Aviation International News

AIN PUBLICATIONS

Vol.49 | No.6

$9.00

JUNE 2020 | ainonline.com

« Textron Aviation has firm orders for 50 Cessna SkyCouriers and options for 50 more from FedEx. The twin Pratt & Whitney PT6-powered turboprop can fly 200 ktas, seats up to 19 passengers, and in cargo configuration can carry three LD3 containers.

SkyCourier soars on 1st flight

by Jerry Siebenmark

The Cessna SkyCourier twin-turboprop prototype lifted off on its first flight May 17 from Beech Field at Textron Aviation's east campus in Wichita. Piloted by senior test pilot Corey Eckhart and chief test pilot Aaron Tobias, the utility twin flew for two hours and 15 minutes.

"We were very pleased with how the Cessna SkyCourier performed throughout its first flight," Eckhart said. "It was particularly impressive to see how stable the aircraft handled on takeoff and landing. The Cessna SkyCourier already displays a high level of maturity in its flight characteristics, especially for a first flight. We were able to accomplish everything we wanted on this flight, and that's an excellent start to the flight-test program."

With an initial order from FedEx for 50 copies of the high-wing airplane and options for 50 more, the SkyCourier is capable of flying 200 ktas powered by two 1,100-shp Pratt & Whitney PT6A-65SC turboprop engines driving 110-inch McCauley propellers. It also features a Garmin G1000 NXi flight deck.

Configurable for both cargo and commuter operations, the high-wing turboprop twin is designed to carry a payload of up to 6,000 pounds with an 87-inch cargo door, a flat floor, and a nearly 70-inch tall and wide cabin to accept three standard LD3 air cargo containers. In passenger configuration, it will have seating for up to 19 passengers, with a netted rear cabin area for luggage and equipment. It also will be available in a mixed passenger/cargo combination.

Along with the prototype, five additional flight and ground test articles will be part of the airframer's flight validation program and will expand on testing flight controls and aerodynamics.

"I'm proud of the way the team has persevered through disruptions caused by the Covid-19 global pandemic and remained focused on getting us to this point," said Textron Aviation CEO Ron Draper. "The Cessna SkyCourier will be an excellent product in its segment due to its combination of cabin flexibility, payload capability, superior performance, and low operating costs. Our customers will be very pleased with what they experience from this aircraft." ■

Read Our **SPECIAL REPORT**

Bizav in Europe

Although this year's EBACE show was canceled because of the coronavirus, European companies remain active in the business aviation segment, and they all have a story to tell about how they are dealing with the pandemic.

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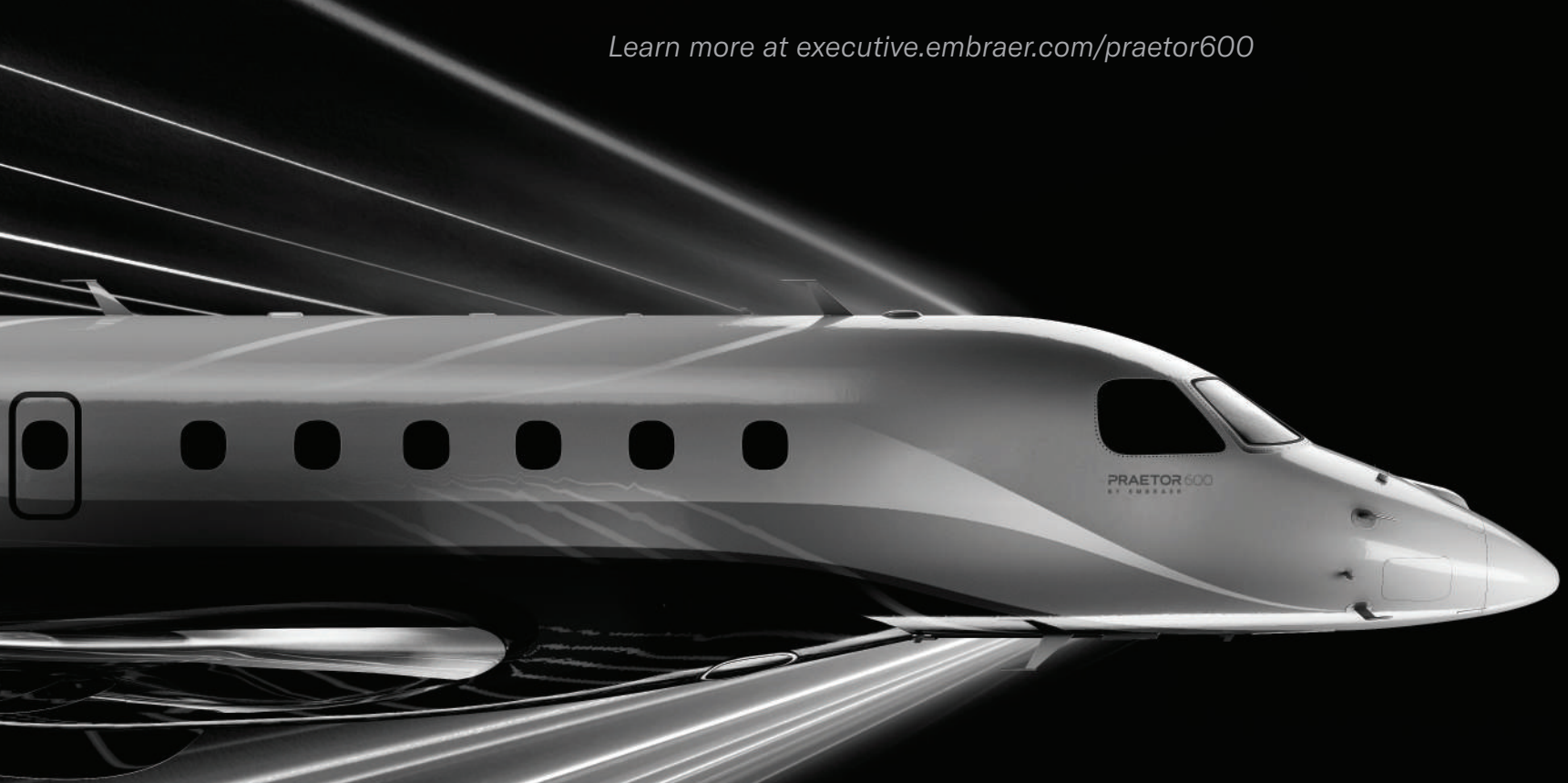

LEADING THE WAY

PRAETOR 600

BY EMBRAER

INSIDE this issue

INDUSTRY

Bizav owner-pilots aim high on safety and professionalism

Important Events Note

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

Aviation International News

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Aviation International News (ISSN 0887-9877) is published monthly. Periodicals postage paid at Midland Park, N.J., and additional mailing offices. **Postmaster:** Send address changes to Aviation International News, P.O. Box 8059, Lowell, MA 01853 USA. Allow at least eight weeks for processing. Include old address as well as new, and an address label from a recent issue if possible. Subscription inquiries: +1 (201) 345-0085 or email: subscriptions@ainonline.com.

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As We Go To Press

AFTER RECORD 2019, PILATUS PONDERS COVID-19 FUTURE

While 2019 was a very successful year for Swiss airframer Pilatus, the company is preparing for any Covid-19-related downturn, it said in a May 15-released annual report. The OEM set a new production record last year, delivering 83 PC-12NG turboprops, 40 PC-24 light jets, and 11 PC-21 military trainers, with an operating income of CHF153 million ($157 million). Pilatus noted that the market rollout and ramp-up of production for the PC-24 are now complete. Pilatus also recently began deliveries of the PC-12NGX, an updated version of its venerable turboprop single with an improved engine and redesigned cabin. While the manufacturer began 2020 with an order book worth more than CHF2 billion, it was quick to respond to the threat of the virus, introducing short-time work for many of its staff members.

CREDITORS MOVE TO FORCE ONE AVIATION LIQUIDATION

The unsecured creditors committee (UCC) for the Chapter 11 bankruptcy case of aircraft manufacturer One Aviation requested a hearing to convert the case into Chapter 7 liquidation. One Aviation, the merged company of Eclipse Aviation and Kestrel Aircraft, entered Chapter 11 in October 2018, intending for an expedited trip through bankruptcy court and emergence by the end of that year under ownership by the Chinese-backed investment group Citiking International. Several delays followed, however. Albuquerque, New Mexico-based One Aviation appeared to clear another hurdle in March, following approval of the company's sale by the Committee on Foreign Investment in the United States (CFIUS). But no apparent progress toward emergence from Chapter 11 has followed. A hearing on the UCC request is scheduled for June 4.

GPS INTERFERENCE ISSUE BACK ON THE TABLE

A coalition of industries that rely on GPS is concerned that the U.S. Federal Communications Commission's (FCC) approval of Ligado Networks' telecommunications system will risk interference with GPS signals. Ligado is the new company formed after LightSquared's bankruptcy in 2012 and does not agree that there is any risk of GPS interference in the range of frequencies covered by its FCC license. The coalition's issues include ignoring national security, risking public safety, economic impact, and outsourcing enforcement of GPS interference issues to Ligado. The public safety issue is perhaps the most important as it addresses the widespread use of GPS and reintroduces the GPS interference issues that dogged the LightSquared FCC application.

JETNET SEES USED BUSINESS AIRCRAFT INVENTORIES RISE

Preowned business aircraft inventories have begun to creep back up, rising more than a half point year-over-year, to 9.9 percent, according to JetNet. It marked the first time since 2016 that the month of March saw a year-over-year increase in the fleet percentage for sale. Business jet sale transactions slowed by 5.8 percent from March 2019, with aircraft on average taking 13 days longer to sell. While the number of jets currently for sale increased by 162, or 7.9 percent, to 2,215 in March 2020, it pales in comparison to 2009 when available business jets jumped by 1,095 units, a 62 percent increase, during the height of the Great Recession. The turboprop market saw a moderate 0.2 percent rise in inventory, but had a 13.8 percent decrease in the number of transactions and 51 fewer days on market.

UNIVERSAL ROLLS OUT GLOBAL VENDOR COVID STANDARDS

Universal Weather and Aviation has launched a new Covid-19 standards program for its preferred suppliers across the top 100 destinations frequented by its trip support customers. The first phase of the plan covers three core logistical components that involve physical contact of passengers and crew: FBO ground services, in-flight catering, and ground transportation—all areas in which the company operates its own divisions. The standards are based on health and safety practices recommended by the CDC, FDA, IATA, and WHO, and are similar to those that have already been implemented by the company's Universal Aviation, Air Culinaire Worldwide, and Universal-Drivania Chauffeurs businesses.

FLIGHT SIMULATION ICON RUDY FRASCA FLIES WEST

Rudy Frasca, a pioneer in the flight simulation field who founded Frasca International in 1958, died of natural causes on May 11 at the age of 89. "Rudy was truly larger than life. His contributions to the aviation industry will not be forgotten," Frasca International said in announcing his passing. Frasca built his first flight simulator in his home garage in Champaign, Illinois, which proved to be the first step to launching the company that was first called Frasca Aviation. Initially starting with general aviation trainers, over the next 60 years Frasca built simulators for college, airline, and military training programs, delivering more than 2,600 devices to 70 countries. Along with his interest in training, he became a collector of antique aircraft and further was a benefactor to collegiate aviation organizations.

N703GA, the third flight-test Gulfstream G700, achieved first flight on May 8 from the company's headquarters at Savannah/Hilton Head International Airport. It reached 45,000 feet and Mach 0.85 during the roughly 3-hour flight.

Third G700 joins test program

by Chad Trautvetter

Gulfstream Aerospace now has three of its planned five flight-test G700s online, the aircraft manufacturer announced on May 8. The third test aircraft—registered as N703GA and dubbed T3 by Gulfstream—made a 3-hour, 2-minute first flight that day from the company's headquarters at Savannah/Hilton Head International Airport. T3 reached 45,000 feet and Mach 0.85 during the flight.

The first flight-test G700—T1, registered as G700GA—has been flying since February 14, while T2 has been flying since March 20. These three aircraft have logged more than 100 flight hours to date, during which the G700's envelope has been expanded to 54,000 feet and Mach 0.94.

T1 will focus on envelope expansion, flutter, stalls, flying qualities, flight control, and ice shapes; T2, cabin development and static test; T3, loads/PID, engine/thrust-reverser operation, field performance, and climb performance; T4, environmental control system, mechanical systems, flight into known icing, and cooling/vent; T5, avionics and level D sim data. A sixth G700 will also serve as a production test aircraft.

"The G700 flight-test program is running very well, a reflection of the extensive testing we conducted in our ground labs," said Gulfstream president Mark Burns. "All three flight-test aircraft are performing exactly as we expected."

Powered by a pair of Rolls-Royce Pearl 700 engines, the Mach 0.90, 6,400-nm G700 features a five-living-area cabin with 20 panoramic windows. It also includes the Gulfstream Symmetry flight deck with electronically linked active control sidesticks, touchscreen controls, and a predictive landing performance system for enhanced runway safety.

Service entry of the long-range twinjet—a stretch derivative of the G650ER—is scheduled for 2022. ■

Embraer bizjet deliveries edge lower in first quarter

by Jerry Siebenmark

Embraer Executive Jets (EEJ) saw its business jet deliveries slip from a year ago, according to its first-quarter 2020 delivery report issued on May 12. Specifically, the Brazilian airframer reported deliveries of five light jets—all Phenom 300Es—and four large jets—one Praetor 500 and three Praetor 600s—for a total of nine aircraft.

That compares with 11 in last year's first quarter: two Phenom 100s, six Phenom 300s, two Legacy 500s, and one Legacy 650. An EEJ spokeswoman told **AIN** this year's first quarter Phenom deliveries were all the original 300E variant. First delivery of the newly upgraded 300E has not yet occurred, she said.

Embraer noted that the first quarter is seasonally its lowest for aircraft deliveries, although for the past two consecutive years the company has reported higher but flat deliveries. During the quarter it saw certification of the new 300E by ANAC, FAA, and EASA, adding that in the 2010s the 300 was the most-delivered twinjet in its class. ■

The Phenom 300E accounted for the most deliveries among all Embraer Executive Jets models in the first quarter of 2020.

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Jet deliveries cut in half, profits drop in Textron's Q1

by Jerry Siebenmark

Deliveries, revenue, and profit plunged in the first quarter at Textron Aviation as the Wichita airframer wrestled with the effects of the Covid-19 pandemic and, to a lesser degree, the December accident at its composite manufacturing plant. The manufacturer of Beechcraft and Cessna aircraft delivered 23 Citation jets and 16 turboprops, compared with 44 jets and 44 turboprops in the same quarter last year, leading to a $262 million decline in revenue to $872 million and an even sharper fall of $100 million in profit to $3 million.

Backlog at the end of the quarter was down to $1.4 billion from $1.7 billion at the end of fourth-quarter 2019, which Scott Donnelly, president and CEO of parent company Textron Inc., largely attributed to "a revised demand outlook" from fractional operator NetJets. "They're still taking quite a few deliveries this year on both Latitude and Longitude," Donnelly explained during an earnings call this morning, "but they also said, 'Look, until we see the sales turn back on [for] other aircraft that we expected to take delivery of this year, we're going to take [those] out of the book.'"

MARK WAGNER

A "revised demand outlook" from NetJets during the first quarter of 2020 was the reason behind a nearly $300 million decline in Textron Aviation's backlog.

Textron Aviation's financial results were impacted partly from $12 million in costs from temporary plant closings and employee furloughs—which were initially planned for four weeks but have since been extended to eight weeks—as a result of the pandemic. The pandemic also affected deliveries that couldn't be made to customers in the quarter because of travel restrictions. Deliveries in the period were interrupted as well by an explosion in late December at its composite manufacturing facility. The company has temporarily worked out an arrangement with Wichita-based aircraft supplier Spirit AeroSystems to use its autoclaves until Textron Aviation can bring in new equipment, Donnelly added.

Looking ahead, Donnelly said there's still a great deal of uncertainty about demand for the remainder of the year because Textron Aviation is unable to get its salesforce out to talk with customers. "We just don't have good visibility into what that production rate needs to be for the balance of the year," he said. "We always gauge that based on looking at our sales teams and understanding order flow and what's going on in terms of the normal progression of customers moving from query to taking an order. And we don't have that right now. We're basically doing furloughs to buy time, to see the economy start to pick back up for people, to be able to travel, and to understand where they are so we can gauge what do we need to set that production run rate for the balance of the year." ■

Aerion Supersonic chooses Florida's Melbourne Airport for new HQ

Aerion Supersonic is moving its headquarters from Reno, Nevada, to a new $300 million campus at Florida's Melbourne International Airport (MLB), bringing at least 675 jobs to the area, the company announced jointly with the state in late April. The supersonic business jet developer lands at the same airport chosen in 2008 by Embraer Executive Jets, which now has a service center, customer delivery facilities, paint bays, and Phenom light jet assembly line there.

"The Space Coast has become a hub for the aviation and aerospace industry, and my administration continues to make it a priority to expand this high-wage and important business sector," said Florida Governor Ron DeSantis. "We are thrilled that Aerion has selected Melbourne for its new global headquarters."

Dubbed Aerion Park, the more than 60-acre site at the northwest corner of MLB will house Aerion's global headquarters and integrated campus for research, design, build, and maintenance of its AS2 SSBJ. Aerion plans to break ground on the campus later this year, with manufacturing of the AS2 anticipated to start in 2023.

Aerion Supersonic will break ground later this year on its new headquarters facility at Florida's Melbourne International Airport. It plans to begin manufacturing of its AS2 supersonic business jet at the campus, dubbed Aerion Park, in 2023.

The company also expects Aerion Park to attract "key aerospace suppliers within the supersonic technology ecosystem to bring business to Florida, creating additional roles for scientists, designers, engineers, and aircraft builders."

In 2015, Aerion told **AIN** that its U.S. manufacturing location for its Mach 1.4 AS2 would eventually be on the East or West Coast, within 200 nm of an offshore supersonic flight-test area. At the time, it said it was seeking 100 acres on a major airport with a minimum 9,000-foot runway and "other special geophysical requirements." MLB's Runway 9L/27R is 10,181 feet long by 150 feet wide.

Other factors that Aerion previously said it was taking into consideration include airport suitability; road and rail infrastructure; proximity to a deep-water port for shipped structures and equipment; local aerospace workforce; state and local regulations; quality of life; and regional educational institutions. **C.T.**

News Briefs

Honda Aircraft Bullish on Bizav's Future

As Honda Aircraft restarted HondaJet production on May 4 after furloughing employees and shutting down the line in April due to Covid-19, president and CEO Michimasa Fujino said he is optimistic about the recovery of business aviation. Business jets "are a good solution for people who have urgent business," he said. "And they could avoid the risk of Covid-19 by using private aviation. Recently, some financial people started to show some interest in traveling in light jets to close their deals. There are some positive signs, but the economy as a whole is declining. It's a very mixed situation." Meanwhile, new countermeasures to prevent the spread of Covid-19 on the manufacturing line will result in a lower production rate.

Gulfstream G600 Lands EASA Nod

Gulfstream Aerospace has received the green light to begin deliveries of the fly-by-wire G600 to customers in Europe, following EASA certification of the large-cabin jet, the Savannah, Georgia-based aircraft manufacturer announced on May 11. This nod comes almost a year after similar FAA approval for the twinjet, which entered service on Aug. 8, 2019. "The Gulfstream G600's technology, high-speed performance, and efficiency will serve the intercontinental European business traveler well," said Gulfstream president Mark Burns. The G600 can fly 6,500 nm at its Mach 0.85 long-range cruise speed.

NetJets Expands Employee Covid-19 Testing

NetJets has partnered with North Carolina-headquartered Cellex to make antibody testing available to its employees. The program augments the fractional ownership provider's joint initiative with its pilots' union, NetJets Association of Shared Aircraft Pilots, to offer Covid-19 testing for free to its employees. The moves come as NetJets prepares for economies to begin reopening, said NetJets president of sales, marketing, and service Patrick Gallagher.

Daher Ships 1st 2020 TBM 940, HomeSafe Nears Cert

Daher delivered the first 2020 TBM 940 early last month and expects the HomeSafe autoland system for that model to be FAA and EASA certified this month, aircraft division executive v-p Nicolas Chabbert said. TBM 940s built last year are eligible to be retrofitted with HomeSafe, which costs $85,000. Meanwhile, Chabbert said Daher has not seen any diminished demand for TBMs during the Covid-19 crisis, but said the company will likely not meet its 2020 forecast delivery for 50 TBMs due to the slower production output and the potential for supply chain issues later this year. But he said the company will meet the projected 15 Kodiak 100 shipments by year-end.

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DAVID McINTOSH

Gulfstream deliveries were hampered in the first quarter by Covid-19 travel restrictions that hamstrung customer handovers. While the Savannah, Georgia-based aircraft manufacturer fully expects to deliver these aircraft as soon as travel restrictions are lifted, supply chain issues have prompted it to cut planned deliveries from 150 jets to between 125 and 130 this year.

Pandemic leads to layoffs and delivery delays

by Chad Trautvetter

Gulfstream Aerospace said early last month that it will have to lay off some workers and close its Las Vegas service center after earlier cost-cutting measures intended to blunt challenges stemming from the pandemic weren't sufficient. Aircraft deliveries at the company were also one-third lower than expected in the first quarter as Covid-19 travel restrictions hamstrung customer handovers, while pandemic-related supply chain issues are expected to curtail production by about 15 percent this year, according to parent company General Dynamics.

A Gulfstream spokesperson told **AIN** that the company must "take additional steps to balance the size and structure of the business with current conditions. As a result, we made the difficult decision to reduce our workforce at multiple locations across our company."

The aircraft manufacturer did not specify how many workers would be laid off but expressed regret for "the impact these actions will have on our colleagues and their families." Approximately 150 workers could be affected at the Las Vegas service facility alone, while WARN notices filed in Georgia indicate up to 700 people would lose their jobs at Gulfstream's facilities in Brunswick and its Savannah headquarters. Affected eligible workers will receive severance and benefits extensions, the company said.

According to Gulfstream, the proximity, central location, and capabilities of its Van Nuys service center were among the largest contributors toward the company's decision to close the Las Vegas facility this month. "The Las Vegas service team will complete the aircraft currently in for service before the facility closes," the spokesperson said.

Work scheduled for the Las Vegas center will be shifted to Gulfstream's Van Nuys facility, which "offers significant customer resources, including sustainable aviation fuel and increased ramp space," as well as the company's Field and Airborne Support Teams (FAST) mobile response unit.

Meanwhile, Gulfstream manufactured 34 aircraft in the first quarter but could deliver only 23—20 large-cabin and three midsize jets—due to international travel restrictions, compared with 34 deliveries (27 large cabins and seven midsize) in the same period a year ago. General Dynamics chairman and CEO Phebe Novakovic said the remaining 11 aircraft will be handed over to customers when travel restrictions are lifted. "Customers definitely still want them, and they will be delivered as soon as we can," she noted.

Backlog has remained flat year-over-year and book-to-bill was 1.1:1 in the quarter, according to Novakovic. However, she disclosed that Gulfstream logged four customer cancelations in the quarter, but added, "We expect three of them to come back. We are hearing no other noises coming from deposit holders."

She stressed that demand is still strong, which she countered is completely opposite from the 2008 financial crisis. However, sales are currently difficult to consummate because demo flights, in-person sales calls, and in-person contract negotiations have been on hold during the Covid-19 crisis. Novakovic does expect sales to spike post-crisis, however.

But supply chain issues stemming from the pandemic—and to a much lesser degree production efficiency losses from social distancing and plant deep cleaning measures—have prompted Gulfstream to cut its projected deliveries this year from 150 aircraft to between 125 and 130. "Some suppliers entered this period already in difficulty," Novakovic said. "We know who they are and are working with them." This lower production rate will also "de-risk" 2021 should demand not materialize into sales this year, she added. ■

Workforce reductions reduce ranks at NBAA

The layoffs that have spread throughout the industry have reached NBAA, which in May announced "a significant reduction" in its workforce. NBAA cited the challenges associated with the Covid-19 pandemic in the move and said it will enable it to keep "a sharp focus on advocacy, strategic communications, operational support, the production of NBAA-BACE and other events, and other priorities for the association and industry."

With travel restrictions and ongoing concerns surrounding Covid-19, NBAA has canceled many events that are an important part of the association's funding, including EBACE and ABACE, which gather thousands of attendees and hundreds of exhibitors from around the world.

"As we know, the Covid-19 pandemic is challenging organizations of every kind, and NBAA is certainly not immune to those challenges," NBAA president and CEO Ed Bolen said. "We are working to address the challenge by looking at all aspects of our business, including significant reductions to our workforce, consistent with what we are seeing in the aviation community and beyond."

