EBACE Convention News

DAY 2
May 30, 2018

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DAVID McINTOSH

« EBAA, which co-organizes EBACE with NBAA, reports that interest in business aviation has grown in Europe. This year, the show saw more than 100 new exhibitors and a completely sold out static display.

Bizav set for European takeoff

by James Wynbrandt

In a spirited opening session, EBACE co-hosts and local dignitaries welcomed show attendees yesterday and cheered business aviation's renewed vigor in Europe.

"EBACE is a time the industry comes together to celebrate the innovative spirit and inherent value that EBAA promotes not just at EBACE, but throughout the year," said EBAA chairman Juergen Wiese. He cited EBAA's recent report that found the sector is responsible for creating 374,000 direct or indirect jobs in Europe as one example of that value, and noted Europe has seen 16 consecutive months of growth in business aviation traffic.

Meanwhile, a recent EBAA survey of more than 2,000 young Europeans "told us business aviation is desirable, not because of status and luxury, but because of the freedom and flexibility it offers." Moreover, "They believe in the future sustainable personal air transport will drastically change society as we know it," Wiese said.

Ed Bolen, president and CEO of NBAA, co-host of the show, noted more than 100 new exhibitors are on the exhibition floor this year and a sold-out static display.

André Schneider, CEO of Genève Aéroport, said the facility is "pleased to host this very important event," and reported the airport saw a 6 percent increase in business aviation operations last year, "substantially above the growth of civil aircraft," and this year an increase of 10 percent thus far.

Noting the commitment to sustainable alternative jet fuel, EBAA, NBAA, and other industry organizations declared the

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Aviation world mourns visionary Serge Dassault

by Ian Sheppard

The aviation community was rocked by news of the passing of Serge Dassault, 93, on Monday, the day before the business aviation community gathered for EBACE 2018 here in Geneva. Dassault is believed to have suffered heart failure while at his office in Paris.

Groupe Dassault, the company which he owned and led for many years following the death of his father—company founder Marcel Dassault—in 1986, issued the following statement: "It is with an infinite sadness that we learn of the death of Mr. Serge Dassault, chairman and CEO of Groupe Dassault, and the former chairman and CEO of

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Cessna

TEXTRON AVIATION

DAVID McINTOSH

The super-midsize Cessna Citation Longitude is on final approach for FAA approval. Flight testing is expected to be completed next week.

Longitude leaps toward FAA certification

by Ian Sheppard

Textron Aviation's flight-test program for its Cessna Citation Longitude is nearly finished, with FAA certification expected soon afterward, the company reported on Monday at EBACE 2018. Flight testing will be concluded "within the next week," said president and CEO Scott Ernest, and this will be followed by 30 days of completing documentation.

Ernest noted that work on the larger Hemisphere remains on hold pending Snecma's determination regarding the Silvercrest engine compressor issues that prompted Dassault to cancel its Falcon 5X, replacing it with the Pratt & Whitney Canada PW812D-powered 6X. "We'll see what progress Safran makes over the next year to year-and-a-half," said Ernest.

On Longitude progress, senior v-p of engineering Brad Thress said, "We've done nearly 3,000 flight hours on five aircraft. Three aircraft have completed their testing, and two will conclude this Friday. Number four is being prepared for function and reliability testing, which will be the last flight-test activity." He said some 200,000 pages of documentation would be examined by the FAA for certification.

"We're in the home stretch now and eager to move one step closer to delivering this new Citation flagship jet to our excited inaugural customers around the globe," said Thress. "This is the most robust certification process we've ever been required to conduct for a Citation, which means we will deliver an exceptionally verified, clean-sheet aircraft...that will revolutionize the super-midsize category with its low cabin altitude, class-leading legroom, and low decibel cabin sound levels that are half of its nearest competitor."

The team used five aircraft and nearly 50 ground test articles to expedite testing, whereas previous certification programs featured three aircraft and fewer than 30 ground assets.

Earlier this year, the aircraft completed a 31,000-nm world tour, demonstrating its performance and reliability throughout a broad array of environments across 12 countries. During the tour, the Longitude made various stops throughout Europe, including customer visits in Sweden, France, Italy, Switzerland, and the UK.

The Longitude features a Garmin G5000 flight deck and Fadec-equipped Honeywell HTF7700L turbofan engines with fully integrated autothrottles. It also has Garmin's new head-up display—the GHD 2100—and enhanced vision capability, for "eyes-up flying." The Longitude also has the longest maintenance intervals in its class by some way, at 800 hours or 18 months, "expected to make it the most cost-effective aircraft to operate in its category," said Thress.

Textron Aviation has seven aircraft this week at the EBACE static display: the Cessna Citation Longitude, Latitude, CJ4, CJ3+, and M2; Beechcraft King Air 350i; and Cessna Grand Caravan EX turboprop single. ■

JetNet iQ reports optimism among European operators

by Curt Epstein

European business aviation operators are currently the most optimistic in the world, according to results from the latest JetNet iQ quarterly survey. More than 40 percent of European respondents indicated that they now believe the industry is past the low point, the highest percentage for the region since the survey began. This eclipses North American respondents, who traditionally have been the most optimistic but came in at about 38 percent in the most recent survey.

Worldwide, the level of industry optimism has rebounded to a new high, since a low in the third quarter of 2016, when Europe was struggling with the threat of Brexit, and the U.S. was wracked by a bitter, divisive election.

Yesterday at the show, JetNet vice president Paul Cardarelli noted key economic indicators in Europe and the U.S. such as consumer and business confidence have been trending upwards, while unemployment has declined in both areas over the past five years.

The declining preowned inventory is another source of encouragement, Cardarelli noted, with available business jets sinking below 10 percent of the fleet for the first time in a decade. As the inventory has come down, aircraft are trading faster, with days on market shrinking by nearly three months, from approximately a year in January to eight months in March.

One of the concerns in the survey lies in the flight-hour utilization profile. JetNet iQ founder and director Rolland Vincent noted that, over the past 12 months, 45 percent of business aircraft flew 250 hours or less, while less than 6 percent exceeded 1,000 hours of flight time. "That's an incredibly expensive asset that is very underutilized," he said, adding that the average aircraft usage was 328 hours annually.

When asked about new aircraft purchase intentions, 45 percent of likely buyers said they would acquire a midsize jet, while 40 percent replied that they were interested in large cabin. "We've been watching for growth in the small jet segment, but right now we're still seeing compression there," stated Vincent. "It means people aren't replacing at the lower end as they were—they're not planning to replace, at least."

Vincent believes that 2017 was the trough in the latest cycle, and expects the OEM output to begin picking up. In its latest business jet forecast, the company sees deliveries of 7,885 jets worth $236 billion by 2027. ■

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European bizav operators are committed to CORSIA

by Cathy Buyck

By this time next year, several business aircraft operators will have started monitoring their CO_2 emissions output as part of ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) requirements. CORSIA is aimed at curbing the aviation industry's carbon dioxide footprint worldwide and from January 1 next year commercial operators must measure and report the fuel use and emissions of all international flights.

How many business aircraft operators will be covered by the new rules is unclear for the moment, but most operators are small emitters and will subsequently be exempt from ICAO's CORSIA requirements, according to both EBAA and NBAA. The ICAO resolution, which was adopted in fall 2016, eliminated operators that produce less than 10,000 metric-tons of CO_2 in international flights annually and aircraft with less than 5,700 kg (12,566 lb) of maximum takeoff mass (MTOM). Medical, humanitarian, and firefighting operations are also exempt.

"A good proportion" of European operators fall outside the scope of CORSIA, EBAA senior environment manager Bruce Parry told **AIN**. Current-generation business jet fleets would need to fly a combined 2,000 hours or more annually in international operations to reach the 10,000-metric-ton threshold, according to NBAA vice president for regulatory and international affairs Doug Carr. Even an Airbus ACJ flying 900 hours per year would fall outside the CORSIA threshold, according to an EBAA chart. "In total, we estimate that fewer than 100 operators in North America will be affected by CORSIA," Carr noted.

However, Parry warned, operators that are close to the 10,000-metric-ton annual international CO_2 emissions threshold might be introduced into the system in case their operations increased over the coming years. "They will have to submit an emissions monitoring plan [like operators above the 10,000-ton-metric threshold] to their administering authority next year," he said. The CORSIA time frame advises operators to submit an emissions monitoring plan by September 30 [2018], though the formal deadline is February 28, 2019. National authorities are expected to approve the plans by April 30. These plans will include fleet and operations data per operator, methods used for fuel monitoring, methods and means of calculating emissions from international flights, and data management, data flow, and control.

Meanwhile, operators qualifying for the program will have to start measuring CO_2 emissions from all international flights they operate beginning January 1. The CO_2 data from 2019 and 2020 will be used to determine the reference baseline against which future growth in carbon emissions in international flying will be compared and offset.

"This is the right way forward," said Parry. "The EBAA already in 2009 identified that market-based measures would be a tool to help us achieve our goals on climate change: a reduction of CO_2 output by 2 percent per year between 2010 and 2020, carbon neutral growth from 2020 and an overall CO_2 reduction of 50 percent from 2005 to 2050." He recognizes that there will be a cost to administer the scheme and acquire the offsets, though he does not perceive the offset credits to be a tax without jurisdiction. "I wouldn't call it a tax. There is a cost involved and there is no getting away from that. It is part of our license to operate," he said. It is "too early" to know how much it will cost business aviation operators to buy the carbon credits, he noted. "They will follow [the global carbon] market costs for other offsets. The higher the quality of the offset, the more expensive. It is difficult to put a price on that at this stage. Supply and demand plays a part in this."

ICAO has not yet announced which carbon units it will consider. CORSIA guidance and a comprehensive set of standards and recommended practices (SARPs) spelling out the requirements of the program are expected to be formally approved by the ICAO Council in June—for the application from January 1, 2019. ICAO's 192 member states had until March 5 to send their feedback on a draft text tabled late last year.

The scheme will start in 2021 and is voluntary by states, with mandatory participation not required before 2027. Mid-January, following Namibia's agreement to join in, 73 states representing 87.7 percent of international aviation RPKs, intend to participate in CORSIA, according to ICAO. All EU countries have signed on to participate in the early phases.

Most of them, however, remain mum on what they intend to do with the EU emissions trading system (EU ETS) for aviation. Also, the European institutions are vague. The EU late last year adopted legislation to continue limiting the geographic scope of its plans for aviation to intra-European Economic Area (EEA) flights until the end of 2023, when the CORSIA pilot phase ends. "The indication we are getting from the European Commission is that there will be no double counting, so from 2021 onwards the EU ETS will basically revert to domestic flights [in the ICAO sense]," Parry said. A Frankfurt-to-Paris flight would fall under CORSIA, but a Paris-to-Nice flight under the EU ETS. "We need clarity," he stressed. "Our business aircraft operators want to know where they stand." ■

Business Aircraft Annual CO_2 Emissions*

Aircraft	@400 hours per year metric tons of CO_2	@900 hours per year metric tons of CO_2
Airbus ACJ319	2,857	6,429
Boeing BBJ 737	2,857	6,569
Bombardier Challenger 605	1,270	2,857
Bombardier Global Express	1,051	4,615
Cessna Citation Mustang	348	783
Cessna Citation Sovereign	1,081	2,432
Embraer Phenom 100	421	947
Embraer Phenom 300	672	1,513
Dassault Falcon 2000LXS	1,081	2,432
Dassault Falcon 7X	1,481	3,333
Gulfstream G450	2,000	4,500
Gulfstream G550	1,739	3,913
Gulfstream G650	1,932	4,348

Based on average seating, stage length of 600nm. Source: IBAC
**These figures are for illustrative purposes only and may vary from flight to flight*

Magazine names LunaJets 'Best Employer' of 2018

Charter broker LunaJets has been named Best Employer of 2018 by *Bilan* magazine for companies with fewer than 50 employees. The analysis took into account total compensation, work-life balance, vacation, social corporate responsibility, and other HR considerations and practices.

Bilan noted that its tenth edition of the *HR Best Practices Survey* revealed three key workplace trends: choice, well-being, and time. Examples included allowing an employee to select between five days of vacation or the equivalent salary, providing amenities to help maintain an employee's sense of well-being, and allowing staff to purchase additional holidays in exchange for a monthly salary deduction.

LunaJets appears to be following suit with the aforementioned trends and employees are able to access workplace amenities that ensure a healthy work-life balance. Beyond flexible hours, supplementary accident insurance, and training opportunities, LunaJets offers progressive advantages including a massage therapist and pet-friendly offices. Other options, which LunaJets calls unconventional but much appreciated, include a fully equipped gym, and unrestricted use of the LunaMobile company pool car.

The Geneva, Switzerland-based private jet booking platform was created in 2007 and offers a free membership program with access to 4,800 aircraft around the world. LunaJets was initially created to resell available seats or empty-leg packages at discounted rates. After the economic crisis, however, the company modified its approach to offer low-commission, on-demand charter for customers wanting to fly privately at the best available price. According to LunaJets, the company is growing at about 35 percent each year. **A.R.**

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Daher adds features to TBMs; rolls out data-tracking app

by Chad Trautvetter

Daher has introduced new features and functionality for the Garmin G3000 flight deck on its TBM 930. It also launched a new flight data sharing app, called Me & My TBM, for TBM 910 and 930 operators.

New functions available with the flight deck's latest software version include SurfaceWatch, which helps the pilot maintain enhanced situational awareness in the airport environment; Baro Vnav, allowing approaches with vertical guidance when WAAS navigation is not available, and Visual approach to assist the TBM pilot in performing visual approaches with vertical guidance into any airport.

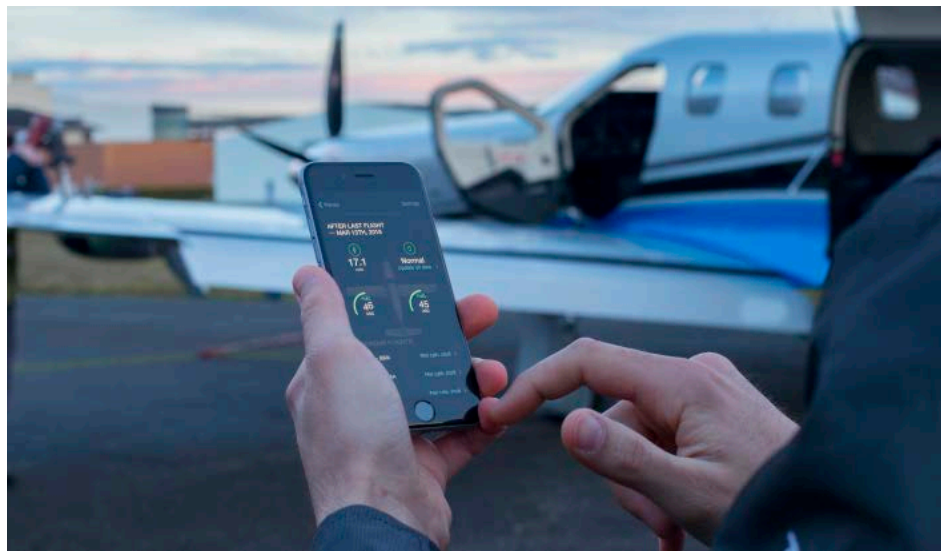
The avionics software upgrade adds improved symbology, while crew-alerting-system informational messages are now displayed in white for easier distinction from caution (yellow) and warning (red) messages. Another new feature is the addition of the Garmin Flight Stream 510, which uses Wi-Fi and Bluetooth to transmit avionics data to mobile devices running Garmin Pilot, Foreflight, or FltPlan Go apps.

Earlier this year, Daher (Booth U101, SD19) added electrically heated seats as standard equipment on 2018-production TBM 910 and 930 turboprop singles. Once the pilot engages the mode via a master control in the cockpit, each occupant can choose whether to use the heating and select either light or moderate heat settings.

Other new features included in all 2018 model year TBMs are tailored for improved pilot interface. This includes backlighting on the cockpit's central console to provide enhanced visibility at night for the manual trim, power lever, flaps lever, and override controls. The pilot's oxygen mask also now has a high-fidelity microphone for clearer communications with ATC when the mask is in use.

Me & My TBM

Daher's new Me & My TBM Android and iOS app, available for owners and operators of 2018 and later TBM 910 and 930 single-engine turboprops, simplifies downloading flight data and updating Camp Systems maintenance-tracking and facilitates sending information to Daher's TBM Care support team.



The "Me & My TBM" app simplifies connecting Daher's TBM 910 and 930 models with the Camp Systems maintenance-tracking network. It also records and tracks flight data.

The app automatically sends aircraft counter updates, as well as trend and report data files, to Camp. The ability for TBM Care to view and analyze flight parameters less than an hour after the conclusion of a flight furthers Daher's support capabilities, the French aircraft manufacturer said.

"The Me & My TBM app provides unique and valuable feedback on TBM flights, from key parameters of the engine and other systems to a full range of statistics accessible wherever the aircraft goes," said Nicolas Chabbert, senior v-p of Daher's airplane business unit. "The Me & My TBM app's current version is just a first step. We are committed to further developments, offering TBM owners and pilots more personalized services in the future: predictive maintenance, proactive support, and auxiliary services." ■

MARK WAGNER

According to Dassault Aviation chairman and CEO Eric Trappier, there is an increase in demand for Falcon business jets around the world.

Dassault inspired by improving industry

by Matt Thurber

Dassault Aviation chairman and CEO Eric Trappier is encouraged by a stronger business aviation climate and growing demand for Falcon business jets, not just in the U.S. but in other parts of the world.

This improving picture for business aviation coincides with Dassault logging the first sales in its latest jet program, the Falcon 6X, which was unveiled in February following cancellation of the 5X. "The first firm sales followed shortly [after] the February announcement," he said, "and the number of ongoing negotiations makes me very optimistic about the success of this big new twinjet."

The 5X was canceled due to problems with its Safran Silvercrest engine, although the jet did accomplish some preliminary flight testing. Being able to react quickly to such a severe setback is critical to the health of the company, Trappier explained. "I have made a priority to keep the company agile and reactive. This is one of the keys of our success and it was again essential for the launch of the exciting Falcon 6X we announced in February." Dassault (Booth Z89, SD3) has previously revealed that it is already planning another future next business jet program but has not yet released any details.

Powered by the Pratt & Whitney PurePower PW812D turbofan, the Falcon 6X is expected to achieve first flight in early 2021, followed by entry into service in 2022. The jet's 40-foot, four-inch cabin will accommodate up to 16 passengers, and maximum range is 5,500 nm at Mach .80.

The introduction of the 6X coincided with a much-improved preowned market, which is evident by a significant drop in the 7X preowned inventory. Demand for used 7Xs in the Asia-Pacific region is especially strong, as is the case in the rest of the world, Trappier said. "And demand for new airplanes is starting to firm up, too." He added that many of these buyers are new business aviation customers, "not just in China, but also the countries around China."

7X backlog is solid through the fourth quarter of 2019, and demand for the 8X is strong with both current Falcon owners and, he said, "buyers coming from outside the Falcon family.

"The trend looks good in particular in the U.S. where our industry benefits from the [recent] tax reform. We still face very aggressive pricing by certain OEM's, but the Falcon 2000LXS and 900LX confirm their good position on the market."

In Europe, there is strong interest in the 6X. "I am also getting more optimistic about China and the whole Asia-Pacific region where the 8X and the 7X attract more prospects than we've seen in the past few years." Dassault is seeing increased demand in Brazil and Mexico, but this "is tempered by political and economic uncertainties."

Dassault's Vision

Most Falcon 8X buyers have opted for the FalconEye combined vision system head-up display (HUD), which allows pilots to see enhanced vision system (EVS) and synthetic vision system (SVS) imagery combined together on the HUD. Dassault test pilots recently completed FAA and EASA certification flight testing of FalconEye to validate operational credits for instrument approaches to 100 feet minima.

Certification to this level is expected soon, with operational credit available to 8X FalconEye operators by the end of this year. FalconEye-equipped 2000LXS and 900LX models will be able to receive the operational credit in the first half of 2019.

Other upgrades available to Falcon operators include the latest version of the company's electronic flight bag, FalconSphere II, as well as the new FalconConnect bundled service for airborne connectivity, in partnership with Honeywell. FalconConnect will be available for all Falcons as a retrofit starting in 2019.

For older Falcon models, the Falcon Elite II avionics upgrade is available for the airplanes' Honeywell-based flight decks, offering modern air traffic management capabilities and other operational benefits. Gogo's Avance 4G air-to-ground connectivity system is available, for Falcon jets needing reliable coverage when flying in North America.

In the multimission segment, Dassault sold a fifth Falcon 2000 maritime surveillance aircraft to Japan's coast guard. Trappier has "good hopes" for selection of the 2000 for the French navy. The French government is buying at least seven maritime surveillance aircraft under a multi-year program, with first deliveries planned by 2025.

