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Opening session has its ‘Magic’ moment

by James Wynbrandt

Businessman, aircraft owner, and legendary basketball superstar Earvin “Magic” Johnson kicked off NBAA-BACE 2019 in celebratory, championship-style at Tuesday morning’s keynote presentation, which also featured pioneering internet entrepreneur Sky Dayton and aircraft developer Gamebird Composites founder Steuart Walton. The gala opening ceremony set the tone of what promises to be “the most exciting convention the NBAA has ever hosted,” as NBAA president and CEO Ed Bolen proclaimed in his welcoming remarks.

“Good things are happening, and you’re a part of it,” Bolen told attendees, pointing.

Gulfstream counts $2B in G700 fleet orders

by Matt Thurber

Gulfstream hit paydirt with initial fleet orders valued at nearly $2 billion from Qatar Executive and Flexjet for the new G700 flagship unveiled on Monday.

The Qatar Executive charter arm of Qatar Airways is taking 10 G700s worth $7.5 billion at list price, with Qatar also having the honor of being the G700 launch customer. This supplements Qatar’s earlier orders for G500s and G650ERs, and the company is currently operating six G650ERs and five G500s.

Qatar Executive was the international launch customer for the G500. “We are excited to be the launch customer of the G700, the largest business jet in the industry, and are looking forward to the aircraft joining our fleet,” said Akbar Al Baker, group CEO of Qatar Airways.

Flexjet, the first North America G700 fleet customer for the new Gulfstream, which placed a firm order for 16 G700s worth $1.2 billion at list price. It already operates G650ERs, G500s, and G450s, and was North America launch customer for the G500. Flexjet plans to make the G700 available for its Red Label service, which includes dedicated crews and other perks.

“The G700, with its speed, range, and versatility, will make an exceptional fractional offering,” said Flexjet chairman Kenn Ricci. “We anticipate that it will be ideally suited for those companies that need occasional access to global markets and will be the pinnacle of our Red Label offering.”

Gulfstream’s 7,500-nm G700 has five living areas, including an extra-large 10-foot-long galley, and is powered by a pair of Rolls-Royce Pearl 700 turbfans. First flight is planned in the first half of next year, followed by G700 service entry in 2022.
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Pilatus’s new PC-12 NGX already racking up sales

Pilatus announced the latest version of its PC-12 single-engine turboprop, the NGX, on the eve of NBAA-BACE 2019 and notched three sales before the first day of the show ended, the company said. Two of the three were to existing or previous PC-12 owners, while the third marked the first NGX sale to a Brazilian operator. NGX features include the new P&W PT6E-67XP turboprop engine, a redesigned cabin, and reduced maintenance intervals.

ThrustSense autothrottle system now STC’d on B200

by Kim Rosenlof

Pennsylvania-based Innovation Solutions & Support’s (IS&S) ThrustSense autothrottle system recently received U.S. FAA supplemental type certification on the King Air B200, Tom Grunbeck, director of autothrottle programs for the company (Booth IS4), announced on Monday. ThrustSense had already been STC’d for the PC-12 and PC-12NG.

“Over 1,000 airplanes have been outfitted with IS&S cockpits,” said Grunbeck. “We’re excited to add the ThrustSense technology to our 4D Next Generation Flight Decks for PC-12 and King Air platforms.”

Consisting of an integrated standby unit (ISU) and linear actuators that control each throttle lever, the ThrustSense autothrottle provides smooth and synchronized power and speed control based on the aircraft’s pilot operating handbook values through takeoff, climb, airspeed hold, landing, go-around, and other modes. The system can also instantly recognize an engine-out condition and adjust the throttle setting for the running engine to prevent hazardous yaw.

“In an engine-out condition, even some of the most experienced pilots may be unable to react accurately enough to restore and maintain control,” said IS&S chairman and CEO Geoffrey Hedrick. “By mitigating this dangerous condition, ThrustSense can provide pilots an added layer of protection. We’ve been told by the FAA that what we’re doing here with ThrustSense will save lives.”

The ThrustSense ISU contains an integrated computer, inertial measurement unit, air data system, and flat panel display in a box that directly replaces the existing standby unit in the flight deck. Its ISU computer uses proprietary software to determine the throttle positions needed to prevent over-temp, over-torque, over-speed and hot start conditions for engines that do not already use an electronic control system.

Integrated with ADS-B, the IS&S ThrustSense autothrottle can optionally provide in-trail spacing of two miles plus or minus 200 feet between aircraft.

“The classic case is being instructed to follow a Cessna 172, so you pick up your traffic and lock onto it,” said Hedrick. “If it goes into S-turns, your aircraft follows laterally and at precisely the same speed.”

ThrustSense can also be used to meet a required time of arrival. “If a required time of arrival is set, on a given operation you can land within 15 seconds [of the set time]. Having flown into [Reagan Washington] National Airport and given a two-minute window, I would have found that very helpful.”

Wynbrandt honored with NBAA Gold Wing Award for 2018 sustainable fuel article

AIN contributing editor James Wynbrandt won the NBAA 2019 Gold Wing award yesterday morning at the NBAA-BACE media breakfast. Wynbrandt was recognized for his in-depth article about sustainable aviation fuel (SAF) in the August/September 2018 issue of AIN’s Business Jet Traveler magazine.

According to NBAA, “His article...not only explains the science and economics of SAF in plain English; it also makes clear that SAF is a drop-in fuel—available today—and it is safe and approved for every engine that runs on jet-A. This author did extensive research and made clear that SAF is truly sustainable, reducing overall carbon lifecycle emissions by 50 to 80 percent.”

Wynbrandt is a pilot and aircraft owner and has been writing for AIN for many years on a variety of subjects, including green technology, charter and fractional operations; completions; avionics; and more. He is also the author of the popular books, A Brief History of Saudi Arabia; Dan Quayle; and The Excruciating History Of Dentistry.
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Dassault prez updates press

Dassault Aviation president Eric Trappier on Monday highlighted two key management handoffs, revealed limited information about the ongoing new-twinjet program beyond the Falcon 6X, and generally summarized the company’s activities since last year’s NBAA-BACE.

Dassault plans to unveil the “all-new Falcon model” in 2021, he said. “It further develops the fully digital design platform,” Trappier said, innovated by Dassault Group’s Dassault Systemes business unit. “Dassault has been pioneering smart aircraft design for 50 years,” he said.

Along with the reveal of the long-anticipated next Falcon, Dassault expects to open a new factory near Paris in 2021. Trappier also said Dassault is laying the groundwork for a fighter to replace the Rafale multirole fighter.

He also addressed the prospects for a supersonic business jet, expressing reservations about the technology being “just around the corner.” He said major questions remain, starting with environmental considerations. “Does it make sense to rush in with a supersonic business jet?” he asked.

Trappier introduced Carlos Brana as the new executive v-p of civil aviation, replacing Olivier Villa, who retired earlier this year, as well as Thierry Betbeze, who replaces Jean Rosanvallon as president and CEO of Dassault Falcon Jet.

He also took on initiatives to ramp up Falcon customer service, including the acquisitions of MROs from Execujet, TAG, and Ruag. These and other activities brought results in the form of top ratings in AIN’s annual product support readers’ survey, the first time the French OEM has topped the survey.

As for market outlook, Trappier said business uncertainties continue to lead to “wait and see” attitudes, though July and August brought a surge in sales. “We saw 19 aircraft sold in that time,” he said. China remains sluggish, he admitted, but Japan has ordered six Falcons for its coast guard, the Royal Australian Air Force has ordered Falcon 7X models for VIP transport, and he hinted that the French military was also interested in VIP transport Falcons.

Gulfstream G700 rocks with Bongiovi 3D sound system

Gulfstream engineers designed the G700 cabin to create an environment where passengers can become fully immersed, and nowhere is that more evident than with its 3D sound system. Developed in partnership with Bongiovi, it’s a speakerless system using hidden transducers attached to cabin walls, allowing the wall itself to become the speaker. “When sound moves, it truly moves throughout the cabin,” said Gulfstream sr v-p Greg Collete.

GE Aviation execs explain Catalyst delay

A combination of newer turboprop testing standards and engine preparations required for its flying testbed are driving a delay in the initial delivery of GE Aviation’s new Catalyst turboprop to Textron Aviation for the Cessna Denali, said Brad Mottier, v-p and general manager of business, general aviation, and integrated systems for GE Aviation.

Textron Aviation on Monday announced the delay in the turboprop single’s first flight to sometime next year. Both Textron Aviation and GE Aviation had anticipated first flight of the Denali later this year.

The primary holdup has been eight test certification requirements for turboprop engines put in place by the FAA over the past 10 years. Among those more stringent requirements are ones that center around engine icing, added GE Aviation general manager of turboprops Paul Corkery.

“As some of the test facilities, not just ours but external [ones], took a lot longer to get through the test cycles than what we anticipated,” Mottier added.

A King Air 350 that will serve as the Catalyst flying testbed is being outfitted for the engine, although that has brought its own set of challenges, including a new structure to affix it to the airplane’s wing. “And this new engine produces more power than the PT6 that is on the other side,” Mottier explained. “That’s taking longer than we anticipated.”

Once the Catalyst has been fitted to the King Air, trials with the flying testbed will begin in Europe. “We are assembling the engine and anticipate delivering the engine later this year for flight testing,” he said. Catalyst will eventually have European Union Aviation Safety Agency and FAA certifications.
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Global Jet Capital sees record business
by Kerry Lynch

Global Jet Capital, celebrating its fifth anniversary during NBAA-BACE, is in the midst of its strongest year yet, seeing a 20 percent year-over-year jump in its business aviation leasing and financing business. Founded in 2014 with a core group of veteran business aviation top executives and the backing of key financial players, the firm now has one of the world's largest business jet portfolios comprising more than 175 aircraft valued at more than $2.6 billion. In 2019 alone, Global Jet Capital is on pace for $800 million in new business. Global Jet Capital (Booth C8709) is paving the way for this growth by expanding its global presence, including the additions of fully functioning offices in Zurich and Hong Kong earlier this year. These offices joined existing facilities in Danbury, Connecticut; Boca Raton, Florida; and Mexico City.

Further propelling growth is its continued access to funding, including its third successful asset-backed security, bringing total assets securitized to over $1.1 billion. The firm also continued to reinforce its leadership team, including the recent naming of financing veteran Stefan Abbruzese as chief commercial officer. This enabled Dave Labrozzi to shift into the new role of vice chairman.

Satisfying to Global Jet Capital is its record-setting year is occurring despite uncertainties in the business jet transaction market. However, flexible operating lease and progress payment financing solutions are helping boost this growth. “Buyer behavior is clearly changing. Business aviation once considered operating leases as somewhat exotic, yet today we are meeting with an increasing number of corporations and high-net-worth individuals motivated by the fixed rates, protection of capital, and ease of disposition afforded by our operating lease solution,” said chairman and CEO Shawn Vick.

Since its establishment, Global Jet Capital was able to establish credibility with investors including GSO Capital Partners, having a Blackstone company in partnership with Franklin Square Capital Partners; The Carlyle Group; and AE Industrial Partners, and founders including business aviation and financing veterans Bill Boisture and David Rowe, along with Vick. “Investors have positioned the business since our inception with a very aggressive business plan.”

Within two years, the business had grown considerably with its acquisition of the $2 billion GE Capital business aviation portfolio. This deal also added 16 GE employees to the Global Jet Capital base. But to Vick, a key to the success was the timing of stepping into a business that was needed in business aviation.

“We recognized an in-demand need in the marketplace. There was a significant amount of dislocation in the aircraft financing space as a result of the great recession,” he said, noting financiers had pulled back at the time despite the fact that transactions were still occurring at a steady pace. Over the last three years, Global Jet Capital has seen a “very rational market emerge,” he said.

Going forward, Vick acknowledged the uncertainties with the geopolitical environment expected in the year ahead. But given steady new deliveries of super-midsize, large, and ultra-long-range aircraft, along with an improvement in the preowned market, he said he sees “2020 as another growth year,” particularly with “a growing appreciation of an operating leasing product.”

AEG debuts new mobile fueling app

Aviation fuel distributor AEG Fuels (Booth C6777) has launched a new mobile app that provides users a seamless way to search, quote, authorize, and complete fuel transactions. The app incorporates the virtual AEG Carnet Card, which can be displayed at point-of-sale, offers an alternative to pre-releasing fuel, and is accepted at more than 3,000 locations. It benefits the FBO/fuel suppliers by charging no merchant fee and it will be tied to a newly-developed customer loyalty program starting in early 2020.

“Simply present the card at the time of purchase, sign the fuel ticket and be on your way,” said Warren Boin, AEG’s director of card services and special programs. He added that invoices and reporting are available for review at the customer’s convenience.

Using the app, general aviation operators, schedulers, dispatchers, pilots, and other flight department members have the ability to remotely manage and plan their operations on iOS and Android platforms, with 24/7/365 fuel dispatch and trip support, GPS positioning to find airports and FBOs, a help desk and VAT compliance and exemptions.
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Industry turns eye to mx tech shortage

by Mario Pierobon

Like other domains of the aircraft maintenance, repair, and overhaul (MRO) industry, business aircraft maintenance is experiencing a shortage of technicians. In light of this constraint, the providers of business aviation MRO services are devising and implementing strategies to tackle the shortage.

“The impact of the worker shortage is more prevalent than ever in corporate aviation,” said Katie Johnson, vice president of human resources at West Star Aviation. “As an industry, we are all talking about it and reading what the industry is doing including NBAA and Congress. The corporate aviation, general aviation, and commercial aviation industries are booming and have been for the last few years, with fewer people coming out of the trade schools, with the military having retirees leave and not going into the workforce. This complete set of circumstances means that the job pool for our industry is drying up.”

Chris Bodine, vice president and general manager at StandardAero, Augusta, Georgia, said, “The pipeline for our future technical workforce development is a concern, and we are going to need additional people; in fact, the constraining issue in the future is going to be available qualified technicians. Enrollment is up at most of the aviation programs, but there is an 18- to 24-month timeframe for these students to complete the programs and make it to the workforce.”

Connect and Engage

Organizations are adapting from a “post and pray” approach to “connect and engage” to help potential employees understand the reasons behind choosing a career in aviation. “To do this we have connected with various high schools and presented to students about aviation careers and we have also made a financial investment to help fund an aviation program within a high school,” said Johnson. “We find students really connect with hearing from alumni who can share with them exactly what their first year on the job will be like. We also bring a lead technician and program manager who can share insight into advancing in their career and what a manager looks for in future technicians. We significantly increased the number of internships and apprenticeships we offer and most recently have helped six employees obtain their A&P license through on-the-job training.”

“Our efforts to develop technicians range from apprenticeship programs with local colleges to mentoring students at various trade schools and internships in our repair shops,” said Bodine. “We also collaborate with local community colleges to develop programs and occupational standards to establish certification programs for A&P mechanics and other technicians.”

Military Resources

Recruiting from the military world also offers opportunities. “We actively recruit veterans and find them to be very well-suited for many of our maintenance and technical roles. In fact, more than 20 percent of our U.S. workforce today is either retired or active/reserve military veterans. In addition, we are expanding operations in places where there is an embedded pool of military and government-trained people who are qualified and available in those locations,” said Bodine.

Bridging programs are necessary to allow military members to learn about the job and the careers in business aviation, so they are more informed and capable of starting a civilian job when they transition. “One of the keys to our success is hiring for attitude and training for expertise. This really shows the investment we are willing to make in the person, which leads to a mutually rewarding employment experience. Moving forward, we will likely solidify a few partnerships with key schools and offer more scholarship opportunities,” said Johnson. “We also work with our contract labor partners to supplement with experienced technicians during peak periods.”

West Star Aviation just hired its first active-duty military member in Chattanooga through the SkillBridge program. This is a program with the Department of Defense that enables active-duty military to obtain an internship and on-the-job training to prepare for their transition into the civilian world.

Investing in Education

StandardAero is also bringing in people from ancillary industry sectors, like automotive and industrial manufacturing companies, and training people to cross over, learn quickly, and get certified as A&Ps. “We have also donated tools, engines, and equipment to help schools provide hands-on training,” said Bodine. “Finally, we partner with trade associations like GAMA and NBAA to promote science, technology, engineering, and mathematics [STEM] education and participate in programs to attract young people to careers in aviation and work closely with the local schools and school boards in the hometowns that we have facilities to support their STEM efforts. We recently attended and supported a new program that the Atlanta FAA FSDO has started working on named STEM/AVSED [STEM/Airway & Space Education]. This program will be for reaching out to students of all ages to start thinking about aviation as a career. The FAA created the STEM/AVSED Outreach Program to prepare and inspire the next generation of skilled professionals for the aviation/aerospace communities, using STEM-based programs. Flight Standards Atlanta will primarily focus on careers in aviation maintenance and pilot training.”

Skill Requirements

Given the development of business aircraft technology, Johnson believes that there is a specific set of professional qualifications and skills that MROs are increasingly looking for in their recruits. “We will always need licensed aviation maintenance technicians for the monthly-to-yearly inspections, and given the technology changes in the industry, [the need for] avionics maintenance technicians is an emerging [demand] as well,” she said.

“An avionics technician can troubleshoot the various systems integrated into the aircraft, while many have an A&P license as well as knowledge of maintenance tasks. People who have dual knowledge of aircraft and avionics maintenance are in very high demand now and in the foreseeable future. We are always looking for ways to be proactive in our industry.”
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See our ThrustSense equipped PC-12 and King Air at NBAA Indoor Static Display 4
Corporate Aircraft Assoc. rides the contract fuel wave
by Curt Epstein

With NBAA's annual convention serving as the nexus of the U.S. business aviation industry, it provides an excellent opportunity for the Corporate Aircraft Association (CAA, Booth N2329) to meet with its members and FBO partners. The organization, founded in the mid-1990s to find favorable hotel rates for corporate aircraft flight crews, has come a long way since then. With FBOs encroaching on its discount hotel-rate model, the organization's founders instead began negotiating directly with them to offer fuel discounts for its members and, in 1997, the fuel program was launched.

Today, CAA lists nearly 9,000 individual Part 91 aircraft up to BBJs on its membership rolls and has grown from approximately 25 participating FBOs in the early 2000s to 10 times that number. The plan is simple. FBOs wishing to join the program present their bid of what they will pledge to offer the group's members, who will then vote whether to accept that location as the CAA-preferred vendor at that airport for a three-year term. Such an offer involves discounted fuel pricing to CAA members. “If they bid a dollar into-plane fee, the fuel price can go from raw fuel plus taxes of $2.50 a gallon to $6.50, but the into-plane fee will always be a dollar on top of that for three years,” said Robert Bordes, the association’s president. That results in reduced costs of up to $2 per gallon in many cases. Some FBOs add further incentives to sweeten their offers, such as free overnight parking for members or complimentary lavatory service.

Those bids are important, as FBOs, which have been part of the program for more than a decade in some instances, found themselves voted out when a competitor proffered a better offer to CAA’s membership. In one such case, Bordes estimated that switch was worth 700,000 gallons of additional fuel sales a year. “It’s always sad when you see an FBO flip like that,” he told AIN, but whoever wins the vote gets the contract.”

While competition for the right to list “CAA preferred” and enjoy its associated extra traffic is heated among FBOs at many airports, over the past few years, single-source providers have also begun to join. “Three or four years ago, we couldn’t sell CAA to an airport that just had a single-source FBO, but we’re educating the GM at that airport that he might not think he has a competitor because he’s the only one on the field, but he’s competing with where that airplane just flew in from, and the next stop that airplane is going to make when it leaves them.”

In major metropolitan areas, CAA offers its members alternatives, where they might choose to trade fuel savings for a slightly longer limousine ride from a more remote airport.

The association does not charge the FBOs anything to participate in the program. “The beauty part of CAA is we’re not a middleman,” Bordes said. “We don’t have our hand stuck out to take something out of the deal, the customer is our member and the member pays the FBO directly.” Instead, the organization derives its funds from membership enrollment, which is $50 per tail number annually, (80 percent of the company’s members are single-aircraft operators) a cost that Bordes says a member can recoup on just one fueling for a midsize or larger aircraft. “It might take a turbo-prop two or three fuelings before you save $500, but then it’s money in the bank.”

To demonstrate that, CAA offers a unique six-month test period to allow prospective members all the benefits of the program for free. After that, the conversion rate to full membership is above 70 percent. “A lot of times you get a big, long-range jet like a Gulfstream come in from Africa or Europe,” explained Bordes, “they’ll buy a membership just to make one trip over because they have 2000-3000 gallons on to go home, and they are saving a $1 gallon, membership is only $500 so they just put $1,000 back in their pocket.”

With a mantra of enhancing the operating efficiencies of Part 91 flight operations, the organization is constantly combining its membership rolls to ensure that no Part 135 aircraft creep in. By comparing its membership’s tail numbers against the FAA database on a quarterly basis, more than 150 aircraft a year are disqualified from the organization for engaging in charter activities.

For the past several years, the organization has been adding new aircraft at a clip of nearly 1,000 a year, expansion driven by the growing shift to electronic format. Prior to that, everything from member-only fuel-price updates from its dozens of FBOs, to its applications, to voting on FBO bids, was done manually. Even its membership cards have now become passé. “We used to mail out cards, and you’re talking 9,000 cards a year, and most companies lose a card, so they would want two, so you’re looking at 18,000 cards you have to mail out,” noted Bordes. “We’ve even gotten away from using the electronic card because the FBOs have the ability to just type in a tail number and verify them.”

An online application features a map showing all of the FBO partners, and members can click on them to see fuel pricing, volume breaks, and contact information. The organization also audits fuel suppliers at least annually. Any deviation from the contracted price structure triggers an investigation. “We want to get it right for our members, and if [the FBOs] flank an audit, we fix it and then we reaudit again in a certain time period to make sure that the fixes still apply,” said Bordes.

Florida Keys FBO breaks ground on new facility
by Curt Epstein

Marathon Aviation (AvFuel Booth N4123) broke ground on a new Marathon Jet Center at the Florida Keys Marathon International Airport to replace the temporary facility that has operated there since the existing terminal and hangar were destroyed by 2017’s Category 4 Hurricane Irma.

The 3,000-sq-ft, two-story, Key West-themed FBO will be available 24/7, and will offer a pilot lounge, flight planning area, coffee and snack bar, an exterior access elevator to take guests to the second floor passenger lounge, outdoor viewing decks, fee-based U.S. Customs, and a 12,000-sq-ft hangar with 28-foot high doors capable of sheltering aircraft up to a G650. The new buildings will be constructed to comply with the latest county hurricane code standards for wind and flooding. The Avfuel-branded facility is expected to be completed in the first quarter of 2020.

“This week we officially begin construction on a new, iconic FBO to serve as a launchpad for U.S. Customs and complement the region’s tourism, five-star resorts, and world-renowned fishing industry,” said Marathon owner Martin Hiller, adding it’s the company’s mission to provide a fully immersive, luxury Mid- dle Keys experience. “Our investment in this venture reflects our deep, long-term commitment to this local community, its economy, and our customers.”

Marathon Aviation also operates a second FBO at the Florida Keys airport that is dedicated to piston aircraft burning 100LL avgas.
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UAS expands trip support services in China | by Curt Epstein

UAS International Trip Support has increased its footprint in China with the announcement that it is now a local handling agent providing services across the country. The company has the ability to negotiate directly with airports, eliminating the need for subcontracted middlemen, it said. UAS China now has dedicated handling agents at major business aviation hubs such as Beijing, Shanghai, Shenzhen, Chengdu, Hangzhou, Xi’an, and Guangzhou.

“As China’s internal and international business aviation sector rapid development continues, we’re providing international operators and customers consistent, reliable services in the dynamic operating environment of Greater China,” said company co-owner, founder, and CEO Omar Hosari. “By delivering this and guaranteeing the UAS standard of quality at every location, we’re aiming to give our clients exactly what they need, along with an improved customer journey.”

Having a local UAS contractor onsite to coordinate all ground handling and trip support services at those airports will benefit the company’s clientele, particularly international operators, who will now have fewer points of contact to help them navigate the complexities of operating in China. English-speaking personnel will be on hand to support all requirements for the duration of their stay in the country.

“UAS is now able to act as a domestic ground handling agent at numerous airports throughout China, including Beijing Capital International Airport,” Hosari explained. “As a one-stop-shop for all business aviation needs, we can ensure our clients benefit from improved operational efficiency and reduced operating costs supported by our enhanced service, competitive pricing, and extended capabilities.”

UAS (Booth C10638) increased its China presence last year with the announcement of a preferred provider agreement with Deer Jet, the country’s largest FBO operator. The deal offered UAS customers special pricing and service priority at Deer Jet’s 11 FBOs, and supervision at 180 other airports in China due to Deer Jet’s extensive ground presence.

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Within safety management systems (SMS) an important component is collecting safety data. As SMS become more established, business aircraft operators are also becoming more effective in their safety efforts.

The FAA collects business aircraft safety data through continued operational safety oversight. The data is collected according to the National Flight Standards Work Program Guidelines (NPG) and analyzed annually. “A five-year analysis of NPG data for business aircraft operations does not reveal any areas of concern. Additionally, voluntary safety programs continue to enhance air carrier safety through partnership in several ways,” said the FAA. “One way is encouraging employees of certificate holders or other operators to voluntarily report safety information that may be critical to identifying potential precursors to accidents. The primary goal is to decrease accidents, incidents, and violations, better identify risks to public safety, implement risk-reduction strategies based on data, and track the effectiveness of these strategies.”

Other ways the FAA believes voluntary safety programs are improving safety include encouraging operators to identify and correct their own safety problems, achieving corrective action for events that would otherwise remain unknown, identifying industry-wide problems that cannot be solved at the local level, providing the FAA with better insight into safety issues in order to make better regulatory decisions, and promoting cooperation among the organization, the FAA, and the participating third parties.

According to Doug Carr, NBAA vice president for regulatory and international affairs, the value of data collection lies in the fact that it measures safety performance. “Data collection is helping the operators to understand where their performance is not as expected and then leading to opportunities to improve that performance,” he said. “This can be through dedicated training opportunities as part of normal training or by understanding whether there are systemic factors affecting performance and therefore interacting with other stakeholders, such as air traffic control and airports, to improve the overall system.”

The spectrum of data that can be collected within SMS is wide. “There is a baseline level of data collection capability through the likes of apps that one can install on the phone as well as, at the opposite end, very high-quality sophisticated numbers generated by parameter recording devices that really provide a detailed view of what is happening on board the aircraft,” said Carr.

An area that has led to operators focusing on their own improvement through training has been measuring how far down the runway a touchdown occurs. This is data that comes from equipment onboard the aircraft. “One NBAA member operator found that their average touchdown distance past the threshold of the runway was about 1,750 feet. Based on their performance and locations, they felt that was too high of a risk, and so working with their training provider they were able to focus on better landing touchdown performance through subsequent training opportunities, which then led to an actual operational improvement by moving that average touchdown distance from 1,750 feet to about 1,300. They felt this was a real performance improvement,” said Carr.

Baldwin’s SMS/QMS menu adds advanced functions

By Jerry Siebenmark

Baldwin Safety & Compliance (Booth N819) has added three new functions to its software-based safety/quality management systems (SMS/QMS), which are aimed at enhancing a user’s operations and efficiency. One of the new functions fits largely on the SMS side, while the others cross over both software systems:

- **Emergency alert:** This function serves to send text and email notifications to key personnel as well as individualized checklists specific to each person’s role under an emergency response plan. It also provides information for a call center to log incoming and outgoing phone calls and time and date of key events.

- **Status board:** Operators can track expiring training and operations requirements with this function including check rides, medicals, and regulatory milestones. Configuration of the function can be tailored to each user so that grace periods can be built into the calendar.