Bolen added the decisions "have been among our most difficult ever" but are necessary to ensure the association continues to meet the evolving demands confronting the industry and association. "I firmly believe they are appropriate to ensure NBAA, and business aviation, will thrive as we look to the future," he said. **K.L.**

News Briefs

JetSuite Files For Chapter 11 Reorganization

JetSuite's aircraft operating arm, Superior Air Charter, in late April filed for Chapter 11 reorganization in a U.S. Bankruptcy Court in Delaware. This came shortly after JetSuite temporarily ceased operations and furloughed staff due to Covid-related reduction in charter demand. The filing does not include its aircraft holding company, JetSuite Aircraft Holdings, or scheduled air carrier JetSuiteX (JSX) that is still conducting city-pair regional airline flights. Per the bankruptcy filing, the company owes between $50 million and $100 million to hundreds of creditors but has only less than $10 million in assets. It owes some $9.7 million to its top 30 creditors, all but two of which are SuiteKey prepaid charter clients. The top creditor is Netflix, a SuiteKey customer that is owed about $931,000.

ASU Earns STC for Pilatus PC-12 Night Vision

The FAA awarded Idaho-based Aviation Specialties Unlimited (ASU) an STC for night vision imaging system (NVIS) on Pilatus's PC-12 turboprop single. "Because of the PC-12's ability to take off and land in undeveloped runways and fly in terrain that is less developed, adding NVIS capability just adds to the aircraft's already robust capabilities," said ASU repair station manager Chris Reber. ASU also holds NVIS STCs for a number of other airplanes, including the Cessna Caravan; Casa C-212; De Havilland Dash-8; Dornier 228-202; and Gulfstream G550.

Gary Dunn Takes Helm of Aviation Partners

Aviation Partners Inc. (API) last month promoted Gary Dunn to president, permanently naming him to the position he has held in an interim capacity since the unexpected passing of company co-founder Joe Clark. Dunn brings nearly 30 years of experience to the role, more than 20 of which have been spent at the Seattle-based blended winglet developer. He joined API as director of engineering in 1996, supporting the company's winglet for the Gulfstream II. In 2001, he moved into sales and then added marketing to his responsibilities. During his time there, he oversaw products for business aircraft along with Boeing 737s, 757s, and 767s.

APS Aims To Keep Pilots Sharp in Covid Era

Upset prevention and recovery training (UPRT) provider Aviation Performance Solutions has launched a line-up of free and paid online UPRT course options in response to Covid-19's impact on pilot training and safety. These courses allow pilots to study academic portions of upset training remotely at their own pace and schedule. Costs of the paid course options can be credited toward a future on-site UPRT program.

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GLOBAL JET
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NetJets cuts staff, planned aircraft deliveries for 2020

by Charles Alcock

DAVID McINTOSH

NetJets Europe's fractional ownership services have seen a significant decline in demand due to the Covid-19 pandemic.

NetJets has confirmed reports of workforce reductions at its NetJets Europe (NJE) and Executive Jet Management (EJM) subsidiaries by 25 percent. The private aviation group also has reduced planned new aircraft deliveries for 2020, and these are expected to be down from around 60 to 25.

Portugal-based NJE provides fractional ownership programs, while Cincinnati, Ohio-based EJM is engaged in aircraft management and charter services. The group has not yet implemented any furloughs or workforce reductions in any other U.S.-based operations, including U.S. fractional arm NetJets Aviation (NJA). In a written statement, the company said that the cuts at NJE and EJM were made last week "to align with the current market and ensure sustainability for the future success of those businesses."

In a letter obtained by **AIN** and sent to aircraft shareowners by NetJets chairman and CEO Adam Johnson, the company reported that, due to the Covid-19 pandemic, demand for trips had been "down significantly since mid-March." While adding that the group is still conducting "hundreds of flights" each week, he said EJM has seen a dip in demand for its aircraft to provide subcontract support for the NJA fleet during busy periods.

In addition to the job cuts, NetJets also has offered unpaid leave with paid healthcare to both flight crew and corporate office staff. The company said it has not applied for loans and grants available under the U.S. CARES Act. Along with other operators, it has benefitted from the act's relief from the 7.5 percent air transportation federal excise tax and said it has passed this saving on to its customers.

NetJets told owners it has restructured, deferred, or canceled planned new jet deliveries for this year. It did not specify which aircraft types will be affected by changes to its existing orders with several leading manufacturers, including Textron Aviation, Embraer Executive Jets, and Bombardier Business Aircraft.

"Daily, we see the distressing toll this is taking on private aviation," Johnson said in his letter to shareowners. "Known brands with seemingly strong financial backing have already ceased operations. It is logical to assume that others are holding on while they await the approval of loans and grants available to them under the CARES Act."

None of the other major private flight providers, including the VistaGlobal group, Flexjet, or Wheels Up have yet announced staff cuts or fleet groundings. On April 16, charter operator JetSuite grounded its 12-strong fleet of Embraer Phenom light jets and furloughed its staff.

NetJets has taken multiple steps to reduce the risk of Covid-19 infection to passengers and crew. These include treating cabin interiors with an antimicrobial product called ClearCabin and using its aircraft to move flight crew to departure points to avoid exposure by using airline service.

According to the most recent Global Market Tracker published by data analyst WingX, fractional ownership aircraft operations have shown slightly steeper traffic decline than aircraft management and branded charter services in recent weeks. The company also noted that business aviation traffic volumes in the U.S. have been higher than those in Europe. ■

Citation CJ4 celebrates 10th anniversary

Textron Aviation surpassed 300 deliveries of the Cessna Citation CJ4 in 2019.

The largest of Cessna's CitationJet family marked its 10th anniversary, with first delivery of the CJ4 occurring on April 20, 2010, according to Textron Aviation. More than 320 copies of the $10.09 million, single-pilot twin make up the active fleet, Textron Aviation senior v-p of sales Rob Scholl noted. "This network of operators is a part of the largest owner-operated light jet community in the world," he added.

With seating for up to 10 passengers, the model 525C is a stretch version of the CJ3 by about two feet but borrows the larger Citation Sovereign's wing with a 12.5-degree sweep angle. Powered by two Williams International FJ44-4A turbofans, each with 3,621 pounds of thrust, the CJ4 has a range of 1,926 nm (3,567 km) and maximum cruise of 451 knots. It also features a 1,040-pound baggage capacity, single-point refueling, and an externally serviceable lavatory.

The Wichita airframer delivered its 300th CJ4 just last year. **J.S.**

News Briefs

FAA SFAR Provides Relief

The FAA has built on its efforts to keep the national air transportation system operational to the extent possible during the Covid-19 pandemic with the April 30 release of a "wide-ranging" Special Federal Aviation Regulation (SFAR) providing regulatory relief to pilots and other certificate holders. It provides temporary reprieve from requirements that business and general aviation operators and training providers must meet surrounding recency-of-experience, testing, checking, renewals, and inspection authorizations, as well as the validity periods of FAA medical certificates. The agency previously has addressed training and medical deadlines for 121 and 135 carriers, among other requirements. Under the SFAR, medical certificates that were to expire between March 31 and May 31 will remain valid through June 30. The same extension is provided for flight instructor certificates. Further, a three-month grace period is provided for flight review deadlines, under certain conditions, as well as for instrument recency.

DOT Watchdog Finds Contract Towers Efficient, Safe

The U.S. Department of Transportation Office of Inspector General (OIG) gave a strong endorsement to the FAA's Contract Tower Program, finding that those facilities are more cost-effective and have similar safety records as similar federal towers. Congress has ensured funding for the program, and it has flourished with about 250 towers now managing about 28 percent of the nation's ATC operations. Participating towers typically are at airports with lower-level activity. The OIG compared these towers with similar federal facilities and found between 2015 and 2018, on average, contract towers used at least 47.6 percent fewer resources. These towers also had fewer safety events per aircraft, but the OIG cautioned, "We do not believe the difference between these numbers and those of FAA's towers is meaningful because...safety-related events across the NAS were very low relative to the total number of flights."

EAA Cancels 2020 AirVenture

The Experimental Aircraft Association's (EAA) AirVenture fly-in convention held annually in Oshkosh, Wisconsin, and drawing hundreds of thousands of visitors from some 90 countries, was canceled this year amid the Covid-19 pandemic. It was slated to be held from July 20 to 26. "Ultimately, preserving the health and safety of all who would attend—and all the varying guidelines between states and countries from where our participants arrive—along with the massive commitments needed now for an event to meet EAA's high standards, made cancellation the only option for this year," said EAA chairman and CEO Jack Pelton.

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Bombardier, ramping up on Global 7500 production, delivered six in the first quarter and says that despite Covid-19 uncertainties, the order book remains solid. However, production disruptions could hold down deliveries this year and significantly harm second quarter results.

Global 7500 boosts Q1, but Bombardier faces rocky Q2

by Kerry Lynch

Acceleration in Global 7500 deliveries helped provide a 5 percent boost in Bombardier's overall revenues to $3.7 billion in the first quarter, but a "significant" decline in order intake that began in March, coupled with Covid-19-related disruptions, has the company evaluating production-rate adjustments for the rest of the year, the company reported in early May.

Bombardier delivered 26 business jets in the quarter, including six Global 7500s. Overall, Bombardier delivered two more business jets—an additional light jet and another large-cabin jet—in the quarter versus a year ago. Bombardier delivered three Learjets and 14 Globals, including the 5000/5500 and 6000/6500 series, in the quarter. It further delivered 14 Challengers, the same as in first-quarter 2019. The ramp-up in Global 7500 deliveries helped drive a 16 percent increase in business aircraft revenues, the company added.

However, recently appointed Bombardier Inc. president and CEO Eric Martel did not provide an outlook for the rest of the year, given the uncertainties surrounding the pandemic, but he expects the second quarter to mark a low point before gradually improving during the rest of the year. In the first quarter alone, Martel estimated a cash impact of $600 million to $800 million along with deferred deliveries, production disruptions, and declining sales.

"We saw a significant impact in Q1 with more to come in Q2 as a large part of our production remained shut down for the past eight weeks and the international borders remained closed," he said. In the second quarter, the company expects a reduction in production, deliveries, "and therefore revenues," by almost half, added senior v-p and CFO John Di Bert.

Pointing to analyst estimates of a 30 to 35 percent decline in business jet deliveries this year, Martel said Bombardier could be in that range as well, but it all depends on when restrictions are lifted and the pandemic ebbs. Already more than a handful of deliveries were pushed off at the end of the first quarter and sales have slowed in March, particularly in the light and midsize jet segments, he said.

The large-cabin jet segment has remained fairly steady thanks to a "very solid" backlog, he said, while noting few cancellations. Overall, business aviation backlog declined to $13.6 billion, from $14.4 billion a year ago.

When asked about the differences between the current crisis and the market crash a decade ago, Martel said the company has now not seen "that rush of cancellations." In addition, while the crash particularly affected the light and midsize jet segments, Bombardier's exposure now centers far more on the large-aircraft segment, he said.

Bombardier remains in the early stages of assessing production rates to match the rest of the year but it does not believe plans for production acceleration of its flagship 7500 will change. However, deliveries might be slightly slower because of Covid-19-related production disruptions.

The company suspended production at the end of March and now is slowly reopening those facilities. Martel called the exercise a "tremendous undertaking" and cited the need to prepare facilities with new stringent health and safety measures, recall thousands of furloughed employees, restore the supply chain flow, restart lines, and reset delivery schedule with customers. "We expect this process will appear over the remainder of the quarter and will likely generate some challenges along the way," he said. ■

VoltAero unveils production version of Cassio hybrid

VoltAero revealed the production configuration for its Cassio hybrid-electric aircraft. The French company started flight testing the fixed-wing design in early March and plans to achieve type certification under EASA's CS-23 rules in time for deliveries to begin by the end of 2022.

On May 6, VoltAero announced that it intends to offer three variants of the single pusherprop aircraft, featuring a distinctive aft main wing and tail boom, as well as a canard configuration. These will include the four-seat Cassio 330 with a combined hybrid-electric power rating of 330 kW, the six-seat Cassio 480 (480 kW), and the 10-seat Cassio 600 (600 kW).

Intended for a variety of business and general aviation applications, including air taxi, the Cassio family will offer a range of up to 920 nm and 200-knot cruise speed. Takeoff and landing distance is projected to be less than 1,800 feet and VoltAero says the aircraft will be able to operate for up to 10 hours each day, allowing multiple rotations. Max takeoff weight will be below 2.5 tonnes (5,511 pounds) to comply with CS-23 requirements.

VoltAero intends to offer three variants for its Cassio hybrid-electric aircraft.

The hub of the Cassio's proprietary propulsion system is an internal combustion engine that provides power to three 60-kW electric motors. In standard operations, the electric motors would be used for takeoff and landings (partly to reduce noise), with the engine extending range.

VoltAero is testing this power combination in an early prototype, the Cassio 1, which is loosely based on the Cessna 337 Skymaster. The production aircraft will not include this prototype's two forward-facing sets of propellers or the forward high wing.

The company intends to produce the all-composite aircraft in a purpose-built final assembly line in the Nouvelle Aquitaine region of southwest France. It will also seek partners for licensed production in North America and Asia. **C.A.**

FutureFlight

This story comes from FutureFlight.aero a resource developed by **AIN** to provide objective, independent coverage of new aviation technology, including electric aircraft developments.

News Briefs

Textron Finds New Special-missions Role for Latitude

Textron Aviation has delivered two Cessna Citation Latitudes to Japan that are configured for flight inspection missions. They are part of a three-airplane order from the Japan Air Self Defense Force (JASDF) made in September 2017. Kanematsu Corp. has received the pair of midsize twins that will be owned and operated by the JASDF to scrutinize instrument approaches and airway procedures in the country's national airspace. The Flight Checker Squadron based at Iruma Air Base in Saitama Prefecture north of Tokyo will operate the Latitudes, which are outfitted with Unifis 3000 Flight Inspection System equipment from Norwegian Special Mission. A third Latitude for the JASDF is expected to be delivered early next year.

FAA Adjusts Hours at 100 Air Traffic Towers

The FAA has temporarily cut back the operating hours of about 100 of its air traffic control towers where movements have significantly decreased. Adjusting the hours enables the agency to minimize health risks while ensuring continued safe operations, the FAA said. Further, this reduces the possibility of temporary tower closures occurring from Covid-19 exposures. Operations at the affected towers particularly have dropped off in the evening during the pandemic, the FAA noted, saying it selected the towers based on several factors—including numbers and types of operations, ability to social distance and reduce exposure, and safety during non-towered times.

FAA Guidance Aids Standardized Part 135 Training

The FAA issued long-awaited guidance providing a new consensus-based standardized approach to Part 135 pilot training that industry officials have characterized as one of the most significant changes in training approaches for charter operations in years. FAA Advisory Circular 142-1, "Standardized Curricula Delivered by Part 142 Training Centers," is the culmination of collaborative efforts between the FAA, industry associations, operators, and stakeholders. Under the new—and voluntary—approach, the curriculum would be standardized at the national level, rather than have each program crafted at the operator level. In a joint statement, NBAA and NATA said the new curriculum would streamline relationships between Part 142 training centers and on-demand carriers and reduces inefficiencies. Key to the guidance is the creation of a government/industry Training Standardization Working Group to develop standardized training procedures for common aircraft types. The FAA believes most Part 135 operators will opt for the standardized option.

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Editorial

Boeing-Embraer saga leaves sour taste in Brazil

by Gregory Polek

DAVID McINTOSH

An Embraer E195-E2 in the company's special "Profit Hunter" livery takes off for a demonstration flight at the 2019 Paris Airshow.

Boeing's decision to let the deadline pass for its purchase of 80 percent of Embraer's commercial airplane business ranks among the most dramatic competitive shakeups in the aerospace industry since the onset of the Covid-19 crisis, but perhaps it shouldn't have come as a surprise. In a way, the pandemic served to seal the fate of a deal that had become more of a distraction than it was worth to the board members and executives in Chicago already absorbed in the 737 Max drama and the structural upset it wrought.

Not only did the $4.2 billion purchase price look overly steep following Embraer's precipitous decline in market value since the pandemic took hold, but the $1.6 billion that would have gone directly to Embraer shareholders would seem to conflict with the spirit of the restriction on dividends attached to any government support on its way to Boeing under the CARES Act.

While those considerations seem like obvious hindrances to any eventual conclusion to the deal, no one really knows what went on behind closed doors between the companies' respective boards. For its part, Boeing blamed "unsatisfied conditions" of the master transaction agreement (MTA) on the part of Embraer for the repeated delays to the closing until the April 24 deadline arrived. Embraer said it believes Boeing purposely and systematically delayed the process because it had decided ahead of time it didn't need or want to close the deal at a time of financial and reputational crisis at the U.S. aerospace giant.

What seems certain is that Boeing chose not to avail itself of a deadline extension the language in the MTA allowed. Whether or not it effectively scuttled the deal for the reasons Embraer outlined, it certainly can use the $4.2 billion that would have gone to the Brazilians, particularly now as it seeks to tap capital markets and probably government loans to maintain the level of liquidity it will need to execute on its plans to emerge from the Covid crisis relatively healthy.

For Embraer, the short-term situation appears dire. Although it has reported no order cancellations since the start of the year, sales activity had begun to dry up before the pandemic hit. The Brazilian company doesn't control near the resources of Boeing or Airbus to weather a two- to three-year industry recovery from this crisis. It will, of course, also need cash desperately, and to what extent and in what form the Brazilian federal government will help remains a big question.

Meanwhile, the competitive reasons Embraer fell into the arms of Boeing seemed apparent well before anyone but global health experts seriously considered the threat of a pandemic. While relatively stable over the past couple of years, regional jet sales haven't shown much chance of returning to the boom times of the late 1990s and 2000s. Embraer, to its credit, stayed relevant by developing a next-generation E-Jet known as the E2, while Bombardier centered its efforts on a small five-abreast narrowbody that it managed to get to market without going bankrupt, but only barely and with significant help from the Canadian and Quebec provincial governments. Finding itself in a precarious financial position even with an airplane that by most accounts was technologically sound and highly regarded among airlines, Bombardier saw little choice but to give up control of the program to Airbus.

Analysts often assume the Bombardier-Airbus combination triggered the Embraer-Boeing talks because, the thinking goes, Embraer reached the conclusion that it couldn't compete with the support network and pricing power Airbus brought to the C Series, since rebranded the A220. Nevertheless, Embraer Commercial Aircraft CEO John Slattery told **AIN** last September that the talks with Boeing actually started before Airbus announced its intention to take over the C Series. "Our transaction with Boeing was completely independent of that," he insisted. "That being said, being pragmatic, it does add a sense of urgency to want to move on now with the transaction."

Slattery's admission of a newfound urgency brought about by the Airbus-Bombardier marriage meant that the A220 did, in fact, raise the stakes for Embraer. But it also suggests it wasn't the main consideration. Perhaps the premium Boeing agreed to pay for Embraer, along with the $1.6 billion dividend payment to Embraer shareholders, sweetened the offer to the point that the Brazilian company could not refuse.

Both companies often promoted the "synergies" the deal would bring: the Embraer E-Jets would benefit from Boeing's market reach and financial muscle while Boeing would gain access to what the Brazilians often touted as Embraer's engineering expertise. Some, however, wondered how Boeing—one of the world's most technologically advanced enterprises—could face a shortage of engineering muscle. It seemed more likely that Boeing coveted the access to cheap labor in Brazil, though neither company has explicitly said so.

Whatever the reasons for Boeing's early interest in Embraer, the Brazilian company seems to have far more to lose than its U.S. counterpart from the collapse of the deal. Embraer spent untold man-hours in the so-called carve-out of the business, particularly as it related to IT systems and the moving of its business jet tooling and production out of São José dos Campos to Gavião Peixoto, where it manufactures the C-390 Millennium military transport.

Meanwhile, the European Commission's repeated pauses of its antitrust review of the Boeing-Embraer combination left the Brazilian company in the unenviable position of having to practice patience with the process while costs associated with preparations for the proposed merger mounted. In fact, Embraer suffered steep losses as it committed what Slattery called enormous resources to the effort. "There's no doubt as this drags on there's a cost associated with it," he told **AIN** last November. "If you ask the customers, they don't want this noise in the marketplace. They want clear visibility."

Now, as if to add insult to injury, Boeing refuses to pay Embraer the $100 million termination penalty specified by the MTA in the event it exited the deal. Embraer has filed for arbitration and said it would pursue "all remedies" against Boeing for damages.

Despite the obvious costs associated with the collapse of the deal, Embraer put a brave face on its prospects for the future.

"Our history of over 50 years is lined with many victories but also some difficult moments," it said in a statement. "All of them were overcome. And that's exactly what we are going to do again: overcome these challenges with strength and determination." ■

GE Aviation to shrink workforce by 25 percent

Further voluntary and involuntary layoffs at GE Aviation will see its 52,000-strong global workforce shrink 25 percent as the company institutes plans over the "coming months" to shave its cost base by $1 billion this year, company CEO David Joyce wrote in a letter to employees dated May 4. The plans, said Joyce, include $2 billion in "cash actions" in 2020 and follow a "comprehensive strategy" under development to re-size the business to match its forecast for the commercial aviation market.

The decision follows an announcement on March 23 to slash the company's U.S. workforce by 10 percent. At the time the company also instituted temporary layoffs affecting 50 percent of its U.S. maintenance, repair, and overhaul employees for 90 days. The company estimated the move—along with a hiring freeze, the cancelation of the salaried merit increases, a "dramatic" reduction of all non-essential spending, and a significant decrease in its contingent workforce—would save it between $500 million and $1 billion. Since March 23, however, market "realities" have dimmed, as aircraft manufacturers plan reduced production schedules well into 2021. GE expects global traffic to decline by 80 percent during the second quarter compared with the start of the pandemic's effect on China in early February.

GE Aviation CEO David Joyce said he sees a continued industry contraction and a protracted recovery.

"While extremely difficult, I am confident this is the required response to the continued contraction of the industry and its protracted recovery," said Joyce, who on March 23 said he would forego a salary of his own this year. "I am equally confident that the industry will recover over time and that we will be positioned to win." **G.P.**

Dassault during crisis, forging ahead on 6X | by Kerry Lynch

Dassault Aviation has focused on ramping its production lines back up after a short suspension to accommodate new health and safety measures and, despite the ongoing uncertainties surrounding Covid-19, is working to keep its Falcon 6X program on track with first flight still anticipated next year, according to a senior company executive.

Carlos Brana, Dassault's executive v-p of civil aircraft, said the restart of production—which halted temporarily in mid-March—has gone smoothly and the company's priority is to "emerge from this crisis in a strong position."

This includes sustaining the company's research and new programs. "We have a lot of development activity going on," said Brana, who took over responsibility for the French manufacturer's civil aviation programs last year after holding several positions with the company.

Dassault is focused on the Falcon 6X development, he added. "We have commitments to customers that we intend to honor. As previously announced, first flight will happen early next year." Dassault took the wraps off the 5,500-nm 6X twinjet in early 2018 with plans to bring it to market in 2022.

Research and development activity is pushing forward for programs beyond the 6X, Brana added. "We have some interesting things in the pipeline, too, including an all-new Falcon model and new safety, comfort, and health features," he said. "I frankly think our competitors' eyeballs will pop out when they see what's coming."

Dassault has not yet revealed plans for its "future Falcon;" but is expected to later this year.

Near term, though, Dassault Falcon is taking measures to get its customer aircraft delivered. "We have adapted our delivery process to this new environment and, in parallel, have maintained our support to customer operations," he said.

This includes dispatching Falcon go teams and airborne support aircraft when needed and maintaining support and spares operations. "We're continuing the adaptation of our greatly expanded service center network—our acquisitions from TAG Aviation and ExecuJet," Brana said.

As is typical during market slowdowns, he is anticipating a dip in new sales, but observed, "We've adjusted to circumstances before." Beyond a softening of demand, the pandemic, and restrictions surrounding it, presents obstacles to sales efforts, including travel to a customer's office or taking prospects on demo flights.

Encouragingly, interest has been strong for Dassault preowned aircraft, Brana said. "There is a certain segment of the market that is looking for quality aircraft that can be put into service quickly."

As far as what might happen moving forward, Brana is less certain. "I wish I had a crystal ball for the next two years. So much will depend on the ability of global markets to operate in the absence of therapeutics and a vaccine," he said. "We just have to assume that demand will remain soft for the time being, but as restrictions are lifted, markets will begin recovering."

For Brana, Covid-19 has been "an up-close and personal experience." He had a relatively early and mild case, he said, keeping him at home for three weeks. But he said he is recovered and his family is fine as well. ■

Full-throttle opinion from former NTSB member John Goglia

Salute to aviation's unsung heroes

It's sad that it has taken a devastating pandemic for us to begin to appreciate all the frontline workers who make our world turn. They perform desperately important functions and deserve our respect and acknowledgement. They deserve living wages and health care, too.

