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Falcon 6X Arrives in Little Rock

The first customer 6X has begun the completion process at Dassault's Arkansas facility

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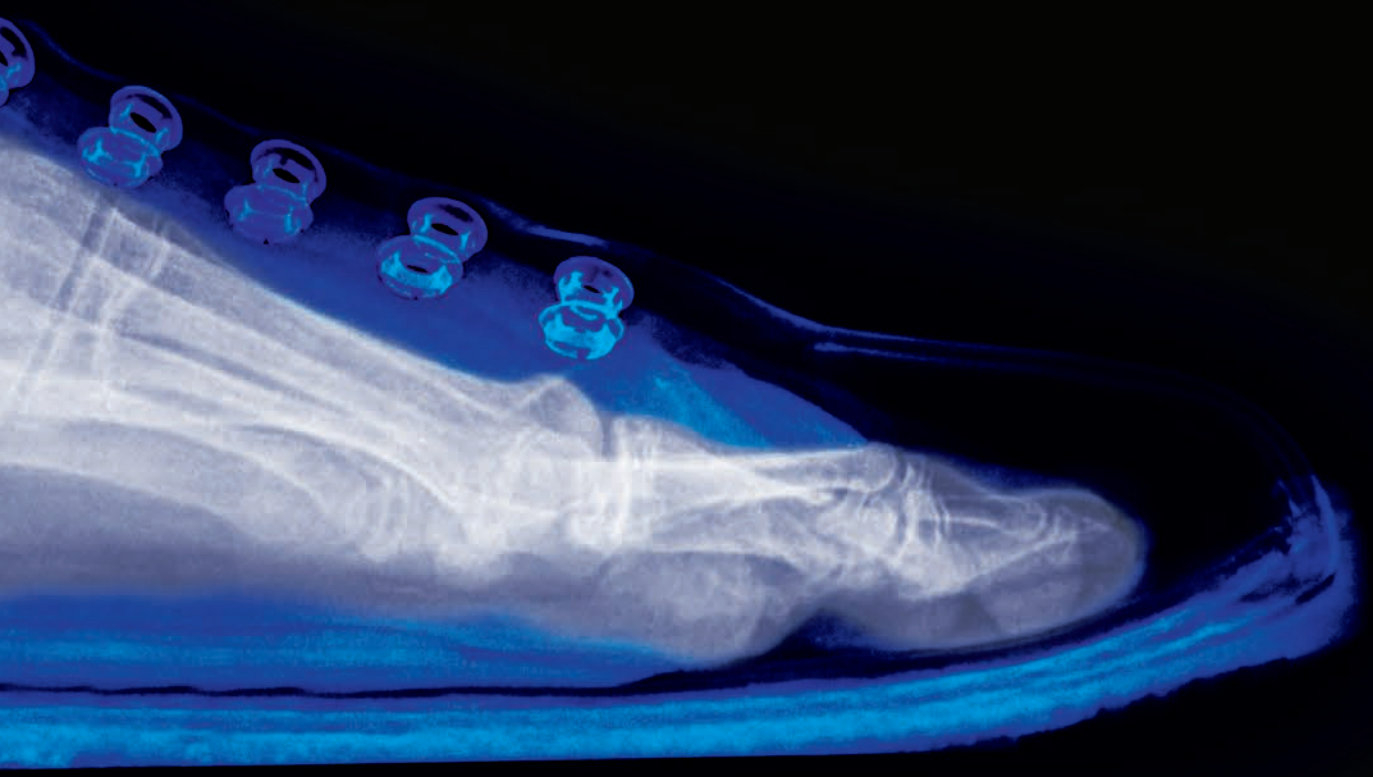

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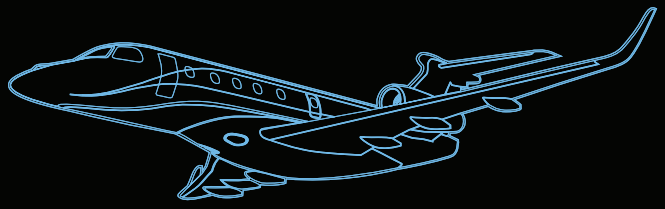

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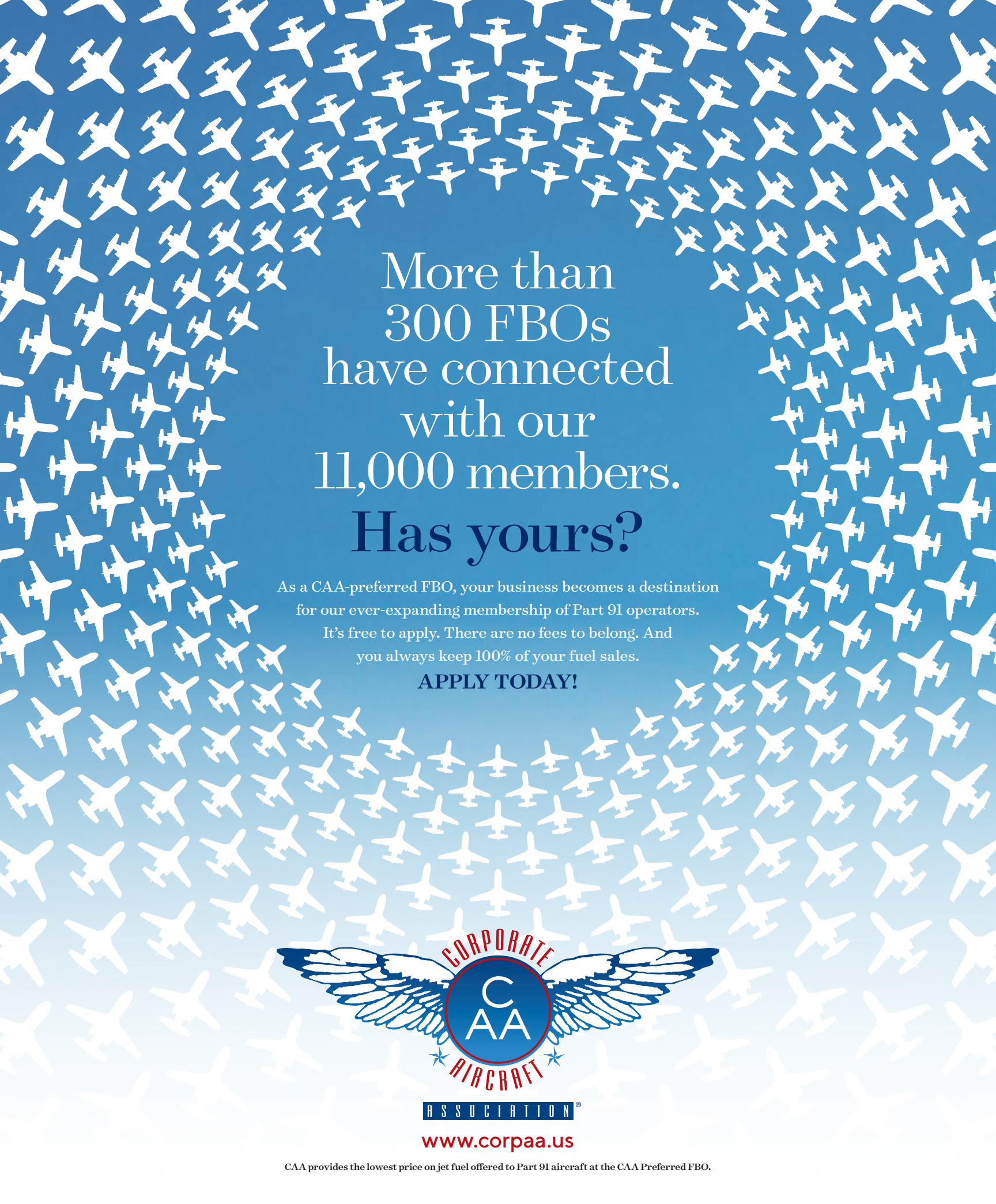
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Textron Aviation rolls out first production SkyCourier

BY JERRY SIEBENMARK

Textron Aviation rolled out the first production Cessna 408 SkyCourier for launch customer FedEx, the Wichita-based airframer announced on February 4. This comes as the SkyCourier program's three test aircraft have logged more than 2,100 flight hours. FAA certification of the utility twin-turboprop is expected in the first half—approximately two years after the SkyCourier's first flight in May 2020.

FedEx has a firm order for 50 SkyCouriers, with options for 50 more, and expects to take three of the clean-sheet-design airplanes this year, followed by 12 each in 2023, 2024, and 2025, and 11 in 2026, according to a FedEx SEC filing.

"Today is a rewarding day for our employees, who have worked to design and build what I believe will become a legendary airplane for our company," said Textron Aviation president and CEO Ron Draper. "The SkyCourier brings a combination of cabin flexibility, payload capability, performance, and low operating costs to the twin-engine utility segment. We look forward to this versatile aircraft entering the market very soon."

The SkyCourier is 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 airplane 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 a passenger configuration, it can seat 19 passengers, with a netted rear cabin area for luggage and equipment. It also will be available in a mixed passenger/cargo combination.

Textron Aviation marked the first production rollout of the Cessna 408 SkyCourier utility twin-turboprop in Wichita on February 4.

News Briefs

GULFSTREAM SHIPMENTS TO REACH NEW HIGH IN 2024

Aircraft deliveries at Gulfstream Aerospace are projected to reach 170 units in 2024, topping the company's previous high-water mark of 156 shipments in 2008, said Phebe Novakovic, the chairman and CEO of parent company General Dynamics. Deliveries this year are expected to marginally increase to 124 aircraft—up from 119 last year—due to supply chain restraints, and then climb to 148 units in 2023 before increasing further in 2024, she said. The 119 Gulfstreams handed over last year was down by eight aircraft from 2020, largely the result of fewer super-midsize G280 deliveries. According to Novakovic, demand for Gulfstreams remains robust.

DAHER TO ACQUIRE TRIUMPH AEROSTRUCTURES PLANT

Daher has inked an agreement to acquire Triumph Group's metallic aerostructures production and assembly business in Stuart, Florida, for an undisclosed amount. The 485,000-sq-ft facility on Florida's Treasure Coast employs about 400 people and specializes in manufacturing large, complex metallic structures such as wing and fuselage assemblies. "This acquisition is perfectly aligned with Daher's 'Succeed Together' strategic plan, including the goal of significantly developing our North American activities across all of the company's divisions," said Daher CEO Didier Kayat.

CLAY LACY GETS FIRST 4AIR FACILITIES CARBON CERT

California-based Clay Lacy Aviation has become the first company to receive a "Facilities Neutral" rating from 4Air, an industry sustainability solutions provider. With its headquarters at Los Angeles-area Van Nuys Airport, Clay Lacy has invested heavily in reducing its environmental impact. Through its audit process, 4Air validated that the facility has been operating in a carbon-neutral manner since 2019.

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Worldwide bizav ops continue double-digit gains

BY JERRY SIEBENMARK

Large aircraft led the surge in business aircraft operations in North America in January, according to Argus.

Global business aircraft flight activity was up 32.6 percent from January 2021, according to Argus International's January 2022 Aircraft Activity Report. The North American market recorded a yearly gain of 22.7 percent while Europe jumped 73.4 percent, based on TraqPak data that tracks business aircraft IFR flights.

In North America, all categories saw yearly increases of at least 20 percent with Part 135 operations leading the way at 23.2 percent. Part 91 flights followed with a 22.6 percent increase while fractional activity rose 21.1 percent.

Among aircraft types in North America, activity gains were the highest among large-cabin jets, up 39 percent from January 2021. Midsize jets recorded an improvement of 25.8 percent and light jet activity increased 22.7 percent year-over-year. Turboprops were up just 12.5 percent.

Year-over-year large-cabin activity surged 142.3 percent in Europe with midsize jets following at 68.1 percent. Light jet and turboprop activity in the continent was up 63.6 percent and 27.7 percent, respectively.

Other regions of the world recorded more than 51,000 flights in January and overall activity for the year was up 57.4 percent.

MODERN AVIATION CLOSES ON TWO NYC FBOS

Modern Aviation has completed its purchase of Sheltair's FBOs at New York John F. Kennedy International and LaGuardia airports.

According to a Sheltair spokesperson, the deal, which marks the transition of the company out of the New York City-area market, will be completed in stages with the two New York City locations—in both cases representing the sole service provider on the field—to be followed later this quarter by Sheltair's facilities at Republic (KFRG), Long Island MacArthur (KISP), and Francis S. Gabreski (KFOK) airports.

Modern CEO Mark Carmen said that his company will retain the Sheltair employees as part of the agreement. C.E.

News Briefs

NBAA FORUM RIDES BIZAV'S WAVE OF OPTIMISM

The NBAA regional forum on February 2 at Miami-Opa locka Executive Airport attracted more attendees and exhibitors than initially expected. NBAA president and CEO Ed Bolen said 1,500 attendees and 120 exhibitors were planned, but it ended up being 2,500 attendees and more than 130 exhibitors. He noted that industry backlogs are now measured in years, while preowned business aircraft inventory is at historic lows. That's due to business aviation's rising role in the pandemic as a wider audience has come to appreciate the industry's attributes, he said.

TEXTRON AVIATION SOARS IN 2021

Textron Aviation saw revenues, profits, and aircraft deliveries climb last year. Revenues were $4.56 billion, compared with $3.97 billion in 2020, while deliveries increased to 167 jets from 132 in 2020 and turboprops were higher at 125 versus 113. For the year, profit was substantially higher: $378 million compared with $16 million in 2020. "We delivered aircraft on a more linear trend for the year, which improved manufacturing efficiency and cash flow generation," said Scott Donnelly, chairman and CEO of Textron Aviation's parent company. Backlog also rose by $655 million quarter-over-quarter, for a total of $4.1 billion at year-end.

CUTTER ACQUIRES FBO AT PRESCOTT REGIONAL AIRPORT

Cutter Aviation announced its third FBO acquisition in recent months with the purchase of Legend Aviation, the lone service provider at Arizona's Prescott Regional Airport. The 12-acre Legend leasehold consists of a 6,684-sq-ft terminal with a passenger lobby, conference room, pilot lounge, flight-planning area, concierge, and crew car. It also offers more than 20,000 sq ft of maintenance hangar space that Cutter will continue to operate as a Part 145 repair station.

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AVFUEL

London-area Farnborough Airport saw business aviation traffic recover during 2021.

Farnborough to build 3rd hangar, consider eVTOL flights

BY CHARLES ALCOCK

Farnborough Airport has unveiled plans to build a third hangar—a four-bay, 175,000-sq-ft structure slated to open in 2024—at the London-area field. The airport also revealed a new partnership with UK-based Vertical Aerospace, which is working to bring a four-passenger eVTOL aircraft into commercial service in 2024.

Projected to cost £35 million ($47 million), the expansion project will almost double the available hangar space, adding to the 220,000-sq-ft, temperature-controlled buildings already in use. Farnborough Airport CEO Simon Geere said this project represents the long-term commitment of owners Macquarie Funds to the site.

Local officials granted planning permission for the hangar in January, and the airport—which is soliciting proposals from contractors—hopes to begin construction in the third quarter. Geere told **AIN** that there is a waiting list for hangar space, which is available to operators on year-round contracts. He said operators are willing to pay a premium for access to hangar space through the winter months at the airport.

Farnborough is also looking to add to the number of "contact stands" it offers close to its terminal building. These are mainly used by charter operators whose passengers have to go through security checks and then can walk out to their aircraft.

Meanwhile, the airport and UK-based Vertical Aerospace are exploring possibilities for eVTOL operations from Farnborough, which might include quieter and more accessible shuttle flights into central London than are currently possible with helicopters.

Last year, Farnborough handled 26,003 movements—almost 60 percent of the pre-Covid record total of 32,366 in 2019 and a significant improvement on the 19,952 figure in 2020. As many as 90 percent of flights in and out of Farnborough are now short-haul sectors within Europe, which may reflect the reduction of transatlantic traffic experienced during the pandemic.

Managed aircraft now represent around 45 percent of overall traffic, with corporate and private aircraft and fractional fleets each accounting for 20 percent, and charter operations representing the remaining 15 percent. The airport's largest customers include VistaJet, NetJets, and Flexjet.

Geere said sales of sustainable aviation fuel are gradually increasing, despite prices being around 50 percent more than jet-A. The airport, which in 2018 became the first business aviation facility to achieve carbon neutrality, is making further environmental investments in new electric ground support vehicles and the use of a hydrogen-treated vegetable-oil fuel.

News Briefs

IADA: EXPECT USED BIZJET DEMAND, PRICES TO CLIMB

While the used business aircraft market in 2021 may have been a boon for dealers accredited by the International Association of Aircraft Dealers (IADA), it wasn't a necessarily favorable one for buyers. In fact, Ogarajets president and CEO Johnny Foster noted, "Values and prices are completely disconnected, supply is almost nil, and due diligence is limited by shop capacity and demand." According to IADA's latest market report, accredited dealers closed 20 percent more aircraft deals in 2021 than in 2020. Dealers expect a continued increase in demand for used business turboprops and jets across all size categories through at least the first half of this year.

BYE EFLYER 800 BACKLOG GROWS TO 135

Electric aircraft manufacturer Bye Aerospace said the provisional order backlog for its eFlyer 800 twin-motor airplane has grown to include 135 purchase and option agreements. Bye is aiming to certify and start deliveries in 2027, with plans to start flying a prototype in 2024. The eFlyer 800—which the manufacturer claims will drastically reduce operating costs and noise and eliminate greenhouse gas emissions versus turboprops—will have a 65-inch-wide cabin.

DIGITAL PILOT LICENSE PART OF EASA SAFETY PLAN

The latest five-year EASA Safety Plan introduces a rulemaking task to revive work on creating a European digital pilot license system. It also supports further modernization of the aviation system in the areas of safety, efficiency, a level playing field, and environmental protection. The European digital pilot license effort aims to provide a "safe and easy-to-use service and enable flight crew to carry their licenses, including medical certificates, in a fully digitized format."

Mx tracking acquisitions add opportunities for JSSI

BY JERRY SIEBENMARK

After Jet Support Services Inc. (JSSI) acquired two maintenance tracking companies nearly six months apart last year, CEO Neil Book doesn't envision additional acquisitions ahead in the near term. Instead, his focus is on seamlessly combining SierraTrax and Traxxall into JSSI's operations. The acquisitions are a step toward not only growing a robust maintenance tracking business but using them to further the growth of its other businesses: hourly cost maintenance; JSSI Advisory Services and Conklin & de Decker; and JSSI Parts & Leasing.