- **Audit manager:** Offering audit forms that can be customized, this function is intended to help operators assign responsibilities, check responsibilities, and analyze and evaluate results of safety and quality initiatives.

“Our approach to safety management includes a quality management component that fosters continuous innovation and enhancement of our system”

Baldwin. “Especially with larger organizations that have multiple sites and diverse requirements, there’s a need to ensure quality responses, not just a checklist of ‘to do’ items. These new features are outgrowths of our approach to SMS—and they’re useful and adaptable to small and large operations.”

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Flying Colours tries to keep up with demand

by Curt Epstein

Canada-based MRO and completions specialist Flying Colours is celebrating its 30th anniversary this year, and to celebrate, the company is giving itself a present in the form of a major enhancement to its flagship Peterborough, Ontario facility. The first phase of the nearly $19 million ($25 million CDN) expansion, a 50,000-sq-ft paint facility large enough to accommodate Airbus A220s, will become operational this month, while a 50,000-sq-ft completions hangar will follow in the first quarter of 2020.

The company just completed its latest project, a Honeywell Primus Elite avionics retrofit on a Bombardier Global Express along with the installation of the Honeywell JetWave Ka-band satcom system in a unique two-phase job. Due to customer flight schedules, the work was broken down into two separate events, according to Kevin Kliethermes, the company’s director of sales. As part of the flight deck upgrade, all six obsolete CRT displays were removed and replaced with new lighter, cooler-running DU-875 units for clearer, high-resolution images such as those found in the Primus Elite Advanced Features software suite with its synthetic vision system.

In addition, the Flying Colours avionics team mounted a new radome, tail antenna, and the JetWave hardware that connects with Inmarsat’s Jet Connex Ka-band network in a unique two-phase job. Due to customer flight schedules, the work was broken down into two separate events, according to Kevin Kliethermes, the company’s director of sales. As part of the flight deck upgrade, all six obsolete CRT displays were removed and replaced with new lighter, cooler-running DU-875 units for clearer, high-resolution images such as those found in the Primus Elite Advanced Features software suite with its synthetic vision system.

Foray into Completions

The family-owned business began in the late 1970s as a seller of off-lease aircraft, and founder John Gillespie, wanting to do exterior painting in-house, bought a small local aircraft paint shop named Flying Colours. Frustrated at the time it took for cabin refurbishments to be completed at other shops, he soon added those capabilities to further refresh the aircraft passing through. When his customers’ aircraft needed repairs, he saw the opportunity to diversify into maintenance and avionics installation and repair. The separate businesses were incorporated in 1989 under the Flying Colours brand. The company’s first large-cabin jet refurbishment was a Bombardier Challenger 601 in 1992, and now it also does special-mission conversions, green aircraft completions, and a full slate of Part 145 maintenance.

Flying Colours was one of the first to take former commercial CRJs and totally refurbish them inside and out, turning them into VIP transports. It has performed its magic on more than 30 such airframes. At Peterborough, it has a full OEM-level completion showroom, where customers can select everything from carpeting and sidewall coverings to galley surfaces and upholstery.

Investment in People and Facilities

Today, in addition to the Canadian headquarters at sleepy Peterborough Airport (which will list 200,000 sq ft of hangar space once its new expansion is complete), approximately an hour from Toronto, the company has the former Jet Corp Technical Services facility in St. Louis, Missouri, which it acquired in 2009; and in 2015 it opened its first international interior refurbishment shop in Singapore, co-located with the Bombardier Service Center at Seletar, for a total of 550 employees worldwide.

Flying Colours expects that number to increase. “We’re expanding, so we’re spending money, we’re investing in more people and more facilities. We wouldn’t be doing that if business wasn’t good,” said executive vice president Eric Gillespie, who has grown up with the company and currently describes its hangars as overflowing. “Right now we’ve got the throttle down in terms of space to accommodate more work.”

At Peterborough, the new completions hangar will be large enough to handle four Global-size aircraft simultaneously, freeing up space in the location’s other hangars for more maintenance and upgrade work. It will also have storage space for the cabin interiors removed for such projects, as well as offices.

Along with this facility upgrade, the company expects to add another 50 staffers at its flagship location over the next year, according to human resources director Ian Ross. Speaking during a media tour of the MRO last month, he said that in the current workforce environment, “every hire is challenging.” As it faces competition in procuring skilled workers from other aviation sectors including the commercial carriers, the company attends career fairs and aviation trade shows, and this year held its first open house in Peterborough for prospective job seekers. It has also developed a robust network among local colleges and technical schools for its successful apprentice program, which pairs students who are working toward their licenses with certified technicians who examine and sign off on any work done. Because the company is not a union shop, apprentices can find themselves exposed to a wider range of tasks during their training. Once they pass their exams, they become highly marketable in terms of skillset.

While the company works hard to retain those workers, “when you talk to some of the larger carriers at various conventions, they are quite happy to tell us they like to see Flying Colours on the resume because it means that person has been well trained and exposed to top-notch aircraft platforms and systems,” Ross told the group. “It’s a great reputation to have, and we’re very proud of that, but it’s a double-edged sword.”

Likewise, with the recently announced planned expansion of Bombardier’s service facility in Singapore, the Flying Colours shop there, which has completed six full aircraft refurbishments and many smaller projects since it opened, will also be growing, with an eye toward doubling its staff from the present 20-plus, many of them locals who have undergone training on a par with their Peterborough and St. Louis counterparts. “Our footprint is clearly going to increase,” said Paul Dunford, the company’s managing director for international operations, who stood up the Singapore facility and directly managed it through this year. “We’re going to be installing additional machinery, spray booths, upholstery shop capability; [it] is all going to increase.”

The location at Spirit of St Louis Airport, like Peterborough, is a Bombardier Authorized Service Facility capable of performing warranty work. It, too, has expanded over the past few years, with a 40,000-sq-ft cabinet shop opening in 2017 and a new, 40,000-sq-ft hangar added less than a year ago, along with a corresponding staff increase. Eric Gillespie noted half of the company’s cabinet revenues now come from forward-fit structures destined for factory-built Bombardier business aircraft, in addition to its normal refurbishment projects.

“We’re growing, but we still want to maintain that small-company feel,” explained Gillespie. “That’s the biggest challenge right now, to accommodate that with keeping customers happy and keeping the quality at the level we expect it to be.” As it has grown, the company has developed an international reputation, moving from primarily North American customers in the early 2000s to a mix of half international clients today.

The ADS-B Deadline Looms

Like many avionics service providers in North America, Flying Colours has been busy with ADS-B upgrades ahead of the U.S. equipage mandate that takes effect at the end of this year. The company (Booth C7215) has performed nearly 50 ADS-B Out installations over the past year, with another 10 currently undergoing the modifications, double the rate of the previous 12 months, as aircraft operators begin to feel the clock ticking.

“Pretty much anything that comes in we’re talking ADS-B Out,” said Gillespie. While the company specializes in Bombardier products, with STCs for the Challenger 300, 604, and 605, it has also upgraded Dassault Falcons, Embreras, and Cesna Citations.

“The industry seems to be doing a good job of meeting demand for compliance with a good majority of aircraft now equipped, but we still think there will be a rush to the finish line,” said Kliethermes, adding the company still has a few slots available before the January 1 deadline.

“We’ve noticed an increased demand from owners and operators who regularly use their aircraft, and recognize they need to make sure they’re ready. We can accommodate a few more aircraft this year, but owners need to call quickly so that we can develop a compliance solution for their aircraft in time.”
Astronautics targets more RoadRunner platforms

by Kerry Lynch

With Brazilian, European, and U.S. approvals in hand for installation of its AFI 4700 RoadRunner electronic flight instrument (EFI) on Leonardo A109/119 helicopters, Astronautics (Booth C9836) is looking to certify the unit on additional helicopter and fixed-wing platforms, as well as working on a series of upgrades.

The Milwaukee, Wisconsin-headquartered electronics specialist unveiled RoadRunner in 2016 as a drop-in replacement for legacy attitude director indicator and horizontal situation indicator primary flight instruments. Capable of displaying terrain awareness, traffic, weather, and synthetic vision, RoadRunner is designed to help lower operating costs, and with minimal installation downtime.

Working with an installation partner, Astronautics obtained U.S. FAA approval in June, followed by EASA and ANAC nods on the A109/119 in subsequent months. Next up, said Astronautics president Chad Cundiff, is approval from India. “Units are going around the world,” he said.

Astronautics has turned to additional platforms, including Bell 212s and 412s, and is working with the Ventura County Fire Department in California to equip three HH-60Ls as part of a Firehawk upgrade.

On the fixed-wing side, Astronautics has discussed installations with both military and commercial turboprop operators, Cundiff said, but was not yet ready to disclose customers. “We’ve got a lot of work going on right now.”

In addition to its expansion in the marketplace, Astronautics has been putting the final touches on the first upgrades for RoadRunner. “We’re planning a nice set of incremental upgrades,” he said. The first batch addresses interfaces with certain legacy navigation equipment, along with customizations requested by customers, Cundiff said. The company further is plotting out two more upgrade phases with additional features, he added, saying plans call to further detail those enhancements in upcoming months. However, he did say the changes will add functionality that customers have requested and “show our ability to continue to grow that platform.”

Meanwhile, work is also progressing on Astronautics’s Air-Ground Communications System (AGCS) for helicopters, turboprops, and light business jets. It has been in flight test aboard Airbus H145 and H160 helicopters since spring. Initial production units have been shipped to Airbus as it prepares for ramp up on the program that the airframer calls wACS (wireless Airborne Communications System). An air-to-ground data management platform, the communications system provides the ability to securely get information on and off aircraft.

While testing has been ongoing as part of Airbus’s certification program, Astronautics separately has demonstrated the ability to use the system for inflight cabin connectivity as well. AGCS enables connectivity with the Internet, and depending on “what pipes are available within the platform,” it can integrate with an in-flight entertainment system. This includes streaming content, accessing email, and other connectivity activities. “We’re eager to talk to customers at NBAA about the fact that AGCS isn’t just the solution for your data needs, but it’s also a solution for your cabin side,” he said. “There’s a lot of interest in the market. We’ve been working with a number of customers on demonstration programs to prove this out.”

This dual installation of the Astronautics RoadRunner electronic flight instrument illustrates how easily the legacy ADI and HSI can be replaced with modern glass displays.

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Max grounding pummels completion centers
by James Wynbrandt

The grounding of Boeing’s 737 Max, already rolling the civil transport world, is having a similarly disruptive impact within the rarified VIP completions community. “A lot of our industry is in shock with the Max,” said Wieland Timm, senior director for VIP and special-mission aircraft at Lufthansa Technik (LHT). “The information given to us is very limited, and currently nobody can work on their Max projects.”

Said Richard Gaona, founder and chairman of Comlux Group, which has the first Boeing Business Jets BBJ Max at Comlux Completion, its Indianapolis, Indiana facility: “I don’t have any more information than you can read in the U.S. press. Nobody knows when we’ll be able to fly,” adding, “Once you have a delivery [program] that has stopped, the completion market is affected...”

Boeing Business Jets declined to answer questions from AIN regarding the Max program.

Market Ready for BBJ Max

The BBJ Max appeared ready for a warm welcome among narrow-body VIP airliner shoppers. Based on Boeing’s 737, the Max’s CFM International Leap-1B engines and improved aerodynamics offer 14 percent improved fuel efficiency over its predecessor, in addition to numerous airframe, avionics, and interior enhancements for the executive market’s version—a more than worthy competitor to rival Airbus Corporate Jets’ ACJ319neo, introduced in 2015, a year after the BBJ Max launch.

At last year’s NBAA Convention, Boeing Business Jets announced 20 Max orders in hand, comprising three Max 9s; 13 (first-to-market) Max 8s; and four Max 7s, the last sale in July 2018. (The Max 9/8/7 models are equivalents of the BBJ3, BBJ2, and BBJ1, respectively.)

The fleet was grounded by regulatory agencies worldwide after the March crash of a newly delivered 737 Max, which followed a similar accident last October. In the interim, Comlux took delivery in December of the first BBJ Max with the second going to Jet Aviation. Before the grounding, BBJ Max 9 deliveries were to commence this year, with the BBJ Max 7 following in 2021.

Describing completion centers as “frustrated” and Max customers as “confused,” Timm said some of the latter “don’t know if they’ll keep the aircraft while completion teams are in the dark regarding potential changes to cabin design or installations that return to service could require. “I only know,” said Timm, “the BBJ organization is very busy visiting customers and giving some further information that is not displayed in the market.”

In addition to the Max in hangar, Comlux has two BBJ Max 9s on order; their delivery schedules now unknown. (The Group, with a transaction division, handles acquisitions for its completion customers and its own VIP charter fleet). Gaona noted the four ACJ320 completion contracts in hand will keep the facility “full for the next two years,” but said, “We count on the other product” to bolster its offerings and income stream.

Meanwhile, the premier BBJ Max 8 stands across the center’s purpose-built completion hangar from the vanguard ACJ320, as if silently witnessing its outfitting, resigned to being left at home on prom night.

From LHT’s Hamburg headquarters, Timm sees a spillover effect across the ocean. “American completion centers that need certification help for other projects do not get the support they need because everybody at the FAA is busy with the Max,” he said. “This will disturb all [U.S.] completion projects.”

Basil-based AMAC Aerospace has a BBJ Max 8 induction planned for the fourth quarter and a Max 9 in 2020 on its completion calendar. At EBACE in May (before announcement of the Max 9 contract), COO Bernd Schramm said, “The customers we have are committed to the aircraft. We just need to know exactly when we’ll get” the grounding resolved. Asked for an update before NBAA, a spokesperson said AMAC is “not in the position to comment on any OEM’s issues.”

“...and currently nobody can work on their Max projects.”

Wieland Timm, senior director for VIP and special-mission aircraft at Lufthansa Technik

AMAC’s neighbor in Basel, Jet Aviation, which has the completion contract for the second BBJ Max, is also in a holding pattern while awaiting information from the OEM. Meanwhile, “We are here to support Boeing in any way we can,” said Jeremie Caillet, Jet Aviation’s v-p, VIP for completion programs.

777X Efforts Suspended

Compounding BBJ’s platform issues, last month Boeing suspended testing on the 777X—whose BBJ variant was introduced at December’s MEBAA trade show in Dubai—following the failure of a cargo door during final high-pressure testing on the static airframe. The failure occurred “at approximately 99 percent of the final test loads and involved a depressurization of the aft fuselage,” according to Boeing. It is “conducting a comprehensive root-cause assessment,” expected to last several weeks. “At this time we do not expect that this will have a significant impact on aircraft design or on our overall test program schedule,” the company said.

Less than two months prior, Boeing confirmed a program delay associated with redesign of a stator in the compressor of the 777X’s new General Electric GE9X engine that exhibited more wear than expected during testing, pushing expected first flight from this year to early next.

The 777X features a fourth-generation, foldable-tip, composite wing 22 feet longer than the current span, improving take-off, reducing thrust requirements, and increasing cruise performance, while passengers luxuriate in the tallest and widest cabin of any commercial transport airframe. The cabin altitude at its maximum altitude has been lowered to 6,000 feet.

The BBJ 777X will be available in two models: the 777X-9 and 777X-8. The former was initially slated for service entry in the first quarter of 2021. Meanwhile, Boeing has slowed development work on the 777X-8 “to reduce risk,” the company said; no dates for certification of that model have been announced, but industry observers had expected service entry by late 2022. No launch customer for the BBJ 777X has yet appeared. “We’re hunting the first,” Greg Laxton, BBJ head, had said at the program’s unveiling in Dubai. BBJ 787 Dreamliner completion activity has also faced challenges. Following problems some completion facilities have allegedly experienced with the composite Dreamliner, in June ACJ established “an outfitters advisory board” for its composite A350XWB. “The board will “ensure total quality” in the completions process, ACJ president Benoit Deforge said at September’s Russian Business Aviation Exhibition in Moscow. “They sold 14 aircraft, and only four are flying,” he said of the 787. “Their outfitters are in the middle of the difficult situation they had not anticipated,” Deforge said, promising completion centers a “different story” with 350XWB completions. “We shall be a wiser team.”

Asked separately about any impacts the Max grounding has had on ACJ’s programs, a spokesperson said the company is “focused on our new models—namely ACJ319neo, ACJ320neo, and ACJ330— for which there continues to be much interest.”

As for Max customers, “We have to be patient,” Gaona advised. “The situation ‘Boeing’ is facing is quite unique and difficult to endure.”

Patience, indeed. “It could be two years before all the authorities around the world give a clear okay so the Max can be used,” said Timm. “Everybody will look into the papers, because [national regulatory authorities] will not follow directions from [the FAA] without an internal survey. This is what we heard.”

Once returned to service, Timm is optimistic four to six new Maxes and a similar number of ACJ3neos will enter the completion market annually. Until then, “without the Max, 50 percent of the industry potential is missing,” he said.
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Distractions on deck: PEDs a double-edge sword
by Kerry Lynch

As portable electronic devices (PEDs) have become ubiquitous and a generation of new pilots is growing up on them, the aviation community faces a series of challenges in incorporating their use on the flight deck as a tool while preventing the possibility of distraction.

“There are numerous benefits for this technology,” said Doug Carr, v-p of regulatory and international affairs for NBAA. “I think the real challenge is how to use it effectively in support of the operation in ways that don’t distract from the priority at the moment; which is to fly.”

That’s no easy task, Carr added, because “we see a new generation of flight deck crew members very comfortable with using these devices in every aspect of their lives.” The issue is to find a way to effectively disconnect when necessary and to provide the appropriate tools, policies, and standards on when that is appropriate, he said. Distraction on the flight deck is one of NBAA’s top safety issues, Carr said, adding this “is where a lot of our focus has been.”

AIN conducted an informal poll to gauge the use of PEDs on the flight deck and the policies of different operations. Of the respondents, 51 percent had firm written policies on their use, 30 percent said their organization had no policy, while the remaining 19 percent had only a verbal policy. The poll drew 147 responses from a cross-section of aviation, ranging from a U.S. Air Force Beechjet pilot, a piston aircraft flight instructor, and turboprop operator to midsize, large, and ultra-long-range business jet captains, BBJ pilots, and airline pilots. It also covered the gamut of operations from small operations and Part 91 flight departments, to fractional, management, charter, and U.S. and European scheduled airlines. And the jobs ranged from Part 135 CEO and director of aviation to line and contract pilots.

While providing just a snapshot of the industry’s approach to PEDs in the cockpit, the survey revealed a lack of standardization not only across aviation but even within different niches of the industry. A number of respondents from Part 91 operations stated they had formal written policies regarding PED use, while a charter pilot in Los Angeles and a Boeing 777 pilot for a “major European airline” both claimed their operations had no written or verbal policy.

“It is annoying when crew are communicating on devices when they should be paying attention—aka, working,” the charter pilot noted. Other scheduled airline pilots had reported their operations had written policies.

Equally varied is the view of how and when devices may (under company policy) and should be used. Numerous policies restrict use to just company furnished PEDs: phones and tablets. In fact, 86 percent of those responding said company policies permit use of company-provided tablets, while just 54 percent said personal tablets were permitted. A little more than half said permission to use personal phones. And in 10 percent of the responses, companies permitted personal laptops.

The majority—82 percent—said they could use the PEDs while the aircraft was on the ground and 52 percent said they could use them at 10,000 feet and level at initial cruise altitude. However, 8.6 percent said company policy would permit use of devices while moving on the ground, 6.4 percent while on takeoff/climb-out, 9.7 percent on descent, 8.6 on approach, and 5.4 percent on landing.

As for how these devices are being used, not surprisingly the majority are for functions surrounding the flight. More than 92 percent said flight-data-gathering activities (such as routing, weather, and traffic) were permitted; 97 percent said they could use devices for accessing charts and maps; 75 percent agreed aviation apps were permitted; and 39 percent approved of texting with flight support or maintenance personnel. Photo and video and other common areas where PED use is permitted with 18 percent of respondents specifying this option.

However, a small number of respondents noted personal uses were permitted as well, such as texting (29 percent), social media (8.6 percent), and gaming (5.4 percent).

Of the activities expressly prohibited, gaming was the top-cited at 76.2 percent, followed by social media at 75 percent and non-flight-related apps at 69 percent.

Attitudes toward Appropriate Use

Putting aside company policies, the respondents had varied opinions about what should actually be permitted. Ninety percent of respondents agreed that devices should be permitted to use on the ground while another 75 percent believe above 10,000 feet and level at initial cruise altitude is okay. Far fewer believe the same in other phases of flight: 23 percent on descent; 17 percent on approach; 14 percent while the aircraft is in motion on the ground; 13 percent during takeoff; and 11 percent while landing.

Almost all agreed that devices should be permitted for flight-data gathering (97 percent) and charts and maps (59 percent). However, 5.4 percent said devices should be permitted for social media, and 7.2 percent for gaming. As for texting, slightly less than half believe it should be permitted, even in cases involving maintenance personnel. On the use of the devices for video, 30 percent said this should be permitted in the flight deck.

As for regulations, the FAA does not recommend flight crews use PEDs for personal use at all on the flight deck, an agency spokeswoman said. “The exception is if the PED or laptop computer is directly related to the operation of the aircraft, or for emergency, safety-related, or employment-related communications,” she said. The FAA does require authorization for using a PED as an electronic flight bag in Parts 91 Subpart K, 121, 135, or 135.

“Currently there are no regulations specifically prohibiting flight crew members from using personal PEDs while at their duty station on the flight deck while the aircraft is being operated under...Part 91K and Part 125,” the spokeswoman noted. She did, however, point to Part 121 language prohibiting flight crews from using a personal wireless communications device or a laptop computer for personal use while at their duty station on the flight deck while the aircraft is being operated. Part 135.100(b) further prohibits “any activity during a critical phase of flight which could distract any flight crewmember from the performance of his or her duties...” In Part 135, said Air Charter Safety Foundation president Bryan Burns, most standard operating procedures require a sterile cockpit on all flight activity below 10,000 feet, and some adopt such policies on the ground. Once at cruise altitude, most SOPs allow access to certain electronic devices but limit such access to only company emails and texts. Distractions such as accessing the internet are generally discouraged, he said, “but some allow limited access, usually one pilot at a time.”

Distraction or Tool?

Even with policies and regulations in place, the question remains; are PEDs a distraction? It’s a difficult issue, Carr said, because so many of the devices are finding their way onto the flight deck for a number of reasons, chief among them the transition to paperless charts. At some airports, cellular communications are the only way to get a clearance, he further noted.

Also, aviation apps, charts, and maps provide critical and helpful information to the pilot, and there is an abundance from which to choose. Pilots responding to the AIN
JeppView, Jeppesen Mobile FliteDeck, FlightScheduling, ArincDirect FOS, and MyRadar, among many others.

“The reality is, more of these devices are coming into the cockpit for operational efficiency reasons, not because people are looking to play a game or take a selfie in the cockpits. They are a part of the operation,” Carr said. “I think what the focus of our work has been, ‘How do we develop meaningful uses of these portable devices in a way that contributes to safety, and not distract?’”

He acknowledged that there are situations where people do “dumb things,” highlighting the need for appropriate standards. Carr recalled an anecdote involving a captain paired with a relatively young and new first officer on a flight with a check airman onboard. While taxiing, the first officer answered two personal text messages, Carr said. The captain stopped the airplane and asked what the first officer was doing. The first officer responded that the texts were important. The captain grabbed the phone and threw it out the window, Carr said.

Many of those responding to AIN’s survey reported distractions as a result of PED use in the flight deck. These reports came from those with written policies, verbal policies, and no policies. The majority of distractions involved missed radio calls and a few missed items on the checklist. One respondent reported that he or she “used [a PED] once during descent and missed a call on checklist. Never did it again.”

One respondent reported not having had a distraction, but conceded, “It requires discipline.” This sentiment was shared. “I am disciplined in that matter,” another respondent said, but added, “Other pilots are all over the map and routinely violate policy. [PEDs] are a tremendous tool in the cockpit, absolutely indispensable. But can easily be abused.”

Another added, “I have allowed apps as well as automation to overshadow primary duties because of the ‘bright, shiny object’ factor. It takes intent to be focused on what really is the priority.” Others take preventative measures, such as turning off the mobile phone before prestart.

Others stressed that only one crewmember should be able to use one at a time. “Most pilots usually read during cruise on long flights, but it should be in shifts,” a respondent pointed out. Phones should remain on silent mode, another respondent said. Others similarly have reported getting distractions from “dings” or calls/texts coming through during critical phases of flight. “Even company-related calls can distract crews in all phases of flight,” one pilot said.

As for camera use, opinions varied, but many agreed that they could be helpful to document malfunctions for maintenance purposes. One respondent was a clear “no,” citing “the urge to capture spectacular images in flight.”

Other responses underscored the industry’s balancing act between using the apps for operations and eliminating distractions. Use of PEDs “gets better with increased use,” a military pilot said. “You get more familiar with what you want to do/what you’re looking for.”

“The gray area is when an EFB is a PED,” another respondent said. “EFBs are used much more extensively during a flight. There should be a clear difference between EFB use and PED use. IPads make this difference less defined.”

As for policies that should be in place, some had words of caution. “The more restrictive the policy, the more likely it is that it will be broken,” one respondent said. “A reasonable policy will yield cooperation from crew members.”

And another view: “There are times when nothing is happening in a cockpit, and having something that helps stay awake is better than the distraction it may provide.”

But not everyone agreed. Others firmly believe policies are necessary: “Before our PED policy implementation, I noticed I could easily get distracted with company and personal email/text. We had a couple of cases where one pilot was on a device while the other pilot copied the ATC clearance and the clearance got copied inaccurately. We now require, whenever possible, that both pilots hear/read and confirm the clearance.”

Others push for concrete policies. “I think more flight departments should have a well thought out and written policy. Giving ‘lip service’ to a company ‘policy’ is not an effective procedure to allow productive aviation-related use and restricting ‘social media/personal email.’”

In addition, the National Transportation Safety Board (NTSB) has listed “Eliminate Distractions” on its Most Wanted List of Transportation Safety Improvement for 2019-2020. “When pilots or other aviation safety-critical personnel introduce nonessential distractions, such as PEDs or personal conversations not related to work, into the cockpit or onto the tarmac, the risk to public safety increases exponentially,” the agency said.

NBAA has held discussions with NTSB on the issue, Carr said, and looked at it within the association’s safety committee. He’s encouraged that many are aware of it and that awareness is “one of the reasons that the U.S. has such a great safety record.”

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Contact Airport Director, Brian Condie, during the NBAA show at 970.379.5156 | rifleairport.com
Pilatus gears up to call out its 80-year anniversary

by Ian Sheppard

Pilatus Aircraft, founded in 1939, is the only Swiss company to develop, produce, and sell aircraft to customers around the world: from the Pilatus Porter PC-6 to the PC-12, the PC-21 military trainer, and the PC-24—the world’s first business jet designed to be able to use short, unpaved runways.

It now has more than 2,000 employees at its Stans headquarters, making it one of the largest employers in central Switzerland. The company’s home base, Airport Buochs, is owned 50 percent by Pilatus and 50 percent by the Canton Nidwalden. Total Sales in 2018 reached CHF1,092 million ($1.1 billion) and net earnings were CHF157 million. The total number of employees at what is a 100 percent Swiss-owned company stood at 2,283 at the end of 2018; and it had delivered more than 3,800 aircraft.

The history of Pilatus as a manufacturer began with the SB-2 Pelican, first built in 1940 and designed for use in mountainous regions such as the Swiss Alps. But it was the P-2 and P-3, for the Swiss Air Force, that brought Pilatus its first “enduring success.” The PC-7, developed from the PC-3 and incorporating a turboprop engine, was used for pilot training by the Air Force and also by Swissair, the then-national airline of Switzerland.