Everyone knows that doctors and nurses are performing heroic, lifesaving work during this awful time. I want to focus here on the frontline workers who are less often acknowledged—at least until a once-in-a hundred-year pandemic forces us to look more closely at their importance. I'm talking about the workers who are keeping food—and, yes, toilet paper—on grocery store shelves. I'm also thinking of the cashiers who until recently were prohibited by many store managers from wearing personal protective equipment such as face shields even though their contact with the public was probably as great as that of any workers outside a hospital. And let's not forget the janitors who clean up hospitals and essential businesses, bus drivers, train conductors, and delivery people. These workers have proved themselves to be far more essential than any celebrity, and they deserve our recognition.

In aviation, we have our own invisible and usually unsung workers. I often think of my fellow mechanics as being in that category, though they have made great strides in recent years in terms of pay and benefits. But many other aviation workers are underappreciated as well. Some of them must hold two or even three jobs just to get by. Many of these people have continued to come to work despite risks to their own health and safety. They're the ones who can't do their jobs from home and can't afford not to work. They include the men and women who clean aircraft cabins—an important job at any time but particularly during a pandemic, when we want our airplanes thoroughly cleaned and disinfected. These are usually contract workers, making minimum wage or close to it. Their jobs are dirty, thankless, and often backbreaking in normal times. Now, they have the added stress of worrying that they could catch a disease that could make them seriously ill or even kill them.

Then there are the people who refuel and de-ice our aircraft, as well as baggage handlers and other ramp workers. Their jobs are often grueling under normal circumstances—working outdoors in rain, snow, and extreme heat and cold takes its toll. Now, they, too, worry about risks to their own health and that of their families if they bring this disease back home. Even if at work they can stay a safe distance from others and have been lucky enough to be given adequate access to protective equipment, their commutes are often by public transportation where social distancing is not possible and many people are still not wearing masks. (As I write, New York and other states are beginning to mandate wearing masks on public transportation and in other places where physical distancing isn't possible.) For some workers now, getting to work may be more dangerous than the workplace itself.

While I want to focus here primarily on America's underappreciated workers, I would be remiss if I didn't acknowledge that pilots and flight attendants have taken incredible risks themselves to keep our air transportation system running, at least in part to allow healthcare workers and needed goods to continue to move across the country.

Flight attendants appear to be particularly hard hit by the virus. According to one union for a major airline, 100 of its members were diagnosed with the coronavirus as of this writing and one died in March from Covid-19 complications. The union asserts that some flight attendants have been working without adequate supplies of personal protective equipment, and one flight attendant said that until recently her airline had instructed crew not to wear face masks during flights "but in recent weeks has allowed them to wear masks in 'neutral colors.'"

With a raging pandemic, it's hard to fathom that airline management would prevent workers from protecting their own health—and that of their passengers—by wearing a mask, even after it became obvious that the virus was spreading globally and that airline passengers were a significant part of the reason for that. I have heard these reports myself from workers at all levels of aviation and it's mindboggling. It's also reminiscent of reports of grocery store management not allowing cashiers to wear masks—until a worker dies of the virus. If one lesson comes out of this pandemic, I hope it's a renewed commitment by managers in all businesses to the health and safety of their workers. All their workers.

And, once we all get back to flying regularly, perhaps more air travelers will make it a point to "see" the all-too-often invisible workers who make their journeys possible. It couldn't hurt to say thank you when you come across these people. ■

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

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Aviation schools training online now, eyeing future

by Kerry Lynch

Aviation trainers have adapted their curriculums to an online environment to the extent possible in light of the Covid-19 pandemic, stressing a need to maintain currency and skills of today's pilots and mechanics. At the same time, training experts who spoke during an **AIN** webinar, "How the Aviation Training Industry Is Coping with the Covid-19 Pandemic," emphasized the need to ensure the pipeline of students continues to move in anticipation that the pilot and mechanic shortage will return in a few years.

At Embry-Riddle Aeronautical University, instructors have had to learn how to reorient the curriculum to online use, said Kenneth Byrnes, associate dean of the College of Aviation and chair of the flight department at the university's Daytona Beach, Florida campus. "We want to give them as many tricks and tools as possible."

While students aren't on campus, instructors are still using aircraft and flight training devices—under health and safety protocols—to maintain their own currency in preparation for when students return, Byrnes said.

Particularly helpful, Byrnes said, have been the 360-degree videos that they used for in-classroom maneuver training with virtual-reality headsets. These videos are now online. Technicians, meanwhile, continue to maintain aircraft using social distancing, masks, and wellness checks verified through various-colored wristbands.

Byrnes anticipates that classroom activity will restart in July "at the soonest." But the university must continue to work toward getting the students their certificates and ratings "so we have room for the incoming class," he said. He is encouraged that the fall numbers look strong—on paper up by as much as 25 percent—because "we believe this is a short-term issue. The pilot shortage was years in the making, and it's not going to end."

Byrnes does believe the shortage will "take a breather for a year or two or possibly three," but he said trainers must continue to work to develop new pilots because otherwise "we're going to be in the same boat where we were a few months ago."

CAE chief learning officer Chris Ranganathan agreed that there might be around a two-year hiatus from the workforce shortages, but likewise said it would be "shortsighted for us not to continue ab initio training. Otherwise, down the road, we will be right back to where we were."

During the pandemic, CAE centers have remained open, as possible, with strict health protocols enforced. This has been a challenge given the worldwide distribution of the CAE training network.

"We've had to deal with many different travel and local restrictions," Ranganathan said. "There is a significant amount of localized decision-making process based on what is allowed and what is not and above all what is safe."

Like Embry-Riddle, CAE has instituted new protocols for the centers and modified recurrent programs to an online environment. Many regulators have provided temporary relief to enable the shift to online training, but this is not standard and it is only temporary, Ranganathan said.

"Our instructors had to be trained up to use the tools," he noted, particularly in areas such as maintenance training.

But as it works to keep training going to the extent possible, CAE has been collaborating with international organizations on guidance material for recovery plans, including use of the virtual classroom for competency-based training and refresher courses. "We continue to innovate," Ranganathan said, adding that some of the adaptations created now will be used in the future. "Everyone's experience is evolving there."

> **"There is a significant amount of localized decision-making process based on what is allowed and what is not and above all what is safe."**
>
> – Chris Ranganathan, CAE chief learning officer
> Chris Ranganathan

And as the current services have slowed, CAE has seen this as an opportunity to get simulators installed and updated.

Craig Joiner, senior v-p of brand experience at Fulcrum Labs, which specializes in adaptive-learning technologies, said his company has seen a notable uptick in demand for adaptive-learning tools from maintenance schools. These schools already were looking for online tools, and "the urgency of crisis seems to accelerate this process," Joiner said, particularly as the pandemic has dragged on. "We've definitely been busier than ever in aviation maintenance training."

And Joiner believes that while it might take some time for the jobs to return, the first that do come back will involve maintenance technicians. "Aviation maintenance will be on the front line," he said.

During the crisis, this training is critical "to make sure people can move forward and also that they don't slip backward." But Joiner said he could foresee a "blended experience" where these tools are incorporated. ■

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AVFUEL

Biggin Hill presses ahead with long-term growth plans

by Charles Alcock

Bombardier is investing in a new service center at London Biggin Hill Airport that will have capacity for 14 of its large cabin Global 7500 jets.

Like many ambitious business aviation companies, London Biggin Hill Airport had big plans for 2020. Even after enduring the disruption caused by several weeks under full lockdown restrictions imposed by the UK government on March 23 in response to the Covid-19 pandemic, the privately-owned airport has not abandoned these plans.

However, its management team is all too well aware of how its operations, and those of its customers, have been impacted by the emergency and so the short-term focus is on keeping a facility designated as critical national infrastructure open and functioning appropriately. Beyond that, Biggin Hill is focusing on a changing role for business aviation as a degree of normality returns and on what it can do to facilitate travel plans that have been so abruptly interrupted in recent weeks.

Predicting that Covid-19 will have an "extremely long term" impact on scheduled airlines and the airports that serve them, Biggin Hill CEO David Winstanley told **AIN** that business aviation's flight path from lockdown conditions will be different, but no less challenging. "I believe we will all need to look at aviation in a different way," he reflected in an interview on April 23. "The fact that we have been able to stay open has demonstrated our resilience and the flexibility that we offer. Our future is based on those two factors and is not predicated on overall passenger numbers."

The airport, conveniently located to the southeast of the UK capital, has had no reduction in opening hours, in order to support government-sanctioned essential travel. It has reinforced requirements for operators to have approved flight plans and, knowing that it could face official scrutiny, monitors planned trips to ensure they are compatible with government requirements. This has meant flights involving repatriation of passengers and flight crew, movement of medical personnel and supplies and also some support for military operations associated with the rapid construction of the nearby NHS Nightingale hospital.

According to Winstanley, Biggin Hill has handled as much as 60 percent of permitted business aviation movements in the London area since the lockdown started. That said, he acknowledged that overall traffic volumes could be as much as 85 percent down on levels previously forecast for 2020.

Despite everything, the company is pressing ahead with long-term expansion and development plans, including new maintenance facilities, a training center and a hotel. "We won't take our foot off the accelerator," Winstanley said. "If you turn the tap [faucet] off in aviation, it takes a long time to turn it back on again."

In many respects, he and his team consider themselves fortunate to have the backing of a single private shareholder, Andrew Walters, who has invested "more than 25 years of his life in the airport." Winstanley said that this support gives his team the latitude to pursue opportunities beyond the current short-term crisis.

The airport launched a coronavirus recovery package to help business aircraft operators maintain airworthiness and keep flight crew current. Under a program called Return to the Skies, it is offering a special landing fee rate that covers six landings in a single day, complimentary handling, two hours of free parking, and access to crew support and the briefing room.

Growing to the Future

By just about any measure, 2019 was a highly satisfactory year for Biggin Hill, with its share of the city's business aviation traffic rising to 18 percent. More significantly for the airport's balance sheet, the average weight of business aircraft, excluding light general aviation aircraft, grew by almost 6 percent to around 16,280 pounds—boosting handling and fuel revenues.

But just over 12 months on from his appointment as Biggin Hill's first CEO, Winstanley has set his sights far higher. He believes the airport has reached a transformational point in its long history and, by taking the right next steps, is poised to fulfill its ambition to be the dominant full-service business aviation airport for the UK capital.

In this regard, Winstanley told **AIN** that better measures of success than short-term traffic and market-share figures are the number and scale of the businesses it attracts. The jobs that come with these new businesses are an important validation of the commitment the airport has made to its local community in southeast London, that growth will bring tangible benefits to those who may never fly in a business jet.

Since 2017, the number of jobs at Biggin Hill has risen from around 1,000 to over 1,300. There will be more to come when Bombardier opens its new European service center in April 2022, with a new hotel and an aerospace training college in the cards too.

In February, Bombardier announced plans to build a 250,000-sq-ft facility on the south side of Biggin Hill with room enough to take 14 of its new Global 7500 ultra-long-range jets at once and 650,000 sq ft of apron space outside. This facility, for which construction has already started, will provide customers with full maintenance, repair, and overhaul support, and Bombardier's agreement with Austria-based F/List will add aircraft interior outfitting to the menu.

Advanced new businesses need a ready supply of skilled workers. Biggin Hill is addressing that need, too, by partnering with the Greater London Authority and London Southeast Colleges to develop the new Aerospace and Technology College at the airport. Students are already being recruited and companies like Bombardier are having direct input in defining the training that will be provided when the college opens in September 2021.

One month later, in October 2021, a new hotel is due to open at the airport. Biggin Hill has appointed Focus Hotel Management to run the facility, which is expected to be popular with business aircraft crews and local companies. Air Culinaire is moving its existing on-site flight kitchen into the hotel and will run its restaurant as well as delivering inflight food to aircraft.

Over the next two years, parent company Regional Airports Ltd is making further investments with a completely new FBO building and control tower. It will also create a new main entrance to the site to provide a more permanent and professional first impression to match its bigger, longer-term ambitions.

Growth in Green

For former Royal Air Force officer Winstanley, Biggin Hill's future needs not just to be big but also green. Inspired by friendly rival Farnborough Airport's achievement in becoming the first carbon-neutral business aviation airport, his team is working on a flight path to reach the same destination. Plans are to create a solar farm that would allow the whole airport, including potentially its tenants and customers, to be completely self-sufficient for power. Biggin Hill is looking at what it would take to be able to offer biofuels to aircraft operators and has resolved that any further development of its aprons will be future-proofed by including ducting that could accommodate electrical charging points for aircraft and ground vehicles.

"Future developments [at airports] need to be in line with the commitments the UK has made [to achieving carbon neutrality by 2050]," said Winstanley. "This is essential to allowing our industry to grow while reducing its adverse [environmental] impact, and if you ignore this it is very short-sighted."

Winstanley acknowledged this possible windfall benefit from the contentious court ruling but insisted that Biggin Hill doesn't want this to distract from its wider objectives. "We can't put all our eggs in one basket," he told **AIN**. "Our strategy remains the same—that we must focus on becoming the leading business aviation gateway for London with a connected ecosystem including leading aircraft manufacturers and the companies that support them. We do need to attract more larger aircraft, and there is room enough for us to do this alongside Oxford and Farnborough. We can't just rely on picking up what traffic is left from Stansted, Luton, and London City."

Biggin Hill's operations team prides itself on ensuring that passengers can get from the steps of their aircraft to the airport's exit gate in around eight minutes. One regular customer arrives at 6.40 a.m. each Monday from New York and, without fail, is the London Heliport's first arriving passenger when it opens at 7.00 a.m.

A few years ago, operating times were extended to between 6.30 a.m. and 11.00 p.m. on weekdays and from 8.00 a.m. to 10 p.m. on Sundays (two hours later than Farnborough Airport). To demonstrate its commitment to avoiding adverse impact on the local community, Biggin Hill installed sophisticated noise-measuring equipment and claims to resolve all complaints, imposing fines and, potentially, bans on operators who breach noise-abatement requirements more than once.

Under proposals posted in September 2019, Biggin Hill is actively involved with other airports around the UK capital in the London Airspace Modernisation Programme, which is intended to expand capacity with new routes that should prove to be quieter, cleaner, and more efficient. At the same time, by next fall, the airport intends to have established a GPS-based approach for Runway 03.

The fact that Bombardier committed to such a significant expansion at Biggin Hill less than a month after the UK left the European Union was to Winstanley a significant vote of confidence in the face of concern that the move might isolate and diminish the country's aviation sector. "We are convinced that we are a fantastic London asset and a fantastic national asset with huge amounts of further potential," he concluded. ■

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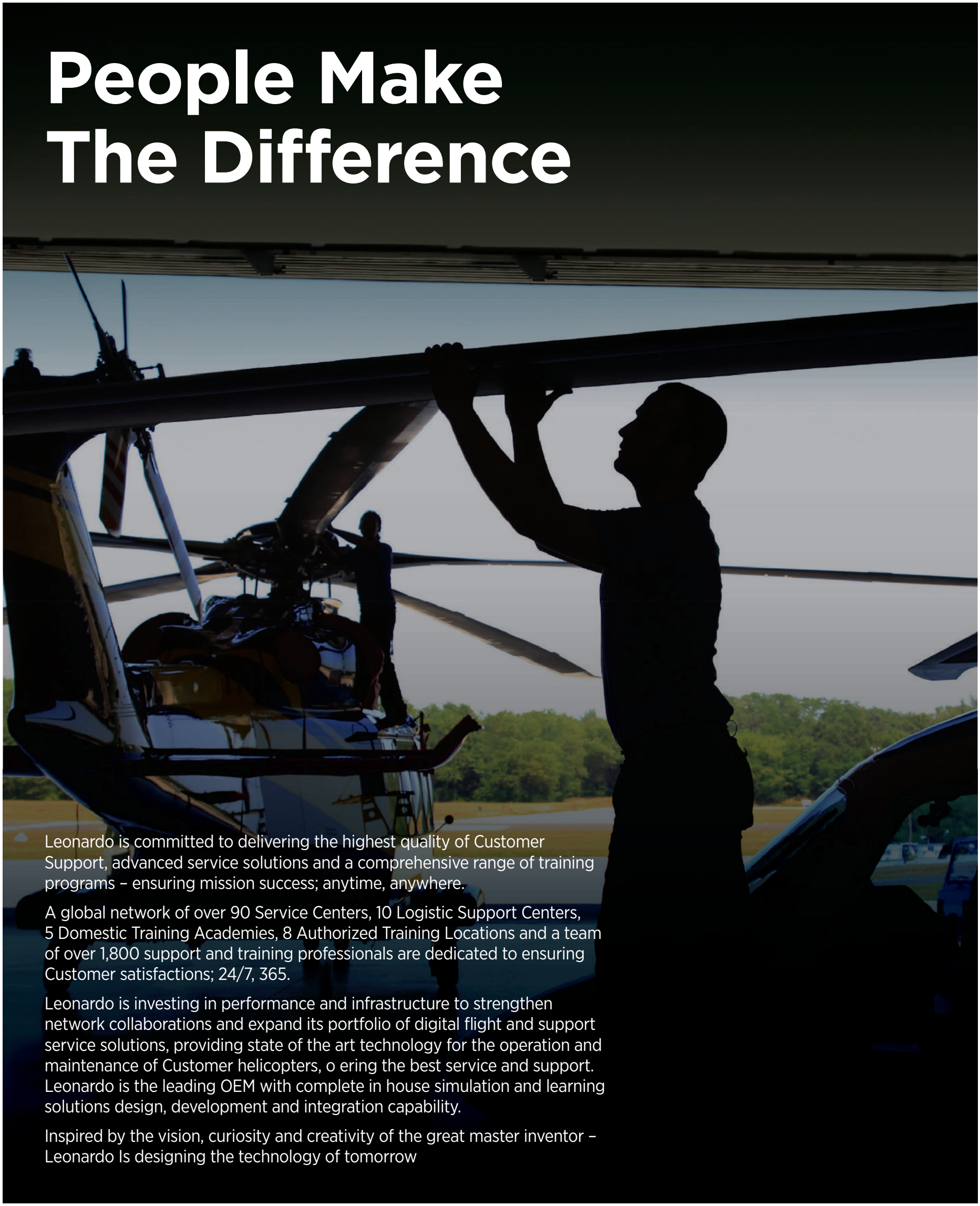

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Aircraft Performance Group's iPreFlight Genesis iPad flight planning and performance calculation app is just the beginning of new developments at the Colorado-based company, which was acquired earlier this year by AFV Partners.

APG acquisition opens doors for future growth

by Matt Thurber

When AFV Partners bought Aircraft Performance Group (APG) in January, this signaled new opportunities for the developer of the iPreFlight Genesis iPad app and long-time provider of runway analysis services.

APG was owned by private equity firm Liberty Hall, and APG board member Tony Aquila is the founder and CEO of AFV Partners. "Tony is a long-term investor and he creates value," said APG CEO Mike Caflisch. "We were looking for a partner to bring our long-term vision and strategy together."

Just two months after buying APG, AFV Partners added the RocketRoute flight-planning service to its aviation stable, purchased from Alyssum Holdings. APG had been working with RocketRoute for many years, providing runway analysis and aircraft performance services for RocketRoute customers. The owner of RocketRoute as well as charter broker FlyVictor ran into financial trouble and needed to divest those two companies, giving AFV the opportunity to acquire RocketRoute. "We saw it as an opportunity," said Caflisch. "They have a technology set that is really terrific and complementary to what APG is doing."

Of course, APG's iPreFlight Genesis app includes flight planning, but the plan was always to add new capabilities, and RocketRoute will help with that plan. "This acquisition by AFV and bringing RocketRoute into the family will create an incredible number of functionality exchanges," he said.

Chief among these is RocketRoute's strength in flight planning in Europe's complex airspace. "They're the best company for routing and filing through Eurocontrol, with a high rate of acceptance in flight plan filings," he said. "We'll take advantage of that. And there are other features on our roadmap that we'll add, and vice versa. We'll be able to help them in all their markets. It's a situation where there is very little overlap competitively."

As far as integration of iPreFlight Genesis and RocketRoute, the first step is improving the user experience for customers of both products, Caflisch said. "Customers will see a much deeper level of integration of performance [calculations] in the RocketRoute system." The existing setup redirects a RocketRoute flight-planning customer to APG for performance calculations, but that will soon be improved. APG's products will also be more integrated with RocketRoute's, especially for Eurocontrol flight plan filing, creating a seamless platform. "Bringing the two companies together only strengthens each other in our flying and geographical markets," he said.

APG customers, meanwhile, have new ways of subscribing to the available software programs. At last year's NBAA convention, APG introduced two subscription types, one called Performance, which is basically the iPreFlight 3 product that covers weight and balance and performance calculations, along with runway analysis. The full version, iPreFlight Genesis, is now the Navigator subscription, and this adds flight planning to the other features.

Training is available from APG, but customers can also specify that they want to use the iPreFlight app during training events at FlightSafety and CAE. "They're using the app just as they would in regular flying," he said.

Why Buy Aviation Companies?

Aquila said the reason that AFV purchased RocketRoute and APG has to do with helping the aviation industry conduct transactions more efficiently, by creating a common platform that speeds up communication and makes use of all the data generated by participating entities.

AFV's portfolio of companies puts blockchain technology to work to authenticate the data and the people and assets that generate that data, not just in aviation but other industries such as sports and trucking. All of these industries, he said, "are top-25 micro-terrorist attack vectors," and thus require protection using modern technology like blockchain, which uses cryptography to link records in an open ledger that can easily be shared between two parties.

AFV's specialty is taking "disaggregated" but "connected environments" and getting them all to work together on a common platform. "This reduces waste, increases security, and lowers the attack vector [opportunities]. We're never in competition with anything, we're the information provider between participants. We're putting data to [work] so people can transact more efficiently."

One mistake that AFV avoids is competing with the customers that generate the data, and that is why it didn't want to own charter brokerage FlyVictor. He explained, "FlyVictor put me in conflict with my customers. We never compete with customers. People trust us with their data because we never competed with them."

Aquila sees the business aviation industry as not well connected, with participants and products not communicating effectively. AFV has successfully invested in improving connections between disparate entities in other industries such as insurance and trucking, improving efficiency "by connecting information strands," he explained. "Our model is about getting digital connectivity."

An important part of this effort is putting blockchain to work. "It's important because an asset can live forever," he said. "You need to have a recording of history. Blockchain gives you the ability to take the history from any point. [Start with the] tail number and serial number and pick a date; you know who owned it, who serviced it. Think of it like a giant ledger that is connected.

"We did this in the automotive industry and reduced insurance premiums because it reduced waste and fraud. A car has 54 critical transactions, a truck 250, and airplanes 2,000. Whoever understands those can give the best history report. That's why we use blockchain. If you have all that at your readiness, now you can underwrite power-by-the-hour programs better."

Speedier Processes

The APG acquisition, Aquila explained, is important not only because it helps pilots fly more efficiently and safely but it opens up opportunities to further improve flight operations. "We can generate a fileable, flyable flight plan in less than a minute with full weight and balance and performance," said Caflisch. "We not only buy them time, but it's better and in a more safe fashion.

"We're looking for where the opportunity exists to gather data, fuse data, and create that time. We've been focusing on and building a road map to capitalize on those high-value opportunities that will drive growth across our portfolio. Tony's team has come in and [conducted] major activities to bring in know-how and the technology skillset to build that foundation and grow. That's the benefit we get from Tony's team and AFV partnering with us.

"We're super excited. Now we have the right partner that can help us [with] our future vision and strategy."

"This is a long-term game," said Aquila, "not short. [We're asking], what can people work on that will make a difference. We want to invest in entrepreneurs who are passionate about what they believe in." ■

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Saab's digital tower joint venture builds on civil success

by Ian Sheppard

When Saab Digital Air Traffic Solutions (SDATS) was selected last month by the UK's Royal Air Force to create a remote tower "operational concept demonstrator," it was also exactly 100 years since the world's first aerodrome control tower was established, at Croydon, south of London.

SDATS, the remote tower business Saab formed with the Swedish Civil Aviation Administration (LFV) in 2016, has been going from strength to strength, mainly in the civil airport world, but militaries have now started to see the advantages of applying new technology, saving costs while safely adding capabilities and reach.

Saab said the technology could "eventually change the way military ATC is conducted, both during normal operations and during times of increased threats."