"The goal with any acquisition we've done or with any new business line that we've started, the idea has been to really focus on maintenance, something where we have our historical roots," Book told **AIN**. "We wanted to do something that was always going to be accretive to that core business that leverages our knowledge and expertise, and so we saw maintenance tracking as probably the most accretive opportunity in the marketplace for JSSI given our existing suite of services, products, and expertise."

NEIL BOOK
JSSI CEO

Acquired last June, SierraTrax is a Textron Aviation-recommended maintenance tracking provider based in Wichita that supports about 1,000 mainly owner-operators of light and midsize business jets. Montreal-based Traxxall is a larger maintenance tracking provider supporting 2,000 jets, turboprops, and helicopters, offering a broader array of services to Part 91 and Part 135 customers including inventory management and MRO workflow software capabilities. "What we found was Traxxall and SierraTrax were not competing head-to-head very often, and they were not losing customers to one another very often," Book explained. "We also didn't see a lot of overlap with their platforms and technology. The two were very complementary, which is one of the things that really excited us and attracted us to both."

Those two companies are complementary to JSSI's other maintenance-related businesses in other ways. Following integration, Book expects to find cross-selling opportunities between customers of its maintenance tracking and those utilizing JSSI's other services.

"Having the platform that allows you to track [maintenance] for operators to me is critical and really serves as sort of a front door for us to begin finding new ways to create value for these customers," he added. "It could be through bringing an hourly cost maintenance program. It could be through supplying parts at a discount to help reduce their overall cost of maintenance. Really the whole idea is for us to create this front end that now allows us to make aircraft ownership more efficient and easier, regardless of make or model."

Moreover, Book said the combination of maintenance-related businesses creates "a value proposition for operators, for the manufacturers, and for the maintenance facilities, the MROs, that will be very hard to compete with. [The year] 2022 is going to be an exciting year focused on integration and introducing some of these new bundling opportunities to the market."

News Briefs

ENSTROM HELICOPTERS SHUTTERS, FILES BANKRUPTCY

After 64 years and building more than 1,300 helicopters, Enstrom has ceased operations, terminated all employees and product support, and filed for Chapter 7 bankruptcy (liquidation). "Enstrom's management team is aware of multiple groups who have expressed a strong interest in buying Enstrom assets and reopening the company post-bankruptcy," director of sales and marketing Dennis Martin said in a letter announcing the company's fate. However, Martin added he that could not predict when or if that would happen.

JET EDGE TO ESTABLISH BASE AT SIGNATURE KTEB

Jet Edge International will occupy Signature Aviation East's facility at New Jersey's Teterboro Airport (KTEB) under an agreement between the aircraft management and charter provider and FBO. The deal gives Jet Edge a foothold at the nation's busiest business aviation airport via a dedicated hangar and maintenance space. Through the long-term agreement, Jet Edge will gain a "re-envisioned" passenger terminal, as well as office and workshop space, in a 44,000-sq-ft portion of Signature Teterboro East's Hangar 202.

BOEING INVESTS $450M MORE IN EVTOL JV WISK

Boeing is investing a further $450 million in its Wisk Aero eVTOL joint venture with Kitty Hawk, signlling Boeing's intention to hold a significant stake in the advanced air mobility sector. Wisk said the funding will support efforts to certify its sixth-generation fully autonomous eVTOL design, which is set to replace the fifth-generation Cora two-seater prototype that has now logged almost 1,500 flight tests. The companies plan to provide performance details and specifications for the new eVTOL later this year.

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BY TEXTRON AVIATION

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CORPORATE GAME CHANGER.

On January 28, Dassault Falcon 6X S/N 5 flew from France to the manufacturer's Little Rock, Arkansas, completions center for installation of the type's first production interior.

First customer Dassault Falcon 6X arrives in Little Rock

BY JERRY SIEBENMARK

Dassault Aviation's newest and widest-cabin business jet is closing in on its entry-into-service date as the French airframer delivered its first customer Falcon 6X to get a full production interior at its 1.25-million-sq-ft completion facility in Little Rock, Arkansas. While Dassault has not disclosed the 6X launch customer, the green twinjet, S/N 5 and registered as F-WZOC, lifted off January 28 from France's Bordeaux-Mérignac Airport at 9:09 a.m. Central European Time on an 11-hour, 16-minute flight and arrived in Little Rock at 1:25 p.m. local time.

"The arrival of the first Falcon 6X at Little Rock marks a very positive milestone in this program," said Dassault Aviation chairman and CEO Eric Trappier. "Our teams have been working tirelessly behind the scenes to prepare for 6X completion and we are benefiting from very good momentum as we move towards certification."

Completions will be performed in a $60 million, 250,000-sq-ft hangar Dassault built in Little Rock in 2015 for the Falcon 8X trijet and the (canceled) Falcon 5X twin. There, the extra-widebody 6X will undergo newly designed processes to accelerate completion and delivery. The processes, designed by engineers, include "one-shot installation" of interiors, as well as a "virtual plateau" that can display any system or component on the 6X. It is enabled through Dassault Systemes 3D CATIA software, allowing workers to visualize and plan for completion of the aircraft, which is aimed at reducing schedule risk and budget.

A Dassault spokesman told **AIN** the "one-shot installation" enables cabinets to go into the airplane without being pre-fit. Eventually, bulkheads and cabinets will no longer need a trim because installation tolerances will be built into the design, he added.

The 6X was announced in 2018 and Dassault rolled out the airplane in a virtual ceremony in December 2020. In March 2021, the first test 6X, S/N 1, completed its initial flight. Since then, two other 6Xs have joined the flight-test fleet. One of the test aircraft is undergoing extreme weather and endurance testing.

According to Dassault, S/N 4 is being fitted with a full interior in Bordeaux-Mérignac and will demonstrate the operational maturity of its systems. It is expected to begin a world tour at the end of the first quarter.

The 6X's Pratt & Whitney Canada PW812D engine received Transport Canada certification in December 2021, with certification by EASA and FAA to follow. Delivering 13,500 pounds of thrust, the PW812D features a 44-inch single-piece fan, a 4.5:1 to 5:1 bypass ratio, and the low-emissions Talon X combustor. With eight passengers and three crew at a long-range cruise speed of Mach 0.80, the 6X's maximum range is 5,500 nm. At Mach 0.85 that drops to 5,100 nm. Mmo is Mach 0.90.

Type certification of the 6X is anticipated by year-end. Once in customer production, the 6X will boast the largest cross-section dimensions of any purpose-built business jet with a width of 102 inches and a cabin height of 78 inches.

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Singapore Airshow sends important ‘open for business’ signal

BY PETER SHAW-SMITH

@ Singapore Airshow 2022

Although November’s Dubai Airshow marked the first major aviation event to take place in almost two years due to the coronavirus hiatus, the February 15 to 18 Singapore Airshow will arguably prove just as consequential as it sends an all-important signal that the Asia-Pacific region is open for business.

With little alternative option, the organizers’ decision to press ahead with the show in its regular slot in the calendar has led to some trade visitors and exhibitors reversing earlier decisions to attend, as blanket measures to halt the spread of the virus on the island have complicated participation.

A Singapore Ministry of Health update on January 21 said the number of confirmed Omicron cases had started to rise more sharply over the previous week. Inoculated travelers could enter Changi Airport through vaccinated travel lanes without quarantine, but required mandatory regular testing.

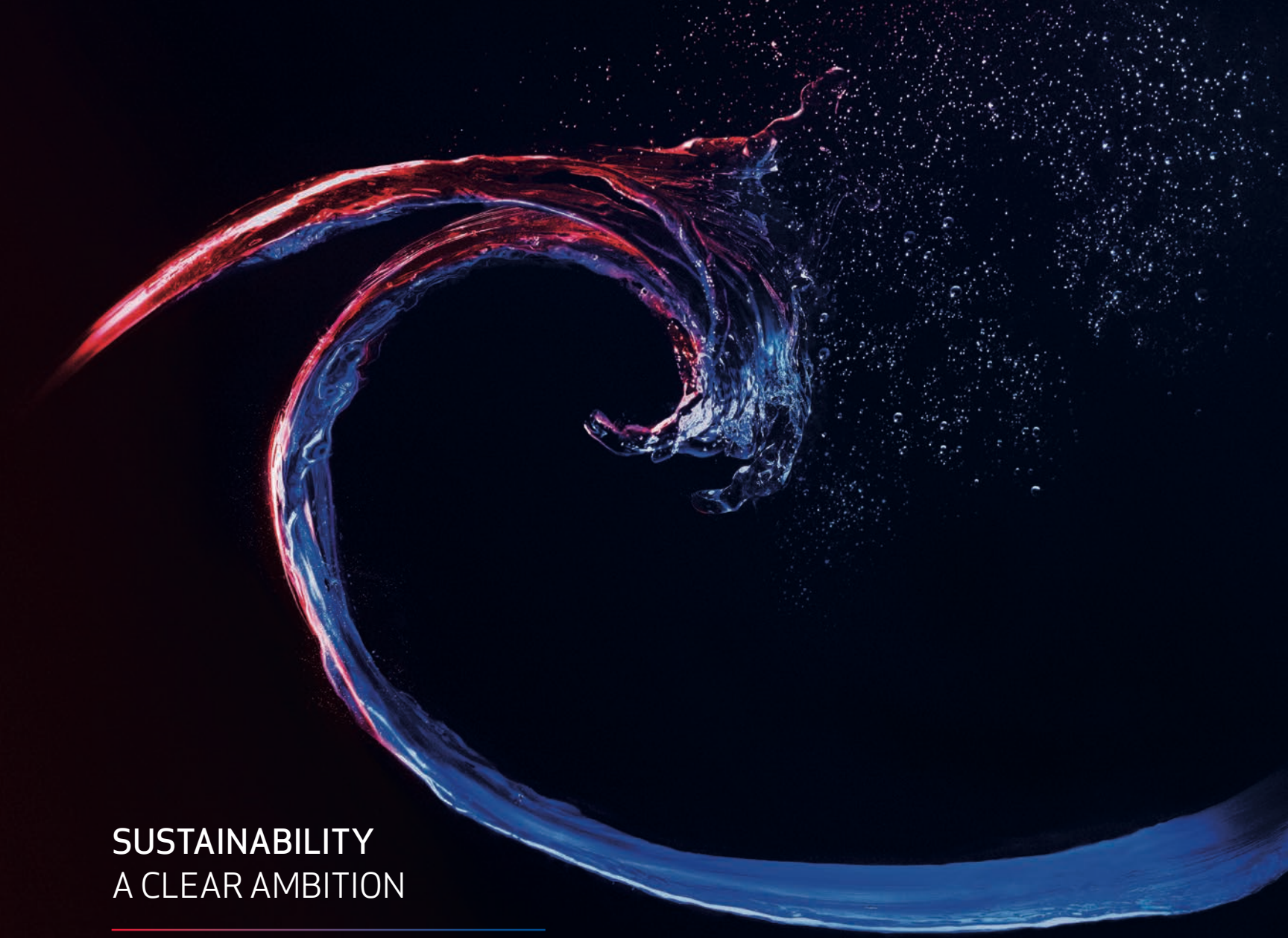
“With our high vaccination rates, steady uptake of booster doses, and Safe Management Measures (SMMs) including Vaccination Differentiated SMMs, the number of severe cases remains low,” it said. “However, as Omicron is more transmissible than Delta, we should prepare for further surges in infections in the weeks ahead.”

The Straits Times said it expected exhibitor attendance at the show to fall to around a third of the 2020 figure of 930, adding that business-jet OEMs Gulfstream and Bombardier were among the big names to cancel plans to attend before the end of January.

continues on page 16 ›

DAVID MCINTOSH

Attendees of the 2020 Singapore Airshow witness one of the event’s awe-inspiring flight displays.



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› continued from page 14

As of January 31, the official exhibitor list included 314 companies from 26 countries, with the U.S. providing 102, Singapore 38, Australia 35, France 33, and Germany 20. Boeing, Airbus, and Embraer all planned to attend, as did Honeywell International, Collins Aerospace, Lockheed Martin, Liebherr-Aerospace SAS, and Lufthansa Technik.

An official roster of aircraft on static display included only 11 aircraft, including three Airbus cargo airplanes and the A350-1000, five business jets, and one helicopter. Organizers have scheduled an aviation CEO forum to take place on February 15 and an invitation-only sustainable aviation forum on February 16 and 17.

"Today's safe management measures [will] have an impact on the overall participation capacity at the upcoming airshow," Experia Events managing director Leck Chet Lam told **AIN**. "We have planned an event that focuses on the quality of exhibitors and visitors to ensure a meaningful event for our participants. All of us involved in the Singapore Airshow, exhibitors, visitors, government, need to work even closer together to find the best way forward, and ensure that we never lose sight of the long-term potential of the aviation industry, whatever the immediate situation might be."

AIRLINES SUFFER

The region's Covid-19 strategies have hit Singapore Airlines (SIA) and Changi Airport hard. Official statistics issued by the Changi Airport Group show that after hosting 68.3 million passengers in 2019, throughput fell 83 percent to 11.8 million in 2020 and a further 74 percent to 3.1 million last year.

"No Asia-Pacific routes now feature in aviation's top-20 international city pairs," David Bentley, chief airports analyst at the Sydney-based Centre for Aviation (CAPA), told **AIN**. "International capacity recovery has been far stronger for Europe and North America."

Changi Airport has experienced a palpable lull in recent months. "The Terminal 5 project has been paused for a study on the impact of the Covid-19 pandemic on the aviation sector and we do not have anything significant on future developments to share at the moment," an airport spokesperson told **AIN**.

> "Today's safe management measures [will] have an impact on the overall participation capacity at the upcoming airshow. We have planned an event that focuses on the quality of exhibitors and visitors to ensure a meaningful event for our participants."

However, CAPA's Bentley said some airports such as Seoul Incheon continue with their multi-year phased expansion plans while others like Hong Kong had made no announcements about scaling back their plans. "The Hong Kong government's plans include an additional runway and [represent] one of the most expensive projects in the world," he said.

The International Air Transport Association's 'Economic Performance of the Airline Industry' report said in October that Asia-Pacific airlines, in general, have suffered from strict government behavior, with slower and diverse approaches to vaccination rollouts compared with Europe and North America, especially in emerging countries.

"On the other hand, China's domestic market is strong and airlines in the country have started to achieve cash breakeven," it said. "In addition, the region's role as a manufacturing hub benefits local airlines' cargo revenues. Overall, net losses in 2022 are forecast to decline to $2.4 billion from $11.2 billion."

Subhas Menon, director-general of the Association of Asia Pacific Airlines (AAPA), told **AIN** the industry continued to actively engage governments to adopt a Covid-normal approach and to gradually reopen borders with streamlined protocols, policies, and practices, as "current arrangements are complex and confusing, which itself is a demand-dampener," he explained. "Pent-up demand is transparent as bookings pile up as soon as a route is reopened. The problem is borders were kept closed, while travel restrictions constricted airline operations and therefore demand."

Cargo helped to mitigate deepening losses but never did enough to overcome the loss of passenger revenue. "Hopefully, the omicron threat fizzles out," Menon said. "It is important that governments adopt simple, objective and risk-based regulations and protocols to reopen safely and seamlessly."

Lufthansa Technik vice president for Asia-Pacific corporate sales Thomas Boettger told **AIN** in December the regional Covid-19 outlook saw some countries imposing new restrictions in late 2021. In addition, as a result of their airlines' contacts with African nations, Singapore had suspended access for travelers from the UAE, Qatar, and Saudi Arabia until further notice in early December.

"The Japanese have pretty much locked down again," he said. "They were just opening for students and people with visas; this has now been reduced to just Japanese nationals. Singapore is slightly increasing, but still keeping the vaccinated travel lanes open. Quarantine in China has extended to 21 days. That's probably one of the big question marks facing the recovery in [2022]."

Singapore Airshow coverage continues on page 42 ›

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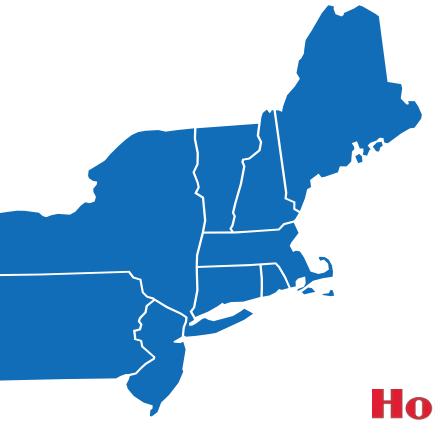

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AIN's 50th anniversary look back: March

BY CURT EPSTEIN

AIN is celebrating its golden anniversary by highlighting select news from the archives over the past half-century.

Earliest bizjet to end serial line, sluggish sales prompt production line halt

(ACN March 1, 1979 p.1)

Then: Lockheed-Georgia Co. will discontinue JetStar II production following the manufacture of serial number 40, which is expected to roll off the company's Marietta, Georgia assembly line at the end of 1979 or in early 1980. Disappointing sales with no foreseeable improvement on the horizon were the main reasons.

Many observers of corporate aviation believed that Lockheed's decision would have come sooner, but the company was holding back to see whether Canadair's Challenger would fly and how it would fare in its initial flight testing. Thus, they claim the successful initial flight test phase of the Challenger was a key factor in causing Lockheed not to invest in parts for future production airplanes and, consequently, in its decision to suspend the program.

Now: The four-engine JetStar, notable for its dual, tail-mounted engine pods, became one of the iconic stars of the first wave of private jets. Launched in the late 1950s, the jet, which featured seating for up to 10, attracted such notable owners as Elvis Presley, Frank Sinatra, Richard Nixon, and Yassir Arafat and even played a role in the finale of the 1964 James Bond classic Goldfinger, as the scene of the midair fight between the titular villain and 007. Lockheed had produced 204 JetStars by the end of production. According to the FAA registry, seven are still registered in the U.S.

Jetless Beech jetless no more

(AIN January 1, 1986 p.1)

Then: Beech Aircraft's royal line will soon be wearing diamonds. On March 31, the Mitsubishi Diamond II officially becomes the BeechJet.

It had been no secret that Beech was looking for a business jet to call its own. Jim Walsh, Beech's president, had put the industry on notice that the company was seeking to acquire either the marketing or production rights to a business jet that could serve as a step-up airplane for the operator of Beech's King Air turboprops. According to Beech officials, 128 operators of its turboprops made the leap to jet equipment last year. Now Beech hopes many of those will be enticed to stay in the family by the sparkle of its adopted Diamonds.

Now: The BeechJet in its various guises went on to have a production run of nearly three decades, totaling more than 900 aircraft. In 2007, under the then-ownership of Raytheon Aircraft, it was renamed the Hawker 400XP as part of that company's strategy to divide its aircraft into two camps, with typically owner-flown airplanes falling under the Beechcraft nameplate and those serving in the corporate ranks named Hawkers. The light jet saw a second life in the 2010s when some airframes were rebuilt or refurbished under programs such as Nextant's 400XTi and Textron Aviation's factory-upgraded Hawker 400XPR.