France's air force selected Falcon aircraft for a future long-range electronic intelligence program, although the specific model has not been disclosed. Trappier said the air force requirements favor the 8X, "which can integrate a maximum number of operating stations, remain on station for up to 12 hours, and operate out of short, hard-to-access airstrips."

Two Falcon 2000 signal intelligence aircraft were recently delivered to the Republic of South Korea. Last month, the German Aerospace Research and Space Center (DLR) signed an agreement for another Falcon 2000.

"After a long downturn—the longest the business aviation industry has ever known—we are finally seeing the light at the end of the tunnel," Trappier said. Despite these difficulties, our fundamentals remain sound: a rapidly modernizing model line, the development of our Falcon 6X, the preparation of our future program, and our ongoing transformation plan designed to keep us ultra-reactive and competitive." ■

Signature, Air BP commit to balance CO2 emissions from employees' EBACE travel

Signature Flight Support (Booth O104), in partnership with Air BP, will offset the carbon emissions for the company's EBACE attendees through the fuel provider's BP Target Neutral program. This latest collaboration builds on Signature's announcement at NBAA 2017 that carbon emissions from jet fuel purchased by Air BP Sterling Card holders at any participating Signature FBO in the U.S. would be offset by the voluntary carbon offsetting program at no extra cost.

"Signature Flight Support and BBA Aviation's commitment to reducing our carbon footprint is a key component of our corporate social responsibility mission," said Mark Johnstone, the recently named chief executive of BBA and CEO of Signature. "Our collaboration with Air BP to reduce our impact on the environment is yielding results not only for Signature Flight Support at a corporate level, but also for our customers who use the Air BP Sterling Card to purchase fuel."

BP Target Neutral has more than 12 years experience in carbon offsetting and purchasing carbon credits from all over the world. This year its portfolio has invested in eight projects that have a total capacity to offset 2.5 m tons of CO_2, generate nearly 8,300 Gwh of renewable energy, support the protection of more than 40,000 hectares of globally significant habitat, and improve the livelyhoods of more than 2.2 million people through better health.

"We're committed to supporting the industry address the dual challenge of meeting its need for more energy, while at the same time reducing carbon emissions," said Irene Lores, Air BP's sales and marketing manager for general aviation. "As the first aviation fuel supplier to achieve carbon neutrality for our own into-plane fueling services and the first to supply jet biofuel through an airport's hydrant, we see this collaboration with Signature as a great way to support our operator customers in their transition to a lower carbon future." **C.E.**

Bombardier Global 7000 flies into EBACE as 7500

by Kerry Lynch

As Bombardier nears the completion of the flight-test campaign of its flagship Global 7000, the Canada-based aircraft manufacturer has a new name for the very-long-range, four-zone clean-sheet business jet: the Global 7500. The name signifies its recently confirmed longer range of 7,700 nm, which makes it the longest-traveling purpose-built business jet.

But it also falls in line with the nomenclature of the newest members of the Global family, the Global 5500 and 6500.

Keeping the naming in line with the new Globals provides "clear visibility" into the product line, said Brad Nolen, vice president of marketing and product strategy.

Bombardier (SD22, Booth Z125) announced the 300-nm range increase in April, saying the change opens up new routes such as New York to Hong Kong and Singapore to San Francisco nonstop.

Stephen McCullough, vice president, integrated product development, Global 7000 and Global 8000, underscored the importance of this to the aircraft's customers. People may ask what's the difference between 7,400 and 7,700 nm, he said, but stressed that those pairs matters for routes such as New York to Hong Kong that are at the edge of 7,400 nm or 7,500 nm. The 7,700-nm range makes those city pairs practical and can be guaranteed to customers. "This makes the aircraft very usable," he said.

The company ensured the routes not only through analysis but through the use of multiple flight-test vehicles, he added. "We were very clear to validate these performance [figures]. These numbers are good in the bank."

Balance and Precision

With that range, Bombardier ensured the wing design and fly-by-wire flight controls provide for a smooth ride. "This aircraft is designed for customers," he said. "We have a lot of real design... and focus to manage the smooth ride." When a passenger flies the distances that the Global 7500 is capable of, a smooth ride is increasingly important, McCullough added.

Along with the range change, the flight-test program has confirmed improved takeoff and landing distance parameters. McCullough said the company was careful not to sacrifice this with the additional range, noting the importance of having access to greater number of airports. "This aircraft is a very balanced aircraft," he said.

The flight-test program verified a new published takeoff distance of 5,800 feet with full fuel in standard operating conditions. In addition, the landing distance is 2,850 feet, and Bombardier officials already have begun paving the way for steep approach approval to airports such as London City. Bombardier expects this approval soon after the aircraft enters service later this year, benefitting from experience it had with the fly-by-wire system on the C Series airliner, McCullough said.

Flight-test Fleet

Behind these changes is a flight-test program that has involved five aircraft that have amassed about 2,000 hours, along with static and motion flight simulators. The flight-test program is so mature that Bombardier brought FTV1, the so-nicknamed "Performer," to EBACE this year, a signal that the aircraft has—for the most part—completed its assigned flight trials, he said. That aircraft was used to clear the way for full envelope flight testing.

FTV1 kicked off the flight test campaign on Nov. 4, 2016, and was followed with first flight of FTV2 on March 4, 2017. FTV2, "the Powerhouse," is nearly wrapped up with flight testing as well—McCullough said within a few weeks, in fact—and has undergone a series of performance testing in various conditions, such as water ingestion testing at Cape Canaveral in Florida.

"The Navigator," FTV3, is certifying the avionics. That aircraft, which flew for the first time on May 10, 2017, benefited from flight-testing on the simulators, not only from Bombardier and vendors, but also with potential customers from a human-factors standpoint.

FTV4, "the Architect," flew on Sept. 28, 2017, and is busy testing and certifying various aspects of the interior, McCollough said, noting this is why Bombardier was unable to bring it to EBACE to show off the interior and all of its features. Interior features will also be displayed at the Bombardier exhibit on the show floor.

The fifth FTV, the so-called "Masterpiece," took to the skies on January 30 with a lighter wing. It has completed the requisite flutter testing to validate the performance with that change, and also has been flown to verify the optimization of the aircraft performance, McCullough said. "We really are in the final throes of flight testing," he said. "We are weeks away."

On the ground, the company has completed the first full fatigue cycle of the airframe and plans to have the second accomplished before entry-into-service by year-end. The company is planning three such tests. The ultimate wing load test—also referred to as the "wing break" test—has been completed and fully met expectations, he said.

A lot of attention and detail is being paid to the interior of FTV4, which with a 54-foot seven-inch-long cabin provides for four distinct living spaces plus crew rest area. McCullough called the crew rest area a must given the length of time the aircraft might fly. The aircraft also is incorporating a full kitchen, he added.

Designed for Customers

While the cabin is highly customizable, down to the incorporation of artwork at a customer's request, the company is taking a modular approach to completions that will help cut down time for outfitting. Nolen said the company is finding a number of customers are opting for an aft stateroom that includes a fixed bed with an en-suite area. Other spaces could include an entertainment area, dining and/or office suite, and typical club seating area.

The cabin management system was designed in concert with Lufthansa Technik with a range of communication and entertainment amenities. And the seating features Bombardier's new patented Nuage seats that are designed to ergonomically adapt to the passenger.

The $72.8 million 7500 will be completed at Bombardier's Montreal center, currently where Global 5000s and 6000s are outfitted. Global 5000 completions, however, are shifting to Wichita, and the 6000 to another Bombardier facility in Montreal. The Montreal center is now already running at near full capacity, with three shifts operating and the positions of the aircraft angled slightly to accommodate more stations. Bombardier has expanded and incorporated a number of enhancements to the center in anticipation of the ramp up on Global 7500s, investing between $55 million to $60 million in the facilities.

Completions time will be key for Bombardier as it works its way through the initial backlog, which the manufacturer estimates extends over three years. ■

DAVID McINTOSH

Bombardier's new flagship Global 7500 boasts a 300-nm range increase and remains on pace for certification this year.

Rockwell Collins snags STC for Premier avionics upgrade package from FAA

Rockwell Collins has received FAA STC approval for its Pro Line 21 airspace modernization package on the Premier I/IA. The package, now available through all of the manufacturer's authorized dealers, includes ADS-B Out compliance; synthetic night vision; updated flight management system (FMS) with localizer performance and approach procedures with vertical guidance (LPV/APV), and radius-to-fix legs; and the latest version of the integrated flight information system for aircraft so equipped. Similar upgrade packages have already been approved for certain Hawkers and King Airs.

"With more than 4,900 aircraft flying with our proven and reliable Pro Line 21, we're committed to providing owners with an ongoing roadmap for the future of their aircraft," said Rockwell Collins vice president and general manager of business and regional systems Craig Olson. "This update not only covers ADS-B, but also brings a whole new flying experience to pilots through upgrades like FMS enhancements and synthetic vision." **C.E.**

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Honeywell continues to cultivate cabin connectivity

by Kerry Lynch

Honeywell Aerospace (Booth Y139) is ramping up on its connectivity portfolio with growing demand for its JetWave Ka-band satcom, as well as the introduction of new products such as its GoDirect Router and Aspire 350 and 400 satcoms.

Demand for the JetWave products that bring the high-speed Ka-band satellite-based connectivity into the cabin has continued to pick up since Honeywell brought the first units to market in 2015, said Jim MacDougall, product director, cabin satcom at Honeywell Aerospace. Overall, Honeywell has shipped 1,100 shipsets for both the air transport and business aviation market. In the business aviation market alone, 72 were shipped in 2015, a number that grew to 296 by 2017, and in the first quarter of this year Honeywell has delivered 108 and is on target for 450 to 500 shipsets this year, MacDougall said.

This growth has come as applications have been approved for most of the in-service large-cabin business jet cabins from Bombardier, Gulfstream, Embraer, and Dassault, with further approvals anticipated in upcoming months.

As Honeywell plans to build on that base, it is targeting an aftermarket of thousands of business jets flying today. Many business jet customers expect connectivity for all the business functions they would do in the office, including videoconferencing.

But also important is the individual passenger, MacDougall said. He pointed to the growth in high-net-worth individuals and their use of business aviation. Many have family members who also want to be online just as they would on the ground. "Connectivity is not optional for them," he said. "There is a huge installed base that we are going after aggressively."

In the past 20 months, Honeywell has secured 36 STCs for JetWave, which he said is "pretty remarkable. We've never done those that fast before." MacDougall said this was possible by partnering with key industry partners such as established installers Lufthansa Technik and Jet Aviation, as well as with integrators such as Rockwell Collins, Thales, and Zodiac. These efforts have allowed them collectively to "attack the aftermarket," he said. Twelve of the 36 STCs are for traditional business jets, while nine apply to bizliners.

But as they seek to lock up the large-cabin class, Honeywell is "looking in the near future to bring some additional products to market to target smaller aircraft," he said. "That's the next step for us."

The manufacturer is weighing the potential for new designs in-house or partnering with satellite antenna manufacturers to bring an existing or "near existing" antennas to market, to accommodate aircraft that aren't large enough to carry a JetWave antenna. "There's a number like that that fit into this category," MacDougall said. While unable to give an exact timeframe on when that might happen, he said a year or less would not be out of the realm of possibility.

He doesn't see JetWave as a solution for the smallest of aircraft, saying their bandwidth needs are not as great and there are other Honeywell products that can suit those needs. But he does see demand in some cases that involve mixed fleets—where the owners get used to the higher bandwidth on the larger aircraft—or for operations that might involve flights into more remote regions or overwater, such as the Caribbean.

Don't Pass Go, GoDirect

While Honeywell ramps up that effort, it is looking to bring other new products to market. These include the GoDirect Router, a new lightweight, onboard router that the manufacturer says will be offered at a fraction of the cost, will take less space, and consume far less power than existing routers.

To reach the market in the next few months, the new GoDirect Router is estimated to be half the size and weight of traditional products and one-third the price. In addition, it will use about 30 percent of the power of existing systems, the company estimated.

The GoDirect Router comes with built-in security software that provides security from laptops and other connected systems brought on board, both on the ground and while the aircraft is in the air. This threat-protection software, to be available shortly, will be offered as an upgrade option on legacy Honeywell routers. The new router is designed to lower one of the major barriers to connectivity on airplanes, said John Peterson, senior director of connectivity services for Honeywell Aerospace.

Since rolling out its GoDirect suite of connectivity services in 2016, Honeywell has experienced about 300 percent growth in subscriptions, Peterson said. But it also has received substantial feedback from operators about the size and costs of onboard routers.

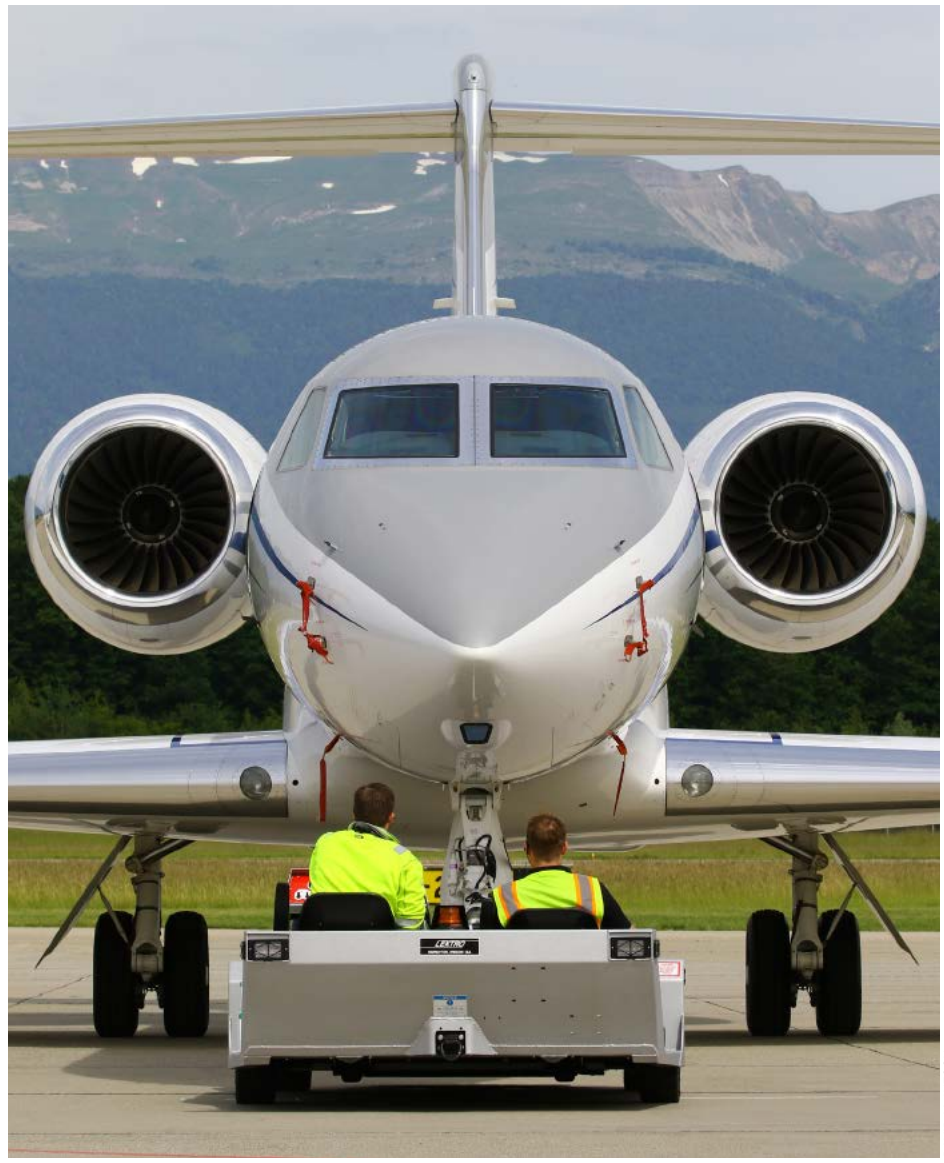
"The barrier to entry has been really high," he said, adding that operators asked, "Why is it so expensive to put routers on the airplane; why does it take so long; and why do we have to take cabins apart to rewire them? Everything that [has been provided] is too big, too heavy, too hot, and consumes too much power." According to Peterson, "We realized we have an opportunity...to bring a completely disruptive product to the aerospace market."

The new router is designed for ease of installation. For aircraft with older legacy systems, the new router will simply plug into the same location, a swap that should take about 30 minutes, he said. Since its introduction in March, the router has received a strong reception, not only from the light end of the market, but from the air transport market as well, MacDougall said.

Also recently introduced are the new Aspire 350 and 400 connectivity products. To enter service in the first quarter of 2019, the Aspire 350 will use the Iridium Next satellite constellation. The 400, to enter service by the middle of next year, will work with the Inmarsat SwiftBroadband service.

The 350 will provide critical voice and data communications in the cockpit, as well as cabin connectivity with faster speeds. The system is designed for reduced weight with an embedded router, but provides capabilities for FANS, ACARS, and air traffic control secure voice capability.

Weighing what Honeywell said is about 100 pounds less than comparable systems, the Aspire 400 consists of a satellite data unit, configuration module, high-power amplifier, and diplexer/low noise amplifier. It contains two separate and independent SwiftBroadband channels for fully segregated cockpit and cabin communications. ■



DAVID McINTOSH

A peek behind the curtain

Preparing the static display is no easy feat. Once the aircraft are flown into Geneva, organizers race against the clock to position them. Somehow, the show comes together every year.

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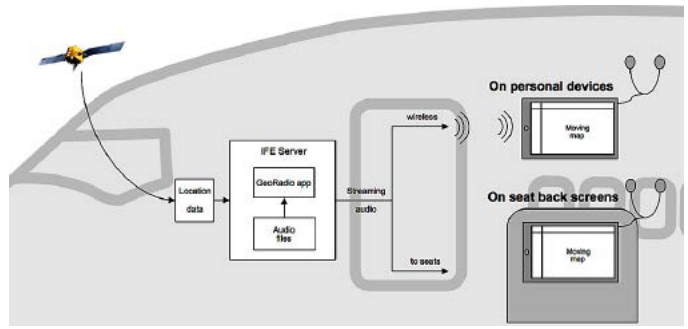
Content-rich GojiBox debuts at EBACE 2018 | by Amy Laboda

First-time EBACE exhibitor Gotham Studios (Booth W133) is demonstrating its GojiBox moving map and in-flight entertainment system this week at the show. Gotham Studios, an Emmy-winning entertainment production company in Washington state, collaborated with Rajco Services, a provider of cabin and connectivity systems, on the GojiBox. The system can generate custom content—narrated by celebrities—for aircraft owners and charter companies.



The fully integrated GojiBox IFE system taps the aircraft's navigation data to deliver location-specific content.

Components are simple: a compact, lightweight server (12 cm/5 inches square by 5 cm/2 inches thick and 1.2 kg/2.6 pounds) connects to navigation data, power, and the cabin wireless system, drawing no more than 50 watts of power. Passengers connect to the Wi-Fi and enjoy custom content created by Gotham Studios. The programming syncs to the airplane's location and, if desired, the passengers' interests.

Geo-specific Content

The Goji/GeoRadio consists of a proprietary software application and a content library. The app reads location data from the flight data management system of the aircraft; checks location against a database of geo-tagged audio assets, and then creates a playlist of assets pertaining to the aircraft's current position, bearing, altitude, and distance to destination; and serves these assets in a sequence to create a continuously playing program that includes interactive moving maps (2D and 3D).

GeoRadio allows passengers to hear a show about the people and places they are passing, while 4K GeoVideo sequences with the audio to display footage of the scenery below the airplane and scenes from the destination. All this plays on both built-in cabin displays and passenger devices connected to the system.

