Aviation International News

AIN PUBLICATIONS

Vol.50 | No.2

$9.00

FEBRUARY 2019 | ainonline.com

« The Bell Nexus will initially feature human operation and a hybrid-electric propulsion system powering six ducted fans.

Bell unveils air-taxi concept

by Rob Finfrock

Highlighting the increasing awareness and appeal of vertical takeoff and landing (VTOL) solutions outside the traditional domains of the rotorcraft industry, Bell returned to the annual Consumer Electronics Show (CES) in Las Vegas last month with its "full vision" of a practical urban air taxi, dubbed the Bell Nexus.

"As space at the ground level becomes limited, we must solve transportation challenges in the vertical dimension," said Bell president and CEO Mitch Snyder. "We believe the design, taken with our strategic approach to build this infrastructure, will lead to the successful deployment of the Bell Nexus to the world."

The full-scale Nexus display builds upon the fuselage mockup unveiled at last year's CES and features a central wing, integrated landing skids, and a modified V tail topped by a short horizontal stabilizer. The flight model will use a hybrid/electric distributed propulsion system feeding six tilting ducted fans, each powered by individual electric motors.

The six-fan design is a compromise between quad- and octo-rotor configurations seen on other urban VTOL designs to provide

› continues on page 16

Read Our **SPECIAL REPORT**

Amazing apps

It has been less than a decade since the introduction of Apple's iPad, but the device—and those that followed—has been embraced by operators, who are making the most of its electronic flight bag and other capabilities.

