATURE FLIGHT SUPPORT - TERMINAL 3	LFPB	4.24	0.00
ADVANCED AIR SUPPORT	LFPB	4.20	N/A
UNIVERSAL AVIATION	LFPB	4.18	0.00
DASSAULT FALCON SERVICES	LFPB	4.18	0.01
SIGNATURE FLIGHT SUPPORT - TERMINAL 1	LFPB	4.13	0.00
JETEX	LFPB	3.93	0.01
SOUTHERN FRANCE			
SIGNATURE FLIGHT SUPPORT	LFMN	4.24	-0.03
SKY VALET CANNES	LFMD	4.07	0.00
SWISSPORT EXECUTIVE	LFMN	4.03	-0.01
AVIAPARTNER EXECUTIVE	LFMN	4.01	0.05
STOCKHOLM			
GRAFAIR JET CENTER	ESSB	4.46	0.02
ZURICH			
EXEJET EUROPE	LSZH	4.36	-0.04
JET AVIATION	LSZH	3.94	0.01

4.57 Grafair

Stockholm City Bromma Airport (ESSB)
Stockholm, Sweden

One wouldn't expect to find an FBO with a Florida vibe in Scandinavia, but that's just what you will encounter when you step into the Grafair terminal at Stockholm's Bromma Airport. The company's founder spent time in Vero Beach operating a flight school before returning to his native land and decided to bring some of that atmosphere back with him, complete with palm tree decor. In addition, he also adopted the U.S. all-inclusive service model, rather than the a la carte plan popular in Europe.

As a result, the 5,400-sq-ft terminal offers a variety of amenities, including a large but cozy passenger lounge with a fireplace, grand piano, aquarium, ice cream cooler, and most notably; the parrot. The pet of general manager Johan Emmoth, it has resided and thrived in the terminal since the FBO opened in 2004, and now has its own Instagram page to communicate with fans. One thing that can't be found in the lobby is a self-serve coffee machine. "We do everything the old-fashioned way," said Emmoth. "You



the Netherlands, noting his staff remained entirely intact after the October 2018 purchase. "A focus area is on the introduction of sustainable aviation fuel at both locations."

Amsterdam Schiphol is currently the third-busiest airport in Europe, and the Jet Aviation FBO is situated near Runway 22/04 on the east side of the airfield, greatly facilitating easy entry and exit to and from the ramp area. The terminal, which is staffed from 6 am until 11 pm, features a crew lounge with computers and Wi-Fi, TVs with international channels, complimentary beverages including beer and wine, along with a game room with billiard table and dart board. The company has 27 staff members in Amsterdam and, along with the Rotterdam location, Amsterdam recently achieved Stage I registration under the International Standard for Business Aviation Handling (IS-BAH).

"With a strong focus on operational excellence and safety, we strive to maximize [our] customers' satisfaction by ensuring an excellent customer experience," Niemoller told AIN. "Getting the aircraft serviced for safe and timely departure is inextricably linked to our ambition of delivering a premium service to both passengers and crews." The location, which notched its highest score this year in the line service category (4.57) has four dedicated and experienced instructors in-house, who perform ramp technician training on major activities such as fueling, deicing and marshaling aircraft.

4.46 London Jet Centre (formerly XJet)

London Stansted Airport (EGSS), UK

London Stansted is located less than 40 miles from central London, and having two of its service providers ranking in the top 20 percent of worldwide FBOs in AIN's annual FBO Survey gives operators a choice of exemplary facilities.

The former XJet FBO there has been a standout among AIN's readers since it opened in 2015, but in October it was sold to Nigerian business tycoon Prince Arthur Eze, while retaining its entire staff of 30; good news to those who awarded the location its highest score (4.61) in the CSR category. At the beginning of the year it was renamed London Jet Centre, marking the second FBO to be changed from the XJet name, following the 2018 sale of its founding location at Colorado's Centennial Airport.

The facility, which is open from 6 a.m. until 10 p.m., with after-hours callout available, celebrates its fifth anniversary of operations at the airport this year. It includes a



4.46 Jet Aviation

Schiphol Airport (EHAM), Amsterdam, Netherlands

Formerly the KLM Jet Center, the FBO at Amsterdam's Schiphol Airport has maintained its popularity with AIN's readership as it worked to finalize its transition to Jet Aviation ownership along with its sister FBO in Rotterdam. "We will start to look for new expansion opportunities in line with the ambitions of Jet Aviation," said Edwin Niemoller, the company's director of FBO operations for

20,000-sq-ft terminal with a passenger lounge; two VIP suites with direct private access and ensuite bathrooms; an espresso bar, along with the more traditional cocktail bar; an aviation-themed pilot lounge with a pair of snooze rooms and shower facilities; and an 18-seat A/V-equipped conference room as well as an in-house art gallery.

Home to 14 private jets, including an Airbus A340 and a Boeing 767, the facility has a 90,000-sq-ft climate-controlled hangar, one of the largest in Europe, which can shelter two 747s at the same time should the need arise. The company is certainly well-equipped to handle virtually any aircraft, with more than 3.5 acres of ramp, and ground equipment such as covered airstairs.

4.43 TAG Aviation

Geneva Intl Airport (LSGG), Geneva, Switzerland

While TAG Aviation may have sold off its showpiece Farnborough Airport last year, the company operates a trio of FBOs at Geneva and Sion in Switzerland, as well as

Macau. The former has gained a reputation for excellence among AIN's readers, who awarded it its highest score in the line services category (4.59). Among its aircraft services are fueling, deicing, and FAA Part 145 maintenance, along with cabin detailing and aircraft washing.

Last year, the facility, which has achieved Stage 2 registration under IBAC's International Standard for Business Aviation Handling (IS-BAH), saw 16,545 movements, good for a more than 4 percent increase over 2018, and welcomed 35,000 passengers, on its way to a more than 50 percent market share among ground handlers at the airport.

TAG has had a presence in Geneva for more than three decades, and its facility in the shared C3 private terminal includes three private passenger lounges, two crew lounges, a snooze room, eight-seat conference room, flight-planning area, and, given the airport's location on the Switzerland/France border, onsite Swiss and French customs clearance. The location, which is open from 6 am until 10 pm local time, also displays a continually rotating exhibition of local artwork in its lobby. An interior refurbishment is slated for next year.



Customer service is always a key concern for the facility and its 35 staff members, according to Erturk Yildiz, FBO handling manager for TAG Aviation Europe. "We look after our people sincerely and seriously, without forgetting that the competitor's doors are just two meters away," he said. "Our guests, customers, and crew deserve the best service we can offer."

Yildiz spoke to the difficulties of maintaining such a focused staff. "The hard part of the recruiting process is finding service-oriented people." Such potential staffers do not have to be from the aviation industry, he said, adding that candidates from the hotel industry are also appreciated. New hires receive classroom training before integration and practical experience, where they are constantly shadowed by a more experienced team member. A competency check list must then be completed before they are allowed to work autonomously.

4.42 MJets FBO

Don Mueang International Airport (VTBD)
Bangkok, Thailand

While MJets has operated its FBO at Bangkok's Don Mueang International Airport for a decade now, the company really opened the industry's eyes when it debuted its permanent \$8.6 million dollar facility in 2016. It is the only FBO in Asia to reach the top 20 percent worldwide in AIN's annual FBO survey. The 26,000-sq-ft, two-story terminal features a 3,400-sq-ft lounge which can accommodate up

to 75 guests at a time with its private lounge, business center, concierge, and meeting rooms that served to give the facility its highest score in the Passenger Amenities category (4.61); a crew lounge with private showers and sofa beds; four conference/training rooms, the largest of which can accommodate 60 people; and onsite customs, immigration, and quarantine, along with visa services. Having those services in-house has reduced the international arrival/departure process for customers to under seven minutes, according to MJets chairman Jaiyavat Navaraj.

Top Rated FBOs in the Rest of the World by Region

MIDDLE EAST



FBO	AIRPORT	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
DUBAI			
EXECUJET MIDDLE EAST	OMDB	4.22	0.02
JET AVIATION	OMDB	4.07	0.01

ASIA PACIFIC



FBO	AIRPORT	2020 OVERALL AVERAGE	CHANGE FROM LAST YEAR
BANGKOK			
MJETS FBO	VTBD	4.42	0.03
SYDNEY			
EXECUJET AUSTRALIA	YSSY	4.40	0.09
JET AVIATION	YSSY	4.29	0.00
BEIJING			
MILLION AIR / CJET	ZBAA	3.29	-0.07
HONG KONG			
HONG KONG BUSINESS AVIATION CENTER	VHHH	4.18	0.02

Top FBOs by Category-International

FBO	AIRPORT CODE	AIRPORT	LINE SERVICE
UNIVERSAL AVIATION	EGSS	LONDON STANSTED	4.73
BIGGIN HILL EXECUTIVE HANDLING	EGKB	BIGGIN HILL	4.61
EXECUJET AUSTRALIA	YSSY	SYDNEY KINGSFORD SMITH	4.61
JET AVIATION	EHAM	AMSTERDAM SCHIPHOL	4.57
GRAFAIR JET CENTER	ESSB	STOCKHOLM CITY/BROMMA	4.47
			PASSENGER AMENITIES
FARNBOROUGH AIRPORT	EGLF	FARNBOROUGH	4.73
MJETS FBO	VTBD	DON MUEANG INTERNATIONAL	4.61
TAG AVIATION	LSGG	GENEVA INTERNATIONAL	4.59
HARRODS AVIATION	EGGW	LONDON LUTON	4.56
ECCLSA	LIEO	OLBIA COSTA SMERALDA	4.54
EXECUJET EUROPE	LSZH	ZURICH	4.54
			PILOT AMENITIES
FARNBOROUGH AIRPORT	EGLF	FARNBOROUGH	4.74
UNIVERSAL AVIATION	EGSS	LONDON STANSTED	4.55
GRAFAIR JET CENTER	ESSB	STOCKHOLM CITY/BROMMA	4.46
LONDON JET CENTRE (XJET)	EGSS	LONDON STANSTED	4.34
TAG AVIATION	LSGG	GENEVA INTERNATIONAL	4.31
			FACILITIES
FARNBOROUGH AIRPORT	EGLF	FARNBOROUGH	4.84
EXECUJET EUROPE	LSZH	ZURICH	4.55
ECCLSA	LIEO	OLBIA COSTA SMERALDA	4.53
JET AVIATION	EHAM	AMSTERDAM SCHIPHOL	4.51
MJETS FBO	VTBD	DON MUEANG INTERNATIONAL	4.49
			CSRs
UNIVERSAL AVIATION	EGSS	LONDON STANSTED	4.76
EXECUJET AUSTRALIA	YSSY	SYDNEY KINGSFORD SMITH	4.63
LONDON JET CENTRE (XJET)	EGSS	LONDON STANSTED	4.61
FARNBOROUGH AIRPORT	EGLF	FARNBOROUGH	4.54
MJETS FBO	VTBD	DON MUEANG INTERNATIONAL	4.52

FBOs with same score are listed in alphabetical order

In swift response to the global Covid-19 pandemic, portable and static thermal scanners are among the latest additions. They can detect people (including arriving and departing passengers and crew) with fevers to prevent them from entering the terminal. Aircraft cabin disinfection services have also been added. Navaraj noted that the company, the first in Southeast Asia to earn accreditation under IBAC’s International Standard for Business Aviation Handling (IS-BAH), is currently working through the airport’s approval process to have a solar roof installed, which will make the facility greener, reducing its energy costs by 20 percent.



Above & Beyond

PERSON	FBO	AIRPORT CODE
Alexsandra Camargo	FONTAINEBLEAU AVIATION	KOPF
Amy Brothers	WILSON AIR CENTER	KCHA
Beverly Patton	SHELTAIR	KFLL
Bill Sneesby	SIGNATURE FLIGHT SUPPORT	KTPA
Blanche Ng	HONG KONG BUSINESS AVIATION CENTER	VHHH
Brent Beutler	AVFLIGHT	KTVK
Brice Allen	ATLANTIC AVIATION	KAUS
Caden Rodning	PREMIER JET CENTER	KFCM
Christina Carey	ALLIANCE AVIATION SERVICES	KAFW
Daniele Hendricks	AERO CHARTER	KSUS
Dennis Montgomery	GARY JET CENTER	KGYY
Dexter Tatum	NORTHEAST AIR	KPWM
Elizabeth Drexler	MILLION AIR	KADS
Erika Estrada	SHELTAIR	KDAB
Erturk Yildiz	TAG AVIATION	LSGG
Holly Hopkins	TEXAS JET	KFTW
Janette Licastrino	MILLION AIR	KHPN
Jesica Morse	APEX EXECUTIVE JET CENTER	KMLB
Jessica Rowden	CUTTER AVIATION	KABQ
Jimmy Thate	SIGNATURE FLIGHT SUPPORT	KPBI
Johana Echeto	SHELTAIR	KORL
Josie DaCosta	SKYSERVICE	CYYZ
Karah Brubaker	VAIL VALLEY JET CENTER	KEGE
Kawai Lopez	MONTEREY JET CENTER	KMRY
Kyle Quinn	MODERN AVIATION	KAPA
Lindsey Leland	AMERICAN AERO	KFTW
Lisa LaMantia	ADVANCED AIR	KCBF
Pablo Garcia	BANYAN AIR SERVICE	KFXE
Rita Tam	TAG AVIATION	VMMC
Sabrina Elias	MILLION AIR	KHOU
Sandy Tachovsky	SIGNATURE FLIGHT SUPPORT	KSTP
Scott Capehart	AERO-ONE AVIATION	KDHN
Steffanie Duck	SHELTAIR	KECP
Sue Stevens	MAC JETS	KPWM
Tatyana Saldana	CLAY LACY AVIATION	KVNY
Vanessa Aragon	ATLANTIC AVIATION	KSCK
Venus Koenig	SHELTAIR	KJAX

The facility has approximately 85,000 sq ft of hangar space, including a 32,300-sq-ft structure that can accommodate a pair of BBJ/ACJ-size aircraft. As MJets also provides charter service, the hangars are home to its five jets and three others under management.