GojiBox also offers photos of every location the airplane covers, with updated information on places to visit, dine, and shop, along with a terabyte's worth of audiovisual on-demand movies and digital content. Goji points of interest have already been integrated into commercial and business aircraft for several years. This is the first time the product will be hosted in its own hardware component. ■

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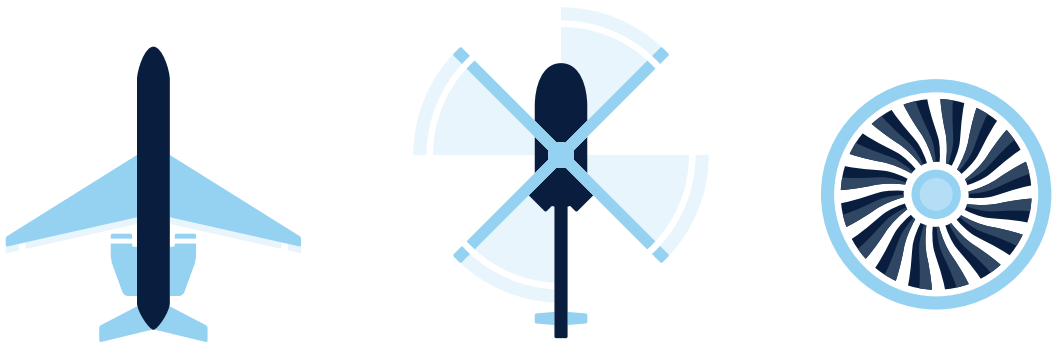

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Jetcraft proclaims an end to market 'doom and gloom'

by James Wynbrandt

Once again, global aircraft broker and dealer Jetcraft is showcasing at EBACE 2018 three gleaming, available, late-model large-cabin business jets, but the trio currently on display was harder than usual to gather. "It's actually more difficult to find good quality aircraft to exhibit this year," said Pascal Bachmann, Jetcraft's senior v-p sales, EMEA, crediting the turnaround in the preowned market. "We're not the only ones who can feel the market is on the way to being better," he said. "Owners see it as well, and they're not stupid. They're asking themselves, 'Why should I exhibit it at EBACE if I can leave it in the hangar and people call me up to buy it?'"

That's a dramatic shift from the doldrums of the past decade, Bachmann said. "There's no doom and gloom anymore."

Yet despite the industry's lean years, U.S.-based Jetcraft itself has seen annual growth since 2008, when it brokered 23 aircraft, through last year's total of 93 transactions, according to Bachmann. "We never dropped; it's a continuous growing line, and this first quarter we sold 25 and we're on track to reach 100 by the end of the year."

Jetcraft's 10-Year Business Aviation Market Forecast 2017-2026, released late last year—its third, predicts similar growth industry-wide in the coming decade, with new aircraft deliveries steadily rising, totaling 8,349 units and $252 billion in revenues at current prices.

Over the past year, the company has become more bullish on the share North America, Europe, and Asia will claim in that growth. North America is forecast to take 62 percent of all new business aircraft delivered over the next decade, up from Jetcraft's 60 percent projection at the end of 2016. Europe's forecast share of global business jet deliveries now stands at 17 percent, up from 15 percent, while Asia's expected portion rose to 12 percent from 10 percent. Forecast deliveries to Africa, the Middle East, and Russia meanwhile dropped. "Not a big impact on the worldwide market, but obviously big in the affected regions," Bachmann said, citing geopolitical issues and regional instability for the lowered expectations.

Delivery forecasts are nothing new for airframe and engine OEMs, but why is Jetcraft, an aircraft brokerage, creating one?

"We're a neutral party," Bachmann said. "We don't manufacture anything, we just sell, and we don't have a special interest to sell a Falcon, a Gulfstream, or a Bombardier, so I think we're in a very good position to actually know the markets."

Meanwhile, the turnaround is already affecting Jetcraft. It recently opened a London office with a full-time lawyer on site, helping double its European team in the last six months. The entire team is on hand at EBACE, along with senior leadership and representatives from the company's Middle East and Africa offices, eager to meet with attendees who want to learn more about sales and acquisitions opportunities in the global preowned market.

The numerous charts in Jetcraft's detailed market forecast, based in part on historical economic models, display steady year-over-year growth until its final year, 2026, when all graphs show a steep drop. "Let me put it this way," said Bachmann, explaining the big dip. "The good times end at some point. We see a pretty steady growth over these 10 years, but it cannot go on forever." ■

GE, ArincDirect team on FOQA services

Under a "collaborative arrangement," GE Aviation (Booth Z21) will provide flight operational quality assurance (FOQA) services to Rockwell Collins ArincDirect (Booth V71). The two companies will build data integrations between GE's C-FOQA Centerline service and ArincDirect's current flight support offerings, making FOQA data available to ArincDirect customers for flight planning.

FOQA enables operators to better identify and eliminate potential safety hazards in flight operations. In the agreement's first phase, commencing this summer, the companies will implement beta access to safety analysis reports and other FOQA tools from GE through the same web portal, mobile, and desktop devices ArincDirect customers currently use. No rollout date for FOQA access has been set, ArincDirect told **AIN**. **C.E.**

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UTAS veneer helps shed the weight

Capping "several years of research and development," UTC Aerospace Systems (UTAS, Booth 115B) launched the FLite series, a new product line from its Booth Veneers division, this week at EBACE 21018. "These advanced-technology products leverage patent-pending technology to provide weight savings of up to 40 to 60 percent compared to our current offerings," said Joshua Florio, Booth Veneers general manager.

The new veneers, which include FLiteFlex and AlumiFLite, were developed to meet customer requests for veneers that are lighter, more flexible, and less flammable, lowering aircraft weight and improving performance, according to the company. The products build on the company's existing three-ply veneers that use a poplar substrate first introduced by Carl Booth in 1976.

FLiteFlex is a two-ply product that provides greater balance of thermal and electrical properties through its proprietary, patent-pending combination of face veneer and synthetic substrate.

As a result, FLiteFlex is nearly 60 percent lighter than existing Booth Veneers products, representing up to 500 pounds of weight savings per aircraft, depending on the cabin size and amount of veneer used, the company said. The burn-resistant substrate is thinner and more durable than its current veneers, and also offers increased flexibility, able to bend around radii that traditional veneers cannot.

AlumiFLite is a three-ply product consisting of a face veneer with an aluminum core and poplar backer. Compared to traditional three-ply veneers, AlumiFLite offers a 40 percent weight savings per shipset, in addition to increased flexibility. The face veneer is chemical free, requiring no fire-retardant chemical, and the aluminum core is offered in two thickness options.

Showcased at the company's display this week in Geneva, both FLiteFlex and AlumiFLite are available in the same wood product varieties as Booth's legacy veneers. **J.W.**

DAVID McINTOSH

Stop and smell the jet fuel

Between the exciting announcements and unveilings, EBACE can be hectic. Exploring the static is a relaxing way to get acquainted with new aircraft. Aviation enthusiasts and newbies alike come together to admire the newest technical advancements business aviation has to offer.

Jet Aviation boasts Boeing 787 contract

by James Wynbrandt

Jet Aviation (Booth A18) announced a new Boeing 787 completion contract, in addition to developments in its Airbus ACJ380 and ACJ350 XWB completion programs.

The 787-9 contract, for an undisclosed customer, is the Zurich-based company's second 787 completion. Jet Aviation has dedicated "significant research and development" into the carbon fiber composite airframes since 2013, and can integrate a cabin onto a 787 "without modifying the fuselage, avoiding time-consuming and costly repairs," the company said.

This research "places us in an excellent position to create a finished interior that is truly VVIP, and represents the latest in aviation technology for business aircraft," said Neil Boyle, senior v-p of global completions. The 787 interior will be installed at Jet Aviation Basel, the company's completions and maintenance center that has performed completions on 28 Boeings since 1998.

Jet Aviation also announced a partnership to develop VVIP interiors for the ACJ380 together with Geneva's Sparfell & Partners, the UK's Winch Design and Germany's DS Aviation.

"We've been excited about this project since Sparfell first approached us with their concept to pool all of our collective expertise to bring a completions solution for the ACJ380 to market," said Matt Woollaston, Jet Aviation vice president of completions sales and design. He noted that the Jet Aviation team has worked closely with Winch designs "on many projects over the years."

Sparfell & Partners is a consultancy specializing in business aviation sales, acquisitions, and services; Winch Design designs bespoke interiors for luxury homes, yachts, and executive-configured aircraft; and DS Aviation is an investment company focused on widebody aircraft.

Under the agreement, Jet Aviation will engineer, manage, manufacture, install, and certify a VVIP cabin interior for the ACJ380, the world's largest airliner. Its Basel facility is "one of the few completions centers in the industry that can accommodate aircraft the size of the ACJ380 for VIP platforms," the company said.

Additionally, Jet Aviation announced the Basel facility has received approval from Airbus for completions of the ACJ350 XWB (extra-wide body). Like the 787, the ACJ350 has a composite airframe. Jet Aviation can use Airbus' proprietary Easyfit concept to integrate the cabin without airframe modifications, Boyle said, proclaiming his company "ready and pleased to welcome ACJ350 XWB owners and operators" to the Basel facility for completions.

Airbus appointed Jet Aviation to create renderings of an ACJ350 XWB interior displayed at EBACE 2016, and the company is currently building an 8,700-sq-m (93,650-sq-ft) hangar in Basel to meet anticipated increased demand for wide-body completions and refurbishments. Expected to be operational by year-end, the new hangar is "ideally suited for next-generation aircraft such as the ACJ350," the company said.

The Basel center has completed 23 ACJs since 2000, ranging from the ACJ319 to the ACJ340-600. ■

With new partnerships with Boeing and Airbus, Jet Aviation will continue to work closely with Winch Designs for completions.

P&WC preps powerful PW800 for service

by Curt Epstein

DAVID McINTOSH

The Pratt & Whitney Canada PW815GA-powered Gulfstream G600 will enter service at the end of this year.

While Gulfstream eagerly awaits certification of its G500, so too does Pratt & Whitney Canada (P&WC, Booth O115A), which will see the entry-into-service of its PurePower PW800 series engine on the large-cabin jet. The G500 is powered by the 15,144-pound thrust PW814GA, while its larger sibling, the G600, which is expected to enter service by the end of the year, mounts the 15,680-pound thrust PW815GA.

"We're very pleased with the performance that we've seen in flight test," said Scott McElvaine, the engine maker's vice president for the PW800 series. "We're pretty close to 22,000 hours of total test time. That's combined between the 500 and 600. That's also combined with the test work that Gulfstream has done, as well as the test work we've done in both ground tests and flight tests."

Like Gulfstream, P&WC is putting the finishing touches on its service preparations with at least 150 people dedicated to supporting the PurePower platform, and its online health monitoring service portal. The company has completed all of its related technical manuals, and has established its customer training programs, with the first courses already scheduled.

McElvaine noted the company is currently busy establishing an inventory of spare parts to be distributed to locations around the globe, and has spare engines ready for eventual loaner swaps. "Suffice to say we're in a full production ramp-up right now," he told **AIN**.

The new Gulfstreams will not require P&WC's FAST (flight acquisition storage and transmission) engine monitoring system, as the aircraft will be equipped to transmit its engine sensor data through its own system. But according to Bjorn Stickling, the engine maker's director of diagnostics, prognostics and health management, the G500 and G600 will downlink to the FAST ground stations to relay full flight data consisting of more than 300 parameters.

That will allow the company to make the same kinds of prognostic service recommendations on the PW800 as it does on other platforms such as the PW300 series, reducing unscheduled maintenance events and driving dispatch reliability. "We're proud that we can move with that full experience right into entry-into-service on the 800," Stickling told **AIN**.

As development work on the Gulfstream applications winds down, another project is spooling up as the PW800 was selected earlier this year for the Dassault Falcon 6X, the replacement for the 5X, which was canceled due to problems with the Safran Silvercrest engine. "At this point, we're still very much in the design phase with them, what's called the joint-definition phase," said McElvaine, adding that following on the heels of the PW814 and PW815 will speed the Dassault application. "The good news is that it's a relatively rapid program and also a mature program."

He described how P&WC began working on the PW800 series in 2010, with it finally entering service in 2018. By contrast, Dassault has indicated a 2022 EIS for the 6X. "You can get to the build faster, but that doesn't necessarily mean you can cut time out in the test phase itself, because you still have to make sure that you meet your performance targets," McElvaine stated. "However, because Dassault is a very well known customer to us and the Falcons are very well known architecture to us, just that understanding of how each other would like to work, means that...we go through that process with a high degree of confidence."

The PW800-series engine was designed with an eye toward the future with regards to optimum fuel efficiency and the environment in mind according to McElvaine. "With the Talon X combustor technology that we have in the engine, it really allows us to get not the current generation of emissions, but to the next generation of emissions, with double-digit improvement," he explained.

"When you go and look at the new generation of standards, it's really about non-volatile particulate matter and it's about your carbon footprint as a whole. Not only do we do well against the more traditional measures, but we size up very well against some of these new standards." ■

CAE logs record orders in FY18

CAE (Booth H89) took in a record $2.3 billion in civil aviation training orders in its Fiscal Year 2018, a 12 percent increase, the company reported on Friday, announcing both fourth-quarter and full-year results. During the quarter, CAE signed contracts for civil aviation training solutions valued at $544.5 million, including long-term training services in Europe and the Americas. The company also won long-term training contracts with business aviation customers, including Elit'Avia and Flexjet.

"In business aviation, we have been doing very well to address the existing market and I'm encouraged by the signs of improvement," said CAE president and CEO Marc Parent. "It is a little bit better than we have seen in the recent past but it's still nowhere near the level it was prior to the financial crisis of 2008. If we see business aviation coming back in any material way, then that could have quite a significant benefit to operating income growth."

CAE reported five full-flight simulators were sold during the quarter and 50 full-flight simulators were sold during the year under civil aviation training solutions contracts. "There is definitely more opportunity to add more business jet sims. We will continue to add sims to cater to new airplanes and increased demand in business aviation," said Parent.

CAE fourth quarter civil revenue was $455.2 million, up 9 percent compared with the same quarter in Fiscal Year 2017. Segment operating income was $95.7 million, up 14 percent compared with the fourth quarter last year. Civil training center utilization was 82 percent during the fourth quarter. **A.R.**

Pilatus permits PPG paints for PC fleet

Pilatus Aircraft (Booth L115, SD02) has approved PPG aerospace coatings systems for all of its production aircraft, the California-based paint and coatings manufacturer announced. The PPG paint systems are qualified to Pilatus Specification PMS0600-52-01 and approved for application on the Pilatus PC-24 twinjet, PC-12 NG turboprop, PC-6 multirole aircraft, and PC-21, PC-9 M, and PC-7 MkII military trainers.

The basic system consists of specified versions of PPG's Desoprime pretreatment wash primer, Desoprime primer, Desofill HS sanding surfacer, and Desothane topcoat and clearcoat. Special effects options are also qualified with the same primers and sanding surfacer, as well as metallic topcoat, mica coat, and matte clearcoat. These coating systems were developed with the latest innovative technology, according to Thorsten Schleyer, PPG's account manager for Pilatus. **J.W.**

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Leonardo optimistic with solid growth in Europe

by Ian Sheppard

MARK WAGNER

Sales for Leonardo Helicopters' AW139 (above), AW169, and AW189 have increased. The aircraft are suited for EMS/SAR missions, offshore transport, and corporate/VIP travel.

Leonardo Helicopters (Booth T71) has reported stronger growth in the European market than in previous years, and believes that "even in case of a market downturn, the flexibility of our helicopters allow us to be relatively safe because we can address all types of requirements." The company has final assembly lines in Vergiate and Tessera, Italy; Yeovil, UK; Świdnik, Poland; and Philadelphia, Pennsylvania.

"The state of the market is better than it used to be, and Leonardo is very optimistic about its helicopter family, which includes the AW168, AW139 and AW189," Emilio Dalmasso, head of global sales, told **AIN**. "Our helicopters are perfect for a number of missions such as EMS/SAR, offshore transport, and corporate/VIP transport."

The AW169, he noted, "has registered a growing success with almost 60 units delivered and a solid and growing order book, especially in the VIP/corporate transport and EMS/parapublic sectors."

Meanwhile, the AW139 is "perfectly mature without having lost the edge over the competition, with a cemented confidence from operators of all kinds," he said, and the AW189 is "the go-to super-medium helicopter." Apart from the obvious offshore market, it is the perfect helicopter for long-range SAR missions, he said.

Specifically addressing the offshore market, which has suffered from the lull in oil prices in recent years, Dalmasso said, "We see better conditions... which is very positive considering that we already had a very strong hand thanks to the AW139 and the AW189. We expect these two types to keep and increase even further their market share in the near term, when older models will be phased out due to obsolesce, low safety standards, and higher costs to operate."

He noted that in the wind power sector, although it is still relatively a niche, "We recently introduced the AW169 [and we have] different customers interested."

Dalmasso said the EMS/SAR markets would also "continue to be important" and believes a competitive edge could be developed in that market by helping "to improve situational awareness or to increase safety in bad weather," something Leonardo is "constantly" researching. Such technologies include synthetic vision and enhanced vision systems, the Obstacle Proximity LiDAR System, and limited or full ice-protection systems.

One threat to helicopter sales could be UAVs, but Leonardo Helicopters is confident that in the wider Leonardo Group, Italy's leading aerospace company, it is "well positioned" in this sector, too. "As the only OEM in Europe with full integrated capabilities in the UAV domain covering platform and system integration, Leonardo is well positioned in this field and is developing solutions also in the rotorcraft sector. Our UAS division expands the capabilities of vertical lift for certain applications and in range of weight/size categories not necessarily covered by manned rotorcraft."

Linked to this is the emerging eVTOL and urban-mobility market. "It is important to underline that the market is still in the long-term vision phase. Leonardo is always interested in new solutions—the first civil tiltrotor AW609 proves that–and looks carefully at new trends," Dalmasso said. "I would say that, currently, most of our attention is on the technology that can be used for those projects. Examples are the active rotor blade and electric tail rotor." ■

MARK WAGNER

Challenging the competition

Bombardier's Challenger 350 has averaged approximately 62 sales per year from 2015 through 2017. The model was originally the Challenger 300 and features a slightly longer wingspan, cabin improvements, modern avionics, and more. The aircraft, which features a 3,200-nm range, can fly nonstop from New York to London, Paris to Dubai, or Hong Kong to Mumbai.

NARA members attend EBACE to promote ethics in brokerage

The National Aircraft Resale Association (NARA) is well represented this week at EBACE in Geneva, with approximately 25 NARA member organizations exhibiting and 60 representatives from NARA companies attending.

NARA brokers represent approximately 60 percent of the used aircraft market but comprise just 3 percent of total brokers. Some represent buyers while others represent sellers.

Some of the NARA member brokers, service, and equipment providers that are exhibiting include Aircraft Bluebook (Booth T107), Amstat (Booth V115), Aviation Manuals (Booth J35e), Aviation Partners (Booth Y33), Banyan Air Service (Booth 89), Clay Lacy Aviation (Booth D89), Duncan Aviation (Booth E89), Exclusive Aviation/Fargo Jet Service (Booth E89), Guardian Jet Booth (Y125), Honeywell (Booth Y139), Jetcraft (Static Display 21), JetNet (Booth W127), JSSI (Booth A89), QS Partners (Booth Z109), Satcom Direct (Booth W115), Skyservice Business Aviation (Booth R108), and Western Aircraft (Booth T101). Those attending, but not exhibiting, include Cutter Aviation and Hatt & Associates.

All of these companies follow the NARA 14-point code of ethics and work to promote growth and public understanding of the aircraft resale industry. NARA itself is working to standardize transactions through letters of intent, requirements, and certifications.

"This huge turnout of business aircraft expertise to Europe reflects the heated markets we are experiencing across the globe and especially...in the U.S.," said Brian Proctor, NARA chairman. "The NARA contingent seems to be particularly busy keeping up with a high business aircraft sales volume that we haven't seen in some time in the U.S., but Europe, the Middle East, and Asian markets are also busy." **S.C.**

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MALHERBE PARIS - Photo Airborne Films

This Boeing Business Jet with the London skyline as backdrop says it all. Originally built more than a century ago to defend London from German Zeppelin attacks in World War I, the airport's proximity to the UK capital city is one of its greatest assets.

London Biggin Hill fortunes keep on trending upward

by Ian Sheppard

This is Biggin Hill Airport's time to shine, according to airport business development director Robert Walters, and several recent changes bear that out. Among them are the recent extension of operating hours being key in bringing more investment by Bombardier Business Aircraft, and the Castle Aviation AW109 helishuttle, meaning London Battersea Heliport (which opens at 7 a.m. and closes at 10:45 p.m.) is only a six-minute flight away.

The extended operating hours means Biggin is open until 10 p.m. weekends and 11 p.m weekdays, allowing passengers to take the helishuttle after a working day and dinner, and be airborne by 11 p.m. One year after the longer operating hours were introduced, the airport has seen monthly movements increase, said marketing manager Andy Patsalides. According to WingX Advance, movements increased 17.6 percent in the year to the end of March, whereas the average increase for other London airports was only 2.3 percent (Farnborough recorded 11.3 percent). Biggin now accounts for 15.3 percent of London business aviation traffic, with 12,736 movements to the end of March 2018. That places it third ahead of Stansted (10.5 percent) but behind Luton (28.5 percent) and Farnborough (24.7 percent).

Biggin (Booth U123) has a seemingly continuous pipeline of development projects. "We got the green light for the aviation training college from the Mayor of London, at the south camp near Bombardier. [London] is putting in £6.5 million and Bromley Council is putting in some too. We're putting in the land—the total is around £11 million. We hope it will open in first-quarter 2020."