› page 20

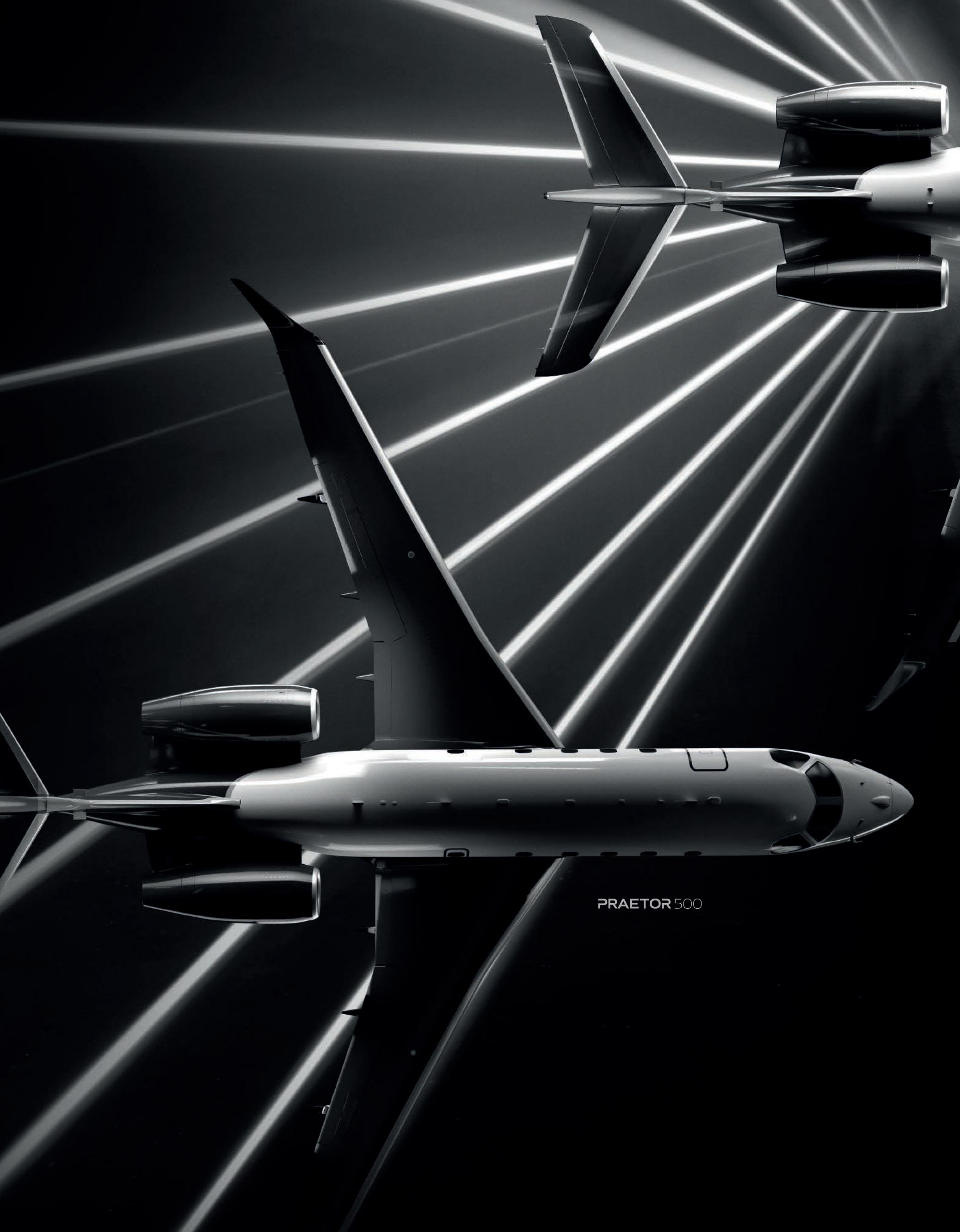
Shutdown weighs on bizav

by Kerry Lynch

The failure of the White House and Congress to reach agreement on border wall funding in late December touched off a prolonged partial government shutdown that halted paychecks for 800,000 workers and reverberated throughout the aviation industry. Aircraft were stranded, training sessions canceled or delayed, certification projects slowed, flight authorizations withheld, and deliveries delayed, industry groups reported as the shutdown became the longest in history.

Pointing to the integral role that regulators play in safety and security of nearly every facet of the aviation system, the National Air Transportation Association warned that the aviation industry is among

› continues on page 16


PRAETOR 500

DIFFERENT BY DESIGN. DISRUPTIVE BY CHOICE.

Unprecedented performance. Industry-leading technology. Exceptional comfort.

Introducing the new midsize Praetor 500 and the super-midsize Praetor 600 – the world's most disruptive and technologically advanced business jets.

A record-breaking best-in-class range. Enviable performance in challenging airports. Full fly-by-wire with active turbulence reduction. Unparalleled comfort in a six-foot-tall, flat-floor cabin. Ka-band home-like connectivity.

Power the future. Take command. Lead the way.

Learn more at executive.embraer.com.

INTRODUCING THE NEW

PRAETOR JETS

EMBRAER

CHALLENGE.
CREATE.
OUTPERFORM.

INSIDE this issue

Pilot Report

AIN flies the Learjet 75 and finds the model to be pure Learjet, not just in appearance but in performance and handling.

Aviation International News

JAMES HOLAHAN (1921-2015), FOUNDING EDITOR
WILSON S. LEACH, MANAGING DIRECTOR

EDITOR-IN-CHIEF – Matt Thurber
EXECUTIVE EDITOR - AIN PUBLICATIONS – Mark Phelps
NEWS EDITOR - AIN PUBLICATIONS – Chad Trautvetter
MANAGING EDITOR - AIN PUBLICATIONS – Annmarie Yannaco
SENIOR EDITORS – Curt Epstein, Kerry Lynch
Gregory Polek – Air Transport
Ian Sheppard – International
ASSOCIATE EDITOR – Jerry Siebenmark
CONTRIBUTORS
Pete Combs
Gordon Gilbert
John Goglia – Columnist
Mark Huber – Rotorcraft
David Jack Kenny – Safety
Jennifer Leach English
Richard Pedicini
James Wynbrandt
GROUP PRODUCTION MANAGER – Tom Hurley
PRODUCTION EDITOR – Martha Jercinovich
GRAPHIC DESIGNERS – John A. Manfredo, Grzegorz Rzekos
LEAD DEVELOPER – Michael Giaimo
DEVELOPERS – Nathan Douglas, Ryan Koch
VIDEO PRODUCER – Ian Whelan