However, the company sees its “real breakthrough as coming in 1959 with the Pilatus Porter PC-6 utility single. This was an exceptionally rugged aircraft,” with versatility and excellent STOL credentials. Growth in sales was swift, and the PC-6 is still in strong demand although it ended new production in 2019.

These days, the mainstay of the company’s success is the PC-12 single-engine turboprop, the new PC-24 twin-engine “Super Versatile” jet, and on the military side its PC-21 trainer, which is selling well to air forces around the globe. At NBAA 2019, the company (Booth 12609) is displaying examples of both its PC-12 NG turboprop and PC-24 jet (Static SD805).

History

Pilatus Aircraft was born on December 16, 1939 when Emil Georg Bührle set up a small maintenance outfit to work for the Swiss Air Force in Stans, in the heart of Switzerland. In early March 1940, construction started on the production buildings, and in June, a workshop opened with 65 employees performing assembly and overhaul work on the Swiss-built EKW C-35 twin and repairs to the German Messerschmitt Bf-108 four-seat single, both serving as reconnaissance aircraft for the Swiss Air Force. Then 1941 saw the approval of a project for a new single-seat training design, the P-1, for the Swiss military, but the project was abandoned.

The official company inauguration took place on February 5 that year in the presence of General Henri Guisan. The Swiss Aviation Office ordered the planning and construction of a five-seat, slow-flying aircraft designed by the Swiss Federal Institute of Technology in Zurich. This aircraft was named the SB-2 “Pelican,” but despite the prototype taking flight in 1944, the design did not enter series production.

Then, in 1943, Pilatus had a second attempt at its own aircraft with the development of a two-seat trainer, the P-2, which made its first flight on April 27, 1945. The World War II period had given birth to a full-fledged aircraft manufacturer.

The company subsequently also built gliders, set up service stations, and carried out manufacturing for other aircraft producers such as de Havilland (fuselages and tail booms for Vampire and Venom jet fighters). The P-3 and P-4 were produced before development work started in 1957 on the Pilatus Porter, the PC-6 STOL aircraft. This made its first flight (HB-FAN) on May 4, 1959.

In 1960, a Pilatus Porter with the markings “YETI” flew to Nepal to take part in a Swiss expedition, setting a new world record when it landed at an elevation of 5,500 meters (18,045 feet) above sea level. In 1964, a PC-6 production license was granted to Fairchild Hiller in the U.S.

The Twin Porter PC-8D made its first flight on Nov. 15, 1967. Meanwhile, Pilatus continued to grow its ambition in civil and military aircraft production. In 1979 it acquired Britten-Norman, a British company producing the Islander twin and Trislander three-engine aircraft. For some years, the subsidiary was Pilatus Britten-Norman, before being sold again in 1998.

By then the Pilatus workforce had reached around 250, and it was about to design an aircraft that would set the stage for further solid growth—the PC-12, powered by a single Pratt & Whitney Canada PT-6A turboprop. Development work started in 1987 and in 1991 the first PC-12 prototype (HB-FOA) completed its inaugural flight on May 31. FOCA (the Swiss Federal Office for Civil Aviation) approved the type on March 30, 1994, and the U.S. FAA followed suit on June 15 the same year.

With sales prospects looking good in North America, in 1996 Pilatus Business Aircraft was established in Broomfield, Colorado. By 1997 Pilatus was rolling out the 100th PC-12 and by 2001 the workforce exceeded 1,000 for the first time. From that point on Pilatus has never looked back, as its development accelerated. December 2003 marked the production of the 500th PC-12 as the fleet reached one million flying hours.

In 2005 the PC-12 received an upgrade, with an increased maximum take-off weight, improvements to the ailerons, new wing-tips, new pilot seat, and other minor modifications. FOCA type approval for the new PC-12/47 model came on December 14 and from the FAA on December 23.

This led in 2007 to another upgrade and the first appearance of the PC-12 NG, with upgraded glass-cockpit avionics, at the NBAA Convention in September. The aircraft was a sales success: it was certified by the European Union Aviation Safety Agency (EASA) and the FAA on March 28, 2008. Pilatus by this time had produced 788 PC-12s, as it switched production to the PC-12 NG.

By 2010 the Swiss manufacturer was celebrating the delivery of the 1,000th PC-12 in July of that year, and by August 2013 it delivered the 1,200th. Emboldened by success and a much-improved financial position, Pilatus had started to develop a twin-engine jet that would have unique capabilities akin to those of the PC-12, but with greater range and speed.

At EBACE 2014 in Geneva, with great fanfare, Pilatus opened the PC-24 order book, and starting May 20, it saw the first three years’ production—some 84 aircraft—sell out in only one and a half days. The PC-24 rollout celebration at Buochs Airport, adjacent to the Stans manufacturing facility, took place later that year, on August 1, with some 35,000 visitors from Switzerland and beyond joining the party.

The following year, in 2015, the PC-24 “Super Versatile Jet” made its first flight. It was May 11, and PC-24 Prototype P01 was airborne in only 1,900 feet, climbing to 11,900 feet in three minutes before landing 55 minutes later. The second PC-24 prototype P02 was unveiled to the U.S. public for the first time at the NBAA Convention in Orlando in October 2016. The third and final PC-24 prototype, representing the series production standard, made its first flight on March 6 that year. Meanwhile, the PC-12 continued to sell steadily, and by June 2017 the OEM was handing over the 1,500th PC-12 to one of its leading customers, the Royal Flying Doctor Service of Australia.

On December 7 Pilatus celebrated dual type certification of the PC-24 by EASA and the FAA, leading to the first delivery of the type, to PlaneSense in the U.S., in February 2018. Development continued as deliveries commenced, with June seeing a PC-24 make the type’s first landing on an unpaved runway, in Woodbridge, England. The Royal Flying Doctor Service of Australia took delivery of its first PC-24, with medevac interior, in November 2018.

In October 2018, Pilatus opened a new PC-12/PC-24 completion center in Broomfield, Colorado. All PC-12s and PC-24s for delivery to the U.S. are now completed in the new facility. Pilatus plans to deliver 80 PC-12s and 40 PC-24s this year.
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Jetcraft adds staff, brokers first preowned G500 sale

by James Wynbrandt

Aircraft brokerage Jetcraft (Static SD704) announced this week two significant developments: the aftermarket’s first preowned Gulfstream G500 transaction and the addition of two experienced sales directors to its North American team.

“The good news is the client didn’t take much of a hit,” Jetcraft president Chad Anderson said of the G500 transaction. The owner’s “needs had changed” since ordering the jet—a model that just entered service last year—and now, requiring a longer-range aircraft, sold the G500 upon delivery.

The buyer, a Gulfstream operator, “basically paid the same price they would have paid Gulfstream,” Anderson said, while the seller will “likely stay in the Gulfstream family.”

Meanwhile, bringing expanded coverage to the top half of North America, Jetcraft’s new team members Tobias Kleff and Chiko Kundi will cover the Northwestern U.S. and British Columbia; and the rest of Canada respectively; their onboarding capping a two-year, 25 percent staff expansion to some 60 professionals worldwide. The growth puts North Carolina-based Jetcraft “in a strong position to facilitate pioneering transactions in the long-range aircraft market, which, with an influx of new models, is entering a dynamic period.” Anderson said. He pointed to the G500 transaction as an example. “The definition of ‘preowned’ is changing; it no longer means ‘old’ in private jet sales.”

Jetcraft’s 2019 Five-Year New and Pre-owned Market Forecast, released in May, foresees demand for large-cabin business jets “soaring,” as intercontinental travel needs grow. “For the long-distance flier, models such as Gulfstream’s G500, and G600, Bombardier’s Global 7500, and Dassault’s Falcon 8X make excellent investments, whether bought new or pre-owned,” Anderson added.

Barely a week before aircraft were due to assemble at Henderson Executive Airport for static display, Jetcraft was “in the normal final stages of logistics,” Anderson said, with plans to bring aircraft spanning super-midsize, large cabin, and ultra-long-range jets to showcase.

Looking ahead, Jetcraft, which sold more than 100 business aircraft last year, predicts stability in both the new and preowned markets, bolstered in part by recent OEM presentations. “What’s particularly helpful for us to hear was a consistent message: none of them are overly bullish in ramping up for a balloon of orders,” Anderson said. “Our market got out of control, with speculative orders and flipping positions. All those days and lessons are behind us. I feel the manufacturers pipeline and plans represent a supportable business.”

Trade tensions impact U.S.-China bizav ops

by Chen Chuomen

The U.S.-China trade dispute has slowed business aviation traffic between China, Europe, and the U.S., with arrivals to China from Europe and the U.S. falling by 13.3 percent and 7.3 percent, respectively, from last July to this June, according to Asian Business Aviation Association (AsBAA) data. Meanwhile, it said, business aircraft flights within China are down by 19.3 percent. AsBAA expects this trend to decline further as tensions escalate.

“The escalation of political and trade disputes has created a barrier for the introduction of U.S. products to China,” said AsBAA chairman Wu Zhendong. “This has certainly impacted multiple industries, including ours. There is a clear and direct correlation between U.S.-China trade tensions and the statistical impact on business and general aviation in Asia.”

Since China has been the driver for growth in business and general aviation for some years, the impact is felt across the region, he added. “As a non-profit representing the interests of the industry and the positive economic impact its growth can bring to communities in Asia, AsBAA would like to see a swift resolution of the dispute. Our members would like to see less punitive tax regimes and for the global super-powers to reach a compromise.”

Wu described that there has been some slowdown in new purchases in the market due to political and economical challenges, and as markets such as China, India, and Indonesia mature, there is a more conservative approach in Asia with more transactions in the preowned business aircraft space.

“With the market maturing, we expect to see investment shift to supporting services,” Wu said. “AsBAA anticipates a greater number of maintenance facilities to open across the region in China, Singapore, Philippines, and perhaps newer markets including Vietnam.”

The AsBAA chief has also observed market diversification in Asia as the market matures. For example, he said helicopter emergency medical services continue to grow in China, with several new companies in this sector recently joining AsBAA.

AsBAA also noticed a strong growth in the charter market in Asia, with companies such as VistaJet recording a 31 percent increase in new members globally and its Asia flights up by 26 percent last year. In Singapore, one of VistaJet’s fastest-growing markets, the charter operator saw its number of flights to/from the country climb 71 percent last year.

Wu—who is also Avion Pacific Limited chairman and CEO and took over the role of AsBAA chairperson in June—said one of his priorities is to promote AsBAA’s growth in China. Thus, he is working to increase regional government communications to ensure opportunities in China are not missed. In the U.S., Wu said AsBAA is hoping to deepen relationships with U.S.-based senior management teams whose companies have Asian divisions.

“AsBAA would like to see a greater number of U.S. and European financial investors coming to Asia to explore mutually beneficial programs,” he said. “Finally, AsBAA supports U.S. and European service providers, small aircraft OEMs, and others, including financial and legal sectors to become members. We look forward to expanding our community as Asia’s platform to the regional markets.”

Gulfstream’s G500 earns EASA validation

Gulfstream Aerospace’s G500 received European Union Aviation Safety Agency (EASA) validation, the Savannah, Georgia-based aircraft manufacturer announced. Coming a little more than a year after U.S. FAA type certification, the EASA nod paves the way for registration of the aircraft in European Union countries.

“The G500 has been very well received in Europe,” said Gulfstream president Mark Burns. “Customers in the region have been drawn to the unprecedented level of technology and innovation on the flight deck and the impact that has on safety and efficiency.”

With a top speed of Mach 0.925, the G500 has a 5,200-nm range at Mach 0.85 and 4,400-nm range at Mach 0.90. Entering service in September 2018, the aircraft has already accumulated 35 city-pairs records around the world, including Seville, Spain, to Abu Dhabi in 5 hours 45 minutes; Geneva to Chicago in 8 hours; Doha, Qatar, to Shannon, Ireland, in about 7 hours 30 minutes; and Farnborough, England, to Las Vegas in 10 hours 20 minutes. K.L.
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SyberJet’s SJ30i takes to the skies with new avionics

by Kerry Lynch

SyberJet Aircraft’s SJ30i light jet, which is fitted with the new SyberVision flight deck, recently completed its first flight, launching a certification test program that is expected to span 18 months, the company announced. SyberJet is showing the SJ30i flight-test aircraft at its NBAA-BACE static display (SD508). The flight test campaign toward an amended type certificate (TC) kicked off at SyberJet’s Engineering and Product Development Center at the San Antonio International Airport.

SyberJet anticipates deliveries of the SJ30i to begin shortly after receipt of the amended TC.

Powered by Honeywell’s Epic 2.0 avionics suite, the flight deck incorporates four 12-inch liquid crystal displays, SmartView synthetic vision system, INAV moving map display system, electronic charts/maps, TCAS II, TAWS Level A, symbiotic displays, dual flight management systems (FMS) with WAAS GPS/LPV, single inertial navigation system, onboard weather radar, full ECAS, electronic checklists, DME, ADS-B Out, and 0.3 nm RNP, as well as support for FANS-1A, SmartLanding, SmartRunway, TOLD, ADS-B In, emergency descent mode, and RVSM operations.

Offered as options are CPDLC, XM weather, flight data recorder, cockpit voice recorder, dual charts/maps, HF radio, Satcom, enhanced vision systems, and a second MFD.

“We completed all of the test points planned for the first flight and got a look at how much easier the cockpit and systems are to manage with the new Honeywell Epic 2.0 cockpit,” said Mark Elwess, chief engineering test pilot. “The SJ30i, known as the fastest and longest ranged light jet on the market, now has a cockpit to lead us into the next generation.” Joining Elwess in the test program is senior flight test engineer Robert Moehle.

The SJ30i also incorporates a new interior. Both the interior and avionics are lighter, taking an estimated 200 pounds out of the airplane.

“First flight of the SJ30i is a significant milestone for the program,” said SyberJet president Chuck Taylor. “Our Research and Development team and supplier partners have done a fantastic job of integrating the SyberVision cockpit into the proven SJ30 platform. SyberVision makes the fastest and longest-range light business jet in the world, the SJ30i, even better.”

GE offers B-52s a Passport to the future

While GE Aviation (Booth C10030) remains close-lipped about other potential business jet applications for its new Passport engine, it is pursuing a wholly new market for its turbofan that powers Bombardier’s Global 7500. Passport and the CF34-10 are the two engines GE will pitch for the U.S. Air Force’s request for proposal to re-engine its fleet of 76 B-52H Stratofortress bombers. Laurence Vigeant-Langlois, manager of GE’s Passport program, told AIN.

“We’re actively proposing a path forward there, two options from GE, and then we continue a dialogue and proposals related to business aviation, as well as military aviation and unmanned vehicle opportunities,” Vigeant-Langlois said. GE has a history of engines transitioning between business, commercial, and military aviation, she added. The CF34-3 found on the Bombardier Challenger, for example, was also used on early CRJs (Canadair regional jets). Likewise, she noted, the CF34-10 GE is pitching for the B-52 is a more powerful variant of the CF34-3. “And then we have a number of examples of engines that have gone from commercial to military aviation as well,” Vigeant-Langlois said.

At 18,000 pounds of thrust, GE claims that the Passport has 30 percent better fuel burn than the B-52’s current Pratt & Whitney TF33-P-3/310 turbosfans, which each deliver 17,000 pounds of thrust. A recent record flight on the Global 7500 also makes the Passport an attractive alternative for the B-52. The flight between Sydney, Australia, and Detroit, Michigan, capped an 8,225-nm journey for the 7500, which has a published range of 7,700 nm. That compares with the current range of the B-52H, which is 7,652 nm.

Assembled at GE’s Strother Field plant near Winfield, Kansas, the Passport engines are sent to the company’s facility near Peebles, Ohio, before being delivered to Bombardier in Montreal. GE officials declined to say how many engines it has assembled and delivered to Bombardier thus far. The 7500 entered service late last year, and Bombardier said it remains on track to deliver 15 to 20 of the type this year. So far, GE has heard positive comments about the Passport’s performance, Vigeant-Langlois said. “We’ve heard some terrific feedback from pilots flying with the engine.”

J.S.

JSfirm sees brisk job market

by Mark Huber and Mark Phelps

Aviation job website JSfirm (Booth N1915) is reporting a 134-percent increase in aviation job seekers using its website. Job seekers using the online employment postings represent all levels of experience, from entry-level candidates to seasoned executives. The company is predicting an increase in aviation job seekers through 2019 and into 2020. Concurrently, the number of companies advertising job openings on the site has increased by 117 percent compared with last year. JSfirm has provided resume database access exclusively for the aviation industry for the last 20 years.

Company executive director Abbey Hutter said JSfirm “constantly strives to develop new initiatives including industry partnerships, student outreach programs, and continually adding new website features and tools for our users.” She further characterized job search activity as brisk, with a mix of entry-level job seekers and experienced employees exploring their employment opportunities for higher pay or other quality-of-life improvements.

“Among pilot candidates, we’re seeing more activity across the board,” Hutter told AIN, whether “regional airline pilots looking to upgrade or business aviation pilots looking for the next step up.” She also said demand is rising for mechanics, service personnel and management positions.

Aviation Search Group (ASG), is also one of JSfirm’s biggest customers. ASG executive director Gary Miner explained his company is more of a comprehensive placement service, interviewing, vetting, and evaluating candidates and matching them with the best possible employer. “We do some entry-level placement,” Miner told AIN, “but our focus is on management positions. We do work with some of the schools to help them find instructors.” With demand for pilots and mechanics booming, some of the training providers are finding their faculties being recruited for higher-paying positions in the industry.
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NATA fires its latest salvo in the war on illegal charter
by James Wynbrandt

The National Air Transportation Association (NATA) has deployed an upgraded weapon in an industry-wide effort to combat illegal charter, a practice business aviation leaders say threatens passenger safety and gives legitimate providers a bad name while undermining their financial viability.

The association unveiled in August a revamped “Avoid Illegal Charter” website with new tools to “empower” consumers with the ability to look up charter operators, access fact sheets, and report questionable operations.

“Rolling out the refreshed site, NATA executives highlighted a need to ensure safer skies, as new models push boundaries of what is legal.

In the past, new models have come to fruition—from the advent of aircraft management more than 50 years ago to fractional ownership, and more recently, jet cards, charter empty legs, and per-seat models—noted Jacqueline Rosser, senior advisor of regulatory affairs—air charter, for NATA. “In each of those cases, the boundary...has been more between ‘when are we crossing the line from the on-demand framework into the scheduled realm?’” Rosser said. “We’ve managed to address all of those issues within the industry and get clarity on how you can do certain things where other certifications are required.”

But, she added: that focus now appears to be shifting to what defines a private operation and a commercial operation.

“Our primary goal from the organizational standpoint, the air charter standpoint, is to establish clarity,” she said.

Entities are “popping up, commercializing the [Part] 91 space,” Ryan Waguespack, v-p of aircraft management, air charter services, and MROs, agreed, adding, “It is a real concern, because the general flying public does not truly understand the risks they are getting into. You are not getting into an Uber when you get into an aircraft.”

Compounding the concern is a lack of clarity on not only the definition of an illegal charter but on who is actually operating the flights.

Unreported Incidents

NATA recently surveyed operators about their encounters with illegal operations and how it is affecting their business, Waguespack said, noting that one clear trend stands out: some 70 percent of operators do not report their encounters with illegal operations. “That was kind of staggering to me,” he said. Those respondents listed a number of reasons for this, but mostly out of concerns that the activity is in their backyard and, being in a small industry, they know it is going to come back on the legal entity. “They are concerned about losing their consumer, they are concerned about the FAA, and they don’t want to be the squeaky wheel.”

The survey, which ran through August, received a “tremendous” response, he said. NATA plans to share the data with the FAA and the Department of Transportation to provide a picture of what is happening.

“The effort really needs to be ‘we want to keep our skies safe. We are all about innovation. We’re all about change,’” he said, but added, “We are a firm believer you can be innovative and still adhere to the regs.”

This comes back to education and resources, he said. The association a little more than a year ago established a task force focused on education about illegal charter. And the illegal charter website is designed to build on that. “You can look up a charter operator, you can submit a questionable operation—we’ve had a number of those—or you can call the illegal charter hotline,” he said. “We’re trying really to push out there how charter brokers, other operators, and end-users can look up and see if the aircraft they are engaging is on a charter certificate.”

The website aggregates numerous FAA lists to enable a search, by operator or tail number, of legal operations. That list is updated quarterly, but NATA’s goal is to update it monthly. Operators further are able to fill out a form through the website to report potential illegal charter activity.

In addition, the website houses fact sheets with data on operations and provides operators with templates they can show to prospective customers that explain the complexities of the industry.

Partnering with the FAA

NATA further took over the illegal charter hotline (888-SKY-FLY), which it is using to gather data and pass along to the FAA’s special investigative team in Fort Worth, Texas. Noting that calls in the past have been somewhat vague, he said, “The biggest challenge is to gather as much data as possible.”

Another key component of this effort is working with the FAA. What started as a group of a little more than a dozen Flight Standards District Office (FSDO) officials has now swelled to close to 90 who are actively engaged and speaking regularly. NATA has collaborated with the FAA on gatherings between FSDO officials and operators to discuss what has been happening. These have taken place in South Carolina, Indiana, Tennessee, and Florida. Several more are in the works, with meetings targeted to possibly take place in Texas, California, and Iowa, among other locations. The FSDO managers also are discussing holding a larger event next year to bring all interested parties together.

“The operators are really enjoying getting that one-on-one time with their inspectors and the leadership within the FSDOs,” Waguespack said. “But also, it is a good opportunity for the FSDOs to truly learn what is happening in the 91 space—what is behind these doors.”

Additionally, at the behest of Congress, the FAA has nearly completed guidance on one area that has been blurring the lines of commercial and private operations, flight-sharing, Rosser said. The Government Accountability Office further has been working on a report on this activity.

“As long as we continue to see cases of suspected illegal charter, more must be done to sound the alarm and educate the industry and public, at all levels, of the inherent risks and dangers of these activities,” added Waguespack. “We are pleased to partner with more and more FAA field offices in supporting events designed to highlight these potentially life-saving messages in their particular region. Together we will make a greater impact.”

NATA formed its Illegal Charter Task Force in May 2018 in response to growing complaints about the extent and impact of illegal charter activity heard at its ongoing nationwide town-hall meetings. Europe’s Air Charter Association (formerly BAGA, the Baltic Air Charter Association) teamed with the European Business Aviation Association (EBA) last month in a complementary initiative.

None knows the extent of the illegal activity or its economic impact, but the consensus is that it’s increasing, spurred by the burgeoning variety of access schemes and lack of regulatory enforcement. Savvy consumers can spot clear warning signs, said John McGraw, the association’s director of regulatory affairs: “When people book a charter flight and see a price that’s unbelievably low, that should raise a red flag.”

In addition to the industry’s longstanding concern about the safety threat illegal charter represents, today the industry’s economic survival is also at center. Ignoring Part 135’s operational, crewing, maintenance, and other regulatory requirements gives an unfair pricing advantage to rule-breakers, stress industry spokespersons.

“If we’re just going to accept this is allowed to happen, what’s the point of having an AOC [AirCraft Operator Certificate]?” asked Dave Edwards, the Air Charter Association’s CEO. “There isn’t any benefit if people are just able to get away with it operating illegally.”

Industry authorities believe both providers and consumers of illegal charter fall into three categories: “The careless, the clueless, and the criminal,” said McGraw, with most in the first two ranks. “We think customers are not sure what requirements [charter providers] are meeting or ignoring,” he said. As for providers, “The majority of [illegal] operators are in the careless and clueless categories. They aren’t completely aware of the requirements and don’t dig in [to the regulations] as far as they should.”
Notching down cabin noise at Dassault’s St. Cloud lab

by Matt Thurber

Cabin noise is a huge issue for business jets, especially those that are on the higher end of the cost spectrum and that fly ultra-long distances. Business aircraft manufacturers consequently expend an extraordinary amount of time starting early in the design process to maximize noise reduction and increase passenger comfort.

In a laboratory deep inside the St. Cloud, France headquarters of Dassault Aviation (Booth C11808, C12312, SD808) expert engineers analyze and mitigate sources of noise in new Falcon designs. This effort ramped up when the Falcon 7X was in development and more recently with the 8X and upcoming 6X.

What the lab produces is a more accurate evaluation of the perceived noise inside an aircraft cabin, which Dassault terms “comfort note.” The higher the comfort note number, the better the noise level (perceived comfort) inside the aircraft.

To go further, the lab uses the measurements to boost the comfort note by tuning and balancing elements of soundproofing and other factors in the cabin that affect noise but without increasing the weight of the aircraft. “The challenge is to stay in the envelope of weight,” he said.

Typical noise measurements are dBA, which attempts to measure the audible frequency range, and dBSIL, which tries to quantify the noise level related to the range of frequencies involved in speech.

According to Dassault, “The acoustic comfort perceived by a human being combines noise levels and other factors, called ‘sound quality,’ that are not taken into account by the dBSIL and dBA indicators. To master acoustic comfort, sound quality—human perception—should be quantified.”

As an example, a relatively quiet airliner, the Airbus A380 (upper deck, left side, row 14, Mach 0.75, FL360) generates levels of noise measured by Dassault at 69.7 dBA and 52.4 dBSIL.

By comparison, Dassault’s measurement of a G650 that it chartered produced 67 dBA and 49 dBSIL. The Falcon 8X (same seat location as the G650) measured 65 dBA and 47 dBSIL.

However, the comfort note for those three aircraft is 5.6 for the A380, 6.3 for the G650, and 10 for the 8X. The 7X’s comfort note is about 8.

Factors that affect noise perception inside an aircraft vary and include the shape of the interior, how engines are mounted, and the materials covering interior furnishings. Glass bulkheads, while attractive, present a huge challenge in noise reduction. Granite floors are also reflective, but “we can deal with [them],” said Revalor.

To illustrate the differences in comfort note, Revalor and his engineering team created a space where customers and others can evaluate the comfort note of a particular aircraft. A seat in the lab is surrounded by speakers, and during a recent visit to the lab, I tried out the comfort note demonstration.

I’ve flown in the A380, including in the upper deck business class section, and the sound coming from the speakers did seem quite similar to the sound of the real airliner. It’s a bit hard to describe, but I perceived the A380 noise as deep and throaty.

Revalor switched on the G650 sound and this seemed less throaty with a hint of “pipe-ness” that made the sound appear to be coming from inside a tube.

Finally, the 8X felt even quieter, without the “pipe-ness” or throatiness of the G650 and A380. Overall, the variations in comfort note as measured by Dassault seemed to match the comfort note numbers derived in the lab.

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Cessna’s Citation jet line surpasses five decades
by Jerry Siebenmark

Fifty years ago, the first flight of a new Cessna turbine-powered airplane would create a wholly new market for what is now Textron Aviation and a family of business jets that’s since sold more than any other—more than 7,500, to be exact—and amassed more than 35 million flight hours. It was on the afternoon of Sept. 15, 1969, that the first Cessna Fanjet 500 took off from the then-named Wichita Municipal Airport for a one-hour-and-45-minute-long flight in which it reached a maximum speed of 225 knots.

Plans to fly the airplane to FL200 were scrubbed because of a stubbornly low cloud base, leaving it to reach only 10,000 feet for its first flight.

Soon after that first flight, and with much persistence on the part of then-commercial jet marketing v-p James Taylor, the Fanjet was renamed Citation, a nod to thoroughbred horseracing’s 1948 Triple Crown winner that was first suggested by Cessna’s advertising agency, Ogilvy & Mather. It was only after Taylor’s perseverance that then-Cessna chairman Dwane Wallace and president Del Roskam agreed to sign off on the new name.

Powered by two Pratt & Whitney JT15D-1 engines, the twinjet was first unveiled as a mockup at the NBAA Convention in October 1968 in Houston. The type received its first FAA certification—for Part 25—on September 10, 1971.

American Airlines took delivery of the first Citation 500 in January 1972, using it for development of the carrier’s training program.