Mayor's midnight raid ignites Meigs firestorm

(AIN May 2003, p.1)

Then: It has been more than a month since Chicago Mayor Richard Daley's midnight raid on the city's Lakefront Airport, Meigs Field. By now, the story of the runway's actual destruction is widely known. Daley has since recanted his statement that destroying the airport was a security move, virtually admitting that he destroyed it because he wanted to and because it was arguably legal to do so. Trying to move on after the stunned reaction of a community besieged in the middle of the night, general aviation interests now face the question, "Where do we go from here?"

Now: The friction between Chicago authorities and Meigs Field had festered for more than two decades before then-Mayor Richard Daley ordered

the construction equipment out on the GA field on the night of March 30, 2003, to carve giant Xs into its 3,899-foot runway under the cloak of night, rendering it virtually inoperable without proper prior notification to the FAA or even to the owners of aircraft that were parked at the airport at the time.

As early as 1981, we reported that then-Mayor Jane Byrne's attempt to shutter Meigs Field in March of that year was thwarted by pressure from the FAA, the Illinois governor, local pilot groups, and businesses. FAA Administrator Langhorne Bond notified Byrne that the city had accepted FAA improvement grants most recently in 1976, which obliged it to operate Meigs Field as an airport at least until 1996. A chastened Byrne backed down but reiterated that her goal remained the same: converting the airport to parkland. In 1996, the city refused to renew the airport's lease, but in the early 2000s a compromise was discussed that would have kept Meigs in operation for another quarter-century. In an event that will live in private aviation infamy, Daley's actions provided an emphatic end to those negotiations and, in his words, spared the city from further court battles. The courts, citing the expiration of the FAA grants, ruled the city was within its rights to close the airport, and in 2006, Chicago paid $33,000 in fines to the agency as a result of its abrupt closure of Meigs. Today, Northerly Island, where the airport once sat, is parkland with a concert/event venue.

Gulfstream unveils G650


Aviation International News

Gulfstream unveils G650

Cessna reorms to fly-by-wire for Columbus, but system is a hybrid

(AIN April 2008 p.1)

Then: Ending protracted speculation about how it would address the aging fuselage cross-section of its large-cabin business jets, Gulfstream Aerospace last month took the wraps off the G650, which will topple (but initially not replace) the G550 from its perch as the top Gulfstream business jet when it enters service in the first half of 2012.

Performance targets include 7,000-nm range at Mach 0.85 and 5,000-nm range at Mach 0.90. The top speed of Mach 0.925 will displace, by about three knots, the Mach 0.92 Cessna Citation X from its title as the world's fastest civil aircraft.

With the G650, Gulfstream intends to regain its title as "biggest, farthest, fastest" among dedicated business jets (as opposed to converted airliners). The company has already committed to the project without launch customers and will start taking orders for the upper-$50 million (2012 $) jet on April 15.

Now: The G650, which heralded the start of the wide-cabin, ultra-long-range business jet category, first flew in November 2009. First delivery was December 2012, and in 2014 it was awarded the 2014 Collier Trophy for the G650's development, "which strengthened business aviation through significant technological advancements in aircraft performance, cabin comfort, and safety."

That same year, the even-longer-range G650ER variant entered service. Today, while Gulfstream prepares its successor G700 for certification, and with the even larger G800 under development, the G650/650ER remains in its product line with more than 400 in service.

Cessna and Beech combine under umbrella of Textron Aviation


Aviation International News

North Sea review complete, CAA issues tough safety rules

Cessna and Beech combine under umbrella of Textron Aviation

There's an app for that...

(AIN April 2014 p.1)

Then: Textron closed on its $1.4 billion acquisition of Beechcraft on March 14, bringing together Cessna Aircraft and Beechcraft to form Textron Aviation. Scott Ernest, Cessna's president and CEO since 2011, was tapped to lead Textron Aviation as CEO. Meanwhile, Bill Boisture, chairman and CEO of Beechcraft since 2009, was omitted from the Textron Aviation senior leadership team and "is moving on to new opportunities," a Textron spokesman told **AIN**.

While the two aircraft manufacturers are now combined within a single segment, "Cessna, Beechcraft, and Hawker will each remain distinct brands to preserve their rich histories and respective strengths in the marketplace," the company said. The spokesman confirmed that "Bell Helicopter is not part of Textron Aviation, and that is not envisioned for the future."

Now: For Textron, the key attraction was Beechcraft's family of market-leading turboprop twins, which neatly filled a gap in the Cessna lineup between its piston-engined aircraft and its extensive jet offerings. The deal spelled the end for the Hawker brand, which had ceased production while Hawker Beechcraft was in bankruptcy before the purchase. It remained shuttered by Textron despite its "rich history," and two months after the sale concluded, Ernest said he had no plan to restart production, and that using the Hawker name for future jets "is not under consideration at the moment." But, he added, some Hawker technologies—composite materials, for example—could be used in other programs. ▮

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Trivia Question:

Which business aircraft was selected as the first crew trainer for the space shuttle program?

a) Learjet 25, b) Hawker 800,
c) Grumman Gulfstream II,
d) Fairchild-Swearingen Merlin IVa

ANSWER: GULFSTREAM II

Leaders see need for more buy-in on SAF

BY KERRY LYNCH

Heading into 2022, business aviation leaders have been encouraged about progress that has been and is being made on the sustainability front. But at the same time, industry leaders are aware that much work remains to be done not only in the advancement of initiatives such as sustainable aviation fuel (SAF) but also in attracting the buy-in of aircraft operators.

During the most recent NBAA-BACE in Las Vegas last October, the leaders of NBAA, GAMA, and IBAC formally unveiled a new sustainability pledge: net-zero CO_2 emissions by 2050. This builds on a series of goals the industry collectively established in 2009 to reduce carbon emissions by 50 percent by 2050, increase fuel efficiency by 2 percent per year from 2010 to 2020, and achieve carbon-neutral growth from 2020. Well on its way to making those earlier marks and, with a number of new technologies in the offing, the leaders of the associations expressed confidence that the new, bolder target could be reached.

MULTIPLE OPTIONS

Getting there will require advancements on multiple fronts. In the short term, SAF, coupled with carbon offset credits and book-and-claim, are viewed as the most immediate steps to get there. The book-and-claim process allows customers who wish to use SAF but are not in an area where it is available at the pump (in the U.S., mainly West Coast locations near SAF production facilities) to purchase the fuel and receive credit for it under the various emission accounting programs. The fuel is then dispensed into and ultimately burned by another aircraft elsewhere.

However, much of the business aviation community appears unsure. A JetNet IQ survey released during the National Air Transportation Association's (NATA) Aviation Business Conference in November in Miami found that when asked whether they would seriously consider flying with SAF in the next 24 months, just 10.4 percent of the respondents in North America said they would "strongly agree" while another 20.4 percent said they "somewhat agree." Moreover, 25.4 percent in North America said they would "strongly disagree."

In Europe, which has been viewed as a leader on the sustainability front, the numbers appear only slightly better, with 11.5 percent saying they would "strongly agree," 21.2 percent "somewhat agree," and 17.3 percent "strongly disagree."

With strongly and somewhat agreeing depicted on a chart in the color blue, JetNet IQ creator and president of Rolland Vincent Associates Rolland Vincent

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remarked, “The blue isn’t as blue as I think any of us might want it to be, or some think it should be.” Vincent also observed that the differences between the geographical regions “aren’t as stark” as people might have believed.

However, while he noted “I don’t think we can embrace [SAF] quickly enough,” he also conceded that supply is an issue and overall “there’s a lot of work to do as an industry.”

In fact, one of the early adopters in the SAF arena, California-headquartered Clay Lacy Aviation, has seen a slow but growing demand from operators. Scott Cutshall, the company’s senior v-p of development and sustainability, told attendees at **AIN**’s Building a Sustainable Flight Department forum in Dallas in November that Clay Lacy began carrying the fuel in April at its Southern California FBOs and has since sold less than 10,000 gallons.

When the FBO began to offer SAF, “we started getting calls. And people have a lot of questions” but “It hasn’t started to translate into purchases until the last few months.”

While Cutshall added, “We haven’t seen the volume of or uptake that we were originally hoping for,” he did express optimism that there will be an uptick this year as more operators budget for it. “I think we’re going to start to see greater adoption.”

Helping that is the fact that the price differential is narrowing. By November, the price differential was 56 cents more per gallon than conventional jet-A in Van Nuys for its 30 percent SAF blend.

NATA president and CEO Timothy Obitts, speaking at his association’s Aviation Business Conference, underscored the importance of adoption. “On [reducing carbon] emissions, sustainable aviation fuel is a silver bullet to help us.” Noting discussions surrounding fears of SAF costing too much, Obitts said, “that is a narrow-sighted way to look at it.” SAF has “much higher” value, he said, noting the perception of business aviation globally and the flight-shaming that occurs.

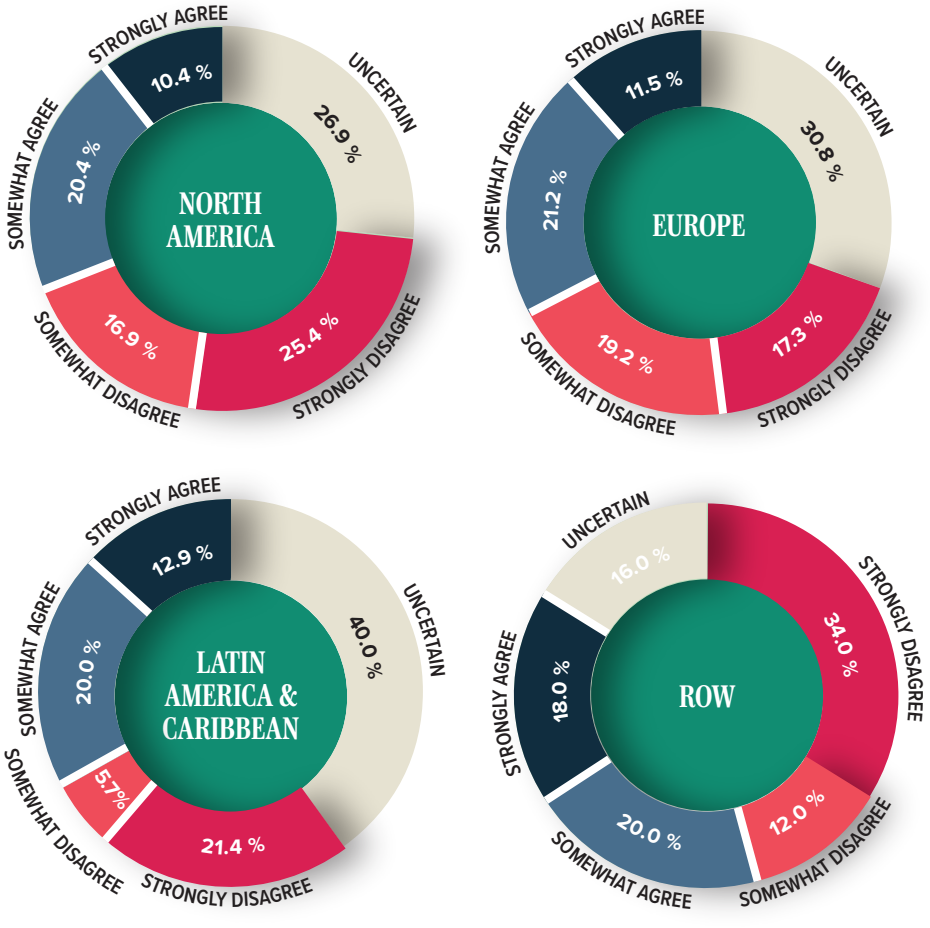
Ford von Weise, director and global head of aircraft finance at Citi Private Bank, clearly spelled out the perceptions issue during Corporate Jet Investor Miami 2021 ahead of the NATA conference: “We are a huge, monstrous target. Why?

ROLLAND VINCENT
PRESIDENT, ROLLAND VINCENT ASSOCIATES

> “The blue isn’t as blue as I think any of us might want it to be, or some think it should be.”

SAF: A Work-in-Progress

We will seriously consider flying with sustainable aviation fuel (SAF) in the next 24 months



Source: JETNET iQ Q3 2021 Global Business Aviation Survey of 502 business aircraft owners/operators in 55 countries, operating 3,425 fixed-wing turbine business aircraft.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Because the individual carbon footprint of every one of our clients is outsized. It's huge. Why else? Because we are fat cats, supposedly." It doesn't matter the reality if perception casts this shadow over business aviation.

He further warned that business aviation organizations face significant perception, regulatory, financing, and other risks if they don't build a sustainability plan into their business model, and he noted his own institution is evaluating how it looks at risk. A piece of that is climate, environmental, and social risk management, he said and called SAF a key part of the solution to these risks.

As for the regulatory front, Europe and the U.S. alike are moving towards broader environmental mandates with similar goals and an array of potential taxes, incentives, and research projects under discussion, according to GAMA director of government affairs Marc Ehudin, also speaking during the **AIN** sustainability forum in Dallas. Ehudin pointed out that Europe is developing a "Fit for 55" proposal that calls for a reduction in net greenhouse gas emissions by at least 55 percent by 2030 with

SCOTT CUTSHALL
CLAY LACY AVIATION SENIOR V-P

an ambition of being a climate-neutral continent by 2050. It hopes to achieve this through mandates, one of which would involve a carbon tax that would begin at the equivalent of $1.78 per gallon of fuel for business aviation in 2023 and continue from there.

NET-ZERO BY 2050

Meanwhile, the UK is looking at its Jet Zero plan to achieve net-zero for aviation by 2050. This includes a flexible outlook, with multiple solutions, international leadership, and partnerships. In the U.S., stepped-up funding for a number of research programs has been floated, as well as initiatives to promote the expansion of SAF.

From a fuel provider's perspective, Lindsey Grant, manager of general aviation in the U.S. for Phillips 66, noted the steep investment required from the fuel makers, including logistics, tankering, and transportation, but she added, the industry needs to show a commitment to accepting the product. A lack of interest over cost worries "is not going to help incentivize producers to produce it. And until you've got that incentive there's going to be a premium with it."

She echoed other sentiments that companies looking to lower their carbon footprint should be particularly interested in using SAF. "You are not going to get the benefit of the claim [of lowering an organization's footprint] without paying that additional premium."

Darren Fuller, v-p of business development for business aviation at World Fuel Services, agreed, telling attendees at the **AIN** sustainability forum in Fort Lauderdale, Florida, that supply remains a big impediment to wider adoption and that "operators need to make big public

commitments to SAF—this is required for investment in SAF production."

Even when SAF supply rises it still won't be available at every airport, so Fuller said operators will need to use book-and-claim as a strategy to reduce their carbon footprint.

Obitts, who additionally spoke during the **AIN** sustainability forum in September in New York, said the goal is to expand annual U.S. production from less than two million gallons currently to three billion gallons by 2030, and then 100 percent of business aviation's turbine fuel needs by 2050. This is critical to meeting the industry's sustainability ambitions, he said.

"We've made big progress in engine and aircraft technology and flying aircraft efficiently, and one of the key components that remains is the introduction of SAF into the supply chain; that puts business and general aviation over the top," added Keith Sawyer, Avfuel manager of alternative fuels, who also spoke at the New York forum.

Participating in the **AIN** forum in Fort Lauderdale, Florida, in December, 4Air COO Nancy Bsales advised that business aviation operators can "set small goals now—such as committing to buying sustainable aviation fuel equating to 5 percent of your total fuel uptake—and then increase it later," she told the attendees. "Even just one SAF uplift is a step."

Meanwhile, 4Air president Kennedy Ricci stressed the use of carbon offsets as a more immediate solution as SAF, electric, hydrogen, or other sustainable options become widely available. Speaking during **AIN**'s Dallas forum, Ricci expressed the belief that "Each one of these technologies will have a place....[and] an incremental benefit that will play a role in 2050."

But with the limits in availability, offsets are the biggest tool available for carbon-neutrality, he said. While more SAF will be available, a growth of flight hours will necessitate more offsets.

KEITH SAWYER
AVFUEL MANAGER OF ALTERNATIVE FUELS

> "We've made big progress in engine and aircraft technology and flying aircraft efficiently, and one of the key components that remains is the introduction of SAF into the supply chain; that puts business and general aviation over the top."

Use of carbon credits is particularly important because carbon is only a portion of the industry's warming impact. "We can neutralize that. We can look at carbon offsets today as a method to negate that impact," he said. "But that's not the end goal. Today offsets should be part of the solution, but ideally, by 2050 it's something we shouldn't need to use."

Ricci acknowledged criticisms that the industry needs to do more than offsets and said that's where SAF becomes central to operations. "Sustainable aviation fuel doesn't have to be all of your fuel burn. Even 2 to 5 percent of your fuel burn sends a strong demand signal to producers of sustainable fuel."

Beyond SAF, **AIN**'s Building a Sustainable Flight Department forums have focused on other initiatives. Gulfstream director of demonstration and corporate flight operations Scott Evans, who spoke at the Fort Lauderdale event, said, "SAF is definitely one of the operational considerations to lower emissions, but it's not the only one. Operators can also fly at optimum altitudes and speeds, especially when there are no passengers on board. They can also operate at minimum weights, in part by eliminating unnecessary items on board the aircraft and curbing fuel tankering. Other measures include minimizing taxi time, reducing APU usage, and keeping the aircraft clean to lessen drag."

Cutshall, who spoke at multiple forums, provided advice on a range of activities that flight departments can take to demonstrate sustainability and he too advised that organizations can start small and build up from there. And he highlighted the advantages: "We're starting to see interest in sustainability from potential customers," he said. "Some of them have started asking if we have a sustainability plan in place. When we answer yes, many drill down even deeper by asking how we can reduce their Scope 3 [indirect] emissions. So it really is becoming a competitive advantage for us."

Stewart D'Leon, NBAA director of environmental and technical operations, outlined his association's new accreditation program, which is now open to applicants. Under development for three years, the audit-based program is designed to promote sustainability.

AIN is continuing its series on Building a Sustainable Flight Department with the next event to be held on March 30 in Los Angeles. For more information, see https://marketing.ainonline.com/sustainability.

Leaded aviation gasoline is undergoing scrutiny and may face new restrictions.