GROUP PUBLISHER – Dave Leach
ASSOCIATE PUBLISHER – Nancy O'Brien
ADVERTISING SALES
Georges France – Western Europe, +33 6 80 21 17 93
Melissa Murphy – Midwestern U.S., +1 (830) 608-9888
Nancy O'Brien – Western U.S./Western Canada/Asia Pacific, +1 (530) 241-3534
Anthony T. Romano – Northeastern U.S./Eastern Canada/Mexico/Brazil
Joe Rosone – Mid-Atlantic U.S./Southeast U.S./Caribbean, +1 (301) 693-4687
Diana Scogna – Italy/Northern Europe/Middle East, +33 6 62 52 25 47
Victoria Tod – Great Lakes U.S./United Kingdom, +1 (203) 733-4184
Yury Laskin – Russia, +7 05 912 1346
AUDIENCE DEVELOPMENT MANAGER – Jeff Hartford
MARKETING AND CLIENT SERVICES MANAGER – Lisa Valladares
MANAGER OF ONSITE LOGISTICS – Philip Scarano III
ONSITE PRODUCTION – Zach O'Brien
SALES COORDINATOR – Nadine Timpanaro
SALES ADMINISTRATOR – Cindy Nesline

DIRECTOR OF FINANCE & HUMAN RESOURCES – Michele Hubert
ACCOUNTING MANAGER – Marylou Moravec
ACCOUNTS PAYABLE – Mary Avella
ACCOUNTS RECEIVABLE – Bobbie Bing

U.S. HEADQUARTERS
214 Franklin Ave., Midland Park, NJ 07432, +1 (201) 444-5075
Advertising Inquiries: +1 (201) 345-0085
adsales@ainonline.com
Circulation Inquiries: +1 (201) 345-0085
subscriptions@ainonline.com
WASHINGTON, D.C. EDITORIAL OFFICE:
Kerry Lynch (business aviation)
klynch@ainonline.com
Tel: +1 (703) 969-9195
EUROPEAN EDITORIAL OFFICE:
Ian Sheppard; isheppard@ainonline.com
Hangar 9, Redhill Aerodrome, Surrey RH1 5JY, UK
Tel: +44 1737 821409, Mobile: +44 7759 455770

THE CONVENTION NEWS COMPANY, INC.
AIN PUBLICATIONS EXECUTIVE TEAM
Wilson Leach
Matt Thurber
Michele Hubert
Jennifer Leach English
Dave Leach
Nancy O'Brien

Aviation International News (ISSN 0887-9877) is published monthly. Periodicals postage paid at Midland Park, N.J., and additional mailing offices. **Postmaster:** Send address changes to Aviation International News, P.O. Box 8059, Lowell, MA 01853 USA. Allow at least eight weeks for processing. Include old address as well as new, and an address label from a recent issue if possible. Subscription inquiries: +1 (203) 798-2400 or email: subscriptions@ainonline.com.

PUBLICATION MAIL AGREEMENT NO. 40649046 RETURN UNDELIVERABLE CANADIAN ADDRESSES TO: PITNEY BOWES INTERNATIONAL MAIL, STATION A, P.O. BOX 54, WINDSOR, ON, N9A 6J5, returns il@imex.pb.com.

For feedback, letters to the editor, or other editorial needs, please contact AIN's Editors at AINeditor@ainonline.com

Signature®
FLIGHT SUPPORT
A BBA Aviation company

Vote for your Signature
AIN FBO Survey

signatureflight.com
or +**1 888 367 0673**

As We Go To Press

DASSAULT AVIATION TO BUY LUXAVIATION'S EXECUJET MROS

Dassault Aviation is buying the global business aircraft maintenance activities of Luxaviation's ExecuJet subsidiary for an undisclosed amount, the companies announced on January 21. After obtaining the necessary approvals, ExecuJet's network of 15 MRO centers across Africa, Asia-Pacific, the Caribbean, Europe, Latin America, and the Middle East will be gradually integrated into the structure of the French aircraft manufacturer this year. The sale agreement with Dassault is limited to the maintenance activities of ExecuJet.