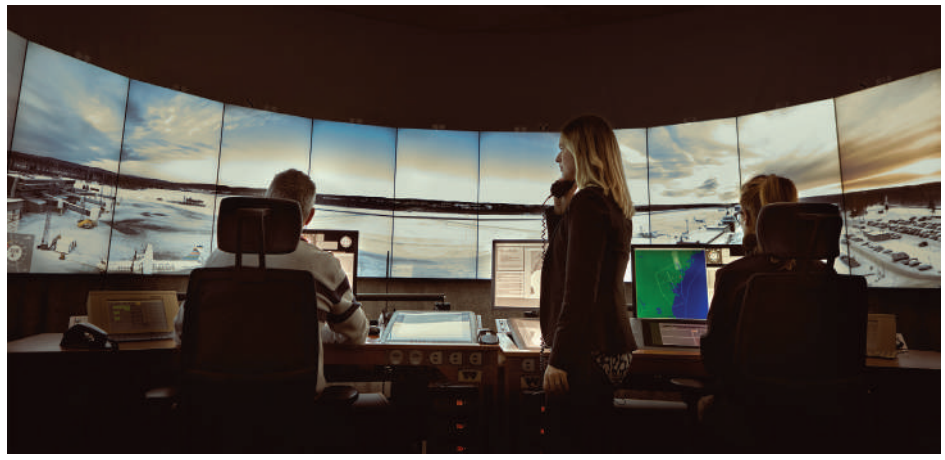
The system will be installed at RAF Lossiemouth in Scotland for demonstration and evaluation during 2020 and 2021, said Saab.

"Saab's Digital Tower demonstrator will enable us to explore how we could modernize our air traffic services fit for a next-generation air force," said the chief of staff for capability, Air Vice-Marshal Simon Rochelle.

Magnus Lewis-Olsson, president of Saab Technologies UK, said, "We are delighted that the close collaboration between the RAF and Saab UK has resulted in this first contract for a Saab digital tower and I look forward to the next steps in the Air Force's journey towards digital airfields."

Per Ahl, CEO of Saab Digital Air Traffic Solutions, added, "We are proud to be trusted by the RAF to support their Digital Tower Operational Concept Demonstrator at Lossiemouth. [It is an] excellent opportunity for Saab to show how the RAF could benefit from the use of our digital tower system."

The first airport to get a Saab digital tower was Örnsköldsvik Airport, in 2015—making it the first airport in the world to have remote air traffic control. Cranfield Airport was the first in the UK to operate



Saab Digital Air Traffic Solutions remote towers are proving increasingly popular in Europe.

the Saab system and London City Airport is also working to introduce Saab's solution mainly as a back-up tower operation.

In addition, SDATS last year signed a 20-year framework agreement with LVNL, The Netherlands' air traffic control organization, for remote tower systems. SDATS received an initial order within the framework contract to establish remote towers at Groningen and Maastricht, and a remote tower center at Schiphol Airport.

"This contract will be the first to cover a country-wide implementation. with our second-generation digital towers," said Ahl.

Delivery to the Netherlands project will start in 2020 with initial operations to be started in 2021.

"Saab will support us in the further development of the system, safety analyses, and training courses for air traffic controllers", said Hans-Peter Spies, general manager of the LVNL regional unit.

Sweden has also taken advantage of the home-grown success story. In December it inaugurated the first new airport in the country in 20 years at Scandinavian Mountains Airport in Sälen, with Saab providing the on-site camera tower. The Stockholm-based company is also providing ongoing digital ATC services for a period of 10 years from its remote tower center in Sundsvall.

The airport mainly serves the ski resorts in the Sälen/Trysil area during the winter season. ■

European FBOs adapt during Covid crisis

by Curt Epstein

While the Covid-19 virus has a global reach, some areas have been more heavily affected than others. Before the extensive spread of the disease to the U.S., Milan, Italy, was a major epicenter. Reports say that while the Lombardy region passed its peak for the pandemic around the beginning of April, the disease stubbornly persisted, slowing the return to some semblance of normalcy.

For SEA Prime, which manages the city's Malpensa and Linate Airports as well as their modern Milano Prime FBOs, 2020 began well. But the Lombardy area, which among all of Italy has the highest contact with China, soon found itself in crisis by late February. As travel restrictions were imposed at the Italian, European, and global levels, air traffic levels in Milan fell. According to SEA Prime CEO Chiara Dorigotti, Linate was open only for essential state, sanitary, and emergency flights as well as aircraft requiring maintenance. Malpensa remained available 24/7 for passenger flights, the only airport in Northwest Italy so authorized. Operations have fluctuated, reaching a year-on-year decrease of 85 percent in mid-April.

Like most service providers, the company has taken steps to protect its staff and customers, including deep cleaning and treatment of its terminals with

Disinfection of the Milano Prime business aviation terminal at Milan's Malpensa Airport has become a regular occurrence in the Covid-19 era. The region was an early epicenter for the disease and has been subject to travel restrictions to curb spread of the virus. Like many airport and FBO operators, SEA Prime, which also manages the city's Linate Airport, has embraced the latest in sanitary and hygiene guidance

sodium hypochlorite solution, minimizing staff in the facilities through work-at-home policies, using personal protection equipment for those onsite, enforcing social distancing, and installing sanitizer dispensers throughout the facilities.

Employees undergo temperature checks and those with even slight fevers are not allowed into the facility. SEA Prime has asked ground handler tenants and suppliers to adhere to the same protocols. Passenger lounge access is limited.

"As a group, we have also provided all employees with a specific Covid-19 insurance policy to cover them in need of care or hospitalization," Dorigotti told **AIN**.

FBOs physically separated from commercial terminals such as at Milano Prime are in a better position to control their security and health monitoring, she said. "The attention is very high, and we feel we are well-positioned to be the first to start when travel restrictions are lifted."

At London-area Farnborough Airport, one of Europe's premier business aviation gateways, April's movements decreased by 85 percent year-over-year, from more than 2,000 operations to 300.

"The current circumstances are certainly challenging for everyone in business," Farnborough CEO Brandon O'Reilly told **AIN**, adding the airport continues to connect companies to the world. "More than ever during these extraordinary times, our focus is to continue providing the highest level of service."

The airport has put in place a number of precautions for customers and employees, including social distancing measures across all areas, he said, adding this has required adjustments to processes. Passports are now systematically checked at a drive-through UK Border Force passport control facility, and passengers are asked to stay in their vehicles.

Aircraft are generally parked as close as possible to the GA airport's three-story terminal to minimize the need to transport customers and crew by car. Even so, all of its ground vehicles have been equipped with plastic shields for passenger and driver protection and are cleaned and disinfected in accordance with health authority guidance. Hand sanitizer is provided throughout the airport, and cleaning procedures have been enhanced across the airport site.

At the end of March, Russia changed business aviation flight coordination processes in response to the pandemic, requiring the submission of applications at least 24 hours before planned arrival for aircraft with fewer than 20 seats.

However, A-Group reports its FBOs at Moscow Sheremetyevo and St. Petersburg Pulkovo International Airports are still fully operational, and the company claims those airports have seen a much smaller decrease in flight activity than the industry average in Russia and Europe.

Sanitary quarantine control rules now require health checks of passengers upon arrival. When the requirements were introduced, A-Group was prepared with quarantine control staff and doctors on duty, conducting remote temperature checks and surveying arrivals.

A-Group's terminals are equipped with sanitizer and hygiene products. ■

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Comlux aircraft aid during pandemic response

by Ian Sheppard

Comlux Aviation's Crystal Sky Boeing 777-200LR VIP jet was put to use carrying 20 tonnes of medical feight from Shanghai to Indianapolis.

Once Comlux Aviation completed the initial flurry of repatriation activity for its clients in March, the company turned to opportunities for its aircraft to support Covid-19 relief efforts, according to Andrea Zanetto, CEO of Zurich-based Comlux Aviation. "We know our clients are now staying safely at home—in fact, we brought them home in March, which was quite intense. So today we're looking for opportunities for our aircraft—keeping our assets flying."

By April 23, when **AIN** spoke to Zanetto, the company was highlighting two successful operations with its aircraft. The first used its Boeing BBJ 777-200LR VIP-configured airliner named "Crystal Skye" and often referred to in media coverage as "the world's largest luxury charter jet."

"Our 777 especially is great for cargo and has excellent range capabilities." This is particularly the case as the cargo it carried from Shanghai to Indianapolis earlier this month was not heavy, just "voluminous," being 20 tonnes of medical freight, said Zanetto. That meant it could take maximum fuel for the 13-hour flight.

"It's very simple to transport this type of cargo," he added, "and we got approved [by China's CAAC] in a very short time." Zanetto said flights can usually be arranged within 24 hours and authorities around the world "are being very responsive and helpful to aviation."

A bonus in the Indianapolis flight was that Comlux's employees at its completion center there had not seen the 777 before.

"The other flight was a regular flight in Kazakhstan using our Sukhoi Business Jet, as we have a base in Almaty. This was to transport experts coming from China to train personnel fighting against Covid-19," he added.

Zanetto said Comlux, which has nine offices around the world and a fleet of 11 aircraft, is now "looking for other opportunities—and our policy is to operate 'at cost.'" He sees cargo, especially medical cargo, as the area with the most demand at the moment, meaning the group's larger aircraft can play their part. "We also have a [Boeing] 767 which has been used mainly for head-of-state transport, which we have done a lot of in the past two months, but now it's more available and can be used for cargo. And also we have the [Airbus] ACJs, which are good for transporting people."

Meanwhile, he admits that the company's smaller aircraft, a Bombardier Challenger 605 and Global 6000, haven't seen much activity in recent weeks. The advantage of the 767/777 is it's easier to social distance. "We got approval for the crew in China to sleep onboard the aircraft. It has 88 beds, like a hotel," Zanetto said.

Of the pilots and crew, he said: "They knew their mission and act like medical staff in a hospital—they are in the field." He noted after being difficult to adapt initially, the protocols are now known for operating during the Covid-19 crisis. "The risk is very, very, very contained—there were no infections of the crew and passengers [on that trip]. We really have to honor the crews, even though I think the operations are now very safe."

Like many others in business aviation, Zanetto predicts that private aircraft will prove popular "as we come out of this crisis" as measures such as social distancing will be in place for a long time. He expects May to provide opportunities for the company's aircraft to help while June is likely to see a recovery in demand, as customers return—some wanting to avoid airlines and main airport terminals.

"Humanity has to understand this will not go away in the short term so we have to find a solution in the short term to keep the world moving on," reflected Zanetto. "We're sure about the attraction of private aviation—many will choose to take a private jet and stay safer." He also suggested increased demand for aircraft with more seats than typical in such aircraft, so private groups could travel together, and that there would be a decrease in prices "to allow more people to fly."

For example, as sports teams start moving again, even if competing only in front of TV audiences, he predicts more will choose to fly privately. However, Comlux does not currently plan to have its own coronavirus testing facilities. "We have not gone through that as we believe it's for the authorities in each country. But we do ensure the cabin is fully sanitized."

Zanetto said that for agencies wanting to explore the possibilities of using Comlux's aircraft, which he admits might only be for the next few weeks in this capacity, "the message is to just contact us. Sometimes things don't seem possible but in certain circumstances, a no becomes a yes. We have seen many flights like that—so contact us and we'll try to make it happen. It's a temporary approach for the next few weeks while we're getting ready to go back to full speed. It's a window of opportunity." ■

Europe Aviation still facing risk on Brexit decisions

With the aviation industry consumed with the fallout from the Covid-19 pandemic, preparations for the end of the transition phase for the UK's departure from the European Union (EU) have been put on the back burner even though there are potentially serious consequences for not being prepared. The crisis has disrupted negotiations between the UK and the EU on future arrangements, including the regulation of aviation and market access. It is far from clear that agreement will be reached before the transition period ends at midnight December 31, opening the possibility of a so-called "no-deal" scenario that could be highly disruptive.

The two sides have until June 30 to determine whether or not to extend the transition period by a year or two to give more time for agreement to be reached. However, Britain's Conservative government has steadfastly ruled out a request for an extension, even though talks are well behind schedule.

Areas such as traffic rights, ownership and control, VAT and customs duty, and the future relationship with the European Union Aviation Safety Agency (EASA)—which oversees the European Common Aviation Area (ECAA)—all have to be decided well before December 31. The EU has been part of negotiated horizontal agreements with 17 other non-ECAA countries, including the U.S. and Canada. These cover areas such as access rights for airlines, passenger rights, and investment.

According to the Centre for Aviation (CAPA), "Through these and the ECAA, the UK flights have access to 44 countries, accounting for about 85 percent of all of Britain's international air traffic." This is a lot of ground for the UK to make up.

In its 2018 paper on Brexit, the European Business Aviation Association (EBAA) outlined six possible scenarios: maintenance of the status quo; the UK joins the European Economic Area (EEA); negotiation of UK-EU bilateral aviation agreement (Swiss model); the UK joins the ECAA; no "aviation deal," with reversion to previously agreed on bilateral air services agreements (BASAs); and negotiation of a new BASA with EU and/or the individual member states. EBAA's report then lays out the various complexities of each scenario—which is why it's important to know which one will apply, as the industry needs time to prepare.

The current situation is that EU/UK negotiations have started based on the Political Declaration agreed in October 2019, which itself followed the UK's EU (Withdrawal) Act 2018 and the public vote to leave the EU back in 2016. The former ensured that all existing EU law was effectively incorporated into UK law on Feb. 1, 2020. The EU states the UK withdrew from the union at that date and has become a "third country," with EU law applying "in its entirety," though the UK will have the power to repeal it.

On March 7, the UK government confirmed that it will withdraw from EASA on December 31, provoking widespread concern in the aviation industry about the disruption this could cause. It argued that membership of EASA is incompatible with the UK's independent status, even though other non-EU states, including Switzerland, are long-standing members.

Whether a new relationship, including in aviation, can be negotiated in time remains to be seen. The EU recently stated: "It is not certain whether such an agreement will be concluded and will enter into force at the end of the transition period. In any event, such an agreement would create a relationship which in terms of market access conditions will be very different from the UK's participation in the internal market."

It further warned: "As of the end of the transition period, the EU rules in the field of civil aviation safety will no longer apply to the UK."

The UK Civil Aviation Authority (CAA) said the UK government's position is, "to ensure continued transport connectivity in support of successful economic and social ties, and as part of a deep and special future relationship." However, its recent guidance added: "Different outcomes are possible, but the respective positions outlined in the EU and UK negotiating mandates make clear that the UK will no longer participate in EASA systems." **I.S.**

AIN Q&A

EBAA tackles pandemic problems

by Cathy Buyck

The Covid-19 pandemic is having a devastating impact on the aviation sector. According to Eurocontrol data, the reduction in the number of flights across Europe averages almost 90 percent since mid-April compared to the same time in 2019. ***AIN*** *spoke with Athar Husain Kahn, secretary-general of the European Business Aviation Association (EBAA), on how the region's business aviation segment is adapting and what is needed to reboot operations when travel restrictions are lifted.*

How is EBAA handling the pandemic?

We keep the office running with the latest IT gadgets and gimmicks, we have conference calls, organize webinars and so on, and of course the most important thing is that everybody stays safe and healthy. We are doing as much as we can to continue assisting our members and keep everyone engaged. We took early in the crisis the strategic decision to get a good feeling of what it is that our sector is experiencing and facilitated an online survey. We received a lot of responses, a lot more than we had expected.

What are your members' concerns?

The survey of 130 European business aviation CEOs revealed that the majority anticipate deep financial losses and the top three concerns are about staffing, fixed costs, and taxes. A third of CEOs surveyed estimate a revenue loss of around 80 percent compared to their budgeted forecast. There are European funds, such as the EU Coronavirus Response Investment Initiative, and national schemes that offer support to employers to retain staff. However, access to those financial instruments should be simple, straightforward, and streamlined as many of our members are small and medium-sized companies. They do not have the time or staff to navigate through complex procedures. Several companies had to reduce their staff due to the pandemic. The survey, which ran from March 26 to April 2, revealed that over 50 percent of companies in the European business aviation sector have had to put their employees on leave and over 60 percent have had to reduce hours for their staff.

Athar Husain Kahn, secretary-general of the European Business Aviation Association (EBAA).

How are the continent's operators keeping up with the unending flow of travel restrictions? There was no common EU-wide approach, and each state has its own approach to border closures and phasing out lockdowns.

The many flight limitations and country entry or exit restrictions make it exceedingly difficult for our operators, and many of them operate essential medical and emergency flights. Because several of them are small and medium-sized enterprises and they do not have the resources to keep track of the continually evolving situation, with new developments occurring daily, EBAA stepped in and launched a dedicated Covid-19 Resource Centre. We update the information, on the EU and global level.

What support are you expecting from the European Commission and national regulators to protect the continuity and survival of the business aviation sector in the face of the Covid-19 crisis?

Measures that we are looking for are very much targeted at ensuring more operational flexibility, less red tape, and no financial burdens. EBAA jointly with the General Aviation Manufacturers Association and national industry groups outlined an action plan that calls for relaxation of travel restrictions, the extension of pilot licenses and airworthiness certificates, and financial aid through guarantees, credit, and the suspension of taxes and fees. I like to highlight that the whole supply and value chain should be eligible to benefit from financial support and relief measures. Nobody is going to be helped if ATC, fuel supply, fire emergency, airports, maintenance providers, or security provision stops. We believe the entire ecosystem should be maintained and should be back to normal as soon as possible. Business aviation has a vital role to play in the fight against Covid-19 and will be one of the key catalysts for the recovery of society, particularly economically, when the pandemic is over. ■

PHOTOS: FARNBOROUGH AIRPORT

Farnborough Airport pays to support environmental programs to offset any remaining carbon emissions each year.

Carbon-neutral Farnborough doesn't rest on green laurels

by Charles Alcock

Business aviation is an easy target for those who argue that aviation's impact on the environment is too high to be sustainable. Rather than just deflect the inevitable criticism with well-practiced lines about this mode of transportation's balancing contribution to economic good, Farnborough Airport in the UK decided in 2007 to aspire to a more definitive and voluntary response by setting itself the goal of going carbon neutral. Nine years later, in June 2018, the privately-owned business aviation gateway achieved that goal when it became the first airport in the sector to achieve carbon neutral status as defined by the Airport Council International Europe's Level 3+ Airport Carbon Accreditation program. It achieved this more than a year ahead of schedule.

In the process, Farnborough cut its carbon dioxide (CO_2) emissions by 42 percent (reducing it by 2,183 tonnes per year), and this total has continued to fall since then. Any carbon still being emitted is then offset through approved programs to mitigate the impact of its activities on the environment.

"We wanted to be ahead of the curve on this issue. We wanted to show that we recognize our impact on the environment and show that we are doing something about it," said Farnborough Airport's environment manager Miles Thomas. With a degree in biological sciences and past experience as an air traffic controller, he was recruited in 2007 and led efforts to start the journey to carbon neutrality by making a sustainability charter a key part of the airport's masterplan.

The sustainability charter addressed just about every aspect of Farnborough's operations, including carbon emissions, noise, air and water quality, and waste disposal. "You need to take a 'no stone unturned' approach to make this meaningful," Thomas told **AIN**.

Another key starting point in the plan to make the airport greener was a comprehensive audit of its environmental performance at the end of 2008 conducted by independent experts Carbon Trust. "We spent three days walking around the building to talk to everyone and they helped us to categorize the easy wins and come up with a top 20 improvements we could start on right away, and then other items that we would need more data for," explained Thomas.

A key outcome from the audit process were benchmark figures for the airport's carbon footprint and also data covering not just CO_2 but other harmful gases. This got the Farnborough team started on their campaign to achieve the ACI accreditation and also ISO14001 environmental management certification.

With significant financial backing from the airport's former owners TAG, Farnborough started making investments in more energy efficient technology, while also working with employees to address multiple aspects of procedures and practices. "Raising awareness and understanding among all the people in your organization is critical, and we had to get environmental responsibility into everyone's job description in a strategy that came down directly from the board," said Thomas.

In reducing power consumption, the airport's first step was to stop using heating oil and switching to natural gas. All pipes were lagged (insulated) and destratification fans were installed to reduce heat loss, as well as automatic heating cut-offs when the doors open.

LED Lighting

The airport invested in more efficient lighting throughout the site, replacing older sodium and tungsten lamps with LEDs. Replacing the high mast lights on the apron reduced the wattage draw by 60 percent and also lessened light pollution.

Some solar power has been added to the mix, with a 49 kW peak system feeding the Meadowgate buildings. It has not been possible to install solar panels on Farnborough's hangars due to their distinctive curvy roofs. Over the past five years, the airport has spent more than $1.3 million on improving its energy efficiency.

To record air quality, there are 13 monitoring devices to measure nitrous oxide levels around the site and more in various locations across the town of Farnborough that collect samples every 30 minutes. This is part of the compliance process for the local government planning rules under which the airport was allowed to increase the number of permitted annual movements to 50,000. The airport is also required to test water quality in local streams and runoffs to guard against contamination caused by spillage from its operations.

Also covered by the same rules are requirements to record aircraft noise with monitors at either end of the runway. Through the Webtrak portal, local residents can monitor movements to see for themselves whether operators are adhering to the required flight paths.

On February 27, new standard instrument departure and arrival routings took effect as part of a new class D airspace zone approved by the UK Civil Aviation Authority. The new routings allow aircraft to climb faster into controlled airspace, resulting in less noise for surrounding residential areas.

Since around mid 2016, the airport has not been sending any waste materials for disposal in landfills. Essentially, it recycles everything using services based in the UK, rather than shipping materials overseas.

"We've done a lot of engagement with our customers about waste management, heavily promoting the idea that waste is the responsibility of the waste creator," said Thomas. "We expect everyone using the airport to follow our requirements for waste separation and we have 26 streams of waste."

As part of efforts to reduce carbon emissions from activity related to the running of the airport, but that happens offsite, the company incentivizes employees to use public transportation, bicycles or ride shares to get to and from work. They can earn vouchers that can be used in the staff canteen.

To address any remaining carbon footprint, the airport pays to offset residual emissions as required by the ACI's carbon accreditation program. To ensure that its offsetting is credible and environmentally robust, the Farnborough team consulted with UK company Carbon Footprint Ltd, which recommended suitable programs that meet the Verified Carbon Standard in a process that is audited by the Quality Assurance Standard.

"We like to find projects that resonate with our stakeholders and are understandable, such as planting trees," Thomas explained. Most of these offset programs are outside the UK, but the airport also supports local projects to deliver a positive social and economic impact. For instance, in 2017 it had 3,600 tonnes of carbon to offset and so it planted 3,600 trees in cooperation with local schools and community charities. By 2018, it had reduced the carbon needing to be covered by offsets to 1,650 tonnes and last year the total was 1,700 tonnes.

Securing carbon neutrality status isn't the end of Farnborough Airport's green ambitions and it is committed to continual improvement, especially as traffic levels increase. Thomas's team are looking at improved space heating systems with more sophisticated temperature controls and also moves to ensure that more of the energy consumed by the airport originates from renewable sources. It is also considering more solar panels and a possible solar farm as well as improved battery storage for electricity. Also on the wish list are more electric vehicles to be used on the ramp. ■

Farnborough Airport environment manager Miles Thomas is in charge of keeping the business aviation airport carbon neutral.

Holly Reeves, Farnborough Airport environment advisor monitors every aspect of the site's environmental performance including checking for contaminants in runoff fluids beneath the apron.

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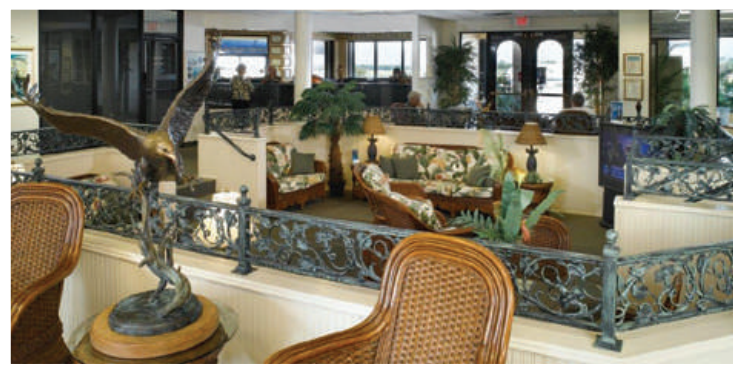

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Covid-19

Pandemic prompts big changes for bizav

by Curt Epstein

Charter operators such as California-based Silver Air are working to develop protocols to make their operations as sanitary as possible to protect their customers and crews from infection.

The aviation world has changed considerably as a result of the Covid-19 pandemic, forcing business aircraft operators and flight departments to question common practices and what were, until just a few months ago, considered certainties in the industry.

Decreasing passenger loads and varying regulatory demands have contributed to a worldwide decline in flights in all aviation sectors, but for those business aviation operators still flying or about to resume operations, "there is no such thing as a routine trip anymore," said Adam Hartley, manager of global regulatory services with Universal Weather and Aviation. "If you are an operation that would normally require a permit, those requirements have certainly changed, with a lot more information requested about travel history and health declarations, and I don't think those things are going to be going away anytime soon."

Hartley suggests that flight department operators begin capturing 14-day crew and passenger history for everyone expected to participate in a flight. "That's not something that has been a common- or even uncommon-type request or practice, but certainly something that is a best practice now, so it's not just where did everybody travel on the airplane, but even in their personal travels."