Cessna created an entire marketing organization around the jet called Commercial Jet Marketing Division (CJMD). Led by Taylor, the 80-person division was housed in 7,500 sq ft of a 19,500-sq-ft facility in Wichita that also served as one of the company’s first three Citation Service Centers. The two other service centers were built in Poughkeepsie, New York and Sacramento, California. In addition, CJMD developed what it called the Convincer, which was a Citation 500 fuselage mockup contained by a truck trailer that traveled 10,000 miles in the U.S. and Canada to promote the new jet. In all, the company delivered 691 Citation 500s between 1972 and 1985, including the single-pilot 501 that came in 1977.

Today, the Citation family comprises seven models—M2, CJ3+, CJ4, XLS+, Sovereign+, Latitude, and Longitude—with seating from seven to 12 passengers and range between 1,550 and 3,500 nm.

“The same vision that led to the creation of the original Citation 50 years ago still guides us today,” Textron Aviation CEO Ron Draper said.
Flightdocs: New module integrates mx and flight ops

by Tom Ewing

Flightdocs (Booth N4409), a provider of cloud-based software for aircraft maintenance, regulatory compliance and inventory management has announced a new module that fits within and complements its “Software as a Service” product.

Flightdocs’s new product focuses on flight operations, becoming an important third leg within the company’s established Enterprise Suite. Key features include drag-and-drop flight scheduling, leg-based trip planning, crew management, customizable flight logs, native mobile applications, and real-time communication tools.

Greg Heine, Flightdocs president, has been heavily involved in development. Heine said development was built on feedback and consultation with customers’ flight departments, including corporate, medical transport, and charter and regional airlines, and was built to support both fixed-wing and rotor-wing aircraft.

All Flightdocs development is done in house and is 100 percent U.S.-based. The new module can function as a standalone system, but critically, Heine explained, “it’s built to complement and enhance the functionality of the other two modules—Maintenance and Inventory—within Flightdocs’s Enterprise Suite.”

Importantly, the new Operations module links and integrates the two internal silos that frequently characterize a flight business organization: maintenance and operations. When in R&D, the Flightdocs team identified two high-level issues they wanted to solve with Operations: breaks in the flow of data and disjointed interdepartmental communication.

For example, consider the need for non-routine maintenance, say, if a pilot notices a discrepancy during flight. This is an operations issue, Heine explained, that needs to be reported to maintenance for resolution.

Eliminating Opportunities for Error

Under traditional procedures, Heine said, this reporting process can present numerous downfalls. It’s paper-intensive, and it requires duplication of data entry into multiple platforms and email chains, texts, and phone calls to notify stakeholders. The chance of errors is high. From its customers, Flightdocs knew there was demand for an electronic solution for day-to-day operations-maintenance integration. Flightdocs Enterprise is intended to make this reporting/tracking process seamless.

The new app works to eliminate inefficiencies and bring real-time visibility into the status of an operation. From a phone or iPad, a pilot can report a discrepancy along with pictures and video of the issue. All stakeholders are immediately notified, and the status of the aircraft is updated. Using Fd Connect, a secure, encrypted messaging system built into the app, users communicate without texts, emails, or phone calls. This is meant to keep communication centralized and prevent details from falling through the cracks. Maintenance personnel can find a resolution, sign off the task electronically, and return the aircraft to service without a single sheet of paper, according to Flightdocs. Heine said that operators who have moved to a paperless workflow have reported time savings of more than 90 percent, and significantly fewer data errors.

Flightdocs is offering incentive pricing on the Operations module through NBAA-BACE.

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New Service On Tap

Flightdocs recently introduced a new service called Flightdocs Custom Development Solutions (CDS). CDS provides business analysis and custom software solutions based on operators’ specific requirements. The service is applicable across FAR regs 91, 121, 135, and 145. “We are able to leverage the power of Flightdocs Enterprise and our best-in-class development team to create products that solve very specific business needs,” said Flightdocs president Greg Heine. “We have already partnered with major OEMs and several 135/121 operators to deliver customized solutions to their operation that can be supported long into the future.”
Airbus H145D3 sets altitude record | by Mark Huber

Airbus Helicopters (Booth N5216) recently announced an altitude milestone for its new H145D3 and a prominent superyacht customer for the aircraft.

During high-altitude testing in Argentina, it touched skids on Aconcagua, the highest mountain in the Southern Hemisphere, at 22,840 feet, the first time a twin-engine helicopter landed at this altitude. The aircraft departed Mendoza, Argentina, flew 30 minutes to the foot of the Aconcagua, and climbed for 15 minutes to the summit of the mountain where the temperature was –7.6 degrees F. The crew—test pilot Alexander Neuhaus and flight-test engineer Antoine van Gent—encountered gusts to 30 knots in low air density during the ascension.

Surplus Power Available
Neuhaus said the helicopter still had power reserves at the summit that would have permitted two passengers on the flight, which was supported by the Fuerza Aerea Argentina, who provided aerial support; Patrulla de Rescate de Alta Montaña de Policia de Mendoza, who assisted with a contingency plan; Parque Provincial Aconcagua; and private operator Helicopters AR. The Argentine flight joins other Airbus Helicopters altitude records. In 2005, test pilot Didier Delsalle landed a single-engine H125 on Mount Everest.

At the Monaco Yacht Show late last month, Airbus announced that it had sold an Airbus Corporate Helicopters (ACH) variant of the H145D3 to a foundation controlled by Norwegian philanthropist Kjell Inge Røkke’s not-for-profit oceanic research foundation, REV Ocean.

The helicopter will be used aboard the foundation’s new 600-foot REV Ocean research and expedition vessel, the world’s largest superyacht. The REV Ocean vessel is equipped with two helidecks, scientific trawls, sonar systems, laboratories, auditorium and classrooms, moon-pool, an unmanned aerial vehicle, and a remotely operated deep-diving submarine. It has a crew of up to 35 and can carry 60 scientists.

Launched in 2019, the Airbus ACH145/H145D3 has a new, five-blade, bearingless and hingeless main rotor system and Fadec. To date, two flying H145D3 prototypes have accumulated 400 flight test hours and the aircraft remains on track for 2022 EASA certification.
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SAFRAN
Farnborough Airport wins environmental award

by Ian Sheppard

TAG Farnborough Airport (now Farnborough Airport following the Macquarie acquisition) has been named the winner of the Energy and Carbon Transition Award, part of the Sustainability Impact Awards granted for the first time this year on September 20 by the Institute of Environmental Management and Assessment (IEMA).

It is one of 19 award categories, with Farnborough (Booth N4109) beating competition from six other leading brands. The judges described the category as “challenging” and said some of the other entries could win in future, but had not yet delivered results in the way Farnborough had demonstrated.

IEMA’s awards are designed to “recognize people and businesses that are transforming the world towards sustainability, with winners selected by a panel of judges featuring leading authorities in the environment and sustainability sector.” Miles Thomas, environment manager at Farnborough Airport, accepted the award at an event in London, stating that it “represents another important milestone in our ongoing energy efficiency and carbon reduction efforts.”

Last year Farnborough Airport became the first business aviation airport in the world to achieve carbon-neutral status after an assessment by Airports Council International—Europe. Since then, according to the airport, it “has continued to make further substantial reductions in our carbon footprint, with a confirmed offset totaling 1,605 [metric tons] of carbon emissions for the last year.”

It also said it has “offset residual emissions through credible and certified offsetting projects, such as the planting of trees both in the local area and overseas, and the installation of a solar power system at a local school.”

The airport achieved ACI Airport Carbon Accreditation at Level 1 in 2009; Level 2 in 2010 a 24 percent reduction in emissions; and Level 3 in 2013 when this had reached 37 percent; followed by Level 3+ in May 2018, after a 42 percent reduction (one year ahead of schedule).

The report also accepted the offsetting scheme claimed by the airport. “In 2017, it planted 3,500 native trees in partnership with eight schools; this project, coupled with a REDD+ project in Brazil, provided an opportunity to learn about environmental management.”

Before this year’s EBACE event in Geneva, TAG Farnborough Airport hosted “Fueling the Future,” a Sustainable Alternative Jet Fuel (SAJF) initiative. This saw several OEM’s bringing in aircraft to Farnborough and flying them on to Geneva using SAJF blends. “The airport continues to work with industry partners to promote and facilitate this initiative,” it concluded.
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Silvercrest with new HPC to begin tests in early 2020

by Chris Kjelgaard

Safran Aircraft Engines (Booth C11237) is assembling a Silvercrest engine containing redesigned axial high-pressure compressor (HPC) stages but retaining the original HPC design’s centrifugal stage and will begin testing the redesigned engine early next year. The engine manufacturer redesigned the Silvercrest’s HPC after flight tests of the engine on the company’s flying test-bed in October 2017 found HPC response problems at high altitudes and low air-speeds. That redesign focused entirely on the HPC’s axial stages, according to a spokesperson for Safran Aircraft Engines. However, the redesign did not involve adding or removing any of the four axial stages—all of which were one-piece “blisks” with integral blades and disks—which featured in the original HPC design. “The architecture of the Silvercrest remains the same, including the compressor centrifugal stage, which is ‘on spec’ in terms of performance,” the spokesperson told AIN. The rig testing Safran Aircraft Engines performed in May and June to validate the performance of the axial HPC redesign confirmed “the significant progress...made over the [previous] 12 months, according to the plan defined in 2018,” and the rig tests were “completed in June, in line with the timetable agreed with our customer” Textron Aviation, the company said on June 17. “The results...exceeded our expectations.” In October, the spokesperson told AIN that, “during this test campaign, we demonstrated a better performance in terms of stall margin and efficiency.”

Silvercrest Future

Nevertheless, despite the Silvercrest HPC demonstrating what Safran Aircraft Engines regarded as a significant performance improvement the Hemisphere required. However, immediately upon losing its last aircraft-application for the Silvercrest engine, Safran Aircraft Engines responded that it would continue developing the Silvercrest as a research and technology (R&T) program. In October, the company confirmed to AIN it is “continuing engine tests as planned in the development schedule.” The new testing “includes additional flight tests, to complete the overall engine performance and durability validation,” the spokesperson said. “The test plan may include some certification tests,” the spokesperson added. “For instance, we [have] performed some certification tests, such as low-pressure turbine stress and endurance tests, to ensure the robustness of this engine. We are currently assembling an engine with the new axial compressor, which will be on test [starting] early 2020. However, an aircraft application will be required to optimize the configuration, utilization and engine/aircraft systems integration, and thus to fully complete the certification.” To date, Safran Aircraft Engines has logged more than 10,000 hours of ground and flight testing with the Silvercrest and the engine has completed more than 300 flights. “Safran Aircraft Engines continues to work on the Silvercrest,” the spokesperson said, reiterating that the company would update Textron upon completion of Silvercrest development, to give Textron “an opportunity for a reassessment of the situation.”

First U.S. female fighter pilot To keynote

The nation’s first female fighter pilot, U.S. Air Force Maj. Gen. Jeannie Leavitt, is set as the day-two keynote speaker this morning at NBAA-BACE. Commanding the Air Force Recruiting Service at San Antonio-Randolph, Texas, Leavitt has responsibility for more than 3,445 airmen and civilians and thousands of recruiting offices globally, NBAA said. She joined the Air Force in 1992 after receiving a bachelor’s degree in aerospace engineering from the University of Texas and a master’s degree in aeronautics and astronautics from Stanford University. Making history in 1993, when she became a fighter pilot, Leavitt has accrued 3,000 hours and has been involved in operations such as Southern Watch, Northern Watch, Iraqi Freedom, and Enduring Freedom. She has received numerous awards, including Defense Superior Service Medal, Legion of Merit with oak leaf cluster, Bronze Star Medal, Defense Meritorious Service Medal with three oak leaf clusters, Meritorious Service Medal with three oak leaf clusters, and Air Medal with four oak leaf clusters.

“We are honored that Maj. Gen. Leavitt, a groundbreaking leader, will join us at NBAA-BACE to share with attendees her experiences,” said Ed Bolen, NBAA president and CEO. “She is an inspiration, especially to those in aviation who have worked to break down barriers of all types. She exemplifies the dedication to duty, and love of country and aviation, that our industry personifies.” NBAA credited Leavitt with pushing to create a more balanced and diverse military, pointing to her quotes in a 2018 TED Women Spotlight “I truly see diversity as a competitive advantage...What we really want to get at is that diversity of thought.” She had said different opinions will drive a better solution.
In just a year, IADA sees transformative changes
by Jerry Siebenmark

It was a little more than a year ago when the National Aircraft Resale Association was rebranded the International Aircraft Dealers Association (IADA) in a move to recognize and grow the more than 25-year-old organization’s global membership. But that was just the first step in what has become a nearly-year-long transformation of the group that also is focused on bringing greater credibility to its professional members and removing any ambiguity in the aircraft acquisition process.

It has done so through establishing an aircraft sales website whose listings are exclusive to its members as well as instituting an accreditation program for dealer members and certification of individual brokers employed by those dealers.

“The way some aircraft salespeople handle themselves and handle transactions, and the lack of transparency, lack of professionalism, was the driving force behind us deciding to create the accreditation and certification,” IADA executive director Wayne Starling, whose hiring was announced about a month after the rebranding, told AIN.

In February, IADA launched the Aircraft-Exchange website, which lists preowned aircraft for sale by its dealer members. In September, the organization reported more than $1.6 billion in sales of more than 235 aircraft in the website’s first seven months of operation. At the time of that announcement, the website had listings for more than 500 aircraft for sale, including nearly 400 jets, 70 turboprops, 20 piston airplanes, and 15 helicopters. It also contracted with Diane Levine-Wilson—The Shiane Group president, Amstat founder, and past president of the National Aircraft Finance Association—to oversee the integrity of the listing information posted on the site.

Accreditation Process
Its next transformative step was to develop an accreditation program for dealer members and certification of individual brokers who work for them. For that effort, it hired Joseph Allan Aviation Consulting to originate and supervise the accreditation and certification processes. So far, IADA has accredited 38 dealers. Another 64 companies that are categorized as products and services members have also completed the accreditation. Additionally, 35 brokers have qualified for certification, and in October about 50 more brokers are expected to take the certification exam.

For dealers to be eligible for accreditation, they must have been in business for at least five years, average 10 transactions a year, have at least three brokers on the payroll, be recommended by three IADA member dealers, and receive final membership approval from a majority of IADA dealers. In addition, they must annually sign the organization’s code of ethics, list their inventory on AircraftExchange, have sufficient liability and errors and omissions insurance, and complete annual ethics and compliance training.

One other caveat for dealers to maintain their accreditation is that they have to have at least 50 percent of their brokers certified by IADA. “Now, we’re hoping everyone will want to [be certified],” Starling added.

The organization expects to have more than 500 representatives from member companies attending the 2019 NBAA Convention. It also expects to soon announce the formation of the IADA Foundation, Starling explained. The foundation will support charitable causes tied to business aviation, including granting annual business aviation scholarships in amounts from $1,000 to $5,000.

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The Gulfstream G650ER™ has a proven track record of flying farther faster. With 100-plus world speed records in the family, it belongs to those who view their own records as their only rivals.
CAN bus hack reality check

by James Coreless

On July 30, 2019, the U.S. Homeland Security Cybersecurity and Infrastructure Security Agency (CISA) released ICS-ALERT-19-211-01 about the hackability of CAN bus avionics networks in civilian aircraft. Some larger aircraft use CAN bus, such as the Airbus A380, which uses the technology for entertainment systems but not for vital avionics. As for the flight deck, some avionics available for experimental and certified light airplanes use CAN bus.

“An attacker with physical access to the aircraft could attach a device to an avionics CAN bus that could be used to inject false data, resulting in incorrect readings in avionic equipment,” said CISA. “The researchers have outlined that engine telemetry readings, compass and altitude data, altitude, airspeeds, and angle of attack could all be manipulated to provide false measurements to the pilot. The researchers have further outlined that a pilot relying on instrument readings would be unable to distinguish between false and legitimate readings, which could result in loss of control of the affected aircraft.”

Faced with this threat, “CISA recommends aircraft owners restrict access to planes to the best of their abilities,” said the ICS Alert. “Manufacturers of aircraft should review implementation of CAN bus networks to compensate for the physical attack vector.”

The “public report of insecure implementation of CAN bus networks” that motivated CISA to issue this alert came from the software security firm Rapid7, led by the company’s senior security consultant Patrick Kiley. He outlined his concerns online in the July 30, 2019 Rapid7 blog entry, Investigating and Reversing Avionics CAN Bus Systems. CISA issued its ICS Alert based on Kiley’s research the same day.

The fact that CISA acted on Kiley’s research at lightning speed (unusual in itself for a federal agency) suggests that the CAN bus hacking vulnerability is one that needs to be taken seriously. At the same time, Kiley’s reasons for doing this research (discussed at length with AIN), the mainstream media’s trumpeting of this hack’s existence, and the aviation industry’s reluctance to speak candidly on this topic have arguably made the CAN bus vulnerability a bigger issue than it deserves to be.

This article’s mission is to put the CAN bus vulnerability in context; both to make sense of the actual vulnerability and to see what it says about the aerospace industry’s ability to deal with serious cyber threats.

CAN Bus Vulnerability

Patrick Kiley is a security analyst, a “white hat” (good guy) hacker, and an engineer building his own Ratan-derived Coyk MK IV experimental amateur-built airplane. While doing so, Kiley learned that some homebuilt airplanes use the CAN bus network architecture found in modern computer-heavy cars and trucks.

The good side of using CAN bus is that its two-wire shared avionics network “was really easy to hook up,” Kiley told AIN. The downside: “I knew CAN bus had zero security built-in, so I decided to investigate whether any security research has been done.”

He couldn’t find any, so Kiley launched a research project at Rapid7 to see how vulnerable an aircraft running on CAN bus is to hacking. A link to his full research paper, Investigating CAN Bus Network Integrity in Avionics Systems, is available in the Rapid7 blog entry. Kiley’s paper was prepared in part for the DEF CON 27 hackers’ convention in Las Vegas.

Here’s the CAN bus vulnerability as laid out in Kiley’s research paper: “A single CAN bus network uses a shared medium, which means that all nodes (i.e. avionics devices) on the network see all individual messages on the network. Unfortunately, from a security perspective, CAN bus nodes do not natively enforce the trust models and authentication schemes common in other networking applications. Therefore, any device placed onto a CAN bus that manipulates the voltages of the High and Low wires can send any message using any arbitration ID and expect it to be acted upon by the device on the bus expecting a message from that particular arbitration ID.”

In plain English, a hacker can attach an external microprocessor-driven device to the CAN bus network within the aircraft and then use that device to send false readings to the avionics connected to it. According to Kiley, the external device can be programmed to start sending false readings when the aircraft achieves a certain altitude, airspeed, or any other metric shared by the aircraft’s avionics across the CAN bus network.

Connecting the external device to the CAN bus network is easy. “You just need to tap two wires, using a Raspberry PI microcomputer with a CAN adapter, an Arduino, or a Carloop,” said Kiley. (A Carloop is an automotive diagnostic device that plugs into a car’s OBD II port under the dash. It is the same port used by car mechanics to read trouble codes when the check engine light comes on. “Nothing needs to be disabled,” he said, “you just need to access the wires.”)

Since Carloops are available in 3G/LTE models that connect directly to cellphone networks, a hacked aircraft could be controlled from a distance, with the hacker able to see the aircraft’s avionics readings in real time, provided the airplane is within reach of the cellphone network.

“The scenario would work like this,” said Kiley: “Build a 3G/LTE Carloop device. Attach that device to the CAN- and CAN- connectors of the Carloop, using vampire taps. Have that Carloop establish a connection to a server under the control of the adversary. Use that server to send commands to the Carloop, thereby controlling the CAN bus of the aircraft.”

Reality Check

Two conditions—physical access to the aircraft and its use of the CAN bus architecture—are important limits to the risks associated with the CAN bus hack, especially as relate to business aircraft. This explains the exasperation expressed by National Business Aviation Association spokesman Dan Hubbard, when faced with the many frantic general media stories on this subject, such as this one from the Associated Press: “US issues hacking security alert for small planes.” Even if an intruder manages to break into a secured hangar and access the aircraft’s CAN bus network, he said, “it is never sitting out on the dining table in the cabin” ready to be hacked. In fact, the CAN bus network wires are incorporated into inaccessible areas of the airframe, and the bus wires are not labeled, “attacking vampire taps here.”

These facts lead to a third limit: A CAN bus hacker would have to be a savvy computer programmer, plus familiar with computer and avionics systems, to succeed. This eliminates casual hackers from the mix, reducing the threat, though not removing it entirely.

These limits explain why General Aviation Manufacturers Association 19-p of operations Jens Hennig isn’t overly concerned about the CAN bus vulnerability. “Nobody views the risk around that as being very high,” he said.

Patrick Kiley himself has never presented the CAN bus vulnerability as a serious likelihood, just as a risk that exists and needs to be managed, the way CISA did when it issued its CAN bus alert. “After we published our article and during DEF CON, I spoke to a few individuals who informed me of a standard that will greatly enhance the current CAN security model,” Kiley said. “The organization is called AUTOSAR (a worldwide industry group working on automotive open architecture), and the standard is a specification of secure onboard communication.”

CAN Or Not?

The Aircraft Electronics Association is well aware of the issues raised by the ICS alert. Ric Peri, the association’s v-p of industry and government affairs, told AIN, “The systems that they tested and based their research and subsequent report on are for experimental aircraft, LSA, or entry-level certified GA [bridging technology].” He acknowledged that “the CAN bus is used throughout aviation at varying levels,” but “the [link as many have reported] to all of GA is not realistic nor accurate. As the certificate of aircraft and systems increases, so does the cybersecurity oversight and controls. As you can see from the 2017 research on CAN bus in vehicles, it is not the CAN bus itself but rather the architecture of the system which is technically being reported. Low-cost systems are more vulnerable than higher cost, more sophisticated systems. This is true in computers, automobiles, as well as aircraft. I believe that the media is doing more to encourage hackers to ‘break’ our cybersecurity measures every time we report that we have controls in place. Nothing is foolproof and the more we talk about it not being a problem, the more this becomes a challenge for those who dabble in this area.”

Based on the available facts, the CAN bus vulnerability is judged to be a real but difficult-to-execute threat against aircraft. And keeping aircraft properly secured and monitored is a reasonable response to this vulnerability; as is keeping an eye out for any signs of tampering within an aircraft on an ongoing basis.
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Global Aerospace unveils 2020 SM4 safety program

by Curt Epstein

Industry insurance provider Global Aerospace is previewing the latest improvements to its SM4 Aviation Safety Program at NBAA’s annual convention. Since 2010, the company (Booth C9230) has committed more than $5 million in support of the program to help its clients achieve higher levels of safety in their operations. The 2020 edition’s focus will be on business aviation’s talent shortage and the challenges in attracting, mentoring, and retaining professionals who can safely manage, maintain, service, and fly business aircraft.

To be launched in January, the program will include an online safety learning management system (LMS), which will be provided free to the company’s U.S.-based general aviation policyholders. It will include customized training courses to help support future talent by improving their understanding of safety management and professional performance, and by promoting their continuous improvement.

“The addition of customized online training courses developed in cooperation with our SM4 partners will provide a training roadmap to advance personal and professional development for new and existing employees,” said Marilena Sharpell, the company’s senior vice president for underwriting and operations executive. “Studies have shown the more you invest in your employees, the more engaged they are, and the more likely it is that they will stay.” She added the LMS offering was created specifically to address its clients’ needs to attract and retain talent.

For Global’s Elite-level clients, the 2020 SM4 program will provide an analysis of strengths, weaknesses, opportunities, and threats related to their flight operations to establish their greatest areas of need. Once needs are determined, customers will be presented customized service offerings from one or more of the SM4 partners. “As Elite-level flight departments advance, we recognize that off-the-shelf benefits are a thing of the past,” explained Sharpell. “These clients need more targeted, customized benefits as they strive to achieve higher levels of operational safety.”

NetJets honored as one of CAN’s Corporate Angels

The Corporate Angel Network (CAN) (Booth C11824) has selected fractional provider NetJets as a recipient of the 2019 Corporate Angel Award. “Organizations receiving this award go above and beyond to fulfill our mission of helping cancer patients access the best treatment centers in the country by arranging free travel on corporate aircraft,” CAN said.

“We are honored to accept this award, but most importantly, we’re pleased that our partnership is making a difference and helping to reduce the travel burden for patients with cancer across the country,” NetJets said.

Over the past 21 years, NetJets and its owners have donated hundreds of flight hours to CAN for this purpose. NetJets expanded this partnership earlier this year, giving CAN access to ferry flights and matching NetJets shareowner flight-hour donations up to 50 hours annually.

“The combination of services that NetJets is providing to CAN is without precedent among other participating companies,” CAN said earlier this year. NetJets is coordinating full flight operations information, allowing CAN to quickly secure positioning flights for patient travel. The fractional provider has also arranged for lodging providers Marriott, Hyatt, and Hilton, and ground transportation companies Empire CLS and Savoya, to provide patients with free lodging and ground transportation when possible, CAN added.
It's easy to see which Falcon owners have long-range plans.

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Leonardo celebrates 1,000th AW139 delivery

by Ian Sheppard

Leonardo Helicopters (Booth C13108, IS2) delivered the 1,000th example of its AW139 to Italian law enforcement agency Guardia di Finanza on September 20 at an event at its Vergiate, Italy production plant near Milan. Powered by two Pratt & Whitney Canada PT6 turboshaft engines and co-produced in Vergiate and Philadelphia, the AW139 is now in operation with 280 operators in 70 countries and has attracted a total order book of more than 1,100 units.

“Italy’s Guardia di Finanza took delivery of the 1,000th AW139 as manufacturer Leonardo continues to serve a strong market for the model in both civil and military applications.

“We’re celebrating an extraordinary moment for the global helicopter industry,” said Leonardo Helicopters managing director Gian Piero Cutillo. The AW139 “has really strengthened our identity in producing helicopters and has set new standards.”

Leonardo CEO Alessandro Profumo told those gathered for the celebration, which included a display by an AW139 and an AW609 tiltrotor prototype, that it was “a huge milestone... the company had hoped [at launch] to sell 400 and now it’s 1,000... in 15 years... and the order book is packed.”

He committed to continue to develop the product to stay ahead of coming competition, looking forward to the 2,000th or even 3,000th AW139 delivery. “We now have 25 percent of the market for twin-engine helicopters,” he said. “It is our duty to continue flying the flag for Italy.”

Profumo also said military variants are now well under way. “Last year we won a tender for the U.S. Department of Defense for 84 AW139s,” which will be designated as the MH139. He added that the first four examples would be delivered by the end of next year’s first quarter.

Noting that it is unusual for any peace-time aircraft or helicopter to reach the 1,000 mark, Guardia di Finanza commandant general Giuseppe Zafarana said the success of the AW139 shows “the company was able to anticipate the market needs and become a trendsetter.” He said the Guardia placed its first AW139 order in 2010 and a further order in 2019, making a total of 32. “We have developed a top-notch partnership with Leonardo and it is an example of what Italy can achieve.”

In a briefing on the program, Leonardo Helicopters senior v-p strategy and innovation Roberto Garavaglia said the first AW139 was unveiled at the 1999 Paris Air Show, initially as the AB139 while Bell was still involved. It made its maiden flight on Feb. 3, 2001, leading to certification and first delivery in 2004 at a maximum takeoff weight of 6.4 metric tons (14,110 pounds)—increased later to 7.0 metric tons (15,432 pounds).

“So here we are after 20 years and three months later and these are just the first 1,000,” reflected Garavaglia, who said that geographically the main regions are Europe at 29 percent of the fleet and Asia/Australasia at 27 percent. The Americas account for 15 percent. In terms of application, the offshore oil and gas market accounts for 33 percent; EMS/SAR, 17 percent; and government/law enforcement, 14 percent.