4.40 ExecuJet Australia

Sydney Kingsford Smith Airport (YSSY)
Sydney, Australia

A newcomer to the top rungs of the **AIN** FBO Survey this year is ExecuJet at Australia’s Sydney Kingsford Smith Airport. One of two service providers on the field, the FBO, which handles VIP/diplomatic as well as corporate flights, was recently renovated. It now offers 2,700 sq ft of dedicated lounge space that opens onto the ramp, as well as private conference rooms, concierge service and passenger and crew transportation.

According to Darren McGoldrick, ExecuJet’s vice president for Asia-Pacific, the facility is known for a warm, friendly welcome from its customer service staff. That corroborates the reviews from **AIN**’s readership, which awarded the FBO its highest score (4.63) in the CSR category. “Our philosophy is about building a long-term relationship with our customers, ensuring we deliver on our



promises, anticipate their requirements, and are respectful of their privacy,” said McGoldrick, adding guests need to feel at home when they come to the FBO. “Customers are the most powerful ambassadors a business can have.” Being a global aircraft operator as well as a service provider gives the company a leg up when it comes to understanding the needs of customers, McGoldrick believes.

The FBO is co-located with the ExecuJet MRO facility on the eastern end of 8,300-foot Runway 07/25, and its hangar can accommodate aircraft up to a Bombardier Global. Five of the company’s managed aircraft are based at the Sydney location. ExecuJet also manages another large hangar facility that the FBO uses for transient aircraft; it can accommodate up to four ultra-long-range business jets. ExecuJet acquired the location in 2017 from Universal Aviation, and became the first FBO in Australia to achieve IS-BAH Stage 1 accreditation. ■

Advice from CSR All Stars

Exemplary customer service is widely recognized as one the most defining features of a quality FBO, so we asked some experts in the field—those who have been highlighted in the past for their outstanding service by our readers—for their views on what makes a great customer service representative.

“The best customer service reps are intuitively friendly, caring individuals who have a real passion for helping people. Any good CSR or CSR team should see itself as an extension of their customer’s flight departments. By personalizing the experience, paying attention to detail, and trying to stay one step ahead of requests, a great CSR will be able to ensure that the customer feels welcomed and well cared for.”

Betsy Wines
Vice president of customer service and human resources,
Meridian Teterboro

“A great CSR possesses an ability to read people by their behaviors, body language, and voice inflection and use that information to anticipate a customer’s needs. By paying attention to details, a CSR can make a busy and sometimes weary traveler feel at home. Simple things, like remembering a customer’s name, how many children they have, or even their favorite snack, all create an environment of family and belonging.”

Angela Thurmond
General manager, American Aero FTW

“What makes a good CSR is someone who has the desire to serve others. This person shows up for work not just wanting to do a good job; they think of ways to delight customers and ways to serve people beyond what they ask for. A good CSR does more than what is required. The main concern is the customer and how the customer feels. When this is the goal, everything else just falls into place.”

Holly Hopkins
Customer service manager, Texas Jet

“If [CSRs] are curious, they will be curious with the customer as well and want to get to know them and make them feel at home. Engaging is huge! They need to have personality and not be shy, but also know when to listen...I love to follow up with a customer to see how their experience was at our facility. When they would email or call me back, I made sure the team knew what they did and how the customer was pleased. It makes the team want to do it again and becomes infectious.”

Julie Silberman
Executive director of marketing, branding, and sales,
Odyssey Aviation

“I would define a good CSR as someone who possesses a great, open personality, and who is service minded. Our culture requires that in a CSR. We can teach anyone technology but you can’t teach a personality along with a friendly smile. A good CSR is someone who can build relationships with customers and is genuinely a compassionate person. Hiring a CSR who has these qualities will create a happy work environment with happy customers.”

Traci Fremin
Director of sales and customer service standards,
Atlantic Aviation

“Knowledge, relationships, trust, and commitment drive my passion for providing service above and beyond. Love the details, develop and maintain a network of resources, share what you know with others, always anticipate what is needed, and be ready for anything. Most importantly, wake up to a great day and carry with you a smile and kindness, ready to pass along freely.”

Beverly Patton
Customer relations ambassador, Sheltair

Aviation leaders mourn HAI's Matt Zuccaro

by Mark Huber

Aviation industry and government leaders reacted to Matt Zuccaro's death with heartfelt gratitude for an exemplary life of service. Zuccaro, 70, the immediate past president of the Helicopter

Association International (HAI), died February 25. He had retired from HAI in January after a tenure that began in 2005 and was marked by successful industry-wide efforts to dramatically improve

helicopter safety and reduce the overall helicopter accident rate.

"Matt's retirement from the industry left a huge void in our lives, and his passing brings an even greater loss to us all," said



Matt Zuccaro, former president of the Helicopter Association International.

Mark Baker, president of the Aircraft Owners and Pilots Association. "Matt was an invaluable and respected leader throughout this industry, and his service to our country and passion for aviation will remain in our hearts always." NBAA president and CEO Ed Bolen called Zuccaro "a patriot, a leader, a consummate professional, and a friend."

"Matt was a good friend and advisor to me and an incredible asset to the entire general aviation community," said U.S. Rep. Sam Graves (R-Missouri), the ranking member of the House Transportation and Infrastructure Committee. Graves called Zuccaro a "straight-shooting, passionate leader." Zuccaro's successor at HAI, Jim Viola, said, "We are a better, stronger, and safer industry today because of his efforts on behalf of rotorcraft." General Aviation Manufacturers Association president Pete Bunce said Zuccaro was "a devoted leader in the general aviation industry" and "a forceful champion for the rotorcraft community." National Air Transportation Association CEO Timothy Obitts called Zuccaro a "staunch protector of the industry. His keen sense of humor and willingness to share his wealth of knowledge will be greatly missed."

During his career, Zuccaro held several executive and operations management positions with commercial, corporate, air-tour, scheduled airline, and public-service helicopter operations in the northeastern U.S. At the Port Authority of New York and New Jersey, he served in operations management positions at John F. Kennedy International Airport and the Port Authority's public and private heliports. Before assuming the helm at HAI, Zuccaro served as the organization's chairman, vice chairman, treasurer, and assistant treasurer as well as a director for six years. He also served as a special advisor to HAI's board. Zuccaro also was a past

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president of the Eastern Region Helicopter Council (ERHC).

He received his initial helicopter flight training as a U.S. Army aviator and served with the 7/17 Air Cavalry unit in Vietnam, for which he was awarded two Distinguished Flying Crosses, three Bronze Stars, and 19 Air Medals. He was subsequently assigned as a flight instructor at the Army Flight School at Fort Rucker, Alabama. He held airline transport pilot and certified flight instructor-instrument certificates for both airplanes and helicopters. Zuccaro was a recipient of the HAI Pilot Safety Award for 10,000 hours of accident- and violation-free flight hours, the NBAA Pilot Safety award, and numerous other industry awards for his efforts and commitment to the helicopter industry.

Zuccaro's signature effort in this regard was HAI's "Land & Live" campaign in which he urged pilots to "land the damn helicopter" as opposed to continuing to fly in problematic and potentially unsafe conditions. In 2013, he wrote, "In many accidents, there is prior knowledge that all is not well. With fuel exhaustion, most pilots are aware of low fuel and the uncertainty of reaching fuel. In weather-related incidents, pilots know they are in less-than-desirable weather conditions, with difficulty maintaining visual flight rules. Accidents caused by mechanical failures involve alerts by warning systems and abnormal noises or vibrations. In a medical incapacitation or under-the-influence case, the pilot is usually aware of his substandard performance and diminished abilities. With the above in mind and assuming an acceptable landing site is available, why don't pilots exercise one of the most unique and valuable capabilities of vertical flight—namely, land the damn helicopter! In a high percentage of crashes, this simple act would break the chain



Zuccaro championed Land and Live, a program that emphasized pilots' ability to control the accident chain.

of events and prevent the accident."

In January, Zuccaro told AIN, "I've loved every minute of the last 15 years that I was president and CEO [of HAI]. Leading this association offered me the opportunity to pay back the industry that has provided me with a rewarding and fulfilling career."

Zuccaro is survived by his wife of 50 years, Doreen, two children, and two grandchildren. ■

NEWS note

Three U.S. House members are striving to take a more comprehensive overview of the myriad sustainability initiatives in the aviation sector, introducing a bill that calls for a database to track such efforts and a report on the overall efforts. **The National Evaluation of Aviation and Aerospace Solutions to Climate Change Act** would direct agencies to study climate change mitigation efforts within aerospace, develop an assessment of the effectiveness of those efforts, identify barriers, and develop recommendations. ■



New Aviation Hangar Parking and Maintenance Facility Operational in Clark, 2020 Q2

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Army FLRAA moves forward with Valor, Defiant choice

by David Donald

The U.S. Army's Future Long Range Assault Aircraft (FLRAA) program has made significant progress with the March 16 award of contracts to bidders Bell and Sikorsky/Boeing. The contracts cover competitive demonstration and risk reduction (CD&RR)

work associated with the Bell V-280 Valor and Sikorsky/Boeing SB-1 Defiant. With the awards, these two types become the official contenders for the FLRAA selection, which is intended to find a replacement for the Sikorsky UH-60 Black Hawk.



Bell's V-280 Valor refines the V-22 Osprey tiltrotor concept by introducing tilting blades, rather than the whole nacelle rotating.

The contracts have been awarded via the Other Transaction Authority (OTA) channel, which is more flexible than the traditional Department of Defense contractual process, and which does not require the Army to release contract values. Over two years the companies will produce conceptual designs and perform risk and trade studies, leading to the launch of a full program of record competition and down-select in 2022. The winning FLRAA design is scheduled to enter service around 2030.

Both Bell and Sikorsky/Boeing will draw on the large amounts of flight data amassed with the V-280 and SB-1 prototypes, which were produced for the Army's Joint Multirole Technology Demonstrator (JMR-TD) trials. Whereas a majority of JMR-TD work was company-funded, the DoD is providing around two-thirds of the funding for the CD&RR phase.

The V-280 Valor first flew in December 2017 and has now amassed more than 170 hours. It has reached its intended optimal cruise speed of 280 knots, with a top speed of over 300. The SB-1 first flew in March 2019 but was temporarily grounded soon after as a technical issue encountered with a ground testbed was resolved. It returned to the air in September and has been flying regularly since. The aim is to push its speed envelope out to at least 250 knots. ■

Bryant's widow files lawsuit in fatal L.A. crash

by Mark Huber

Kobe Bryant's widow, Vanessa, filed a wrongful death suit in Los Angeles County Circuit in late February against Island Express Helicopters, its holding company, and the estate of pilot Ara Zobayan. Vanessa Bryant is being represented by the Los Angeles law firm of Munger, Tolles & Olson and joined by the Kansas City aviation law firm of Robb & Robb, which specializes in helicopter accidents. Robb & Robb has secured large settlements from a variety of helicopter crashes including \$100 million for the survivor of the crash of an Air Methods Airbus AS350 B3e near Frisco, Colorado, in 2015. Neither firm returned AIN's request for comment.

The suit does not specify damages, but charges the helicopter operator and the pilot with 27 negligence and fraud-related counts, according to the Los Angeles Times. Retired Los Angeles Lakers basketball legend Bryant, his daughter Gianna, and six other passengers died January 26 when an Island Express Sikorsky S-76B flown by Zobayan crashed while on a VFR Part 135 flight near Calabasas, California. Information released by

the National Transportation Safety Board suggests that the helicopter crashed while Zobayan was attempting to fly in an area of rising terrain and instrument meteorological conditions.

This legal action came one week after various media outlets reported that Zobayan had received "counseling" from the FAA after penetrating Los Angeles International Airport (LAX) Class B airspace without permission while flying an AS350 in May 2015. In that incident, Zobayan had requested a special VFR (SVFR) transition and was denied. Per policy and instructions on the Los Angeles terminal area chart, SVFR is prohibited at LAX for fixed-wing operations. It is not prohibited for rotary-wing operations but, depending on traffic flow, can be difficult to obtain.

Per previous reporting, Zobayan was a veteran helicopter pilot with more than 8,000 hours' total time and had extensive experience flying in the L.A. basin and its complicated airspace. FAA counseling for inadvertent or infrequent airspace or other types of violations is not uncommon. In a recent high-profile case, in 2017

actor and pilot Harrison Ford was given "counseling" after accidentally landing an Aviat Husky on a taxiway at John Wayne International Airport (KSNA) in Santa Ana, California.

AIN learned that Island Express Helicopters had been fined by the FAA in the amounts of \$8,500 and \$10,950 in 2018 for violations of the agency's drug-testing requirements. Drug-testing fines represented the majority of FAA enforcement actions in 2018, comprising 90 out of the 176 cases for the year, according to FAA quarterly enforcement action reports examined by AIN. Major aviation industry companies such as Delta Air Lines, NetJets, and PHI Helicopters all were caught up in what were largely technical violations related to FAA drug-testing protocol and/or requirements. FAA drug-testing fines in the first quarter of 2018 alone amounted to \$332,040 distributed across 27 cases.

In a statement from Island Express to AIN the company said, "During a regular FAA audit of Island's drug program in 2018, it was discovered that two employees were not immediately added to the random testing pool after their negative pre-employment tests. The fines were paid. The program was changed so that all applicants are automatically added to the pool. The employee involved was not Ara Zobayan."

The FAA did not respond to AIN's request for comment. ■

News Update

Russian Ansat Gets VIP Interior, China Approval

Russian Helicopters has received certification approval from Rosaviatsiya for its new "Aurus" executive cabin in its light-twin Ansat helicopter, clearing the way for deliveries. The light multi-purpose Ansat helicopter was designed by the Kazan Helicopter Plant's design bureau for missions including passenger and VIP transport, cargo delivery, environmental monitoring, and air medical ambulance. Tests of the new interior included those for cabin electromagnetics. The VIP layout includes two single seats and a facing three-place bench. Concurrent with this approval, Russian Helicopters also said the Ansat has received certification validation from the Civil Aviation Authority of China (CAAC). In 2018, Russian Helicopters signed a contract to supply 20 Ansats to the Chinese Emergency and Disaster Relief Association. The helicopter received initial Russian certification in 2013 and an EMS variant was certified in 2015.