The new 56-room, four-star hotel for crew and engineers has also been approved on the airport property. It will be located next to the Signature FBO. Meanwhile, this summer Biggin will get a GPS instrument approach to Runway 03 for the first time.

Walters said the airport wants interested businesses to get in touch, particularly MROs and manufacturing companies, as the airport has plenty of room (500 acres) for new hangars and facilities. The number of home-based jets has increased from 27 to around 60 in three years, creating a greater pool of potential clients for service providers.

The next infrastructure project and one that will be very visible to all is to "transform the terminal and tower over the next two years," but the distinctive tower-on-terminal configuration will be replicated, said Walters. Also, the prefabricated buildings currently next to the tower will be replaced with another hangar, with the offices now being available in the large hangar that has just been built. When **AIN** visited that hangar earlier this month, there was plenty of space even though it was playing host to a G650, G400, Falcon 7X, Embraer Legacy 650, Bae 146, Challenger 300, PC-12, and Cirrus Vision Jet (the first in the UK).

As Biggin enlarges its share of the business aviation market and the airliner-congested airports start to lose business aviation business, Walters and his team believe there is far more potential. He pointed to the reliever airport model in the U.S.—such as the success of Teterboro in the New York City area—that Biggin Hill's management team has for several years used to persuade UK politicians that a similar model can work for London.

Yet Walters said Biggin Hill and Farnborough Airport are not about to compete each other out of existence, either; "We are not going to race to the bottom on price. And Farnborough might be ahead of us on infrastructure, but Biggin is investing heavily and is unrecognizable compared to five years ago. And it will be unrecognizable again in another five years."

The only cloud on the horizon recently has been the impending loss of ab initio and circuit training for pilots at the airport, meaning the three flying schools at the airport will have to find new homes, having been given six months' notice in February. Walters pointed out that the airport is increasingly busy with heavier traffic, so it is becoming a less and less suitable environment for training. In addition, much training is now done at dedicated facilities overseas, where the weather is more suitable. ■

Biggin Hill Airport's brain trust, left to right: Robert Walters, business development director; Gary Chapman, CFO; Will Curtis, managing director; and Andrew Walters, chairman of the board. Incremental improvements have led to unprecedented growth at "Biggin on the bump."

Newest Gulfstream jets log speed records

As the Gulfstream G500 and G600 close in on expected FAA approvals—midyear for the former and by year-end for the latter—the twinjets have each racked up transpacific flight records in their respective weight classes, Gulfstream Aerospace announced today.

On April 20, the G500 and G600 flew from Shanghai to Honolulu at an average speed of Mach 0.90. The G500 made the flight in 8 hours and 34 minutes, with the G600 taking just one minute longer. The following day, the sister airplanes flew from Honolulu to Gulfstream's headquarters in Savannah, Georgia. At an average speed of Mach 0.90, the G500 accomplisheding the flight in 7 hours and 44 minutes. The G600 clocked in at 7 hours and 49 minutes.

"Gulfstream customers are accustomed to flying practically anywhere in the world at record speeds, and the G500 and G600 have been doing just that as they near certification," said Gulfstream president Mark Burns. "These records showcase the real-world capabilities of these impressive aircraft."

The city-pair records are pending confirmation with the National Aeronautic Association, Gulfstream said. **C.T.**

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The MedAire call center in Phoenix takes as many as 300 calls per day from aircraft and yachts around the world where medical emergencies are taking place.

MedAire's MedLink center is just one of many assets

by Amy Laboda

When medical or security emergencies strike, the difference between success and failure lies in a strong safety support system and a viable, rapidly deployable plan. As the world's largest integrated aviation and maritime provider of medical, travel, and safety services, MedAire (Booth U33) is thus a critical medical and security component of many private, charter, and commercial flight departments' safety management systems. Through parent company International SOS, Medaire taps into a global network of more than 72,000 accredited providers in healthcare, aviation, and security to provide services for its subscribers.

At EBACE 2018, MedAire is focusing on its core: the MedLink facility in Phoenix, Arizona, which show attendees can visit through a short virtual reality tour at the company's booth. The U.S. MedLink emergency unit is housed in an emergency department at Banner University Medical Center. In the MedLink Emergency Response Center, the team of healthcare providers takes as many as 300 calls per day from aircraft and yachts around the world, where medical emergencies are taking place.

"No other group of doctors has as much aviation experience as our MedLink team. These doctors are the ones you want assisting you when you have a medical issue," said MedAire CEO Bill Dolny. "The data we have collected about medical events allows us to do aviation health-related research, and it also drives how we develop medical kits, as well as how we train crewmembers and passengers as first responders. It's all based on real-world experience about what really happens when people are flying."

MedAire data shows many calls from business aviation clients are not in-flight emergencies, but rather calls when crew and passengers become sick or injured while at a destination. The company reports a total of 600 calls to its various assistance centers per day divided into in-flight medical assistance (55 percent), passenger fit-to-fly assessments, (23 percent), crew support (18 percent), and other security and assistance services (4 percent).

Region-specific Solutions

With so many clients and such a diverse population MedAire has, in the past year, added two additional MedLink facilities—one in Frankfurt, Germany, and another in Beijing.

MedAire expanded its aviation services in Central Europe with in-flight and on-the-ground medical assistance in native-language German through the International SOS assistance center in Frankfurt. The company also provides crew medical training as part of an integrated solution in both English and German, in partnership with Medifan, the aviation crew medical training experts. MedAire is now working with pharmacy Römer-Apotheke in Frankfurt, a longtime partner of Medifan and Mash Gmbh, to ensure compliance with pharmaceutical regulation in the region, enabling a complete medical safety solution integrated with crew medical training and 24/7 assistance services.

"In addition to our newly expanded medical kit capabilities and partnership with Römer-Apotheke, MedAire offers localized native language solutions for airlines and business aviation customers, including 24/7 in-flight assistance, on-the-ground crew medical support, and travel security services serviced out of our Frankfurt assistance center," said Steven Bates, managing director for Europe.

The company also has Mandarin language service out of Beijing for clients that prefer to have assistance in their native language. It originally added services through the International SOS facilities in Beijing in 2004. ■

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Rockwell Collins

Building trust every day

The super-midsize jet offers a smooth, quiet ride

by Matt Thurber

Although the G280 traces its heritage to North American Rockwell, Galaxy Aerospace and Israel Aerospace Industries (which manufactures the airframe), the super-midsize jet is all Gulfstream, from the design of the wing to the elegantly equipped cabin and the outstanding performance that pilots have come to expect from the Savannah, Georgia, manufacturer.

Ultimately, the G280 doesn't share much with the G200/Galaxy except the size and shape of the fuselage. The engines, wing, empennage, avionics, and systems are all new and improved, and thus the G280 required its own new type certificate.

It's not surprising that Gulfstream (Static Display/Booth T139) chose to model aspects of the G280 after its larger airplanes. The company's wing designs are famously clean, with no leading-edge devices, flow fences, or flap track canoes to add complexity and hamper efficiency. The G280 wing, which is swept more than the G200's and has newly engineered winglets, was designed nearly in parallel with the G650's, according to G280 vice president, mid-cabin programs Rick Trusis, and it features a high-profile aerodynamic design and efficient airfoil, he said, "with performance born out of the GV/G550."

The other big difference compared to the G200 is the T-tail, which is more efficient than the G200's cruciform-style empennage and also makes the G280 slightly longer. "We wanted it to look more like a Gulfstream," he said.

The G280's spoilers are fly-by-wire-controlled, and this allows for automatic spoiler deployment, which facilitates steep-approach capability and the G280's certification for London City Airport. The rudder is also fly-by-wire controlled.

The G280 is Gulfstream's first design certified with an autobraking system, which is a natural addition to the jet's brake-by-wire system. (The G650 also has autobrakes, but that was certified later, as a follow-on.) Autobrakes help improve runway performance, shortening balanced field length, and adding to overall safety and comfort. "The avionics and performance of this aircraft allowed us to take advantage of this technology," Trusis said. "They've been really well received."

What buyers get with the $24.5 million G280 is a cabin nearly as wide as the classic Gulfstream fuselage, but obviously not as long. The G280 cabin measures 25 feet 10 inches in length and is typically outfitted for 10 passengers. The G450 (no longer in production) is about 4.6 meters (15 feet longer). At 7 feet 4 inches, the G450/G550 cabin is just two inches wider than the G280's.

When comparing height between the classic large-cabin Gulfstream fuselage and the G280, the smaller jet is one inch taller, but that's because it retains the drop aisle from the G200, not the flat-floor found in the larger jets. Trusis explained that a flat floor wouldn't work in the G280. "[The drop aisle] allows for a much larger volume," he said. "The airplane feels more spacious for its cabin width. Having that slight step-down allows for the [taller] height in the center. And we were also able to put the seats into better proximity to the windows at the wider part of the fuselage. The seats align well with the outside view."

The G280's 19 cabin windows (four more than the G200) are larger than the G200's, although not the same size or configuration as those in the large-cabin Gulfstreams. "We would have had to redesign the fuselage," he said. "They align well with the cabin interior," and due to the large number of windows, add lots of natural lighting. The lavatory has its own window, too.

One design goal was to provide access to the aft baggage compartment during flight, and this was achieved by adding an auxiliary bulkhead. The G280 has a limitation for in-flight access, which is not allowed above 40,000 feet. Trusis explained that the limitation helped simplify the certification process, but Gulfstream is now working with the FAA and EASA on removing that limit. This would enable baggage compartment accessibility up to the G280's maximum altitude of 45,000 feet.

The pressurization system delivers a more comfortable 7,000-foot cabin at maximum altitude.

The G280 cabin can be outfitted for eight, nine, or 10 passengers. Completions are all done at Gulfstream's Dallas factory-owned service center.

Cabin Arrangements

In late 2016, Gulfstream unveiled new cabin configurations, with two layouts offering 10 seats available for takeoff and landing without having to use the lavatory seat. One of these configurations features a double-club forward and four seats on the left side opposite a three-seat divan (only the outboard two divan seats are available for takeoff and landing). The other 10-passenger configuration replaces the divan with two individual seats in single-club orientation. An earlier popular option was eight seats, with two double-clubs, but now the most-selected option is the nine-seat configuration with the divan in the aft seating area. Club seats are berthable to create beds; the maximum sleeping capacity is five for the two 10-seat configurations. The eight- and nine-seat cabins can sleep four.

The lavatory features a vacuum toilet, a 0.28-cubic-meter (10-cu-ft) closet large enough to hang garments, and additional storage compartments in the vanity. The baggage compartment encloses 3.4 cubic meters (120 cu ft) and can handle up to 898 kilos (1,980 pounds).

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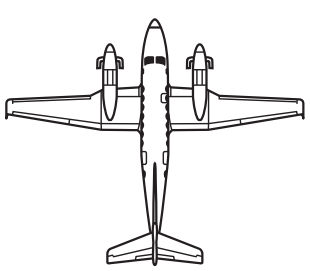

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› continued from page 26

Opposite the main door is the galley, which was recently redesigned. Buyers can replace the standard convection oven with a microwave. Standard features include cold storage, coffee maker, ice drawer with a manual drain to the exterior, sink and hot/cold faucet, solid-surface countertop with pullout extension, plenty of storage, lighted display compartment, and large waste container. The Gulfstream cabin-management system (CMS) can be controlled from a master panel in the galley.

A 0.4-cubic-meter (14-cu-ft) storage area is fitted next to the main door, just to the right after entering the cabin. Once in flight, an acoustical curtain can be closed, covering the main door entry and further silencing the G280's amazingly quiet cabin. The acoustic design was accomplished by Gulfstream's lead acoustician, who used to work for submarine-maker Electric Boat, a sister company of Gulfstream. Part of this design effort included cooling the airframe to evaluate noise performance when gaskets and rubber seals are cold-soaked to extremely low temperatures. Contributing to the cabin's low noise levels are gaspers with built-in noise baffles. Externally, the G280 has a near-20-decibel margin over Stage 4 noise standards.

Gulfstream's CMS is controllable via an iOS app, which operates settings for temperature, lighting, and entertainment. IFE features include a forward HD monitor, dual Blu-ray/DVD players, and Gulfstream's CabinView moving-map flight information system. Options include an additional 48-centimeter (19-inch) HD monitor on the rear bulkhead, 30.5-cm (12-inch) plug-in monitors at the seats, XM satellite radio, and Gogo Business Aviation air-to-ground and/or SwiftBroadband connectivity systems.

All G280 completions are done at Gulfstream's facility in Dallas.

Engine Technology

The G280's engines are Honeywell's HTF7250G, each delivering 7,624 pounds of thrust, flat-rated to ISA +15 degrees C. The engines are built with dual-channel Fadec, nacelles, and thrust reversers all in an integrated propulsion package.

With a wide-chord damperless fan measuring 86.9 cm (34.2 inches) in diameter, the HTF7000 series has a 4.4 bypass ratio. The engine's compressor airfoils were designed using straight-line-element technology, a design technique that delivers more consistent performance for machined airfoils. The combustor is a low-emissions, effusion-cooled design, and high-pressure turbine blades are transpiration-cooled.

One of Honeywell's goals for the HTF7000 series was ease of maintenance, which helps keep costs down and improves reliability. According to the company, "Individual LRUs can be replaced on average in 20 minutes or less with no shimming, rigging, or adjusting, using standard hand tools with nothing more than an idle-power leak check." The engine is fitted with 39 "strategically placed borescope ports for 360-degree visibility" when inspecting gas path components.

Flight Deck

It's not unusual for an airframer to opt for avionics from different manufacturers for various airplane models, but Gulfstream is keen on consistency across product lines and branded the G280's Rockwell Collins avionics with the same PlaneView name as the Honeywell avionics in the large-cabin jets. The PlaneViewG280 avionics are the latest iteration of Rockwell Collins's Pro Line Fusion flight deck, and a big improvement over the Pro Line 21 avionics in the G200, with three 38-cm (15-inch) displays providing much more screen real estate.

PlaneView isn't just an exercise in branding, however, as the engineers put a lot of design effort into matching Honeywell PlaneView conventions in the G280 interface. The cursor-control devices, for example, are nearly identical, with an inverse hat switch in the center for moving the cursor, three buttons for selecting the display, and a rotational knob for moving up and down checklists or ranging in and out on the moving map.

The Gulfstream PlaneView280 flight deck features three 15-inch displays and unique standby multifunction controllers that double as standby displays.

The center moving map looks a lot like the Honeywell equivalent, too, with similar drop-down menus, synoptic diagrams, and checklists.

"We tailored the look and feel with PlaneView," said Trusis, "including the symbology and the look and feel and functionality. We spent a lot of time trying to make sure this airplane had that familiarity with other Gulfstream products. A lot of the look and feel and operational features of the large-cabin aircraft have been designed into this avionics system." Like the large-cabin jets, the G280 is equipped with autothrottles and the same head-up display (also a Rockwell Collins product) and Kollsman enhanced vision system as the G650.

The third FMS is optional, but a popular choice. Pilots used to programming a Honeywell FMS in the larger Gulfstreams will notice some user-interface differences with the Rockwell Collins FMSs in the G280. This is no big deal, but I find the Rockwell Collins FMS a bit more intuitive.

Synthetic vision is also an option on the G280, and most buyers select this, according to Trusis. Both Honeywell's and Rockwell Collins's synthetic vision are tremendously beneficial situational awareness tools, and most business jet pilots I've asked prefer it. The Rockwell Collins version adds a useful feature, an opaque airport dome that highlights the destination airport. The dome gradually becomes less opaque as the airplane gets closer to the airport.

Large-cabin Gulfstream pilots should find the G280's guidance panel familiar, but the standby multifunctional controllers (SMCs) have a G650-like twist: the large Rockwell Collins SMC display also doubles as an integrated standby instrument, driven by a remotely mounted L3 standby instrument. This is a much better design than tiny standby instruments mounted elsewhere in some airplanes, and, during an emergency situation, allows the pilots to align their viewpoint forward instead of down inside the cockpit. In case of total electrical failure, the SMCs, the integrated standby instruments, and the autopilot are powered by the standby battery.

The SMCs have many other functions, including the ability to manage single-point refueling from the cockpit, instead of having to access the refuel/defuel panel mounted aft of the fueling port. Other functions include PFD settings, weather radar, chart selection, HUD settings, checklists, nav sources, avionics configurations for each phase of flight, and more.

The G280 PlaneView caution and advisory system (CAS) messages are displayed in a more intelligent fashion, and overall, the G280 flight deck is thoroughly modern, uncluttered and without too many switches and knobs. Circuit breakers are all consolidated on one overhead panel and laid out in a simple grid pattern.

Performance and Systems

Pilots appreciate the G280's strong performance, especially the ability to fly coast-to-coast in the U.S. at Mach .84 (5,556-km/3,000-nm NBAA IFR range with four passengers) or even farther at Mach .80 (6,667 km/3,600 nm, also with four passengers). With a balanced field length of 4,750 feet at mtow (thanks to the autobrakes), the G280 can access a huge number of airports. Sea level landing distance at maximum landing weight is 2,740 feet.

"We wanted to achieve class-leading performance for its size," said Trusis, "and we have no problem meeting the stated performance numbers." The G280 has secured speed records for more than 55 city pairs.

The G280 can climb directly to FL430 after taking off at its 39,600-pound mtow. Chief demo pilot Brett Rundle said he has climbed to FL430 in just 20 minutes at maximum weight.

The G280 has a fuel-jettison system, something not found on many other business jets, although the G280's older siblings are similarly equipped. This system can also be used for defueling via a special adapter that attaches to the jettison port mounted between the flaps and ailerons.

The G200's fuselage bladder tank was not retained in the G280, which has seven fuel tanks. These include tanks in both wings, three in the center section (forward, center, aft) and two feed tanks in the aft tank, each serving one engine.

A single air-cycle machine supplies the environmental control system, using bleed air from the engines or APU. The Honeywell GTCP36-150 APU can be operated up to 40,000 feet. Thankfully, Gulfstream opted for a selection between Imperial and metric units on the temperature displays in the cockpit and cabin.

Ailerons are mechanically driven and supported by the multifunction spoilers (the middle and outboard spoiler panels), and either flight control is sufficient for full lateral control. The force required to move the ailerons is reduced by geared tabs that help reduce aileron hinge moment.

Elevators are hydraulically controlled via dual hydro-mechanical servo actuators, one for each elevator, and each with dual push rods. Separate hydraulic systems operate each servo, and each elevator is separately connected to each pilot's control wheel. A "Q-feel" actuator in the right-side elevator control loop increases control force as speed increases. In case of total failure of the hydraulic system, the elevators can be operated manually.

The fly-by-wire rudder incorporates a thrust-compensation mode in case of engine failure, and this removes 80 percent

› continues on page 30

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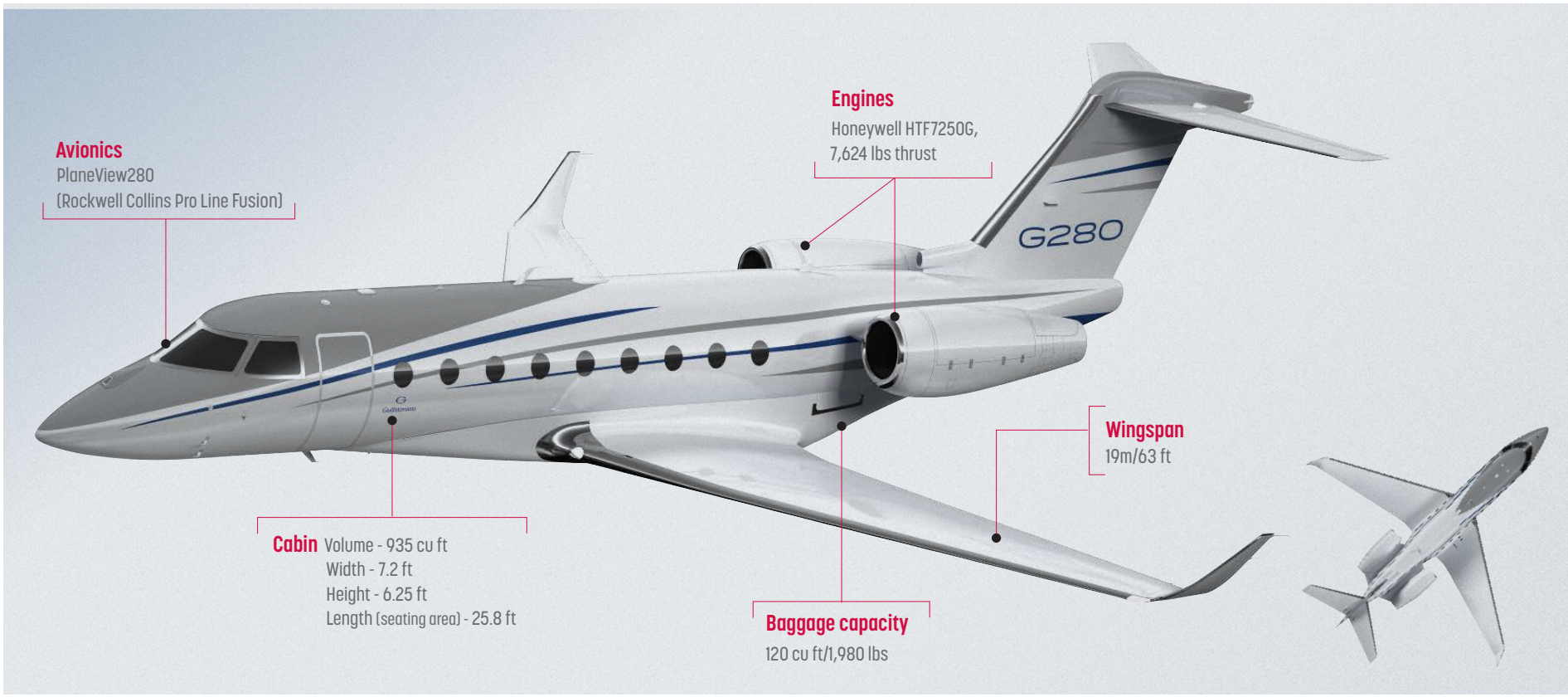
Gulfstream G280



› continued from page 28

of the rudder pedal force needed to maintain the proper trajectory on one engine. This leaves some remaining rudder adjustment for the pilot, to help keep the pilot in the loop during an engine-out situation.