He recalled the reception by early customers such as Bristow and Shell who were astounded that it could remain airborne on only one engine, which accounts for its almost 100 percent market share in the Middle East, for example. He claimed that to this day it’s the only helicopter that complies with what was then FAA Part 29 Amendment 45 for transport helicopters, because its competitors avoid this by being variants of models established before the standard was introduced. AW139 operators, he said, like the capability to carry 1,600 (3,500 pounds) to 1,700 kg (3,748 pounds) of fuel, which yields an endurance of more than four hours plus reserves.

Garmin developing Bell 505 autopilot

Garmin International (Booth C12617) expects to certify the GFC 600H flight control system for the Bell 505 Jet Ranger X in the first half of next year, the Olathe, Kansas-based avionics manufacturer announced in August. The attitude-based system will have several helicopter-tailored features, including attitude hold, Garmin Helicopter Electronic Stability and Protection (H-ESP), dedicated return-to-level mode, hover assist, and over-speed and low-speed protection. Following STC approval, the GFC 600H will be available through select Garmin dealers as a retrofit installation.

According to Garmin v-p of aviation sales and marketing Carl Wolf, “The GFC 600H combines our expertise in safety-minded technology for helicopters with our flight control experience to deliver a system that essentially affords the pilot the option to fly hands-off, which would be unheard of without an autopilot.”

The GFC 600H includes AHRS technology and redundant, cross-checking sensors to support smooth handling throughout the flight envelope, Garmin said. It features a console-mounted mode controller with push-button controls that interface with the Garmin integrated flight deck on the Bell 505. Using navigation information from the integrated flight deck, the GFC 600H can also be used to automatically fly approaches, provide en route navigation guidance, and search-and-rescue patterns. Additional autopilot modes include altitude hold, altitude select, vertical speed, indicated airspeed, and heading select. The GFC 600H on the Bell 505 will also be night vision goggle compatible.

Voom to offer per-seat helo service in SF

Airbus unit Voom will expand its per-seat, on-demand helicopter service to the U.S. beginning at the San Francisco Bay Area airports in Napa, Oakland, Palo Alto, San Francisco, and San Jose, the company said in September. Voom said it will also offer full-helicopter charters to additional area airports including Half Moon Bay, Monterey, Livermore, and Sacramento. Customers can book via the Voom app or online at voom.flights. Passengers can book flights up to one hour before departure and check in at the departure helipad 15 minutes before boarding time.

“Based on Airbus’s aviation expertise and our proven success offering our helicopter service in Brazil and Mexico, Voom is uniquely positioned to lead the transformation of air travel in the world’s most congested cities,” said Voom CEO Clément Monnet.
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Embraer’s Praetor 500 ready to enter service in U.S., Europe

A little more than a month after receiving Brazilian ANAC type certification, Embraer’s Praetor 500 earned EASA and FAA approval, Embraer announced on September 30. The certifications follow the trio of approvals granted last spring to the aircraft’s longer-range, stretched sibling the Praetor 600.

Announced during the 2018 NBAA annual convention, the Praetor 500 and 600 marked the next generation of the original Legacy 450 and 500 with new winglets, increased fuel capacity, and other enhancements that boost overall performance.

As certified, the Praetor 500 is capable of flying 3,340 nm with NBAA IFR reserves and four passengers, reaching a speed of 466 ktas, taking off in 4,222 feet, and having an unfactored landing distance of 2,086 feet. This beats the original design targets of 3,250-nm range, 462 ktas high-speed cruise, 4,263 takeoff distance, and 2,091-foot unfactored landing distance.

The aircraft is capable of connecting Miami to Seattle, New York to London, and Jakarta to Tokyo, nonstop.

As with its Legacy 450 predecessor, the midsize Praetor 500 is fully fly-by-wire and incorporates the latest edition of the Collins Pro Line Fusion flight deck with capabilities that include ADS-B In, enhanced flight vision system with a head-up display, and synthetic vision guidance system. It also is the first in its class to be offered with Ka-band satcom.

Elliott Aviation has formed a mobile response team specifically for Embraer Phenom 100 and 300 AOG events, the FBO operator, aircraft dealer, and MRO provider announced last month. The team—based in Minneapolis and available 24 hours a day, seven days a week—is factory trained by Embraer, Garmin, and CAE and has direct access to Embraer’s technical help desk.

“With eight years of experience as a Phenom 100 and 300 authorized service center, we are happy to provide the next level of service to our customers,” said Lawrence Harting, v-p and general manager of Elliott’s Minneapolis Flying Cloud Airport facility. The team is available for regional and national dispatch.
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LHT shows its vision for a VIP A220 interior

by James Wynbrandt

It’s among the most fanciful VIP interior concepts ever proposed by a major completion center, given that it’s designed for a platform that doesn’t exist. But that’s not stopping Lufthansa Technik (LHT; Booth N5216) from showcasing at NBAA its SkyRetreat VIP interior for the A220 (née Bombardier C Series), which Airbus (Booth N5216) makes available only for commercial operators, not for the executive market through Airbus Corporate Jets.

LHT feels the concept—announced at EBACE in May, with the full design unveiled at the Monaco Yacht Show in September—has large appeal in the executive transport space. As for Airbus’s intentions regarding an executive variant of the A220, “I can only state that I know they are interested,” said LHT senior head of sales, VIP, and special-mission aircraft, Wieland Timm shortly before the Las Vegas gathering. “I hope there may be intentions regarding an executive variant of the A220, “I can only state that I know they are interested,” said LHT senior head of sales, VIP, and special-mission aircraft, Wieland Timm shortly before the Las Vegas gathering. “I hope there may be intentions regarding an executive variant of the A220.”

Given the limited aviation audience at the annual Monaco show, Timm considers Las Vegas “the first time we’re showing” the full concept to the business aviation community. LHT is presenting a non-scale section of the cabin to illustrate the interior’s look and feel, along with renderings, floor plans, and materials. “You can feel and touch everything—only at NBAA,” said Timm. Passengers will enter through a forward observation area, among SkyRetreat’s most noteworthy features, as it includes the cockpit, extending more than six feet behind where the cockpit door would typically be positioned. Accessible in all phases of operations, the area includes a divan, and passengers can don headsets and monitor the cockpit communications en route. The aircraft meets regulations governing passenger access to the cockpit in non-commercial aircraft, Timm said.

The main cabin, aft of the observation area, suggests a yacht rather than a VIP aircraft interior, with deck-like flooring and furnishings to match.

The A220’s range of some 3,800 nm—more limited than that of an ACJ and BBJ—gives the aircraft a mission profile well suited to such an interior. “Most customers are not flying longer than three, four, or five hours; nobody needs a sleeping room or a shower,” Timm said. “If they’re tired, they can rest in the divan or a seat.”

Similar in length to an A319, the A220 has a diameter of 10.75 feet, about 1.5 feet narrower than its larger sibling, but the open interior gives the cabin a more expansive feel. The aft section includes a seating area around what appears to be simply a table but is actually a multifunction, movable surface that can serve as a touch-screen monitor or television in addition to hosting a dinner party.

Cost Advantages

From an economics perspective, the simplicity and the reduced size makes SkyRetreat (or almost any other custom interior) less costly than typical executive airliner completions, while the platform itself provides “significant” operational and cost and maintenance advantages,” said Timm. “In addition to completion services, the Hamburg, Germany based MRO provides authorized maintenance and component services for the A220 fleet and its Pratt & Whitney PW1500 geared turbofan engines.”

Potential customers include those who operate “very old ACJs and BBJs, or who have ideas about what they could do with a little less space” than those platforms offer, and large-cabin business jet operators looking for additional room, without the exec-exel costs.

Pricewise, Timm said, “We have an idea what the cabin costs, but no idea what the aircraft costs.” An executive variant would require changing interfaces between the airframe and the cabin, such as ventilation, and those costs—and whether done as an ACJ offering, or provided through the aftermarket—would influence the price, as well. (A basic A220-100 retails for about $81 million.)

Asked about the possibility of introducing an ACJ220 at NBAA or any other time, an Airbus spokesperson said, “Today we are focused on the ACJ319neo and ACJ320neo, deliveries of which only began this year.”

Timm said prospective customers have shown “considerable interest” in the platform, and should the airframe become available, he expects most “will go for a more conventional cabin; it already provides an incredible amount of space for breathtaking VIP interiors,” he said. “But we wanted to show what is feasible and new, for the younger generation,” he said of SkyRetreat. “Its technical features will provide our customers with a whole new sense of space and a unique travel experience.”

Airbus promises completion centers ‘a wiser team’ for the ACJ350

Airbus Corporate Jets has established “an outfitters advisory board” to work more closely with five OEM-approved completion centers “to ensure total quality” while allowing the selected partners “to sell many fancy things” to their customers. “This is a good area to work in the coming years” especially in relation to the next-generation airplanes with airframes made of composite materials, according to ACJ president Benoit Defforge. The board began functioning four months ago in the wake of allegedly negative experiences that completions outfitters have had with the Boeing 787. “They sold 14 aircraft, and only four are flying. Their outfitters are in the middle of a difficult situation they had not anticipated. We shall be a wiser team... with the ACJ350.”

Airbus has put together the EasyFit package developed to optimize installing a custom interior for the ACJ350. “It was a good solution, and it is working,” Defforge said. “We have a very different approach,” he explained. “It is not good enough to just sell a green aircraft. We consider that it is our responsibility to be with our customers all long, including creation of the cabin. It does mean we oblige our customer to go for a turnkey [process], with the airframer also providing the cabin. In fact, it is not about a turnkey solution, but customer care. We are working with the five outfitters to be sure that the way they are working with the customers is in line with the philosophy and the vision we have of quality.”

Historically, Airbus came to the market for VIP conversions of next-gen widebody jets later than Boeing. Having sold 80 ACJs based on the A330/310 and A330/340 platforms, the European manufacturer has found it difficult to introduce the newer models. The ACJ330neo went on offer in 2017 and still has no buyers.

Although an A380 was sold to a Saudi prince, it never transformed, as originally planned, into a “Flying Palace.” While acknowledging that “the ACJ380 did not happen,” Defforge maintains “the demand for very large business jets is still quite important in the oil-rich countries” despite a decline in the region’s overall economy. The manufacturer continues to cultivate friendly relations with Middle East customers “since the wealth is still there.”

In the widebody sector, Airbus Corporate Jets’ focus is now firmly on the ACJ350, which is able to fly 22-hour legs. After a nearly-three-year marketing campaign, the ACJ350 won its first orders earlier this year. One went to a private customer and three to the German government.

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London Biggin Hill seeing great opportunity for growth
by Ian Sheppard

London Biggin Hill Airport (Booth N9607) says the latest data shows traffic has been “constant” year-on-year due to the market being “very depressed.” But the airport management is pleased, given that it comes against a general 8-9 percent drop in UK activity, and other European countries are also down. Of more significance, according to commercial director Robert Walters, Biggin Hill recorded a 22 percent growth in large business aircraft in the year to August.

Walters also points to steady growth in Biggin Hill’s share of London business aviation traffic. According to Richard Koe at WingX Advance, its share was 12.6 percent in September 2014, 13.3 percent in September 2015, 14 percent in September 2016 and in Q2 2019 this had grown to 17.1 percent. “Clearly they are benefiting from turbulence at Northolt and the squeeze at Luton and London City [airports], and are also benefiting from lots of promotion and some upgrades in facilities and service levels,” said Koe.

“We are holding our own and not declining,” Walters told AIN in September during a visit to the airport. “We are increasing the size, which translates to increased revenues,” he added.

Eurocontrol-derived data shows Biggin Hill in third place behind TAG Farnborough and London Luton airport, while London City Airport has seen significant declines in business aviation traffic of late. WingX’s report for August 2019 showed that London had more than 4,500 departures a month, the next closest European city being Nice at 2,200. However, while Nice has one airport, London has several. In August, Farnborough had 1,184 departures, pushing Luton into the number two spot (981), and Biggin Hill had 717, London Oxford had 500, and Stansted saw 435 (London City fell outside the top 30).

Still looking large in the minds of London’s independent airport operators is RAF Northolt, which closed in April for a £23 million ($28 million), six-month runway upgrade, paid for by UK taxpayers. Airports such as Biggin Hill say Northolt fails to meet commercial airport standards on a number of fronts and are calling for “a level playing field”—although for a few months, at least, they are all benefiting from Northolt’s displaced traffic. This typically represents 10 to 12 percent of London business aviation activity (the airport is 98 percent commercial traffic and very little military, Walters pointed out).

Walters claims Biggin Hill is “a very attractive destination”—particularly with its new longer opening hours (unlike Luton, it is not 24-hour)—and represents a new discovery for many U.S. business jet operators, not least due to visitors taking advantage of the weakness of the UK pound against the U.S. dollar. Even U.S. President Donald Trump used Biggin Hill on his summer 2019 visit to the UK—complete with numerous helicopters and the usual huge military/security entourage.

A major change this year, Walters told AIN, is that now the word is out and it’s not an uphill struggle any more for Biggin Hill to get itself noticed in the U.S. “It’s mainly word of mouth. [For example] one pilot tells another—people like it because [among other things] they have control here”—and it’s not slot controlled, unlike airports such as Luton.

Netjets is one of the major users of the airport; customers like it because of its proximity to London, the flexibility, and the fact it is not congested and is purely a general/business aviation airport. Also, “they can get aircraft upgrades and maintenance done all in one place”—for example, cabin refurbishments at RAS Completions.

Development projects continue at the airport: while plans to build a training college and hotel are close to being finalized (college construction starting at the end of October and hotel in Q1 2020), and a £2.5 million ($2.9 million) taxiway refurbishment is underway, the new Runway 03 GPS approach is due to come online imminently, once it received final UK CAA approval. Walters also said “hundreds” of obstacles have been removed to give further flexibility for airport operations. Finally, a new terminal building is in the final stages of design, and the clock is ticking to the day the historic control tower is removed and a more modern—though architecturally sympathetic—design is erected. “Scoping out the project will take a while,” said Walters.

The airport has been increasing its market share against other London-area airports in recent years, Walters told AIN, helped by initiatives such as the helicopter run by Castle Helicopters and Biggin Hill’s link with Teterboro Airport near New York, where a similar heli-shuttle has also now been established. “Castle Air continues to support the Leonardo brand here too,” said Andy Patsalides, marketing manager, who added that the arrival of an AW139 is giving passengers the option of a large helicopter on the service to the London Heliport in Battersea. More recently, Canada has come into focus, and Walters’ team went to a show in Calgary to promote Biggin Hill and will be looking at other places that could provide traffic growth.

Walters also said new impetus has been added by the arrival of David Winstanley as the new airport CEO, “and Bob Graham will become our first operations director at the end of September,” he added.

Meanwhile, the airport now has more than 60 based business aircraft, and Zenith Aviation alone now “has 30 aircraft under their maintenance control,” said Patsalides—the company’s main focus being Learjets. With 11 MROs already on site, Patsalides would like to see more aerospace companies establishing facilities at Biggin Hill, and perhaps a flight simulation center. “The latest tenant is F.List,” he said, an aircraft interiors specialist which has “moved in to support Bombardier.”

Walters said Biggin Hill Airport is on a 500-acre site with vast scope for further development and growth in traffic, helped by its new longer opening hours, “friendly local council” in the London Borough of Bromley, and a local population the vast proportion of which strongly support the airport’s continued growth.

The airport has two FBOs: Signature (in what was originally what hangar, now a maintenance base for Bombardier) and Biggin Hill Executive Handling. With Signature, Walters is happy to have “a global brand with a global network” alongside its own FBO offering, so customers have a good choice. There are no plans to open the airport up to other FBOs, although at one time it did have three.

Finally, there will be another big year for the airport with the 80th anniversary of the Battle of Britain, during which “Biggin on the Bump” was a historically critical aerodrome for the RAF’s Spitfires defending London from the Luftwaffe blitz. “But we have no firm plans yet,” said Walters.
by Mark Huber

The mock-up of Bell’s (Booth No. N1816C) Nexus concept urban air mobility vehicle (UAM) is making its NBAA debut this year. Bell unveiled the design in January and has formed “Team Nexus.” The development team of seasoned industry OEMs including Safran (engines/hybrid propulsion), Electric Power Systems (battery and battery management), Garmin (autonomous vehicle management computer systems), Thales (flight control systems and avionics), and Moog (flight control actuation systems). Bell is also partnering with Japan’s Sumitomo to provide a variety of related services, including air taxi. Bell hopes to have a product to market by the mid-2020s, said Chad Stecker, program manager for the Nexus. Stecker declined to offer additional specifics with regard to the program’s timeline.

As currently envisioned, the Nexus features a 4+1 cockpit/cabin layout, a central wing, integrated landing skids, and a modified V-tail topped by a short horizontal stabilizer. The +1 in the cabin layout is designed for the pilot. While it is likely early UAM vehicles such as electric vertical takeoff and landing (eVTOL) aircraft will be required to have a pilot on board, a growing number of industry executives believe that fully-autonomous vehicles will be required in order to drive down operating costs to the point where they can appeal to a mass market. Earlier this year, Scott Drennan, Bell vice president of engineering innovation, told an industry conference, “I want it to be [full] autonomy right away, and I think the technology is there to do that.” Drennan cited the need for 10,000 additional vehicle pilots just for UAM’s early stage deployment and how the addition of those pilots would inflate direct operating costs.

The Nexus flight model will use a hybrid/electric distributed propulsion system feeding six tilting ducted fans, each powered by individual electric motors. The ducted fans also offer improved performance and a quieter noise signature than comparable open-rotor designs, according to the company.

Bell’s level of resourcing Bell for Nexus remains something of a mystery. On a conference call with stock analysts earlier this year, the chairman of Bell parent Textron, Scott Donnelly, called it “relatively small,” and added “we need to see how does that market really play out. I think there is a lot of uncertainty.”

While declining to disclose what the development funding for Nexus is, Stecker said that Bell is “a mature OEM that understands [aircraft] development. Flight is something we do every day.”

Earlier this year, Bell’s Drennan characterized Nexus as a “full-blown development program” that was ramping up to a dedicated staff of more than 100. Donnelly told analysts that, if urban air mobility happens, “clearly, our team at Bell can design and build aircraft that would fit that marketplace.”

Stecker said Bell already is developing components, subsystems, and systems for the aircraft. While initial designs are likely to feature hybrid propulsion, he said that full electrification was still likely at some point. “We do believe in the future of full electrification.”

Porsche and Boeing team on urban air mobility

Sports car maker Porsche and aerospace giant Boeing (Booth N5202) are teaming on urban air mobility (UAM). The companies recently signed a memorandum of understanding to jointly explore the premium UAM market including “the extension of urban traffic into airspace.” They are already developing a fully electric eVTOL concept vehicle and will create a joint team “to address various aspects of urban air mobility, including analysis of the market potential for premium vehicles and possible use cases.” A 2018 Porsche Consulting study predicts that the UAM market will gain momentum after 2025.

“This collaboration builds on our efforts to develop a safe and efficient new mobility ecosystem and provides an opportunity to investigate the development of a premium urban air mobility vehicle with a leading automotive brand,” said Steve Nordlund, vice president and general manager of Boeing NeXt, the company’s organization that is currently dedicated to the UAM market. “Porsche and Boeing together bring precision engineering, style, and innovation to accelerate urban air mobility worldwide.”

“Porsche is looking to enhance its scope as a sports car manufacturer by becoming a leading brand for premium mobility. In the longer term, this could mean moving into the third dimension of travel,” said Detlev von Platen, member of the executive board for sales and marketing at Porsche AG.

**King Aerospace, Collins pursue STC for EFVS-3600 aboard BBJs**

King Aerospace Commercial (Booth N3212) and Collins Aerospace are nearing completion of a supplemental type certificate (STC) to install enhanced flight vision system (EFVS) capability in Boeing Business Jets. The STC is being developed by Collins using its EVS-3600 multispectral sensor, and King Aerospace will install the system in customer BBJs. The Dallas-based company recently completed the first installation with an unnamed launch customer.

The EVS-3600 displays enhanced-vision imagery on the BBJ’s head-up display. The uncooled multispectral sensors in the EVS-3600 include short- and long-wave infrared as well as visible cameras, “for the earliest possible detection of visual references,” according to Collins (Booth C10808). For BBJ operators, the benefits are the ability to take off with lower minimums and also fly instrument approaches below the normal decision altitude/height, increasing the capability to complete missions in poor weather.

Following customer flight testing of the installation in April, engineers are incorporating upgrades or changes and finishing the final design of the modification, which will be followed by additional flight testing. “Achieving an STC from the FAA for an EFVS retrofit requires extensive certification flight testing,” says Jarid King, president of King Aerospace Companies.

“It’s been a fascinating and rewarding process as we know there are a number of BBJ operators eager to deploy this system on their aircraft.”
Web Manuals preps new software, docs
by Cathy Buyck

Web Manuals (Booth N3870), developer of digital documentation services for the aviation industry, is revealing key new features of its latest major software update to its regulatory compliance package this week at NBAA-BACE 2019, ahead of the formal launch and rollout in early 2020. The update, called Web Manuals 8, provides a more intuitive, user-friendly, and customizable experience compared with the former version, noted Web Manuals director of operations Americas Krister Genmark.

“The ability to work with multiple pages simultaneously makes it quicker and easier to edit large and complex manuals.”

IBAC expands IS-BAO for small operators, helps build SMS database with Baldwin

As the International Business Aviation Council (Booth N2816) honors participants for reaching key milestones in their participation with the International Standard for Business Aircraft Operations (IS-BAO) program, the Montreal-based organization is introducing a new option at NBAA-BACE to simplify IS-BAO registration for small operators.

Called FlightPlan Stage1, the program is “an all-inclusive accelerated” pathway for operators with one aircraft and one base to gain Stage 1 IS-BAO in 90 to 180 days, said IBAC director general Kurt Edwards. Under the option, a credentialed program support affiliate will help streamline the pre-audit process for the operator. Once that is accomplished, the operator will undergo a one-day independent audit and continue with post-registration validations every six months over a two-year period. FlightPlan Stage1 will include access to the IBAC General Company Operations Manual (GCOM).

IBAC formed a partnership with Washington, D.C.-based operations manuals specialist AviationManuals (Booth N4102) to maintain the General Company Operations Manual in line with the latest IS-BAO update and provide simplified development methods to operators seeking IS-BAO registration.

“We are expanding our relationship with AviationManuals to add value to our IS-BAO operators, especially small flight departments,” said Bennet Walsh, IS-BAO program director. “This new alignment will improve access to our free GCOM that will be maintained to the latest IS-BAO revisions and be available in the operator’s regulatory framework.”

Under the partnership, AviationManuals also is offering registration support to organizations with limited resources at special rates.

“We look forward to supporting IBAC by improving and keeping its already robust GCOM up to date, thereby providing an even better free solution to IS-BAO members,” added AviationManuals CEO Mark Baier. “At the same time, we both recognize that developing and maintaining your own manuals, even when starting with the GCOM, may not be an effective and efficient option, particularly for smaller operators. We believe strongly that operators should always be looking to improve their operations and safety culture, and IS-BAO remains an excellent way to do so.”

As the FlightPlan Stage1 program strives to bring in new operations, IBAC is honoring more than 50 operators and auditors who have reached five-year, 10-year, and 15-year anniversaries with either IS-BAO or the newer sibling program, the International Standard for Business Aircraft Handling (IS-BAH).

IS-BAO is a recommended code of best practices for aircraft operators based on International Civil Aviation Organization standards and with safety management systems (SMS) at the core of the program. Established in 2003, the program offers registration in various stages, with Stage 3 considered the highest level with more intensive audits. Overall, IS-BAO is designed to help flight departments achieve high levels of safety and professionalism. More than 700 organizations are registered.

Similarly, IS-BAH (International Standards for Business Aviation Handling) is a global set of industry best practices, centered around SMS, that are tailored for aircraft handlers, such as FBOs. Launched in 2014, the IS-BAH program now has nearly 200 different ground handling services providers that have achieved at least Stage 1.

While it works to bring in operators at the Stage 1 level, IBAC also has teamed up with Baldwin Safety and Compliance (Booth N5189) on the development of a business aviation-specific safety database based on operators participating in the IS-BAO Progressive Stage 3 group. These operators meet IS-BAO Stage 3 protocols, but will share de-identified (for privacy) SMS data with IBAC, and participate in IS-BAO audits progressively over the course of a year. Baldwin will support the de-identification, storage, and analysis of the information that will be accumulated in the database, the first of its kind for business aviation.

Customers Want Digital Products
The update is in response to customer feedback and the increased digitization of business aviation. “We’ve been saying for quite a long time that it is time to leave the Stone Age behind and enter into the digital world. Most companies in the industry are now in the digital world, but now we need to take that next leap forward to be at the forefront of digitization,” said Genmark. “Web Manuals 8 paves the way for the future.”

In the U.S., demand for document digitization has “rocketed,” championing a 17 percent increase in Web Manuals’ stateside customers since the beginning of 2019. Business aviation is leading the charge for digitization in the region, according to Web Manuals—nearly two-thirds of its 69 U.S.-based customers operate within the sector. “The digitization of American business aviation has, this year, truly taken off. To increase our U.S. client base by almost a fifth proves that, industry-wide, people are embracing digital transformation,” Genmark concluded.

Web Manuals has offices in New York and San Diego, giving American customers an extensive support system to call on. The company maintains is headquarters in Europe, where it still has its largest client base. Web Manuals’s global client base now numbers 250 customers, a 35 percent increase since last year’s NBAA-BACE.

Web Manuals 8 has the capacity to incorporate additional languages into the user interface, which Lidgard said shows the company’s “commitment to ensuring our international customers continue to find digitizing their existing documents a stress-free and seamless experience.”

Aspirations are to add 10 new languages, and these will be added as demand grows. Initially, English and Spanish will be available with the update.

Also on the horizon is expansion into the Canadian market in 2020, possibly with a local partner, and to install the Canadian regulations in its Compliance Libraries within the Web Manuals application.
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Preowned bizjet values rise for first time in a decade

by Kim Rosenlof

The preowned business jet market has finally rebounded from its decade-long decline following the global economic downturn of 2008/2009, according to Michael Dwyer, managing partner of aircraft brokerage, appraisal, and consulting firm Guardian Jet. While the ultra-long-range jet market began recovering about five years ago with sales to high-net-worth individuals traveling to and from emerging markets in Asia and South America, last year saw recovery for the entire pre-owned market, Dwyer said.

“The overall pre-owned market took a bump up in 2017 when the U.S. passed bonus depreciation and that carried over to 2018,” Dwyer told AIN this week at NBAA-BACE 2019. “So 2018 was a record-setting year for a lot of brokers and it was the first year that we saw a strong recovery of the midsize and light jets in addition to the ultra jets.”

Recovery means aircraft values have now stabilized and in some cases are going up as inventories begin to shrink. Dwyer noted that preowned Gulfstream G550s, Falcon 7Xs, and Global 5000/6000s are especially in high demand as many first-time jet buyers who are moving up from chartering light and midsize jets are buying super-midsize and larger jets.

“Some of the ultra-long-range equipment is seeing a very healthy rebound because of the pricing of new aircraft,” said Dwyer. “A decade ago, a new G550 at $40 million to $50 million was as much money as you could spend on a new aircraft—it was top of the line. Now if you look at the Gulfstream lineup, a $45 million aircraft is about the fourth most expensive in the lineup, and a preowned $15 million to $25 million G550 is an incredible value.”

While aircraft interior appearance is important when selling an aircraft, tasteful earthy tones still favored among most buyers, Dwyer said buyers are generally more interested in connectivity options than the aircraft cosmetics.