Bolen, Baker express urgency in replacing 100LL avgas

BY KERRY LYNCH

General aviation is at a "watershed moment" as airports begin to ban 100 low-lead(100LL) aviation gasoline and the Environmental Protection Agency places a 2023 timeline for an endangerment finding on leaded fuel, Aircraft Owners and Pilots Association president and CEO Mark Baker warned. Facing a need to remain in front of the efforts, industry leaders hope to nail down a new timeframe for finding a drop-in replacement in the upcoming weeks, he added.

Speaking in January during an NBAA webinar entitled "Big Year, Big Issues for Operators—CEOs' Perspectives," Baker and NBAA president and CEO Ed Bolen agreed that the recent efforts to ban leaded fuel have ratcheted up the urgency for finding a drop-in replacement. At the same time, those efforts underscore the importance of the FAA remaining engaged to ensure the safety of the fleet, they added.

"We all agree we need to move away from low-lead," Baker said, but banning access, such as what Santa Clara County in California has done at Reid-Hillview and San Martin airports, is a safety issue. Baker is encouraged that the FAA has opened an investigation into the move but said there is "a long way to go."

Bolen added that an effort to ban avgas "falls under multiple titles: this is an airport issue, it's an economic issue, it's a sustainability issue, but first and foremost it's a safety issue."

Bolen stressed that while there has been progress, "there is not a clear path for the fleet nationwide. What we are working on is to make sure that we have an opportunity to make a thoughtful, smooth transition so we have an alternative that is a drop-in, that is available, and that we have the distribution."

Baker noted that a cross-section of the industry has been working to address this on multiple fronts and "hopefully in the next month here, we'll have some concrete dates and a definitive timeline." This will help reassure that the industry has a path to achieve its goal. "We hope to get the whole industry to agree that the change will come in a timeline that makes sense so we can protect our airports," he said.

Safety is the key priority because many piston aircraft must still operate on 100LL, but a secondary concern is that communities, particularly in California, will use the issue "as an excuse to close an airport or really restrict an airport."

Also urgent is the looming endangerment finding, he said. "The EPA endangerment finding will scare a lot of people and it will be released sometime very soon. It will scare a lot of airport managers, and communities that say we need to make [100LL] go away sooner," Baker said.

Bolen agreed and said the finding is not a surprise but underscores the need for expedience. "We're working with everybody all the way up through the Department of Transportation Secretary to make sure we get the involvement, and if we need to involve Congress in this...to make sure we all agree we're going change away from low-lead fuel as soon as practical, as soon as safe, as soon as economically possible, [we'll] do that," Baker said.

Bolen added that this is a "front-burner" issue: "We've been working hard at it."


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Who should succeed the aviation director?

The role of a Part 91 aviation director has changed significantly over the last 10 to 15 years. Due to a variety of factors, including much more oversight by human resources and the C-suite, successors to the role require an even more diverse set of skills.

Yet one skill that isn't required to successfully lead the aviation department is the ability to fly. Despite this fact, I often hear from hiring managers who insist that they must hire a pilot to run the flight department.

As an aviation HR professional, I don't believe this is the case. That's why I reached out to a handful of successful leaders who've been tapped to lead their aviation organization. And they've come from non-traditional departments, including scheduling and maintenance.

Deb Prosinski is one of the directors I spoke with who's seen success despite not being a pilot. Three years ago, when she was head of scheduling and dispatch, she was asked to take on the interim aviation director position for her Fortune 100 firm. At the time, she agreed, but wasn't sure she had the requisite experience.

BY SHERYL BARDEN
CEO AVIATION PERSONNEL INTERNATIONAL

> "While the aviation team is tasked with operating and managing aircraft, the main role of an aviation director is to lead people, communicate, and provide resources."

AN UNCONVENTIONAL PATH

Luckily, Prosinski was wrong. During her interim position, she realized that she didn't need to be an expert in everything aviation. "That's what my chief pilots, safety manager, dispatch director, and maintenance director are for," she said.

Being inquisitive by nature has served her well. "People tell me that I'm really good at asking questions," Prosinski said. "I'm always looking for another rock to turn over." She also likened her role to that of an orchestra conductor: "I just have to make it all fit together and put the right players together."

As the head of scheduling, she knew quite a bit about what was going on within the department. As it turns out, Prosinski already had a "big picture" view, especially since she reported to the director. Plus, she regularly interacted with executive assistants and senior leaders to plan trips. These skills have served her well in her role as an aviation director.

One of the most important aspects of the aviation director role, Prosinski said, is having the right industry connections. "I cannot tell you how many times I call my industry peers about issues that I've never personally been through," she said. "I think having that peer network—knowing where to go and how to keep it growing—is super important.

"As I always say, this industry is about the people you know. And if the person I reach out to doesn't know, they'll probably know five people that can help me. I'm a huge believer in not recreating the wheel," she added. "I'm always reaching out for that sort of help."

BROAD AVIATION EXPERIENCE

Clayton Wilson, the director of aviation for the Altria Group in Richmond, Virginia, came to his position after serving as a director of maintenance (DOM).

Wilson said his broad experience prepared him well for the challenges of aviation directorship. "Before I came to Altria, I had positions that taught me time management, crisis management, patience, scheduling skills, budgets…just about everything you need when leading a corporate flight department."

He also said that, as a maintenance professional, he became skilled at problem-solving and multi-tasking, which prepared him for his job now. "Most times, I look at solving problems in two or three different ways and trying to figure out that if one thing doesn't work, then we need to be doing this next thing," Wilson explained. "And if that doesn't work then we need to try something else. Working in maintenance, we learn to look further down the road than just one step at a time. And the same skills are needed as an aviation director."

When I asked Wilson what he thinks are the basic requirements for his position, he reiterated what Prosinski said: it requires "big picture" thinking. "You need insight, a gut feel for things, and the ability to see things from a broader perspective," he said. "And, of course, you have to be a good

leader of people." Both Prosinski and Wilson stressed that managing people was the biggest aspect of the job, time-wise.

So, for those hiring managers who are recruiting for their next aviation director, I've come up with a list of skills one must have to effectively lead a flight department. They should: have a desire to lead people; be a solutions-based creative thinker; know how to delegate to others without being the "doer"; fully understand the vision and mission of the aviation department; be a good communicator; work well with others, including those with egos; have a good handle on the "big picture" and know how to be strategic; know how to work with corporate/family office; make everyone feel included, especially diverse hires; be able to provide the necessary resources and then get out of the way; have industry connections and be able to grow your network; be capable of leaving your own ego at the door; and have broad aviation knowledge.

FLIGHT SKILLS AREN'T REQUIRED

While the aviation team is tasked with operating and managing aircraft, the main role of an aviation director is to lead people, communicate, and provide resources. That's why I feel safe in saying that there's no single protocol or prerequisite for hiring a director—especially one in a multi-aircraft operation.

We're all aware how "evolving" our industry is, especially in these times. Doing what we've always done may no longer be the most prudent approach to effective leadership hiring.

Sheryl Barden, CAM, is the president and CEO of Aviation Personnel International, the longest-running recruiting and HR consulting firm exclusively serving business aviation. A thought leader on all things related to business aviation professionals, Barden is a former member of NBAA's board of directors and currently serves on the NBAA advisory council.

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

Tamarack winglets boost CJ performance

BY MATT THURBER

ALL PHOTOS: MATT THUBER

The mission sounded simple: James Benham needed to fly from his home base in Bryan, Texas, to San Diego, where he was scheduled to give a presentation the following day. Fortunately, Benham doesn't have to rely on the airlines because he owns and pilots a CitationJet.

Traveling by general aviation isn't always ideal, however, and there usually are constraints that could affect such a trip or even make it impossible to complete without spending extra time at the destination.

In the original CitationJet, there is no way Benham could make it nonstop from his home in Bryan to San Diego with safe fuel reserves, unless the prevailing winds shifted 180 degrees to blow east to west. And on this particular day, Benham had already spent a few hours flying friends back from a vacation in Colorado, dropping them off in Tyler, Texas, before returning to Coulter Field in Bryan.

Benham's original plan was to stay overnight at his home, then depart the next day, with me joining him in Bryan for the trip to San Diego. This would have worked fine if the weather had cooperated, even if it required an intermediate stop for fuel, which would have been the case for a stock CitationJet.

As it turned out, a line of storms was about to encroach on southern Texas, and the next day's forecast for San Diego called for widespread low fog. Benham had to make a quick decision. Was it safer to fly to San Diego that evening and land there at night in good weather? Rather than risk the worsening weather forecasted for the next day and the consequent increase in pressure because there was less margin for error if the weather didn't improve?

There was one other factor that helped Benham with his decision: his CitationJet is equipped with Tamarack Aerospace active-camber winglets. They improve performance such that he can easily make the Bryan-San Diego trip nonstop, thus eliminating the risk of the additional stop and dialing down the potential reduction in safety margin due to fatigue.

So the flight was on. Benham picked me up at my hotel in Bryan, and we went to the airport to prepare for the flight.

THE TAMARACK TREATMENT

A few months earlier, I had met Tamarack Aerospace founder and CEO Nick Guida at Benham's hangar to join the CitationJet's last flight before the modification. We needed to fly the jet from Bryan to Tamarack's headquarters in Sandpoint, Idaho, where the modification would take place.

The Tamarack upgrade adds winglets and 6 feet 1 inch to the CitationJet's wingspan, plus something extra to help ameliorate the effect of the winglets. While winglets by themselves improve efficiency by increasing the wing's aspect ratio and allowing faster climb times to higher altitudes, that improvement comes at a price: a longer wing adds more load to the wing structure, especially during maneuvering and when encountering gusts.

Passive winglet mods add more structure to the wing to handle the extra loads,

which adds weight and partially offsets some of the efficiency benefit. But Guida, an aerospace engineer, came up with a clever solution, a way to offload the extra loading when the load happens without adding more structure to the wing. Added structure, after all, is there all the time. Tamarack's active technology load alleviation system (Atlas) active-camber surfaces (TACS) actuate only to counteract an extra load when it happens, and the rest of the time they sit passively, waiting for the next load to come along.

In actual operation, the TACS operate often because loads on wings constantly change, but the point is that they alleviate the extra loading caused by the addition of the winglets, in exchange for a little bit of weight and a lot of processing power needed to analyze and react to the extra loads.

The TACS themselves are small control surfaces mounted outboard of the ailerons next to the winglets, and they move up or down as needed to alleviate loads. TACS are independent and autonomous, not connected to flight controls or autopilot. If they fail, they are designed to fail passively in-trail so they have no effect on the wing. However, if they do fail, the pilot must fly at a slower speed to prevent possible structural damage from the loading caused by the winglets. Tamarack has demonstrated during flight testing that if a TACS fails and is fully actuated, the pilot can maintain control by slowing the aircraft and counteracting the roll induced by the failed TACS.

UNMODIFIED CJ

Guida and I met at Benham's hangar for the flight to Sandpoint, which was 1,408 nm away. While the weather wasn't an issue, we found a problem that prevented us from flying at the unmodified CJ's most efficient altitude for the whole flight. The CJ had an intermittent transponder problem, so we had to talk with ATC to get higher altitudes, which worked for the leg to Cheyenne, but after that, we stayed fairly low, FL290, on the leg to Sandpoint. Winds aloft were rather strong.

Typically, this CJ would need about 1,000 pounds more fuel than we could carry to make it to Sandpoint nonstop with the required reserves. While the CJ's maximum altitude is FL410, unless temperatures are way below normal, the jet simply can't climb directly to that altitude, further hindering efficiency. The modified CJ can climb to Fl410 directly in 32 minutes. However, even with the mod, making it nonstop on this trip wouldn't be possible unless winds were strong and right on the tail.

The flight to Cheyenne took 3.2 hours at FL380, and the final leg to Sandpoint took another 2.5 hours. At FL380, the CJ's Williams International FJ44-1A engines each burned 350 pph. We made it briefly to FL350 on the leg to Sandpoint, but continuing transponder problems forced us to fly lower, and much of the trip was at FL290, where fuel flow climbed to 510 pph.

Shortly after we arrived, the Tamarack crew pulled the CJ into the hangar for the fairly extensive modification.

> "The goal is to get the time down so people don't have their airplanes gone too long."

Turning a CJ into one with Tamarack active winglets starts with removing the original wingtip, then installing the new winglet, which includes LED nav and strobe lights. Much of the 10-day job is taken up by painting the winglets and matching the original paint, with four days set aside to install the electronics and

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wiring, including the switch and indicator in the flight deck.

"The goal is to get the time down so people don't have their airplanes gone too long," Guida said.

As of late January, Tamarack had sold 150 winglet upgrades to owners of eight CJ variants from the CitationJet to the CJ3+. About 75 percent of installations are done at Sandpoint, with the rest at approved installation centers in Aiken, South Carolina, and Oxford, England. The winglet systems are approved in the U.S., Europe, Canada, Mexico, and Brazil.

Leveling off at FL410 on the flight to San Diego in the Tamarack-modified CitationJet, burning just 300 pph per engine. True airspeed eventually settled at 342 knots.

EFFICIENT CJ

To see the difference between the unmodified CJ and the Tamarack wingletted version, I returned to Texas to join Benham on the flight to San Diego.

It was apparent the evening that we left on the flight that the flexibility offered by the winglets means a lot to Benham. As mentioned, we were able to make the flight nonstop, eliminating the need to fuel up on the way and vastly increasing our margin of safety when considering the forecasted inclement weather and the possibility of fatigue.

It's only 1,064 nm from Bryan to San Diego's Gillespie Field, but with headwinds flying westbound, we'd still have to stop for fuel in the unmodified CJ. With the Tamarack winglets, we were projected to land with well over 700 pounds of fuel, still leaving a decent reserve if we had to fly to an alternate like San Diego International Airport.

We were able to climb directly to FL410 where the engines each sipped 300 pounds of fuel per hour, pushing us along at 342 ktas, illustrating the benefits of being able to climb higher. The weather was perfect; the thunderstorms in Texas held off until we were well on our way, and we flew westbound into clear skies above a wispy carpet of clouds thousands of feet below.

After a smooth 3.5-hour flight, Benham eased the CJ onto Gillespie's Runway 27R. While flight planning showed we would land with more than 700 pounds of fuel, in fact we still had nearly 1,000 pounds left, a comfortable margin.

THE OWNER-PILOT

James Benham came to flying after launching a software company that now has offices in the U.S., Argentina, and South Africa and more than 250 employees. He made quick progress once he began flying, earning his private pilot license in 2018, then buying his first airplane, a Piper Arrow; he followed that with a turbocharged Piper Saratoga II in which he logged 220 hours in six months. The next step was a twin-engine Piper Seneca V, which he eventually sold so he could buy a refurbished Piper Aztec. "I am a multiengine guy," he said, "and my goal was to get to multi as fast as possible."

Among his flying friends, many owned Beechcraft King Airs, and Benham considered moving up to the twin turboprop for his typical flights, which range from 600 to 1,000 miles. He didn't like the idea of having to fly through, instead of over, the weather, and the cruise speed of the smaller King Air models just wasn't appealing. Insurance costs have risen, too, and he would be paying 30 to 40 percent more for coverage in a King Air, without a huge boost in performance.

So Benham embarked on finding a jet, looking at the Embraer Phenom 100 and 300, Pilatus PC-24, and the typically owner-flown CitationJets (all except the CJ4).

At more than $10 million, the PC-24 was out of the running, given that a used Phenom 100 or King Air 200 cost about $2 million (prices have risen since he was in the market). When comparing the King Air with a CJ, he said, the jet "is cheaper per mile and [faster]." He felt that handling an emergency like an engine failure in the CJ would be much easier as the engines are mounted closer to the centerline, unlike the wing-mounted engines on the King Air. Ultimately, the CJ's "cabin sold me," he recalled, and luckily he bought the airplane just before prices spiked after the pandemic took hold. He also liked that the CJ's engines are well supported by Williams International's Tap Blue cost-per-hour program. "Tap Blue is a godsend," he said.

The CJ, Benham said, "is capable, fast, and you can't beat the cost."

However, after buying the CJ in October 2020, then getting type rated at LOFT in Carlsbad, California, in November, and flying the CJ for a bit, Benham became aware of some drawbacks. "I noticed when it got warm [outside], I had to watch the weight and balance. The climb rate was anemic at times. And turbulence was noticeable."

Benham had heard about the Tamarack winglets during his search for the airplane, liked how they looked, and started calling other owners to ask about their experience. He met like-minded pilots after joining the Citation Jets Pilots Association and queried them about their experience with the

winglets, also calling Tamarack president Jacob Klinginsmith for more information.

What moved the needle on his decision to buy the roughly $200,000 Tamarack mod, however, was his wife: after a hot and turbulent trip from Texas to John Wayne Airport in Southern California, which required a stop in Tucson, "She said, 'Buy the damn winglets,'" Benham recalled. And shortly afterward he booked the upgrade at Tamarack's Sandpoint headquarters.

While the winglets eliminated those interim stops, which Benham and his family appreciate, the winglets also mitigate some turbulence effects, making flying more comfortable more of the time. The TACS react quickly to changes in wing loading, and turbulence causes gust loads

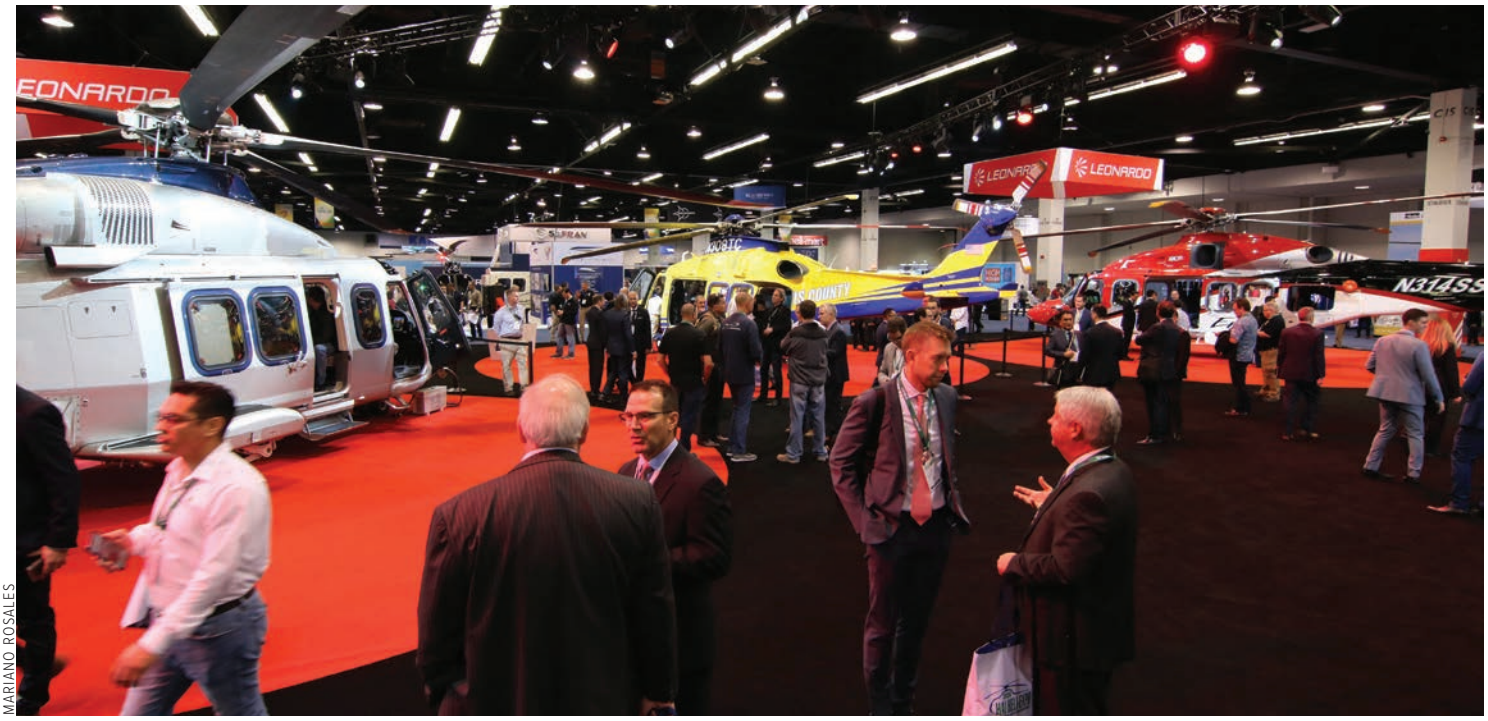
> "This trip would have [burned] more than 1,500 pounds of [extra] fuel if we had to stop."

on the wings, which the TACS mitigate.