That extends to charter flights as well, according to Daniel Govatos, director of operations for charter provider Keystone Aviation. "We ordinarily would not be asking people details about their past travel and details about their health," he said. "But bringing to their attention that we sincerely want to protect both them and our crews, it has gone over very well. I believe that people are understanding a lot more, that they will need to be as honest with us as possible."

Flight operations have begun instituting other safety measures. Some require that passengers and crew undergo temperature screenings before boarding the aircraft. However, some decisions, such as what temperature threshold to use, are being left to the individual companies. Given the fact that some infected people can remain fever-free or have just a low-grade fever, temperature screening is far from a foolproof indicator.

"These are unsettling times, and with that comes new procedures for both crew and passengers," said Kimberly Mazzeo, chief flight attendant for an international flight department. "Some of these may seem somewhat of an invasion of privacy to our passengers, and we need to be sensitive to that." She recommends taking temperatures in a more secluded location and other current practices such as mandating that the crew wear masks and gloves and reduce their interaction in the cabin. It is also a good idea to equip each aircraft with a sanitization kit, provide personal protective equipment to passengers and instruct them on its use as well as proper disposal, limit the seating capacity on the aircraft to provide some personal separation, and pair crew members and maintenance teams to minimize contact and possible transmission as well as simplify contact tracking in case of infection.

According to a recent U.S. Department of Transportation (USDOT) Safety Alert for Operators (SAFO) 20009, after each cockpit crew change, it is recommended to clean and disinfect surfaces in the flight deck that are frequently touched and utilized by cockpit crew members, such as yoke, throttles, autopilots, and radios, and to use products that are effective against Covid-19, compatible with aircraft, and approved by the aircraft manufacturer for use onboard the aircraft.

Cleaning and Testing

Last month NetJets announced it would provide antibody testing to all of its employees, dispatching a quartet of its Global 6000s to Shanghai to pick up a half a million Covid-19 antibody tests approved for use by the U.S. Food and Drug Administration. "We are committed to testing 100 percent of our crewmembers initially and offering ongoing testing to anyone who travels to high-risk locations, has been exposed to Covid-19, or becomes symptomatic," said Patrick Gallagher, the operator's president of sales, marketing, and service.

There has also been a proliferation of companies offering aircraft and facility disinfection services using a variety of methods.

As operators slowly resume international flights, new potential problems need to be considered, according to Charlie LeBlanc, v-p of United Healthcare Global's medical assistance and security division, and a member of NBAA's security council. Speaking during a recent NBAA webinar on aviation security issues in the Covid-19 era, he noted that countries have developed varying responses to the pandemic. "One of the biggest concerns that I see as we open up the world again and start traveling globally is countries now have figured out that flipping a switch and closing their borders is a relatively simple act."

He pointed to several recent examples during the crisis, where countries ordered their borders and airspace sealed after outbreaks, in some cases giving as little as six hours notice. He added that understanding that past behavior is now an important factor in mission planning. "If a country has shown that they close their airspace down with very little notice, it becomes even more imperative that crews and passengers are at the ready to leave in a very quick amount of time," he said.

Going forward, international flight crews might encounter a "clean corridor" system comprising a clean crew, clean aircraft, and clean airports and hotels," Dr. Paulo Avles, MedAire's global director of aviation health told **AIN**. "China, for example, is already publishing guidelines in that regard, creating procedures to be followed for crews arriving in that country. They are designating specific hotels around the airports to be utilized by crews in layover and requiring the need for testing for the virus for those subsequently connecting domestically." He is hopeful that a vaccine will be developed along with the establishment of a "health passport" to allow for the free movement of passengers and crews.

Even for domestic flights, things can change rapidly from state to state, according to Universal's Hartley, and accurate, timely information from the destination is key from the flight planning perspective. "Start the process earlier, forget what you knew for sure about locations, and take them on a case-by-case way right now until we can start to build back to a level of consistency," he said. He advises operators to get that vital information, including any current local health regulations, from someone with a "boots-on-the-ground" view such as the destination FBO. He warned that familiar hotels, rental cars, or restaurants could be in short supply. "The availability of those things is something that shouldn't be counted on today or thinking that all those services are going to be open and available without extra confirmation ahead of time."

During this period, to avoid being caught in local restrictions, Universal advises that crews leave the destination airport only if necessary, and many companies are advising their crews to pack food from home. Indeed, to protect their health, the U.S. DOT SAFO 20009 advises air carrier crews to stay at home or in their hotel rooms (as applicable) to the extent possible, eat in their hotel room during layovers with either room service or delivery service, or if in-room food delivery options are not available, get take-out from a hotel restaurant or another restaurant nearby. Several industry caterers are now offering to deliver meals to destination airports for crews to take to their hotels for consumption.

FBO Standards

NATA issued a document containing guidance for FBOs and ground handlers in late March including advice that disinfectant/antiseptic solutions should be applied hourly to high-risk, high-traffic areas and items. "FBOs are a funnel point between the outside world and the flight line," said LeBlanc, noting some flight departments have begun to inquire what sanitary measures service providers are undertaking, before engaging their services. Other measures imposed at some locations include segregating customers by flight within the FBO terminal and even requesting customers to stagger departure times to minimize contact between waiting groups.

As for ordering ground transportation, "ask them a simple question, what are your cleaning guidelines for your vehicles?" said LeBlanc. "If there is a lot of pausing and hesitation, that probably means they're not doing much and probably making it up as they as they go along," he told the webinar audience. "We've talked a lot about protecting our passengers and crews [but] all that goes out the window if we put them in a vehicle that has not been properly cleaned, at least to the best of expectations." Some companies such as Keystone Aviation have attempted to avoid chauffeur-driven or rideshare situations entirely, according to Govatos, who said his company has been relying more on rental cars, even for passengers.

Greg Kulis, a member of NBAA's security council as well as a lead captain and security coordinator for an international flight department, said that when weighing the level of safety precautions companies are taking during this time versus the possible inconvenience and alarm to customers and passengers who may already be anxious, "We're here to provide the safest, most effective transportation in the world, so given that mission statement, I would much rather explain why we are taking a certain precaution than why we are not taking a certain precaution. I think most times that will answer the question." ■

A Falcon 2000 owned and flown by actor John Travolta may not be a typical owner-flown airplane, but the principles of safety and professionalism apply no matter the size, speed, or capability of the aircraft.

Business aviation owner-pilots aim high on safety and professionalism

by Mark Phelps

There are some pretty rare birds flying in our airspace. These pilots are not professionals, but they strive for professionalism in completing every mission. While most owner-pilots focus on strictly personal travel—or just simply getting off the ground to enjoy the miracle of lift, some pilots rely on flying for business transportation and supporting their company's bottom line. Maybe it's not on every flight or even most flights. But the owner-pilot flying on business is a relatively odd breed; somewhere between the paid career aviator and the dedicated amateur enthusiast. The challenge is recognizing and acknowledging the borders between those two.

Of course, every pilot, from light sport to ATP, strives for professionalism. It's the gold standard that is universally revered within the global pilot culture. Professionalism means completing the mission calmly and routinely and never compromising safety standards that have made the mode of air transportation among the safest and most reliable in human history.

This report is not meant to be a how-to for do-it-yourself business pilots. Rather, it is meant to illustrate the advantages—and challenges—that the owner-pilot segment faces. There is a wealth of resources covering guidance for single-pilot operations and issues specific to owner-pilots. This report is meant to point the way.

So, what does an owner-pilot business flyer look like? The diversity in that answer is key to a large part of the challenge. The range of business owner-pilots starts with a private pilot who occasionally uses a rented aircraft for business transportation, either for an employer or as part of an independent limited-liability corporation, such as a one-person consulting firm.

At the other end of the scale is a pilot such as actor John Travolta, who holds a dozen jet type ratings, including six as pilot-in-command (PIC). His current project is achieving PIC status on his recently acquired Falcon 2000 and 900 intercontinental jets. That training will start after logging 100 hours each as second-in-command. In the meantime, Travolta will fly his Falcons with two other type-rated pilots on board at all times. He also regularly flies his Eclipse very-light jet as its sole pilot. There will be more on how Travolta uses his airplanes later in this report.

In between are scores of pilots flying everything from light piston singles to jets, though most owners of two-pilot aircraft prefer to sit in the back—with some notable exceptions, including singer Jimmy Buffett (Falcon 7X) and Avfuel owner and CEO Craig Sincock (Falcon 2000—a company-owned aircraft). So there really is no "typical" profile of the business pilot flying a personal aircraft. One characteristic that is almost universal among these pilots, however, is a passion for flying and aviation in general.

Personal, Professional Challenges

There are also some specific challenges that set this pilot segment apart. For the pilot with a business meeting, sales presentation, or any other form of activity that brings home a paycheck or enhances revenue, the pressure is different than for a pilot who usually flies for personal transportation. The change in the risk exposure from personal flying to executing a trip with a financial purpose cannot be understated. Blurring the two mission profiles unnecessarily increases risk.

Here are some of the differences between pleasure and business flying, and some of the ways to help ensure there is no increase in risk:

"This trip is not the same as a vacation or a return home for a school play. Arriving late for those brings unpleasant but personal consequences, and as a family we have discussed this and they will understand. When flying on business, I have to show up, on time, or my professional reputation suffers."

There are a few ways to ensure this factor does not increase the risk of get-there-itis. The first is having a backup plan—either airline reservations for longer trips or getting up earlier and driving for more local flights. The pilot could also arrange to fly a day early if weather looks iffy on the planned travel date.

"I need to be planning my flight at the same time I'm preparing for my meeting, which, I'm afraid, could compromise my focus."

There is no easy answer to this, but the solution is simple. The firewall between focusing on business and focusing on flying must be impenetrable. Modern apps and internet-based programs do help by making flight-planning a lot more streamlined.

"The flight home will come at the other end of a perhaps-momentous event in my professional life. I may be elated or deflated. Either way, I need to decide whether I'm too overwhelmed for the 'home stretch' flight at the end of a big day."

Besides just plain fatigue, this could be one of the most critical areas for having specific limits laid out ahead of time in a prepared flight-risk assessment tool or a written collection of standard operating practices that has been compiled, reviewed, and vetted by all possible stakeholders (which could include spouses and children). Making room for emotional responses as part of a prepared document could be lifesaving. For example: "If the deal I'm pitching exceeds X percent of potential business revenue for the quarter, I, the pilot, hereby promise I will wait X hours before launching the flight home."

"I make the same two-hour, 20-minute flight twice a month between my two main businesses locations. I've done it so many times, I worry about complacency and confirmation bias, as in, 'I know the weather between X and Y waypoints is often worse than forecast, but it's never been any worse than I can easily manage. And today, it's more important than usual that I deliver this legal document.'"

The "slippery slope" of slowly increasing risk-acceptance over time in a familiar environment is a real concern for any pilot. Randomly contacting a type-club friend, flight instructor, or pilot buddy is a good reality check for whether or not your risk assessment might have become a little too lax over time.

These are just a few of the operational safety considerations that are not likely to impact a paid, professional pilot but are unique to pilots flying personal aircraft on business. There are also logistical and financial responsibilities that render this operational segment different from both professional flight crews on one hand and strictly personal pilots on the other. There is some overlap from both ends, but this sort of business flying is singular in many ways.

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Flying safely and professionally

At the annual Citation Jet Pilots convention, owner-operators learn and share information about operating their jets safely and with a high degree of professionalism.

Maximizing the utility of flying one's own airplane on business and balancing that effort against safety is a team game. One way to look at this team effort is to compare a safe, effective business flight with a perfect defensive inning of a baseball game. In such an inning, the team works together to keep the offense of the other team from scoring. Though not everyone on the field is going to touch the ball, everyone still plays a role in keeping bad things from happening. Further, the scouts and coaches have also played their vital roles, preparing the team by analyzing data and reviewing tapes of past performance by their own players, as well as those of the opposition.

The ideal result is an inning with no runs, no hits, and no errors. In other words, the best result for the defensive team is... boring. But if you string nine of those innings together, the resulting "perfect game" is one of the greatest achievements in sports. And that perfection is what we strive for with every flight operation, including those flown by owner-pilots.

No pilot can achieve perfection alone. Vital teammates include flight-planning providers; airport/FBO operators; maintenance and avionics shops; air traffic controllers; training institutions; aircraft manufacturers and type clubs; trade and user associations such as NBAA and AOPA; insurance underwriters; financial institutions; and last but far from least, support and buy-in from passengers. That can come in the form of in-flight assistance, understanding, and acceptance of "sterile cockpit" rules, or the acknowledgment that this trip might end up with an unplanned airline flight—or a long drive home in a rental car.

Flying Technology

Among the most important advanced technology, electronic flight bag (EFB) apps are an ever-evolving tool that makes owner-flown business operations more practical and safe. Stephen Newman, executive v-p of sales and marketing at ForeFlight, told **AIN** that the app "levels the playing field, giving [single-pilot operators] so many of the large flight department capabilities."

One tool of particular interest to pilots who fly on business is ForeFlight's Trip Assistant, he explained. "At ForeFlight, we have a small flight department, and we're often asking ourselves, 'what time do we have to leave the office in order to get to a meeting at a certain location in midtown Manhattan, on time?'" Trip Assistant helps flight operations understand with a few clicks how long a trip is going to take door-to-door and what fuel stops they might have to make, if any.

The program uses filters to evaluate the choices of arrival airports based not only on geographic proximity, but also weather, fuel price, runway length, approaches, and other programmable factors. It uses Google Maps to estimate ground-travel time to the departure airport at the beginning of the trip and from the arrival airport to the ultimate destination address.

Other ForeFlight features that are especially useful for this pilot segment include 3D preview of arrival, departure, and approach procedures, customized checklists, takeoff and landing performance calculations, and post-flight track logging and 3D review, similar to more sophisticated flight operational quality assurance (FOQA) data collection and analysis.

Apps such as Garmin Pilot, Appareo Stratus Insight, FlyQ, and APG's iPreFlight Genesis offer many similar EFB features and their own unique capabilities. For example, in Garmin Pilot, users can set up custom holds at published waypoints. Insight allows pilots to record transcribed radio communications. And iPreFlight Genesis combines flight planning with weight and balance and runway analysis.

Aircraft manufacturers and type clubs are another tremendous resource for business owner-pilots. Virtually all aircraft models popular among business-oriented aviators have comprehensive type clubs, including those serving operators who fly Daher TBM, Pilatus, Piper, Beechcraft, Cirrus, Eclipse, and Embraer Phenom aircraft, among others. They provide resources, advocacy, information, training, and a huge, underappreciated benefit for this pilot segment—networking.

Citation Jet Pilots, an association for owner-operators of Cessna jets, is among the most comprehensive and active aircraft type clubs. With close to 1,300 members representing almost 800 Citations from Mustangs to Latitudes, the association's mandate, according to CEO Andrew Broom, is "to create an ecosystem that can help single-pilot operators operate like large flight departments."

In the past three years, CJP has launched numerous safety initiatives, including the Safety and Education Foundation, a 501.C3 non-profit. The association's safety committee, led by chair Charlie Precourt—former fighter pilot, Space Shuttle commander, and current CJ owner—has been working with training providers and avionics companies, among other outreach, and generated "huge dividends," according to Broom. "The goal is to save lives."

In January, CJP sponsored a FOQA summit, incorporating "all the players in the Citation space," said Broom, including Textron Aviation, avionics manufacturers Garmin and Collins, ForeFlight, and postflight analysis providers CloudAhoy and Flight Data Services. The goal is to provide pilots with immediate feedback after each landing, reviewing performance at specific segments—five miles out; three miles out; height above threshold; runway used; and more. "They can see a color-coded rating of their performance—red, yellow, or green," said Broom, adding that the program, still in beta testing, looks ahead to capturing and anonymously sharing data. "The object is to determine as a group, 'Here's 10 things we need to work on.'"

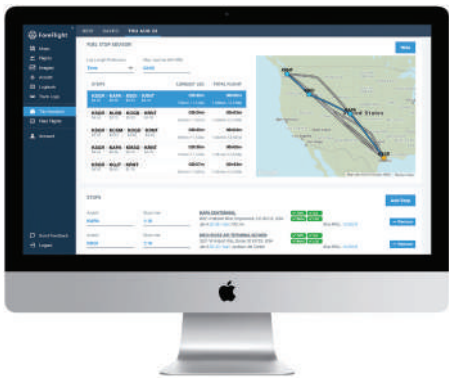
The CJP menu of available resources, event participation, and programs is overwhelming in its scope. Broom stresses that the effort is not just for Citation pilots or association members but is dedicated to the entire pilot segment they represent, and everything on the website is available to anyone. "Those operating single-pilot jets," he said, "they're at the pinnacle. They need to demonstrate the safest operations there are. If we can build this safety infrastructure and filter it down—even to the Cubs and smaller airplanes—it would be great."

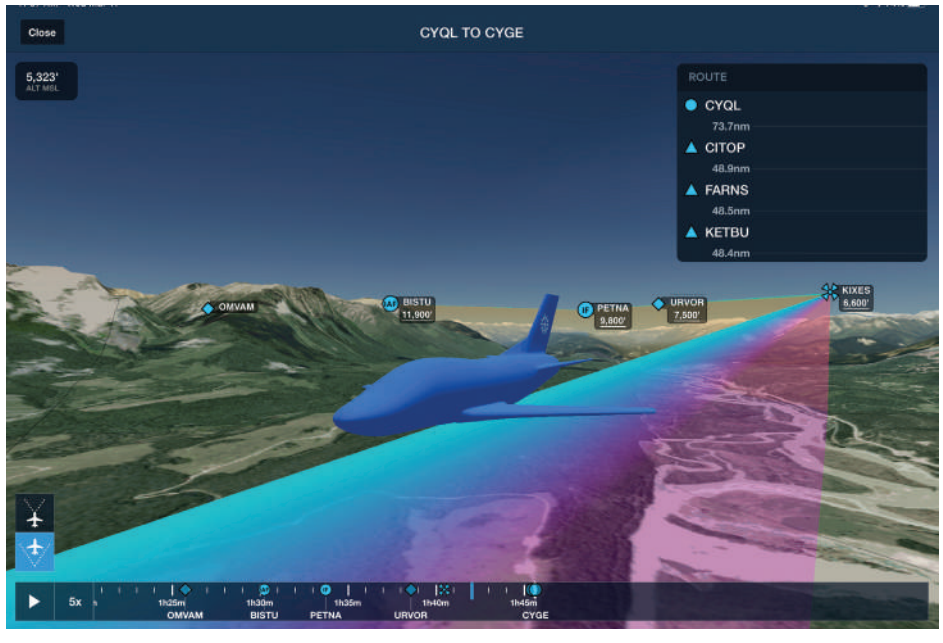
Managing Safety

AOPA's Air Safety Institute (ASI), led by Richard McSpadden, a former U.S. Air Force Thunderbird pilot, is another valuable resource built upon five principles. "If you take knowledgeable pilots, train them well, keep them proficient, with reliable equipment, and surround them with a good culture—they will fly safely," McSpadden said. Recognizing that we all, especially the business pilot segment, have busy lives, McSpadden is dedicated to providing the best support through the institute, as well as AOPA's extensive resources.

Because a full-on formal safety management system (SMS) is not practical for most owner-pilots, one effort involves developing a downloadable scalable safety framework through the ASI website, "like an SMS-lite." Operators could fill in parameters that make the most sense for their operations.

Another key player in the safety game,





ForeFlight's Trip Assistant (above) estimates the time needed from departure point to destination, including ground time. Pilots can preview an arrival, departure, or approach procedure with 3D Flight Preview (right) and see what surrounding terrain and other terrain features look like.

NBAA strongly supports the owner-flown business pilot with extensive resources available on its website. It also fields an annual Single-pilot Safety Standdown just before the annual NBAA-BACE trade show. Attendance has grown to more than 100 participants, most being owner-pilots of high-performance aircraft. NBAA also has an extensive safety library and offers flight operations manual templates and sample standard operating procedures.

"For more than a decade," added Mark Larsen, NBAA senior manager of safety and flight operations, "we've had training guidelines for very light jets and technologically advanced aircraft. Loss of control in flight is also as key an issue for this segment of the industry as it is to pilots flying full-time as professionals. That's another area I would encourage operators to focus on."

It's a rare pilot who came into business flying without previous interest in aviation, strictly for its competitive advantage. Tom Turner, executive director of the American Bonanza Society's Air Safety Foundation, once flew professionally for the head of an earth-moving company who did just that. "He got tired of spending all that time on the road," Turner said, "so he learned to fly. The company had two Beech Barons when I joined them. He flew one and I flew the other. We'd fly out to visit two work sites a day, usually highway development sites, taking off early in the morning and landing around 5 p.m." Turner's former employer now flies a Daher TBM turboprop single, soaring through the heavens to help move the earth.

A more typical example of a business pilot, Phil Straub is executive v-p and managing director of aviation for Garmin. He still owns the 1967 Cessna 150 his father bought in 1968, along with a T-tail Piper Lance—but most of his flying these days involves business travel in Garmin's King Air 350 and Citation CJ2. As a business pilot, Straub loves to talk about how far technology has advanced since he began flying in the 1980s. And how that makes it more feasible to fly oneself on business trips.

Actor and pilot John Travolta flies his business jets with professional pilots as the second crew member, although he pilots his Eclipse 500 solo.

"I can sit in a meeting and, during a break, I can check my phone to see how a front is developing and if there are flow-control issues I'll need to consider for my return trip. In the old days, I'd have to get up and leave the room to make a phone call."

With Garmin's purchase of Fltplan, the company's flight-planning assets have taken a big step forward, and the company is adding new features, including an expanded trip planning program that incorporates data on ground-time, contract-fuel availability, and more. The program also collates and securely stores personal data for Canada's eAPIS U.S. Customs and Border Patrol data-exchange program.

Straub also noted how modern advances such as TCAS and TAWS have dramatically reduced midair collisions and controlled flight into terrain, respectively. And airport moving maps, such as Garmin's SafeTaxi, have substantially reduced runway incursions. He sees controller-pilot data link communications—essentially texting with ATC—as one of the next advances sorely needed. Aviating and navigating have gotten much better, he said, but we're still relying on antiquated voice communications technology in the digital age. "I'm acting as a robot inputting data in the cockpit that I'm hearing through a headset," he said.

A Life of Flying

For the finale of our successful owner-pilots of note, let's close with this month's celebrity guest star, John Travolta, who was kind enough to spend 45 minutes talking with **AIN** about how he uses his Falcon 2000 and 900. His fixation with aviation is well known, but most people remember him flying his Qantas-liveried Boeing 707, which he kept parked outside his house on a Florida airpark. He donated it a few years ago to Australia's Historic Aircraft Restoration Society and it's now on display Down Under. Travolta is type-rated in the 707 and used the ex-airliner on business, as well as flying relief missions, such as during flooding in Haiti and New Orleans.

Besides the Falcons, Travolta also operates an Eclipse 500, which he calls the most pilot-friendly airplane he's ever flown. "All my airplanes fly a lot," he said, "about 600 to 700 hours a year, total." He estimated that 75 percent of the hours logged are flown on business-related missions.

Why two Falcons? "The second plane is backup. I equip my airplanes very personally for my needs, and if one is in maintenance—for one month, or two months—I'd have to resort to charter, which doesn't really work for me."

Travolta explained, "That may sound overly-indulgent to some people, or excessive, but most of my [business] obligations are global. I've done work for Breitling, Qantas, Bombardier, and Boeing. They ask you to be at various places around the globe—Dubai, Europe, South America, Australia. If you have a choice in life of how to make a living—and I do—[for me] it's not just films, it's ancillary opportunities that demand flight. I've arranged my life to be this way. If I didn't love aviation and travel, I wouldn't work for those companies."

He is type-rated as second-in-command on the Falcons and will begin training for his PIC rating after logging 100 hours in each jet; an insurance stipulation. Travolta has a full-time pilot on staff and has a list of contract pilots. He's in the process of hiring two more full-time pilots but will still use contract pilots to fulfill his needs. His policy, established in 1992 when he bought a Gulfstream GII, is to always fly two-crew aircraft with at least two other pilots on board, besides himself.

As well as carrying Travolta and his family, all his airplanes often fly missions to pick up clients and associates for meetings at Travolta's house or at potential filming sites. The actor regularly flies his Eclipse as a single-pilot.

Asked how he handles the transition from movie star/businessman/family man to the pilot role, Travolta said, "I handle it the same way a professional pilot would. You greet the passengers, discuss what you need to discuss with them, and then you go do your job in the cockpit. Anyone who travels with me understands that when I'm in pilot mode, they respect the bubble. I've never had an issue with that."