“You have very sophisticated charter and fractional customers that are demanding connectivity in the back of the aircraft,” he pointed out. “As long as the cabin looks new and everything works, for the first-time buyer it’s all about the cabin management system, internet connectivity, and the entertainment system.”

Embraer Executive Jets will relocate its Legacy and Praetor business jet production within Brazil as a result of the pending commercial joint venture with Boeing.

Embraer moving Praetor, Legacy lines, Florida final assembly will remain

Embraer Executive Jets’ (EEJ) president and CEO Michael Amalfitano gave a preview of what the company will look like after its commercial aircraft joint venture (JV) with Boeing receives EU anti-trust approval. At the Brazilian airframer’s press conference on Monday at NBAA-BACE, Amalfitano said the company’s site at São José dos Campos, Brazil—where the production line for its Legacy and Praetor midsize and super-midsize jets are located—will be going to the commercial JV.

So EEJ is relocating the work to Gavião Peixoto, Brazil, where it manufactures the KC-390 military transport twinjet.

“We’re currently in the process of moving the tooling and production to Gavião Peixoto,” Amalfitano said. “It’s a fantastic opportunity [with] one of the longest runways in the world. So that’s where we will start the process for bringing the product to Melbourne (Florida) for final assembly and delivery to our customers.”

News Clips

Avinode Integrates FlightBridge With Schedaero

Avinode is integrating its Schedaero flight operations system with the company FlightBridge travel management platform. The company said the move will allow FBOs, corporate flight departments, operators, and pilots to seamlessly manage trip services—including reservations for hotels, cars, and catering—in one place.

According to Avinode (Booth C6564), the integration of the two platforms will reduce the time it takes operators to copy data from one system to another by auto-populating trip information, streamlining workflows, and reducing the potential for human error. “This industry relies heavily on emails, and when last-minute schedule changes happen it’s a real challenge to keep all parties on the same page,” said Schedaero executive v-p Johan Sjöberg. “Our vision is to streamline this process and allow users to update their data in one place [so that] the rest happens automatically.”

Charter operator Latitude 33 Aviation has been beta-testing the new Schedaero/FlightBridge combination. “In FlightBridge, we love that we can find and compare different rental car companies with prices in just two minutes,” commented charter sales manager Shana Hoerrike. “We can choose the best option at the best price quickly and then all the information gets pushed back to Schedaero immediately.”

Flightdocs Partners With Cirrus

Flightdocs (Booth N4409) is partnering with Cirrus Aircraft to use the Flightdocs Enterprise maintenance platform, including Fd I Operations, to support all Cirrus SF50 Vision single-engine jets enrolled in the OEM’s Jetstream warranty and ownership program. Flightdocs launched Fd I Operations in August after a four-month beta-test program with 15 flight departments, including Cirrus Aircraft Flight Operations. Cirrus went live with the program in August and is currently using it with more than 100 aircraft, 200 pilots, and several flight simulators.

“As the worldwide fleet of Vision Jets continues to grow, we needed a platform that would give us real-time insight into the maintenance status of the entire fleet,” said Travis Klumb, Cirrus executive director of customer support. “Our customer service and engineering teams are able to utilize the intuitive dashboards and detailed reporting within Flightdocs to better support our customers and enhance the overall ownership experience.”

Amstat Reveals New Aircraft Valuation Tool

Amstat (Booth N262) is demonstrating its new aircraft valuation tool and its Amstat for Salesforce app this week at NBAA-BACE 2019. The company will host two breakout sessions on Wednesday in convention center room N239, where it will demonstrate the aircraft valuation tool (AVT) from 11 a.m. to 12 p.m. and the Amstat for Salesforce app from 2 p.m. to 3 p.m.

AVT, developed in partnership with Vangas Aviation Services, calculates real-time aircraft values. “AVT now objectively and statistically calculates these values based on decades of historical market activity and aircraft price paid data,” said Amstat general manager Andrew Young. “This is a first for Amstat and the industry and we are excited to showcase this at NBAA.”

Amstat for Salesforce was first released in January. It streamlines the workloads for aviation sales professionals and customer relations managers working with both Amstat and Salesforce. Version 3.0 of the app expands aircraft content. At NBAA-BACE, Amstat also is demonstrating recent updates to its Amstat Premier service, including a new customizable dashboard, expanded aircraft tracking histories, updated ADS-B data by serial number, and expanded make and model coverage.

Founded in 1982, Amstat provides market research information and services to the business aviation industry.

Astronics Showcasing Million-Miler EVS

At NBAA-BACE 2019 Booth C1617, advanced technologies provider Astronics Corporation is displaying a Max-Viz Enhanced Vision System (EVS) that logged 1.1 million nautical miles in flight. The Astronics Max-Viz 660 EVS unit was recently retired after performing flawlessly on a Cessna Caravan flown by Industrial Maintenance Management Services for more than 10 years.

First launched in 2001, the Astronics Max-Viz EVS uses thermal imagery based on infrared sensors that can detect temperature changes of less than one-tenth of a degree Celsius. Proprietary technology combines signals from visible light sources with signals from infrared sources to provide a clear, live video image of the surrounding area at night or in poor visibility.

Collins Offering Digital Oceanic Plotting

Collins Aerospace (Booth C10808) is displaying the business aviation industry’s first digital oceanic plotting chart, available on the company’s Avionics Direct iPad app, this week at NBAA-BACE 2019. The digital chart is available to all Avionics Direct subscribers at no additional cost.

The chart includes live equal time points (ETPs), which update bearing, distance, and arrival time constantly throughout the flight. Live ETPs are computed and updated for any scenario, including engine failure, depressurization, and medical emergency, thereby eliminating the need for manual computations.

“This new capability brings our industry one step closer to all-digital operations. In a world where apps are a part of daily life, it only makes sense to make this happen for flight operations,” said Leann Ridgeway, v-p and general manager for information management services at Collins Aerospace.
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OPEN UP THE BOARDROOM
Naples Aviation is bustling

by Chad Trautvetter

Year-round warm weather, white sandy beaches, and sophisticated dining, shopping, and culture, along with the recent U.S. tax law changes, have attracted high-net-worth individuals—and their private jets—to the Southwest Florida city of Naples. “Naples still has that small-town charm but provides plenty of amenities and allows visitors to remain low profile,” said Naples Airport Authority executive director Chris Rozansky. “And the recent tax changes are also driving a population shift from high-tax states to lower-tax ones like Florida.”

Naples Aviation (exhibiting with Avfuel, Booth N4123), the sole full-service FBO operated by the airport authority at Naples Airport, is benefitting from this population shift, with year-to-date aircraft traffic surging by more than 10 percent, said FBO manager Mike Hushek. In 2018, the GA-only airport averaged more than 9,000 operations per month and totaled 110,000 for the year; this year, it is averaging 10,000 per month and had logged 90,000 through the end of July. That dwarfs airline operations at nearby Southwest Florida International Airport, which logged about 82,000 movements last year.

As for most Florida destinations, the peak season in Naples is from Thanksgiving to Easter, though Rozansky said it “seems to be extending through Memorial Day.” But its absolute peak day is December 26, when the airport can see more than 500 movements, with upwards of 150 aircraft—mostly business jets—parked on the ramp overnight.

To handle this amount of traffic during peak season, Naples Aviation—known as Naples Airport Authority before the facility was rebranded late last year—scales up to more than 60 employees during the winter months. All staff members receive both Avfuel and NATA Safety 1st training. And the staff was recognized by NATA for its excellence in May, with Hushek receiving the association’s Future Leadership Award. The Safety 1st Line Service Professional of the Year Award went to Naples Aviation line duty officer Scott Seber.

It is also well equipped to accommodate the influx of general and business aircraft during these peaks, with 10 aircraft refueling trucks (eight dedicated to jet-A), six 28.5-volt GPUs, two 60-KVA ground-power units, air start and air conditioning cart, and Lekstro 8850 tugs.

The Avfuel-branded facility also has a 200,000-gallon fuel farm, helping to ensure it doesn’t run low on fuel on the busiest of days. Besides its large fleet of fueling trucks, Naples Aviation also has two avgas self-serve tanks available. It offers volume fuel uplift discounts, AvFuel Contract fuel, and AvFuel AvTrip points. The FBO, which specializes in quick turns, is the exclusive fuel provider at the airport.

Naples Aviation is the sole full-service FBO at Naples Airport and handles more than 110,000 general aviation aircraft each year.

Naples Aviation’s two-story, 19,000-sq-ft general aviation terminal includes a passenger lounge with refreshment bar, business center, conference room, fitness center with showers, crew lounge with snooze room, and flight-planning room. Amenities include eight crew cars, on-site rental cars (Go Rentals year-round; Avis, Hertz, and National during peak season only), and a ramp-side concierge cart for more efficient quick turns. It also offers a full range of aircraft services, 208 T-hangars, and bulk hangar storage.

Additionally, on-site U.S. Customs services are available daily from 10:30 a.m. to 7 p.m., with after-hour services incurring an additional fee. Last year, 1,300 aircraft cleared U.S. Customs at Naples Airport, through the end of July, 1,200 aircraft did so this year, Hushek said.

Notably, Rozansky said, “The airport is 100 percent self-sufficient, and all FBO profits go back into the airport,” which celebrated its 50th year operating under the airport authority in July. “Since then, all funds used for the airport’s operation, maintenance and improvements have been generated from activities at the airport or from federal and state grants; the airport receives no property tax dollars. The Florida Department of Transportation values the airport’s economic impact to the community at more than $440 million annually.”

Rozansky and his team are currently updating the airport’s master plan, which he said will include modernization of the general aviation terminal and additional hangars to accommodate future traffic growth. Since this is just in the planning stage, there are not yet any concrete designs.
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Daher’s (Booth C13112, IS12) new $4.13 million TBM 940 is making its NBAA-BACE debut this week. The aircraft is the first turboprop weighing less than 12,500 pounds to be equipped with a standard, factory-installed integrated autothrottle and automatic deicing.

According to Daher airplane business unit senior v-p Nicolas Chabbert, “The aircraft’s new features represent a further evolution of our TBM e-copilot concept, providing assistance in single-pilot operations.” The e-copilot system, available on the earlier TBM 930 and the current-production 910, uses guardrails built into the Garmin autopilot to maintain flight within the design envelope, automatically using pitch and bank-angle inputs to protect against excessive bank angles, speed departures, and hypoxia incapacitation; when cabin altitude exceeds 11,500 feet the emergency descent mode (EDM) automatically activates.

The Garmin autothrottle system on the 940 adds to e-copilot’s capabilities, using software that analyzes aircraft condition (angle of attack, density altitude, airspeed, and aircraft configuration, including flap and gear extensions) to automatically control engine power to produce a selected, safe airspeed. The 940 also gets a few modest cabin improvements such as more cabin sidewall insulation and additional 115-volt and USB ports. Chabbert has described the order book for the 940 as “brisk.”

Updated, but True to Roots
The TBM 700 first flew in 1988 and was certified in 1990. Since then, Daher has made significant cabin improvements on new-production TBMs, including restyled and heated seats. Other improvements include better environmental controls, vapor-cycle air conditioning, avionics upgrades, a small beverage cabinet, a wider main cabin entry door well-suited for loading outsized cargo, and an optional separate forward pilot’s door.

With the advent of the 900 model in 2014, the aircraft received a host of aerodynamic improvements, including a quieter five-blade propeller, curved winglets, and a redesigned engine cowl and inlet crafted of carbon fiber that reduces drag and boosts cooling. The previously optional pilot exterior door became standard and its construction was much improved. In total, the changes added 10 knots to cruise speed (330 knots at 28,000 feet), improved runway and climb performance, and extended range to 1,730 nm.

In 2016, Daher announced an “Elite Privacy” option for the aircraft that provides an electric flushing lav shielded in a pop-up surround with a privacy screen and an illuminated mirror. For the 2018 TBM 930 and 910, Daher added cockpit enhancements, including a backlit center console, new power and flaps levers, and override controls. The pilot’s oxygen mask also received a new high-fidelity microphone and standard color options were expanded. Through the end of 2018, Daher delivered 267 TBM 900-series airplanes.

Earlier this year Daher released the latest version of its Me & My TBM app, which adds new system parameters and flight analysis feedback features including aircraft status (fuel, oil, and battery voltage), flight reporting/enhanced logbook that provides a detailed flight analysis from engine start to shutdown, an analysis of landing approaches, computerized maintenance tracking, a direct link to product support, and the ability to share flight data on social media. All TBMs delivered since January 2018 are outfitted with wireless flight data retrieval and transfer compatible with the Me & My TBM app. Earlier-production TBMs can use the Bad Elf Wombat portable SD card reader to wirelessly transmit data for the app.

Also this year, Simcom fielded the first FAA-certified Daher TBM 910 simulator at its Scottsdale, Arizona training facility. The 910 is equipped with Garmin G1000 NXI digital avionics as opposed to the Garmin 3000 system in the TBM 940. The new simulator joins Simcom’s existing fleet of simulators for the TBM 700, 850, 900, and 930 at its Orlando, Florida training facility.
Gulfstream continues to expand its MRO footprint

by Chad Trautvetter

Gulfstream Aerospace (Booth 9908, SD606) recently officially opened a 202,000-sq-ft (18,766-sq-m) MRO facility expansion at its Savannah, Georgia headquarters as part of a wider initiative to further bolster its owned service center network. Located on the east side of Savannah/Hilton Head International Airport, the new $55 million building gives Gulfstream more than one million square feet of dedicated MRO hangar, office, and back shop space in Savannah alone.

“We are very excited about this expansion, which follows the recent entry into service of the G500 and G600,” said Gulfstream president Mark Burns. “To help ensure those aircraft and the rest of our growing fleet continue to have the best service and support in the industry, we built and staffed this facility.”

The expansion was announced in April 2018 and is expected to result in approximately 200 customer-support-related jobs over several years, some of which will be filled by graduates of Savannah Technical College’s aviation technology branch. The new Gulfstream East Campus offers operators a range of services, including aircraft-on-ground resources, hourly and calendar-driven airframe inspections, avionics installations, and interior refurbishments.

This move comes on the heels of Gulfstream’s completion of a service center expansion in August at its facility in Appleton, Wisconsin. It also has another service center opening scheduled for later this or early next year in Van Nuys, California.

Meanwhile, Gulfstream and sister company Jet Aviation broke ground this spring on an expansion of the latter’s FBO at Palm Beach International Airport in Florida. The addition, on the northwest side of the airfield, consists of a new 40,000-sq-ft hangar and 10,000 sq ft of tenant office space, plus a new 30,000-gallon-capacity fuel farm. As part of the joint project, Gulfstream is adding a new service center at the location, including a 115,000-sq-ft hangar. Both facilities are expected to be operational in the first quarter of next year.

In total, the aircraft manufacturer will have completed three service center expansions and opened two new service centers in 2019 and 2020, adding approximately 790,000 sq ft of dedicated MRO hangars, offices, and back shops in the U.S. and Europe that can service the 2,800-strong worldwide Gulfstream fleet.

“Our customers choose to return to Gulfstream facilities for their service and support because they value the relationship and expertise only we can provide,” said Burns. “By increasing the number of maintenance facilities and combining them with our fleet of rapid-response vehicles and Gulfstream field and airborne support teams technicians, we’re offering our customers more service and support options, more accessibility, and more flexibility.”

Gulfstream’s Savannah MRO operations are certified by the FAA, EASA, and China CAAC, as well as 20 other civil aviation authorities. Last year, Gulfstream’s nearly 680,000-sq-ft Savannah service center—the largest business aviation-dedicated MRO facility in the world—logged more than 1,500 aircraft visits.

Gulfstream Aerospace’s new East Campus service center adds 202,000 sq ft of MRO hangar and shop space at its headquarters in Savannah, Georgia, giving it more than one million sq ft of shop space at Savannah/Hilton Head International Airport.
Dassault continues to invest in Saudi Arabia and elsewhere in the Gulf Cooperation Council (GCC) region to improve and expand its product support network, its leading Middle East-based official said in the run-up to the NBAA Convention. “We have opened a new engineering office in Cairo to support the growing number of Falcons operating in the [Middle East] region. Falcon customers have access to an authorized service center, spares distribution center, and regional sales office in Dubai, and an authorized service center in Jeddah, Saudi Arabia,” said Renaud Cloatre, Dassault’s Middle East regional director. In January, Dassault Aviation announced its acquisition of the worldwide maintenance activities of ExecuJet, a Luxaviation subsidiary. “Dassault focuses on maintaining and increasing market share in the kingdom by proactively supporting customers in Saudi Arabia, providing customer services and technical support, including maintenance, repair, and overhaul, following the acquisition of ExecuJet’s MRO business, which will provide regional support in the facility in Dubai,” Cloatre said.

“We are looking ahead to an improving market in the next [six] months for new aircraft sales with significant aircraft replacement opportunities.” Dassault had its Falcon 8X demonstrator on display at the Saudi Airshow at Al Thumamah Airport, Riyadh, in March, with the aircraft turning heads on its departure. “The Falcon 8X flagship is now in its third year in service in the Middle East,” he said. According to JetNet Evolution data provided to AIN last year, there were eight Falcons in the Saudi business aviation fleet: one 900EX, two 900s, two 7Xs, and three 2000s. “In addition to this list, there are also a significant number of other Falcons based outside the Kingdom,” he said. "Large-cabin Falcons account for nearly one-third of the 76 Falcons operating in the Middle East, and for almost half of new Falcon deliveries. Falcon business jets, including the new Falcon 8X trijet and the Falcon 6X, are designed to meet this growing demand for large-cabin aircraft—both are receiving very positive feedback, and orders, from the region,” Cloatre said.

“Development of the 6X has entered the detail design phase and the program is on track for initial deliveries in 2022,” he said. “The Falcon 6X has the largest cross-section in the industry, an outstandingly quiet cabin, and numerous innovations, including a new generation of digital flight controls, and represents the ultimate example of what technology can deliver in terms of comfort and safety.” Bombardier appears set to challenge the recent dominance of the Middle East bizjet market by rival Gulfstream with the Global 7500. (Gulfstream’s position was underlined in July when Qatar Executive increased the size of its total Gulfstream order book to 48 aircraft.) “The business aviation market in Saudi Arabia, which will continue to grow, remains an important one for Bombardier Business Aircraft,” said spokesman Matthew Nicholls.

“With the entry-into-service of the flag-ship Global 7500, and the recently certified Global 5500 and Global 6500 [both received Transport Canada certification in late September], Bombardier has positioned itself with the most sought-after products in business aviation, ideally suited for the needs of customers in Saudi Arabia.” He said strong appetite for the Global 7500 exists in the Kingdom. “The Global 7500, and other aircraft in the Global family, perfectly align with the needs of customers in the Middle East, as cities in the region and destinations in key European financial markets are separated by large distances.” Bombardier doesn’t provide a breakdown of its fleet by country, but we have a solid presence in the Middle East,” he said. “Since 2010, there have been 144 business jet deliveries in the region, 36 of which were from Bombardier, representing a market share of 26 percent.”

In line with King Salman’s 2030 Vision for Saudi Arabia in creating a diversified economy that doesn’t fully depend on oil, business aviation is one sector that is rapidly expanding. Nicholls said. “There are more than 100 business jets operating in the region and a large portion of these are based in Saudi Arabia. The government is acknowledging the importance of this sector and working to develop the aviation infrastructure. “For Bombardier, the Saudi market is one of the most important and promising markets in the region, and with the development of the long-range Global 5500, Global 6500, and Global 7500, it means customers here will benefit from the incomparable comfort and range to connect the Saudi business community to the world,” he said.

“Saudi Arabia is opening its doors to encourage people to visit and see what the Saudi market has to offer, be it business or leisure opportunities. This will have a very positive effect on the overall Saudi market.”

Embraer is keen to capitalize on the Praetor opportunity in the kingdom in the next 12 months. “This year has been stable for Embraer [in the Middle East], and we take the view that there will be a small recovery in 2022, with oil prices stabilizing and the Saudi economy recovering,” a Europe-based Embraer spokesman told AIN. “We have seen good interest in the Praetor variants, driven particularly by the aircraft’s capability to fly nonstop from Jeddah or Riyadh to London.”

Gulfstream has appointed the Al Khoobar, Saudi Arabia-based Zedan Group its commercial and governmental sales representative in the region. According to its website, the Zedan Group has interests in Saudi Arabia across operating companies, oil, gas, and petrochemicals, infrastructure, industrial trading, maritime, and investments. Its primary focus is “to serve the growing requirements of infrastructural developments within the Kingdom of Saudi Arabia.”

“Saudi Arabia has been an important market for Gulfstream since the 1960s and continues to be a strong market today,” a Gulfstream spokesperson told AIN. “Of the nearly 100 Gulfstream aircraft based in the Middle East, more than 40 of them are based in Saudi Arabia, and we are optimistic about sales in the region.”

Gulfstream’s Middle East share will grow further as Qatar Executive takes delivery of its orders.
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Bombardier looking back

November 2018
Bombardier Business Aircraft’s flagship Global 7500 received FAA certification on November 7, with service entry planned by year-end. The 7,700-nm, four-zone business jet gained Transport Canada’s nod on October 1, with EASA approval still pending.

Certification comes some eight years after Bombardier unveiled its longest range and largest business jet to date. While the program incurred a two-year delay to accommodate a wing redesign, certification follows a two-year flight-test program that included five aircraft that logged more than 2,700 flight-test hours. The results of that program enabled the company to boost range by 300 nm, opening up city pairs such as New York to Hong Kong, and to confirm a published takeoff distance of 5,800 feet.

April 2019
Deliveries at Bombardier Business Aircraft softened in the first quarter as the manufacturer ramps up Global 7500 production and works to bring the Global 5500 and 6500 to market later this year. Meanwhile, though, the manufacturer maintained its guidance of 150 to 155 business jet deliveries for the year and experienced strong order intake.

While deliveries declined by nearly 25 percent in the first three months, the revenue dip was much less, possibly reflecting the initial deliveries of its ultra-long-range Global 7500 flagship. Bombardier anticipates delivery of 15 to 20 of the $73 million jets this year, with shipments weighted more toward the second half.

February 2019
Bombardier checked off another key approval for its flagship Global 7500 with European Union Aviation Safety Agency (EASA) validation, the company announced. EASA approval followed Transport Canada type certification in September and U.S. FAA approval in November.

The aircraft officially entered service with the delivery on December 20, a little more than 24 months after the first flight of FTI. The test program validated a 300-nm range extension, pushing it past rival Gulfstream’s 7,500-nm G650ER.

Bombardier, which said the Global 7500 now is selling into 2022, plans to deliver 15 to 20 Global 7500s this year, with the rate doubling to around 35 to 40 in 2020.

March 2019
Bombardier once again captured the title of the most delivered multi-engine business jet in 2018, handing over 60 of its Challenger 3500. Last year was the second year in a row that Bombardier claimed that mark, handing over 56 of the model in 2017.

The Challenger 350 deliveries represented 58 percent of the super-middle segment: the company added. Both Challenger types were on the upswing in 2018. Not only did Bombardier hand over four additional 350s in 2018, but the Canada-based manufacturer also delivered two more of its Challenger 650s for a total of 23 in the year. The airframer further began deliveries of its flagship Global 7500 in December.

May 2019
HK Bellawings Jet revealed that it has exercised options for two Bombardier Global 7500s for which it signed initial agreements a year ago. The Hong Kong-based aircraft management company also signed a new letter of intent for another five Global 7500s.

Bellawings is a business jet charter and management provider and also provides maintenance, acquisition, consulting, and travel concierge services.

July 2019
Bombardier announced the Learjet 75 Liberty as its newest offering in the stoned business jet brand. It’s “a rescued aircraft that’s going to be cost-competitive from an operating cost perspective but also purchase cost perspective with Part 23 light jets,” Bombardier Business Aircraft spokesman Mark Maskuch told AIN. To accomplish this, the Liberty will have fewer seats and options than the original Learjet 75, shaving about $3 million off the price tag while keeping the performance, the Canadian airframer said.

At $9.9 million, the Liberty sheds two seats in the forward cabin—for a total of six seats—replaced by two fold-down ottomans and fold-out tables, creating what it calls the “executive suite” for the two remaining seats in the forward section of the cabin, which is separated from the cockpit by a sliding pocket door. In the aft cabin, the four remaining seats are placed in a club configuration.

The jet retains its 51,000-foot ceiling and its two Honeywell TFE731-46BR engines, each with 3,850 pounds of thrust. High-speed cruise remains Mach 0.79 but range improves by 40 nm to 2,080 nm with NBAA IFR reserves. Also standard on the Liberty is the Bombardier Vision flight deck with the recently announced upgrade to the jet’s Garmin G5000 avionics, as well as Gogo ATG 4G wireless connectivity. Deliveries are expected to begin in 2020.

August 2019
Second-quarter revenues at Bombardier Business Aircraft increased 6 percent year-over-year to $1.38 billion as the company delivered 35 business jets, up one unit from a year ago, parent company Bombardier announced. Earnings, however, fell 22 percent, to $84 million, mainly due to production ramp-up of its flagship Global 7500.

Aircraft shipments in the three months that ended June 30 consisted of two Learjets, 17 Challengers, and 12 Globals, compared with two Learjets, 20 Challengers, and 12 Globals in second-quarter 2018. According to Bombardier president and CEO Alain Bellemare, two Global 7500s were delivered in the second quarter, bringing the year-to-date tally to three. He said the company will hand over a total of 15 to 20 Global 7500s by the end of the year and will further ramp up production of the 7,700-nm twinjet next year.

Bombardier Aviation president David Coleal (left) and HK Bellawings president YJ Zhang sign a firm order for two and options for another five Global 7500s.
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FSI: cabin safety training is not just for crewmembers

by Curt Epstein

While corporate and Part 135 flight crewmembers are typically required to take cabin emergency training on a periodic schedule—usually every two years for pilots and every year for flight attendants—for the past several years FlightSafety International (Booth C10625) has been offering a similar program to corporate executives and their assistants, as well as aircraft owners and their families. AIN was recently invited to participate in one of the classes.

The three-hour session was held at the company’s Teterboro, New Jersey training center, one of only five in its network (along with Savannah, Dallas, Long Beach, and Paris) to offer cabin safety training as part of its curriculum. According to Ronald Clements, Teterboro center’s cabin safety program manager, the executive version of the course is given at his facility four or five times a year, with similar numbers at the other locations.

It begins in an upstairs classroom with a brief introduction, followed by an assessment of the various classifications of fires that might be encountered on board an aircraft and how to combat them. Typically, the course instructor will have made a visit to the company’s or individual’s flight department ahead of the scheduled course date, or at the very least spoken with its director of maintenance, to take an inventory of what specific emergency equipment their aircraft is stocked with. Armed with that information, FlightSafety gathers examples of those particular items from its collection and has them on hand in the classroom to provide hands-on familiarity.

With the prevalence of personal electronic devices, dealing with rechargeable batteries in thermal runaway now merits its own close scrutiny, and Clements detailed how an immediate, aggressive response to this emergency is required, first by knocking down the flames, usually with a Halon fire extinguisher, and then cooling the device with liquid. If the aircraft is equipped with a fire containment bag or box, a similar example will be present in the classroom as the proper procedures for its use are explained.

Other equipment demonstrated included smoke hoods, as approximately 40 percent of business jets are currently equipped with them, and portable oxygen bottles for passengers.

Putting Learning to the Test

The next stop was downstairs in the cabin simulator. Made from the fuselage of a former Gulfstream GII, with video screens outside each window giving the illusion of flight (or a crash landing depending on the program selected), it is used for a variety of purposes, including teaching cabin service with real catering for flight attendants. But in this case its mission was emergency evacuation. It is equipped with overwing exits corresponding to those on Bombar
dier, Dassault and Gulfstream aircraft, and Clements demonstrated how the windows are removed in preparation for an emergency escape. On occasion, the course is taught at the customer’s home base, scheduled to coincide with inspections of the actual aircraft’s emergency exits, providing participants with the opportunity to remove the real window panels.