Bristow Partners With Schiebel for UK SAR

Helicopter operator Bristow has partnered with Schiebel to conduct the first trial in the UK of unmanned aircraft for maritime and land search-and-rescue. Bristow is the provider of the HM Coastguard Search and Rescue Helicopter Service. The company is operating a Schiebel Camcopter S-100 from Caernarfon Airport in Wales to evaluate its SAR capabilities. Bristow chose to conduct the evaluation from Caernarfon because it offers a dynamic operational area that includes mountainous and maritime environments in a complex airspace environment. The evaluation is being done in parallel with the UK Maritime and Coastguard Agency's efforts to develop beyond visual line of sight (BVLOS) regulations for UAVs.

Honeywell Offers Synthetic Vision for AW139s

Leonardo is upgrading the avionics on new AW139s to the Honeywell Primus Epic 2.0 Phase 8 that includes the SmartView synthetic vision system. SmartView is usable down to hover and can facilitate nine-degree descents to landing. Phase 8 also features a more user-friendly iNav map, an improved cursor control device that speeds map manipulation and menu navigation, and wireless high-speed data loading. The navigation system is track-based and follows the actual path of the helicopter while accounting for wind and other environmental factors. "With the Epic 2.0 Phase 8 upgrade, AW139 pilots will...reduce the time and cost of some operations, especially those in weather and around challenging terrain [and] experience some of the best safety features available anywhere in the helicopter market," said Honeywell vice president of cockpit systems Mike Ingram.



The VH-92A retains the green/white scheme worn by HMX-1's current "Marine One" helicopters.

HMX-1 presidential helicopter maintains momentum

The U.S. Naval Air Systems Command's PMA-274 program office has awarded a contract to Sikorsky Aircraft to procure six more VH-92A helicopters as part of the Presidential Helicopter Replacement Program. The type is replacing the VH-3Ds and VH-60Ns serving with Marine squadron HMX-1, based at MCAS Quantico, Virginia. The unit conducts presidential and associated transport duties, using the callsign "Marine One" when the President is aboard. The VH-92A can be transported to distant locations inside a C-17 airlifter.

Valued at \$470,813,279, the firm-fixed-price modification to a previous contract not only covers the procurement of Lot II low-rate initial production helicopters, but also six cabin-modification kits and interim contractor support. Sikorsky builds the VH-92As at its Stratford, Connecticut, factory, and parent company Lockheed Martin installs the specialist interior and mission communications system in Owego, New York.

Sikorsky initially built two Engineering Development Model (EDM) aircraft, the first of which flew on July 28, 2017. An operational assessment of the two EDMs conducted by the HMX-1 Operational

Test Team resulted in Milestone C being declared on May 30, 2019, clearing the way for low-rate production. In September 2018, the team conducted 14 landings on the White House South Lawn and also tested it at other key locations such as Joint Base Andrews and Camp David. A VH-92A was also loaded into a C-17 to verify its air transportability, while ground support equipment was fit-checked in C-130 and MV-22 transports.

Sikorsky then built four System Demonstration Test Article (SDTA) aircraft. Three of them, and the EDMs, have been handed over to the U.S. Navy for tests at NAS Patuxent River, Maryland, with the fourth SDTA is due to be delivered in May. The Navy is on track to conduct Initial Operational Test and Evaluation later this year.

The U.S. Marine Corps program of record covers the procurement of 23 VH-92As, of which 17 are to be mission aircraft. Of the remainder, four are earmarked for training and two for ongoing tests. An initial LRIP Lot I batch of six VH-92As is on course for delivery in 2021. The latest Lot II LRIP batch is to be delivered in 2022, with the remaining five to be procured for 2022/23 delivery. **D.D.**

■ Safran opens new \$54M campus in Tarnos

Safran Helicopter Engines opened a \$54 million, 355,000-sq-ft industrial campus in the city of Tarnos in southwest France last month. The new campus, "CAP 2020," represents a significant modernization of the existing facility there and will mainly be dedicated to product support and MRO activities, including the hub for Safran Helicopter Engines' global support network.

Its Tarnos campus currently employs 1,550 and is the company's second-largest facility behind the main plant at Bordes. The new campus is spread over three buildings dedicated to office space to manage global support, a repair shop for in-service engines, and a parts and components

repair shop dedicated to the MRO of Safran engines from its worldwide support sites.

CAP 2020 is expected to assist Safran in achieving its previously stated goal of reducing MRO cycles by 30 percent. "This new industrial campus complex enables us to welcome our customers to a modern site and offer them the very highest quality of service. CAP 2020 also provides our teams with a rejuvenated working environment that will help them realize their full potential," said CEO Franck Saudo. The new campus also is expected to be the hub for Safran's contract with France's armed forces and parapublic services that covers 1,600 engines. **M.H.**

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Helo crashes trigger probe of Honolulu FAA FSDO

by Mark Huber

The FAA's Honolulu Flight Standards District Office (FSDO) is under fresh scrutiny following two separate whistleblower complaints filed last year regarding the office's oversight of a pair of helitour operators involved in recent fatal accidents.

Since June, staff from the U.S. Senate Committee on Commerce, Science, and Transportation have been investigating the allegations from FAA employees that their supervisors obstructed effective oversight of operators, issued improper check ride certifications, had "inappropriate" relationships with operators, and retaliated against the employees when they questioned supervisors' conduct in these matters.

In a public statement issued on January 31, the Commerce Committee accused the FAA of stonewalling its investigation by both delaying the production of requested documents for months at a time and then producing tranches of documents that were largely incomplete and irrelevant. The Commerce Committee also suggested that the FAA was engaged in ongoing harassment of at least one of the whistleblowers and has asked the Transportation Department's Inspector General to investigate "these allegations of regulatory violations and whistleblower retaliation."

In a statement provided to **AIN**, the FAA said, "The FAA takes allegations of wrongdoing very seriously and prioritizes safety above all else. The U.S. Senate Committee on Commerce, Science, and Transportation acknowledges that its review of these allegations is 'incomplete and not yet conclusive.' The FAA itself has been investigating these matters and is already taking steps to address substantiated concerns. As we have indicated to the committee, we cannot comment further on any pending investigations or potential enforcement actions."

This is not the first time the Honolulu FSDO has drawn unwanted attention. During an FBI raid on the headquarters of Guam-based Hansen Helicopters in 2016, documents were uncovered that led to the federal wire fraud indictment of Honolulu FSDO Aviation Safety Inspector Timothy Cisló, who subsequently pleaded guilty to three counts of wire services fraud in 2018 for taking a 2014 bribe from Hansen in the form of a Taylorcraft BC-12D light aircraft valued at \$20,000.

Hansen acquired a pair of written-off helicopters and returned them to service after Cisló signed off on inspections that were backed by missing/falsified maintenance logs that clearly misstated the extent of the helicopters' original accident damage. The bribe was paid in exchange for issuing and reissuing special airworthiness

certificates for helicopters without performing the requisite inspections.

In emails with Hansen employees, Cisló referred to these illegal certificate approvals as "sign-fests," according to federal prosecutors. Cisló was also involved in irregularities involving the paperwork on at least eight other Hansen helicopters, according to criminal complaints. Cisló's activities came to light during an NTSB investigation of a September 2015 crash of a Hughes 369, N9068F, off Manra Island, Kiribati, that killed the pilot. N9068F had previously been reported as "destroyed" following a 1997 crash in Saipan, India. The reported serial numbers of the aircraft from both accidents match.

Fatal Accidents

More recent fatal crashes, by Hawaiian helitour operators Novictor Helicopters and Safari Helicopters, are central to the current whistleblower complaints and the Commerce Committee's investigation into the Honolulu FSDO. The initial complaint was made to the committee in June following the fatal crash of a Novictor-operated Robinson R44 on April 29 that killed all three aboard, one of three accidents involving the operator in the last two years.

A second FAA whistleblower, publicly identified by the committee as FAA principal operations inspector (POI) Joseph Monfort, then came forward in December and alleged that managers in the Honolulu FAA FSDO had "an inappropriately close relationship" with the company and had "granted multiple policy deviations" for it. Novictor is owned by Helicopter Association International board member Nicole Vandelaar.

John Cox, Novictor's vice president for safety, issued the following statement on February 17. "On January 31st, Novictor became aware of grossly misleading allegations by a rogue FAA inspector to a Senate committee. The complaint contains numerous inaccuracies and mischaracterizations both of Novictor's operations and Novictor's relationship with the FAA. Novictor is, and always has been, focused on safety and compliance with the appropriate federal aviation regulations and categorically denies any allegation that states or implies otherwise." Cox went on to point out that Novictor employs an FAA-recognized safety management system and that Novictor "and numerous other operators have had substantial difficulty with working with this particular inspector for quite some time."

Authorized Deviations

According to Monfort, Novictor's letter of authorization (LOA) to conduct air

tours under Part 91 was revoked in November 2018 following an Oct. 22, 2018 crash of a Novictor-operated R44 that seriously injured the pilot and his two passengers and a Sept. 18, 2018 crash that substantially damaged another company-operated helicopter during an emergency landing. Novictor was then required to operate under the more stringent Part 135.

On Nov. 20, 2018, Monfort's front line manager approved Part 135 check airman authority to Vandelaar, even though she had been denied a similar approval in 2017 by the FAA's regional flight standards manager due to lack of qualifications under 14 CFR 119.71. That rule requires a director of operations to have three years of managerial experience within the last six years. Monfort's investigation of Novictor's fatal April 2019 crash revealed the discrepancy and on May 3, 2019, he revoked Vandelaar's check airman authority by letter.

His supervisor removed Monfort from the crash investigation later that day. This was corroborated by documents reviewed by the Committee.

Monfort also charges that his supervisors stymied his oversight of another company in his portfolio, Safari Aviation, based on the Hawaiian island of Kauai. It operated a tour helicopter that crashed on December 26, killing seven. Monfort said his supervisors did not approve his requests to visit Safari in September and November last year.

In 2016, Monfort "had initiated a review of Safari's training program due to deficiencies he noted in a check ride with the pilot involved in the December 26, 2019 crash," according to the Commerce Committee. Monfort said he was subsequently suspended twice after he appealed to senior FAA management to overturn his direct supervisor's decision not to send him to visit Safari, action he alleges is whistleblower retaliation. He has filed a whistleblower retaliation complaint with the U.S. Office of Special Counsel.

But the Commerce Committee suggests that FAA retaliation against Monfort is ongoing. In January, an FAA special agent began re-interviewing Monfort with regard "to a previously investigated matter from 2018 in which he alleged deficiencies in a Part 135 operator's training program. Additionally, Monfort was notified that he would be interviewed by FAA and DOT attorneys in February 2020 regarding a fatal helicopter accident he investigated in October of 2017. "Mr. Monfort reports increasing pressure by his FAA manager to revise findings of his

Novictor investigations," the committee reported.

The Commerce Committee concluded that its "thorough investigation and review of available documents lends credibility to Mr. Monfort's disclosures and appears to corroborate many of his allegations. The review, while incomplete and not yet conclusive, raises significant concerns about the efficacy of FAA oversight in Hawaii." ■

■ First executive Mi-38 helicopter delivered

Russian Helicopters has delivered the first serial-produced Mi-38 with a new, 10-passenger "highly comfortable" executive cabin configuration.

The multipurpose, super-medium Mi-38 twin is suitable for missions such as cargo,

passenger transport, search-and-rescue, air ambulance, and offshore support. The Mi-38 features twin Klimov TV7-117V engines, Transas Aviation glass cockpit avionics, a six-blade main rotor, and rotor anti-ice. **M.H.**

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EASA has approved Universal's ClearVision system with SkyLens head-wearable display on the ATR 72/42.

Head-wearable display obtains first certification

by Matt Thurber

Universal Avionics Systems has received European Union Aviation Safety Agency certification for its ClearVision enhanced flight vision system (EFVS) with SkyLens head-wearable display, the first time that a head-wearable display has been certified for civil aviation. The certification is on the ATR 72/42 regional airliner.

This approval will allow operators to use the "visual advantage" available with the ClearVision EFVS to initiate instrument approaches or take off in lower flight visibility, which will help operators meet schedules and avoid having to divert to alternate airports. Operators will also be able to use the system for enhanced vision system- or EVS-to-land capability, allowing landings in poor visibility without using natural vision to look outside the aircraft.

The ClearVision EFVS works with traditional head-up displays (HUD), head-down (instrument-panel-mounted) displays, and Universal's SkyLens head-wearable display (HWD). ClearVision can display enhanced vision and synthetic vision system imagery, and it can blend those images in a combined-vision format. An advantage of the SkyLens HWD is that its field of view is not limited, as is the case with a traditional HUD or head-down displays. The SkyLens field of view (or "field of regard," as Universal describes it) is basically unlimited and depends on where the pilot is looking.

"The certification of our EFVS with SkyLens is a breakthrough in commercial aviation," said Universal CEO Dror Yahav. "Aircraft operators can now take advantage of major enhanced-flight-vision capabilities and safety improvements with our proven ClearVision solution. This marks the first civil certification of an HWD and the first EVS-to-land solution for line-fit passenger aircraft. [This is] a major milestone in innovation in aviation."

Potential Customers

The first airline to implement SkyLens, Guernsey-based Aurigny, is the launch customer for the Universal Avionics HWD. After the airline gains experience flying with SkyLens to the allowable 100-feet-above-ground level, which is the same as for traditional HUDs, pilots will then transition to EVS-to-land operations, according to Yahav.

"The interesting thing about airlines," he explained, "is that each one has a different problem to solve. The value proposition for EFVS differs between operators." For example, some airlines face foggy conditions during morning and night departures or challenges taxiing in fog or at night. Others need a higher safety margin for night operations in high-terrain areas. SkyLens can help airlines where their busy hubs' capacity is cut in half when weather conditions deteriorate from VMC to IMC.