Now 66, Travolta started flying lessons as a teenager in 1970, "squandering" all the money he earned from early TV commercials and summer stock theater. In addition to discussing his business flying, the rambling telephone conversation with **AIN** covered a wide range of pilot talk and aviation lore, including his amazement when told about Garmin's new Autoland technology ("Oh, my God. That is unbelievable!") and his musings on a documentary he had just watched on Amelia Earhart. It was a good talk. Before saying goodbye, he told me, "When I listen to your voice—and I hear my own voice—I feel like we're both 12 years old." ■

Lufthansa Technik Converts First A350-900 for VIP

Lufthansa Technik took delivery on May 7 of the first of three Airbus A350-900s for conversion to a VIP interior for the German Federal Government's Special Air Mission Wing. It's the first conversion of this kind to an A350-900, according to Lufthansa Technik.

To be delivered by the end of July to the German Air Force, the widebody twin will be equipped with a "transitional" cabin for the transport of government officials and their delegations that will be later replaced with a "fully featured VIP cabin" that the other two A350s—military registrations 10+01 and 10+02—will have installed at Lufthansa Technik.

The transitional cabin on this first A350—military registration 10+03—will include office and conference areas, a multifunctional lounge, washrooms, and a kitchen with modern equipment. It will receive the permanent VIP cabin once completions are wrapped up on its sister A350s.

"Over decades we have formed a comprehensive partnership with the German Air Force, in the course of which we have already equipped a large number of aircraft with special cabins for government representatives," said Lufthansa Technik VIP and special mission aircraft services v-p Kai-Stefan Röpke. "We are pleased to be able to extend this cooperation to install the first government cabin in an Airbus A350. This is not only a first for our long-standing customer German Air Force or for Lufthansa Technik, but for the entire industry." **J.S.**

To be delivered by the end of July to the German Air Force, this Airbus A350-900 will be equipped by Lufthansa Technik with a "transitional" cabin for the transport of government officials and their delegations.

Hands-on with the Bose ProFlight Series 2 headset

by Matt Thurber

Bose introduced the ProFlight Series 2 digital active noise-canceling aviation headset in July last year, updating the original ProFlight with new comfort features based on customer requests. The ProFlight headsets are lightweight and feature in-ear tips, a departure from traditional over-the-ear aviation headsets.

When Bose engineers designed the ProFlight headset, released in 2018, they were responding to customer requests for Bose noise cancelation but in a product more suitable for quieter environments and without the bulky ear cups. The Bose A20 active noise-canceling headset has long been popular among pilots of piston- and turbine-powered light aircraft, but business jet pilots work in a much quieter environment and didn't want to have to wear the bulkier headset.

"Customers flying jets or airliners were telling us that our headset was overkill, it was too big and bulky," said Matt Ruwe, senior product manager. "They liked the benefits of the A20-style noise-canceling headset," he said. "We heard that over and over again."

Bose had already designed in-ear headphone tips or buds for its QC20 consumer products, and this turned out to be ideal for an aviation application. "We had done a lot of work to get the in-ear buds to perform very well," he said. "That was the starting point to research in this market, and we started experimenting; can it work in a commercial or TSO environment?"

Meeting FAA and EASA technical standard order (TSO) requirements for headsets is critical for Bose as airlines generally are required to use TSO'd equipment, and without that the market for ProFlight would be limited. Bose also saw a void in the headset market after Sennheiser stopped making aviation headsets, and its products such as the A20 didn't appeal to airline pilots, similar to the situation with business jet pilots. "We never really targeted the airline market," Ruwe said, "and it's a fairly new market segment. Our timing couldn't have been better."

Although Bose makes wireless active noise-canceling ear pods, they aren't suitable for the aviation market. "We experimented with pods," he said, "but to meet the TSO we had to have a [hard-wired] boom mic." The problem with wireless microphones is that software runs the wireless activity and if there is a software problem, the mic can cut out. "The quality of the audio and reliability [of wired microphones] can't be beat by new technology," he said. "That's what we've run into when designing TSO'd headsets."

The design challenge then becomes how to mount a boom mic on a lightweight headset without weighing down one side or the other. "So then you need a head-worn form factor to support the boom and make sure the boom weight and moment doesn't disturb the earbuds. That's how we arrived at the form factor, based on the needs of the pilot not to be disturbed by anything on their head and still be able to move the boom."

The result is an ultra-light headset that is extremely comfortable to wear for long flights. The ProFlight Series 2 weighs just 4.5 ounces versus the A20 at 12 ounces.

Bose's ProFlight Series 2 headset now features a lighter down-cable and improved, more firm positioning of the boom mic.

The changes to the Series 2 include a new, lighter down-cable that doesn't disturb the headset when moved. The cable itself was a design challenge, containing more than a dozen connectors and shielding to provide the correct signal structure, according to Ruwe. "We worked hard to develop a cable that is substantially lighter and supple, and it results in better comfort and stability."

Bose engineers designed subtle improvements to the mechanical aspects of the headband, and an improved boom mic stays solidly in place after positioning by the pilot. The mic can be easily swapped from side to side.

Noise-canceling comes in three settings: maximum for the best signal-to-noise ratio and audio in loud aircraft; medium for consistent audio in quieter aircraft such as jets; and low for the best result when speaking to others nearby without the intercom. Double-tapping one earbud does the same as the low setting, just for that ear bud, for a quick non-intercom discussion.

There are three Bluetooth priority settings on the ProFlight's control module: off, mix, and mute. Off eliminates Bluetooth audio and is recommended during sterile-cockpit flying. The mix setting allows mixing of Bluetooth and intercom/ATC audio but limited to one source each. In mute mode, an intercom signal will cause the Bluetooth audio to mute until the intercom audio is finished. The mix position is suitable for receiving Bluetooth audio advisories that some electronic flight bag (EFB) apps offer. Up to two Bluetooth devices can be connected at a time, such as a phone and a tablet.

It's important to install the Bose Connect app on the tablet (available for Android or iOS) to get the maximum Bluetooth utility. This enables, for one example, the ability for two pilots to hear EFB advisories from one tablet. "There are a lot of hidden features" accessible from the Bose app, Ruwe said, and users can learn about these by going through the app's tutorial.

I flew with the ProFlight 2 in both piston-engine airplanes and during a demo flight in an Embraer Phenom 300E twinjet. The headset definitely does shine in the jet. It is so light that I barely noticed it was on my head, and I could hear ATC audio and the aircraft's aural warnings perfectly. Intercom communication with my fellow pilot was perfectly clear.

In piston airplanes, which included a Piper Cherokee 180 and a Cessna 172S, the noise-canceling worked pretty well, but the ProFlight isn't really designed for that application, so the engine noise did get through more and it was more fatiguing. In the piston aircraft, I found that I was spending a lot of time trying to get the ear buds fitted inside my ears, and if the buds aren't perfectly sealed, extraneous noise does come through. "The leak path is much more noticeable [in piston aircraft]," Ruwe confirmed. "You lose sensitivity and noise rejection, and the signal-to-noise ratio is much worse."

I also tested the ProFlight Series 2 on my desktop flight simulator, by connecting the X-Plane simulator to the PilotEdge real-time live ATC network. The ProFlight connects to the simulator computer via a USB device developed by New Zealand-based Flight Sounds. The ProFlight headset worked perfectly with the Flight SoundsX adapter as both an aviation headset when connected to PilotEdge and as an audio device using Skype.

If the three sizes of earbuds that come with the ProFlight don't fit perfectly, custom-made buds are available from third-party providers such as Avery Sound.

The ProFlight with two plugs starts at $996 without Bluetooth or $1,046 with Bluetooth and is powered by two AA batteries that provide more than 45 hours of use without Bluetooth and at least 25 hours with Bluetooth. Aircraft-powered variants of the headset are also available, and optional configurations include twin plug, five-pin XLR, seven-pin XLR, or six-pin Lemo plug. The down-cable and microphone can easily be swapped to either side without tools. The ProFlight is FAA TSO and EASA E/TSO C139A certified. ■

News Update

Appareo Recorder Hardened for Crashes

Appareo has developed a new crash-hardened flight data recorder designed for small aircraft. The RDM-300 (Recoverable Data Module) features auto-detect for Arinc or serial buses and it "can record more than 500 parameters per second to the non-complicated, solid-state memory within the device," according to Appareo. The RDM-300 weighs less than two pounds and meets RTCA DO-160G testing standards.

Elliott Aviation Guarantees Upgrade Downtime

Elliott Aviation is offering downtime guarantees for King Air Garmin G1000 NXi and Citation Excel/XLS Garmin G5000 upgrades. For the King Air retrofit, Elliott promises to complete the job in three weeks, while the G5000 upgrade for the Excel/XLS is guaranteed at four weeks. If the work isn't done within the guaranteed time, Elliott Aviation will pay the customer $3,000 per day over the three- or four-week period, up to a $15,000 maximum.

Innovation Preview Brings New Products to Light

After canceling this year's Aircraft Electronics Association show, AEA unveiled an online version of its popular new products showcase, the Avionics Innovation Preview. Highlights include:

Alto Aviation introduced the Preconfigured Cadence Switch Series, off-the-shelf cabin switch options with 34-panel options and a variety of functions including HDMI and USB ports, Bluetooth support, HD selection and video control, and headphone.

Anodyne Electronics Manufacturing's new panel-mount BAA01 Bluetooth Audio Accessory enables adding Bluetooth to existing avionics, audio, PA, and loudspeaker systems. The unit is 1.1 inches high and offers two unique Bluetooth connections per device. Available this month.

Aircraft Lighting International unveiled new LED window lamps for King Air 90 and 200 turboprops, which connect directly to the existing ballast and use existing wiring and controls. The LEDs use less current and last much longer.

The new **Gogo** Vision 360 entertainment system runs on Gogo's Avance high-speed broadband platform, offering moving-map and Flightpath 3D with augmented views, including 360-deg aircraft view, instrument view, and real-time flight data. Gogo's new Cloudport system turns hangars into Gogo hotspots for updating.

Shadin introduced the Volta Series data converter platform. The Volta-60 Discrete to Arinc 429 converter is designed "to address the growing customer demand for such a plug-and-play flight worthy avionics package to digitally interpret discrete electronics throughout an aircraft," according to Shadin.

Vintage 727 back to work for testing towing system

by Curt Epstein

ATS World-Wide CEO Vince Howie poses with his company's new acquisition, a formerly-derelict Boeing 727 that ATS will use to test and demonstrate a new permanently-installed, automated aircraft towing system.

When Vince Howie first noticed the Kitty Hawk Air Cargo Boeing 727 parked forlornly at Oklahoma's Ardmore Industrial Airpark several years ago, he thought about leasing it someday to test the permanently-installed automatic aircraft towing system his company, Aircraft Towing Systems World-Wide (ATS), was developing there in cooperation with Oklahoma State University's New Product Development Center. As the prototype of the electrically-powered system nears completion, he inquired about the classic tri-jet's status.

"When I discovered it was abandoned, I asked if I might buy it," said Howie. "The City of Ardmore then filed for an abandoned title and put it up for auction." With no other bidders, ATS was able to acquire it for just over the minimum bid.

The aircraft had not moved since 2007, and its former owner declared bankruptcy the following year. When Howie and several other ATS employees and family members went to examine the new acquisition, they found the only entrance that was accessible was the aft ventral airstairs (the same access point the notorious D.B. Cooper used to escape his 1971 mid-air 727 hijacking attempt).

Once inside, it became clear that the aircraft had simply been closed up when its owners walked away. The flight log ended with entries for its last flight in August 2007, and all interior equipment was still present, down to the fire extinguishers. The jet's last airworthiness certificate was found in the cockpit, along with some 2007-vintage aviation publications. The Pratt & Whitney JT8D engines had been removed at some point, but their cowlings and thrust reversers were found in the cargo compartment.

Another discovery proved a major bonus for the new owners. "It was amazing to find the auxiliary power still installed," said Howie, adding that King Aerospace will handle the cleaning and partial refurbishment of the jet. "If they can get the APU working, it will allow ATS to power the brakes and steering, which will make testing much safer and easier." King Aerospace will also reinstall the engines' cowlings and mount new tires on the aircraft as part of its rehabilitation.

"We believe our strategic investment in this jet will be the perfect instrument to demonstrate how ATS works in the days ahead," noted Howie. ATS, which would represent a major capital expenditure for an airport, is integrated into the ground control system, and run by the ground control tower personnel. It uses tow tractors that ride along underground, permanently-installed rail channels, leading from the runway to the terminals. Intended to be able to move aircraft with their engines off, anticipated benefits include improved safety, fuel savings, decreased emissions, increased engine lifespan, reduced ground staff requirements, and noise reduction.

Howie told **AIN** that testing utilizing the 727 should begin in about four months when the prototype installation is completed at the Ardmore Airpark. He expects trials to be completed by the end of the year, pending regulatory approval. "We have several very interested airports and we continue to work with the FAA," he concluded. ■

New Garmin portable adds approach overlays

The proliferation of powerful tablet electronic flight bags (EFBs) hasn't killed the market for portable GPS navigators, and Garmin today introduced the aera 760 portable GPS navigator with some EFB- and avionics-like features. Shipping begins in May, and the new unit retails for $1,599.

The aera 760's seven-inch touchscreen display allows pilots to load instrument approach, arrival, and departure procedures in a flight plan. Approach procedures can also be overlaid on the moving-map. The GPS receiver works on both the U.S. GPS and Russian Glonass networks.

With a user interface mirroring typical Garmin avionics conventions, as well as those of the Garmin Pilot EFB app, the aera 760 was designed by Garmin's TeamX, a group of pilots and aircraft builders. The aera 760 stores IFR en route charts, VFR sectionals, and Garmin FliteCharts, and it can also display optional Jeppesen charts for access to instrument approaches worldwide. Flight planning can include victor airways and user-defined holds over an existing navigation fix.

Bluetooth and Wi-Fi are built into the aera 760, which allows for downloading software updates and databases wirelessly. The portable can also connect to Garmin's GTX 345 ADS-B transponder or GDL 52 ADS-B receiver for display of free ADS-B In traffic and weather. SiriusXM weather is also an option when paired with the appropriate receiver.

Hard-wiring of the aera 760's power, audio, and dual RS-232 connections to a Garmin GTN or GNS series navigator allows the devices to share and synchronize flight plans. The aera 760 can also connect wirelessly to navigators via a Garmin Flight Stream 210 or 510 wireless gateway. Connection to Garmin GTR 225, GNC 255, or GTR 200 navcoms enables the pilot to input frequencies on the aera 760 and then transfer them to the navcom. Autopilot connections are also available for flying lateral GPS and single-point vertical navigation in visual conditions.

Garmin's 3D Vision technology is available on the aera 760, including an HSI display with lateral and vertical deviation bars and "a virtual 3D visual perspective view of surrounding terrain, obstacles, and airports." Full synthetic vision with backup attitude information is also available when the aera 760 is paired with a compatible attitude source, including the GDL 52 or GTX 345.

Garmin's newest portable GPS device, the aera 760, packs many features into a compact unit, including approach chart overlay, procedures in flight plans, and synthetic vision.

Other features include fuel price information, an E6B computer, weight and balance calculator, optional WireAware wire-strike avoidance technology, and optional map data to allow entry of street intersection or non-aviation waypoints.

Battery life is up to four hours, and a USB-C connector is available for external power and charging. Loading of topography and street maps and user waypoints is via a microSD card slot. **M.T.**

Insurance hikes, limited Covid aid for helo operators

by Mark Huber

Aviation Insurance Association board president James Gardner warned of continuing "seismic changes" throughout the industry and limited insurance cost relief for operators impacted by Covid-19.During a recent Helicopter Association International (HAI) webinar, he said that changes in the form of increasing premiums, higher deductibles, overall coverage and liability limits, and less competition would continue.

According to Gardner, these changes are being "driven by years of a soft market" that included artificially low past premiums, premium shrinkage brought on by a contracting market, and increased costs due to several high-profile cases and settlements, including the 2018 and 2019 Boeing 737 Max crashes and the $100 million award to an EMS helicopter medic who survived a 2015 Colorado accident with severe burns. Globally, the aviation insurance market shrunk from $7 billion to $4 billion between 2005 and 2019, while claim ratios and settlements have increased, creating a situation that is "not sustainable" for insurers, he said.

Beginning in 2018, insurers began dramatically increasing premiums by annual rates averaging 15 percent and finding more ways to offload risk. Some insurers have either exited the market outright or consolidated, Gardner said. The outlook for helicopter operators is particularly acute due to high loss ratios. "The bad news for helicopter operators is that your track record is not the healthiest in the world. Somebody said there is no such thing as a partial loss for helicopters and in many cases that's true, so your loss ratios and loss rates are much higher than they are for fixed-wing," he explained.

While Gardner said there are options for helicopter operators to reduce insurance costs during the Covid-19 crisis due to parked aircraft or reduced flying hours, he counseled against expecting the same kind of relief from insurers afforded to automobile drivers. If Covid-19 triggers a reduction in the premium base, that could in fact provide the impetus for additional rate increases, he warned.

Tour operators that have suspended operations are the most impacted, he noted, adding that at least one insurance carrier had stopped writing new policies for any helicopter operator that carries passengers. However, there are ways to mitigate the insurance bite on a case-by-case basis via policy provisions, modifications, and riders. These include rotors not in motion, rotors not in flight, layup credit, premium financing, monthly reporting and flight by the hour, and, in extreme cases, voluntary policy cancellation. But the bottom line, Gardner said, is that "operational excellence is the best insurance you can buy." ■

Transport Canada has validated the certification of the Airbus Helicopters H135 light twin-engine helicopter with the Helionix avionics suite.

Airbus H135 with Helionix approved in Canada

Transport Canada has granted certification validation to the Airbus Helicopters H135 light twin equipped with the Helionix avionics system. The approval follows those awarded by the FAA in 2018 and EASA in 2016.

Helionix is designed with three large electronic displays, is night-vision-goggle (NVG) compatible, features a four-axis autopilot, and includes a first-limit indicator that highlights the appropriate engine instrument data for the pilot in one indicator. Helionix already is standard on the company's H175, H145, and, soon, on the H160 super-medium and medium twins.

"The H135 has proven itself to be one of the most reliable aircraft on the market," said Dwayne Charette, president and COO of Airbus Helicopters Canada. "This recent certification now allows us to deliver the H135 with the latest technologies to our customers, providing them the combination of power, safety, and maneuverability."

Existing customers for the aircraft in the U.S. and Europe include Stat Medevac; the British Ministry of Defense/UK Military Flight Training System (UKMFTS), operated by Ascent Flight training; and the Norwegian Helicopter Emergency Medical Services operator Norsk Luftambulanse (Nolas). In Canada, some 220 operators fly approximately 720 Airbus helicopters. **M.H.**

Heli XP 2020 rescheduled for October

Organizers of the Brazilian helicopter show Heli XP, which they normally hold in May in São Paulo, have moved the event to October 21 and 22, public health permitting. The fair was 90 percent sold out in January and expects 88 brands and 22 static-display aircraft, with all of last year's exhibitors returning and a 75 percent increase in event space.

Heli XP—which serves the Brazilian helicopter market, the world's second-largest in fleet size and the busiest in operations—will use an entire hangar at Helipark for stands. "The idea is the exhibitor just arrives with his material and everything's ready," Gledson Castro of organizer G2C told **AIN**.

Officials will reserve part of the Helipark ramp for test flights, one of the features that contributed to the success of the first Heli XP, which last year attracted 4,000 invitation-only visitors—90 percent from Brazil—over its two days.

The Helipark venue allows Heli XP to offer lower costs and has permitted rescheduling without scrambling for convention center space. The first edition mostly sold out even before the watershed 2018 Brazilian election, Castro noted. "Even with the pandemic, the sector strongly believes in the [economic] recovery and that's what gave us the certainty needed to move ahead with the event," he said. **R.P.**

Sikorsky Signs Cougar for S-92A+ Helicopter Upgrades

Cougar Helicopters is the launch customer for the Sikorsky S-92A+ upgrade kit with an order for four. The kit features the new Phase IV main gearbox that uses a supplemental oil pump and additional oil lines to reuse main gearbox oil that is accumulated in a lower sump in the event of primary lubrication failure in the twin-engine helicopter. Lockheed Martin subsidiary Sikorsky announced both the S-92A+ upgrade program and the follow-on S-92B production helicopter program in 2019. The company anticipates the S-92A+ kit will be delivered by 2023 and the S-92B helicopter in 2025. All of the features on the A+ kit will be incorporated into the B model, along with several other improvements such as 20 percent larger cabin windows and a common cabin door for offshore and SAR missions.

Bell 525 Edges Closer To Certification

Bell might be entering the home stretch on its 525 super-medium twin program. The helicopter OEM recently announced that it had completed noise testing to satisfy FAA Part 36 certification standards during a series of sorties conducted over Barkersfield, California. The test aircraft flew 16 hours over the course of five days for both company noise testing and to satisfy certification requirements. Significantly, a Bell spokesman told **AIN** that the company "is heavily involved with the FAA in the certification of the 525, with no additional plans for off-site activities at this time.

U.S. Helo Safety Team Offers Case Studies for Survival

The U.S. Helicopter Safety Team (USHST) has released a new recommended practice guide with suggested training scenarios designed to mitigate risk and improve decision making. USHST's new guide contains materials for lesson plans using fatal helicopter accidents precipitated by flawed decisions that placed the aircraft at risk. Scenarios include loss of rotor rpm in autorotation; loss of tail rotor effectiveness; spatial disorientation; unintended flight in instrument meteorological conditions (IMC); low-altitude wire strike; and low-altitude engine failure.

Asleep at the Stick?

The National Transportation Safety Board (NTSB) final report on a fatal late-night rural northern Wisconsin helicopter EMS crash on April 26, 2018, indicates that the pilot was non-responsive before his ship rolled inverted, descended at 5,000 fpm, and hit terrain. The entire accident sequence lasted 12 seconds. Officially, the NTSB labeled the "defining event" of the crash as "loss of control in flight," but its report suggests pilot fatigue might have been a contributing factor in the nighttime accident.

Perot pushes Alliance as eVTOL technology hub

by Mark Huber

Ross Perot, Jr. believes the 26,000-acre Fort Worth Alliance airport complex is just the place to develop and test a new generation of delivery drones and passenger eVTOL aircraft. Beginning in the 1980s, Perot's Hillwood Development donated the land for the public-use airport and developed adjacent industrial, retail, and 10,000 residential properties.

Today, more than 525 companies and 61,000 employees are part of the Alliance complex that includes logistics hubs and high-tech facilities for Amazon, UPS, Santa Fe Railroad, and Facebook, and Perot is known as the most powerful real estate developer in Texas. He is a big backer of new technology, hosting the TexasUP summit of industry investors in eVTOL last year and driving the formation of a "mobility zone" at Alliance.

Referring to that property, Perot said, "We have a big lab" for UAS and eVTOL trials, including residential home delivery. Perot envisions a future where heavy-lift drones would be used to move rail shipping containers and working with industry to bring clients to Alliance for the manufacture, training in, and maintenance of these and other new-generation aircraft.

Speaking at the Air Force's "Agility Prime" virtual conference in May, Perot stressed the historical importance of military programs as a catalyst for breakthroughs in civil aviation that included GPS navigation and transformational aircraft such as the Boeing 707 and 747.

Ross Perot, Jr. Chairman, Hillwood Development

He sees the military playing the same role today with eVTOLs. "The Air Force's vision gives the industry the courage to take the risk to develop technologies for our military, then have tremendous civilian-use spinoffs and have a huge economic impact on the world today."

Despite the current Covid-19-generated crisis and industry skepticism with regard to UASs and eVTOLs, Perot sees them as inevitable. "We're going to improve the human race and give people a much better life with these new flying products. I see this as the [same] opportunity that we saw back in the 1930s when [commercial] aviation started coming to life. Billions of people around the world will benefit." He characterized the market as potentially worth $1.6 trillion and called it a "revolution in aircraft [that's] going to be here before we know it."

A former Air Force F-4 flyer and world-record helicopter pilot, Perot said he is personally eager to take the controls of an eVTOL. "I'm ready...I'm always ready to fly." ■

Helo OEMs post solid Q1 results

The Covid-19 crisis had minimal financial impact on several helicopter OEMs during the first quarter of 2020.

Revenues at Airbus Helicopters actually increased 19.4 percent for the first three months of this year to reach just over €1.2 billion ($1.3 billion). During the first quarter, Airbus delivered 47 helicopters, which was one more than it delivered in the same period in 2019. The improved value of these deliveries and some significant new growth in associated services contributed to adjusted operating profits more than doubling to €53 million. However, the division's overall orders backlog fell 4.7 percent, to 702 units. It logged 54 net orders for helicopters in the quarter, which was 18 percent less than the same period last year.

For the first quarter, Bell posted revenues of $823 million, an 11.4 percent increase from the year-ago period, driven primarily by higher military sales. Segment profit increased by $11 million, to $115 million. During the period, Bell delivered 15 commercial helicopters, half the number delivered in first-quarter 2019. Backlog at the end of the latest quarter stood at $6.4 billion. Bell continues to see strong civil demand from parapublic customers who are "more resilient," said Scott Donnelly, chairman of Bell parent Textron.