The simulator is equipped with functioning drop-down oxygen masks for decompression training, and each seat has an inactive inflatable life vest in its compartment underneath. During several scenarios, accompanied by appropriate imagery on the video screens, Clements played the role of crewmember, demonstrating the proper brace position for an emergency landing, and then had me wait for the signal to unbuckle, move to the window exits, scan for obstructions, remove the window, and exit. Also demonstrated was how to operate the main cabin door and airstairs. The training is particularly helpful for Part 91 passengers, where, depending on their personal or company preference, the pre-takeoff safety briefing is not required before every flight.

Clements explained the differences between a planned emergency landing and an unplanned crash, giving examples of the types of cabin preparation that can be done with advance warning, such as a ditching at sea. Valuable emergency supplies such as uneaten catering and water bottles can be gathered, along with emergency equipment such as flashlights, blankets, and the airplane’s medical kit. Given enough time, passengers are even told to change their clothing to garments made from natural fibers (if not wearing such already) as added protection in case of fire.

He then demonstrated the preparation of an inflatable life raft, showing where it is stored, how it is unpacked, and how it is fastened to the aircraft by a tether before being pushed out of the overwing exit and inflated.

In addition to providing familiarity with this equipment, the training also helps turn the course participants into “force multipliers,” allowing them to become a resource for the flight crew in case of emergency. “Another takeaway is encouraging a conversation between crew and passengers unique to that model aircraft,” said Clements, “unique to the captain’s preference for what their role can be in emergencies.” Before joining FlightSafety, Clements served as a flight crew member in the military, and he noted similarities in the unique dynamics that can occur in an aircraft environment during an emergency. While the flight crew may be considered employees and subordinates of the company CEO or high-net-worth individual they are transporting, the passengers, much like the high-ranking officers Clements was responsible for during his service days, must understand that they need to obey the instructions of the flight crew in an emergency.

We then ventured forward to the simulator’s cockpit. He demonstrated how, in case a pilot becomes incapacitated, passengers can assist by allowing the remaining pilot to concentrate on flying the airplane, while they help by securing the ill pilot’s harness and applying the easy-don oxygen mask.

Using an oxygen tank equipped with such a mask, Clements demonstrated what breathing supplemental oxygen is like at altitude during a decompression event, and explained that flight crew members may not be able to speak to issue instructions under those circumstances.

Clements presented those scenarios to introduce the customers to the concept of crew resource management, which he describes as “adults playing well together under duress in an expensive confined space with limited time and resources.”

Last, for some in-cabin fire fighting practice, I was handed a simulated fire extinguisher. When activated, it emitted a laser-pointer-like beam, which interacted with a device that was hidden somewhere in the cabin. On cue from Clements, smoke began issuing from a floor-level storage cabinet at the back of the fuselage, along with flickering orange and red lights. I grabbed the extinguisher, pulled the pin as shown, and headed back to fight the mock blaze. Once the laser beam made contact with the sensor at the base of the device for the prescribed amount of time, it “extinguished” itself.

In the parking lot behind the building, I got a taste of the real thing, using a water-filled extinguisher to fight a propane-fueled fire, while keeping the mantra of PASS (pull, aim, squeeze, and sweep) in mind. This part of the training falls under the heading of what Clements described as life skills: abilities that could be of use outside of the aircraft as well.

Preparing for a Water Landing

The Teterboro facility is one of only two in the company’s system with its own swimming pool (the other locations that provide cabin safety training will contract with outside pools), and that was our next destination for water landing and rescue drills. I was given a jump suit and directed into the well-equipped locker room to change. On one side of the pool area was a display of the various survival items to be found in a life raft, again augmented by the inventory of the customer’s actual aircraft. Clements demonstrated the use
of emergency equipment such as signaling mirrors, water desalinators, and one of the newer additions to the survival equipment roster, laser flares, which are less dangerous and longer-lasting than the former pyrotechnic variety.

FlightSafety uses Winslow life rafts, and according to Clements, the company has an upwards of 80 percent market share in the corporate aviation market. For the first task, he placed an inflated 12-person raft upside down in the water and explained how to right it. I braced my feet on one of the loops hanging off the side of the raft and grabbed a similar loop on the underside of the raft and leaned back, using my body as a counterweight to flip the raft.

We then moved to the “ditcher.” Meant to resemble an aircraft fuselage, it is actually a large fiberglass storage tank, suspended at both ends above the pool on a lift similar to those found in an auto repair shop. Exits and windows are cut into the sides, and several boat chairs are bolted to the floor. It looked rather benign as I entered it, donned an inflatable life vest, and took a seat, but as the simulation started, things became real when water began flowing up through the floor and swirled around my legs as the simulator settled into the water. When Clements gave the evacuation order, I stepped out onto the wing platform, and as previously advised, inflated my life vest by pulling down on the handle.

The pool area had changed. The bright overhead lights were now dark and sprays of water from sprinklers added to the illusion of a ditching at sea. I jumped off the platform, and unaccustomed to the sensation of wearing a tight, highly-inflated life vest, awkwardly followed the umbilical strap to the tethered life raft.

I will admit I encountered some unexpected difficulties hoisting myself up from the water and over the two-foot-high side of the raft, even with the rope ladder. Some due to the encumbrance of the vest, some due to my groping to find a proper handhold amidst the spray, and some to being tangled in the umbilical strap (which would remain tethered to the aircraft until subject to 500 pounds of pressure, or manually cut), but I eventually flopped over into the raft like a landed fish. Clements soon joined me and described the safety features of the raft, and where survival equipment would be stored.

For the last part of the training, a hoist suspended over the pool is used to simulate helicopter rescues. I swam away from the raft and entered a metal lift basket attached to the cable, after being shown the proper position. I was then lifted out of the water and lowered back down. That process was repeated two more times, each time demonstrating different lifting equipment that might be encountered on the end of the rescue helicopter’s hook, such as a sling or a lifting chair.

After changing back into street clothes, I finished the program with a brief recap. One of Clements’s biggest surprises in his six years of instructing is seeing the differences in how people learn. He recalled how one CEO seemed utterly disinterested in the classroom lesson, to the point that he ordered the instructor to click swiftly through the slide portion, yet he became a highly enthusiastic participant in the hands-on portions, such as the cabin simulator. While some executives attend the course with no intention of getting wet, Clements said they usually have a change of heart when they see the ditcher, and the company keeps spare bathing suits on hand for just such occasions.
January 2019
Luxaviation is divesting the global business aircraft maintenance activities of its ExecuJet subsidiary to Dassault Aviation, the companies announced. Financial terms of the transaction were not disclosed. After obtaining the necessary approvals, ExecuJet’s network of 15 MRO centers across Africa, Asia-Pacific, the Caribbean, Europe, Latin America, and the Middle East will be gradually integrated into the structure of the French aircraft manufacturer in 2019.

The purchase builds on the growing trend of OEMs to become de facto in-service support providers and earn more revenue through after-market services.

Dassault Aviation chairman and CEO Eric Trappier said the acquisition of ExecuJet’s MRO operations will strengthen the group’s global footprint, especially in Asia-Pacific, Oceania, Middle East, and Africa.

March 2019
Dassault Aviation chairman and CEO Eric Trappier has seen a slight recovery in the business aviation market, he said during a media briefing highlighting the company’s 2018 results. “It’s not a boom in this market because the world economy is uncertain, but the US, Europe, and Russia remain quite dynamic. And Asia, too, except China,” he explained.

Meanwhile, Dassault plans to deliver 45 Falcons this year, compared with 41 in 2018 and 49 in 2017. “We want to remain cautious in terms of production,” added Trappier. In 2018, Falcon net sales amounted to €2.6 billion ($2.96 billion), compared with €3 billion ($3.42 billion) in 2017.

Net Falcon order intake amounted to 42 aircraft last year (52 orders and cancellation of the last 10 Falcon 5Xs) versus 38 in 2017 (41 orders and three Falcon 6X cancellations). Total 2018 net sales amounted to €5.08 billion ($5.78 billion), compared to €4.87 billion ($5.54 billion) in 2017, with an operating income of €669 million ($761.56 million), up 87.4 percent year-over-year.

February 2019
The FAA and EASA granted certification for operational credit for low visibility approaches to 100 feet in Dassault Falcon 900LX, 2000LXS, and 2000S jets equipped with the FalconEye combined vision system (CVS). The 100-foot credit was certified last year on the Falcon 8X.

The FalconEye CVS, the first such system to be certified, allows both infrared and low-light camera-based enhanced vision system (EVS) and database-driven synthetic vision system (SVS) imagery to be displayed at the same time on the head-up display (HUD), but the images are not overlaid. FalconEye allows the pilot to adjust a horizontal split line between EVS and SVS, moving the line up or down. The HUD combiner depending on the particular outside environment. An EVS conformal runway clear zone around the airport always remains visible to the pilot, even if the airport is within the SVS split region.

Dassault expects to receive certification of a dual-HUD FalconEye configuration next year, and this will enable EFVS-to-land capability. The new capability allows pilots to fly an approach and land solely by viewing the runway environment through the HUD, without using natural vision to see the runway.

The FalconEye HUD is optional on the Falcon 2000LXS, 2000S, 900LX, and 8X and will also be offered on the 6X when it enters service in 2022.

The first Falcon 2000-series cockpit nose assembly made in India by Dassault Reliance Aerospace Ltd. (DRAL)—a joint-venture of Mumbai-based Reliance Infrastructure and Dassault Aviation—is now ready to be delivered. Assembled at DRAL’s facility in Nagpur, the nose section was to be ceremonially handed over to Dassault at the Aero India airshow in Bangalore before being shipped to a final assembly line in France.

DRAL’s facility is located in the special economic zone adjoining Nagpur International Airport. The foundation stone was laid 15 months ago “to manufacture several components of the offset obligation connected to the purchase of 36 Rafale Fighters from France, signed between the two governments in September 2016,” Dassault said. Presently, DRAL is slowly building up a supply chain in India having already awarded many of the approximately 2,500 components in the Falcon 2000’s cockpit section.

April 2019
Dassault Aviation delivered the first of three Falcon 7X trijets to the Commonwealth of Australia for use by the Royal Australian Air Force (RAAF), the French airframer announced. Powered by three Pratt & Whitney Canada PW307A turbofans, the 5,950-nm Falcon business jets will be used by the RAAF for government VIP service.

“We are extremely honored that Australia has once again demonstrated its confidence in the Falcon product line,” Dassault Aviation chairman and CEO Eric Trappier said. “The RAAF already has decades of successful experience operating Dassault aircraft, from the Mirage III fighter to the Falcon 20 and Falcon 900 business jets.”

Dassault delivered its first business jet in Australia, a Falcon 20, in 1967; two years after the type’s entry into service. The RAAF took delivery of its first Falcon 20 (then known as the Mystere 20) that same year, serving in transport and utility wing for more than two decades. It was replaced by a Falcon 900, the numbers of which grew to five in the RAAF fleet. Its Falcon 900 fleet operated through the early 2000s.

August 2019
After freezing the Falcon 6X design in May, Dassault now says its super-midsize jet program is well into the manufacturing phase and on track to complete assembly of the first aircraft by early next year. First flight is scheduled for 2021, with deliveries expected to start in 2022.

“Work is going full throttle at the Biarritz facility, where the aft section of the 6X fuselage is assembled,” the company said. “Later this fall, the complete fuselage will be delivered to Bordeaux-Mérignac for final assembly.”

Fuselage-panel production is at Dassault’s facility in Argenteuil, France, while wing-panel manufacturing is at Seclin.

Meanwhile, the Pratt & Whitney Canada (PW/LWC) PW812D engine that will power the 6X has accumulated more than 1,000 hours on a P&WC test bench in Montreal using five development engines. “The PW812D engine program continues to achieve milestones in line with the initial program plan,” Dassault Aviation chairman and CEO Eric Trappier said in May.
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A UNITED TECHNOLOGIES COMPANY
Jetex aiming for a lead role with its global FBO network
by Peter Shaw-Smith

Dubai-based trip-support and FBO services provider Jetex Flight Support (Booth N3023) is aiming to become the world’s largest FBO operator outside the Americas, after adding new facilities in Kansai, Japan, and Abidjan, Ivory Coast, and celebrating the 10th anniversary of its Paris Le Bourget facility, all in the past 12 months.

“Our target is clear: we want to build the biggest network outside North and South America, the biggest international FBO network outside the American continent,” Jetex’s founder and CEO, Adel Mardini, told AIN. On the eve of the NBAA convention, Mardini said that Jetex has 39 FBOs in operation worldwide and expects to open its 50th before the end of next year, a target he first referred to last year.

He said all 39 FBOs listed on the company’s website are operational. “[T]he service offering may vary depending on the airport. The services we offer at a small airport in [provincial] France are quite limited when compared with Dubai or Paris, for example. Some locations have 100 jet movements per year, others 15,000. It depends on the location. All of them have the same function: to facilitate private jet arrival and departure. We still plan to have 50 FBOs operational by the end of 2020.”

Jetex operates two FBOs in the U.S., at Opa Locka Airport near Miami, Florida, and at San Bernardino International Airport, California, but says it is not looking to take up further FBO opportunities in the U.S. instead looking to the Middle East or Africa, for example, but also wants other services: transportation, private villa, private butler, and concierge. These people are looking for a one-stop shop: from the airplane, to security, transportation, everything.”

Jetex’s IT system is on the verge of a full launch. “We decided a year ago to make a major investment in the company’s digital platform, which has been developing over the last 12 months,” he said. “The system is not ‘members only’; it is open to all customers on our database. They can apply for any service online. Whether they own a jet or not, they can apply for VIP services, and we have full capability. It will not open to everyone until the end of the year; it is still in the test phase.”

Jetex also provides private-jet owners and operators with a useful international perspective which it comes to advising on various facets of traveling to and from the U.S., such as border overflight exemptions, Customs and Border Protection (CBP) preclearance, and the Advanced Passenger Information System (APIS). In 2017, Jetex also weighed in to support the NBAA’s stance against the Trump Administration’s plans to privatize the U.S. air traffic control system.

Jetex also views the Canadian market as promising. “The U.S. market is still number one, but we also see growth in the Canadian market,” he said. “We offer full trip support to a major operator in Canada, and we have a new account joining us who has started doing business. We are always gaining more customers there.”

In South America, Mardini has seen Bogota, capital of Colombia, emerge as a popular destination. “One location which has surprised me in terms of the number of movements is Colombia,” Mardini said. “We see increasing business volume there. We don’t have any presence on the ground there yet, but I see more flights going there. Bogota has become a destination for people flying privately.”

Jetex has big plans for spreading its growing FBO footprint worldwide. With 39 locations in operation, the current target is to have 50 facilities in the network by the end of next year.

“We have a long list of people who use us not only for private jet but also for full service. There’s a gap in the market for delivering services: today’s VIP not only books a flight to [destinations in the Middle East or Africa, for example], but also wants other services: transportation, private villa, private butler, and concierge. These people are looking for a one-stop shop: from the airplane, to security, transportation, everything.”

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April 2019
Textron Aviation kicked off 2019 with double-digit percentage gains in jet and turboprop deliveries, in addition to profits and revenue, parent company Textron announced in its first-quarter 2019 earnings results. Citation deliveries for the three months ended March 31 totaled 44, a 22 percent increase over the 36 jets it shipped a year ago, while turboprop deliveries also totaled 44, up 51 percent from 29 in last year’s first quarter. Aviation segment profit in the quarter was $106 million on revenue of $1.1 billion, up 47 percent and 12 percent, respectively, from a year ago.

During a conference call with analysts, Textron CEO Scott Donnelly said he expects deliveries of its long-delayed super midsize Longitude jet to begin in earnest in the third quarter. Donnelly said the company continues to anticipate first flights of the Cessna Denali turboprop single and SkyCourier high-wing turboprop twin by year-end.

FlightSafety International and Textron’s TRU Simulation + Training established a joint venture to combine training on all 48 Textron Aviation aircraft—Cessna, Citation, Beechcraft, Beechjet, King Air, and Hawker—using 89 simulators at 16 locations, the flight and maintenance training companies announced. The venture includes the formation of a new company, FlightSafety Textron Aviation Training, that will be led by CEO Brian Moore, who was previously FlightSafety’s executive director of operations.

June 2019
Textron Aviation delivered its 300th Cessna Citation CJ4 light business jet. The customer taking delivery of the CJ4 is Minnesota-based metals distributor McNeilus Steel, which has more than 450 employees in three states. McNeilus was previously a fractional owner of a CJ1+.

The CJ4 was announced in 2006 and first deliveries began in 2010.

August 2019
The FAA recently granted Textron Aviation an exemption for the Cessna Citation Longitude’s fuel tank, which is expected to resolve at least one issue that has held up certification of the super-midsize jet originally expected two years ago. Company officials anticipated Longitude type certification by the end of September.

“We are pleased that the FAA has affirmed the permanent fuel tank exemption for the Citation Longitude,” Textron Aviation said in a statement to AIN. “The purpose of the exemption is to align the Longitude’s fuel system compliant design with the regulation, which did not anticipate the type of solution used. This is the permanent means of full compliance with the regulation.” All Longitude deliveries will have a compliant fuel system, the company added.

May 2019
Textron Aviation is in the final stages of completing the Cessna Denali prototype, along with two more flight and three ground test articles, as the development team prepares for first flight later this year. The Wichita, Kansas-based aircraft manufacturer will use the prototype and first two production-conforming aircraft in the flight-test program, while the ground test articles will be used for airframe static and fatigue tests, plus cabin interior development and testing.

Along with the development of the flight-test vehicles and static test articles, Textron Aviation completed component integration for the iron bird, a systems test rig that is laid out in the configuration and size of the Denali. The iron bird incorporates the design of the avionics, electrical, and engine control systems, and will play a key role in testing the aircraft engine’s Fadec system.

The Denali is expected to have a range of 1,600 nm, a maximum cruise speed of 285 knots, and a full fuel payload of 1,100 pounds. Designed to convert between passenger and cargo configurations, the Denali is intended to offer a large, flat-floor option in the single-turboprop class.

In passenger configuration, the aircraft can be designed with executive-style seating that includes six individual reclining seats, club-configuration tables, and a refreshment unit. It can also be fitted in a commuter seating layout with nine forward-facing seats.

July 2019
Textron Aviation shelved development of the Hemisphere large-cabin business jet, Textron Inc. CEO Scott Donnelly announced during the company’s second-quarter conference call. The Hemisphere could be revived at a later date, Donnelly acknowledged, but for now it’s “on hold” because the Wichita-based manufacturer isn’t satisfied with progress on the development of the Safran Silvercrest engine that would power it.

Textron Aviation suspended the Hemisphere program in April 2017 because of a high-pressure compressor issue and later said it would make a decision to proceed after Safran came up with a solution. Donnelly insisted on the call that the Hemisphere decision was made based solely on the engine issue and not because of market forces or competition. “There was only one engine suitable to meet the performance point,” he said.

A full-scale cabin mockup of Textron Aviation’s newest airplane, the Cessna SkyCourier utility turboprop twin, made its debut at EAA AirVenture.

SkyCourier is Cessna’s latest offering that can be configured for cargo or passenger operations. FedEx is the launch customer for the high-wing airplane that was announced in November 2017, having placed a firm order for 50 SkyCouriers in a cargo format and options for 50 more.
Millimeter-wave technology boosts Saab’s HUD in low viz

by Matt Thurber

The dream of marrying passive millimeter-wave (PMMW) technology with a head-up display is about to become reality with Vu Systems’s launch of a new enhanced flight vision system (EFVS) sensor in a partnership with avionics manufacturer Saab (Booth C11333). The Vu Cube PMMW sensor promises much better performance in low visibility compared to traditional enhanced vision system (infrared) sensors.

Saab plans to use the Vu Cube as one of the sensors for its EFVS, which it has flight tested in a King Air 200 during more than 100 instrument approaches. Saab has also done extensive testing in a simulator with a variety of pilots. “We are talking with several aircraft manufacturers about different platforms,” said Jan Widerström, head of Avionics Systems at Saab.

Vu Systems’ Stedmon Stevens with one of his company’s Vu Cube EFVS sensors.

Compared to infrared- and visible-sensor-based EFVS, the PMMW sensor offers many advantages, according to Stevens. The key to an EFVS is that it provides a “visual advantage” to pilots, helping them “see” further through clouds or visibility-obscuring phenomena than they can with normal eyesight. The greater the visual advantage, the further from the runway the pilots can see the runway and its environment and the greater the opportunity to be able to land despite the reduced visibility.

Seeing Infrared

Basically, the one- to five-micron wavelength of infrared energy is smaller than the size of most fog (10 to 15 microns) and cloud (one to 100 microns) particles, according to Vu Systems. “The [fog or cloud] particles don’t have a chance to be attenuated or refracted because of the longer length of the wavelength” of about 3,000 microns, said Stevens. The result is that with the Vu Systems sensor, pilots can see the runway on the HUD from two to four miles, much further away than with infrared—affording a greater visual advantage.

“Today’s technology is based on [systems] that can’t see through water,” Widerström said. “Ours can see through clouds, rain, and fog, in miles [not feet].” PMMW works because objects emit millimeter wave energy, and millimeter wave energy is reflected from the sky, according to Vu Systems. Ground objects have “warmer” emissions compared to the “cold” energy reflected from the sky, and a PMMW sensor can detect the difference in temperature between the runway environment and the surroundings.

A caveat that comes with PMMW technology is lower resolution. “That’s the nature of millimeter wave,” said Stevens. “It is not as crisp as a photograph or the eye [natural vision], but you can see through moisture without attenuation or diffraction. The resolution is less crisp so you need image enhancement on the edge to get the corners of the runway [more clear].”

A benefit of the Vu Systems PMMW sensor is that it isn’t subject to International Traffic in Arms Regulations restrictions, according to Stevens. And the timing that is bringing it to market is perfectly aligned with the FAA’s new EFVS regulations allowing lower landing minimums with advanced technology EFVS.

Lighter And More Affordable

Saab had been looking for opportunities to expand into the business aviation market, and the new FAA EFVS rules and Vu Systems developments matched Saab’s HUD developments. “We’re looking forward to taking this out on the market,” he said.

“We had heard Saab was developing a commercial version of their HUD,” Stevens said. And Saab has the qualifications and experience to manufacture the Vu Cube for Vu Systems.

The Vu Cube weighs less than 30 pounds and measures 17.75 by 9.5 by 10 inches. It mounts inside the airplane’s radome.

The Saab EFVS would be a dual-sensor system, combining EVS and PMMW and displaying the imagery on a head-up display (HUD). “There is also the possibility to overlay synthetic vision where we get a total information situational awareness picture,” Widerström said. The system can be useful not just for takeoff and landing but in other flight regimes where a high visual advantage is useful.

“The goal together is to deliver an integrated, affordable system that [meets the new] EFVS [regulations],” said Stevens. “We’re creating a truly affordable integrated system.”

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Sponsored by Honeywell
Bombardier expanding support services worldwide

by Kerry Lynch

On a mission to “bring our jets back home,” Bombardier is continuing to build up its support infrastructure, this time with line stations at the busy business aviation airports in Teterboro, New Jersey, and Van Nuys, California.

The new stations, which will bring the number of Bombardier’s line facilities worldwide to 11, initially will offer unscheduled maintenance services. Plans call for those centers to add scheduled capabilities in upcoming months.

When fully up and running, they will offer services in areas frequently requested, including wheel and battery shops. Technicians will be on site to support the suite of Learjet, Challenger, and Global series, including the new flagship Global 7500.

“This expansion is an integral part of our overall mission to enhance OEM support for our operators throughout the U.S. and around the globe,” said Jean-Christophe Gallagher, v-p and general manager of customer experience for Bombardier Business Aircraft (Booth C508). “These two new locations are part of an unprecedented acceleration of support offerings that include new mobile response trucks, aircraft, and more technicians across our network.”

Noting the Bombardier fleet is approaching 5,000 aircraft worldwide, Gallagher said the company has been investing heavily in capacity, customer experience, and parts availability as it strives to service as many of its jets as possible in house. “Our footprint is expanding rapidly.”

Bombardier is taking a three-tier approach to its network of major service centers, line service stations, and mobile response teams and aircraft.

The company has more than a half-dozen major centers strategically located in the U.S., Europe, and Asia, but is planning to bring two more major centers online over the next year. Bombardier is about halfway through the building of what will be its largest business jet service center in the Asia-Pacific region in Singapore.

Announced in February, that expansion will more than quadruple its current 100,000 sq. ft. to nearly a 430,000-sq.-ft. footprint with “one-stop-shop” service and support capabilities for the range of Bombardier aircraft. Employment there also is expected to grow from 150 to 300.

Similarly, Bombardier is dramatically growing its capabilities in South Florida with a new $100 million, 300,000-sq-ft service center at Miami-Opa Locka Executive Airport that will double the company’s footprint in Florida and extend its reach in both the U.S. and Latin America.

Also to be operational in 2020, the Miami center will house up to 300 employees and will provide a range of scheduled and unscheduled maintenance, modifications, avionics installations, and aircraft on ground support for Bombardier’s Learjet, Challenger, and Global business jet lines. In addition, the facility will have paint capabilities.

Some employees and capabilities will shift from the Fort Lauderdale center, but that base will continue as another line maintenance location.

Also on the line maintenance front, Bombardier this spring announced a deal with Jetex to open a new station in Dubai. Gallagher praised Jetex’s customer service, calling it “super high-end,” saying executives there are experienced in dealing with a VIP clientele.

This activity comes in addition to a number of expansions and additions in recent years, including in Tianjin, China, and London Biggin Hill. Activities at both locations continue to expand, most recently with an agreement with interior manufacturer F/IList to increase its interior capabilities at Biggin Hill. Bombardier is further expanding its Tianjin capabilities and presence.

While all this is ongoing, Bombardier has been building up its mobile response teams, which now comprise 30 units that have accomplished more than 5,000 missions since 2013.

Smart Link Plus hums along

A new Bombardier service partnership with GE Aviation is expected to result in a free health monitoring unit (HMU) for more than 2,500 in-service Challenger and Global aircraft, the companies announced Tuesday at NBAA-BACE.

A preferred service provider agreement between the two companies calls for GE (Booth C0030) to offer curated service bundles around cabin and cockpit connectivity for new and in-service Bombardier Challengers and Globals, including models as early as the Global 7500.

It’s the first step in Bombardier’s plans to launch the Smart Link Plus connected aircraft program in the second half of 2020. That program is expected to collect fleet-wide operational and maintenance data from the Smart Link Plus HMU boxes. This data is then wirelessly downloaded in flight and on the ground to Bombardier for analysis and service recommendations for Challenger and Global operators.

The technology behind the smart box was original to the Global 7500. “We believe that through connecting the Bombardier fleet, we can bring a whole new level of customer support,” Bombardier v-p and general manager of customer experience Jean-Christophe Gallagher told AIN. “Obviously we’re doing this because we see huge power in the entire fleet being connected in terms of what we can learn from the fleet and what we can, in turn, provide as value-added services to our customers.”

GE Aviation’s Digital Works is key to the development of Smart Link Plus, which is expected to provide operators future features such as predictive maintenance. GE Aviation senior v-p of digital solutions Andrew Coleman told AIN the service it will offer to Bombardier’s customers is similar to what it offers airlines. For airlines alone, Coleman added, GE has collected 49,000 years of flight data.

In a related development, Bombardier (Booth C7508, Static S0701) is continuing to expand its Smart Services offerings with the addition of a new APU cost-per-flight-hour add-on option for the Global 7500. It will provide comprehensive cost coverage for the Safran SPU300 APU including exchange or repair of line replacement components and related labor for removal and installation, off-wing APU repair at designated Bombardier service centers, removal and reinstallation labor for the APU on or off the aircraft, and recommended Service Bulletins.