"Using EFVS technology will allow airlines access to runways that are not accessible at the moment," he said. "They will be able to maintain a level of capacity, make sure they meet gate times and flow their operation, and save a lot of money."

In addition to the HWD's unlimited field of view, another advantage is that it can be fitted to many more types of aircraft than a traditional, heavier, ceiling-mounted HUD. Many airlines and business jets have a HUD on only one side of the flight deck, and customers are asking Universal to certify SkyLens in other aircraft types so both pilots can use HUDs/HWDs and see the same information.

"To retrofit [an aircraft] with HUD is too expensive," Yahav said, "and not technically feasible." He sees a potential airline market for 22,000 airplanes.

In the business aviation market, he added, there are many airplanes that either never were HUD-equipped or that have obsolete HUDs and camera systems. "This is providing an opportunity for business

jet operators to upgrade to the latest technology at a reasonable cost," he said. "Take an airplane you like to the latest configuration, and you get all the benefits; like when you purchase a new airplane."

The helicopter market is going to be a big opportunity for SkyLens, Yahav said. While HUDs, in general, are not relevant for helicopters, he explained, SkyLens can still offer significant benefits.

Using EFVS, helicopter pilots could fly with SkyLens in marginal VFR, low-visibility conditions and receive credit as if the weather were better. "It's not IFR credit," he said, but it could help medevac and search-and-rescue operators save lives. SkyLens would also enhance nighttime operations.

Universal Avionics is working on three helicopter certification programs for ClearVision and SkyLens in Europe. Two are for Leonardo's AW139 and AW169 and one for a German police Airbus Super Puma. With MD Helicopters selecting Universal Avionics to provide the avionics suite for the MD 902, that helicopter will be a likely candidate for SkyLens, according to Yahav.

Helicopter pilots have conducted 200 to 300 hours of flight testing so far in the above helicopters and an FAA Sikorsky S-76 and on Universal's own helicopters. "We got a lot of information," he said. "Those pilots are the easiest community to convince. They fly at night and they're scared of wires and obstacles; add rain and low visibility and they don't see anything. But somebody is begging to be picked up. Push a button and suddenly you see what's going on outside."

Another benefit of night capability made possible by SkyLens is firefighting. It is difficult for fixed- and rotary-wing pilots to descend close enough to attack a fire at night without severely eroding safety margins. ClearVision EFVS and SkyLens will help pilots see surrounding terrain via synthetic vision and the location of the fire, thanks to the infrared sensors. Night-vision goggle imagery will also be available to display on SkyLens.

FAA approval of SkyLens is expected soon because most of the work has already been done with EASA. Testing took about a year and satisfied those topics using a Moog vibration platform for human factors testing, lots of simulator flight testing for assessing different risk and malfunction scenarios, and then in an airplane with EASA and FAA pilots flying with the SkyLens HWD with their windshield completely covered. With a safety pilot carefully monitoring, the EASA and FAA pilots were able to do EVS-to-land operations all the way through touchdown and rollout just using the SkyLens.

Universal Avionics is also working on an STC for the system in its Gulfstream III, due in October, and a Boeing 737 installation with a dual SkyLens system. The latter should be certified by the end of the year.

For pilot training, Universal has developed a program that includes online training, virtual reality practice, then practice in a flight training device. ■

News Update

Last Chance for Garmin 400/500 WAAS Upgrade

Garmin is ending support for wide-area augmentation system (WAAS) upgrades to its non-WAAS GNS 400/500 series navigators on May 29. Customers with those units can place an order for a WAAS upgrade until May 29 and must send the unit to Garmin by June 30. The affected units are the GPS 400, CNC 420, GNS 430, GPS 500, and GNS 530. Garmin will continue offering repairs for non-WAAS 400/500 series 28-volt systems with 16-watt com transmitters and 14/28-volt non-WAAS 400/500-series units after May 29.

AOPA Recommends 978UAT ADS-B for Mexico

Although Mexico has pushed its ADS-B Out mandate to Jan. 1, 2022, it is planning to require that aircraft flying in the country (in Class A, B, C, E above 10,000 feet msl, and other specified airspaces) be equipped with 1090ES ADS-B Out equipment. In the U.S., 1090ES is required only for aircraft flying above FL180; those flying below that altitude can use 978UAT systems. The Aircraft Owners and Pilots Association is asking Mexico to accept aircraft equipped with 978UAT ADS-B Out transceivers, but that would require installation of compatible ground-based receivers.

Bombardier Adds Gogo Avance L5 Retrofit for Learjets

Bombardier Aviation is making its Gogo Avance L5 connectivity solution for new Learjet 70s and 75s available for retrofit on in-service Learjet 40s, 45s, 70s, and 75s. Customers can have the system installed at all Bombardier service centers and authorized service facilities throughout the U.S. Gogo Avance L5, which is lightweight and compact, accesses the Gogo Biz 4G ground network of more than 250 towers and delivers seamless connectivity over the continental U.S. and large swaths of Canada and Alaska. Designed specifically for business aircraft, the system offers audio and video streaming capabilities, as well as faster web surfing.

FreeFlight Systems Joins ACR

ACR Group has purchased Irving, Texas-based avionics manufacturer FreeFlight Systems, a specialist in NextGen avionics including ADS-B Out/In systems and GPS receivers. ACR's portfolio includes ELT maker Artex as well as Flight Data Systems, Latitude Technologies, and Skytrac Systems. No financial details of the acquisition were released. FreeFlight will continue operating as an independent subsidiary. In addition to Artex, ACR's other divisions manufacture cockpit voice and flight data recorders, global aeronautical distress and safety systems, flight management systems, satellite datalink and voice communication systems, and monitoring and data-acquisition systems, including flight tracking and messaging.

Spirit Aeronautics looks back on 20 years of service

by Matt Thurber

Spirit Aeronautics, the Columbus, Ohio-based maintenance, avionics, certification, and engineering specialist, is celebrating its 20th anniversary. From its beginning as a small avionics shop, Spirit has grown into serving a specialized market for custom avionics and modifications for business aviation, the U.S. military, and federal government agencies.

"We've been really fortunate," Spirit founder and CEO Rick Ochs told **AIN**. More than 20 years ago, after working at Capital Aircraft Electronics, a small piston-aircraft avionics shop, Ochs left and started his own one-man avionics company. He then bought the Capital avionics business and renamed it Spirit Aeronautics. Ochs built on the facility's existing avionics dealerships and added many more, but the key to the new company's growth lay in serving the business aircraft market. "With small aircraft, it's always an emotional decision," he explained. "It's so much more business-friendly to work in the business jet environment."

After five years in business, Spirit tapped into a new opportunity, a contract to install Avidyne avionics in Navy Beechcraft T-34s that were flown for icing research behind an ice-producing Chinook helicopter. "That showed me there was a path [for business with the government]," he said. With the success of the T-34 program, Ochs added to Spirit's government work, with avionics installations in the Golden Knights parachute team's Twin Otter and work for NASA, NOAA, the FBI, Glenn Research Center, and others.

In some cases, the same airplanes came back for updated avionics, for example, E-9s (Bombardier Dash 8s) from Tyndall Air Force Base, in which Spirit technicians installed flight data and cockpit voice recorders and Honeywell multifunction radar displays 10 years ago. "They called us back and said the radios are failing, can you help us?" Spirit came up with specifications for new avionics and helped with details for the specification of work, then submitted a bid. Spirit won based on providing the best value for the government, not as the lowest bidder, Ochs said. "We love that stuff."

Another interesting contract Spirit received is to install modern Garmin avionics in Douglas A4 Skyhawks flown in aggressor roles for fighter pilot training. Spirit did a similar modification to Northrop F5s for the Navy, replacing the existing head-up display with a Garmin GTN 650 GPS navigator with weather and traffic displays mounted front and center at the top of the panel near where the HUD used to be. "[The F5 pilots] were so happy," Ochs explained, because the fighter has no autopilot and pilots previously had to look down at a side console for avionics settings, which could lead to loss of control.

In the business jet market, one of Spirit's most recent upgrades was adding a Bongiovi speakerless audio system on a Falcon 7X. The audio system incorporates vibrating transducers fitted to the back of interior panels that generate sounds waves, turning the entire cabin into a speaker and creating an immersive, high-fidelity audio experience. The

technology was developed by Bongiovi Acoustic Labs, founded by record producer Tony Bongiovi, who began developing onboard hi-fi audio in the 1980s, seeking an improved listening experience as a Twin Comanche owner and pilot. "It's like a normal natural sound environment," Ochs said.

After 20 years in the avionics business, Ochs sees new challenges as more aircraft and air traffic control systems upgrade to new technologies such as the FAA's Data Comm airborne texting-style messaging system. While the technology is maturing quickly, there currently is no way to install avionics that can use Data Comm without spending half a million dollars, he said. "We're paying for it [as taxpayers], but hardly using it."

One of the big issues with Data Comm is that it requires that the aircraft be equipped with a cockpit voice recorder that can store messages. "That's \$60,000 to \$80,000 just to have storage," Ochs said. But the air traffic control system already

stores radio communications and messaging. "There is no logic for us to have to upgrade the airplane to store messages when ATC has it. Why store messages on the airplane? It's just maddening."

Ochs is also concerned about configuration management, in view of all the modern avionics now installed in aircraft. When one avionics box gets a software update, it may affect software running on other boxes. Sometimes these issues haven't been worked out by the avionics manufacturer nor addressed in supplemental type certificates.

Ochs and the team of 25 at Spirit Aeronautics deal with these issues every day. "The tempo we operate at and the demand from customers is pretty significant," he said. "I've always enjoyed what I did with avionics; you do what you love to do. I wanted a place where I could look forward to walking in the door every day. It's the technology that got me in, but it's the people who kept me in. It's a wonderful industry."

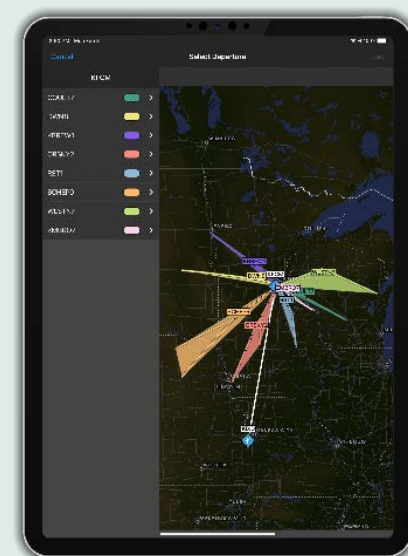
Garmin Pilot flight-planning gains new capabilities and custom holds

Garmin has completed a major update to its Garmin Pilot electronic flight bag app for Apple iOS devices, with new flight-planning features that more closely match the way pilots interact with installed Garmin avionics.

One change that makes the app better interface with installed avionics is loading and activating instrument procedures and arrivals/departures. The app makes this even easier with a new visual procedure selector, which lets the user view the procedures on the map, including all arrival or departure procedures simultaneously to see which one is optimal. For approaches, the user can see which transition is optimal. Approaches with radius-to-fix legs are also included, and pilots can activate these in Garmin Pilot.

Pilots can now use the app to create custom holding patterns at waypoints (including user waypoints), airports, and nav aids. According to Garmin, "Unpublished holds or those assigned by air traffic control are easily created and displayed within Garmin Pilot to simplify the process of visualizing and flying a holding pattern."

If there is a published hold as part of a missed approach, that is added to the flight plan when that approach is selected, as are any altitude constraints. Users can also manually add altitude constraints on any flight plan, and this includes setting crossing restrictions at a nav aid or waypoint using the vertical planning feature. Pilots can view the vertical flight plan and altitude constraints on the Garmin Pilot profile view. Also available now are along-track offsets, which allow users to create an offset



The Garmin Pilot app's procedure selector makes visualizing available arrival and departure procedures much simpler.

waypoint by direction and distance from an existing waypoint.

Garmin Pilot now helps pilots ensure that all data needed for a flight is downloaded, by displaying a button to download the required data. "Route data packages are also available worldwide to help ensure pilots have all of the data they need prior to every flight," the company said. "Databases that are included within the worldwide route data packages include navigation data, instrument approach procedures, SafeTaxi, terrain, obstacles, and more."

Another new Garmin Pilot feature is wireless Database Concierge transfer to Garmin's new GI 275 electronic instruments. **M.T.**



The Spirit Aeronautics team is celebrating 20 years in the avionics installation, repair, and modification, engineering, and maintenance business at its Columbus, Ohio, headquarters.



A Delta Air Lines MD-88 lands at Atlanta Hartsfield International Airport on April 24, 2013. The airline plans to retire all of its MD-80-family jets as it institutes an 80 percent systemwide capacity cut.

U.S. seeks balance amid pleas for rapid stimulus

by Gregory Polek

Varying priorities among U.S lawmakers in Washington, D.C. threatened to delay a stimulus package promised last month by the federal government for airlines and aerospace companies, most notably Boeing and its suppliers. At press time, Congress still hadn't passed legislation to address the need for financial help due to the effects of the Covid-19 pandemic, as one after another airline either announced the complete withdrawal of service or severe cuts. Boeing, meanwhile, continued to burn through cash reserves as it watched its stock price decline by some 70 percent.

Much of the debate surrounded a \$50 billion stimulus package requested by the country's airlines, whose liquidity crisis many blamed on the fact that the industry spent most of its cash on stock buybacks last year. Nevertheless, in recognition of the vital role the industry plays in the economy, President Donald Trump pledged to place airlines "number one" in line for government support. He also expressed a desire to support Boeing, which asked for a \$60 billion package, part of which would help support its supply chain.

A bill that failed to pass in the Senate contained a \$50 billion loan guarantee for U.S. airlines and \$8 billion for cargo carriers. However, Senate Democrats complained that after negotiating a bipartisan bill that would have addressed worker job security, wages, and provisions limiting stock buybacks, Republicans ultimately advanced their original bill, which contained virtually none of the provisions Democrats had sought during the sides' negotiations. Republicans complained that the Democrats wanted provisions calling for new airline carbon caps and grants meant to promote solar energy, arguing those conditions did not relate to the coronavirus crisis.