Meanwhile, revenues from Leonardo's helicopter business fell by around 5 percent during the first quarter to €704 million. The company attributed the results partly to reduced deliveries of its AW139 twin-engine helicopter. Leonardo is now working on introducing a so-called "smart delivery" process in which it shares as much information as possible with customers via digital means to reduce the need for them to send staff to the factory. **C.A. & M.T.**

Philippine Airlines' first Airbus A320neo takes off for delivery to Manila from Hamburg in July 2018.

Manila gateway reopens to international flights

by Jennifer Meszaros

International arrivals at Manila's main gateway, Ninoy Aquino International Airport (NAIA), resumed on May 11 under limitations set by the Civil Aviation Authority of the Philippines (CAAP).

A CAAP notam allows for international chartered flights to land at NAIA on Mondays and Thursdays while commercial flights may land on Tuesdays, Wednesdays, Fridays, Saturdays, and Sundays. Operators must secure prior clearance from the Department of Foreign Affairs and the CAAP for slots at NAIA, whose traffic inflow authorities have capped at 400 passengers per day.

"The restrictions, which will last a month, from May 11 to June 10, are going to be implemented in NAIA only, with other international airports in the country having their separate restrictions," the advisory said.

The announcement comes after NAIA moved to temporarily suspend all domestic and international flights on May 3 to mitigate the spread of Covid-19. As part of a new government directive, passengers arriving in the Philippines must undergo strict quarantine and testing procedures.

Meanwhile, local airlines have laid plans to boost health protocols as they prepare for flights after May 15. According to budget carrier Cebu Pacific, all ground and flight crew must wear personal protective equipment while pilots and cabin crew will undergo rapid antibody testing before flights. Middle seats in aircraft will remain open and all passengers must wear face masks on flights. ■

Embraer ships five airliners in Q1 amid Boeing exit

Embraer delivered just five airliners during this year's first quarter, underscoring the company's inability to generate significant revenue during its commercial aircraft division's "carveout" from the rest of the company in preparation for its expected sale to Boeing.

Embraer delivered three E175s, one E190-E2, and a single E195-E2 during the period, while negotiations with Boeing stalled over certain "unsatisfied conditions" related to the planned sale of 80 percent of Embraer Commercial Aviation.

While the unresolved conditions related to the sale's master transaction agreement remain a matter for speculation, Embraer's interest in seeing the deal close as soon as possible while potential customers hesitated to pursue E-Jet acquisitions, even before the Covid-19 crisis took hold, seemed clear. Not only did the carveout—largely involving preparations for merging the two companies' information technology systems—shut down the final assembly line for weeks, but sales contracts came to a virtual halt as potential customers waited for the consummation of the deal before moving ahead with purchases.

"Certain airlines want more visibility on the transaction before they're prepared to move forward with their fleet planning," Embraer Commercial Aircraft CEO John Slattery told **AIN** in February. "We are hearing increasingly that airlines are getting a little frustrated. They want some surety around what the future is going to look like so they can plan accordingly. So we understand that frustration. We're doing everything we can to get our transaction closed so that we can get back to the day job, which is designing new aircraft, building fine aircraft, and servicing them in the marketplace."

Embraer has vowed to pursue "all remedies" for damages it claims to have incurred as a result of Boeing's actions. **G.P.**

Boeing deliveries slow to a crawl

Boeing delivered just six airplanes during the month of April, as monthly figures reported by the company on May 12 for the first time reflected the full effects of the Covid-19 pandemic.

A total of 108 order cancellations during the month included those already announced from GE Capital Aviation Services covering sixty-nine 737 Max jets and 29 from CDB Financial Leasing, along with another 10 from unidentified customers.

After the company removed orders for another 101 airplanes from its books to comply with new accounting standards, its net order total for 2020 now stands at negative 516. Of those, the 737 Max accounted for negative 299, while the 737 NG saw a net positive total of 16 airplanes. Boeing's new 777X has recorded no order activity this year, while the 777-300ER's total stands at negative 1. Along with 737 NGs built for the P-8 military program and a pair of 767 freighters for FedEx, Boeing has seen positive net order activity for the year for only the 787 Dreamliner, at 25 units.

The dismal month of April followed a first quarter in which Boeing delivered a total of 50 airplanes, compared with 149 during 1Q2019. During the month of March alone, Boeing registered cancellations of 150 Max jets, a development the company said would relieve some pressure on its backlog while the model remained grounded.

By the end of last month, Boeing finally detailed planned production rate cuts starting with the 787, which will see a reduction from the current 14 a month to seven per month in 2022, while 777/777X rates will fall from five this year to three next year.

Plans call for 737 Max production, which CEO David Calhoun has estimated will resume in the third quarter, to accelerate even slower than originally planned following the narrowbody's year-and-half-long grounding. In a drastic departure from plans to raise the 737's peak rate of 57 a month to as many as 63, Boeing now sees 737 Max rates gradually increasing to just 31 per month next year and modestly rising with any increased market demand thereafter.

Rival Airbus has revealed plans to cut rates across its product line by about one-third, resulting in a reduction of A320 family production to 40 per month from a peak of 60 in 2019. Widebody production, meanwhile, will see A330 rates drop from some 3.25 per month to two per month, while A350 rates fall from roughly 10 per month to six. **G.P.**

News Update

MC-21 Resumes Flight Tests

The Irkut MC-21-300 program resumed regular test flights outside Moscow on April 23 following an interruption in the program caused by Covid-19-related recommendations from Russian authorities.

United Aircraft Corporation reported a gradual increase in flight test intensity by the four MC-21 flying prototypes since the start of this year. Out of 650 flights needed to obtain a Russian certificate, the program has completed more than 300.

Two of the MC-21 flight test articles carry passenger cabins, one in a two-class, 163-seat layout, and the other in a "super-dense" 211-seat configuration.

The MC-21 test team has finished flutter testing and most of the tests related to extreme angles of attack. Other tests have involved determining minimum separation speeds, instrument landing system operation, navigation, landing systems, and external lighting equipment at night.

Alafco Sues Boeing Over Max Payments

Kuwaiti aircraft lessor Alafco has filed suit against Boeing in federal court in Chicago for failure to return payment on undelivered 737 Max 8 jets. The filing claims rights to the return of $336 million in advance payments for the first 10 of 40 aircraft on order, the first delivery of which Boeing had set for March 2019. All global aviation authorities grounded the 737 Max by March 13, when the U.S. FAA became the last to do so.

The filing indicates that Alafco sent a letter to Boeing terminating orders for the aircraft scheduled for the March delivery based on a non-excusable delay. Boeing countered in a December 3 letter that it "respectfully disagrees" with Alafco's assertion of non-excusable delay rights and refused to return the payment. On March 6 of this year, Alafco canceled the orders for all 40 aircraft after Boeing failed to make "timely" delivery of nine of them.

Boeing Flies Second 777X

Boeing conducted what it called a productive and successful first flight of the second 777X airplane on April 30. Designated WH002 and the second of four 777-9 flight test articles, the big widebody will test handling characteristics and airplane performance, the company said.

During the first flight, 777X project pilot Ted Grady and 777/777X chief pilot Van Chaney flew for 2 hours and 58 minutes over Washington state before landing at Seattle's Boeing Field at 2:02 p.m. local time.

WH002 carries an array of equipment, sensors, and monitoring devices throughout the cabin, allowing the onboard and ground-based teams to document and evaluate the airplane's response to test conditions in real-time. The 777X test plan lays out a series of tests to demonstrate the safety and reliability of the design.

Shareholders approve Norwegian Air rescue plan

by Gregory Polek

Norwegian Air Shuttle has managed to arrange for a financial lifeline through a near $1 billion private placement to lessors and bondholders.

Norwegian Air Shuttle will proceed with private placements through the conversion of some 10 billion Norwegian kroner ($966 million) worth of bonds and lease debt to shares and carry out a public offering valued at up to 400 million kroner, the company said in a filing with the Oslo Stock Exchange. More than 95 percent of votes taken at an extraordinary general meeting (EGM) on May 4 went in favor of the proposed private placements.

The plan effectively hands over control of the near-defunct airline to creditors and leaves shareholders with only 5.2 percent of the company. However, it helps qualify Norwegian for another two tranches of state aid worth 2.7 billion kroner. The airline had already received an initial 300 million kroner tranche under the country's coronavirus relief plan, but any further funding hinged on the company's ability to shed most of its debt.

Norwegian has cut virtually all its passenger services since a March 16 announcement that it would gradually shed 85 percent of its flights and lay off 7,300 employees—or 90 percent of its workforce—as stagnating demand and government-enforced travel restrictions worldwide due to the Covid-19 crisis force dramatic measures across the industry. Now flying just seven airplanes on state-subsidized domestic routes in Norway, Norwegian has since cut 95 percent of its capacity and 7,650 employees from its payroll. About 200 employees remain in operations.

Entering what it calls a hibernation phase, Norwegian doesn't expect a recovery until the high season of 2021 nor a return to normal operations until 2022. By that time, it expects the size of its fleet to shrink from its pre-Covid peak of 168 to about 110 to 120. Under plans for what it calls New Norwegian, the airline would see its long-haul network consolidate by some 40 percent, concentrating on "top-tier" cities and "key flows" between the European Union and the U.S., where Norwegian enjoys inherent strength in terms of scale and market presence, such as at London Gatwick, New York JFK, and Los Angeles International.

Meanwhile, Norwegian's short-haul network would benefit from simplification of schedule design to gain crew efficiencies and improved on-time performance. Plans call for a focus on the airline's intra-Nordic core routes, while overall production falls by about 10 percent "as a precaution for [a] lower demand environment." ■

Boeing to institute big cuts to workforce and rates

Boeing will shed 10 percent of its 160,000-strong workforce by the end of the year and significantly cut production of both widebody and narrowbody airplanes through 2022 as it adjusts to what it characterizes as a new market reality created by the Covid-19 crisis.

Speaking during the company's first-quarter earnings call on April 29, Boeing CEO David Calhoun detailed the production rate cuts starting with the 787, which will see a reduction from the current 14 a month to seven per month in 2022, while 777/777X rates will fall from five this year to three next year.

Plans call for 737 Max production, which Calhoun estimated will resume in the third quarter, to accelerate even slower than originally planned following the narrowbody's year-and-half-long grounding. In a drastic departure from plans to raise the 737's peak rate of 57 a month to as many as 63, Boeing now sees 737 Max rates gradually increasing to just 31 per month next year and modestly rising with any increased market demand thereafter.

Finally, the company envisions no change in the three-per-month rate for the 767, split between freighters and tankers, nor does it plan a change from the six-airplanes-a-year rate for the 747.

In a letter sent to employees, Calhoun called the pandemic "a body blow" to the business, created by a decline in passenger volumes of more than 95 percent compared with last year's figures and an expected $314 billion fall in airline revenue in 2020. He opined that a recovery from the Covid crisis to 2019 levels would take two to three years and that it would take "a few years beyond that" for the industry to return to long-term growth trends.

"As a result, airlines are delaying purchases for new jets, putting the brakes on delivery schedules, and deferring elective maintenance," said Calhoun. "We're also seeing a dramatic impact on our commercial services business, as grounded airline fleets decrease the demand for our offerings. All of this puts near-term pressure on our cash flow."

Boeing saw this year's first-quarter cash flow turn negative in the amount of $4.3 billion compared with positive cash flow for the same period in 2019 of $2.8 billion. Now holding some $15 billion in cash and $5 billion in short-term debt, the company recently allowed the deadline for a $4.2 billion purchase of Embraer's commercial airplane business to lapse.

Boeing plans to cut 787 production rates from 14 per month this year to seven in 2022.

Although Boeing blamed the collapse of the negotiations on the Brazilian airframer's failure to meet certain conditions in the master transaction agreement, the resulting savings in capital expenditure came at an undeniably opportune time for the U.S. manufacturer.

"We are intensely focused on ensuring liquidity through the immediate crisis," said Calhoun. "We believe that government support will be critical to ensuring our industry's access to liquidity. We continue to evaluate options in the capital markets as well as funding options from the U.S. government via the U.S. Treasury and various federal reserve programs."

Measures to strengthen Boeing's cash position have included drawing down on a term loan, reducing operating costs, suspending dividend payments, terminating share repurchase authorization, and reducing or deferring "non-critical spend."

Boeing's efforts to "resize and reshape" its business include reducing the workforce by some 16,000 through voluntary layoffs, natural attrition, and involuntary layoffs "as necessary." The cuts will disproportionately affect the commercial airplane and services business, amounting to about a 15 percent reduction in the workforce among those divisions.

"We will be a smaller company for a while," said Calhoun. "We've worked hard to maintain the stability of our workforce. But the sharp reduction in demand for our airplanes that we see for the next several years won't support the size of the workforce we have today." G.P.

Aeroplex/Aerolease Group will construct a new 38,750-sq-ft hangar on the Signature Flight Support leasehold at Dallas Love Field. After it opens later this year, Aeroplex will provide management for the property.

Dallas Metroplex To Receive New Hangar Complex

The Dallas Metroplex area will receive a new business aviation hangar complex as Aeroplex Group Partners, the project management and consulting division of Aeroplex/Aerolease Group, broke ground on a project at Dallas Love Field. The 38,750-sq-ft facility will be able to shelter the latest ultra-long-range business jets. Located on the 80-acre Signature Flight Support leasehold at the airport's southeast corner, it is scheduled for completion by year-end and will feature 7,000 sq ft of office and shop space. The multi-million dollar project will also include a new ramp, enhancements to the access road, and a new parking lot. Upon completion, Aeroplex will provide property management services for the hangar. "We are excited to spearhead an effort that will not only enable Signature Flight Support to better serve business aviation's diverse needs but refuel the economy and position the business aviation industry to create more high-paying jobs in the community," said Aeroplex/Aerolease Group president and CEO Curt Castagna.

Group Wins Contract To Open New Wilmington FBO

North Carolina's Wilmington International Airport (ILM) will be receiving a second FBO after a group led by business aviation industry veterans Marty Hiller, Michael Scheeringa, and Sanjay Aggarwal won a contract after a request for proposal was issued by the New Hanover County Airport Authority. According to Hiller, who operates two FBOs at The Florida Keys Marathon International Airport, the new entity known as Marathon Aviation Partners will operate the FBO, to be constructed on a 6.3-acre leasehold at ILM under the name Aero Center Wilmington. Hiller remains the owner of Marathon Aviation Associates. He expects to break ground on the new facility within three months and for the FBO to be operational in at least one of the hangars by next April. Located on the west side of the airfield, just north of the commercial terminal, it will include a 5,200-sq-ft FBO terminal, a fuel farm, and a pair of up to 12,000-sq-ft hangars able to accommodate the latest ultra-long-range business jets.

Arkansas Airport Shelves Terminal Project Amid Covid-19

Due to a current and projected decline in revenues stemming from the Covid-19 crisis, a $3.6 million expansion project at Arkansas North Little Rock Municipal Airport (ORK) has been put on indefinite hold. According to airport manager Clay Rogers, the project, which had already been pared back from $5.5 million over the past year, is still intended to include a new 4,500-sq-ft general aviation center that will house the North Little Rock Jet Center, one of two FBOs on the field that caters to business jet traffic. Rogers told **AIN** that the airport has approximately 15 based business jets and turboprops currently and, as a reliever to Bill and Hillary Clinton National Airport, it would like to further develop this business. With a waiting list of business aircraft operators looking for hangar space, the now-delayed project also included the construction of a new 15,000-sq-ft community hangar capable of sheltering midsize business jets, along with ramp connections to the taxiway system, and a vehicle parking lot. Rogers said the state Department of Aeronautics, citing an anticipated plunge in fuel sales revenue in the second quarter and possibly beyond, opted to withhold its portion of the funding and instead concentrate its support on essential runway and taxiway safety improvements during this time. Rogers still hopes the project at ORK will launch later this year.

Massachusetts Airport Starts Runway Rehab Project

Massachusetts Westfield-Barnes Regional Airport has begun a project to rebuild its 5,000-foot secondary Runway 15/33. Nearly $7 million of the $7.6 million construction cost will be covered by federal AIP grants, while the state department of transportation and the city of Westfield will pay the remaining 10 percent. The project, which has been planned for several years, is seen to be crucial to maintaining the airport's competitive status with nearby facilities such as Westover Metropolitan Airport and Bradley International in Connecticut. "We're fortunate that this project has been able to move forward during the Covid pandemic and we're looking forward to the runway being open at the end of September," airport director Chris Willenborg told **AIN**. That work period will include a one-month curing period for the pavement before the grooving of water channels to increase braking action in wet or snowy conditions. While such an upgrade is expected to last for 20 years, 15/33 was last reconstructed sometime in the 1970s.

Russian FBOs Ready for Duty

Despite recent regulations on international business aviation flights put forth by Russia's Federal Air Transport Agency (FATA) during the Covid-19 pandemic, aviation services provider A-Group reports its FBOs at Moscow Sheremetyevo and St. Petersburg Pulkovo International Airports are still fully operational. Under the administrative regulations on sanitary quarantine control, passengers are required to undergo health checks upon arrival. When the requirements were introduced in Moscow, the company was prepared with quarantine control staff and doctors on duty 24/7, conducting remote temperature checks and surveying arrivals to determine whether to order self-isolation or observation.

The terminals are equipped with sanitizer and hygiene products, informational materials, and medical masks. Rooms inside are thoroughly cleaned after each flight, while arriving luggage is also disinfected. Each member of the FBO staff undergoes a daily check-up, and their use of personal protective equipment is mandatory.

"The main tasks of our infrastructure in the current circumstances are to protect the health of passengers and staff, as well as to ensure the seamless maintenance of flights in compliance with all procedures and directives issued by [FATA], ICAO, and other industry regulators," said A-Group president Sergey Semenov. "Business aviation in general, and our terminals in particular, allow us to provide not only passenger safety in every way but also social distancing, which plays an important role in preventing the spread of the virus."

NATA Issues FBO Equipment Care Guidance

With FBOs pumping less fuel as a result of the Covid-19 pandemic, the National Air Transportation Association (NATA) has issued equipment maintenance guidance for fuel providers. During this "low-use" period, problems that might be encountered in refueling equipment include microbial growth in filter vessels, tanks, and piping; increased water production in fuel tanks with low volume; and unused fuel left in hoses that could possibly "spoil" or degrade off-specification. NATA recommends that FBOs continue to conduct and document their regular quality control checks for all equipment and on a weekly basis recirculate fuel at maximum achievable flow and move fuel through bottom-loading hoses. For tanker trucks seeing limited use, operators should recirculate fuel through a single-point hose at the maximum flow and flush over-wing hoses into jet-A and avgas-specific reclamation/sump saver tanks. Refueler trucks should be started and driven regularly to move fluids through the transmission and power steering lines, as well as to maintain a battery charge. To prevent "static shock" or fuel that has been in storage for more than six months since it was received, the organization suggests taking lower fuel loads. NATA noted that recirculation is not a remedy for static shock, and any fuel in long-term storage should be tested to make sure it meets the applicable ASTM standard before being delivered to the aircraft. Last, allowing fuel systems to dry out can cause damage to hoses, filters, gaskets, and seals, so users should consult with their equipment manufacturers before removing any equipment from service. ■

The A-Group FBO in Terminal A at Moscow Sheremetyevo Airport is still fully operational in the face of new government Covid-19 regulations on business aviation traffic. All flights with a passenger capacity of less than 20 seats must submit applications at least 24 hours before the planned arrival, with full details of all passengers and crew. The company is prepared to handle arrivals with health checks and thorough cleaning regimens.

Maintenance news by AIN Staff

AMAC Sees Mx Rush on ACJs, Globals

AMAC Aerospace is taking on two Airbus ACJ projects and has a third in the pipeline, as well as work on a pair of Bombardier Global twins, the Switzerland-based MRO provider announced. The company has accepted two ACJ319s in Basel, one of which is undergoing a six-, 12-, and 24-month check, while the other also has a six- and 12-month check and ADS-B Out and Ka-band satom system installations. By the end of summer, AMAC also will take on a Middle East customer's ACJ319 project, though it didn't detail the type of work it would be performing on that airplane.

Those projects are in addition to a Global XRS that AMAC received in February. The XRS's work includes a 120-month inspection and a refurbishment of its cabin seats, divans, and carpet. Also, AMAC will upgrade the XRS's avionics to Primus Elite and install ADS-B Out. Simultaneously, it is performing a 15- and 30-month check on a Global 6000.

Camp Begins Integration of ILS Software Offerings

Months after being acquired by Camp Systems, Inventory Locator Service (ILS) and aviation MRO and logistics software developer Component Control (CCI), also a Camp company, have launched ILS Bridge for Quantum, providing for an automated, real-time listing of CCI's Quantum Inventory on ILS's electronic marketplace for sellers and buyers of aircraft parts, equipment, and services.

ILS has more than 27,000 users in more than 100 countries primarily in the commercial and defense aerospace industries, while CCI supports more than 1,600 companies in more than 60 countries with its Quantum enterprise resource planning (ERP) software. ILS Bridge also provides for greater efficiency in the issuing of requests for quotation and purchase orders directly through Quantum. Sean Lanagan, president of Camp Enterprise Information Systems—the umbrella organization overseeing ILS, CCI, and Continuum Applied Technology (CAT)—said the ILS Bridge is the first step in integrating ILS into the software platforms of CCI, CAT, and Camp. Next is a planned, real-time integration with CAT's Corridor software platform.

Stevens Moves from Nashville to Nearby Smyrna

Stevens Aerospace and Defense Systems relocated from its hangar at Tennessee's Nashville International Airport (BNA) to nearby Smyrna Airport (MQY) in May as the MRO provider sought a location where it can continue to grow. "The BNA facility has served us well," said Stevens BNA general manager Kenyon Blacker, "but as business has continued to expand, we simply don't have the floor space to efficiently meet demand. This move will give us more room and offers our customers easy access to our operation."

Stevens Aerospace's new maintenance facility at Smyrna Airport in Tennessee.

MQY is about 12 miles southeast of its BNA hangar but still close to downtown Nashville. At 30,000 sq ft, the facility sizes are about the same at both airports, but MQY offers Stevens the ability to expand in the future. "The Smyrna Airport offers ample room for growth and easy access to the attractions around downtown Nashville, as well as an airport leadership team that encourages and understands business," said Stevens president Christian Sasfai.

Stevens's hangar at MQY will be part of the Hollingshead Aviation FBO campus. The MRO began performing work there on May 4 and will be fully moved in by June 30. Since 1989, Stevens's Nashville operation has been at BNA in a hangar constructed in 1938.

Tamarack Offers Crisis Pricing on Winglet Upgrade

In response to the Covid-19 pandemic, Tamarack Aerospace has announced it will waive the installation fee for its Active Technology Load Alleviation System (Atlas) winglet technology for Cessna CJs. According to the manufacturer, the move will ensure that employees and its supply chain will remain strong, while providing customers with a $42,000 savings on installations booked through June 30.

Under the Coronavirus Aid, Relief, and Economic Security Act (CARES), which set aside $25 billion for aviation, a portion of the economic funding includes assistance for charter operators looking to restructure their costs, which could include efficiency upgrades such as Tamarack's Atlas winglets. These can reduce fuel consumption as much as three to four times the savings of passive winglets, increasing the capability for nonstop flights.

Tamarack Aerospace's Atlas winglets add longer range capability to CitationJets.

Duncan Transforms GIV Shuttle Interior

Duncan Aviation recently completed a unique major renovation project on a Gulfstream GIV-SP. A Duncan client used the long-range twinjet as a corporate shuttle, often flying up to 14 passengers on long international trips. As the aircraft came due for its 96-month inspection, which required the removal of the interior, the customer expressed dissatisfaction with the aircraft's seating configuration and challenged Duncan's design team to come up with one that better suited its needs.

The resulting interior on the aircraft, which Duncan delivered earlier this year, features 14 individual club seats in walnut brown leather facing toward the cockpit, as on an airliner, many of which perch on rotating bases allowing them to pivot 180 degrees when needed. Other work conducted included the 5,000-landing inspection and the application of a full custom paint scheme.

GE, Brightwater UAG ink T700 engine support agreement

GE Aviation is now offering its TrueChoice Commercial Services maintenance plan for its T700 helicopter engine, including for the Sikorsky S-70i Firehawk and commercial UH-60 Black Hawks. As part of that announcement, it has signed an exclusive authorized repair and services provider agreement with Brightwater United Aero Group (UAG) to cover certain non-military customers flying the engine, the variants of which include the -701D on the Firehawk and -701C/D on commercial Black Hawks.

Connecticut-based Brightwater UAG and Brightwater Arista Aviation Services Group in Alabama join the network of GE-licensed MROs supporting the engine through the agreement, which covers the repair, upgrade, lease, and exchange of T700 engines and parts. That includes new OEM parts as well as used, serviceable parts that meet OEM standards.