Weight-and-balance capabilities are generous on the G280. Even with the large aft baggage compartment filled to its nearly 907-kg (2,000-pound) capacity, the G280 will stay within its CG limits with no passengers onboard. "If you take off in c.g., you'll land in c.g.," Rundle said.

The G280 cabin door is electro-hydraulically actuated, an upgrade from the G200's electrically driven cable and reel system. When open, the G280 door sits on the ground for maximum stability, protected by a Teflon pad where it contacts the surface.

Flying the G280

As is typical with a Gulfstream demo flight, our plan was for me to fly jumpseat for the first leg, in this case from the company's Savannah, Georgia, headquarters to Columbia Metropolitan Airport in South Carolina, then switch seats so I could fly the return trip. We briefed the flight, then Rundle and I walked around the G280 while he showed me some of its attributes.

Rundle flew right seat and domestic captain Jeffrey Dyrhaug flew left seat for the leg to Columbia. It was a typical warm summer day in the southeast U.S., with thunderstorms popping and threatening to join up later in the afternoon.

The short flight to Columbia was smooth, and we didn't climb higher than 16,000 feet. Dyrhaug demonstrated the ease of landing the G280 with a gentle touchdown at Columbia, showing me how easily the nose drops after touching down and the smoothness of the carbon-ceramic brakes. We taxied to the ramp and stopped for the seat switch.

For the takeoff at Columbia, the G280's weight was 31,833 pounds. Outside temperature was a balmy 32 deg C. The FMS showed balanced field length required of 3,554 feet, and rotation speed was 117 knots, V2 127 knots. At this weight, according to the FMS, we would be able to climb directly to FL450.

To a person sitting in the cockpit, the G280 feels lower to the ramp compared with the larger Gulfstreams, and it is somewhat closer to the ground due to its trailing-link landing gear. Nosewheel steering (also electronic steer-by-wire) via the tiller was easy to operate smoothly; either I'm getting more used to tiller steering or the G280 just is more tolerant of a ham-fisted pilot, because we didn't experience any of the herky jerky motion that I imparted when I flew the G550. Rundle explained that it's better to use just the left thrust reverser to slow down while taxiing, to prevent exhaust smell from the right engine entering the cabin through the APU inlet.

I taxied to Runway 11 at Columbia, remembering what Rundle had warned me during the briefing: "This thing clearly has a lot of power," he said, recalling a flight from Charlotte, North Carolina, where he was given an unrestricted climb at mid-weight and held V2 after liftoff, bursting through 10,000 feet by the time the G280 reached the end of the runway.

Airspeed built rapidly as I rotated, while I tried to bring the nose up smoothly and not pull too hard. The G280 responded promptly to my control inputs, and I was able to keep from pitching the nose too high as Rundle retracted the landing gear; then the flaps.

ATC wasn't able to give us an unrestricted climb, and we ended up leveling off briefly four times, but still made it to FL450 in just over 19 minutes. Temperature during the climb averaged about ISA +5 degrees C, and once at FL450 was about -5 degrees C. We climbed at 300 ktas after 10,000 feet then transitioned to a Mach 0.80 climb. At FL400, the G280 was still climbing rapidly, at 2,900 fpm.

Our route of flight took us north to Spartanburg, South Carolina, then northwest past Asheville, North Carolina, where we turned back and flew over Augusta, Georgia. While in cruise, I stepped out of the cockpit to assess the noise in the cabin, and with the acoustical curtain covering the main entry, the noise level was extraordinarily low. Both Rundle and Dyrhaug could easily hear me talking in a normal tone from the back of the cabin, as I could also hear them. Closing the pocket door at the forward bulkhead cut the noise even further. The door has a porthole so crew can look into the cabin without opening the door.

On the way back down, we stopped for a brief cruise performance check at FL410. Speed settled on Mach 0.82 (467 ktas), and the engines each were burning 900 pph.

After descending to a cleared block of airspace below 15,000 feet, I slowed the G280 to get a feel for slow-speed handling, then flew a steep turn. By this time, the thunderstorms were looming larger and generating some turbulence, which the G280 simply plowed through firmly with no effort needed on my part to mitigate any disturbances. In the distance, we could see the growing thunderstorm painting the Rockwell Collins MultiScan radar picture red.

We flew back to Savannah for the RNAV 28 approach, and I put the head-up display and autothrottles to work while hand-flying the final leg and down to a smooth touchdown in a 10-knot crosswind. The medium setting on the autobrakes brought the G280 to a firm and well-aligned stop, followed by an uneventful taxi to the Gulfstream ramp. ■

Price:
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Passengers: (typical)
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Range:
(w/NBAA reserves, 200-nm alternate)
3,600 nm at Mach 0.80

High-speed cruise:
482 ktas/Mach 0.84

Long-range cruise speed:
459 ktas/Mach 0.80

Fuel capacity:
14,600 lbs

Max payload w/full fuel:
1,000 lbs

Ceiling: (certified) 45,000 ft

Cabin altitude at ceiling:
7,000 ft

Max takeoff weight:
39,600 lbs

Takeoff distance at mtow:
4,750 ft
(sea level, standard)

Landing distance: 2,720 ft

Length: 66.8 ft

Height: 21.3 ft

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LEASING & LENDING SOLUTIONS FOR BUSINESS AIRCRAFT

Boeing Business Jets eyeing Max opportunities | by Alexa Rexroth

Boeing Business Jets (SD04, Booth L71) is seeing continued interest in its BBJ Max family on a global scale. The company currently has 19 BBJ Maxs sold in backlog—three Max 7s, 13 Max 8s, and three Max 9s.

The first BBJ Max was flown to Delaware last month for installation of auxiliary fuel tankage; after that, it will head to Comlux for completion. But Comlux will not be the only outfitter of the BBJ Max, said Boeing Business Jets president Greg Laxton. "Most principals that buy a green airplane go out and do their own soliciting of interior designers and completion centers."

The new Max series of Boeing's business jet line is drawing significant attention in the market, according to the company.

While the Max 8 has been the most in-demand model for BBJ customers, the company expects a viable future for the Max 7. "From an availability standpoint, the Max 8 is the most available, and we sold the first one in 2014. I think as we go forward, you'll see more and more Max 7s because of its range and cabin. With seven internal tanks, you also still have 235 cubic feet of storage cargo space down below," said Laxton.

Additionally, to draw conclusions about the level of interest in the Max 7, Boeing looks at the sales of the BBJ 737 series. More than 80 percent of customers selected the 737-700IGW (increased gross weight) in the original BBJ family. Like the -700IGW, the Max 7 is the smallest aircraft with the longest range within the family. "We think the Max 7 is going to sell more because of how many customers chose the -700-sized airplane in the original BBJ family," said Drew Gough, Boeing Business Jets brand manager.

Going forward, the company does not have concrete expectations for Max 10 sales. "You sacrifice range from the Max 9 to the Max 10, so I don't know if the Max 10 will be popular as a BBJ model. Only time will tell," said Laxton.

Boeing Business Jets also views strong demand in the preowned market as an indication of immediate demand for its aircraft. "If someone wants a BBJ now, they go to us and the preowned market. The preowned market inventory is the lowest it has been in more than five years," noted Gough.

The company's sales are steady across North America, Europe, the Middle East, and Asia-Pacific, Laxton said. "I think times are good right now. We're seeing GDP growing around the world again. People are a little more willing to let go of funds for these types of activities, and as long as those trends continue we'll see good sales," he concluded. ■

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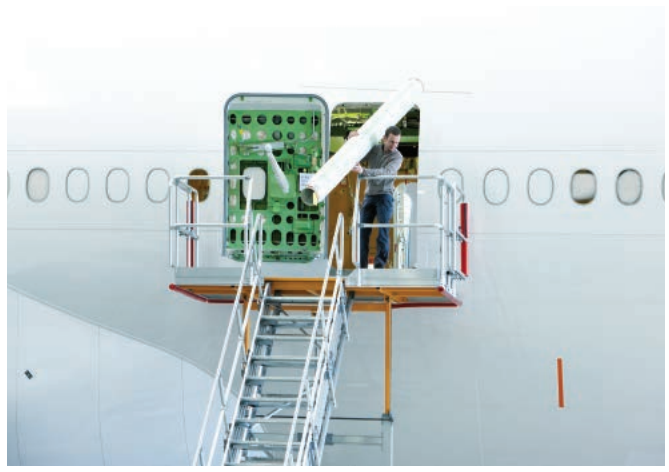

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The Legacy 500 certainly makes our mission easier to provide Centreline’s customers with an exceptional experience. Our flight crews simply love showing off the aircraft to new charter clients, and they always receive great feedback. With the Legacy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

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

- Tanya Raynes, CEO, Centreline

To learn more about the Legacy 500, please visit Embraer during EBACE at the Static Display 23 or Chalet Z33

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Dubai-based management-charter specialist UAS has exclusive handling rights for Deer Jet's VIP-configured Boeing 787, the only Dreamliner filling that role.

Deer Jet link-up made 2017 great for UAS

by Peter Shaw-Smith

Fresh from its tie-up with China's Deer Jet, Dubai-based UAS (Booth B35) has seen an upturn in business and is looking to become further involved in the Chinese market. Deer Jet is a wholly owned subsidiary of the HNA Group, and the alliance with UAS was launched in December 2016. In the lead-up to EBACE the two companies were preparing to make announcements about partnerships and synergies.

In fact, "2017 was the best year ever for UAS in terms of performance, and this can be attributed to the partnership with Deer Jet. Our numbers in terms of revenues and profits increased almost 40 percent, which is remarkable in this business environment. The partnership is very successful," Mohammed Husary, UAS co-founder and executive president told **AIN** in the run-up to EBACE.

"We are now the exclusive global trip support provider for all of their fleet, so business has increased. We have extracted many synergies over the past year, from the general aviation to the commercial side, because they also run commercial airlines."

The Chinese market looks very promising, he said. "Deer Jet is the air-charter arm [of our new alliance], and we are the flight-support and ground-support arm. There are also synergies with their FBO network. [In addition], UAS has been given exclusive rights by Deer Jet to manage and exclusively charter its Boeing 787, the only [such aircraft] in a VIP charter configuration."

Focus on China and Beyond

"I think the Chinese CAA is very keen to push general aviation, as they see it as an easy way to increase traffic for business, compared to building infrastructure for international airports or investing in airport expansions. Having an FBO can be relatively easier and more straightforward and can ease domestic and international travel," he explained.

Other opportunities exist with Deer Jet in China and Asia.

"In technology, UAS has launched many products, like UAS Link Evolution, a cockpit and cabin communication product, and UAS Flight Evolution, a flight-planning system. These products are currently being utilized by the Deer Jet fleet. There is a big opportunity to grow that and also pass it on to other airlines.

"In our campaign launch, we ensured the information on all of our products was translated into Chinese to facilitate business there. We brought in our experts from the Houston and Dubai offices."

Husary said bizav in Dubai is flat today. "Our internal analysis shows that we increased our traffic between 2016-2017. Volume is as big as it used to be, but it's not growing much. This is the first time there have been charges for landing permits for non-scheduled aircraft in Dubai, and Dubai International Airport seems to get busier every year as Emirates flights increase.

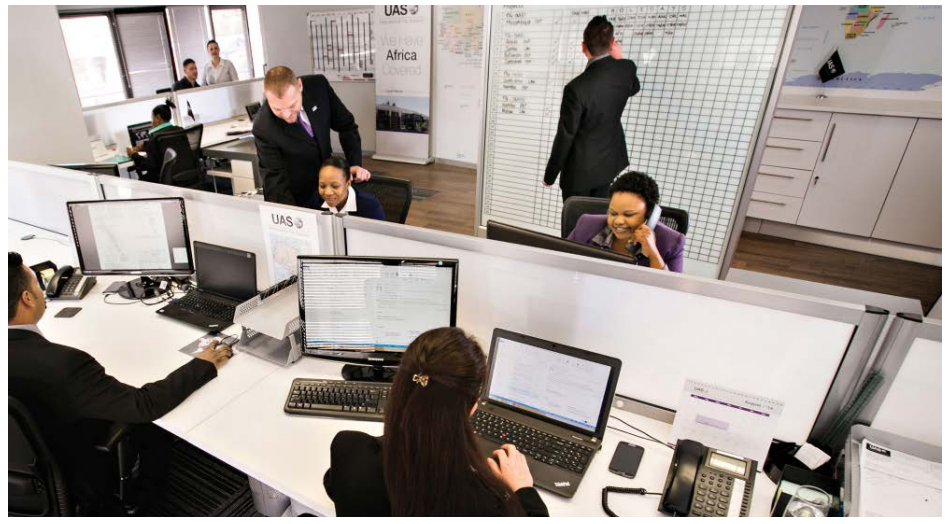
"When you talk about general aviation, the trend now is to use lower-cost aircraft. Those who used to use the BBJs are now using the Gulfstreams and Globals, and those who used to use the Gulfstreams are now using shared jets, like Smart Jet or similar programs. Things are moving more towards less spending. It's a change in the market. There is a change in spending behavior. Everyone is more cost-conscious."

He said the UAE GCAA intends to issue new regulations on charter to regulate cabotage. "They want to monitor the empty-leg challenge and extended parking for no reason. There has been a campaign from local operators unhappy that their business is being eroded by foreign operators—the grey market," he said.

"These operators come from all over the world, basing their aircraft here indefinitely and also marketing them. The local operators are finding it very hard to compete with those who come from abroad, bringing in passengers and overstaying here, and marketing the leg back, thereby depriving local operators of market share. It is a very competitive business in Dubai and the region in general. There are more unofficial players than there used to be, so it is getting more difficult in general."

UAS has 23 station managers, with 13 in key strategic locations in Africa. These managers are playing a valuable role in improving services for operators there. "Wherever it's challenging for operators to operate on their own, we like to help them unlock the market. Competition is increasing, and the infrastructure is improving, as local companies increase in numbers," he said.

With its focus on managing business aircraft worldwide, UAS has a vested interest in growing its influence. For example, it has 23 station managers on site in Africa (below).



> **"2017 was the best year ever for UAS in terms of performance, and this can be attributed to the partnership with Deer Jet."**
>
> – Mohammed Husary,
> UAS co-founder and executive president

"Senegal is popular because it is geographically located to connect the Americas with the continent. It is even better than Morocco for people coming from South America. Morocco is well suited [to technical and other stops] to North America."

UAS has seen growth in Japan and Singapore and sees Thailand as another target. "Thailand is one of the destinations we would like to tap into, as we see relatively good opportunity there, especially Phuket, for general aviation. We also have some good customers in Australia, but it is more an outbound destination than an inbound one."

Given the moves being made by local competitors into the FBO market, Husary said the company prefers to remain asset-light and to avoid the fixed costs involved in heavy investments.

He concluded that the China alliance had been a boon in an increasingly challenging marketplace. "I think the industry is coming close to maturity. Customers are more educated. Competition is increasing. Unless you change the way you do business, you are not going to survive in this industry. That is why we are changing our approach. The next 12 months are crucial. If we get through this period in good shape, then the worst is behind us." ■

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UTC, Rockwell Collins merger closes in on EC nod

by Kerry Lynch

The recent European Commission (EC) approval of United Technologies' (UTC) proposed acquisition of Rockwell Collins brings the $30 billion merger closer to fruition as anticipated this summer. The companies announced the proposed acquisition September 4, a move that would result in a combined Collins Aerospace organization that would generate $23 billion in revenues, yield an anticipated $500 million in cost synergies, and create a potential "super supplier" that touches nearly every part of an airplane.

UTC CEO Gregory Hayes told analysts in recent months the proposed acquisition is "a lot better than even the deal that we approved with the board. It is the long-term nature of the aerospace industry and what we see today going forward that is going to make Rockwell Collins a great, great addition to UTC."

UTC Aerospace Systems president David Gitlin highlighted the benefits gained from the acquisition, saying it will provide its portfolio "more customer and channel balance" and expand its reach on the connected aircraft.

Organizational Revamping

In preparation for the merger, UTC Aerospace Systems and Rockwell Collins have outlined a broad organizational structure that would have the new Collins Aerospace "small executive leadership" at UTC's Palm Beach County, Florida, location.

The merged entity would be organized around six strategic business units based at existing UTC and Rockwell Collins locations: Aerostructures in Chula Vista, California; Avionics in Cedar Rapids, Iowa; Interiors in Winston-Salem, North Carolina; Mechanical Systems in Charlotte, North Carolina; Mission Systems in Cedar Rapids, Iowa; and, Power & Controls in Windsor Locks, Connecticut.

"A goal in designing this new organization is to limit disruption, and employee relocations are expected to be minimal," the companies said in a statement.

The two entities are continuing to work through the necessary regulatory approvals, Hayes said, adding he sees no surprises in that process. The acquisition received a major clearance with the May 4 announcement of European Commission (EC) approval. That acquisition set a condition that the combined entity divest overlapping businesses in the areas of actuators, pilot controls, ice protection, and oxygen systems.

"We can allow this merger to go ahead because in all the markets where we raised concerns, UTC has committed to divest activities covering the entire overlap between the two companies," said commissioner Margrethe Vestager, who steers competition policy. Given the scope of activities involved with both companies, Vestager added, "We need to ensure that competition is preserved for all of them."

> **"They can do your engines, they can do your avionics, they can do your control systems, they can do your actuators, you name it."**
>
> – industry analyst Ronald Epstein

UTC has a larger portfolio covering power generation, propulsion systems, and landing systems, while Rockwell Collins is a major supplier of avionics and different cabin interior products, the EC noted.

But the Commission investigation raised concerns about reduced competition for trimmable horizontal stabilizer actuators (THSA), certain pilot controls (throttle quadrant assemblies and rudder brake pedal systems), pneumatic wing ice protection, and oxygen systems, it said.

Under the conditional approval, the Rockwell THSA and pilot control businesses, based primarily in the U.S. and Mexico, would be sold, as would its entire global business in ice protection. Meanwhile, UTC's two oxygen systems "research projects" would be divested.

The Commission determined that "other overlaps and vertical links between UTC and Rockwell Collins' activities did not lead to any competition concerns," because enough other competition exists.

But industry analyst Ronald Epstein noted such mergers will create a new class of super suppliers, which he said are no longer Tier One. Now they are "Tier 0.5," he said. "They can do your engines, they can do your avionics, they can do your control systems, they can do your actuators, you name it. That's an important changing dynamic in the supply chain." ■

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LHT adds nice Touch, trains for future-generation techs

by Samantha Cartaino

Lufthansa Technik's nice Touch cabin management system, which is making its debut this week, is among many products the company is displaying at EBACE (Booth H71). The system, which was designed in collaboration with Bombardier for the Global 7500, features both digital and physical interfaces that allow passengers to have control over cabin and entertainment options.

Lufthansa Technik also recently celebrated the 10-year anniversary of its StartTechnik training program and hopes to highlight some of its VIP-configured airliner accomplishments at the convention in Geneva.

At EBACE, Lufthansa Technik products on display include a Boeing 747-8 aircraft model with LHT VIP interior (1:20 scale); a Global 6000 model (1:20 scale); a sound system with new sound bar with demonstrations performed on the hour; and an OLED video wall with curved screens; a Bombardier Global side ledge featuring nice HD.