“We’re continually expanding our network and services options to maximize the efficiency of our customers’ aircraft operations,” Gallagher said. “We have also added thousands of parts to our network, as well as a two-year parts warranty, comprehensive price-matching policy, and one simple monthly payment for the airframes systems and APU under Smart Services for the Global 7500.”

It is another addition to a range of Bombardier optional add-ons under Smart Part Plus or Smart Parts Preferred, including landing gear overhaul and cabin systems components.

Ge Digital Works’ Andrew Coleman, left, and Bombardier Aviation’s Jean-Christopher Gallagher show off the new Smart Link Plus health monitoring unit box.
Cape Air takes delivery of its first Tecnam P2012 Traveller

by Kim Rosenlof

Representatives of Italian aircraft manufacturer Tecnam, its U.S. subsidiary Tecnam US, and launch customer Cape Air celebrated the recent delivery of the first Tecnam P2012 Traveller commuter aircraft on Monday at NBAA-BACE 2019. The piston twin, which received FAA type certification in August, is on display this week at the show (Static SD807).

Designed jointly by Tecnam and Massachusetts-based Cape Air specifically for the short-haul market, the P2012 Traveller features fixed landing gear, a 46-foot wingspan in high-wing configuration, two 345-hp Lycoming TEO-540-C1A piston engines, and seating for nine passengers and two pilots. “Our operation is essentially solving acute transportation issues, connecting small communities to the major air transportation network,” said James Goddard, senior v-p of fleet planning and acquisitions at Cape Air. “We’re usually flying legs about 200 nautical miles or less, at lower altitudes and unpressurized.”

Cape Air currently operates a fleet of 88 Cessna 420s, four Britten-Norman Islanders, and two Cessna Caravan EX floatplanes to conduct short-haul flights at city pairs across the U.S. and between select Caribbean islands. Tecnam responded to Cape Air’s request for proposal in 2011 to build a new airplane to replace the carrier’s aging Cessna 420s piston twins. “We were looking for multi-engine safety,” said Goddard. “We wanted modern technology. The P2012 really breaks the mold with its clean-sheet design and opens up the platform for us.”

The resulting airplane has an 8,069-pound useful load, 1,800-foot landing distance, and 174-knot cruise speed at 75 percent power. Its avionics suite is based on the Garmin G1000 NXi system with two 10-inch primary flight displays and a central 12-inch multifunction display. An electronic engine control (EEC) system precisely controls the electronic fuel injection and ignition of turbocharged six-cylinder engines for maximum efficiency.

“We’re proud to partner with Lycoming to bring piston technology into the 21st century,” said Tecnam US sales director Shannon Yeager. “This engine is critical to the Cape Air mission. The electronic engine control is the masterpiece of the design, providing an optimal fuel/air mixture and adjusting the timing of each cylinder to provide 275 horsepower per engine with a fuel burn under 20 gallons per hour per side.”

Unit cost of the P2012 Traveller is reportedly $2.7 million. In addition to the two P2012 Travellers already delivered, Cape Air already has placed firm orders for 20 Travellers and options for up to 92 more.

Safe Flight’s stall warning selected for Tecnam P2012

Italian aircraft manufacturer Tecnam selected Safe Flight Instrument Corporation’s stall warning system for the newly certified P2012 Traveller twin-engine commuter aircraft, Safe Flight (Booth C8721) announced on Monday. The P2012 (Static SD807) received European Union Aviation Safety Agency (EASA) type certification in December and U.S. FAA approval in August.

A key component in certifying the P2012 for flight into known icing conditions, the Safe Flight stall warning system is in the final phases of certification on the P2012. It uses a heated lift transducer to track the location of the wing’s stagnation point and deliver the information to the system’s stall warning computer. Combining this data with flap position and ice mode inputs, the stall warning computer can output a discrete signal for aural and visual stall warnings.

Scheme Designers offers new concierge service

by James Wynbrandt

Aircraft custom livery specialist Scheme Designers (Booth N4231) introduced a concierge design service this week at NBAA-BACE 2019. Its new offering for fast-tracking paint scheme design development provided immediate access to the company’s chief artist and enhanced rendering services.

“Demand for our specialized services often results in long schedule lead times, and our new service allows clients to jump to the head of the line,” said Scheme Designers founder and CEO Craig Barnett.

In addition to direct, immediate contact with the company’s lead graphic designer, the service, available for an additional fee over standard design work, also provides 3D photo-realistic artist renderings of the customer’s aircraft during the paint scheme development process, allowing them “to better visualize the design work as compared to 2D renderings,” the company said.

Once the design is completed and approved, Scheme Designers can provide precut vinyl masks and vinyl decals for design elements or for the entire paint scheme. Concierge Design Service customers will also receive assistance in researching and choosing a paint shop, and Scheme Designers will coordinate with the chosen shop to ensure the paint is applied “flawlessly,” the company said. Barnett stressed the New Jersey design firm will continue “providing an extraordinary level of personal service to translate their vision into art for their aircraft” for all clients.

Founded in 1997, Scheme Designers has created custom paint schemes for more than 13,500 aircraft for clients from more than 150 countries, ranging from piston aircraft, helicopters, business jets, PT-171 fleets, and privately owned executive airliners, in addition to working with more than half of aircraft manufacturers to develop the exterior styling for their factory-new models.
FlightSafety boosts training to meet demand

by Mark Phelps

With pilot and technician demand at an unprecedented high level, legacy training provider FlightSafety International (FSI) is ramping up to meet the challenge. Among many initiatives, the company will launch construction of a new learning center at the Houston Spaceport area of Ellington Airport. This facility will replace its current Houston learning center, which opened in 1976, said FSI president and CEO David Davenport.

“We appreciate the support received from the city of Houston for this facility,” he added, “as we worked to develop and finalize a long-term ground lease agreement for the six-acre area within Phase 1 of the Spaceport.”

The new center will initially house 12 full-flight simulators for a variety of aircraft types. FSI will train pilots, flight attendants, and technicians, the latter including a specified area for Pratt & Whitney Canada engines. In a move Davenport said demonstrates a commitment to providing turnkey services for operators of FAR Part 25 aircraft, FSI has also entered into an agreement with an unnamed “large commercial aircraft operator” to have exclusive use of an area with flight simulators, classrooms, and offices.

Meanwhile, FSI is expanding its Gulfstream G280 training program, introducing a fourth simulator at its Wilmington, Delaware, learning center. The sim will have Pro Line Fusion PlaneView avionics, a dual flight management system with LPV and RNP capability, an integrated FMS, and a head-up guidance system with enhanced vision enabling training for EFVS approaches to touchdown and rollout. The simulator will include a CrewView collimated glass mirror display and Vital 1150 visual system. FSI has been Gulfstream’s official factory-authorized training organization for more than 40 years. At its Teterboro, New Jersey learning center, FSI will launch a new Dassault Falcon 2000EX/2000EX interchangeable simulator next week, following pending FAA level-D qualification. In addition to its Vital visual system and CrewView collimated glass mirror display, the new sim has Dassault’s FalconEye combined vision system head-up display (HUD).

The Dassault-designed system combines synthetic, database-driven terrain mapping, and thermal and low-light camera images in a single view for increased situational awareness in low-visibility conditions. The FSI training regime in the sim qualifies crew for lower approach minimums, down to as low as 100 feet. Besides Teterboro, Falcon training is available at FSI learning centers in Columbus, Ohio; Dallas and Houston, Texas; Wilmington, Delaware; and Paris Le Bourget Airport.

In other FlightSafety news, the company has launched an advanced version of its Rejected Takeoff Go/No-go recurrent course for Falcon 2000EX Easy pilots. The course will be available at FSI’s Dallas and Teterboro Learning Centers. “Beyond initial concept and skill development, we took the training to the next level,” said FSI senior vp of operations Dann Runik. “The crews will face different scenarios involving different airports, weights, weather, and runway conditions. This course is the logical follow-on training to the original course to keep perishable skills at the highest readiness level.”

Finally, FSI is recognizing the first graduates of its new Cabin Systems Master Technician program. “We are pleased to congratulate John Rowell, director of maintenance for Valero Services, and Tommy Tipton of Gulfstream Aerospace on their significant achievement,” Runik said.

Flight attendant gathering makes NBAA debut

A year ago at NBAA-BACE in Orlando, Florida, flight attendants Young Park and Christina Depew realized there were no social events around the show catering specifically to flight attendants. Determined to do something about that, the pair began contacting colleagues for an impromptu happy hour gathering later that night, and in several hours they attracted nearly 30 participants to the get-together, many who were at the show for the first time to market themselves.

“We were able to talk about how difficult it is for them to navigate without knowing anybody,” said Park, who in her spare time also serves as CEO of Seoul, South Korea-based business aviation provider Les Chefs Catering. She noted flight attendants and flight technicians rarely get invited to the major company-sponsored after-hours gatherings where they could network.

That led the pair to organize a formal event for this year, which was held Monday evening at a banquet hall near Las Vegas McCarran International Airport. Organizers managed to secure a group of sponsors for the event, which they hope will become an annual occurrence.

The sponsors included NBAA; caterers AOC Inflight Catering (which donated the food for the event), Les Chefs Catering, On Air Dining, Steyer’s Aviation Catering, Los Angeles, and dnata; World Fuel; crew training providers Davinci Inflight Training, Aircare International, and Corporate Flight Attendant Training & Consulting by Susan C. Friedenberg; and staffing providers In-Flight Crew Connections and Jett Group.

The inaugural event attracted 100 people, including newly minted flight attendant Carollin Feigs, who just last month completed her training and learned about the event through industry social media groups as she prepared for her first NBAA show. She admitted to being overwhelmed pouring through the list of exhibitors “trying to figure out what booths even pertain to me—to pull together a schedule.”

At the gathering, Feigs spoke with a variety of people, learning how they entered the industry and gained some pointers on what types of companies she should visit to make the most of the show. “This definitely helps with some of the networking so its not so overwhelming, you’re not completely by yourself, just facing three days and hundreds of exhibitors,” she said. C.E.
Jet Aviation grows its global infrastructure

by Curt Epstein

Jet Aviation is investing heavily in its global FBO network, which now totals 35 locations. Earlier this month, the company officially opened its latest hangar at its Teterboro Airport facility in New Jersey. The 40,000-sq-ft structure features 30-ft-high doors and can accommodate aircraft up to a Bombardier Global 7500. It brings the location up to approximately 270,000 sq ft of hangar space overall at the nation’s busiest business aviation gateway.

Across the country, the Zurich-based company expects to debut its new-build facility at Van Nuys Airport in California by the end of the year. It will consist of a 10,000-sq-ft terminal and a 43,000-sq-ft hangar also with 30-ft-high doors, and 8,000 sq ft of office space. It will adjoin a 42,000-sq-ft operations center for sister company Gulfstream, with more than 20,000 sq ft of office space.

“As part of the country’s second-busiest general aviation airport we are proud to offer our customers a one-stop-shop for all their aircraft service needs, including aircraft management, refueling, domestic and international handling, charter, cleaning and maintenance on-demand,” said Michael McDaniel, the facility’s director and general manager. “Additionally, we have massive ramp space that allows our customers to avoid congestion issues and the need for towing, especially larger aircraft.” He added that aircraft will be able to taxi unobstructed on arrival and departure.

The Van Nuys location will be the first of the company’s facilities to offer sustainable fuel, via a blended fuel option, in a program that will evolve as additional supply becomes available.

Jet Aviation (Booth N4635) also has hangar expansion projects underway at its San Juan, Puerto Rico and West Palm Beach, Florida locations and plans to begin significant renovations at its Dallas-area FBO. Lastly, construction is set to begin on a new facility in Scottsdale, Arizona, after the company acquired a share in the Scottsdale Jet Center. This year the company also plans to establish FBO services from a newly refurbished 6,500-sq-ft, two-story facility at King Khalid International Airport in Riyadh Saudi Arabia.

“The facility expansions throughout our FBO network demonstrate our commitment to delivering industry-leading services where our customers need and want them,” said David Best, the company’s v-p of regional operations for the U.S.

“The continued investment in new and existing facilities is aimed at exceeding our customers’ expectations across a full range of business aviation services.”

Those efforts have earned notice as the aviation services provider recently took home FBO of the Year honors at the 2019 Business Aviation Awards held last week in Dubai. “It’s a great honor to have the quality of our global FBO network acknowledged by the industry,” said Hardy Butschi, v-p of operations for the Middle East and general manager for Dubai.

The company also noted that it has added 35 aircraft to its global management fleet over the past year, including 24 in the U.S. and 11 in EMEA and Asia, bringing it to approximately 300 aircraft globally, including its first Global 7500, which was added in June. Of those 24 recent U.S.-based aircraft additions, 10 were listed on its Part 135 certificate.

opening from page 1

Opening session’s ‘Magic’ moment

to urban air mobility vehicles, sustainable fuel initiatives, and the new aircraft coming to market—all on display at the Las Vegas gathering.

Bolen then invited technology entrepreneur, pilot, and Phenom 300 owner Sky Dayton, founder of pioneering internet access providers Earthlink and Boingo, to join him for a discussion about the integration of aircraft and technology.

“I apologize for making the internet so ubiquitous,” Dayton half-joked. But noting he has three daughters, he said, “Every time we’ve made it easier to communicate, civilization moves forward, making it possible for more people to have a voice.”

An investor in eVTOL pioneer Joby Aviation, Dayton believes such vehicles are close to commercial application. “About four years ago, I thought we were 10 to 15 years away,” he said. “I think it’s three to four years now.”

A new Gamebird aerobatic aircraft flanked one side of the stage, and Steuart Walton, founder and chairman of its developer, Gamebird Composites, recalled in his presentation how his grandfather used private aviation to build the Walmart empire, scouting locations and dropping in on stores. He also recounted recent efforts to increase community interest in private aviation at Arkansas’ Bentonville Airport, where his company aims to develop “a world-class aviation company fueled by passion.”

When brought to the podium by Bolen, Johnson quickly dismounted the stage to roam the floor and interact with the front-row audience as he talked about his career and the key role business aviation has played in his post-basketball life. “When I first got started playing basketball, we had to fly commercial,” he said, recounting the wear and stress on his team. “I’m still surprised we won over 65 games a year.”

After basketball, “I reinvented myself,” Johnson said. “I wanted to be a business man. My partners had these incredible airplanes,” and he wanted one of his own. His first venture was opening Starbucks franchises in minority communities.

“The headlines were, ‘No way minorities are paying three dollars for a cup of coffee,’” Johnson said, but he felt otherwise. “African Americans have $1.5 trillion spending power, and Latinos have another $2.5 trillion in disposable income, so that’s $3 trillion no one was going after. We had no competition.”

While his customers liked the coffee, scones were foreign to the community, so he offered sweet potato pie and other ethnic favorites instead. He also changed the in-store music mix. “I had to take out Aerosmith and put in Earth, Wind and Fire. I know my customer,” he said.

Johnson and his partners eventually opened 125 Starbucks franchises in 40 cities, and when the group sold them, “I had the money to buy my aircraft.”

“Clay,” he said, seeing Clay Lacy in the audience, whose company has managed his aircraft since, “Remember when I bought my Gulfstream, I asked if you had a spot for me?” Lacy happily acknowledged.

“It’s put years on my life,” he said. “I’m on the road 200 days a year. I accomplish things I could never accomplish.”

Turning to domestic issues, he talked of his wife asking him to play basketball with his daughter and his inability to squelch the competitive spirit that served him so well on the court and in business. He called a diminutive woman from her seat to commiserate. “Let her get nine points, and then I crushed her,” he said to the woman, adding, “I’d let you get 9½.”

When Bolen informed Johnson the woman was herself a hall of fame—aviation training video pioneer Martha King, recently inducted into the Aviation Hall of Fame with husband John—Johnson had them both join him for a group photo.

Johnson is now in “the infrastructure business,” having won contracts to help refurbish Denver International, LaGuardia, and John F. Kennedy International airports. “I want to continue to own my aircraft,” he said. “I might get a bigger aircraft—I look at my wife [and she says], ‘Yeah, you should.’ I’m just happy to be part of this industry, and thank you for taking care of people like myself.”

JetSuite, JSX select Traxxall for mx tracking

JetSuite and JSX (formerly JetSuiteX) have selected Traxxall as their maintenance tracking and inventory management provider following a comprehensive review of their aircraft maintenance tracking needs. Traxxall announced. Actual migration to Traxxall’s service across all their operations was completed in May.

“We own and operate a large and growing fleet, offer exceptional hospitality and are guided by very high standards,” said v-p of JSX tech ops Robert Hamel. “To be successful, our aircraft must be extremely well maintained. By generating comprehensive data that minimizes aircraft downtime, Traxxall contributes directly to our overall operational efficiency.”

Ten-year-old JetSuite owns and operates four Embraer Phenom 100s and eight Phenom 300s for its charter operations, while JSX operates a fleet of 15 thirty-seat Embraer ERJ-135s and seven Embraer ERJ-145s that provide scheduled air service to nine cities in Arizona, California, Nevada, and Washington. Both companies were started by JetBlue co-founder Alex Wilcox. J.S.
Wheels Up touts plans for new growth

by James Wynbrandt

On Monday at NBAA-BACE, Wheels Up founder and CEO Kenny Dichter recapped a year of growth and discussed plans for the private aircraft access provider’s future, highlighting its 2019 acquisitions and program introductions, in addition to ambitious goals to expand beyond its initial membership model.

The year’s developments began with the launch of Wheels Up’s online charter marketplace in January, bookended by its September purchase of flight management software developer Avanis. In between, the New York-based company (Booth C12749) introduced its entry-level Connect Membership; acquired wholesale light jet charter operator Travel Management Company (TMC) and its fleet of light jets; and deposited a $128 million investment that brought Franklin Templeton into its fold of equity partners and boosted the enterprise’s value to more than $1 billion, Dichter said.

“Six years ago [at this conference], we said we wanted to be the tip of the spear of getting more people in the game” of using private aviation, Dichter said, and the year’s developments are aimed at creating the foundation for realizing those aims.

Wheels Up plans to create a seamless access portal offering options including flight sharing, membership access to a fixed fleet, and charter. Using the Avanis software engine, it will link vetted operators and consumers, increasing the efficiency and lowering the cost of access beyond what other providers currently offer, Dichter said. The TMC purchase and its Hawker 4000XPs raise Wheels Up’s owned fleet, which includes King Air 350i twin turboprops and Citation Excel/XLS jets, to 119 aircraft. But Wheels Up is more focused on growth of its third-party charter operations, and Dichter expressed little interest in expanding its owned fleet to include midsize and large-cabin business jets. He compared the company’s foundational fleet membership to Amazon’s initial book business, which has been totally eclipsed by revenues from its non-book sales.

The new Connect membership ($2,995 for the first year; $2,495 annually for renewals) shows Wheels Up is keeping the core membership program front and center. Targeting those flying 10 or fewer hours per year, Connect offers access as-available (rather than guaranteed) to its fleet and services, including flight sharing. Wheels Up currently has some 6,000 members, with a renewal rate of 80 to 90 percent.

Going forward, the public will have access to its charter marketplace, which will offer dynamic pricing and instant booking via mobile devices. The company currently has some 1,250 jets in its roster of vetted aircraft available for charter and plans to “go up by a factor of five,” said Dichter.

Rolls-Royce unveils its new Pearl 700 engine for G700

by Mark Huber

Rolls-Royce (Booth C8312) unveiled its new Pearl 700 engine this week at NBAA-BACE 2019. The 18,500- to 18,800-shp thrust engine will power the just-announced Gulfstream G700 ultra-long-range business jet. The Pearl 700 combines the company’s Advancea engine core technology, a new low-pressure system, and various design and material changes to deliver 8 percent more takeoff thrust, a 12 percent better thrust to weight ratio (8 percent more thrust and 4 percent less weight), 3.5 percent less fuel burn, and 5 percent greater efficiency compared to the company’s BR725 engine on the current-production G650.

The new engine will meet or exceed Stage 5 noise standards and have nitrous oxide emissions that are projected to be 35 percent below the CAEP/6 standard. It is being developed at Rolls-Royce’s Center for Business Aviation Engines in Dahlewitz, Germany.

The Pearl 700 features a 10-stage, high-pressure axial compressor; improved gearbox breather exhaust; new Safran-Air-Celle nacelle; 24-blade, 51.8-inch blisked fan; bypass ratio in the 51 range; high-pressure compression ratio of 24:1 (compared to 16:1 on the BR725); six blisked stages; low-emission combustor; two-stage shroudless high-pressure turbine; and an enhanced four-stage low pressure turbine. The improved thrust comes from the larger fan combined with the more powerful core. Significant weight savings come from the stronger and lighter nacelle, blisked fan, and the lighter, more powerful engine core. Compared with the BR725, the shape of the blades are different to optimize the fan to increase thrust, reduce noise, and limit resonance excitations to reduce fan flutter, according to Dirk Geisinger, chairman of Rolls-Royce Deutschland.

He called the engine’s core “the most efficient in business aviation,” thanks to the blisks, new breathing cooling techniques, the improved use of cooling components including on the drive (tower) shaft, and advanced manufacturing techniques, including friction-stir welding.

The Pearl 700 uses the nacelle line as that on the BR725 while accommodating a fan that is 1.8 inches larger. Geisinger said Rolls-Royce engineers were tackling 350 technical issues regarding changes between the BR725 and the Pearl 700.

Other advanced technologies Rolls-Royce is looking at for the Pearl 700 include using 3D printing to manufacture ceramic tiles inside the combustor to limit heat and noise and ceramic nozzles to simplify manufacturing and reduce weight. “We’ve run these combustors already,” said Geisinger. “Now we have to decide whether they will enter into service with the G700 or later.”

The Pearl 700 is backed by the Rolls-Royce CorporateCare Enhanced hourly maintenance program and features a new engine health monitoring unit with advanced vibration monitoring, bidirectional communications, and the ability to remotely configure engine-monitoring features from the ground. It feeds data into a system of cloud-based analytics, smart algorithms, and artificial intelligence.

Its health monitoring system detects and identifies vibrations coming from the engines and identifies likely sources such as fuel pumps. Altogether, the system identifies more than 15,000 parameters, filters and livestreams data, and predicts to enable the timely replacement of line replaceable units. The engine will be maintained on-condition with a goal of 10,000 hours before it has to be taken off-wing. Geisinger said the goal for the new engine is a 100 percent dispatch rate and that it was achievable with the engine’s new monitoring system.
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FutureFlight.aero: invaluable intel for tomorrow’s world

By Charles Alcock

New power and flight control technologies are poised to drive transformational change in air transportation. In some cases, they could create foundations for entirely new business models.

Exciting scientific breakthroughs across multiple disciplines appear set to converge in ways that could break aviation’s dependence on fossil fuels. They could enable passenger and freight flights within and between urban areas on a previously unimaginable scale, as well as stimulating new ways to provide service to rural areas. The new wave of aircraft could also tap the full potential for employing unmanned systems in a wide variety of business and social purposes.

The question is whether the demand for this change is sufficiently tangible to support the effort and investment required to bring any of the radical new aircraft designs to market. Deep pocketed investors from around the world, including many venture capital and private equity financiers, believe the market opportunity is very real and they are falling over themselves to get a piece of the action.

Several billion dollars have already been committed to new aircraft programs, most of which are categorized as electric vertical take-off and landing (eVTOL) and targeted mainly at the so-called urban air mobility sector. Taking account of designs as varied as a single-seat flying motorcycle and a 50-seat regional airliner, there are said to be almost 200 new programs at various stages of advancement ranging from pipe dream to being within three years of entering commercial service.

Leading aircraft manufacturers such as Airbus, Boeing, Bell, and Embraer are actively pursuing eVTOL developments. However, many of the other challengers in this sector are completely new to aviation, in many cases being led by entrepreneurs and technologies from the IT sector. For a summary of the main players see the feature article starting on page 56 of the Tuesday edition of NBAA Convention News.

So how is anyone supposed to make sense of this exciting, but in many ways baffling, new aviation sector? For business aviation, the new wave of aircraft could present a big opportunity, but how can this opportunity be grasped, and will this trend play out more positively than the inconclusive very-light-jet revolution of the 1990s?

AIN Publications is launching a new resource to provide comprehensive and objective coverage of these exciting new aviation technologies and business models. FutureFlight.aero will provide subscribers with constant updates on new aircraft programs and the technology and service providers supporting them.

The FutureFlight research team is tracking all the players in this fast-emerging sector, delivering an unprecedented searchable database and daily news updates. To ensure that they don’t miss any significant developments, subscribers will receive a weekly newsletter flagging need-to-know, actionable intelligence.

FutureFlight.aero will provide full details of all the companies active in the new wave of aviation, as well as the aircraft programs and models, including projected specifications and performance. The website will also include details of all the key individuals and extensive information resources to give subscribers the most complete picture of this exciting industry sector.

Visit FutureFlight.aero to learn more and sign-up for a free trial subscription.

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BELL NEXUS

MANUFACTURER: BELL

AIRCRAFT MODEL: Nexus

TYP: Other/Prototype VTOL Sadercraft

COMPANY HEADQUARTERS: Fort Worth, TX, USA

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The hybrid electric version has an internal combustion engine or auxiliary power and driving a generator to produce high voltage electricity. In a simple hook of the Nexus, a pure electric model is in the future of the Six. Alternatively, a gas/PIU could drive a hydros on the power, light on the Six is for the future.

The plan is that the Nexus could be an all-electric future driving a generator producing at least 300 kW of electrical power for the Six. In this version, it would be followed by a pure electric variant or a power support, “as appropriate”. A further version would be a pure electric generator that powers the hydraulic pump, to be practical.

A pure electric model, the Nexus could be the first to provide a complete vertical take-off and landing (VTOL) performance, and it would be driven by a varying the collective pitch and flaps. Roll control would be achieved by varying the collective pitch and flaps. In airplane mode, the ducts would be tilted vertically to provide forward thrust.

Flight control is provided by rudders on the canted vertical tails and ailerons on the duct struts for roll control.

The 60-hp motors in each rotor (or a power rating “as appropriate” may be used, with electric motors in the fan hubs. The patent explains that the APU could be replaced by a hydraulic pump that powers the hydraulic pump, to be practical.

In flight mode, the ducts would be tilted vertically to provide forward thrust. Flight control is generated by rudders on the canted vertical tails and ailerons on the duct struts for the Six, and flaps.

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TIMELINE

JUL 7, 2019

BELL Unveils Nexus Air Taxi Concept and announces four collaborating

SUMMIT

APR 8, 2019

Embraer+Sumitomo partnership announced with a summary of the main players see the feature article starting on page 56 of the Tuesday edition of NBAA Convention News.

SUMMIT

JUNE 19, 2019

Embraer is one of several established aircraft manufacturers seeking to take the lead in the emerging urban air mobility market, but the company has so far revealed very few details about its planned development.

The AIN News Today video team is filming throughout this year’s NBAA-BACE show. Their reports will bring all the week’s key news stories to life for viewers here in Las Vegas and worldwide for those who can’t attend the event in person.

Viewers will get exclusive access to the cabins and cockpits of some of the newest aircraft being unveiled during the show. Plus, there are interviews with leaders from across the industry addressing breaking news developments and the top issues impacting the business aviation community. The AIN News Today videos will also feature expert guidance on topics such as how to effectively manage data in aircraft, how to ensure security during worldwide trips, and how to control the cost of services such as maintenance.

At AINonline.com, you can watch all of these videos, featuring presenters Jennifer English, editorial director of Business Jet Traveler magazine, and AIN senior editor Charles Alcock.

Visit our AIN News Today studio at booth C10018 during exhibit hours. AIN News Today at NBAA-BACE 2019 is sponsored by Satcom Direct.
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