Another benefit that Benham appreciates is the lower landing speed enabled by the longer wings. He has found that when flying at the same angle-of-attack on short final, reference landing speed is nine knots lower. Where he used to fly a Vref of 103 to 104 knots, now he is seeing 96 or 97, making for more comfortable margins on landing.

Climb rates are much better than before the winglet mod, especially in hotter-than-normal conditions, and the CJ can climb directly to FL410 instead of having to step-climb or even stop at FL370. During our flight to San Diego, passing 39,500 feet, the CJ was still climbing at 400 fpm, at ISA +10 degrees C. "That would be impossible in the [original] CJ unless you had half fuel on board," Benham said.

"Tamarack added an hour to this airplane," he said. "This trip would have [burned] more than 1,500 pounds of [extra] fuel if we had to stop."



MARIANO ROSALES

HAI is hosting Heli-Expo again this year after canceling the 2021 event as a result of the pandemic.

HAI plans full return of Heli-Expo in Dallas

BY KERRY LYNCH

After a year's absence due to the pandemic, Heli-Expo is returning in March to Dallas with a full program that includes its typical exhibits, safety programs, and educational sessions, along with new features such as the possibility of helicopter commuter flights and air tours from the convention center.

HAI president and CEO Jim Viola was encouraged that despite complexities associated with the pandemic, the metrics were pointing in the right direction for this year's event, which will run March 7 to 10 at the Kay Bailey Hutchison Convention Center Dallas and will be bookended by the traditional fly-in on March 4 and 5 and the fly-out on March 10 and 11.

More than 500 exhibitors had signed on by late January and early registrations appeared on track, Viola said. "We're pretty optimistic and anticipate a very positive show," he told **AIN**.

Restrictions may serve as a deterrent for international regions such as New Zealand and Australia, Viola had conceded and acknowledged that some businesses still appeared reluctant to fully open travel.

But most segments of the rotorcraft industry never shut down as other operations have, Viola noted. "This community has been working the whole time during the pandemic," he said, pointing to powerline, firefighting, air ambulance, search and rescue, and numerous other operations.

This community, he said, had expressed a strong desire to reconnect in New Orleans, where HAI had hoped to stage its 2021 event but ultimately had to cancel it over the pandemic. "We were sad that we had to cancel that event. So, I know that [the industry] is ready to get back together. It's really like a homing for the operators."

He also noted that a lot of business is conducted at the show and that many organizations schedule their business around the show because they have the ability to meet their customers face-to-face. "They realize that value, and we do our best to make sure that value is met."

Providing a glimpse of the 2022 Heli-Expo during a webinar earlier this year, HAI executives said they have teamed with nearby Dallas Executive Airport for the staging of the traditional fly-in and have obtained FAA approvals for the short hop to the convention center, including a special route for experimental/restricted category aircraft.

Chris Martino, senior director of operations and international affairs, called the arriving aircraft the "star of the show" and said the association has assembled an aircraft and flight operations handbook for the smooth arrival and displays. "We want to make sure everyone is on the same sheet of music," he said. Noting HAI has posted videos of approved flight paths, Martino

added, "the routes are simple and safe."

With the adjacent Dallas Vertiport available, Viola said he expects to see more helicopter activity during the show and has been working with local operators that could provide transportation from local airports to the convention center. He also noted a possibility to be able to have operators conduct tours of the D/FW area from the convention center Vertiport.

Typically, between 50 and 60 aircraft are displayed on the show floor, some on exhibits but others on a static display carved out in the exhibit space. The floor will also host a safety zone, one of the largest sections of the exhibits, featuring multiple organizations and guest speakers. The show will further include a first-time exhibitors' pavilion and "tabletop exhibits" that may be showcased for a brief period rather than for the full run of the event. In addition, Viola said some of the exhibits will showcase the emerging eVTOL sector.

A full safety program will be offered, including the Rotor Safety Challenge courses that are typically one-hour presentations on a range of topics. Fifty of these courses will be presented and attendees can collect chips at each one. Those who collect one or more chips can turn them in at the HAI safety booth and receive a certificate. In addition, Heli-Expo is hosting a range of professional education courses that run from a half-day to multiple days that are specific to topics and may result in certifications or renewal credits. Also, a number of the traditional manufacturer technical briefs will be held. Viola called the education segments one of the most important parts of the convention.

Along with the safety and educational programs, Heli-Expo is holding a career fair on March 8 with a number of hiring employers. In addition, support for resumes and LinkedIn pages as well as mentorship will be available. "Now is the time to get back into the industry because the industry is looking for pilots," said Greg Brown, HAI director of education and training services.

Ahead of the career fair on March 7 is the HAI Mil2Civ workshop to assist military personnel who are transitioning to civilian life. That workshop will similarly offer mentorship, along with resume, networking, and a range of other support, Brown said, underscoring the importance of assistance for those facing a transition.

A key feature of this year's event, Viola stressed, is health and safety protocols, which follow local, state, and federal guidelines and include social distancing in education events, cleaning and sanitation, and availability of masks and hand sanitizer.

"We believe everyone will agree that these guidelines are reasonable, which is why we think we will have a successful show," he said.

Garmin Smart Glide

BY MATT THURBER

Garmin designed Smart Glide to help pilots deal with engine failures by recommending a suitable nearby airport and engaging the autopilot to fly to that airport at the appropriate glide airspeed. The Smart Glide upgrade, the newest member of Garmin's Autonomi family of safety products, is free for owners of compatible avionics, although there may be a dealer fee for installation of the software.

The key benefit of Smart Glide is to free the pilot to concentrate on dealing with the engine problem and the resulting emergency situation. While running the engine-failure checklist, for example, the pilot doesn't have to focus on finding the nearest airport. Even if there is no suitable airport within gliding distance, Smart Glide can still use the Garmin autopilot to adjust the attitude for best glide speed and then during the off-airport approach and touchdown gives the pilot audible alerts about the airplane's altitude above the ground.

To demonstrate how Smart Glide works, Garmin pilot Jessica Koss took me on a flight in the company A36 Bonanza from Garmin's flight test facility at New Century Aircenter in Olathe, Kansas.

Smart Glide is available on GTN Xi navigators paired with Garmin's G500/G600 TXi and G3X displays and GI 275 and G5 electronic flight instruments, plus experimental G3X Touch systems. The experimental G3X Touch doesn't require the GTN; however, it is required for the certified G3X Touch.

The Bonanza is equipped with Garmin TXi touchscreen displays, GTN 750 Xi and 650 Xi navigators, and GFC 600 autopilot.

We took off and climbed to 3,500 feet agl and headed south. Terrain in this area is about 1,000 ft msl. For the first demo, Koss pulled the engine's power back as we flew near Miami County Airport, then she pushed the optional ($129) Smart Glide button on the Bonanza's instrument panel to engage the system. The button isn't required, and pilots can also engage Smart Glide by pushing the direct-to button on the navigator for two seconds.

If equipped with a compatible Garmin autopilot such as the GFC 500 or 600, when Smart Glide is activated, it will automatically engage the autopilot in IAS mode at best glide speed, switch the CDI to GPS mode, and activate the flight director command bars. Third-party autopilots can be used with Smart Glide, but the pilot will have to switch it on and select the appropriate mode for lateral guidance, according to Garmin.

With or without the autopilot, Smart Glide displays a direct-to route to the recommended airport, and the map page on the GTN Xi shows a glide range ring with airports within gliding distance. The ring adjusts dynamically to account for wind and terrain and it also shows—in a

decluttered view—current altitude above ground level (agl), estimated agl at arrival, bearing, and distance to the airport.

A dedicated Smart Glide page is also available, which shows glide speed, airport name, a list of alternate airports (from which the pilot can choose if needed), arrival agl, longest runway information and wind components (if available), and an alert banner that gives information on glide status and pertinent instructions. For the demo, we had the map and glide ring running on the larger GTN 750 Xi and the dedicated status page on the smaller GTN 650 Xi, giving us more than enough information to figure out how to land safely.

The criteria for picking the recommended airport is based on runway length and condition, proximity, terrain, and weather information that the system gleans from sources such as ADS-B In (FIS-B), SiriusXM, and Garmin Connext, as well as measured winds calculated by the PFD. Smart Glide also considers VFR or IFR conditions when recommending a suitable airport, according to Garmin, for aircraft equipped with a Garmin GTX 345/345R transponder, GTX 375 acting as a transponder, GSR 56 Iridium transceiver, or GDL 69/69A SiriusXM satellite weather receiver with an appropriate weather subscription.

Even if there is no suitable airport within gliding distance, Smart Glide uses the Garmin autopilot to adjust the attitude for best glide speed, and then during the off-airport approach and landing gives the pilot audible alerts about the altitude. In this case, Smart Glide displays a message to indicate "No Airport in Range." If an airport does get covered by the glide range ring during the glide, then the pilot can steer toward that airport or have Smart Glide do so by switching on the autopilot.

In addition to the information displayed, Smart Glide provides aural messages such as bearing and distance to the airport. Once it selects the airport, it also sets that airport's CTAF or tower frequency into the standby field, switches the CDI to GPS mode, and gives a shortcut to switch the transponder to the 7700 emergency code.

The system warns the pilot with an aural alert and visual banner at 4 nm to the airport, then at 2 nm advises the pilot to take over control with an audible position alert and flashing red alert (on the GTN Xi). As we got closer to the airport, we heard the alerts and saw the red "Maneuver and Land" banner, indicating that it was time for the pilot to take over from the autopilot, pick a runway, and land.

Smart Glide doesn't pick the optimal runway and leaves that decision up to the pilot. Its primary purpose is to get the crippled airplane to the airport vicinity while reducing the pilot's workload.

Glide range rings are nothing new; they have been available on moving-map apps like ForeFlight and Garmin Pilot for a while. But especially in an airplane without a parachute, knowing exactly where to go and getting guidance and assistance on setting up the glide and turning promptly in the right direction could go a long way toward improving the odds of surviving an engine-out emergency.

MATT THURBER

Smart Glide advises the pilot to "maneuver and land" after guiding the airplane near the airport.

Biometrics offer a compelling look at how pilots react when the workload increases, and research by SMU and CAE reveals some interesting results about real-time determination of pilot performance and capabilities when pilots are under stress.

SMU and CAE apply biometrics to flight training

BY STUART "KIPP" LAU

Researchers at Southern Methodist University (SMU) are developing an innovative approach that combines biometrics with machine learning techniques to reshape the future of flight training. The goal is to measure physical reactions of the pilot to provide—in real-time—a more objective and automated determination of performance to make flight training more personalized, effective, and efficient. Flight training programs have historically relied on subjective observations and post-flight analysis from an instructor to determine proficiency and mastery of a maneuver.

Teamed with simulator manufacturer and training provider CAE, researchers from SMU's AT&T Center for Virtualization are entering the fourth year of a project to develop and test methods to measure situational awareness and cognitive load sensing using biometrics and machine learning. The goal is to capture how pilots react to various scenarios in a flight simulator.

Machine learning is the study of algorithms that can improve automatically through experience and gathering data; it is seen as a part of artificial intelligence. The SMU project measures multiple physical reactions such as visual gaze patterns, pupil size, and heart rate to determine a pilot's level of engagement, workload, situational awareness, stress, or fatigue. Remarkably, some of the early automated biometric test results align closely with the assessments of highly experienced human evaluators.

OBJECTIVE, ACCURATE

"Our theory is that biometrics during the simulation will result in much more objective and accurate measurements than asking users a few questions after the simulation to measure their experience," said Suku Nair, director of the Center for Virtualization at SMU.

Eric Larson is the principal investigator on the study and is SMU's associate professor of computer science and a recognized expert in machine learning with more than 53 patents and published papers. "Accelerating learning with biometric sensing is a difficult, unproven hypothesis," he said. "This research seeks to understand how sensing can be used to understand a learner's mastery level in a difficult task, like flying an aircraft. We hope to advance the research field by being the first group to show whether personalized, automated learning can show efficacy in an actual learning scenario."

Early interest in the project was in support of a Department of Defense priority to automatically measure mission-critical, higher-order cognitive constructs, such as situational awareness, to accelerate training of complex skills and support multi-domain warfare. In 2019, SMU and CAE (then L3Harris Technologies) first demonstrated that machine learning based on biometric data could yield accurate performance results. During these demonstrations, pilot

eye scan techniques—using heat maps—were used to assess situational awareness and mental workload.

CAE was drawn to SMU for its expertise in biometric sensing and machine learning. "Our research will yield the first real-time measure of situational awareness, a critical high-order cognitive construct for dynamic, high-stakes domains such as military aviation," said Sandro Scielzo, a principal human systems scientist at CAE. "For example, our machine learning classifiers could identify a breakdown in perception allowing the remediation of poor visual scans. A breakdown in comprehension could also be mitigated by ensuring students remain within the zone of maximal adaptability via real-time training complexity adaptation. Thus, mission readiness could be achieved more effectively and rapidly."

To date, much of the data collection effort consisted of a repeated measures experiment using 40 test subjects with various backgrounds and experience levels flying a mixed reality flight simulator in a controlled environment. The simulator uses virtual reality (VR) to replicate a military fighter jet and incorporates visualization, head-up displays, and high-precision hand tracking.

Data collection equipment included a VR headset with an integral eye-tracker and a wrist-worn device to collect other biometric parameters. The eye-tracking system collected gaze patterns, pupillary response, and eye blinks. The wrist device collected heart rate, galvanic skin responses, electrodermal activity, and wrist acceleration. These data points are then correlated through computer analysis to determine levels of cognitive load or mental effort (workload), stimulation, or stress.

Measuring pilot workload was a key objective of this research, and the idea is to determine if the pilot has excess capacity to perform additional tasks or is becoming overwhelmed.

GAZE PATTERN

A lot can be learned from collecting this biometric data. As an example, a "poor" gaze pattern, depending on the phase of flight, can be indicative of a high workload. A "correct" gaze pattern would show a higher level of attention and performance. Likewise, fewer eye blinks or blinks of shorter duration can be correlated to tasks requiring greater attention. Heart rate and heart rate variability can be used for tracking effort while performing a mental task. In addition to looking at a singular biometric parameter, SMU's research performed comparative analysis to identify if there was a higher level of correlation between different parameters.

Key to this research is the ability to measure pilot workload and if there is excess capacity to perform additional tasks. Using biometrics and the machine learning algorithms, researchers could determine if the pilot subject was "loaded" or "unloaded." Likewise, this project creates an automated means to objectively evaluate a student's performance and the "level of ease" required to fly a maneuver.

The SMU/CAE team spent time at Edwards Air Force Base to demonstrate the utility of the physiological sensor system as a flight test data source to objectively assess pilot workload. This test involved two sorties in a C-17A jet and included aerial fueling maneuvers and lateral offset landings. A total of 33 maneuvers were recorded with good results. The study was deemed exploratory, and a hypothesis could be made that a "real flight" would capture a higher workload than the simulator data.

The use of biometrics and machine learning in a flight training environment may ultimately change the way pilots are trained. Physical reactions from a student may be a more reliable indicator of proficiency and mastery of a maneuver than the subjective view of an instructor or evaluator. While the SMU/CAE research validates the use of biometrics and machine learning on military aircraft, these processes, and techniques may be useful in civil aviation.

Biometric data captured during the experiment took place in a mixed-reality simulator setup using a virtual reality headset equipped with an integral eye-tracker.

Cirrus backlog shows growing demand for personal aircraft

BY KIM ROSENLOF

Demand for personal aviation appears to be at an all-time high, according to Cirrus Aircraft president Zean Nielsen, speaking during the company's CX 2022 event in Knoxville, Tennessee, on January 11. Providing generalized sales and production numbers, Nielsen cited a company backlog of about 700 SR series single-engine piston aircraft and "several hundred" SF50 Vision Jets even as the company increased production in 2021 to build an aircraft every 16 hours.

In 2021, Cirrus built 548 aircraft—86 of which were Vision Jets—versus 420 in 2020. The company saw an 80 percent increase in net orders per week for SR series products and more than 117 net orders for the Vision Jet in 2021.

"The fact that 39 percent of all the new [SR] orders in 2021 were [customers] new to aviation is huge," Nielsen said. "It means that we are expanding the size of the market. We believe the market is infinitely larger than the traditional GA market that we play in today. We just need to make it easy, affordable, and convenient to own and operate a Cirrus."

Nielsen said the company is about three years into a 10-year goal to triple its size and has already doubled. It hired 450 new employees in 2021 and is adding another 400 employees in production, engineering, IT, and training in 2022. In addition to hiring at the headquarters in Duluth, Minnesota, Cirrus has opened two new Innovation Centers in the past year—McKinney, Texas, north of Dallas; and Chandler, Arizona, southwest of Phoenix. Both are staffed with 16 to 18 engineers with the objective to hire an additional 100 engineers across all three facilities in 2022.