"At our booth, we will present different unique VIP interior designs to demonstrate our in-house design competence, including a brand-new variant of our exceptional Mercedes-Benz Style cabin," Wieland Timm, head of sales for VIP and special mission aircraft at Lufthansa Technik, told **AIN**. "In addition, we present different cabin products and technologies to increase comfort on board, like our cooking plate, our cabin management system nice, or connectivity solutions."

Preparing the Next Generation

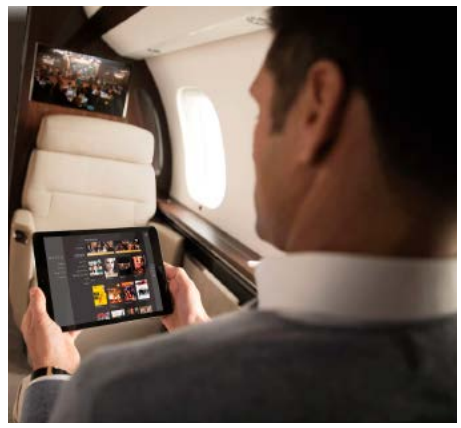
At the same time, Lufthansa Technik recently celebrated the 10th anniversary of its StartTechnik program, which trains university graduates who studied engineering, industrial engineering, economics, and business information technology. The program starts twice a year in April and October, and new trainees are required to complete four project assignments, one of them at a foreign subsidiary or associate. Since 2008, approximately 100 trainees have completed the program.

"StartTechnik is not a program to hire technicians but to help successful graduates from universities to start a career, for example as a project leader with multinational tasks," Timm told **AIN**. "The StartTechnik program has become an important instrument in attracting talented young people to Lufthansa Technik. Technicians are part of the vocational training programs [apprenticeship] of Lufthansa Technik."

This is not the only program Lufthansa Technik offers for technicians or mechanics. According to Timm, the company believes its apprenticeship programs dealing with mechanics and technicians will grow significantly in the years to come because of strong economic opprotunities in these fields. Additionally, the company is ready to expand its Original Equipment Innovation portfolio.

"We are now ready for radome development and manufacturing projects as an extension of our Original Equipment Innovation product portfolio," Timm told **AIN**. "Following the successful development and in-house manufacturing setup of a new Ka-band-suitable version of our proven VIP aircraft radome TIOS [Two-In-One-Solution] we are now going to set up a unit dedicated to radomes of all kinds."

At EBACE, attendees will be able to see the nice Touch CMS on display. The system delivers 4K, ultra-high-definition content at high speeds. It also incorporates the Bombardier Touch dial, which both companies claim is business aviation's first use of an OLED display in this manner. The Global 7500's living spaces are also outfitted with Suite controllers for passengers. Both the Touch dial and Suite controllers work in conjunction with the nice Touch mobile application, which is available for iOS and Android devices.



One of Lufthansa Technik's products on display at EBACE, nice Touch delivers 4K, ultra-high-definition content at high speeds so passengers can enjoy content in the air.

Lufthansa Technik is also highlighting accomplishments in the bizliner sector while at EBACE. The company recently won a completions contract for a VIP Boeing 787 and gained a customer for a VIP variant of the Airbus A330 multi-role tanker transport. ■

DAVID McINTOSH

Bell of the ball

Since EBACE is a business aviation event, helicopters like this Bell 505 are few and far between. However, rotorcraft can be more efficient in a business setting than the typical business aircraft model. In a sea of business jets, be the Bell you want to see in the world.

EASA approves G5000 for Beechjet/Hawker 400

by Matt Thurber

Scandanavia's Sun-Air has selected Garmin's G5000 flight deck upgrade for its Beechjet 400A fleet, following EASA approval of the G5000 avionics suite in the Beechjet 400A/Hawker 400XP. Installations will be done by Sun-Air Technic, the company's maintenance division, which is a Garmin dealer.

The G5000 upgrade replaces the jet's original Rockwell Collins Pro Line 4 avionics with three 12-inch displays in landscape orientation, with up to six panes available via the multi-pane capability, and dual touchscreen controllers mounted in a tilt panel on the forward console.

Standard avionics features include Garmin's fully digital, dual-channel, fail-passive automatic flight control system with underspeed protection and coupled go-around; WAAS/SBAS and PBN/RNP 0.3 with LPV/APV approaches, vertical navigation, and flight level change modes; GWX 70 radar with four-color storm cell display and optional turbulence detection, altitude-compensated tilt, and ground-clutter suppression; ADS-B Out; and TAWS-B alerting (TAWS-A is optional).

Garmin's synthetic vision technology is optional, as is its Connext services, which can include worldwide weather, voice calling, and text messaging.

The G5000 upgrade shaves 150 pounds or more from the Beechjet/Hawker 400's empty weight.

"We believe the G5000 upgrade is the only sensible option to future-proof our Beechjet fleet," said Sun-Air CEO Kristoffer Sundberg. "It provides a lower operating cost, significantly reduces weight, and makes us compliant with all of the upcoming requirements. We are also excited for our maintenance brand Sun-Air Technic to grow from doing G1000 installations to do the first European G5000 installation in-house, with the continued excellent support from Garmin." ■

The Garmin G5000 features three 12-inch displays and utilizes the company's automatic flight control system.

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For VistaJet, Bon Soirée remains a key ingredient

by Curt Epstein

VistaJet has renewed its contract with the UK's Bon Soirée to provide catering on its flights originating from the London area. According to the global charter provider, the Berkhamsted-based victualler's expertise in preparing made-to-order menus within the flexible times required for private aviation service, combined with its existing relationship, helped seal the deal.

"Bon Soirée's excellence in preparing high-quality food to suit a range of tastes throughout the world and its flexibility in working with the most distinguished customers gave them a critical advantage when we were looking for the most appropriate VistaJet partner," noted Diego Sabino, the private lift provider's vice president of private dining. "The quality of our onboard service is one of the key reasons our members fly with us, and regardless of the distance or destination, the food we serve is a vital component in creating a memorable experience."

Diego Sabino, VistaJet's v-p of private dining, is impressed with Bon Soirée's range of gourmet offerings.

The in-flight caterer, which has a staff of 40, began working with Malta-based VistaJet (Booth D69) in 2010 and received its first formal contract three years later to serve the London airports favored by its clients.

Consultant chef Alan Bird, who joined the company after two decades at an exclusive London restaurant, has already begun consulting with company founder and director Derek Freeman and head chef Alan Bell on a new seasonal menu to present to Sabino's team.

"We want to make it as easy as possible for VistaJet's cabin hostesses to provide passengers with a seamless dining service, so we have come up with a unique food-labeling system," said Freeman, adding that alongside clear cooking instructions are color photos detailing the presentation of each dish, and any possible allergens are assessed and marked accordingly. "We are proud to be playing our part to ensure that passengers flying VistaJet from London enjoy a memorable dining experience." ■

Deer Jet goes all out for Cannes Film Fest

Business aviation services provider Deer Jet's week-long air charter tour celebrated the 71st Cannes Film Festival, which took place May 6 to 14 in Cannes.

The limited-edition tour brought travelers from Beijing to Nice aboard Deer Jet's Gulfstream G550 for an insider's experience at the grand annual event and beyond. It included red-carpet access to the festival's opening night gala, mingling alongside artists and celebrities, and VVIP invitations to the official afterparty.

Highlighting the best of the Provence-Alpes-Côte d'Azur region in southern France, the tour focused on Gordes, Roussillon, and Menerbes, regions famed for their beautiful landscapes, architecture, and rustic villages, considered among the most picturesque in France. With stops in Nice, Avignon, and Provence, travelers also enjoyed wine tastings and haute cuisine experiences, tours of historic and modernist landmarks, and by-appointment visits to luxury fashion houses and ateliers. In Paris, the itinerary featured private visits to art foundations, including the Cartier Foundation for Contemporary Art and the Fondation Louis Vuitton.

China's Deer Jet partnered with a collection of renowned hospitality partners that hosted guests along the way: The Hotel Negresco Nice, InterContinental Carlton Cannes, La Mirande Avignon, and Mandarin Oriental in Paris. **J.W.**

DAVID McINTOSH

Avanti Evo turboprop sales picking up

After a few years of slow performance, sales for the $7.7 million Piaggio Avanti Evo turboprop twin are increasing. According to the company, the aircraft is growing in popularity in the Middle East and Asia, emerging markets that are showing more interest in turboprops. Piaggio Aerospace CEO Renato Vaghi wants to double Avanti Evo production soon. The company is showcasing an Avanti Evo here at EBACE (SD10).

NEWS note

Staffing shortfalls are getting worse in Europe with little collaborative action to address the issue, according to a new white paper issued by aviation recruitment specialist AeroProfessional.

The paper, "Grounded before Takeoff: EU Regional Pilot Shortage Perspective Two Years On," points to a need for 95,000 commercial pilots in Europe by 2034, but said the pilot population is continuing to be strained by increasing demands in other locations, including Asia, the Middle East, and Africa.

"Europe's pilot skills shortage will be further exacerbated by increasing rates of staff poaching and operational disruptions," AeroProfessional said, noting that 64.6 percent of pilots favor working outside the EU. The paper points to barriers to recruiting and retaining pilots in Europe.

While business aviation might appear to be an appropriate place for pilots to gain experience, "geographical restrictions, lack of work/life balance, typically lower number of regular flying hours, and the wide variety of skills and type ratings required have proven prohibitive," according to the paper. ■

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AviationManuals, AeroEx providing Part-NCC support

by Matt Thurber

For nearly two years, non-commercial operators of business aircraft have had to be more diligent about proving that they meet regulatory standards when flying in Europe. To help operators deal with the nuances of complying with EASA's so-called Part-NCC (non-commercial complex), which applies to operators either based in Europe or operating there but not flying under an air operator certificate (AOC), AviationManuals and AeroEx have entered a partnership that ensures compliance with the regulations.

Part-NCC rules cover aircraft that weight more than 5.7 metric tons (12,500 pounds) and are certified for two pilots, or those powered by turbojet engine(s) or with more than one turboprop engine. Applicability of the rules don't seem to make sense when it comes to a single-engine jet such as the Cirrus Vision, to which the rules apply. But more complicated turboprop singles such as the Pilatus PC-12 and Daher TBM series don't fall under the rules, while a twin-engine King Air must be in compliance.

Both companies are highlighting their Part-NCC assistance at their EBACE exhibits—AviationManuals (Booth J35e) specializes in operating manual and safety management system development, and AeroEx (Booth X115) is a European business aviation consultancy.

The partnership is designed to help operators create the necessary manuals and safety management system (SMS), set up online and mobile SMS, risk-assessment tools, and an internal audit program; and to incorporate the procedures in their operation and facilitate ongoing compliance monitoring.

"The idea is to use the experience from both companies, and together we have that joint product to assist those operators," said AeroEx managing director Joel Hencks.

AviationManuals CEO Mark Baier and Hencks were discussing Part-NCC and realized that "this is not unique to Europe," Baier said. Operators in the Middle East with divisions in Europe could fall under Part-NCC, he explained. "We realized we were speaking to similar audiences. Playing to both of our strengths could quickly support operations in both [regions]."

Beyond the Manual

Hencks explained that Part-NCC is more than just copying and pasting someone else's manual. "It's not about a manual, you need structure, an SMS, SOPs, training requirements, and a compliance-monitoring system. It's far more than just a manual. It's a full management system to ensure continuous compliance with regulatory requirements."

AeroEx and AviationManuals have designed their service for all sizes of operators, from the Cirrus Vision owner to a multi-aircraft flight department. "It's quite challenging for small [operators] to demonstrate in case of any incident or accident to say they did everything they had to do. We have a basis of tools ready, and we can help implement them, adapted to the type, size, and complexity of the operator."

"We started from the bottom up," added Baier, "and built the system to be flexible to ramp up." As operations grow more complex, additional modules and services can be added, and once a year an internal audit is done to ensure consistent compliance. For the smaller operator, this process involves a simplified checklist.

As much of a headache as Part-NCC might be, one benefit is that it helps operators ensure compliance for a SAFA or SACA inspection. Part-NCC includes an oversight element by aviation authorities, and they will check that the operator is complying with the procedures in its manuals.

Many authorities don't examine non-commercial operators, Baier pointed out. "Even with IS-BAO, the ongoing compliance part is not as front and center. It's moving more toward [a system where] monitoring these operators is closer to a commercial concept. You're required at any time to be prepared for an audit and you have to be maintaining standards."

AeroEx has been helping larger operators comply with Part-NCC since it was implemented in 2016. "When we discussed this last year with Mark, we thought it's great that larger operators have that. But what about the thousands of others that are out there who maybe don't have the information and don't know the tools and services [that are available]? We came up with a product to help them be in compliance."

"We're trying to make sure this is affordable and simple, versus what's on the market that caters to big budgets," said Baier. ■

ARC app aids with SMS compliance

AviationManuals (Booth J35e) is launching the ARC iOS app at EBACE 2018, to help aircraft operators that use the company's online safety management system (SMS) with offline management of risk assessments, forms, and documents.

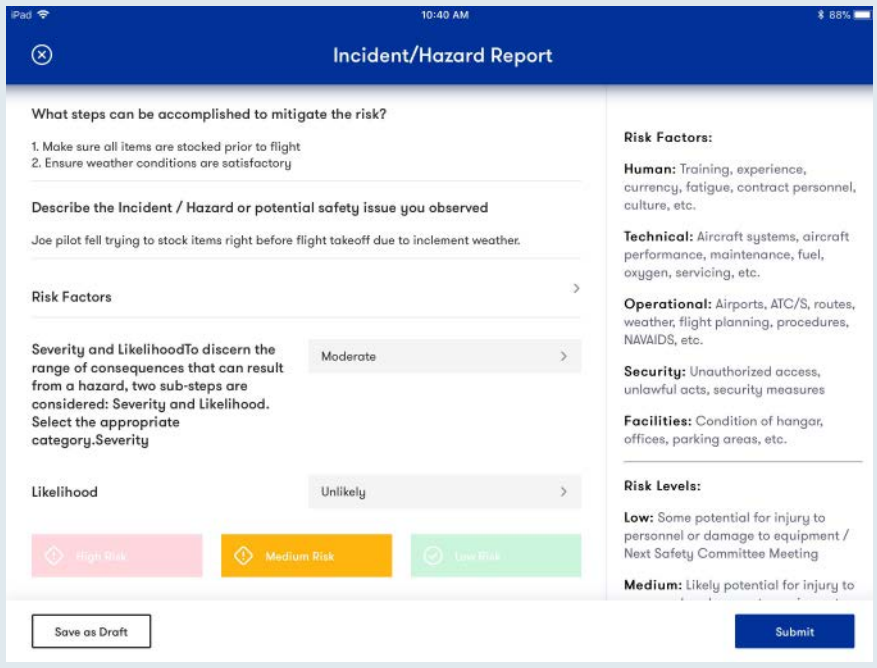
Operators can use the app to synchronize custom risk assessments and forms and to access their documents. While the app is designed to be used offline, the latest information is updated when the app is online.

"We need to make participation in SMS as easy as possible," said AviationManuals CEO Mark Baier. "Whether you've got an online connection or not, you may be on a flight and may need to make a risk observation or hazard assessment. You can start offline. Or if you're going to [unconnected] areas and want to peruse your operations manual offline, you can do that."

Baier has seen clients realize tangible benefits of their SMS. One example was a flight operation that was able to show management that crew duty times were being extended on a regular basis. "Going to management with data was much better, and they used that to support changing the operation," he said.

For a single-pilot operator, an SMS can help the pilot understand when safety standards are being breached. "It's driven by data," he said. "SMS is very useful in that sense."

AviationManuals charges from $450 per year to $4,000, depending on the size of the operation. The ARC app is included with the subscription. **M.T.**



AviationManuals now has an app designed to make it as easy as possible to participate in an operations Safety Management System. It's designed to be usable offline, so reports can be filled out in flight, even when no Internet connection is available.

Air Support, Osprey join up

by Curt Epstein

Air Support, a provider of flight-planning software to private and commercial business aircraft operators, has announced a partnership at EBACE with the risk management-system Osprey Flight Solutions to offer customers a unique function of its PPS Flight Planning System.

Under the new agreement, Osprey's risk management service, launched last fall, will integrate with Billund, Denmark-based Air Support's PPS system, to deliver instantaneous visual and written risk assessments directly to the operator, supporting operational decision making, quality control, and compliance. Osprey's leadership believes the enhanced system will improve the quality and consistency of human analysis to offer a new over-flight security and risk assessment solution while at the same time, keeping costs down.

"Risk assessment of flights to ensure the safety of operations has for a long time been a strong market demand," explained Per Jensen, CEO of Air Support (Booth W89), which saw a more than 14 percent growth in 2017, based on the number of filed flight plans via the PPS system, marking its sixth consecutive year of growth. "Our new cooperation with Osprey Flight Solutions is based on a common understanding of system integration capability being one of the most important benefits to the aircraft operator."

"Integration, as well as improving operator efficiency, are the main drivers behind the development of Osprey," added CEO Andrew Nicholson. "Our cooperation with one of the leading suppliers of flight planning solutions...is a significant recognition of this, and we are delighted that the PPS Flight Planning System will be leading the way in providing the industry with this much needed business-enabling tool."

UK-based Osprey's analysis team also publishes email alerts on emerging threats to the aviation security environment, or where an incident reinforces its advice and recommendations for an over-flight risk area, airport, or country. ■

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Slot restrictions on business aviation at competing airports have led to a 32 percent bump in departures at London Oxford Airport.

Slot-free London Oxford staged for growth

by Ian Goold

London Oxford Airport, 55 miles northwest of the UK capital, and other business aviation airports are benefitting from runway slot restrictions at other airports serving the British city. In fact, the airport has recorded the second-highest growth among 10 such British business airports since the onset of the 2007 recession.

With an increase of 32 percent in business aviation departures, Oxford is outranked only by London Stansted's 35 percent improvement and is the fifth-busiest UK business aviation airport and one of Europe's top 20 such facilities. London Luton, which boasts five FBOs, sees the UK's largest number of business-aviation departures, albeit some 17 percent fewer than in 2007.

Luton and "a few other London-centric" locations have become "increasingly squeezed for slots, to the benefit of airports like us," said Oxford business development head James Dillon-Godfray. He sees late-night opening as a helpful factor. Unlike other peer airports, Oxford is able to operate to midnight seven days a week.

An increase last year in numbers of large-cabin business aircraft movements is continuing, while 20 percent growth in helicopters handled is said to show no sign of slowing. Indeed, rotorcraft activity will be boosted in May when an air-ambulance operation moves to Oxford.

With 25 business jets based at Oxford, and continuing demand for hangar space for these and visiting aircraft and helicopters, the airport is planning further major expansion (beyond current construction). The doors to a new 16,000-sq-ft hangar—large enough for a Bombardier Global 7000, plus offices—are scheduled to be hung this week and space is being allocated.

The airport, which hosts seven companies offering maintenance, repair, and overhaul services and two pilot-training schools, plans next year to open a 101-room hotel to cater to aircraft owners, flight crew, and training cadets, along with their friends and families.

On the operational front (and in coordination with related plans from the nearby military Brize Norton air base), Oxford has proposed enlargement of its controlled airspace to introduce LPV200 precision approaches (roughly equivalent to Category I instrument landing systems) and, possibly, additional approach lights on one runway for improved poor-weather operability.

Under its shared ownership with London Heliport at Battersea, Oxford offers a 50 percent discount for customers using both airports. It also reports its fuel provider Air BP, with which it will share a stand at EBACE (Booth B29), selling close to 4.5 million liters (about 1.2 million U.S. gallons), primarily to aircraft weighing more than eight tonnes. ■

MARK WAGNER

Embraer Legacy 450 blazes transatlantic speed record

by Jennifer Leach English

Embraer's midsize Legacy 450 business jet set a new speed record on March 7 on a flight between Portland, Maine, and Farnborough, UK, the Brazilian airframer (Booth Z33, SD23) announced this week at EBACE 2018. The flight departed at 9:25 a.m. EST from Portland International Jetport Airport (KPWM) with two pilots and two passengers and landed at Farnborough Airport (EGLF) at 8:30pm GMT, achieving an average speed of 521.89 mph (840 kph).

The fly-by-wire aircraft landed with fuel in excess of NBAA IFR reserves, as well as for critical operations. According to Embraer, the flight lasted six hours and five minutes, covering a distance of 2,756 nm (5,105 km).

The U.S. National Aeronautic Association has confirmed this flight as a U.S. record, and the flight data along with air traffic control documentation, has been submitted to the Federation Aeronautique Internationale for validation as a world record.