REPORT: GULFSTREAM, IAI CONSIDERING NEXT-GEN G280

Gulfstream and Israel Aerospace Industries (IAI) are collaborating on the next-generation variant of the G280, according to the Israeli business news organization Globes. It reported that the board of IAI recently signed off on the upgraded G280 and committed $80 million to the project—codenamed P32—matching a Gulfstream investment. Gulfstream did not comment on the project, saying only, "Our research and development team is always contemplating options; we have no announcements." IAI manufactures the G280 for Gulfstream under license. "There has been some quiet buzz about the so-called P32 program floating around," said JetNet iQ managing director Rolland Vincent. An upgraded model would come as the super-midsize category is staged for a makeover, with the 3,500-nm Cessna Citation Longitude and 3,900-nm Embraer Praetor 600 poised to enter service.

EMBRAER BIZJET DELIVERIES SLIDE IN 2018

Embraer delivered 91 business jets last year, a more than 16 percent drop from the 109 it handed over to customers in 2018 and short of its guidance of between 105 and 125. As a result, its Executive Jets group revenues, which had been forecast at between $1.35 billion and $1.5 billion for 2018, are now estimated to be $1.1 billion. For 2019, Embraer projects 90 to 110 business jet deliveries. Meanwhile, the company said it would meet its delivery estimate of between 85 and 95 commercial aircraft, a product line that will transition into a joint venture with Boeing.

NETJETS, PILOT UNION SIGN 'INDUSTRY LEADING' CONTRACT

Fractional provider NetJets signed an interim bargaining agreement with its pilot union, the NetJets Association of Shared Aircraft Pilots (NJASAP), that boosts base pay, increases quality of life on tour, and caps employee health insurance contributions at current rates, as well as includes a signing bonus. While the 2015 flight crew contract doesn't become amendable until December 2023, NetJets initiated mid-term bargaining to improve compensation, leading to what both the company and union term an "industry-leading contract." NetJets chairman and CEO Adam Johnson and NJASAP president Pedro Leroux signed a tentative agreement on January 16. NJASAP's 2,500 pilot members ratified the measure in late December, with more than 81 percent voting in favor of the package of amendments that extends the 2015 collective bargaining agreement through 2026.

DASSAULT FALCON ORDERS UP IN 2018, BUT DELIVERIES FALL

Net orders for Dassault Falcons stood at 42 as of December 31, marking the third consecutive year of improved sales for the business jet manufacturer. The French company logged orders for 38 Falcons in 2017 and 21 in 2016. Last year's tally, however, is still below the 67 recorded in 2014, but does account for the last Falcon 5X cancellations after that program was terminated in late 2017. Deliveries of new Falcons last year fell by eight aircraft from 2017, to 41 aircraft, but the tally was "consistent with our deliveries' forecast," Dassault Aviation noted. Backlog inched up slightly, from 52 Falcons at year-end 2017 to 53 last year, though still below the 63 and 91 at the end of 2016 and 2015, respectively.

TAG AVIATION LAUNCHES FIRST ASIA-PAC FBO IN MACAU

TAG Aviation launched its first FBO in the Asia-Pacific region last month in Macau. The new facility offers an around-the-clock suite of services, including VIP and business-executive amenities, on-site customs and immigration, flight planning, charter, and aircraft maintenance services. TAG Aviation chose Macau because the company believes.it is quickly becoming the destination of choice for business aviation end-users in the region.

AIRBUS PREPARING FOR 'WORST' BREXIT OUTCOME

Airbus is taking a "planning for the worst and hoping for the best" strategy in the event of a so-called no-deal Brexit following last month's crushing defeat in the UK parliament of a negotiated "soft" exit from the European Union. Airbus CEO Tom Enders said the Brexit vote stands to disrupt Airbus's operations, particularly its wing production plant in Broughton, UK. The company's plans include stockpiling parts "for a number of weeks" in preparation for interruptions to supply from the UK, according to Airbus Commercial Aircraft president Guillaume Faury.

Acropolis Aviation chief pilot Philip Lintott-Clarke, Airbus Corporate Jets president Benoit Defforge, and Acropolis Aviation CEO Jonathan Bousfield (from left to right) celebrate the first delivery of the ACJ320neo.