"We are doubling down on innovation and growth," said Nielsen. "We want to create a Mecca for engineers in innovation. Think of an Area 51-like environment where all the secret fun stuff takes place. That's how serious we are about innovation."

Nielsen and other company representatives underscored their pride in Cirrus's quest for innovation, noting the prestigious Robert J. Collier trophies bestowed on the company in 2018 for the Vision Jet and on Garmin for its Autoland system—rebranded as Safe Return in the Vision Jet—in 2021. The emphasis on safety, innovation, and customization options has drawn new customers; while 76 percent of Vision Jets delivered in 2021 went to SR owners, 16 percent were customers new to the Cirrus brand.

"We're deliberately pacing our production to get planes out in the field but also serving our customers appropriately," said Vision Jet product line director Matt Bergwall, who noted that the Vision Jet received more orders in 2021 than when the jet was first unveiled in 2008. "We're seeing a shift from the early adopters to the steady demand that we're seeing in the SR series airplane. We're excited about [the 117 net orders in 2021] and what it's doing to our order book."

The 2022 G6 SR series incorporates innovations that increase the speed, comfort, utility, and aesthetics of the single-engine high-performance SR20, SR22, and SR22T piston singles. The refined design shared by all three models includes several aerodynamic features to reduce drag and increase fuel efficiency such as sleeker wing and tail surfaces, redesigned wheel pants with tighter tolerances, and smoothed ice panel transition seams. The overall aerodynamic styling changes contribute to a true airspeed increase of up to 9 knots and greater fuel efficiency.

"This latest update to the G6 embodies our passion for continued innovation and commitment to design," said Ivy McIver, director of the SR series product line. "We are excited to continue introducing more people to personal aviation and empowering their 'Cirrus Life' story."

Other 2022 improvements to the G6 SR series include Cirrus Aircraft Spectra illuminated steps that also project the Cirrus logo under the step for increased safety and style; a redesigned baggage compartment door that unlocks with a key fob, opens past 90 degrees, and remains open for easier loading and unloading; a multi-functional device charging panel with USB-A and USB-C ports; and eight new paint schemes. The new paint schemes can also now be interchanged with a variety of all-leather interior options.

The company also announced updates to its Cirrus IQ app, which provides additional customization and information about the customer's own aircraft. The Cirrus IQ status screen now has aircraft model designation and a navigation bar with aircraft status, inspection intervals, and warranty expiration, all updated whenever the aircraft is flown. The app tracks and logs flights, using the information to send notifications of upcoming maintenance and inspection events through its Maintenance Minder module. It also compiles trip statistics in My Trips and updates date and flight-hour limits for the Spinner-to-Tail warranty coverage.

Asia-Pacific claims key role in urban air mobility

BY CHARLES ALCOCK

@ Singapore Airshow 2022

Developers of new electric aircraft say they are poised to deliver a revolution in public transportation using eVTOL vehicles to operate air taxi services in and around cities, as well as for cargo deliveries and emergency medical missions. While the Covid pandemic has squeezed the mainstream aviation industry, the advanced air mobility (AAM) sector has attracted large-scale investment to support its lofty ambitions to begin commercial operations.

The Asia-Pacific region appears well placed to become the epicenter of the new air transport business model, with Singapore widely viewed as a likely early adopter. Cities in countries such as China, South Korea, Japan, and Australia have all engaged in work with eVTOL aircraft manufacturers and companies looking to provide AAM services and infrastructure.

Since around 2016, a seemingly endless succession of start-ups has scrambled to bring to market an assortment of new electric vertical takeoff and landing (eVTOL) and short takeoff and landing (eSTOL) aircraft. Over and above their innovative distributed electric propulsion technology, some AAM pioneers aspire to achieve autonomous flight with no pilot on board for both passenger and cargo transformation, although the regulatory path seems lengthy and complex to navigate.

Several major aerospace groups have inserted themselves into the crowded AAM market. In September 2021, Airbus unveiled plans for a fixed-wing eVTOL aircraft called the CityAirbus NextGen, for which it aims to complete type certification in 2025.

On January 24, Boeing announced a $495 million investment in its Wisk Aero eVTOL aircraft joint venture with Kitty Hawk. The California-based start-up is working on what it describes as a sixth-generation, fully autonomous design.

Airliner and business jet manufacturer Embraer has channeled its AAM ambitions through its Eve Urban Air Mobility subsidiary, which emerged from the Brazilian airframer's EmbraerX technology incubator. It is working on a four-passenger aircraft that it expects to enter service in 2025.

Just over two years ago Volocopter gave locals a sneak preview of what eVTOL air taxi operations could look like when it conducted flight demonstrations with its technology demonstrator during a travel trade show in Singapore's Marina Bay district.

Ground infrastructure and drone operations group Skyports is one of several companies preparing plans for vertiports to support eVTOL flights in Singapore and other locations. Skyports sees early AAM adopters like Singapore, Japan, and Australia as providing a blueprint for rolling out operations elsewhere, in part because their aviation safety agencies are well regarded.

South Korean automotive group Hyundai is one of several international carmakers signaling their intention to enter the AAM sector. It has established an AAM division, called Supernal, that is now working on an eVTOL design.

In October, Japan Airlines said it intends to lease or purchase up to 100 of the four-passenger VX-4 eVTOL aircraft under development by UK-based Vertical Aerospace via leasing group Avolon. The carrier also has committed to taking 100 VoloCity aircraft and is working with Volocopter to plan an operational launch.

Given China's exponential urban expansion over the past decade or so, the country appears likely to serve as a strong AAM incubator. Eager to encourage the development of eVTOL technology, the Civil Aviation Administration of China has given local company EHang a strong home-field advantage in its plans to bring its autonomous, two-seat EH216 vehicle to market along with the larger VT-30 model.

Singapore could see new eVTOL aircraft like Volocopter's VoloCity model providing taxi services from vertiports starting around 2024.

China plays long game on C919 development

BY PETER SHAW-SMITH

@ Singapore Airshow 2022

As 2022 dawns—and despite the disappointment of China Eastern Airlines over delays to the first-ever delivery of the aircraft, expected before the end of 2021—the Commercial Aircraft Corporation of China (Comac) appears on the verge of making the C919 a reality later this year.

Still, progress remains slow, and deliveries of the aircraft, which has yet to receive certification from the Civil Aviation Administration of China (CAAC), appear likely to start no sooner than late in 2022.

Playing a long game, though, has become a strong suit of the People's Republic of China (PRC). As the Rand Corporation 2014 report, *The Effectiveness of China's Industrial Policies in Commercial Aviation Manufacturing*, conveyed, China has adopted a three-stage approach to development of commercial aircraft designed to disrupt the global Airbus-Boeing duopoly.

"To achieve the goal of creating a globally competitive commercial aviation manufacturing industry, the Chinese government has adopted a strategy of first engaging in domestic production and assembly using foreign designs, then developing its own designs with foreign assistance, culminating in completely independent local development of a commercial aircraft without foreign assistance," it said.

At face value, it would seem that the PRC by now has progressed to a point somewhere between Phases One and Two.

Comac came into existence in 2008, after its spinoff from AVIC, and production of the C919 prototype began in 2011. It completed the assembly of the first prototype in 2015, and the first flight took place in 2017.

Comac now projects that the C919 will earn Chinese certification by the end of this year.

Several international concerns have entered into joint ventures on the ground in China to develop elements of the C919 program, including GE and Safran (engines), Collins Aerospace (communications and navigation systems), Honeywell (flight control systems), and Liebherr Aerospace (landing gear and air management systems).

The PRC is advancing its domestic aviation industry through two major state-owned aircraft corporations, Aviation Industry Corporation of China (AVIC), which primarily concentrates on defense, and Comac, said a report titled "Military and Security Developments Involving the People's Republic of China 2021," published by the U.S. Office of the Secretary of Defense.

"The PRC's aviation industry is unable to produce reliable high-performance aircraft engines and relies on Western and Russian engines, such as the Franco-American CFM Leap 1C that powers the Comac C919 and the Russian D-30 that powers the Y-20 and H-6K and H6-N variants," the report said. "The PRC is developing the CJ-1000, AEF3500, and WS-20 high-bypass turbofan engines to power the C919, CR929, and Y-20, respectively."

The amount of time and money China has proved willing to invest in the project reflects its determination to press ahead. Last July, the Financial Times said Beijing had spent up to $72 billion in state-related support for the C919's development, citing estimates from U.S. think tank Center for Strategic and International Studies.

The bulk of just over 1,000 orders—300 firm, plus 700 commitments—for the C919 today came almost exclusively from Chinese airlines and lessors. In 2010, over a decade before it merged with AerCap last year, GE Capital Aviation Services announced orders for 10, apparently making it the first Western actor to make good on its interest in the C919. In 2015 Thailand's City Airways signed a preliminary agreement to take 10 of the narrow-bodies, but the airline went out of business.

Whether or not the C919 will be technologically current when it finally enters service, one thing is sure: if China sets its mind to putting the airplane in the air, it will make that happen.

Asia-Pacific airlines continue to bridle at border restrictions

BY PETER SHAW-SMITH

@ Singapore Airshow 2022

Philippine Airlines has exited bankruptcy but still faces challenges in the Asia-Pacific market.

The Association of Asia Pacific Airlines (AAPA) has said in its calendar year 2021 traffic results that international air travel remained at severely depressed levels, due to "the decimation in international air passenger demand" for the region's airlines, as tight border restrictions implemented in response to the prolonged Covid-19 pandemic dashed hopes of recovery in air travel markets.

"Overall, the 16.7 million international passengers carried in 2021 represented just 4.4 percent of the volumes recorded in 2019, whilst offered seat capacity averaged 13.8 percent of the levels registered in 2019," it said. "For the full year, the international passenger load factor was a paltry 32 percent."

A 2022 Airline Economics-KPMG report said no Asia-Pacific-based airline had ceased operations in 2021, although airlines that entered bankruptcy protection last year included Philippine Airlines and China's HNA, the parent of Hainan Airlines. Garuda Indonesia and AirAsia X of Malaysia had opted for restructuring.

Airline exits in the past 18 months have included NokScoot, the widebody-only Thailand-based joint venture between Nok Air and Singapore Airlines, Air Asia Japan, and Cathay Dragon.

Given the response of governments in the region to the pandemic in curbing air passenger traffic, Ascend by Cirium global head of consultancy Rob Morris told **AIN** he could not rule out further Asia-Pacific airline liquidations.

"Although the underlying demand dynamic in Asia-Pacific remains strong, continued government restrictions through 2022 are likely to continue to lead to a slower recovery in the region than we have seen in North and South America and Europe," he said. "In particular, the continued restriction on international travel to and from China...could continue to cause traffic and revenue challenges for airlines in the region."

By contrast, most domestic markets showed strengthening recoveries, raising the potential for some further airline restructuring or resizing in the region and possible market exits through liquidation.

"Given the severity of the pandemic in the region the number of airline failures to date has been remarkably low and we expect this to continue through the next 12 to 24 months as airlines instead restructure, sometimes through a bankruptcy process, to emerge as more efficient and leaner businesses more appropriately sized to the current market demand..." Morris said.

Siva Subramaniam, partner and specialist in aviation financing and leasing at Singapore-based law firm Herbert Smith Freehills, told **AIN** many airlines in the Asia-Pacific region continued to struggle.

"In December, Philippine Airlines exited something called a pre-packaged Chapter 11," he said. "Garuda Indonesia was initially looking at Chapter 11; now, they're looking at alternate ideas on how they can restructure: they're in a local [suspension of debt payment obligation] process."

Lion Air faced insolvency proceedings in France, he continued. "All the big airlines in Thailand had government money," he said. "Thai Airways is in a local bankruptcy proceeding. Unless you have government money like Singapore Airlines or Cathay, you're not going to survive this kind of shock without having some sort of deferral or restructuring."

Australia and New Zealand fared relatively well during Covid, but their airlines lost money due to no international travel.

Subramaniam commended the efforts of entrepreneur Tony Fernandez establishing the Malaysia-based Air Asia franchise, which operates 255 aircraft across its home fleet and those of current subsidiaries.

"You've seen how low-cost carriers have worked in Europe, and how WizzAir, Ryanair, and EasyJet have done well there," he said.

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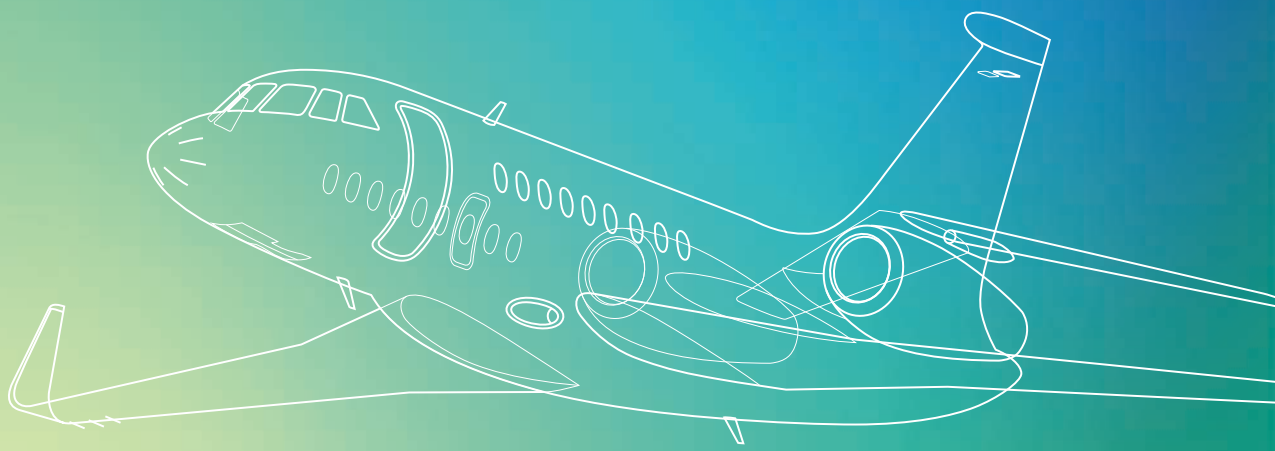

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Helicopter ambulance crews facing pandemic burnout

BY MARK HUBER

BARRY AMBROSE

Kenny Morrow needs to hire 35 more pilots. The market is slim pickings and Morrow is happy that his company's need is not greater. The COO of Metro Aviation oversees pilots and mechanics supporting 160 helicopter air ambulances—around 85 percent of them light twins—that primarily fly for hospital programs nationwide. Metro's fleet flies roughly 130 missions per day, and Covid has definitely accelerated that pace.

Over the last two years, helicopter air ambulances have flown into the eye of the great pandemic burnout, a microcosm of an overtaxed healthcare system that seems at times held together with little more than paper clips and duct tape. The increased flight volume is being driven by what Morrow calls health care "Tetris," a reference to the computer puzzle game. Covid has created stresses and shortages in the healthcare system as a whole and more patients need to be moved between facilities to get appropriate care due to capacity and medical personnel shortages. While many of these transports are far from exigent, ground ambulances alone can't handle the load.

"They call it bed management. They play this giant game of Tetris trying to fit people in where they belong with the right healthcare providers," Morrow said. "The ground [ambulance] providers have been struggling to keep up with the demand and that has pushed a lot of these transports to the air side." The trend means healthcare facilities must meticulously justify each air transport and document that no other patient conveyance is available.

Covid has also complicated air ambulance scheduling and outfitting, Morrow said. While a program used to be able to turn around a helicopter in 30 minutes, due to Covid disinfection protocols, that time has grown to two hours or more. And when it does pick up a patient, the demand for onboard oxygen is much higher when transporting a breathing-compromised Covid patient. He added, "The treatment that they're [flight nurses, paramedics, and doctors] providing to patients while in transport consumes a lot more oxygen supply than

what we have been accustomed to and now we have to carry additional oxygen tanks. Things like that just change the landscape."

But the biggest change has been among Metro's pilots and mechanics, who, along with an outfitted helicopter, are typically provided as part of the company's contract with each medical program it serves. The current competitive employment environment means that Metro has had to pay these team members signing and retention bonuses, improve base wages, substantially increase overtime incentives, and offer a more liberal vacation/personal days off policy, Morrow said. And sometimes that isn't even enough to combat occupational burnout. Metro was offering time and half overtime pay and bumped that to double time starting this year for pilots who cover open shifts to which they were not originally assigned. It has also liberalized its work-from-home policy—when possible—and now allows employees to use days off as they are accrued, as opposed to requiring them to bank them for use in the next calendar year.

The pandemic has shifted how employees view work-life balance not just for Metro, but for the rest of the U.S., Morrow believes. "It's not about the money anymore, it's quality of life. There's a shift. People want to spend more time with their families. And it's not just pilots, but people in general."

WORKFORCE ISSUES

Cameron Curtis, CEO of the Association of Air Medical Services (AAMS), the air ambulance transport lobby, agrees. She said AAMS is developing tools and programs to address air ambulance personnel issues in the pandemic era. "We're going to focus on workforce issues and how we can support our members," she said. This includes formation of a "workforce issues council."

"People are burned out, everyone in health care is just exhausted," she said. "What you are seeing in the greater healthcare industry is happening everywhere. There's more wage competition and

CAMERON CURTIS
CEO, ASSOCIATION OF AIR MEDICAL SERVICES

offers of more benefits, more time off, that sort of thing." In addition to education and patient outcome programs, Curtis said AAMS is focusing on the "Taking Care of Our Own" program through the Medevac Foundation to address air ambulance crew needs exacerbated by the stress of the pandemic. "The program is focused on working with frontline first responders with regard to substance abuse, suicide prevention, and mental health and wellness." Curtis added that these crews have endured conditions "that are unimaginable to many of us who haven't [been there]. Everyone is just stressed out and needs a break. We're working to create solutions and resources that not only support our members but everyone from the bottom up."

Against this backdrop, AAMS members, particularly community-based programs—as opposed to hospital-based programs– are struggling with the interim final rules created by administrating agencies related to the federal "No Surprises" medical billing act, which took effect earlier this year. While AAMS and its members support that legislation, they are at odds with its implementation. At issue are the rules governing the independent dispute resolution (IDR) process to settle billing and compensation differences between insurers and medical providers.

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AAMS claims they are skewed in favor of health insurers, allowing them to underpay all health care providers including the air ambulance sector.

AAMS has sued in federal court on behalf of its members, claiming that the implementation governing the IDR process is unfair. Chris Eastlee, AAMS v-p of public affairs, claims at least one large health insurer, bolstered by the rules related to the No Surprises act, is no longer entering into in-network agreements with air ambulance companies. This has potential long-term negative consequences for broad swaths of the air ambulance business and imposes arbitrary rules that do not consider "the quality of the medical care or capabilities of the crew."