The Legacy 450 has a range of 2,904 nm (5,378 km) with four passengers and NBAA IFR reserves, and it can operate at up to Mach 0.83 with an altitude ceiling of 45,000 feet. According to Embraer, the Legacy 450's cabin altitude is the lowest in its class at 5,800 feet and the aircraft's environmental control system preserves a sea-level cabin altitude while flying under 27,050 feet. ■

EBACE rookie Swiss Horix Aerospace showcases spare parts, specialty tools

Horix Aerospace (Booth J99) is exhibiting at EBACE for the first time. The Quartino, Switzerland-based company will display its product line of spare parts, aerostructures, wiring harnesses, specialty maintenance tools, fasteners, and more.

"We are excited about our debut during such a premier event," said Marco Taufer, head of Horix Aerospace's spare parts division. "It is a great opportunity for us to showcase our product line. Although we are a start-up, we already reached many goals in terms of commercial goals and quality certification [ISO9001:2015 and AS9120B]. Exhibiting at EBACE is part of our growth strategy to expand our activities."

Horix Aerospace offers a component program, provides spare parts, and manufactures HELIFT, ground support equipment for skidded helicopters and wheeled aircraft. The company buys, manages, and sells inventories of third-party new surplus aircraft parts, including avionics products, lubricants, seals, and chemical products.

In December 2017, the company signed an agreement with San Diego-based Component Control to use its Quantum Control MRO and Logistics software to manage and distribute its components stock. **S.C.**

TAG Aviation to establish Lisbon mx control center

by Samantha Cartaino

TAG Aviation (Booth W33) is establishing a maintenance control center (MCC) at Lisbon/Cascais Aerodrome (LPCS) next month. The MCC will streamline requests for AOG and mobile repair team support with one 24-hour customer service phone number. TAG Aviation hopes this MCC will enhance the company's current mobile repair team, which offers support from eight locations throughout Europe.

Franck Madignier, president of maintenance and FBO services for TAG Aviation's subsidiary TAG Aviation Europe, explained how establishing the MCC in Portugal will improve services: "One central contact number empowers our maintenance services teams to be able to respond very speedily to our clients' needs across the full range of maintenance service capabilities we operate, minimizing downtime, and further supporting our ongoing commitment to maximizing the efficiency of our clients' operations."

TAG Aviation operates MRO maintenance centers across Europe in Geneva and Sion in Switzerland; Paris and Clermont-Ferrand in France; Lisbon, Portugal; Farnborough, UK; Lomé, Togo; Hong Kong, China; and line stations in Luanda, Angola; and in Sheremetyevo, Moscow.

This month, TAG Aviation Europe celebrated the one-year anniversary of its Maltese air operator certificate and opened a new office space. The region's first aircraft, a Challenger 605, is already operating and more aircraft will be added this year.

This new operation improves TAG Aviation's growth in Europe. "Receiving the Maltese AOC marks a significant milestone in strengthening TAG's foundations to pursue the growth of its managed fleet of corporate jets," said Daniel Christe, CEO of TAG Aviation Europe. "It further enhances our ability to start operations within a very short period of time and to meet our commitment to provide the highest level of responsiveness and customer service standards."

At ABACE earlier this year, TAG Aviation Asia (TAA), another subsidiary of TAG Aviation, opened a training facility in Hong Kong. TAA was the first business aircraft management company in the region to offer training services that include a physical Airbus A320 overwing exit door trainer. ■

TAG Aviation's new maintenance control center will feature a mobile repair team.

Allavita born from ASA Group, L'Voyage merger

by Ian Sheppard

Hong Kong-based The ASA Group and L'Voyage (exhibiting with Avinode, Booth D69) announced at EBACE 2018 today that they are to merge, with the combined entity being branded Allavita. The merger will "combine expertise in air charter and ground services [respectively]," and "capitalize on the region's double-digit growth for private jet charter and on-the-ground services."

Allavita means "towards a good life," a name that, according to the new company, "reflects that private jet usage in the region is shifting with more younger high-net-worth individuals (HNWIs) chartering for leisure than ever before."

Allavita Holdings will encompass ASA's ground handling supervision, security, protection and luxury concierge services, and L'Voyage's expertise in travel curation and private jet charter activity. L'Voyage "will take over all charter and luxury services activity, with ASA focusing on handling, permits, and security."

"Over the next six months we are looking forward to consolidating our sales and on-the-ground operations to offer our clients a wider range of services in Greater China and Southeast Asia," said Wagstaff.

Chou said business aviation travel in Asia is still dominated by the luxury travel demands of its billionaires, which outnumbered their U.S. counterparts for the first time last year. Allavita highlights a joint report by UBS and PricewaterhouseCoopers that estimates, on average, a new billionaire is created in Asia every two days. The total number of Asian billionaires rose by almost a quarter to 637 in 2017, compared with 563 in the U.S., with China being the lead source of new billionaires.

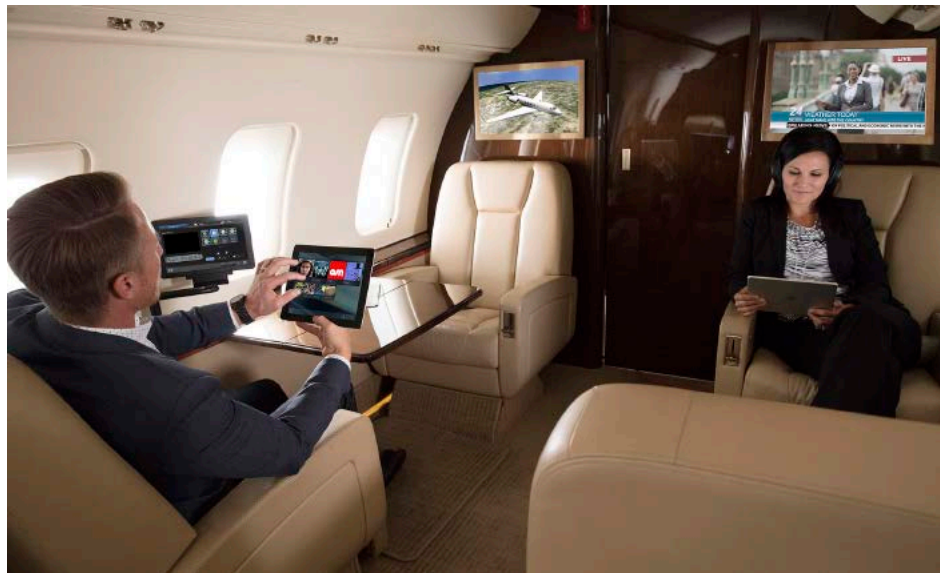
"South Asia and Greater China are expected to lead global growth, with 5.7 percent and 4.6 percent compound average growth rates over the next 20 years, respectively, so Asia's business aviation sector needs to catch up compared with other markets. Switzerland, for example, has at least three registered business jets per billionaire, compared with less than one jet per billionaire in China. Allavita is our response to this exciting development and enticing the new super-class travelers," Chou added.

ASA chairman Simon Wagstaff is now chairman of Allavita, and L'Voyage founder Diana Chou will continue as chairman of Dragon General Aviation Group.

The combined business will have its headquarters in Hong Kong and offices in China, Thailand, Singapore, Malaysia, Indonesia, and The Philippines. L'Voyage was founded almost five years ago to tailor charter and lifestyle solutions for HNWIs, building up "a strong and loyal international client base."

ASA chairman Simon Wagstaff becomes chairman of Allavita and of the L'Voyage subsidiary and Julie Ambrose is COO of Allavita, with L'Voyage founder Diana Chou continuing as chairman of Dragon General Aviation Group, which comprises L'Voyage, Aerochine Aviation, and Aero Infinity.

Chou is a founding member and member of the board of governors of the Asian Business Aviation Association (AsBAA) and was awarded "Businesswoman Leader of the Year" by AsBAA in 2015. In 2010 and 2012, Diana Chou was named "Women Entrepreneur of the Year" by the All China Women's Federation. ■



Rockwell Collins scores Comlux completion

by Curt Epstein

Rockwell Collins has signed a general terms agreement with Comlux, which will see it provide the Swiss aircraft completions provider with a comprehensive product portfolio, including avionics, cabin management, content and entertainment options, seating, and lighting and galley products, along with ArincDirect Wi-Fi and flight services.

"Through our agreement and...access to Rockwell Collins's extensive product portfolio, we can perform optimum completion cycles and operational balance without compromising the design and level of elegance of our VIP cabins," explained Scott Meyer, CEO of Comlux completions.

"We are able to provide cost-efficient solutions in terms of cabin technology, warranty, and spares, and we ensure our customers enjoy the best VIP cabin experience over the entire life cycle of their aircraft, not only the completion."

Engineering work on the first two aircraft under the five-year contract is now under way, with Rockwell products being selected for a BBJ retrofit, and for the first BBJ Max to be delivered. Rockwell Collins will also have the opportunity to provide solutions for all Comlux completions and retrofit projects, as well as have access to its charter fleet to validate design, obtain crew/passenger feedback, and certify new projects.

"This arrangement provides new possibilities for the customers served by Rockwell Collins because of the breadth and depth of cockpit to cabin solutions available," said Scott Gunnufson, Rockwell's vice president for commercial systems business development, adding it's the first offering of this magnitude for the company. "Comlux VIP customers will be among the first to benefit from our comprehensive solutions that feature leading-edge comfort, entertainment, and connectivity solutions."

Rockwell Collins (Booth V71, SD08) was also tapped by Switzerland-based AMAC Aerospace to provide a full suite of cabin products for the world's first Airbus ACJ320neo. AMAC will begin outfitting the aircraft before year-end. It is due to be delivered to UK-based Acropolis Aviation in the fourth quarter of 2019.

The completion will include Rockwell Collins's Venue HD cabin management and entertainment system, its Airshow moving map, and Viu LED interior lighting system, along with its Stage on-demand wireless content streaming solution that entertains passengers with a library of more than 1,100 Hollywood digital rights management-protected movies and television shows, as well as business news, weather and sports feeds. Stage was recently installed in Acropolis' ACJ319.

"In choosing Rockwell Collins to provide the cabin management system for our new aircraft, we are continuing a successful relationship that began in 2015 and continues to the introduction of Stage earlier this year," noted Acropolis CEO Jonathan Bousfield. The work will also include 4K displays, wireless remote applications for a more convenient user experience, and other energy/weight saving measures.

Additionally, Execujet Africa is finishing up the installation of Rockwell Collins's Stage on-demand content streaming platform on a Bombardier Global belonging to charter provider Bestfly. It marks both the first such installation in the region as well as the first on a Global.

The project also includes Inmarsat's Ka-band Jet Connex as Rockwell Collins is a value-added reseller of the satellite network connectivity as part of its ArincDirectSM product. The new services will allow passengers to access wireless streaming content on their smartphones, tablets, and laptops. ■

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In technology breakthrough, midsize jets get Ka-band

by Matt Thurber

Viasat has developed a high-speed Ka-band satellite communications system that fits on midsize jets and announced that Embraer will be offering the Viasat system on its Legacy 450 and 500 business jets. EBACE visitors can try out the satcom at Viasat's booth (P107), thanks to the Viasat antenna mounted on the Palexpo hall's roof, and experience connectivity speeds of up to 16 Mbps.

Antenna size is a limiting factor for satcom data rates, and thus far the antenna needed for Inmarsat's Ka-band satcom fits on large-cabin and VIP business jets. Flat-panel phased array antennas that are under development will lead to more widespread installation opportunities. Viasat operates its own Ka-band (and Ku-band) satcom network using ViaSat satellites and also manufactures airborne hardware, including antennas. The company's compact 12-inch G-12 antenna, which is mechanically steered, requires no additional RF box and thus can be installed on the empennages of midsize jets.

The Viasat Ka-band satcom requires just three LRUs, the antenna, antenna control unit (ACU), and modem, and it works with any type of router. The ACU is part of the antenna, according to Viasat, and the power supply operates with either AC or DC power. Total system weight is 51.4 pounds, and the G-12 antenna weighs 26.4 pounds.

"This is a first for a midsize jet," said James Person, director of global business development for business and VVIP aviation. The Viasat Ka-band satcom will also be available as a retrofit for in-service Legacy 450s and 500s and for other aircraft on which the G-12 can be installed. Viasat has tested and installed Ku- and Ka-band systems on government and special-mission aircraft as small as Beechcraft King Airs. "We could also do that for business aircraft operators if there is a compelling business case," the company said.

Person said "the addressable market for the Ka-band satcom is about 5,000 aircraft," or 8,000 including Ku-band systems. "As we and others look to flat-panel antennas, that opens up the market for even smaller aircraft to potentially 20,000 aircraft," he added.

Viasat's network provides service over North America and Europe, and peak data rates of up to 16 Mbps are available even with the smallest data plans. Four new service plans, which are sold by retail value-added resellers, are available and include the Ultra30, Ultra40, Ultra60, and Ultra100 plans with corresponding numbers of gigabytes, ranging in price from $6,995 to $24,995 per month for new users.

Service speeds are set to increase when Viasat launches three ViaSat-3 satellites, with the first serving the Americas planned to enter service in 2020. The other two will provide coverage in Europe, the Middle East, and Africa, while the third will serve the Asia-Pacific region. The Ka-band systems installed today and running on ViaSat-1 and soon ViaSat-2 satellites will be able to take advantage of the higher-speed ViaSat-3 service.

Viasat customers can also subscribe to live television service, which requires no additional hardware and works over the Ka-band network. The TV service also does not impact the customer's data allowance. Embraer will offer the TV service to customers that opt for the Viasat satcom.

Viasat also announced that it has expanded its relationship with Honeywell GoDirect, which is one of four value-added resellers that sell Viasat's Ku-band service. Last year, Satcom Direct signed up as the first service provider for Viasat Ka-band, and GoDirect is now the second Ka-band reseller. Viasat will announce additional Ka-band service providers this year, Person said. ■

Ingenio arms Collins CMS with tablet

Interior component manufacturer Ingenio Aerospace has developed new cabin tablet arms that not only fit into Rockwell Collins Venue or CES cabin receptacles, but also integrate with the Rockwell Collins (Booth V71) cabin management system (CMS).

Ingenio arms and tablet holders feature integrated power connections for device charging, meet FAA Part 25 regulations, and are qualified to RTCA DO-160G standards, simplifying the installation process on any aircraft. Also aiding the installation process is that the arms and tablet holders are treated as loose equipment, according to Ingenio.

The Ingenio products are made with lightweight aluminum and accommodate all types of popular tablets. Its cabin product suite also includes Type A and C drop-in USB charging outlets that fit in Venue and CES receptacles. Passengers can easily remove the tablet arms and holders for takeoff and landing, and they are easily positionable for portrait- or landscape-mode viewing. Ingenio provides finish options to match interior furnishings. **M.T.**

MARK WAGNER

U.S.-based Aerion Corp. expects to fly its supersonic business jet, the AS2, in 2023, with FAA certification to follow two years later.

Aerion beefs up team on trek to supersonic flight

by James Wynbrandt

Aerion (Booth L106), the U.S.-based developer of the AS2 supersonic business jet (SSBJ), remains on pace to make its first flight 60 months from today—in 2023—the company confirmed at EBACE 2018. It will build five flight-test vehicles en route to certification, projected for 2025.

Aerion also announced two units of TAG Aviation as sales consultants. TAG's UK division will handle Europe, Africa, and the Middle East, while TAG Asia will cover China, Hong Kong, and other parts of southwest Asia. The company further promoted deputy chief engineer Peter Sturdza to v-p of flight sciences.

The company has added key personnel in recent months. In March, Tom Vice, former president of Northrop Grumman's aerospace systems division, was named president and COO. In January, Bryan Moss, former president of Gulfstream and of Bombardier's business aircraft division, joined the board of directors. Additionally, Brian Barents was promoted to executive chairman and CEO. Robert Bass remains chairman.

In December, Aerion signed an agreement with Lockheed Martin to develop the aircraft, and the two companies' teams of engineers are working together on a daily basis, the company said. Aerion last year announced an agreement with GE Aviation to develop engines to power the AS2, for which Aerion said it is spending $1 billion.

The engine will use the core of an unidentified existing GA Aviation engine in the 18,000-pound-thrust range. According to Aerion, the chosen powerplant has already accumulated some one billion hours of service, which indicates it is likely the CFM56. A low-bypass turbofan engine will be built around the core for the AS2.

FAA Paves the Way

Aerion is working with the FAA and ICAO on noise and emissions standards for future supersonic aircraft. The FAA recently paved the way for development of supersonic aircraft with the announcement it was working on a pair of rulemakings, the first a proposed noise certification and the second a clarification of procedures required to obtain special flight authorization to conduct supersonic flight testing in the U.S.

However, the proposed rules would not rescind the current prohibition on supersonic flight over land without special FAA authorization. But Aerion's business plan is based on the assumption the aircraft will be prohibited from supersonic flight over the Continental U.S., so any relaxation of that prohibition would be an upside for the company.

According to Barents, the AS2 will have a fly-by-wire system, but Aerion is delaying the choice of avionics provider given the rapid pace of technological advances in the space. The AS2's top speed has been dialed back to Mach 1.4 from 1.6 to minimize design complexities and keep the aircraft firmly within the envelope of current technological capabilities.

Airbus, with whom Aerion had signed an MoU for sharing of data, expects to continue the relationship on a contractor basis. ■

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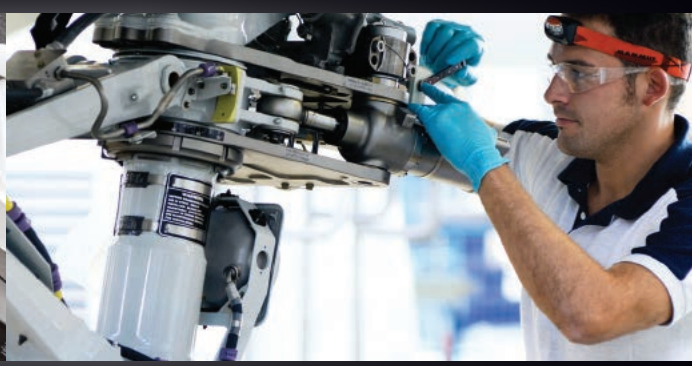

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Luggage that's easy to love

by Margie Goldsmith

Luggage has entered the world of high tech. It's smarter and lighter than products introduced only a few years ago, and you can track some of it yourself with GPS and associated apps. TSA-approved locks let you use fingerprint-sensor technology to open it. Here's a look at some favorite new and soon-to-be-introduced luggage sets:

Briggs & Riley

G-Ro. With a carry-on that has been on the market nearly a year, G-Ro will introduce four new companion bags via Kickstarter this June. The company claims that its bags' oversized wheels perform better and are more durable than standard wheels. The carry-on, in durable nylon ballistic weave, includes a power bank capable of charging your laptop, phone, or tablet up to four times via two USB outlets. The bag includes a Tile bluetooth luggage tracker and a TSA-approved lock and comes with a lifetime warranty. **$449**

G-Ro

Raden. Made from durable light polycarbonate, Raden luggage uses a companion app to inform you of its location and weight. (The case's handle doubles as a scale.) The app also reports weather conditions, traffic alerts, and flight details, and the luggage incorporates a battery that can charge your mobile phone up to five times via two ports on the exterior of the case, which is available in two sizes. (The removable battery can be used as a standalone charger.) **$295–$395**

Raden

Rimowa. This company's latest model is the Limbo, a lightweight polycarbonate bag. The line is waterproof and zipperless—thus tamper-proof—with an exterior caddy strap, TSA-approved locks, a

Rimowa

versatile handle, and four easily gliding wheels. When you fly by either Lufthansa or EVA Airlines, you can check your bag from home with an app on your smartphone via E Ink technology. As there is no paper tag to be potentially lost or ripped, your bag has less chance of getting lost. The luggage, available in 12 sizes, comes with a five-year warranty. **$695–$825**

IT Luggage. At four pounds, this is the world's lightest double-wheeled rollerboard. The posterior is rugged polyester with a water-resistant backing that won't tear or fray and can be wiped clean. The

IT Luggage

bag is reinforced with aluminum tubing and fiberglass rods to provide strength and structure. An 18-inch-long outside pocket holds a tablet and an additional pocket takes electronics and personal items. The polyester-lined interior has adjustable straps to buckle clothes down and the 19-inch telescoping and locking handle sports a padded grip. The bag, which has a 10-year warranty, comes in two sizes. **$150–$200**

Briggs & Riley. This company, which introduced the first wheeled luggage in 1970, has created the Transcend VX with a zipperless variable expansion option (just snap a small panel in the interior, and the bag expands up to 2.5 inches). There are double spinner wheels and a signature Outsider handle providing a flat-packing bar inside the bag. The sleek new spinners come in three colors and can be paired with a companion cabin bag, shopping tote, or cargo backpack. A SmartLink system attaches one hard-sided bag to another for easy transport and specially designed pockets allow for quick storage of small items at security checkpoints. The Briggs & Riley Transcend VX collection includes spinners in five sizes, rolling cabin back, cargo backpack, shopping tote, and toiletry kit, all with lifetime warranties. **$69–$529**

Travelmate Robotics. This California company's bag, the Travelmate, includes a handle that you apparently won't often need to use. Billed as a "fully autonomous

Travelmate Robotics

robot suitcase" and expected to be available this year, the suitcase integrates with your smartphone and moves on its own without being held. The manufacturer claims it can match your speed accurately (up to 6.75 miles per hour), navigate through large crowds, and avoid objects in its path. **$499**

Micro Luggage

Micro Luggage: Getting from an FBO to a business jet is typically a snap, but what about those long walks to the gate when you use airlines? Micro Luggage makes those treks just as easy. The case comes with an attached scooter so you can pull it, ride it to the gate, and then fold the scooter flat aginst the luggage. The hard-shell case is small enough to fit in the overhead if you're flying commercial, and its structure makes it ideal for use as a carrier bag, trolley, and last but not least, as a kickboard with a case. **$300**

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CHAUFFEURS

Geneva Airpark seeing a surge in transient usage

by Curt Epstein

Switzerland ranks fifth in Europe in number of business aviation departures, according to year-end 2017 statistics published in the EBAA's Economic Report for the year. Geneva Cointrin Airport, the host of EBACE, accounted for more than 17,000 of the approximately 46,000 private flights. Many of those aircraft were sheltered at Geneva Airpark (Booth L108) , the airport's only dedicated business aviation hangar. While FBOs there may have their own hangars, that space is largely reserved for maintenance activities, leaving the airpark as the only option for customers seeking aircraft shelter.