Prior to the vote, the package of financial relief measures requested by Airlines

for America included a \$25 billion grant and \$25 billion in loan guarantees for Part 121 passenger air carriers and \$8 billion for Part 121 cargo carriers—also split between a grant and a loan—to cover the same time period.

"In the short space of two weeks, U.S. airlines have seen their positions of strong financial health deteriorate remarkably rapidly," said A4A in a statement. "The downturn in demand for commercial air transportation related to Covid-19 is causing unprecedented harm to the U.S. airline industry. Net bookings for the next few months have been exceeding negative 100 percent as cancellations are rapidly outpacing new bookings (2 to 1 for some carriers), and trending worse each day."

Finally, A4A called for tax relief in the form of a rebate of all federal excise taxes paid to the Airport and Airway Trust Fund from January 1 through March 31. It has also asked for a temporary repeal of all federal aviation excise taxes for Part 121 carriers imposed on tickets, cargo, and fuel through at least Dec. 31, 2021. The failed Senate bill did include an excise tax "holiday period" to run from March 31 to the end of the year, during which the Internal Revenue Service would not impose transportation or kerosene taxes.

Calling the situation "much worse than 9/11," A4A has received liquidity projections from all its passenger-carrying members for mid-year 2020 and year-end 2020, relative to year-end 2019. The group assumed two possible scenarios, one in which access to outside cash remains open throughout 2020 and one in which revenues decline more severely and outside sources of cash become completely unavailable. Under its optimistic scenario, the industry would see a 45 percent drop in liquidity, or \$18 billion, for A4A passenger carriers alone in the first six months of the year. By the end of 2020, they will

have dropped by 59 percent, or \$23 billion, leaving total liquidity of \$16 billion.

Under its pessimistic scenario, A4A sees a 67 percent drop in liquidity in the first six months, from \$26 billion to \$12.8 billion, and a 135 percent drop by the end of the year, leaving a deficit of \$14 billion. "In this scenario, all seven A4A passenger carriers run out of money completely sometime between June 30 and the end of the year," said the group. "Making matters even more urgent, credit card companies would likely begin withholding cash from sales before the carriers actually run out of money, effectively causing carriers to run out of money earlier than June 30... As of the morning of March 16, the pessimistic scenario is looking most likely."

As of press time Delta Air Lines had announced a systemwide 80 percent reduction in flying, including a 90 percent cut in international available seat miles, while United announced an 85 percent cut in international service and a 42 percent cut in North America; finally, American Airlines said it would slash 75 percent of its international flying and as much as 30 percent of its U.S. service by May. Even JetBlue, which flies mainly domestic service, announced a 40 percent systemwide reduction.

Addressing the possibility of a 30-day domestic travel ban, A4A said such a move would worsen its optimistic scenario by \$7 billion and its pessimistic scenario by \$10 billion.

"A near-term 30-day domestic ban would result in a massive cash draw because, per DOT rules, even nonrefundable tickets are refundable to the customer, in cash, within seven business days if the service cannot be provided," said the group. "This would be compounded by a further reduction in cash inflows from sales during April for travel after the ban is lifted, since people would be less likely to book during the ban period. Credit markets would also be far less likely to lend."

News Update

Heathrow's Third Runway Ruled Illegal

Heathrow Airport remained upbeat on plans to build a third runway despite the London Court of Appeal's February 27 ruling that the UK government's decision to give the £14 billion project the go-ahead was unlawful on environmental grounds. In their ruling, the judges considered that the former government failed to take account of its commitment to the 2016 Paris agreement on climate change when setting out its support for Heathrow's expansion in its national policy statement on aviation. Environmental groups, London mayor Sadiq Khan, and five councils in London affected by the expansion brought legal action over the government's approval of the proposed third runway on grounds of climate, noise, air pollution, and economic growth.

A Heathrow Airport spokesperson said the Court of Appeal dismissed all appeals against the government apart from one—namely climate change, which he described as "eminently fixable." He added that the company will appeal to the Supreme Court on that one issue.

China Eastern Regional Unit to Launch C919 Ops

State-owned China Eastern Airlines in late February confirmed plans to launch a new regional subsidiary from Shanghai Hongqiao International Airport as part of a wider effort to promote China's domestically developed regional and narrowbody jet programs.

According to Comac, OTT Airlines will become the launch customer of China's home-built C919 narrowbody passenger jet—a position originally designated to China Eastern. Additional plans call for the operation of a mixed fleet of ARJ21-700 regional jets serving destinations along the Yangtze River Delta.

A321P2F Wins EASA Approval

ST Engineering's joint venture with Airbus, Elbe Flugzeugwerke (EFW), on February 25 received a supplemental type certificate from the European Union Aviation Safety Agency for its A321 passenger-to-freighter conversion. The STC comes only a month after the prototype unit, scheduled for delivery to launch customer Vallair, flew for the first time.

The first flight test took place on January 22 after undergoing conversion at ST Engineering's facility in Singapore. "The swift process in attaining EASA's STC shortly after our first flight test is a testament to the engineering and design strengths of our P2F solution," said Lim Serh Ghee, president of ST Engineering's aerospace sector.

Under the terms of the joint-venture contract signed in 2015, ST Engineering assumed responsibility for the engineering development phase, up to obtaining the STC from EASA and the U.S. Federal Aviation Administration.



A Flybe De Havilland Dash 8-400 taxis at Manchester Airport in the UK.

UK regional airline Flybe discontinues operations

by Cathy Buyck

UK regional airline Flybe stopped all flights and entered administration early last month, marking yet another airline bankruptcy in the country—the fourth since 2017—and across Europe. Flybe’s collapse comes not unexpected as the company struggled financially for some time despite several restructuring efforts, a 2019 takeover by the Connect Airways consortium—led by Virgin Atlantic, aviation and civil engineering firm Stobart Group, and investment firm Cyrus Capital Partners—and a much-publicized rescue attempt involving the UK government in January. According to Flybe CEO Mark Anderson, the “significant” drop in bookings due to the outbreak of coronavirus compounded the company’s funding challenges, forcing its collapse into administration.

“The UK has lost one of its greatest regional assets. Flybe has been a key part of the UK aviation industry for four decades, connecting regional communities, people, and businesses across the entire nation,”

Anderson noted. Flybe operated 68 aircraft—54 De Havilland Dash 8-400s, three Embraer E195s, nine E175s, and two ATR 72s—on a network spanning 71 airports across the UK and Europe. It carried some 8 million passengers a year.

“Flybe’s financial difficulties were longstanding and well documented and pre-date the outbreak of Covid-19,” a government spokesperson said in a statement. “[We are] urgently working to identify how key routes can be re-established by other airlines as soon as possible.” The statement made no mention of the Flybe rescue package over which the government consulted with the struggling airline in January, including deferral of airline passenger duty (APD) payments and a promise to reconsider levels of duty, as well as a possible loan. Although it appears doubtful it ever implemented the rescue package, the government indicated its review of the country’s regional connectivity and ADP continues. ■

Trans States Airlines shutting down April 1

St. Louis-based Trans States Airlines announced plans to cease operations on April 1, marking the first airline casualty of the Covid-19 crisis in the U.S. The United Express regional partner had planned to draw down operations gradually before going out of business by the end of the year, but United Airlines has decided to accelerate the closure as part of its 50 percent reduction in flying in April and May.

“We received word last night that the immediate cuts to our schedule are far deeper than we had feared and that the accelerated drawdown of our operations will be faster than we ever could have imagined,” Trans States CEO Rick Leach wrote in a memo to employees last month.

As of late February operating 41 Embraer ERJ-145s, Trans States suffered mightily with cost overruns and a shortage of captains over the past 18 months, leading to a late February decision to shutter the business by year-end.

In a February 24 memo to employees

announcing the original draw-down plan, Leach cited moves by U.S. major airlines to shift aircraft among their partners to simplify and create “critical mass” among fleet types and reduce geographic overlap of flying as a major reason for financial distress within the regional industry at large. United, for one, continues to consolidate and restructure 50-seat jet flying among its various regional affiliates.

What Leach called “razor-thin” profit margins throughout the industry have burdened regional carriers with a need to fly every airframe for as many hours as they can; in Trans States’ case, a captain shortage resulted in an inability to meet productivity objectives and contractual flying obligations. The imbalance between captains and first officers had become so acute that the St. Louis-based airline said that it canceled a first officer class already in session while delaying others, a move that inevitably would have resulted in reduced flying even without the coronavirus outbreak. **G.P.**

First Mitsubishi M90 in final configuration takes flight

by Gregory Polek

The first Mitsubishi SpaceJet M90 in the design’s final certifiable configuration flew for the first time on March 17, Mitsubishi Aircraft announced. Captained by Mitsubishi flight test pilot Hiroyoshi Takase, Flight Test Vehicle (FTV) 10 took off at 14:53 JST from Nagoya Airport in Japan and performed basic performance tests in normal operating conditions over the Pacific Ocean. The aircraft returned to Nagoya some two hours later, landing at 16:40 JST.

Completion of FTV10’s first flight marks the start of the final phase of certification flight testing for the M90, the larger of two SpaceJet regional jets under development by Mitsubishi.

“Today’s announcement is especially encouraging, as it marks the start of certification flight testing for the first SpaceJet M90 in final, certifiable configuration,” said Mitsubishi Aircraft chief development officer Alex Bellamy, “which reflects the hard work of a dedicated team, the culmination of an organizational transformation, and all of the engineering changes made since 2016. We look forward to continuing our progress toward commercial certification of the M90 program.”

Mitsubishi Aircraft plans to continue flight tests on FTV10 in Nagoya over “the coming weeks,” in preparation for a ferry flight to Moses Lake Flight Test Center (MFC) in Washington state to join the remainder of the Mitsubishi SpaceJet

M90 test fleet for the final phase of type certification flight testing.

On February 6, Mitsubishi Heavy Industries confirmed a new delay to the M90 program, acknowledging that it would not complete type certification of the new narrowbody this year as previously planned. MHI announced the program’s sixth major delay following a quarterly financial briefing. A company spokesman told **AIN** that the decision to further push back type certification followed multiple additional design changes to the 88-seat aircraft.

In January 2017, Mitsubishi delayed first delivery of the aircraft, then designated the MRJ90, from mid-2018 to mid-2020 due to revisions to certain systems and electrical configurations to meet the latest certification requirements. At that point, a revised mid-2020 target date would have meant that the airliner had fallen seven years behind the original service entry date, set at program launch in 2008.

In June 2019, Mitsubishi redesignated the 76-seat MRJ70 the M100 and the 88-seat MRJ90 as the M90, at the same time adopting the SpaceJet brand name. The M100 model meets the 86,000-pound maximum takeoff weight threshold to comply with U.S. pilot union scope clause agreements. Japan’s All Nippon Airways remains the program’s launch customer. ■

Comac boosts ARJ21 production with second assembly line

Chinese airframer Comac is ramping up production of its ARJ21-700 regional jet following the official opening of a second assembly line at Shanghai Pudong International Airport. According to a company statement, aircraft 132 completed its first production test flight on March 6, staying airborne for a total of 3 hours and 50 minutes before returning safely to its base. Officials said that while the work at the production line gradually accelerated since last year, the flight marks the first time an ARJ21 has moved through the entire assembly cycle to a production test flight at the company’s Pudong facilities.

The latest manufacturing line holds the capacity to assemble 30 aircraft per year with room to create a second line to further boost production rates. Comac had previously said that it would need a new line due to space constraints at its Shanghai aircraft manufacturing facility on Changzhong Road, as capacity at that plant cannot exceed 15 ARJ21s per year. To date, Comac has delivered a total of 23 ARJ21s to Chinese operators.

This year’s new batch of ARJ21s will benefit from a complete flight deck redesign meant to improve situational awareness and simplify workload, said Comac. **J.M.**

Avionics Sales Top \$3 Billion in 2019

Worldwide business and general aviation avionics sales climbed 10.2 percent last year, to \$3.005 billion, from \$2.728 billion in 2018, according to figures released by the Aircraft Electronics Association. “For the first time, the business and general aviation avionics industry has reported more than \$3 billion in year-end sales,” said AEA president and CEO Mike Adamson. “In addition, the industry has reported an increase in year-over-year sales for three straight years and 12 consecutive quarters.”

Of 2019 total sales, \$1.657 billion—or 55.1 percent—was for retrofits while forward fits (airframer installations as part of original equipment) accounted for \$1.348 billion, AEA said. The AEA Avionics Market Report is based on the sales figures from 23 avionics manufacturers. Among manufacturers that separated their sales figures by geographic region, 74.1 percent of sales occurred in the U.S. and Canada, while 25.3 percent were from other international markets.

Dollar amounts that are reported are net sales price, not manufacturer’s suggested retail price, and cover all business and general aviation aircraft electronics sales, including all components and accessories in the cockpit and cabin, software upgrades, portables, and certified and noncertified aircraft electronics, as well as all hardware from tip to tail, batteries, and chargeable product upgrades. The sales figures don’t include repairs and overhauls, extended warranty, or subscription services.

TAG Hong Kong Authorized for Bombardier Service

Bombardier Aviation has appointed TAG Aviation Asia an authorized service facility in Hong Kong, the MRO announced. Under the authorization, TAG Aviation Asia can perform line maintenance on the Global 5000, 6000, and 7500, as well as the Challenger 605.

The new authorization strengthens TAG Aviation Asia’s service offerings for the Bombardier product line in the Asia-Pacific region, according to TAG Aviation Asia director of maintenance Phil Balmer.

With maintenance centers in Hong Kong and Macau, TAG Aviation Asia provides maintenance and related services including internal and external aircraft cleaning, and Permaguard paint protection. It also operates mobile repair services across the region.