Also covered under the agreement are civil and municipal operators of used Black Hawk helicopters purchased through the U.S. Army Black Hawk Exchange and Sales Team (BEST) program, GE Aviation said. More than 100 million flight hours have been accumulated on the turboshaft and turboprop T700/CT7 engine family.

Aero-Dienst Provides Ferry Flights for Mx Customers

MRO provider and charter operator Aero-Dienst is providing ferry flights, using its charter fleet, for customers who have their aircraft serviced at its Nuremberg, Germany facility. Under the offering, Aero-Dienst will provide transport using its Bombardier Learjet 45XR and 60 and Challenger 300 and 650 jets from its Nuremberg location to return flight crews to a maintenance customer's home base.

Aero-Dienst is providing the value-added service due to the Covid-19 pandemic. It noted that, with its decades of experience operating air ambulances, it has implemented extensive measures for the safe transport of customers, who will be flown by Aero-Dienst crews.

Textron Offers Financing for Citation Upgrades, Mods

In a bid to increase business for its service network and ease the financial burden of upgrades and refurbishments on customers during the Covid-19 pandemic, Textron Aviation has unveiled an exclusive financing program for certain upgrades and modifications on most U.S.registered Cessna Citations that are performed at one of its 11 service centers in the U.S. The new financing program offered through Textron Financial Corp. covers upgrades such as Garmin G5000 avionics or Gogo Avance L5 connectivity.

Officials at Textron Aviation said the company has fielded numerous inquiries from customers looking to update their Citations. ■

by David Jack Kenny

FINAL REPORTS

Conquest Crashed Simulating Engine Failure After Takeoff

CESSNA 441 CONQUEST II, MAY 30, 2017, RENMARK, SOUTH AUSTRALIA

Drawing on GPS data recorded via the OzRunways application, Australia's Transportation Safety Bureau concluded that the fatal crash of a Rossair Conquest II occurred after the crew simulated an engine failure during initial climb. Three highly experienced pilots were killed when the turboprop twin crashed "in an inverted near-vertical attitude" 60 seconds after taking off from Runway 25 at Renmark Airport. A comparison of airspeed and altitude readings with the flight's previous departure from Adelaide led investigators to conclude that thrust on one engine had been reduced at about 400 feet above ground level. The Conquest's Pilot's Operating Handbook recommends conducting this maneuver at altitudes of 5,000 feet or above to provide ample room for recovery from any resulting loss of control.

The flight was an unusual dual evaluation, with a CASA flying operations inspector (FOI) observing the Rossair chief pilot's conduct of a new line pilot's operator proficiency check. Had it been completed successfully, the chief pilot would have obtained check pilot authorization for the Cessna 441. The FOI was in the left seat in the second row and thus unable to reach the flight controls. All three pilots held air transport pilot certificates and each had more than 5,000 hours of fixed-wing flight experience. The pilot being evaluated had flown for Rossair between May 2010 and August 2014, while the FOI had previously served as the company's chief pilot.

The flight departed from Adelaide at 3:24 p.m. local time, climbed to 17,000 feet, and subsequently flew holding patterns and a practice RNAV-Z approach to Runway 07 at Renmark, circling to land on Runway 25. At 4:14, the Renmark common traffic advisory frequency recorded a transmission advising that the Conquest would be taking off from Runway 25 for airwork in the traffic pattern. A witness at the airport described its takeoff roll as normal, but the OzRunways GPS download showed that its heading began to veer to the right of the extended centerline as it climbed to 400 feet, just after reaching its maximum recorded airspeed of 132 knots. Ten seconds later it leveled off at 600 feet while its airspeed decayed below best single-engine rate of climb and continued to decline. The last data recording was made about 60 seconds after liftoff at an airspeed of 107 knots and an altitude of 500 feet. Examination of the engines and propellers suggested that "both engines [were] operating at comparable low power settings prior to impact." The landing gear and flaps were up.

The ATSB investigation revealed that until a practice flight the week before the accident, the new hire had not tried to manage an engine failure in a Conquest in two and a half years, and the chief pilot hadn't simulated one in nearly one year. An observer present on that flight described it as "messy" with the returning pilot being "rusty...well behind the airplane." He also noted deficiencies in the chief pilot's conduct of that training. The investigation also disclosed that the seat occupied by the FOI, who had more than 5,100 hours of Cessna 441 experience, was not equipped with headset jacks, hindering the FOI's ability to respond quickly to an in-flight emergency.

Inadequate Planning Downs EMS Helicopter

EUROCOPTER AS350, SEPT. 29, 2018, RUIDOSO, NEW MEXICO

The pilot of an EMS helicopter that descended into a mountainside on approach to a ski resort acknowledged never having calculated the in- or out-of-ground-effect hover ceilings or the density altitude at the accident site, which was subsequently determined to be above 12,000 feet. He also admitted being unaware that the resort had defined an approach, landing, and takeoff procedure. The helicopter sustained damage to its fuselage and vertical stabilizer after touching down hard, bouncing, and sliding down an embankment, but the pilot and two medical crew members were not injured.

En route to pick up a patient, the pilot made an eastbound reconnaissance and decided to go around upon seeing two cables in front of and below the helicopter's flight path. After adding power to clear the cables, he lowered collective to address decreasing main rotor rpm, then made a 180-degree left turn back to the landing site. At about 20 feet above the ground, he raised collective and main rotor rpm again decayed, increasing the helicopter's descent rate. As it neared touchdown, one of the medical crew members spotted a steel barrier cable below the helicopter, which the pilot made a 90-degree left turn to avoid. The helicopter turned 180 degrees while bouncing over the cable and eventually came to rest upright.

The 16,818-hour commercial pilot had more than 3,500 hours in make and model, but told investigators that this was only his second flight in a high-altitude mountainous environment; most of his previous experience had been acquired near sea level. Winds at the nearest reporting point, 14 nm away, were out of the southwest at 9 knots.

Lack of Recent Partial-Panel Training Cited in King Air Accident

KING AIR 200, JAN. 30, 2019, WHATI, NORTHWEST TERRITORIES, CANADA

The crew's decision to take off with the right attitude indicator inoperative proved fatal after the left-side instrument failed in flight. The two pilots were the only occupants of the Air Tindi King Air, which entered an uncontrolled descent during initial transition from cruise flight to the RNAV approach to Runway 28 of the Whati Airport. The Transportation Safety Board of Canada identified a lack of recent practice in partial-panel instrument technique as the final link in the accident chain. Neither company procedures nor Transport Canada regulations required recurrent partial-panel training, and the investigators found no record of either pilot having practiced it since obtaining their commercial ratings several years earlier. The accident aircraft was also the only one of Air Tindi's five King Air 200s not equipped with an additional standby attitude indicator (AI), and its minimum equipment list did not authorize dispatch with the right AI inoperative.

The accident flight was the first leg of a scheduled six-segment route from Yellowknife to Whati, Wekweètì, and Ekati, and then back. Forecast weather conditions included ceilings of 600 to 1,200 feet, one to five miles visibility in light snow decreasing to half a mile in heavier snow showers, and moderate mixed icing between 2,000 and 12,000 feet msl. Crew communications captured by the cockpit voice recorder showed that the first officer initially noted the lack of response of his AI, a conventional vacuum-driven instrument, at 8:42 a.m. while running the after-start checklist. The captain assured him twice that it would begin to work, but during the initial portion of the takeoff roll, the first officer confirmed that it was still inoperative despite adequate indicated vacuum pressure. During the next 11 minutes they made several attempts to troubleshoot the instrument without success.

At 9:11, with the airplane descending through 10,800 feet, the electrically driven left AI flagged and the autopilot disconnected. The captain began to hand-fly using partial-panel references and attempted to climb, but the King Air did so only briefly before beginning to descend and turning about 60 degrees right. Thirty-eight seconds later it entered a gradual left turn that tightened into a steep descending spiral. Its terrain awareness and warning system issued five alerts in the last 10 seconds before the airplane struck trees in a shallow, nose-low attitude, leaving a 900-foot debris path. The calculated descent rate peaked at more than 35,600 fpm, but all major components were found at the accident site, ruling out an in-flight break-up. The remotely mounted vertical reference gyroscope driving the left AI showed signs of rotation at impact but was too extensively damaged for the reason the indicator flagged to be determined.

PRELIMINARY REPORTS

Caravan Freighter Crashes After Second Missed Approach

CESSNA 208B, MARCH 17, 2020, LACROSSE, KANSAS

A Cessna Caravan on a Part 135 cargo flight was destroyed and its pilot killed while attempting to divert to Great Bend, Kansas after missing two approaches to the Hays (Kansas) Regional Airport in very low weather. The flight departed from Wichita at 7:51 a.m.; at 8:25, Hays reported 1 mile visibility under a 200-foot overcast and a temperature of 3 deg C. Radar and ADS-B coverage were lost at 8:31 as the airplane descended through 4,000 feet msl (about 2,000 feet agl) while being vectored for the ILS approach to Runway 34 and were reacquired at 8:43 when the pilot requested a second attempt at the ILS. An observation recorded at 8:41 showed that visibility had dropped to one-quarter mile in fog.

Contact was lost again between 8:53 and 8:59, at which time the pilot requested diversion to Great Bend. The Caravan climbed to 7,000 feet and turned south toward Great Bend, but entered a descending left turn and disappeared from coverage at 9:18. The wreckage was located about half an hour later. The aroma of jet fuel was observed at the site.

Pilot Survives Destruction of PC-12

PILATUS PC-12/47, APRIL 23, 2020, MESQUITE, TEXAS

The pilot was extracted with injuries after a forced landing that tore both wings off the airplane and ignited a post-crash fire. The single-engine turboprop, operated under a Part 135 certificate by Boutique Air, had departed from the Dallas-Fort Worth International Airport (DFW) on an IFR flight plan to Muscle Shoals, Alabama when the pilot reported that it was losing engine power and requested a diversion to Rockwall, Texas. After air traffic control issued vectors, the pilot said that power output had stabilized and requested a return to DFW, but shortly thereafter lost power again. The controller advised that the Mesquite airport was three miles ahead at 11 o'clock and the pilot attempted a 360-degree turn to set up for a left base entry to the traffic pattern, but the airplane came up short and went down in a muddy field. ■

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The partially submerged wreckage of an Icon A5 light sport amphibious airplane in the Gulf of Mexico is shown in this photo taken Nov. 7, 2017, near Clearwater, Florida.

NTSB releases factual report on Halladay accident

by Matt Thurber

The National Transportation Safety Board (NTSB) has released a factual report on the crash of former Major League Baseball pitcher Roy Halladay's Icon A5 light sport amphibious airplane on Nov. 7, 2017, in which Halladay died. Although not breaking news, as autopsy results were released in January 2018, the factual report identifies many drugs found in Halladay's specimens during toxicology testing. The report also documents the high angle of attack (AoA) maneuvers at low altitude that Halladay flew in the A5 just before the accident.

Halladay bought the A5 about four weeks before the accident, according to the NTSB, and had logged 14.5 hours in that airplane. The NTSB was able to confirm from recovered GPS data that the airplane had been flown under the Sunshine Skyway Bridge, near St. Petersburg, Florida, and Halladay documented the maneuver in his logbook.

According to the report, the FAA's Forensic Sciences Laboratory found the following drugs in Halladay's specimens: Zolpidem (Ambien), a sleep aid; Amphetamine (2.2 µg/ml in cardiac blood; "generally, levels above 0.2 µg/ml indicate amphetamine misuse to maximize the drug's psychoactive effects"); Morphine; Fluoxetine (an antidepressant); Baclofen, a muscle relaxant; and Hydromorphone, an opioid pain medication.

The report noted: "Review of the available personal medical records for the pilot indicated a history of substance abuse requiring inpatient rehabilitation twice between 2013 and early 2015 and diagnoses of chronic back pain, insomnia, and depression, which were treated with various prescribed medications. ."

NTSB investigators were able to analyze data from the A5's onboard digital-to-analog converter (DAC) data memory unit and Rotax engine control unit. According to the report, "The recorded data indicated that, at 1201:19, the pilot began a rapid climbing 'S' turn from a GPS altitude of 0 to 134 feet and then descended to 36 feet; the airplane reached a maximum load factor of 1.94 g and a maximum AoA of 7.53 degrees. At 1202:29, the pilot performed a second maneuver, a climbing right 360-degree turn from a GPS altitude of 19 to 136 feet; the airplane reached a maximum load factor of 1.93 g and a maximum AoA of 15.73 degrees, which is within the red band on the AoA indicator.

"At 1203:34, the pilot initiated a final maneuver: a climbing right turn from a GPS altitude of 210 feet and an indicated airspeed of 81 knots. The airplane's load factor increased rapidly to 1.91 g and then varied between 1 and about 2 g as the AoA increased steadily to 15 degrees, which is at the top of yellow band on the AoA indicator. About three seconds after initiating the climb, the engine throttle lever was retarded from 99 percent to 27 percent, resulting in a corresponding decrease in engine speed from about 5,393 to 2,261 rpm.

"The lowest recorded indicated airspeed during the maneuver, 54 knots, occurred as the airplane reached a GPS altitude of 358 feet, the apex of the maneuver, with a low energy state. The computed bank angle exceeded 50 degrees and the computed pitch angle exceeded 30 degrees before the airplane descended toward the water."

Witness reports included two commercial fishermen, one saying he saw the A5 fly over his vessel below 300 feet. Another said he saw the A5 flying "really close" to houses, then he watched it descend, climb steeply, then descend steeply in a decreasing pitch attitude, finally reporting that "the airplane impacted the water in a 45 degree nose-down, wings-level attitude."

Halladay died of blunt trauma, with drowning contributory, according to the report. The NTSB found that "no pre-accident anomalies were noted with the airframe or engine that would have precluded normal operation." There was also no evidence of impact damage that could have been due to a bird strike.

The report concluded by describing Icon Aircraft's "Low Altitude Flying Guidelines," which were sent to all A5 clients and owners on Oct. 23, 2017. The final sentence of the NTSB report stated: "The guidelines also warned pilots 'Do not show off.'" ■

by Gordon Gilbert

Within 6 Months

June 19, 2020

FAA: Helicopter IFR Minimums

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

June 26, 2020 **UPDATE**

EASA: Tire Pressure Minimums

The comment period for this proposal was extended from June 6 to June 26. EASA proposes to amend large airplane certification (CS-25) rules to provide a means to ensure that no tire is below its minimum serviceable inflation pressure during operation. This can be achieved either by requiring operators to perform tire pressure checks at suitable time intervals or by installing a tire pressure monitoring system that alerts the flight crew when a tire is at an unsafe pressure. Comments are due June 26.

June 29, 2020

FAA: Pilot Records Database

The FAA is proposing to require the use of an electronic Pilot Records Database (PRD) to facilitate the sharing of pilot records among operators in an electronic data system managed by the FAA. The PRD would replace already mandated data currently filled out on paper forms and mailed to the FAA. Covered operators include airlines, air taxi/charters, fractionals, and corporate flight departments.

June 30, 2020

ICAO: NAT Data Link

International regulators are suspending the North Atlantic datalink mandate until June 30 to provide more flexibility for traffic that flies through the region during the Covid-19 crisis. The mandate, which went into effect January 30, requires aircraft to be equipped with FANS 1/A controller-pilot datalink communications and ADS-C (contract) equipment to transit through the North Atlantic tracks from FL290 to FL410.

July 13, 2020

FAA: SST Noise Proposal

Under a notice of proposed rule making, the FAA would add supersonic airplanes to the applicability of FAR Part 36 takeoff and landing noise certification regulations. Initially, the proposal would apply to SSTs with a mtow no greater than 150,000 pounds and a maximum cruise speed of Mach 1.8. This category would apply to the SSTs currently being developed for business aviation. Comments on the proposal are due by July 13.

Oct 1, 2020

Australia: Rest and Duty Times

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

Dec. 7, 2020 and June 7, 2023 **NEW**

European ADS-B Out Mandate

The ADS-B Out requirement in Europe has been postponed from June 7, 2020 to Dec. 7, 2020 for aircraft receiving their certificate of airworthiness (C of A) starting on June 7. Aircraft that obtained their C of A between June 6, 1995 and June 6, 2020 must meet the ADS-B Out mandate by June 7, 2023. Both deadlines apply to aircraft with a mtow exceeding 5,700 kg (12,566 pounds) or having a maximum cruising true airspeed capability greater than 250 knots. Aircraft with a C of A dated before June 6, 1995 are exempt from ADS-B requirements.

Within 12 Months

Jan. 1, 2021

Saudi Arabia: ADS-B Out Mandate

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

March 25, 2021

Australia: Flight Operations

Ten new flight operations regulations will consolidate the operating and flight rules, as well as certification and management requirements, for a variety of aircraft and operations in Australia. The rules will apply to all pilots and operators in Australia and will commence on March 25, 2021. The regulations covered include: general operating and flight rules; certification and management of commercial aircraft operating certificates; and small and large airplanes and rotorcraft. ■

For the most current compliance status, see: https://www.ainonline.com/aviation-news/compliance-countdown

Compiled by Kerry Lynch

TOM CHATFIELD

RODGER RENAUD

ROBERT KEHOE

MC ERNST

STEPHEN ZARZECKI

Camber Aviation Management co-founder and completions specialist **Tom Chatfield** has taken the role of CEO. Chatfield, who helped found Camber six years ago, has 35 years of aviation experience, including with Stratus Aviation Services and Qatar Airways, among others.

Markus Haggeney was named secretary-general of *Fédération Aéronautique Internationale* (FAI), the World Air Sports Federation. Haggeney, who had been acting secretary-general since in December, had previously served as FAI sports and events director and has competed in, organized, and officiated ballooning championships.

The International Aircraft Dealers Association (IADA) appointed a board of directors for its AircraftExchange preowned aircraft search portal: **Chris Meisner** of Meisner Aircraft is president and treasurer; **Walt Wakefield** of Jeteffect is v-p and secretary; and **Lee Thomas** of Eagle Aviation is also v-p. In addition, board members at large are **John Bowman** of Hatt & Associates, **Matt Stringfield** from Soljets, **Nick Newby** of Exclusive Aviation/Fargo Jet Center, **Patrick Lynch** of Guardian Jets, and **Tyler Bowron** from QS Partners.

The Air Charter Safety Foundation (ACSF) elected Priester Aviation president and CEO **Andrew Priester** to the organization's Board of Governors. Priester has spent more than two decades with his family firm and is the former chair of the National Air Transportation Association.

Will Wyatt joined *Global Jet Capital* as senior counsel. Wyatt had worked with Global Jet Capital while he was an associate at Vedder Price LLP.

*The Ritchie Grou*p appointed **Rodger Renaud** v-p of aircraft sales. Renaud has a 40-year aviation career, beginning with Rockwell International and later serving with Midcoast Aviation/Jet Aviation and West Star Aviation.

USAIG made a number of promotions and personnel changes: **MC Ernst**, who was Airline Underwriting Department manager, was promoted to senior v-p; **Stephen Zarzecki**, a member of the General Aviation Claims Department, was also promoted to senior v-p; and **Robert Kehoe**, senior claims representative in the Hull Loss Claims Division, has been become v-p. Further, **Sam Greene** was promoted to assistant v-p and assistant underwriting branch manager in Los Angeles, while **Christopher Parlier** was named to a similar role in Dallas, and **Mitzi Rasmussen** similarly in Chicago. Also, **Andrew McMurray** in the Eastern branch office was promoted to senior underwriter. **Brenda Riech**, assistant v-p, has taken on policy language analyst duties in the Customer Care Department, and, **Margaret Kucala**, assistant v-p, assumed the responsibilities of senior underwriting analyst. ■

AWARDS and HONORS

The British Business Aviation Association (BBGA) honored Tim Scorer with its Michael Wheatley Award for Outstanding Services to the general aviation industry. Scorer, a long-time aviation lawyer and currently a consultant at Kennedy's Law Firm, was recognized for decades of support to the OEMs, airlines, private flyers, and BBGA. A pilot since age 30, Scorer qualified as a solicitor in 1965 and represented many cases involving the UK CAA during the 1970s. One high-profile case involved assistance in prosecuting an Irish wolfhound breeder in Norfolk who had fired a gun at aerial crop sprayers. His aviation practice spanned a number of firms, including Barlow Lyde and Gilbert. ■

FINAL FLIGHTS

Elling Halvorson, a pioneer in helicopter tourism and the founder and chairman of Papillon Grand Canyon Helicopters, died on April 16. He was 88.

Halvorson established Papillon Grand Canyon Helicopters in 1965, giving the company claim to "the world's oldest and largest" aerial sightseeing company, typically flying some 600,000 passengers each year on tours.

Born in St. Paul, Minnesota on Jan. 2, 1932, Halvorson had moved numerous places as his father was in the construction business. After graduating from Willamette University in Oregon with a degree in economics, he followed his father into construction, establishing his own company that specialized in geographically remote projects, according to the Helicopter Association International (HAI).

Halvorson bought his first helicopter, a Bell 47G-3B-1, in 1960 for a project his construction company was undertaking for AT&T in the Sierra Nevada Mountains. His air tour company, initially Grand Canyon Helicopters, was born out of a project in which Halvorson and his team used helicopters to lay pipe into the Canyon. The project involved the building of a 13.5-mile water pipeline connecting the North and South Rims. Halvorson used several helicopters for the project, including a Sikorsky S-61, Bell 204B, and Sikorsky S-55, along with a fleet of Bell 47G-3B-1s and Hiller SL-4s, he told HAI's Rotor magazine.

The backdrop of the flights left a strong impression on Halvorson and his team, who began asking for chartered helicopter flights during off-hours, HAI added. This was the genesis of his foray into air tourism.

Halvorson ventured into different technologies, asking helicopter manufacturers to develop quieter aircraft and developing "Whisper Jet" technology for helicopters that sported rotor systems with more blades and passive noise-reduction features that quieted the engine.

In 1986, he co-founded the Tour Operators Program of Safety that drew together air tour operators in an initiative to develop operating standards and safety best practices that surpassed regulatory requirements.

Throughout his career, he remained active in the industry, serving two terms as chairman of HAI's board of directors and participating in NBAA, the American Helicopter Society, National Parks Overflight Advisory Group, US Travel Association, and US Air Tour Association. In 2016, he was inducted into the Vertical Flight Hall of Fame as part of the Living Legends of Aviation Awards.

William H. "Bill" Wells Jr., the former president and owner of Cashmere, Washington-based Cascade Helicopters and past chairman of the Helicopter Association International, died on April 15. He was 86. Wells, who joined Cascade Helicopters in 1962 as a pilot in training and mechanic, amassed 11,500 hours and remained active in the helicopter community during his more-than five-decade career.

Born on Feb. 25, 1934, in Seattle, Wells became an Alaska communications system specialist with the U.S. Army Signal Corps in 1953, according to HAI. Five years later, he returned to Washington, attending Perry Technical Institute. He received his A&P license in 1960 and a year later became a private fixed-wing pilot. After joining Cascade Helicopters, he earned his FAA commercial rotorcraft license in 1963 and his CFI license in 1964.

During his career, he was involved in agricultural spraying, search and rescue, fire suppression, government contracting, and transmission-line repair, among many other missions. He became owner and president by 1988.

He was deeply involved in HAI serving as chairman from 1994 to 1995 and chaired its Government Safety Committee, as well as serving on the Government Contracting Committee. HAI honored Wells in 2001 with its Salute to Excellence Pilot of the Year Award. Wells retired in 2002 and closed Cascade Helicopters but had expressed the sentiment that the hundreds of rescues he performed were what "being a helicopter pilot was all about," according to his obituary information.

Robert (Bob) Fox, Jr., the aircraft maintenance manager for Global Jet Capital for the past three years, died March 19 at the age of 61.

Born in Manassas, Virginia, Fox had an aviation career that spanned more than four decades. An aviation maintenance technology graduate of the Spartan School of Aeronautics, Fox began his career with Piedmont Aviation in 1978. He spent the next 35 years at Piedmont, which later became Piedmont Hawthorne Aviation and then Landmark Aviation, working his way up to director of maintenance at Landmark. He served in that capacity for eight years

In 2015, Fox launched his own consultancy, Fox Aviation Resources, specializing in project management, and stepped into his position with Global Jet Capital in 2017.

"Bob will be deeply missed, and not just for his dedication, leadership, and keen problem-solving abilities, but for his sincere kindness, willingness to help, and love for his family and friends," said Global Jet Capital CEO Shawn Vick.

Kirby Harrison, who spent 18 years as a journalist with **AIN**, has died. He was 78. Born June 1, 1942, Harrison had joined a Syracuse University advanced photojournalism program through the U.S. Navy and then served as an associate editor at Naval Aviation News. After retiring from the service in 1987, he earned his bachelor's of science degree in photojournalism and journalism from Syracuse in 1991. He joined the staff of **AIN** in 1995, serving as senior editor, writing about numerous topics related to aviation. He retired from the company in 2013 but kept his hand in freelance journalism. ■

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