AAMS is not alone in its opposition to the rules, Eastlee said, noting that they are also opposed by the American Medical Association and a variety of group medical practices. But for AAMS the implementation rules "and the effect [they] may have on the sustainability of emergency medical transport" looms large, he said.

For now, at least, Eastlee said the economic state of the industry remains robust, albeit under increasing cost and staffing pressures. "I would say that the overall health of the industry is still very, very strong," he said. "While the pandemic has caused issues with both the supply chain and staffing, we've never seen a greater need for emergency medical transport."

Metro Aviation's Airbus H160 aeromedical cabin, on display at Heli-Expo 2019.

"While the pandemic has caused issues with both the supply chain and staffing, we've never seen a greater need for emergency medical transport."

LOWER-COST OPTIONS

But cost pressures continue to lurk in the background. Metro's Morrow points to the success of its EC145e program as an example. Metro has negotiated for the delivery of 37 of these lower-priced Airbus Helicopters light twins in recent years, and the program has been a hit with both customers of its own programs and competitors it supplies that are looking for a cost-effective solution for an IFR-capable twin with the ability to transport outsized equipment such as patient isolettes, carry extra medical crew, and fly longer missions.

He also said the company is in discussions with customers over the implementation of drones as a further cost-cutting measure. Metro is studying the use of drones in-house as a means of cutting its helicopter parts inventory costs. Each Metro base stocks roughly $200,000 worth of parts, he said. By using drones to ferry parts between proximate bases on an as-needed basis, Metro can potentially cut those inventory costs substantially. "We could cut the amount of inventory that we have to keep on hand probably in half, which is huge. We're talking real money." Unmanned and drone delivery aircraft are "obviously the way of the future and there is going to be demand, but there is a lot of work that has to be done airspace- and certification-wise," Morrow said.

Metro is also experimenting with the use of weather cameras as a way to minimize canceled flights due to off-site weather reporting.

Blade Air Mobility CEO Rob Weisenthal already sees both current helicopter and future unmanned medical transport as an expanding profit center for his company, which recently acquired Trinity Air, a firm that specializes in arranging human organ and medical supply transport, adding it to its own growing MediMobility organ transport business. While Blade is best-known as a per-seat helicopter booking platform, organ transport at the end of 2021 accounted for more than 25 percent of its total revenues. "There's a lot of growth opportunity there," Weisenthal said, adding that Blade can cut the cost of organ transport by up to 75 percent flying organs in helicopters and eventually other VTOL aircraft, compared to the current patchwork of a combination of ground ambulances and fixed-wing aircraft for the missions. "It lowers the costs for hospitals and patients," he said.

Sikorsky's Igor Cherepinsky, director of innovations, sees a role for its Matrix autonomous flight technology in future air medical applications, and this can be scaled to aircraft as small as eVTOLs and "even smaller" aircraft. "You can scale the Matrix architecture for the use case," he said.

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BY JERRY SIEBENMARK

Gulfstream Continues Service Center Expansion

This year will see the opening of a Gulfstream Customer Support service center in the Dallas-Fort Worth area, and a service center will debut in 2023 in Mesa, Arizona, the Savannah, Georgia-based airframer said as part of an update on its customer-service activities.

Gulfstream expects to open the nearly 160,000-sq-ft Texas service center this year at Fort Worth Alliance Airport. It plans to transfer customer-support employees from its Dallas Love Field facility to Fort Worth in addition to creating 50 new jobs.

That opening will be followed next year with the debut of the service center in Mesa, where Gulfstream is building a 225,000-sq-ft facility that is expected to employ more than 200 people and gain LEED Silver certification as part of the company's sustainability push. The company said it will begin operating out of an existing Mesa facility early this year.

FAA Awards $5 Million in Grants To Develop Aviation Maintenance Technicians

The FAA has awarded $5 million in grants to 15 organizations and institutions in 14 states through the Aviation Maintenance Technical Workers Workforce Development Grants program. These grants go to organizations and institutions that teach technical skills and prepare a diverse group of people to pursue aviation maintenance careers.

The grants range in value from $100,000 to $500,000. Recipients can use them to establish educational programs; provide scholarships or apprenticeships to prospective aviation maintenance technicians; offer outreach for careers in aviation maintenance to primary, secondary, and post-secondary school students; or support educational opportunities in economically disadvantaged areas.

ATP, Bluetail Partner on Aircraft Records Access

Aviation software and information services provider ATP has partnered with records management firm Bluetail to streamline document access for aircraft owners and operators. Under the collaboration, ATP's customers will now have direct access—through its Flightdocs platform—to records digitized by Bluetail.

Whether for a prebuy report, major inspection, or an audit, Flightdocs users will be able to search and open historical electronic records over the life of the aircraft.

Flying Classroom Bombardier Academy Sees First Graduates

The Flying Classroom Bombardier Academy graduated its first class of 30 students at the NBAA regional forum at Miami-Opa locka Executive Airport (KOPF) on February 2. Announced at NBAA 2019, the academy is a partnership between Barrington Irving's Flying Classroom and Bombardier to familiarize college students, military veterans, and technical school students with what business aviation has to offer career-wise.

According to Irving, the first class—the Bombardier AMT Academy—was delayed due to the pandemic. He said that all 30 students had perfect attendance records for the three-week course, which familiarized them with the full Bombardier business jet lineup and gave them real-world hands-on experience from Part 147 instructors. Other three-week courses, which are free and held on a rotating schedule, include the Bombardier Aftermarket Academy and Bombardier Avionics Academy.

At the conclusion of a course, graduates can be offered jobs at Bombardier service centers, internships, or other opportunities. In fact, many of the first class have been offered jobs at Bombardier's Fort Lauderdale service center, which will be moving to a larger facility at KOPF later this year.

At Sky Aircraft Maintenance, legacy bizjets a focus

With more than a year in business operating from a 12,000-sq-ft hangar at Davidson County Airport (KEXX) in Lexington, North Carolina, Sky Aircraft Maintenance (SAM) is planning a 65,000-sq-ft expansion project. It's one of a few expansion programs underway for parent company Sky Aviation Holdings, president Tom Conlan told **AIN**.

SAM recently secured a 40-year lease on four acres of land from KEXX, where it plans to construct two 20,000-sq-ft hangars—one dedicated to aircraft maintenance and the other to avionics—and remaining space for offices and shops, including for paint, interiors, and woodworking. SAM also provides aircraft parts sales. Conlan said he hopes to begin construction early this summer with completion by the end of this year or the first of next year. SAM will continue to use its 12,000-sq-ft hangar for an aircraft parting-out operation.

Sky Aircraft Maintenance has been operating from this 12,000-sq-ft hangar at Davidson County Airport in North Carolina. Below, Sky Aircraft's recently finished complete refurbishment of a Citation Ultra twinjet.

The new facilities will serve two focuses at SAM: provide regular aircraft maintenance services to owners and operators and growing its maintenance and refurbishment business for legacy business jet models such as the Hawker 800 and 900, Beechjet 400A/Hawker 400XP, Learjet 60, and Cessna Citation V, Ultra, Encore, Bravo, Excel, and XLS. "Business has just been outstanding," Conlan said. "We've had four and five airplanes deep sitting on the ramp waiting to get in."

SAM, which has 17 employees—"now on the way to 70," Conlan said—started as an outgrowth of Sky Aviation Holdings, which began as a business buying and refurbishing legacy business jets after Conlan got out of the charter business in 2014. The company later added subsidiary TBO Extension, which is an engine life extension program for the Pratt & Whitney JT15D-5. "We're getting ready to look at Bravos and a couple of other engines that are similar to the JT15," Conlan added.

More recently, TBO Extension completed an integrator agreement with Honeywell BendixKing to provide equipment and technology to complete its Skyview 1000 STC. The first phase of the new avionics STC is to update legacy jets equipped with Primus 1000 avionics to include all Cessna Citation Bravos, Ultras, Encores, and Excels that currently are equipped with the original Primus 1000 suite. Conlan said plans call for TBO Extension to do a similar STC for business jets that are equipped with Collins Aerospace's Pro Line 4.

Conlan said there are 3,000 legacy aircraft that SAM could completely refurbish and sell in a market where there's a dearth of preowned business jets. Even at 20 percent market penetration, that amounts to 600 airplanes over the course of four years, he added. SAM recently finished complete refurbishments on a Citation Ultra and two Beechjets.

"Our goal is to continue to breathe life in these legacy airplanes much as we did with TBO engine extension," Conlan explained. "We see a lot of value in them and of course, the marketplace has figured out they've become significantly undervalued after the Great Recession of '08, '09. They now realize there's a lot of inherent value to these aircraft and given the right upgrades, the right maintenance, and things of that nature you can continue to [fly] these things for a long time to come." J.S.

ExecuJet Expands Asia-Pacific Footprint

International aviation services provider ExecuJet has expanded its reach in the Australasia region with the purchase of Air Center One, a long-standing FBO at New Zealand's Auckland International Airport (NZAA). The Luxaviation Group subsidiary, a member of the Paragon Aviation Network, now has 24 FBOs, including three others in the area—at Wellington International Airport, which it manages in partnership with Capital Jet Services, and in Australia at Sydney Kingsford Smith Airport and Essendon Fields Airport in Melbourne.

NZAA is the country's busiest airport with more than 2,000 business aviation flights a year. International flights represent more than half of the operations, with destinations such as Australia, Asia, the Pacific Islands, and the U.S.

In operation for more than 35 years, the Air Center One facility offers a 1,750-sq-ft (167-sq-m) terminal with customs and immigration processing services, a dedicated guest lounge with views of the ramp, conference rooms, crew lounge, showers, and concierge. Third-party hangar space is available for itinerant business aircraft. Founder Robin Leach will remain with the facility to ensure a smooth transition.

"Air Center One has been for a long time our preferred handling agent in Auckland, which is a major destination for New Zealand and complements our partnership at the Wellington FBO," said Luxaviation CEO Patrick Hansen.

Jetex Forms JV on Green Berlin FBO

Global aviation services provider Jetex has signed a joint venture agreement with Berlin-Neuhardenberg Airport (EDON) to develop an FBO on the field, which is approximately a one-hour drive east of Berlin. While no timeline was given for the project, the facility will include a 16,000-sq-ft (1,500-sq-m) private jet terminal and conference center, along with additional parking stands to accommodate more than 20 private aircraft. MRO service will also be provided.

"Jetex's involvement is an equally important step in the development of our airport," said Peter Sølbeck, principal shareholder and managing director of Airport Development, which has owned and operated the airport for 15 years. "Since 2007, we...have been striving for the civil reuse of this former GDR government airport."

Open 24/7, EDON, a former military airfield, is not slot controlled and has a 7,874-foot-long, 164-foot-wide runway that can handle aircraft up to the size of an Airbus A350. In 2012, Airport Development built one of the largest solar-power farms in Europe on the airport property. Capable of generating more than 175 megawatts of energy, this farm will help the new facility achieve its zero-carbon emissions ambitions.

Cutter Aviation Consolidates at Texas Airport

Arizona-based Cutter Aviation has been on an expansion spree with the acquisition of three FBOs in three months.

Following its acquisition of AeroJet FBO at Texas's Georgetown Executive Airport (KGTU) at the end of December, Cutter Aviation has further consolidated its presence at the airport with the purchase of GTU Jet FBO—the second full-service provider on the field. According to the company, it will relocate its FBO operation into the GTU terminal and renovate the former AeroJet facility for other purposes such as office space.

The family-owned business, which is closing in on its 95th anniversary, further increased its footprint in its home state with the purchase of Legend Aviation, the lone service provider at Prescott Regional Airport-Ernest A. Love Field.

The move brings Cutter to six full-service FBOs—including three in Arizona—and burnished its status as an aviation powerhouse in the U.S. Southwest.

Auburn Aviation, Auburn University Regional Airport

Auburn University in Alabama knows a thing or two about aviation. It should, with its predecessor offering aerodynamics instruction as early as 1910, just a scant seven years after the Wright Brothers made their historic first flight. By the early '30s, aviation administration courses were part of its educational offerings, and in 1939, as the world balanced on a precipice, the university acquired a privately-owned airport—now known as Auburn University Regional Airport (KAUO)—to enable it to participate in the Civilian Pilot Training Program, a federal plan to jumpstart the flow of military pilots in case of war. Nowadays, the university has approximately 600 aviation students at any given time, split between the flight degree program and the aviation management degree.

Since the early 1940s, the school has served the airport's customers as the lone FBO on the field. Today the Auburn Aviation facility consists of a 26,000-sq-ft, two-story terminal with a life-size sculpture of Auburn's mascot—a tiger named Bob—painted in the university's colors and wearing a flight jacket and scarf occupying a place of honor in the lobby.

As well, it includes downstairs and upstairs passenger seating areas, a 14-seat, A/V-equipped conference room, pilot lounge with a pair of snooze rooms, a well-equipped catering kitchen, tenant offices, and a second-floor sheltered terrace with rocking chairs offering prime viewing of activity at the airport. According to airport director Bill Hutto, the airport tallies approximately 100,000 operations a year and the number is rising. Other services include onsite car rental, crew cars, and linen and tableware cleaning. The latter are handled onsite in the FBO, but Hutto recalls the days prior to the installation of the kitchen when his staff would take customers' linens and dishware home to launder and wash.

Auburn University has operated its own airport and FBO for more than 80 years. With traffic growing, the administration plans to expand ramps and hangars to accommodate more of the 100 light aircraft, small jets, and turboprops that call KAUO home.

The FBO is home to approximately 100 aircraft, including 11 jets and turboprops ranging from a King Air C90 to Citation CJ4s. The latter are mainly housed in T-hangars but a private developer has plans to build a new complex consisting of five 4,300-sq-ft hangars with construction possibly starting this year. KAUO occupies 423 acres, with the FBO's ramp accounting for 5.5 of them, but according to Hutto, that isn't enough. "We desperately need more tiedowns to accommodate the growth," he said, adding that the airport would like to add another two to three acres of apron in order to accommodate more aircraft. "It depends on how quickly the FAA can help us with it and if they can, but that is one of our big requests right now."

With college football practically a religion in Alabama, and with Auburn's Tigers possessing a passionate fanbase, fall Saturdays that correspond with home game days can see more than 200 aircraft flock to the airport, exacerbating the parking situation.

While the FBO, which is open weekdays from 7 a.m. until 7 p.m. and weekends from 8 a.m. until 5 p.m., has seven full-time employees, it also has 17 part-time workers, all trained in the NATA Safety 1st program. With such a large pool of aviation students, it's only natural that many would wish to work at the airport to soak up as much real-world learning as possible. "It's not specifically part of the curriculum but we do have many in the degrees, whether professional flight or aviation management, that work here," said Rick Yerby, the FBO's manager of aircraft services, adding that employment is not limited to just those programs. "That's not a requirement, but we have several in our customer service downstairs and about five or six more [out on the line] who are aviation students as well." Some of those students go on to gain permanent employment at the FBO, including the new assistant airport director, who started there as a line technician.

The location's World Fuel Services-supplied tank farm consists of a pair of 12,000-gallon storage tanks, one for jet-A and one for avgas. Yerby noted that the airport is considering doubling its jet fuel capacity with the addition of another tank. It is served by 5,000 and 3,000-gallon jet fuelers and a pair of avgas trucks holding 3,000 and 1,000 gallons respectively.

With its main runway length of 5,264 feet, the airport certainly sees its share of large business jets, but Yerby noted it doesn't matter how his customers arrive. "We treat everybody whether they come in a [Cessna] 150 or a Global with the utmost respect regardless," he told **AIN**. "We want you to come in and leave happy." C.E.

BY DAVID JACK KENNY

Preliminary Reports

Metroliner Lost in Apparent Engine Failure

Swearingen SA-226AT, Dec. 10, 2021, Manchester, New Hampshire

The solo pilot was killed and the airplane destroyed after a reported engine failure during a nighttime ILS approach to Runway 06 of the Manchester Boston Regional Airport (KMHT). Nine seconds after that transmission, radar and radio contact were lost with the airplane about one-quarter mile from the runway threshold. Prevailing weather included 10-mile visibility under a broken layer at 1,700 feet.

The wreckage was found on a sand jetty in the river. There was no debris path but there was a crater in the sand about six feet long, three feet wide, and two feet deep. A post-crash fire had consumed the cockpit, cabin, and both wings. The NTSB preliminary report indicates that the left propeller "did not exhibit rotational damage" while "the right propeller blades appeared to be at or near the feathered position."

Premature Turn Preceded Colorado CFIT

Piper PA-46-500TP, Dec. 10, 2021, Steamboat Springs, Colorado

Archived ADS-B data showed that the single-engine turboprop flew the intermediate segments of the GPS-E approach to Steamboat Springs more than 500 feet below the procedure's minimum altitudes, then initiated a left turn similar to the missed approach procedure at the last intermediate waypoint some 2.2 miles short of the missed approach point. The solo pilot was killed and the airplane destroyed when it struck Emerald Mountain at an elevation of 8,172 feet, just 1,290 feet above airport elevation. Weather conditions included one-mile visibility at night under a 1,200-foot overcast. Minimum visibility for the approach was 1-1/4 miles for Category A aircraft and 1-1/2 miles for Category B.

The flight departed Cody, Wyoming, at 17:05 local time on an IFR flight plan to Steamboat Springs. At 17:57, the pilot was cleared for the GPS-E approach. To assure terrain clearance, the procedure requires crossing the final approach fix at or above 9,700 feet and the last waypoint no lower than 8,740 feet. Minimum descent altitude is 8,140 feet (1,258 feet above ground level) and the missed approach point is the Runway 32 threshold. The missed approach procedure begins with a climbing left turn to 11,300 feet en route to a holding fix. However, the flight crossed the final approach fix at 9,100 feet and descended to 8,200 feet by the last waypoint, where it began a 180-degree left turn while continuing to descend. It reached 7,850 feet before starting to climb again. The last ADS-B data point was recorded at 18:08:49 at an indicated altitude of 8,125 feet about 3.5 miles north of the accident site.

Charity Flight Ends in Tragedy

Bell 206B-3 JetRanger III, Dec. 30, 2021, Livingston, Texas

One passenger was killed, the pilot was seriously injured, and the two remaining passengers suffered minor injuries when the helicopter went down on a brush pile following an apparent loss of yaw control. Survivors said that the deceased passenger had won the sightseeing flight in a charity auction and asked the pilot to fly to his childhood home about 25 nm east-northeast of the Livingston airport. When low cloud cover required them to turn back, the pilot instead flew over the passenger's current home and brought the helicopter to a hover over trees, facing south.