Established in 2009, the 10,000-sq-m (107,639-sq-ft) facility is large enough to fit a pair of Boeing 747s, and is home to 20 private jets ranging from a G650 to a Phenom 300, each on an annual contract guaranteeing them space, as well as any transient aircraft that require hangarage while in Geneva. According to Sophie Mabire, the facility's general manager, it is normally at 90 percent capacity, and over the past year, it has seen a 20 percent increase in transient aircraft. "We used to host mostly Falcon 900s and 2000s, and now the trend really is for Global Expresses and G650s. That's effectively where the most important increase came from," she told **AIN**. Those larger aircraft may cut down on the numbers the facility can handle, yet the company has no current plans for expansion, due primarily to lack of available space at the airport.

Upon landing in Geneva, the typical private aircraft slated to be hangared will taxi to the airpark's ramp, where a car from one of the local ground handlers will meet it and pick up the passengers. Passengers are not permitted to exit the airport through the hangar, and all must transit the business aviation terminal, where customs is located.

The secure, heated Geneva Airpark hangar has no crew or passenger lounges, and provides only aircraft-related services such as towing, with its fleet of five Lektro tugs, or water and lavatory service. It also added in-house dishwashing and linen service, as well as aircraft cleaning.

With most of FBOs' hangars at Geneva Cointrin Airport principally dedicated to maintenance, many transient aircraft find an overnight home under the roof of a Geneva Airpark hangar.

The facility is open generally from 6 a.m. until 10 p.m., corresponding with the airport's official business aviation hours, but in instances of an early morning departure, or late arrival, its staff of 13 will open on request. "We'll never leave an aircraft outside on the ramp," said Mabire.

She noted the winter months are peak season, as aircraft owners seeking to avoid deicing and associated fees fill the hangar, while summer is the quietest period. Annual events such as the automobile show and EBACE serve to spike demand as well during the spring.

Mabire said the company will launch a "quality observatory" later this month, sending questionnaires out to its customer base to help determine what services they wish to see added at the hangar. ■

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Jetex named HondaJet dealer

Honda Aircraft (Booth 071, Static SD20) has appointed Jetex Flight Support (Q89) as an authorized sales representative for the Middle East, representing HondaJet sales in the UAE, Saudi Arabia, Bahrain, Oman, Qatar, Lebanon, Pakistan, Jordan, Turkey, and Kuwait. Announcing the appointment yesterday, Honda Aircraft president and CEO Michimasa Fujino pointed to "tremendous interest" in the Middle East for the new HondaJet Elite, which was unveiled on Monday, as a driving factor for increasing sales support in the region.

Adel Mardini, CEO and president of Jetex, expressed confidence in the partnership. "Jetex will leverage our global network and our experience as an FBO operator to offer unrivaled sales and support for HondaJet Elite," he said.

In other Honda Aircraft news, the OEM has committed to exhibiting the HondaJet on the static at the Canadian Business Aviation Association (CBAA) annual convention, which takes place June 12 to 14 in Waterloo, Ontario. **J.L.E.**

Jetex CEO Mardini and Honda Aircraft CEO Fujino at the signing ceremony.

Air Hamburg orders more Embraer Legacy 650Es. L-R: Michael Amalfitano, president and CEO at Embraer Executive Jets, and Simon Ebert, partner, Air Hamburg.

Embraer boosts Legacy bizjet orders

Embraer Executive Jets (Booth Z33, SD23) announced the sale of four Legacy 650E business jets to charter and flight services provider Air Hamburg (Booth Z136) yesterday at EBACE 2018. The delivery of these aircraft will bring Air Hamburg's Embraer fleet—which includes 15 Legacy 600/650s and two Phenom 300s—to 17. The Germany-based company also operates six Cessna Citation XLS+ and three Citation CJ aircraft. According to Embraer, the Air Hamburg contract represents a total of $103.6 million, based on current list prices. Delivery is expected to commence in the second quarter and continue at a rate of one aircraft per quarter through early 2019.

"Our partnership with Embraer dates back to 2013 with our first Legacy 600," said Simon Ebert, owner of Air Hamburg, who added that their customers remain extremely satisfied with "the Legacy 650E's three cabin zones, convenience of amenities, reliability, performance, and generous baggage allowance." Air Hamburg serves European, Russian, and Middle Eastern destinations.

Also yesterday, Embraer inked a purchase agreement for a pre-owned Legacy 500 to UK-based flight services company Centreline, which already operates two Legacy 500s among a diverse fleet ranging from light to long-range business jets.

The Centreline Legacy 500 has a premium cabin layout with a berthing divan and six club seats that convert to three lie-flat beds, a full service galley, and a private rear lavatory with vanity and wardrobe. Delivery is scheduled for August. **J.L.E.**

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Bizav set for European takeoff

previous day, Schneider announced the airport "will introduce a biofuel strategy" that will include adding one percent of biofuel to all jet fuel purchases, making Geneva "the first airport offering that."

Yet challenges to that future remain, and Wiese urged attendees to "collectively and proactively tell our story to buyers, regulators, and the next generation of young people who will help determine the future in years to come."

Keynote speaker Yves Rossy, aka Jetman, proved that the spirit of innovation lives on. The former fighter pilot and airline captain recounted his 25-year quest for "complexly free" human flight, instead of flying within a machine.

He found something like that sensation when he began parachuting, but "unfortunately, the vector is like that," he said, pointing straight down. Rossy began experimenting with sky surfing, which he found "not very effective, but really fun," and from there began developing wings, his first milestone coming with an inflatable pair and a strong harness to strap into. "For the first time I was really flying, a glide ratio of four: one meter down, four forward." He flew across Lake Geneva wearing the wings. "But birds are not only going down—they stay in the air," he said. "So I needed a little push to stay in the air."

That led to attaching turbine engines developed for model aircraft to the wing, culminating in a disastrous flight that destroyed the wing and led him to abandon its development. But encouraged by friends he returned to his quest, and ultimately achieved his goal.

Development of his wing is not over. "We're now using a helicopter to [launch], so we are not autonomous," Rossy said. He is now working on a wing capable of self-launching from the ground.

Today Rossy imagines a future where "you strap a wing on, start your engines," and gambol amidst the clouds or use it for personal travel. "It could become a good business," he surmised, "so if someone's interested in being part of that adventure in the future..." ■

"Jetman" Yves Rossy (left) was joined by representatives from EBAA, NBAA, and the local government to cut the ribbon to open EBACE 2018 (below).

PHOTOS: DAVID McINTOSH

DAVID McINTOSH

Training aircraft are sold out at Piper Aircraft for the rest of this year. Especially popular with European flight training outfits is the diesel-powered Piper Archer DX.

Piper's airplane sales soar as training market heats up

by Matt Thurber

Piper Aircraft has expanded its presence at the annual EBACE show, in recognition of the growing importance of the European market, according to president and CEO Simon Caldecott. On Piper's static display (SD18) are two of its M-class airplanes, an M600 turboprop single and M350 pressurized piston single, as well as a diesel-powered Archer DX single.

"The European business aviation market presents a key growth opportunity for Piper Aircraft and our dealer partners," said Ron Gunnarson, v-p of sales, marketing, and customer support. "With our continued focus on expanding international sales and with the advent of EASA approval of single-engine turbine commercial operations, the EBACE convention is the ideal venue for Piper to showcase its M-Class products in the European market."

First-quarter deliveries for Piper climbed significantly, up 36 percent, to 34 aircraft, compared to last year, with trainer deliveries ascending by 16 percent. Trainer orders have surged 88 percent over the past five years, and the backlog for the Archer training airplane is now into the third quarter of 2019.

"Our 2018 trainer production is sold out," Caldecott said. "As a manufacturer of training aircraft, we're seeing the forecast becoming reality. The pilot shortage is real."

Sales of Piper's trainers—which include the Garmin G1000-equipped Archer (both avgas and diesel versions), Arrow complex single, and Seminole twin—are a reflection of the impact of the pilot shortage. Training organizations need new aircraft, and Piper is focusing on long-term agreements for large fleet sales. "Right now they're looking for more aircraft at the front end," he said. "And a lot of schools want glass cockpits because retrofitting is too expensive."

Recent fleet orders include 152 aircraft from China's Fanmei Aviation Technologies—100 Archer TXs, 50 Seminoles, one Seneca, and one M350; a second order for 100 Archer TXs from ATP Flight School; and a 2018 order from the University of North Dakota for 22 Archer TXs and four Seminoles, part of an earlier fleet order.

Piper (Booth C71) is certifying the G1000NXi upgrade in the M500 and M350, and this will also be available in the new diesel-powered Seminole, which will be certified in the second quarter of 2019. The Safe Flight angle-of-attack system on the M600 will be available in this year's third quarter, and for the Archer, Arrow, and avgas Seminole in 2019.

During the first quarter, sales revenue was up 77 percent, to $41.38 million. M-class sales grew by more than 100 percent. In Europe, Piper has delivered six Pratt & Whitney PT6A-42A-powered M600s, and Caldecott expects another three sales this year. UK dealer BEA is adding an M500 to its charter fleet.

With the Continental diesel engine's time between replacement now at 2,100 hours, diesel-powered Pipers are gaining traction in various markets. "There is demand for jet fuel-powered aircraft," said Caldecott.

Most diesel Archer DXs are delivering to buyers in Asia and Europe, where avgas is expensive and, in Asia's case, difficult to obtain. But there is also renewed interested in the U.S. market, he said. The diesel version of the Archer costs $65,000 more than the avgas-powered Archer. "This year we will produce three times as many as we did the first year [2014, when Piper offered the diesel option]," he said. That amounts to about 10 percent of Archer production. ■

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Mourning visionary Serge Dassault

Dassault Aviation. Dassault Aviation's management, engineers, technicians, employees, and workers all send their deepest and most sincere condolences to Mrs. Dassault, her children, and grandchildren."

EBAA chairman Juergen Wiese said in his introductory remarks at yesterday's EBACE opening general session: "Yesterday, the business aviation family lost one of its great leaders and figures. Serge Dassault was a giant and legend, an innovator and pioneer, in commerce and politics, in France and across Europe. Our hearts go out to the [Groupe] Dassault family and our hearts go out to the Dassault family that are here with us in Geneva this week. We dedicate EBACE 2018 to that legend, Serge Dassault."

A Lasting Legacy

In 1914, then 22-year-old Marcel Dassault founded the company that would eventually come to dominate French aviation. At that time, he was still named Marcel Bloch, and his successful design of a wooden propeller for World War I pursuit aircraft kicked off one of the greatest success stories in aviation.

Serge was born Serge Bloch in Paris on April 4, 1925. He was one of two sons of Marcel (the other being Claude) and his wife, Madeleine (née Minckes). The Bloch family, being of Jewish heritage, was stripped of its property in WW2 during the Nazi occupation of France, with Marcel having refused to have anything to do with the German aviation industry.

He was deported in 1944 to the Buchenwald concentration camp, then released in April 1945 when the camp was liberated. Marcel subsequently changed the family name to Dassault, derived from his brother Darius's code name when he served in the French underground "Char-d'assault," the French term for a battle tank.

The young Serge focused on his education, joining the family business in 1951 after graduating from the Institut Superieur de l'Aeronautique et de l'Espace, having previously studied at the Lycée Janson de Sailly and gaining a first degree from the École Polytechnique in Paris. In the early 1960s he added an MBA from HEC Paris.

Despite distinguishing himself as a student, Serge's father Marcel maintained control of the family business and, according to those who remember that time, had little confidence in the young Serge becoming his successor. He did, however, make him head of Dassault Electronique, so that after Marcel's death in 1986, aged 94, Serge was well placed to become the new leader of Groupe Dassault as chief executive.

Serge was soon to prove his mettle as a businessman. Having seen his father Marcel successfully rebuff attempts by President François Mitterrand to nationalize Dassault in the 1980s, Serge headed off attempts by President Jacques Chirac to restructure France's aerospace industry in the mid-1990s, and this Dassault remained proudly independent.

He was instrumental in guiding the development of such iconic aircraft as the Falcon business jet lines and Rafale fighter, but also led his company to diversify into other areas, notably acquiring France's leading newspaper publisher Le Groupe Figaro, in 2004. The company also owns the Paris-based auction house Artcurial and wine estates in Bordeaux—many an aviation executive and journalist has enjoyed Château Dassault's wines on board the company barge, moored adjacent to its St. Cloud headquarters next to the Seine in Paris.

Serge was also active politically as a member of the UMP party, with his son Olivier becoming a deputy in the French National Assembly. Serge himself was a former mayor of the city of Corbeil-Essonnes, a suburb of Paris some 23 miles southeast of St. Cloud, on the Seine. In 2004, Serge became a French senator, championing the position of entrepreneurs struggling against onerous tax and social regulations.

In 2014, Serge passed the reins of the family business to CEO Charles Edelstenne (Eric Trappier is the current CEO), but remained active in the business to the end.

MARK WAGNER

Serge Dassault was here at EBACE in 2014 to help launch Dassault Aviation's flagship, ultra-long-range Falcon 8X.

At the time of his death, Serge Dassault was honorary chairman of Groupe Industriel Marcel Dassault, the family's holding company, which also includes Dassault Systèmes, the leading supplier of the aircraft design and development software—Catia—that is used by the aerospace industry around the world; Sogitec; Lummen; Le Figaro; and SABCA.

Serge Dassault married Nicole (née Raffel) on July 5, 1950, and is survived by their four children—Laurent, Olivier, Thierry, and Marie-Helene—and several grandchildren. Laurent and Olivier have held executive positions in the family company. ■

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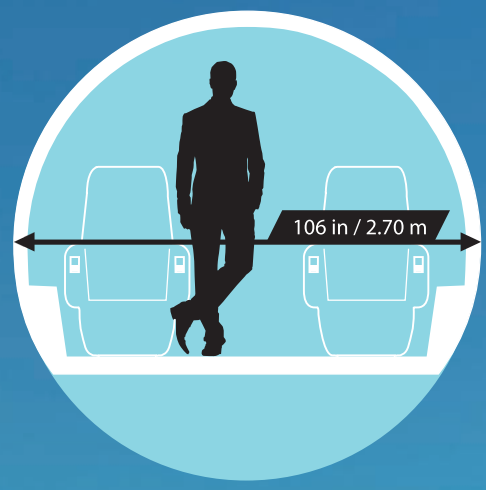

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Wednesday, May 30

08:00-18:00
EBACE Attendee, Exhibitor and Media Registration Open

08:00-18:00
Media Headquarters Open

09:00-18:00
Exhibit Hall and Static Display Open

09:00-10:30
More MoJo: Social Media and Mobile Journalism for BizAv
Hall 3, Room Q
#ExpandingHorizons is a new milestone platform for communicating business aviation. This session will look at the results of our internal social media audit across key markets and will share relevant insights on how to boost our communication efforts. At the same time, we will look at how to leverage #Expanding Horizons mobile journalism at EBACE and share what bizav communicators can learn from the latest social media trends.

10:00-11:00
European Airports – The Access Challenge
Innovation Zone
Bizav operators face significant challenges in obtaining and maintaining access to European airports. This affects not only the industry but also the customers. This session will feature a wide range of stakeholders who will share their experiences and perspectives on the major issues surrounding access, including slot availability and parking ramp capacity. This will equally aim to highlight solutions and best practices to improve access for business aviation operators to European airports.

11:00-12:00
Mission Possible – Helicopters as a BizAv Tool
Hall 3, Room
For years helicopters have been available as a fast and flexible solution to start or finish a business aviation flight. What are the challenges and opportunities to lower the barrier to entry for this excellent tool?

13:00-14:00
ATM – Airspace Access – How to Ease Your Flight Operations with New Technologies?
Innovation Zone
Air Traffic Management (ATM)—made of complex processes and control systems—enables proper transport operations in the sky. The European Commission set up a specific R&D project to reinvent ATM in Europe. It is the so-called Single European Sky ATM Research (SESAR) that prepares the future ATM technologies. EBAA contributes to this program to make sure that business aviation operators' operational needs are well taken into account. Come and discover what tomorrow's ATM infrastructure will look like.

14:00-15:00
EBACE Coffee Social
EBAA & NBAA Booths B17 B23
Join us for coffee, networking, and a sweet treat. Connect with industry peers and decision makers. Members of EBAA and NBAA staff will be available to answer your questions and help you learn how membership can help make your business even more successful.

16:00-17:30
Expanding Horizons | The Role of Women in BizAv
Innovation Zone
Women play an important role in the business aviation industry and yet, as in many other sectors, they face barriers that often prevent them from reaching the same career objectives as their male colleagues. This session will discuss the root causes keeping women away from business aviation, and how women could be empowered and better engaged within the industry. Through the insights of several strong female figures of the sector, and the input of companies working toward increasing the proportion of women in their leadership and workforce, the panel will examine how business aviation can make a greater commitment to gender equality.

Thursday, May 31

08:00-16:00
Attendee, Exhibitor and Media Registration Open

08:00-16:00
Media Headquarters Open
Hall 3, Room X

09:00-16:00
Exhibit Hall Open

09:00-14:00
Static Display Open

09:00-09:45
Pilot Training in Business Aviation
Innovation Zone
The training environment keeps changing. Evidence-based training will change the way the industry will train, but will there be sufficient uptake? New technologies make the training outside the simulator more and more efficient, but will this be applicable for business aviation? Let the technical experts of EBAA bring you up to speed on all the regulations that are coming your way in the next 12 months.

09:00-10:00
EBACE Awards of Merit
Hall 3, Room Q
These awards recognize companies for exceptional achievement in maintaining safe flying operations, as well the thorough and diligent attention paid to safety in all aspects of their operations. By following safety best practices and achieving accident-free operations, the nominees prove to be admirable safety standard-bearers for the business aviation industry.

10:00-13:00
EBAA Safety Sessions
Hall 3, Room Q
Three panel discussions are designed to engage the attendees as much as possible. The speakers/panelists will set the context and then address questions to the audience to trigger an open discussion.
1. FDM – a Safety Enabler
2. How to health-check your SMS? Implementation of SMS from the FRMS perspective
3. IS-BAO Standards Q&A session – implementation guidelines for the industry

10:00-10:45
Beyond limits: What a Career in Business Aviation Could Look Like
We're asking students: "Do you want to work in a pioneering, innovative, and diverse industry? Business aviation offers a career path you might not have thought about just yet." The development of innovative technologies and the digital revolution are impacting all aspects of mobility, and bizav is contributing to this technological development with pioneering solutions. This session will introduce the diverse job opportunities in our industry and will share insights by industry representatives on the future of sustainable personal air transport and what millennials think about it.

11:00-12:00
University Roundtable Session
Innovation Zone

In nature, the falcon is a fierce fighter. In business, the Falcon 8X is just as powerful and agile. Every inch reflects its military DNA, with lean and mean aerodynamics and advanced Digital Flight Controls to get you to places others can't. Nothing flies like a Falcon because no other jet is built like one. **Fierce. Fast. Agile. Falcon 8X.**

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