Acropolis Aviation takes the first Airbus ACJ320neo

by Kerry Lynch

Airbus formally brought its ACJ neo (new engine option) series to market with the delivery of the first ACJ320neo to UK-based Acropolis Aviation, the manufacturer announced on January 17. The bizliner is headed to AMAC's facility in Basel, Switzerland, to be fitted with a VVIP cabin designed by Alberto Pinto. The aircraft also will sport Acropolis Aviation colors.

"Delivery of the first ACJ320neo is the latest milestone in the roll-out of a completely new ACJ family, enabling even more of the comfort, range, and value prized by business jet customers," said ACJ president Benoit Defforge.

Airbus launched the neo family in 2010, offering re-engined versions of the original A320 family with Sharklet winglets and either Pratt & Whitney PW1000G or CFM Leap-1A engines. The result is a 15 percent improvement in fuel burn.

The initial Airbus 320neo received joint FAA/EASA certification in late 2015 and Airbus has delivered more than 600. Airbus flew the first of the ACJ320neos in November, leading up to the delivery to Acropolis.

The bizliner variant of the 320neo is designed to fly 25 passengers 6,000 nm, giving it the ability to connect London to Beijing or Moscow to Los Angeles. In addition, the aircraft are designed with features such as a 15 percent-improved cabin altitude, higher mtow and cruise altitude, and airstairs.

Its sibling, the ACJ319neo, can fly eight passengers 6,750 nm. Airbus in December announced certification of the Leap-powered 319neo, with Pratt & Whitney testing coming this year. The planemaker anticipates delivery of the first ACJ319neo in the coming months.

By late last year, Airbus had nine orders in hand for the ACJ neo family—six for the ACJ320neo and three for the ACJ319neo.■

IBAC director Michael Hohm flies west

Michael Hohm, 63, the International Business Aviation Council (IBAC) director and liaison to the International Civil Aviation Organization (ICAO), died on January 11. He represented the business aviation industry on the ICAO Air Navigation Commission and, as IBAC liaison, was responsible for day-to-day relationships with the ICAO Secretariat and national delegations.

"Michael was a tremendous advocate for our industry and a dear colleague," said IBAC director general Kurt Edwards. "He will be missed dearly, especially for his sincere dedication [to] and passion for aviation, and his kindness that fostered so many relationships throughout the industry during his career."

An ATP-rated pilot, Hohm had accumulated 5,800 flight hours as a professional pilot, flying in Canada, the Arctic, and the U.S. After serving as a de Havilland DHC-7 and -8 flight instructor at FlightSafety International, he joined Transport Canada in 1988 as a civil aviation inspector and later took the role as supervisor of airport policy and standards. He moved over to Nav Canada in Ottawa in 1996, spending the next 13 years as manager of airspace planning and design. In 2009, he became a technical officer for ICAO before ultimately becoming IBAC's director and ICAO liaison. **K.L.**

CELEBRATING
THIRTY YEARS

30 YEARS

15,398,913

FLIGHT HOURS OF INDEPENDENT SERVICE AND SUPPORT

With 30 years of proven expertise and data, we know precisely what it takes to maintain and support your aircraft at every stage of its life cycle.

Acquisition advice to depend on. **Maintenance** programs to stabilize your budget and add value to your aircraft. **Parts** delivered to you on time and in budget. **Leasing** solutions you can rely on.

IT'S TIME FOR A BETTER APPROACH.

JSSI

MORE THAN HOURLY COST MAINTENANCE PROGRAMS

JSSI PARTS | JET ENGINE LEASING | JSSI ADVISORY SERVICES | CONKLIN & DE DECKER

JETSUPPORT.COM

VNY hosts first bizav SAJF event

by Curt Epstein

CURT EPSTEIN

Castle & Cooke Aviation was one of the four Van Nuys Airport FBOs that participated in the sustainable alternative jet fuel event on January 17, along with Signature Flight Support, Jet Aviation, and Clay Lacy Aviation. Its tanker was decorated with special sustainable fuel markings for the occasion. All told, Avfuel and World Fuel Services provided more than 14,000 gallons of blended renewable fuel for the event.

The business aviation industry directed its focus last month to California's Van Nuys Airport, where the event Business Jets Fuel Green: A Step Towards Sustainability took place. The occasion marked the first time sustainable alternative jet fuel (SAJF) was made available to business aircraft at a public airport. VNY was chosen for the trial debut due to the environmental consciousness of the airport as well as the state of California, in general.