The helicopter began rotating to the right, which a surviving passenger realized was not a deliberate maneuver by the pilot. After two complete revolutions, the main rotor blades struck trees and the helicopter fell to the ground, coming to rest on its left side on a pile of brush left by land-clearing operations. The engine continued to run, so after attending to the pilot and front-seat passenger, a rear-seat passenger "began turning any switch he could find to the 'off' position" until the engine stopped. Winds at the nearest reporting station 31 nm away were recorded as being from 160 degrees at three knots.

All Onboard Survive Medevac Crash

Eurocopter EC135P2+, Jan. 11, 2022, Drexel Hill, Pennsylvania

The pilot suffered serious injuries but the patient, medic, and flight nurse escaped unhurt after the helicopter crashed onto the grounds of a church in the Philadelphia suburbs. The flight was en route from the Chambersburg, Pennsylvania, Hospital Heliport to the Children's Hospital of Philadelphia. Radar track data showed that it descended from 3,500 to 2,800 and then 1,500 feet while approaching the Children's Hospital helipad, then disappeared from radar six seconds after entering a series of attitude and altitude excursions.

Two witnesses described the helicopter as "very low...very loud." One said it "banked right and left out of control, then appeared to straighten" before disappearing from view. The other saw it "in a nose-down attitude...far less than 1,000 feet above the ground...rotating around

its longitudinal axis." Doorbell camera footage showed it descending steeply with "small but rapid changes in each axis" before leveling off and striking the ground in a slightly nose-high attitude, severing the tailboom.

The pilot's interview was postponed due to his medical condition. The flight medic recalled that they were within 10 minutes of landing and that he and the flight nurse were on their feet attending to the patient when he heard a loud bang and the helicopter rolled hard to the right. He recalled it rolling inverted, "perhaps multiple times," pinning himself and the flight nurse to the ceiling while internal communications were lost. The helicopter then leveled off long enough for the medical crew to secure the patient and strap in prior to touchdown. The flight nurse first evacuated the patient and then the pilot, while the medic shut down the engines.

Downloaded engine monitoring data showed no anomalies during the flight, and initial examination of the wreckage did not reveal any mechanical failure prior to impact.

Final Reports

Short Approach, Student Workload Cited in Training Undershoot

Cessna 551 SP, April 24, 2019, Siegerland Airport, North Rhine-Westphalia, Germany

Germany's BFU concluded that excessive student workload during an abbreviated 1.5-nautical-mile traffic pattern led to an unstabilized approach with an excessive descent rate and insufficient airspeed. The Citation II touched down 5.2 meters (17 feet) short of the Runway 13 threshold following a visual approach on the fourth circuit of a type-rating training flight. Both legs of the main landing gear collapsed and the left wing hit the runway, damaging the left fuel tank and igniting a fire that consumed most of the left wing before airport firefighters could extinguish it. Both the 35-year-old student and his 70-year-old instructor were able to evacuate the aircraft without injury.

The previous three landings followed ILS approaches to Runway 31, beginning with a straight-in approach on arrival from the Reichelsheim airport. Radar track data showed that the following two circuits were flown with an outbound leg of about nine nm to intercept the localizer before capturing the glideslope. All three descent paths were stable at groundspeeds ranging from 112 to 128 knots with a slight tailwind. After the third landing, the tower controller reversed pattern direction in response to a shift in the wind from southwest to east. The Citation took off from Runway 13 at 14:34 local time, reaching 1,500 feet above ground level on the downwind leg in left traffic.

It descended 700 feet while maneuvering to enter a 1.5-nm final approach leg as the pilots completed the approach and landing checklists. In the last 22 seconds captured by radar, groundspeed decayed from 106 to 81 knots while its descent rate increased to 500 feet per minute. Both student and instructor told investigators that the airplane seemed too low and they advanced the thrust levers as the sink rate increased but too late for the engines to spool up enough to arrest the descent.

The BFU noted that the student had passed his written exam for the C551 type rating the previous week. His jet experience was limited to one flight in the same airplane the previous day, making it likely that lack of familiarity with the cockpit layout and procedures increased his workload during the final circuit. An inoperative precision approach path indicator (PAPI) and optical illusions arising from upsloping terrain under the final approach course and a runway wider than that at Reichelshelm could also have contributed to a perception that the airplane was too high.

Wear and Hard Landing Implicated in Gear Collapse

Mitsubishi MU-2B-40, June 18, 2021, Haguenau Airport, Bas-Rhin, Alsace, France

"Slight signs of fatigue failure" were found around the edges of a pin that fractured after touchdown, allowing the nose gear to collapse. The pin connected the actuator to the nose gear drag strut. The 69-year-old pilot also acknowledged having landed "hard" and characterized the airplane as "difficult to land." His 4,350 hours of flight experience included about 2,000 hours in the accident airplane, seven of them in the previous three months. Following the collapse, the airplane slid some 400 meters (1,300 feet) down the runway. The accident occurred in a three-knot crosswind on dry pavement.

The BEA's report noted that over the previous decade, Mitsubishi has documented one or two nose gear failures per year, leading the company to issue a series of Service Notices and Service Recommendations regarding the inspection, adjustment, and replacement of the nose gear locking system. The pin in question was not specifically addressed. The airplane's maintenance provider reported that the nose gear locking system had last been inspected on Sept. 3, 2019, as directed by the most recent Service Recommendation. The numbers of landings and flight hours since then were not reported in the English translation of the final report.

Compliance Countdown

BY GORDON GILBERT

JUST AROUND THE CORNER

March 7, 2022

NEW

Australia: Accident Investigation Rules

New categories of aircraft operations, additional responsible persons, and harmonized definitions with international standards are drafted in proposed updates to Australia's transport safety investigation regulations. The Australia Transportation Safety Board is calling on its aviation, marine, and rail stakeholders to take part in the consultation process with the goal of finalizing the new regulations by mid-year and making them effective at the start of 2023. Comments are due by March 7, 2022.

Within 6 Months

March 21, 2022

Europe: Electric/Hybrid Engines

EASA has issued a notice of proposed amendment (NPA) that aims to close the certification gaps that pose compliance difficulties for crewed aircraft that do not use conventional piston or turbine engine power. Currently, regulatory exemptions are needed to obtain approval for pending new aircraft designs intended to be powered by electrical batteries and engines. The NPA would also integrate into the regulations hybrid powerplant systems that transform fossil-fuel energy into electrical energy. Comments on the proposal are due by March 21, 2022.

March 22, 2022

U.S.: Nashville Area Airspace

The FAA is proposing to modify the airspace over Nashville International Airport in Tennessee. Under the proposal, existing flight paths would not change but the area where pilots are required to interact with ATC would expand. The agency says the "airspace change is to better manage the complexity and volume of aviation activities in the area." Input from a virtual public meeting, scheduled for February 22 from 6 to 8 p.m., will assist the FAA in drafting an official notice of proposed rulemaking (NPRM). Although the NPRM has yet to be published, the FAA has already set March 22, 2022 as the comment deadline.

NEW

April 4, 2022

U.S.: Engine Emission Test Procedures

The U.S. Environmental Protection Agency (EPA) is proposing particulate matter emission standards and test procedures applicable to aircraft engines used in subsonic airplanes with an output greater than 26.7 kilonewtons (6,000 pounds thrust) to replace the existing smoke standard. These proposed standards would apply to both new type design and in production engines starting on Jan. 1, 2023. The EPA is also proposing to apply the smoke number standards to engines less than or equal to 26.7 kilonewtons. Comments are due April 4, 2022. This proposal is different from new EPA regulations effective Jan 1, 2023 establishing emissions standards for turbine engines.

April 30, 2022

Colombia: ADS-B Out Mandate

Starting on April 30, 2022, unless specifically authorized by ATC, no person may operate an aircraft within Colombian territory in any controlled airspace or other airspace in which a transponder is required without ADS-B Out operational capability.

June 10, 2022

U.S.: Pilot Records Database Reporting

By June 10, 2022, begin reporting information to the Pilot Records Database about individuals employed as pilots in commercial operations (including Part 135 air taxi and Part 91 air tour operators). Required information encompasses drug and alcohol testing results, training, qualification, and proficiency records, final disciplinary action records; records concerning separation of employment; and verification of a motor vehicle driving record search.

Sept. 16, 2022 and Sept. 16, 2023

U.S.: UAS Remote ID

New FAR Part 89 requires that after Sept. 16, 2022, no unmanned aircraft system can be produced without FAA-approved remote ID capability. After Sept. 16, 2023, no unmanned aircraft can be operated unless it is equipped with remote ID capability as described in new Part 89 or is transmitting ADS-B Out under Part 91.

Within 12 Months

Nov. 13, 2022

Australia: Airport Certification

Revised Australian airport certification regulations (CASR Part 139) and an accompanying revised manual of standards (MOS) went into effect on Aug. 13, 2021. Under a transition period, operators of certified airports have until Nov. 13, 2022 to fully comply with the requirements and MOS publications.

Dec. 12, 2022

Canada: Duty/Rest Regulation

Revisions to duty time and rest regulations for Canadian-registered commuter and air taxi operators of turbine and non-turbine aircraft (CAR Parts 704 and 703) go into effect on Dec. 12, 2022. Transport Canada said the changes include: prescribed flight and duty time limits that respect modern scientific research and international standards to limit the amount of time a crewmember can be on the job; and fatigue risk-management systems that will require operators to demonstrate that any variance to the prescribed flight and duty time limits will not adversely affect the level of flight crew fatigue or alertness.

Dec. 31, 2022

New Zealand: ADS-B Out Mandate

Covid-19 pandemic implications prompted New Zealand to extend its ADS-B Out compliance date for one year from the previous deadline of Dec. 31, 2021. The ADS-B provisions, which were already mandatory for aircraft flying above 24,500 feet, will start to apply in the rest of New Zealand's controlled airspace by Dec. 31, 2022.

Dec. 31, 2022

Mexico: CVRs and FDRs

Cockpit voice and flight data equipment requirements for turbine aircraft operations (including air taxis/charter operations) go into force incrementally from Dec. 31, 2020 through Dec. 31, 2022 based on the number of aircraft that are in an operator's fleet. The rules generally apply to turbine-powered airplanes with 10 or more passenger seats and large turbine helicopters.

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

People in Aviation

BY KERRY LYNCH

Aloft AeroArchitects has selected **Scott Meyer** to succeed **Robert Sundin** as CEO. Sundin is retiring after more than 40 years in the aviation industry. Meyer brings 30 years of aerospace and business aviation experience, beginning in engineering in advanced technologies and later, holding roles including CEO of the Comlux America MRO and completion center and COO for North American operations at Flying Colours.

JetAviva is transitioning leadership with **Emily Deaton** taking the helm as CEO. Deaton, who had been COO, succeeds **Tim White**, who has led the aircraft brokerage firm since 2016 and is taking the role of vice-chairman. Deaton joined jetAviva in 2019 as v-p of sales after serving as manager of CRM strategy and customer experience for Embraer Executive Jets.

PAUL SANDSTROM

Web Manuals promoted **Paul Sandstrom** to COO and **Krister Genmark** to v-p of sales worldwide. A 10-year veteran of Web Manuals, Sandstrom was previously chief revenue officer and director of operations for Europe, the Middle East, and Africa. Genmark joined the company in 2016 as a regional manager for the Americas and was responsible for setting up Web Manuals' North American office.

The *National Air Transportation Association* (NATA) promoted **Ryan Waguespack** to executive v-p. A former charter and management executive at Summit Aviation, Waguespack joined NATA in November 2018 as senior v-p of aircraft management, air charter services, and MROs. In addition, the association brought longtime FAA official **Keith DeBerry** on board in a full-time capacity as senior v-p of safety and education. DeBerry, who has 45 years of aviation experience including more than two decades in FAA leadership roles, had previously served as senior advisor of regulatory affairs in maintenance for the association and before that had been director of the FAA Academy.

KEITH DEBERRY

Jake Banglesdorf was promoted to executive v-p for at *Assent Aeronautics*. Banglesdorf joined Assent Aeronautics in 2019 after serving with Charlie Bravo Aviation.

USAIG has promoted **MC Ernst** to senior v-p and Special Risks Underwriting Department manager. Ernst has served with the company for more than nine years, becoming airline underwriting manager in 2018 and then senior v-p in 2020.

MC ERNST

Bombardier realigned its international sales leadership team naming **Emmanuel Bornand** as v-p of sales for Europe, Russia, CIS, the Middle East, and Africa. Bornand has served with Bombardier since 2008 and previously had been a regional v-p for Europe. **Stéphane Leroy** is adding sales in Asia-Pacific and China to his role of v-p of sales for specialized aircraft. Leroy has a 20-year background with Bombardier and has spent eight years in Asia. Bombardier also named **Michael Anckner** v-p of sales for U.S. corporate fleets, specialized aircraft, and Latin America. Most recently v-p of worldwide Learjet sales, corporate fleets, and specialized aircraft, Anckner has served with Bombardier for 11 years.

National Transportation Safety Board chair **Jennifer Homendy** named her leadership team, selecting **Dana Schulze** to serve as managing director. Schulze previously was director of the Office of Aviation Safety and has served as an aircraft system safety engineer, chief of the aviation engineering division, and chief of the major investigations division for the organization. Succeeding Schulze as head of aviation safety is **Tim LeBaron**. LeBaron, a pilot and aircraft mechanic, joined the NTSB as an intern in 2003 and since has led more than 300 airplane crash investigations.

DANA SCHULZE

Cutter Aviation promoted **Kevin Reedy** to director of safety and **Chadd Garvy** to chief pilot of its charter and flight management department. Reedy, who has more than 30 years of experience in aircraft quality assurance maintenance management and customer service, joined Cutter in November 2011 as aircraft maintenance supervisor and was promoted to maintenance manager in 2015 and chief inspector/accountable manager

in 2017. Garvy, who flies both the Pilatus PC-12 and PC-24, joined Cutter in 2019 after serving as a senior instructor and check airman in a flight school that has more than 350 students.


BYRON GRAY

The *Naples Airport Authority* named **Byron Gray** director of FBO Services for Naples Aviation. Gray has more than two decades of general aviation industry experience, including holding leadership positions with several international FBO chains and most recently serving as national sales manager for a national fuel supplier

Randy Stromski joined *King Aerospace Commercial Corporation* (KACC) as director of quality assurance. Stromski formerly was site manager for ACET Hawaii, where he supported C-40 (Boeing 737-700) aircraft and subsystems and also has held leadership positions with Viasat San Diego, Mokulele Airlines, Gogo, AAR Aircraft Services, Bombardier Aircraft Services, and Premier Turbines.

Catherine "Cat" Buchanan joined *Stack.aero* as director of business development. Buchanan brings 15 years of business aviation charter and brokerage experience to her new role, primarily in the United Arab Emirates, including head of brokerage and FBO Sales at Royal Jet, sales manager at Chapman Freeborn, and passenger charter analyst at Air Charter Service.

Aaron White joined *MRO Insider* as director of sales. White's aviation career began as a business development manager in aviation recruiting and SaaS startup and he also has served as a research analyst and sales associate for an aircraft sales/acquisition company.


APRIL GASPARRI

Avports appointed **April Gasparri** manager of Westchester County Airport. She succeeds Peter Scherrer, who served as manager of the airport since 2005 but has been promoted to v-p of airport management services and is part of the Avports executive team. A former U.S. Army helicopter pilot-in-command, Gasparri has 15 years of experience holding various leadership roles at the Port Authority of New York and New Jersey airports and with Pittsburgh International Airport.

FINAL FLIGHT

Langhorne Bond, who had served as FAA Administrator from 1977 to 1981 and remained involved in Washington aviation and transportation circles in the decades following, died on January 29. He was 84.

While at the helm of the FAA, Bond steered the early phases of a computerized national air traffic control system that paved the way for today's next-generation ATC system, NBAA said.

Born March 11, 1937 in Shanghai, Bond had a long history of public service, including as a special assistant to the Undersecretary of Commerce for Transportation from 1965 until the formation of the Department of Transportation in 1967.

Legendary Tuskegee Airman Brigadier General **Charles E. McGee** passed away on January 16, He was 102.

McGee, who remained active and a visible member of the aviation community throughout his life, was a U.S. Army Air Force and U.S. Air Force pilot who served in World War II, Korea, and Vietnam. He flew a record 409 combat missions and achieved multiple honors for both his service and industry advocacy.

Born Dec. 7, 1919, in Cleveland, McGee established his mark as a leader with the Tuskegee Airmen, the Army Air Corps' first African-American fighter squadron—the 99th Flying Squadron that was named for the initial training the airmen received in Tuskegee, Alabama.

Innovative Solutions & Support (IS&S) founder, chairman, and CEO **Geoffrey S.M. Hedrick**, 79, died on January 12.

Son of Paul Harrington Hedrick and nephew of Carl Krause who both participated in the development of a Sperry Mk 19 gyrocompass design to enable under-ice navigation at the North Pole, Geoffrey Hedrick spent his entire professional career in the avionics industry, founding IS&S in 1988.

After studying to become an electrical engineer at Cornell, he briefly worked for Bulova then in 1971 founded Harowe Systems, which was acquired by Smiths Industries. Hedrick eventually was named president and CEO of Smiths Industries North American Aerospace Companies.

A decade after that sale, he established Exton, Pennsylvania-based IS&S, initially developing digital fuel quantity indicating systems. Since then, the company has branched into numerous aircraft systems, including the ThrustSense autothrottle. Over the years, Hedrick amassed nearly 100 patents in the electronics, optoelectric, electromagnetic, aerospace, and contamination-control fields.

East Hampton town board votes to make KHTO private

BY CURT EPSTEIN

The saga over New York's embattled East Hampton Airport (KHTO) reached a new phase when the East Hampton town board voted unanimously to close down the field to public use beginning March 1. According to the plan, the airport serving the wealthy communities on the east end of Long Island would reopen several days later as a private-use facility, subject to prior-permission requirements.

The airport's fate had been in jeopardy for the past several years as activists railed against aircraft noise. Yet, for those individuals who own their own aircraft, KHTO remains a convenient and vital link for their comings and goings.

While the move would preclude regular use by charter and air-taxi operations, the town board, in a nod to those owners, noted that the new system would allow it to impose restrictions on air traffic "without foreclosing the ability of certain operators to continue operating out of the new airport."

"We do not see the path to a private-use airport in order to institute restrictions to be viable as proposed by the town, and its ability to receive FAA approval for this course of action remains to be seen," said Alex Gertsen, NBAA's director of airports and ground infrastructure. "Nevertheless, choosing this option indicates the town recognizes the value of its airport, and NBAA appreciates the town board making a commitment to keeping KHTO open so that it can continue to play an important role and to serve the communities on the east end of the island."

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