Embraer Revives AOG Effort with TEAM Concept

Embraer Executive Jets (EEJ) has revived an organized AOG effort that it calls Technical Experts in Aviation Maintenance (TEAM). The two-year effort has led the Brazilian airframer



Responding to AOG events is the focus of Embraer Executive Jets’ Technical Experts in Aviation Maintenance, or TEAM, concept.

to establish TEAMs at company-owned service centers at Bradley International Airport in Connecticut, Phoenix-Mesa Gateway Airport in Arizona, Fort Lauderdale-Hollywood International Airport in Florida, and Sorocaba Airport in São Paulo, Brazil.

An EEJ spokeswoman told AIN the OEM stopped dedicating specific personnel to AOG in 2016. It instead pulled personnel from scheduled maintenance when AOG events arose. “We have now organized the teams as unscheduled manpower support and have rebranded the support function as the TEAM concept,” she said.

This year, EEJ will establish TEAMs at service centers at Melbourne International Airport in Florida and Paris Le Bourget Airport in France. Further expansion will be considered “as the need increases and we can prove the benefit of this concept,” the spokeswoman said. TEAMs are equipped with support vehicles, and EEJ is reviewing the use of aircraft to support them.

Boeing VIP Work Swings Higher for MRO King Aerospace

King Aerospace saw a nearly 38 percent increase in Boeing Business Jets BBJ and other bizliner work in 2019, while that for traditional business aircraft remained flat, the Dallas-based MRO provider reported. In all, King completed routine maintenance, avionics, paint, and interior refurbishment on 40 BBJs, Boeing 737s, and Boeing 757s, and 45 corporate aircraft from its Oklahoma facilities. That compares with 29 Boeing and 44 corporate aircraft in 2018.

The company partly attributes word-of-mouth to the increase in Boeing jet work. “Our growth reflects a stronger economy, of course, but also a growing awareness of our many advantages—from doing the job right the first time to delivering on time and on budget,” said King Aerospace president Jarid King. “Customers have come to trust and rely on us, and they’re spreading the word to others.”

Operating from four hangars comprising 200,000 sq ft at the Ardmore

Industrial Airpark 117 miles north of Dallas, King also offers aircraft maintenance and logistics services for the U.S. military and government.

Acropolis Takes Delivery of First ACJ320neo

UK-based VVIP charter operator Acropolis Aviation has taken delivery of an Airbus ACJ320neo, G-KELT, following a 13-month-long interior completions project at AMAC Aerospace in Basel, Switzerland. Acropolis is the launch customer for the ACJ320neo. The interior design was overseen by Yves Pickardt of Alberto Pinto, a Paris-based interior-design firm.

Based at Acropolis’s Farnborough Airport facility, the narrowbody twin can accommodate 19 passengers and allows sleeping for 17. It also features a private master bedroom with an en suite bathroom and rectangular shower, a full-size galley, and an aircraft cabin air humidifier. Acropolis’s ACJ320neo is also outfitted with Collins Aerospace’s Venue cabin management system and Stage in-flight entertainment system, which allows movies and TV programs to be viewed on 19 individual iPads and four large TV screens. Wi-Fi internet is provided through Ka-band connectivity.



Acropolis Aviation’s new ACJ320neo includes a private master bedroom with en suite bathroom and shower.

ATP Software Update Speeds Publishing of ADs

Aviation information services and software provider ATP has released an upgrade to its software that supports the publishing and distribution of maintenance manuals and airworthiness directives (ADs), the San Francisco-based firm announced. With the release of Production 2.0, maintenance manual updates and ADs can be published in real time through the company’s cloud-based ATP Aviation Hub, a network for accessing technical manuals and ADs. ATP’s platform has more than 45,000 users worldwide. It offers electronic access to technical manuals from a variety of OEMs, as well as ADs from both the FAA and European Union Aviation Safety Agency.

ACI Jet Establishes Bombardier Parts Depot

With a more-than-\$1 million investment in parts inventory, along with additional stock inventoried by Bombardier Aviation, California-based ACI Jet has opened a 5,000-sq-ft parts depot at its San Luis Obispo County Regional Airport (SBP) headquarters. The facility, which has more than 3,000 part numbers in stock, will serve Bombardier Global and Challenger owners and operators.

ACI’s parts depot complements its Bombardier-authorized service facility at SBP, where it also maintains an FBO and aircraft charter/management base. In addition, ACI operates FBOs and charters and manages aircraft from three other California locations: Orange County, Paso Robles, and Oceano.

Stevens Macon Offering Mx Services for Mexico Bizjets

Mexico’s Agencia Federal de Aviación Civil (AFAC) has awarded Stevens Aerospace and Defense Systems’ Macon, Georgia facility approval to maintain and return to service aircraft registered

in Mexico. Several Mexican customer business jet inspections are already scheduled at the Macon facility

With this approval, Stevens Aerospace can provide full maintenance, avionics, modifications, and interior refurbishment services for owners and operators of Mexican-registered business turboprops through large-cabin jets. Typical aircraft types that the Macon facility specializes in include Bombardier Globals and Gulfstreams, but the facility's technicians are also experienced in maintaining Challenger, Learjet, Citation, Embraer, Hawker, King Air, and other airframe types. Stevens Aerospace's Greenville, South Carolina facility has held Mexican AFAC approval for many years, and plans are to add that approval for the company's Nashville facility later this year.

Flying Colours Ramps Up with Bombardier Asia Expansion

With an expansion of Bombardier's Singapore service center expected to be completed in the second half of this year, Flying Colours is also working to ramp up its operations at the facility that will quadruple its size to 430,000 sq ft. Flying Colours, which provides interior repair and refurbishment at the Bombardier facility, is working to double its employment there, add equipment, and adjust its workflow. The company is training four new recruits for the finishing and cabinetry departments and plans to add and train 14 more in the next year. It also is revising its layout at the facility to accommodate new equipment and improve workflow. That includes the addition of a second sanding booth and a polishing room that not only will support the finishing of wood veneers but also increasingly popular granite countertops used in the galleys and lavatories of Bombardier aircraft. Lastly, its upholstery section will move to a larger area as part of the service center expansion.

Elliott Aviation Installs 10th Excel/XLS G5000 Retrofit

Elliott Aviation has completed its 10th Garmin G5000 retrofit installation in a Cessna Citation Excel/XLS. The aircraft work scope also included a Doc 6, engine hot sections, cabinets, and Gogo Avance L3 installation with Elliott Aviation's "Wi-Fi enablement" STC. These G5000 installs have been completed at both its headquarters in Moline, Illinois, and its facility in Des Moines, Iowa. The G5000 retrofit for the Excel/XLS replaces all existing Honeywell Primus 1000 avionics, including the autopilot and flight director. It adds WAAS/LPV, ADS-B, XM weather, electronic charts, SafeTaxi, engine monitor data, and emergency descent mode. Options include synthetic vision, turbulence

detection, SurfaceWatch, underspeed protection, ChartView, CPDLC, and lightning and hail prediction. In addition to the Excel/XLS, Elliott Aviation has installed more than 25 Garmin G5000 systems in the Beechjet 400A/XP and more than 350 Garmin G1000/G1000 NXi systems in King Airs. Elliott claims to have completed more Garmin flight deck retrofits than all other dealers in the world combined.

Duncan Earns Honeywell Component MRO Nod

Duncan Aviation has signed a new agreement with Honeywell that gives the MRO provider approval to facilitate repairs, overhauls, and exchanges on all of the manufacturer's line-replaceable components and parts on behalf of its customers. The authorization by Honeywell immediately establishes Nebraska-based Duncan as a one-stop-shop for its clients requiring maintenance on Honeywell's full line of components and parts and formalizes an existing relationship between the two companies.

Duncan operates full-service repair locations at Lincoln, Nebraska; Battle Creek, Michigan; and Provo, Utah, and has nearly two dozen satellite facilities across the country to provide local support for avionics, engine, and AOG situations.

JMI Branches Out Falcon Service to London Biggin Hill

Jet Maintenance International (JMI) is establishing line maintenance service for Dassault Falcon business jets at London Biggin Hill, airport officials announced. JMI's presence will "significantly" improve the airport's service offerings for Dassault owners and operators, said London Biggin Hill marketing manager Andy Patsalides. Based at London Oxford Airport and



Jet Maintenance International is establishing line maintenance for Dassault Falcon business jets at London Biggin Hill Airport.

operating from a new 18,000-sq-ft hangar there, JMI has more than 40 years of experience and specializes in European Union Aviation Safety Agency Part 145 base and line maintenance for Dassault Falcon and Cessna Citation aircraft.

Partnership Offers Boost to Flightdocs Offerings

Flight department management and maintenance software provider Flightdocs has entered into a partnership with Portside, a provider of owner portal and billing technology used by aircraft operators and owners in more than 20 countries. Under the partnership, integration of Portside's services allows Flightdocs Enterprise customers access to billing, reporting and analytics, and fleet-wide planning tools.

According to Flightdocs, that enables its customers to improve efficiency, optimize aircraft ownership costs, and preserve the value of aircraft. "By partnering with Portside, we are able to push additional information directly from Flightdocs Enterprise to the Portside platform, allowing for improved representation of the aircraft's utilization and financial performance and thus enabling the transition of key critical information into one

centralized location," said Flightdocs founder and president Greg Heine.

West Star Expands Mobile AOG Support

West Star Aviation has nearly doubled its mobile repair team (MRT) for AOG in the past year, the business aircraft MRO provider and FBO operator said. It now has AOG/MRT services available from its four full-service, six satellite, and four non-fixed base locations including at Atlanta DeKalb-Peachtree Airport (PDK) and Florida's Tampa International Airport (TPA). It's part of a continuing effort by West Star to increase its AOG coverage across the U.S. and reduce response times, according to the company. The MRT expansion also allows West Star to provide on-site support at major sporting events such as the Super Bowl.

Besides Atlanta and Tampa, West Star's expanded AOG/MRT network includes Scottsdale, Arizona; Aspen, Denver, and Grand Junction, Colorado; Chicago and East Alton, Illinois; Minneapolis, Minnesota; Perryville, Missouri; Cincinnati, Ohio; Chattanooga, Tennessee; Houston, Texas; and Madison, Wisconsin.



Western Aircraft recently completed 12-month and 120-month inspections on Legacy 500 and Phenom 100 twinjets, a first for the MRO provider that has been an authorized service center for Embraer Executive Jets since August 2018.

Western Completes Milestone Embraer Inspections

Boise, Idaho-based maintenance provider Western Aircraft announced that it recently completed its first 12-month maintenance, repair, and overhaul inspection on an Embraer Legacy 500. Another first for the Greenwich AeroGroup company was the completion of a 120-month inspection on an Embraer Phenom 100. In August 2018, Western was named an Embraer Executive Jets authorized service center with full maintenance support for Phenom 100 and 300 light jets and midsize Legacy 450s and 500s. The authorization also extends to line maintenance for Embraer Legacy 600s and 650s. Western Aircraft operates from five hangars totaling 80,000 sq ft, along with 260,000 sq ft of ramp space, at Boise Airport (BOI). ■

by David Jack Kenny

PRELIMINARY REPORTS

In-flight Breakup Kills Four

**CESSNA 501 CITATION I/SP,
FEBRUARY 8, 2020, FAIRMOUNT, GEORGIA**

A 1981-model Cessna Citation I broke up in mid air after its pilots reported “problems” with the autopilot and the left-side attitude indicator. Both pilots and their two passengers were killed; the resulting debris path stretched 7,000 feet. The airplane was on the first leg of a round trip between Atlanta’s Falcon Field and the John W. Tune Airport in Nashville; described on its flight plan as a “training” flight.

After issuing instructions to maintain 10,000 feet and turn right to 020 degrees, the controller observed the airplane flying northwesterly and asked the pilots to verify their heading. One responded that they were “returning to a 320-degree heading” and reported an autopilot problem. During the series of altitude excursions that followed, one pilot reported that they were “playing with the autopilot.” The controller suggested they disconnect it and asked whether they could return to their departure airport. The pilot asked to continue to their destination and requested a climb into visual conditions. They were cleared to 12,000 and then 13,000 feet, though other aircraft had reported being in the clouds at 17,000.

Following a handoff, they were cleared to 16,000 feet. One pilot reported “problems” with the left attitude indicator, forcing them to rely on the right one. Climbing through 15,400 feet, the jet entered a left turn and disappeared from radar. Numerous attempts to contact it went unanswered.

The left-seat pilot held a private pilot certificate with single-engine airplane and instrument ratings. He had 805 hours of total flight experience and was reportedly scheduled to begin training for a CE-500 type rating. The 5,924-hour commercial pilot in the right seat was the pilot-in-command. In addition to single- and multi-engine airplane, single-engine seaplane, and instrument ratings, he held a flight instructor certificate with single- and multi-engine airplane and instrument ratings and a CE-500 type rating. His experience included 573 hours of total instrument time and 88 hours in make and model.

Three Die in Texas King Air Crash

**BEECH B200,
FEBRUARY 20, 2020, COLEMAN, TEXAS**

A King Air 200 crashed in open ranchland near Lake Coleman, Texas, killing all three on board, after its pilot reported malfunctioning deicing equipment. The airplane was passing through 11,600 feet during its initial climb from Abilene in conditions including freezing drizzle and light rime icing, when

the pilot reported that the deicing system’s circuit breaker had opened and would not reset. The controller gave them a direct clearance back to Abilene and told them to expect the ILS approach to Runway 35R.

After the airplane failed to turn to its assigned heading, the pilot reported “issues with faulty instruments.” He gave his altitude as 4,700 feet, was instructed to maintain 5,000, and replied that he was “pulling up.” There were no further communications. Radar track data showed the King Air entering a tightening right turn before disappearing from coverage.

Suspicious Fire Destroys Parked Jet

**DASSAULT FALCON 50, FEBRUARY 28, 2020,
MARKHAM, ONTARIO, CANADA**

An overnight fire caused apparently irreparable damage to a U.S.-registered corporate jet parked on the ramp at Markham’s Buttonville Airport. Firefighters arrived at the airport around 11:30 p.m. and extinguished the blaze with foam, but photographs show that most of the cabin roof was consumed.