The groundbreaking event followed on the heels of last year's launch of the Business Aviation Guide to the Use of Sustainable Alternative Jet Fuel by a coalition consisting of GAMA, NATA, NBAA, EBAA, and IBAC. The document restated the environmental goals of the business aviation industry in 2009, among them: carbon-neutral growth by 2020, and to reduce C02 emissions by 50 percent by 2050, relative to 2005 levels. Among the ways to accomplish that, SAJF was touted as the most effective. "The single largest potential reduction in aviation's greenhouse gasses is from the broad adoption of sustainable alternative fuels," Bruce Parry, IBAC's environment director, told the audience at the VNY event, which was meant to address the "knowledge gap" on the availability of SAJF and to dispel any concerns within the industry regarding its safety.

A panel discussion featuring experts from the OEMs, fuel providers, and fuel producers served to educate the audience on the use of the fuel, its benefits to the environment and to users, as well as current and future production.

At its most basic, the use of SAJF represents a paradigm shift, according to Steve Csonka, executive director of the Commercial Aviation Alternative Fuels Initiative (CAAFI). Instead of pumping new hydrocarbons from the ground as petroleum, SAJF simply recycles the carbon that is already in the atmosphere and is extracted from plants, which use photosynthesis to utilize it as carbon dioxide.

Funding Stream Needed

While there has been much discussion about SAJF over the past decade, there has been seemingly little increase in volume. That is attributed to the global economic meltdown, which struck in 2008, a crucial juncture for the nascent biofuel industry. Companies became starved for development capital, thus handicapping the commercialization of large-scale production.

"The financial markets completely seized up, and they were closed for the better part of half a decade before the banks were able to do debt financing again," said Bryan Sherbacow, COO of commercial biofuels producer World Energy. "It's now just starting to loosen up again."

With that funding becoming more available, fuel producers are looking to expand their production capabilities. Texas-based Gevo, which currently produces SAJF on a per-batch, on-request basis, expects to increase its output from 100,000 gallons of alternative fuel to 12-to-15 million gallons in the 2022 timeframe. Likewise, World Energy, the only

› continues on page 36

Airbus executives and Alabama and Mobile public officials celebrate the start of construction of the U.S. A220 assembly facility.

Airbus breaks ground on A220 plant in U.S.

Airbus broke ground on a new assembly line for its A220 narrowbody in Mobile, Alabama, on January 16, giving the company a still stronger foothold in the U.S. even as forces of protectionism and nationalism threaten to disrupt free trade.

"When we did the deal with [Bombardier], it was obvious from the first minute that we should really produce this aircraft also in the United States in these times of protectionism and of nationalism and tariffs and so on," said Airbus CEO Tom Enders. "But also the single largest market for this wonderful A220 is in North America."

The Airbus boss and Guillaume Faury, president of Airbus Commercial Aircraft, led the celebration and welcomed some 700 attendees including Airbus and other industry executives, Airbus manufacturing employees, state and national dignitaries, and local community leaders.

Airbus has begun building the new assembly line, the company's second U.S.-based commercial aircraft production facility, at the Mobile Aeroplex at Brookley adjacent to the A320 family production line. The company plans to start aircraft production in the third quarter of this year, then deliver the first Mobile-assembled A220 in mid-2020. It expects to finish construction of the new plant by next year.

Over the last three years, Airbus has spent $48 billion with hundreds of U.S. suppliers in more than 40 states, a level of support that the company says has translated into more than 275,000 American jobs. Airbus facilities in the U.S. include engineering centers in Kansas and Alabama; a major training facility in Florida and soon one in Colorado; materials support and headquarters in Virginia; a think tank (A3) in California; a drone data analysis business (Airbus Aerial) in Atlanta, Georgia; helicopter manufacturing and assembly facilities in Texas and Mississippi; and a satellite manufacturing facility (OneWeb) in Florida. **G.P.**

News Briefs

Foley: Bizjet Shipments To Climb 10% in 2019

Business jet deliveries this year could see more than a 10 percent jump over 2018, primarily driven by several new models simultaneously coming to market, according to industry analyst Brian Foley of Brian Foley Associates. That would amount to some 705 jets this year. New models stimulating the market this year include the Gulfstream G500 and G600, Bombardier Global 7500, and Cessna Citation Longitude. But, Foley cautioned, several factors question the sustainability of this increase: falling business jet demand in emerging markets; weaker consumer sentiment and other metrics in the dominant U.S. market; and more normalized depreciation rates for new jets.