Investigators found a hole cut through a chain-link fence and tracks in the snow leading to the airplane. An empty gasoline can was found just below its airstair. The airplane, registered to a trustee in Wilmington, Delaware, had been parked at Buttonville “for some time,” but police could not say how long. Its last flight documented on FlightAware.com was from White Plains, New York, to Buttonville last October 24.

FINAL REPORTS

Slipping Power Lever Caused Fatal Runway Excursion

**LET L410PV-E20, APRIL 14, 2019,
TENZING-HILLARY AIRPORT, LUKLA, NEPAL**

The first officer’s failure to keep one hand on the power levers during the takeoff roll allowed the right lever to slide backward, resulting in asymmetric thrust that drove the twin-engine commuter airplane off the right side of the runway and into an idling AS350B3e. The helicopter’s main rotor sliced through the airplane’s cockpit, killing the first officer, and the helicopter pilot was injured and trapped in the wreckage. The airplane continued onto the ramp, causing minor damage to another parked AS350 before coming to rest. Two police officials greeting an arriving VIP were struck by the airplane’s right wing, killing one on the spot; the second died during airlift to a hospital. The accident sequence lasted less than 10 seconds.

In its final report, Nepal’s Aircraft Accident Investigation Commission also faulted the 15,652-hour captain’s

decision to let the 865-hour first officer attempt the takeoff from one of the world’s shortest high-elevation runways. However, it attributed principal responsibility to the first officer’s using both hands on the control column rather than keeping his left hand on the power levers. The captain recalled that the accident aircraft had previously “had some technical issue regarding friction lock and power lever...and normal practice was to keep hand on power lever by captain on takeoff roll.”

A combination of CCTV footage and data downloaded from the flight data recorder showed that during the first three seconds of the takeoff roll, the right engine’s torque decreased from 70 to 29 percent. The captain recognized the loss of thrust and advanced the right power lever while also applying the brakes, but the right wheel gained more traction than the left, accelerating the swerve. In the next two seconds, the airplane hit the airport’s inner perimeter fence and the two police officials, then the two helicopters. The captain subsequently acknowledged that he should have used full reverse thrust as well as the foot brakes to abort the takeoff.

Tenzing-Hillary Airport is known as one of the world’s most challenging, with a runway of just 527 meters (1,729 feet) pitched on a nearly 12 percent grade at an elevation of 2,845 meters (9,334 feet). All takeoffs are made from Runway 24 and all landings on Runway 06, and operations are often suspended for weather after about 10:00 a.m. The AAIC’s report notes that the accident flight would have been the morning’s fourth on the 20-minute route between Lukla and Ramechhap, that the combination of good weather and an empty airplane added further risk of complacency, and that “the desire of copilots to master difficult airports before even being authorized or ready to do so” continues to pose “a major challenge” to Nepal’s aviation industry.

Commander Landed Safely After Loss of Elevator

**AERO COMMANDER 695, MAY 11, 2019,
MOUNT HOLLY, NEW JERSEY**

The pilot of a 1981 Turbo Commander was able to coax the airplane to a safe landing after a deer strike during the takeoff roll destroyed its right horizontal stabilizer and separated the right elevator. The airplane’s copilot told investigators that another deer crossed the runway ahead of a landing Piper Cherokee while the Commander was still number three for departure. He did not see any other deer during the roughly 15-minute interval in which the two preceding aircraft departed and they received their IFR clearance to Nashua, New Hampshire.

However, as the Commander accelerated through 60 knots, three deer appeared on the right side of the runway, bolting across as the turboprop twin reached rotation airspeed. Two apparently passed harmlessly behind its tail, but the third hit the fuselage just ahead of the right propeller, causing a 20- to 30-degree left yaw that the pilot quickly corrected.

The pilot reported that just after impact, they’d reached 120 knots airspeed with 2,300 feet of runway remaining, insufficient to abort the takeoff. A controllability test suggested normal roll and yaw response; pitch authority, while limited, seemed adequate to return for a full-length landing. Expecting damage to the landing gear, the pilot extended it and requested visual assessments from ground observers and the pilot of a nearby Cessna 172. Both reported that the gear appeared normal without mentioning the damage to the tail.

The pilot flew a left downwind pattern to the departure runway. Pitch control deteriorated as they slowed on final approach and he was unable to flare the airplane, resulting in a “very hard” landing. The co-pilot reported that the deer “somehow missed the prop but left a trail of damage all the way down the right side of the airplane...almost completely taking off the right stabilizer.” Photographs in the NTSB docket confirm that the stabilizer was bent upwards at least 30 degrees. The right elevator was subsequently recovered on the airport property.

Rejected Takeoff Ignites Landing Gear Fire

**CESSNA 560 CITATION ENCORE+,
FEBRUARY 2, 2020, ELEUTHERA, BAHAMAS**

Heat generated by heavy braking during an aborted takeoff caused the right main tire of a U.S.-registered Citation Encore+ to catch fire, damaging the right main gear assembly, gear door, and underside of the right wing. There were no injuries to the two-pilot crew or the two passengers.


In an Occurrence Bulletin released four days after the accident, the Bahamas’ Aircraft Accident Investigation Authority reported that during the takeoff roll, the Tampa-bound airplane was not accelerating normally, and its pitch attitude did not respond to back pressure on the yoke. The first officer called to abort the takeoff and the pilot pulled the thrust levers to idle, deployed the thrust reversers, and applied the brakes. After it came to a stop and made a 180-degree turn on the runway, the first officer saw smoke coming from the airplane’s right side.

The first officer evacuated the passengers as the pilot shut down the engines, and the Eleuthera Airport Fire Rescue service extinguished the fire. As of this writing, the cause of the anomalies during the takeoff roll had not been reported. ■



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NAA president Greg Principato presents Women in Aviation founder Peggy Chabrian with its 2020 Cliff Henderson Trophy for her significant and lasting contribution to the industry.

NAA honors Chabrian, Simi

by Kerry Lynch

The National Aeronautic Association recently honored Women in Aviation International founder Peggy Chabrian with its 2020 Cliff Henderson Trophy. The association separately will present its 2019 Katherine and Marjorie Stinson Trophy to Shelly Simi.

Among the collection of the Smithsonian's National Air and Space Museum, the Henderson trophy was established in honor of the creator of the National Air Races and recognizes "a living individual, group of individuals, or an organization whose vision, leadership, or skill made a significant and lasting contribution to the promotion and advancement of aviation and aerospace in the U.S."

it is Peggy Chabrian," said NAA president Greg Principato. "She is a visionary leader whose skill and energy have forever changed aviation for the better. Her work will truly inspire future aviators for generations to come."

In accepting her award, Chabrian, who retired recently, said, "My tenure as president and CEO of Women in Aviation International has been the highlight of my working life. It was never just a job. It's been a passion." She added that she plans to keep her hand in the industry as a consultant.

In addition to honoring Chabrian, NAA will shortly recognize Simi with its Stinson Trophy, which was created in 1997 in honor of the sisters Katherine and Marjorie Stinson, who were among the first 11 American women to be certified as airplane pilots through the NAA predecessor company, the Aero Club of America.

The trophy is presented to a living person for "an outstanding and enduring contribution to the role of women in the field of aviation, aeronautics, space, or related sciences," NAA said, adding, "Simi is being recognized for her accomplishments as a successful and passionate aviation professional and for dedicating over 25 years to opening minds and doors for women in pursuit of aviation opportunities of every kind."

Simi's career has spanned from her initial post at Federal Express to representing the industry at the General Aviation Manufacturers Association, as well as at numerous companies including Adam Aircraft, Jeppesen, Boeing Digital Aviation, and Aurora Flight Sciences. Most recently president and CEO of the National Association of State Aviation Officials, she has been involved in a number of advocacy organizations, including as a founding board member of WAI. She helped develop many growth initiatives, including Be A Pilot, Learn to Fly, GA TEAM 2000, and No Plane, No Gain. ■



Industry veteran Shelly Simi will be awarded the association's Stinson Trophy later this year.

Chabrian is honored for founding WAI and its conference that began in 1990 with an initial gathering of 150 people at Embry-Riddle's Prescott, Arizona campus. The association launched a handful of years later with 16 founding board members. Its membership now spans more than 14,000, while the conference draws 4,500 and has been a venue for more than \$13 million in scholarship awards.

Over her career, Chabrian has served in a number of senior academic positions at Parks College, Embry-Riddle, and Georgia State. She is a commercial pilot with more than 2,300 hours in airplanes, seaplanes, and helicopters.

"If ever anyone has embodied the criteria for the Cliff Henderson Trophy

**Within 6 Months**

June 1, 2020

EASA: Drone Regulations

Technical and operational requirements for drones are covered in these rules. For example, new drones will have to be individually identifiable, allowing the authorities to trace a particular drone if necessary. They also cover each operation type, from those not requiring prior authorization to those involving certified aircraft and operators, as well as minimum remote pilot training requirements. The new rules, effective June 1, replace existing national drone rules and requirements in European Union member states.

June 6, 2020 **NEW****EASA: Tire Pressure Minimums**

This notice proposes to amend large airplane certification (CS-25) rules to provide a means to ensure that no tire is below its minimum serviceable inflation pressure during operation. This can be achieved either by requiring operators to perform tire pressure checks at suitable time intervals or by installing a tire pressure monitoring system that alerts the flight crew when a tire is at an unsafe pressure. Comments are due June 6.

June 7, 2020

Australia/Europe: ADS-B Out Mandate

The ADS-B Out retrofit requirements in Australia and Europe take effect June 7. In Europe, this mandate applies only to aircraft with a mtow exceeding 5,700 kg (12,566 pounds) or having a maximum cruising speed greater than 250 knots. In Australia, this mandate applies to foreign-registered aircraft flying under IFR. Australian-registered aircraft had to be compliant starting January 2.

June 19, 2020

FAA: Helicopter IFR Minimums

FAA Notice 8900.534 describes mandatory revisions to helicopter operations specification (OpSpec) H105 and implemented revised IFR weather guidance for rotorcraft operations conducted under FAR Parts 91K and 135. The revisions become effective on June 19.

Aug. 14, 2020

EU: Pilot Mental Fitness

The European Union has published revised air operations safety rules to incorporate provisions to better identify, assess, and treat the psychological fitness of air crew. The rules include alcohol testing of flight crews during ramp checks, are applicable to commercial air transport operators, and go into effect August 14.

Oct 1, 2020

Australia: Rest and Duty Times

New fatigue rules apply to holders of commercial air operator certificates (AOCs), including charter, on-demand air taxis, and Part 141 flight schools. Operators who select the prescribed limits must be in compliance by June 30, 2020. Operators who develop their own fatigue risk management system must be in compliance starting October 1.

Within 12 Months

Jan. 1, 2021

Saudi Arabia: ADS-B Out Mandate

Saudi Arabia delayed the start of ADS-B requirements in Class A and B airspace by a year from the previously published original date of this past January. According to a recent notam, the new start date is Jan. 21, 2021.

Jan. 1, 2021

EASA: Cockpit Voice Recorders

Cockpit voice recorders with a recording duration of at least 25 hours will be required on commercial airplanes with an mtow of 60,000 pounds or more manufactured from Jan. 1, 2021.

Jan. 1, 2021

U.S.: Stage 5 Noise Rules

Effective Jan. 1, 2021 more stringent noise certification rules apply for new type certificates for airplanes less than 121,254 pounds. The new rule, known as Stage 5, is intended only for newly designed airplanes and is not aimed at phasing out existing noise standards that apply to the production or operation of current models.

Beyond 12 Months

Dec. 31, 2021

New Zealand ADS-B Out Mandate

New Zealand is expected to adopt its proposal to make ADS-B mandatory for all aircraft in controlled airspace below Flight Level 245 starting on Dec. 31, 2021. Submissions on the country's ADS-B proposal closed in April 2019.

Jan. 1, 2023 and Jan. 1, 2028

Aircraft CO₂ Emissions

Standards for CO₂ emissions apply to deliveries of current in-production large aircraft starting Jan. 1, 2023. All covered in-production airplanes must meet the standard by Jan. 1, 2028. Jet airplanes with an mtow under 12,500 pounds, and piston-engine airplanes and turboprops below 19,000 pounds mtow, are exempt. ■



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Brad Thress was named president and CEO of *FlightSafety International*, succeeding David Davenport, who left the company he had been a part of since 1996. Thress previously spent 27 years with Textron Aviation, holding leadership roles in several areas including engineering and customer service, with his last title there senior v-p of parts, programs, and flight operations. He also served as Cessna's senior v-p of business jets.

Textron Aviation named **Kriya Shortt** senior v-p of parts, programs, and flight operations, succeeding Thress. Shortt, a nearly 14-year veteran of the company who was most recently senior v-p of global customer support, will have oversight of Textron Aviation's global parts and distribution business, and also is president of Able Aerospace and McCauley Propeller Systems. **Brian Rohloff**, meanwhile, is Textron Aviation's new senior v-p of customer support. A more-than-11-year veteran of the company, Rohloff was most recently v-p of supply chain management and also held leadership positions in sales, customer support, and quality.

Women in Aviation International (WAI) selected **Allison McKay** as CEO. In that role, McKay becomes only the second person to lead the organization, succeeding WAI founder Peggy Chabrian, who recently retired. Stepping into the position after serving as v-p of the Helicopter Association International Foundation since 2015, McKay has more than 20 years of industry experience with companies such as Safran USA and B/E Aerospace.

Duncan Aviation president **Aaron Hilkemann** is expected to begin easing into retirement starting this summer with plans to transition to CEO and chairman of the board of advisors, a newly created part-time position. **Jeff Lake**, COO for Duncan Aviation's Lincoln, Nebraska facility, will succeed Hilkemann as president. Hilkemann joined the company in 1996 as executive v-p and COO and was appointed president a year later. Lake, who became COO in 2008, joined Duncan in 1993 as company controller and also has served as v-p of finance and CFO.

Sheltair Aviation named **Lisa Holland** president, responsible for the day-to-day operations of the business. Founder **Gerald Holland** will continue as chairman and CEO and remain actively involved in management. Lisa Holland takes the new role after serving as president of corporate strategies for the FBO chain and aviation real estate company.

West Wind Aviation named **Stephen Smith** acting president, CEO, and accountable executive. Smith will succeed **Michael Rodyniuk**, who took a leadership role at Willis Lease

Finance Corporation on March 1. Smith, who has held executive positions with Air Canada and WestJet Airlines, joined the West Wind Aviation board in February 2019 and in June became chairman.

The *Asian Business Aviation Association* named **Jeff Chiang** COO, providing full-time leadership to the organization that has been largely run by volunteer board members. Based in Hong Kong, Chiang has been involved with the association as a member while he held senior sales roles with Hongkong Jet and Asia Jet.

Peter Hokanson joined *Cutter Aviation* as CFO, managing the company's accounting, human resources, and information technology organizations. Hokanson has more than 30 years of management experience with companies including Honeywell, Garrett Aviation, General Electric, MD Helicopters, AZmark Aero Systems, and Jormac Aerospace.

Wheels Up appointed **Gail Grimm** as chief experience officer, responsible for Wheels Up member experiences such as event programming, marketing, public relations, social, digital, and member benefits. Grimm joins Wheels Up after spending 20 years with Delta Air Lines, most recently as senior v-p for New York.

The *Helicopter Association International* elected four members to its Board of Directors for three-year terms beginning July 1. Returning to the board is **Randal Rowles** with Helicopter Institute. Joining the board for the first time are **Mark Schlaefli** with Sundance Helicopters, **Nicole Vandelaar** with Novictor Helicopters, and **B. Adam Hammond** with Tennessee Valley Authority Helicopter Services. Officers for the annual term beginning July 1 are **Stacy Sheard** with Executive Jet Management as chair; **Marc Stanley**, Mass-Mutual Financial Group, as vice chair; Rowles as treasurer; and **Jan Becker**, Becker Helicopter Services, as assistant treasurer.

Gulfstream promoted **Sheryl Bunton** to senior v-p and member of the senior leadership team. Bunton, who is the Savannah, Georgia airframer's chief information officer, joined Gulfstream in 2015. Before that, she was worldwide CIO for AGCO Corp., and also held senior financial roles with AT&T Capital.

Trenchard Aviation Group appointed **Mark Radford** v-p of business development. Radford brings 30 years of aviation interiors experience with both OEMs and Part 145 organizations, most recently as sales director-Western Europe for Iacobucci HF Aerospace.

Guardian Jet named **Gabriel Bastos** v-p of Latin America and South Florida. Bastos, who formerly was with Embraer Executive Jets, is

Guardian Jet's first executive representative in South America, Central America, Mexico, and Southern Florida.

Avinode Group has created a new customer experience team, naming **Alex MacRae** to lead the group in addition to serving as head of marketing. MacRae, who leads 12 marketing and customer experience specialists at Avinode, has spent two years with the company and before that spent more than a decade in marketing, digital strategy, account managing, and brand advising.

London Biggin Hill Airport appointed **Chris Randall** as head of aviation development. Randall formerly was business-development manager at Stobart Jet Centre at London Southend Airport and FBO Manager at London City Airport.

Modesto Jet Center named **Otto Wright** general manager. Wright brings 12 years of aviation experience to his new role, also having served as an aviation consultant and business owner as well as serving with Axis Jet, KaiserAir, Far East Russia Aircraft Services (FERAS), and Jetex Flight Support.

Jet Support Services, Inc. (JSSI) appointed **Chris Charnley** director of business development, Canada. Charnley has more than 40 years of aviation industry experience, including holding senior leadership roles at Hawker Beechcraft and Pratt & Whitney Canada.

Elliott Jets hired **Eric Hammer** as executive sales director. Before joining Elliott Jets, Hammer served as a regional sales director for Embraer Executive Jets and also has led sales efforts for Atlantic Aero and Cessna.

Donaldson Aerospace & Defense appointed **Tom Newman** as director of its Rotorcraft business unit and **Robert Barr** aftermarket sales manager. Newman, who joined Donaldson in 2007 and most recently was engineering director, previously was engineering manager and project engineer at Aerospace Filtration Systems, among other roles over his 40-plus-year

career. Barr is rejoining Donaldson, bringing nearly 20 years of aerospace sales experience.

Aircraft Propeller Service named **Mauricio Mazzini** director of quality, responsible for quality management, certifications and supplier audits, and training, among other areas. Mazzini is relocating to APS's Lake Zurich, Illinois headquarters from the APS Brazil facility, where he was responsible for coordinating the company's quality assurance system and working with Brazilian and other foreign entities.

Phil Murphy joined *MRO Insider* as account executive for the East Coast. Murphy previously was director of aftermarket sales for Textron Aviation and also spent 21 years in the U.S. Marine Corps. In addition, Perri Bischoff took the new role of director of marketing. Bischoff previously was an account executive and has a range of startup experience, including in the California wine industry.

Duncan Aviation named **Todd Shriner** a technical representative for Bombardier products. Shriner, who has more than 12 years of experience with Bombardier products, has served as a lead mechanic in Duncan's airframe department since 2009 and before that was a line service specialist for Gran-Aire.

Brent Hanson joined *Pentastar Aviation* as account manager and client relations representative. Hanson, who will be based at Michigan's Gerald R. Ford International Airport (GRR), as part of Pentastar's new partnership with Avflight, formerly was a regional sales director for Textron Aviation and also served as an officer in the U.S. Navy and Navy Reserve.

Peter Schmitz joined *The Loomis Company* as a broker. Schmitz previously was the aviation practice leader at Lockton and global CEO for Aon's Aviation Specialty.

Elliott Aviation hired **Amber Christianson** as accessory-shop manager at its Moline, Illinois headquarters. Christianson previously led the component shop at Contour aviation. ■



AWARDS and HONORS

NBAA named 11 recipients of the 2020 Schedulers & Dispatchers Training Scholarship during its 2020 NBAA Schedulers & Dispatchers Conference (SDC2020) in Charlotte, North Carolina: **Becky Bakeman, Yomaira Estrella, David Gall, Matthew Graniero, Shani Mendoza, Juan Muniz, Sarah Petrucci, Corbin Philipp, Christina Riley, Sherry Whitcomb, and Kara Woodiwiss.**

Designed to promote career development

of current and aspiring schedulers and dispatchers, the awards are sponsored by Academy College, Airline Dispatch Federation in conjunction with Flamingo Air Schools, Beyond and Above Corporate Flight Attendant Training, Corporate Aviation Solutions, FlightSafety International, Jeppesen, Medaire, NBAA Air Traffic Services, ServiceElements International and Universal Weather and Aviation. ■



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Aviation struggles under restrictions

The fallout has been grave. In just a few examples; by late March Qantas and its low-fare Jetstar subsidiary outlined plans to suspend all scheduled international flying following an Australian government advisory to all citizens not to travel overseas. Austrian Airlines and Canada's Porter Airlines suspended all flight operations due to Covid-19-related entry bans and the rapid decline in air travel. Many others slashed schedules and pulled back services.

By late March, the International Air Transport Association estimated losses reaching \$114 billion with at least 420,000 cancellations estimated through June. The U.S. Airlines for America (A4A) trade association labeled the situation "much worse than 9/11." A4A president and CEO Nicholas Calio said, "Today, carriers are burning through cash as cancellations far outpace new bookings for U.S. carriers, planes are only 20-30 percent full...and this is getting worse each day with no end in sight."

On the business aviation front, data analyst WingX reported European flight activity down by 6.9 percent during the first 17 days of March. "There have been big fluctuations day-to-day and a trend towards severe overall decline during the last few days," the Germany-based company said in its Market Tracker report published on March 19.

WingX managing director Richard Koe confirmed the perception that prospects for business aviation could get markedly worse before they resume any longer-term rebound. "Business aviation is clearly impacted by the Coronavirus, with accelerating declines in the last few days belying the overall 7 percent drop month-to-date," he commented. "We expect flights to dry up...once restrictions are stricter and the repatriation rush is done."

As for manufacturers, shutdowns and layoffs have already begun. Textron Aviation was among the first to announce mass layoffs, on March 18 saying it would furlough most of its U.S. employees for four weeks in response to the Covid-19 pandemic, enabling it to adjust production to market demand. Those furloughs are staggered over a roughly 10-week period, to end May 29.

Others faced production disruptions. Airbus, for instance, had a four-day production and assembly stoppage at its facilities in France and Spain to ensure a protected environment for its workers.

Boeing, which has already faced multiple challenges associated with the 737 Max, appealed to Congress for a \$60 billion aerospace manufacturing package that could also benefit suppliers. But word of the request immediately sent the beleaguered aerospace giant's stocks tumbling.

Bailout requests were aplenty, from Boeing, A4A (seeking \$50 billion), repair



MARK WAGNER

stations, and a broad swath of the business and general aviation community.

Proposing an \$11 billion package, the Aeronautical Repair Station Association said it was hearing from members concerned about cash flow in light of maintenance work being canceled and customers potentially unable to pay bills.

A half-dozen business and general aviation groups also asked to be included in bailouts, reminding lawmakers in a joint letter that their end of the aviation sector generates \$77 billion a year in labor income and supports communities throughout the U.S. "There is currently no certainty as to when economic conditions will improve, which threatens the survival and prospects of thousands of general aviation businesses," the letter stated. "Further, the threat of potential domestic travel restrictions and locally-imposed travel restrictions have the potential to cause even more significant harm to these companies as this crisis continues."

The U.S. Congress at press time was hashing out a bailout package. One such proposal included more than \$200 billion in loan guarantees.

The European Business Aviation Association (EBAA) also pressed for relief. The association said it respected the decision by the EU to suspend border access but called on government leaders to provide assistance to the business aviation sector and asked for exemptions for medical flights from restrictions. "It is still too early to fully evaluate the extent of the crisis's impact on the business aviation sector," said EBAA secretary-general Athar Husain Khan. "But we have been receiving reports of operators' aircraft grounded, airport closures, and staff being put on leave across Europe."

Disruptions also began extending to air traffic control. The FAA was forced to close its control tower at Chicago Midway Airport to clean, after several technicians tested positive for the virus. Tower duties were shifted to Chicago Terminal Radar Approach Control in Elgin, Illinois, but operators were advised of potential delays and a reduced rate of operations.

A few days later, the FAA did the same with the Las Vegas McCarran and (New York) John F. Kennedy Airport towers after technicians at those facilities tested positive. And the Indianapolis Air Route Traffic Control Center partially closed for cleaning in three work areas.

Additionally, many services requiring face-to-face interaction and involving pilot, flight-training and medical requirements were disrupted. This prompted the Aircraft Owners and Pilots Association (AOPA) to appeal to the FAA to provide extensions and maximum flexibility possible. "The current restrictions to the U.S. population create an impossible barrier for these individuals to meet the necessary airman and aircraft requirements," AOPA president and CEO Mark Baker told FAA Administrator Steve Dickson in a letter.

As for events, nearly all involving the aviation community—except for online activities—have been canceled or postponed, including one of the industry's most important events for the year, the July 20-24 Farnborough International Airshow, which drew 80,000 visitors in 2018.

The Singapore Airshow occurred as scheduled in February, but with reduced participation, including the cancellation of 70 exhibitors. The Women in Aviation International show took place in early March with only a few cancellations. But the effects really became evident with NBAA's Schedulers & Dispatchers 2020 event, which was marked by lower attendance and empty booths and then was shortened by a day. NBAA subsequently canceled all of its gatherings through the first half of the year, and nearly all other associations took similar steps.

Another of the largest cancellations involved Europe's EBACE show in Geneva, which typically attracts more than 13,000 attendees, 50 aircraft on static display, and more than 400 exhibitors. "This is the hardest decision EBAA's management and board of governors have had to make in years," EBAA's Khan said. "But given the unprecedented circumstances, we had no other choice. We must do everything we can to help protect against exposure to

Covid-19 and mitigate any risks associated with the spread of the virus."

However, despite the dampened business, opportunities did crop up in other areas. In the U.S., some charter companies quietly saw an uptick as people shied away from commercial flying. Though part of that involved Flexjet flying its crews to and from assignments on its own planes, rather than commercially.

In late March, some international charter operators kept busy carrying people needing to get home in the wake of rapidly expanded travel restrictions. In a commentary published on March 19, charter marketplace Avinode said, restrictions permitting, there is still strong demand for flights "for the next week or so." The company confirmed that demand—measured by requests made for flights through its system—started to surge at the start of March and remained significantly higher than in the same period of 2019. But going forward, Avinode saw a flattening in April and a 16 percent decline, year-over-year, in requests for May.

Meanwhile, new business opportunities arose for companies with expertise in disinfectants, cleaning services, and purification. MRO Constant Aviation, for instance, was tasked with applying a protective coating to the entire Flexjet fleet.

For the business and general aviation community, one of the biggest concerns regarding travel restrictions is that they hamper its value proposition. NBAA joined AOPA, the General Aviation Manufacturers Association, Helicopter Association International, and the National Air Transportation Association in reminding government leaders of the important role their members could play in helping out during the crisis.

"As our nation works to respond to the threat of the coronavirus, we wanted to make ourselves available to assist in any way possible," the associations wrote in a joint letter to Transportation Secretary Elaine Chao, adding the diversity of the GA fleet enables the industry to operate from 5,000 U.S. airports and has extensive experience in responding to humanitarian crises. ■

Due to concerns about the Covid-19 coronavirus, show organizers NBAA and EBAA canceled EBACE 2020. The show was to be held May 26 to 28 at Geneva International Airport.

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Falcon customers deserve the best in every way, including service. From our 24/7 command center to our mobile repair teams to our extensive parts inventory, you're covered. Our portfolio of AOG support services includes two long-range, large cabin Falcon 900s with everything needed to put an AOG back in service, or provide alternative lift for passengers. Something you can only get from Dassault. *Whatever it takes™.*

Falcon Response 

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