JetSuite To Add New Aircraft

JetSuite plans to add new aircraft to its fleet and refresh its membership program as it moves into its 10th year of business in 2019. Plans call for the company to add larger jets this summer to its existing fleet of 10 Embraer Phenom 100s, five Phenom 300s and one Legacy 650, spurred by investments in JetSuite by Qatar Airways and JetBlue. Company officials said the fleet expansion will consist of additional Phenom 300s and "other aircraft types to provide a greater range of options for JetSuite clients."

Hagerty Jet Expects 'Choppy' Used Bizjet Market

Hagerty Jet Group, which specializes in Gulfstream transactions, expects a "choppy" preowned business jet market this year due to political uncertainty and equity market volatility. "Demand for aircraft less than five years old will remain strong, but older aircraft will continue to decline in value, although at a slower pace than in 2017," it predicted in a market report. Volatility in U.S. equity markets in December made some buyers reluctant to pull the trigger on an aircraft purchase, Hagerty Jet said, adding. "If that trend continues into 2019, this could mean less competition for aircraft already on the market and thus potential for inventories to grow again."

ASTM Starts Cert Program for Bizjet Cabin Crew

ASTM International announced a certification program for business jet cabin crews from affiliate National Center for Aerospace and Transportation Technologies. The business aviation cabin crew program, which costs $175, will require candidates to demonstrate knowledge of and skills in aircraft safety procedures and cabin-service safety, as well as professionalism and discretion. It will be administered by SpaceTEC Partners. ASTM International and SpaceTEC signed a memorandum of understanding last year to jointly work to help certify aircraft maintenance technicians and other aerospace workers.

THE BEST VALUE
FOR INFLIGHT WI-FI

With everything you get from SmartSky's 4G LTE – blazing-fast internet, minimal latency and real-time video – you might expect it to be more expensive. But the best service in the industry is also the most cost-effective.

BIDIRECTIONAL HIGH SPEED | 10X FASTER | MULTI-GB THROUGHPUT | 20X BANDWIDTH | LATENCY BELOW 100MS | PATENTED TESTED CERTIFIED SECURE

Secure 100GB.
Pay for only 25.

smartskynetworks.com/get100
800.660.9982

SMARTSKY NETWORKS®

Deliveries of the upgraded Cirrus G2 Vision Jet were scheduled to begin last month.

Cirrus G2 Vision Jet certified

by Matt Thurber

Cirrus Aircraft has received FAA certification for a new version of its single-engine Vision Jet, the Generation 2 (G2), and deliveries of the model were set to begin last month. New features include a higher maximum operating altitude, autothrottle, lithium-ion main-ship batteries, upgraded avionics, new cabin appointments, and additional paint schemes.

The G2 Vision Jet's Garmin avionics suite is upgraded to the Perspective+ configuration, with faster processors and higher-resolution displays, Flight Stream 510 wireless gateway, and a Garmin autothrottle system for the Fadec Williams International FJ33-5A turbofan. The Flight Stream 510 facilitates Garmin Connext flight plan transfers, database updates via the Garmin Pilot app, and text messaging using Garmin Pilot and the Garmin GSR 56 Iridium satcom. The SiriusXM radio system can also now be controlled by a cellphone instead of through the avionics.

The autothrottle simplifies single-pilot flying by maintaining a manually set or FMS programmed airspeed. The system automatically lowers the power setting and adjusts speed if the jet is flying too fast—for example, preventing exceedance of speed restrictions in the terminal environment. The autothrottle can be used after 400 feet agl on takeoff and during an instrument approach to minimums. During a coupled instrument approach, the autothrottle and autopilot can automatically fly the missed approach procedure.

In addition, the autothrottle brings new functionality to the Garmin Electronic Stability & Protection System (ESP) on the G2 Vision. For example, in a stall, the autothrottle adds power to complement the autopilot lowering the nose, even if the autothrottle and autopilot are not engaged. Using the emergency descent mode, the autothrottle lowers power to a setting optimal for the descent but also for leveling off at a safe airspeed (about 82 percent power).

The FJ33-5A engine has also been modified with a new thrust schedule from FL240 to FL310, the new maximum operating altitude (up from FL280), giving the G2 Vision an improved climb and a seven-knot increase in cruise speed at FL280 to 311 ktas. At FL310, the Vision G2 can cruise at 305 ktas, one knot faster than the original Vision at FL280 (at ISA and mtow).

Range is about 100 nm higher at long-range cruise of 240 ktas, giving a range of about 1,275 nm, or G2 pilots can carry more payload when flying at the more typical maximum continuous thrust power setting. On an 800-nm mission, an additional 150 pounds of payload is possible, and for a 1,000-nm mission, another 170 pounds of payload can be carried.

The useful load also grew by 50 pounds, thanks to weight savings from replacement of a heat-sensitive pressure valve that allowed removal of a heat exchanger and removal of boundary layer energizers and an aileron fence on the wings, as well as the lighter-weight batteries. New trailing-edge aileron tabs improve handling and add more stick-centering force to the G2 Vision's sidestick.

The Beringer wheels, which were finished with a red anodized coating, are now a more subtle gray color, which doesn't clash with the paint job.

Two True Blue Power 17 amp-hour TB17 lithium-ion batteries replace the original lead-acid batteries, adding to the weight savings (about 45 percent lighter) and providing a faster, cooler engine start, especially in cold weather. The TB17 batteries eliminate a cold temperature limit for battery starts on the original Vision as they are equipped with internal heaters. Another improvement with the new batteries is that they don't require removal for recharging if depleted, as do the lead-acid batteries.

Cabin improvements include new executive seats in the center to accommodate owners who fly with the rearmost three seats removed. The new seats are wider and have added bolstering; and they bracket a new center console with storage space in the middle and stowaway tray tables on the edges for each occupant. The center console is easily removable and fits into the baggage compartment. New carpeting is more robust and improves the interior appearance. The mid-2018 addition of a 22-inch fold-down monitor for rear-seat occupants carries through in the G2 Vision.

Meanwhile, the pressurization system

› continues on page 38

The G2 Vision base price is $2.38 million; the fully loaded Elite configuration is $2.75 million.

News Briefs

Eviation, ERAU Join Forces on Electric Aircraft

Eviation, the Israel-based developer of the Alice 11-seat electric aircraft, has teamed up with Embry-Riddle Aeronautical University (ERAU) on research and development of its all-electric aircraft technologies. The program, involving fourth-year undergraduate engineering students, will launch in the spring at ERAU's Prescott, Arizona campus. Students will focus on performance analysis, validation, and testing along with future electric propulsion and airframe design concepts, participating in preliminary design and sub-scale testing. Eviation is anticipating the debut of Alice during the Paris Air Show in June, with first flight coming after the show. Eviation CEO Omer Bar-Yohay estimated the certification program, mostly centered on flight testing at ERAU Prescott, should last 24 to 36 months.

ADS-B Out Eliminates RVSM Application Process

The FAA has enacted a rule to eliminate the requirement for operators to apply for an RVSM authorization when their aircraft are equipped with ADS–B Out systems. "Continual monitoring enabled by ADS–B Out provides increased height-keeping performance data on an individual aircraft basis and enables the FAA to identify poor altimetry system error (ASE) performance sooner, allowing quicker mitigation of any risk posed by poor-performing aircraft," the agency said. The rule took effect on January 22, allowing operators of ADS–B Out-equipped aircraft to begin RVSM operations. The RVSM application process itself will in effect be eliminated after Jan. 1, 2020, when all aircraft intending to operate in RVSM and other controlled airspace must be ADS-B equipped.

Industry Surveys Euro Ops To Build Safety Data

Three international industry associations—GAMA, EBAA, and the International Council of Aircraft Owners and Pilot Association-Europe—surveyed operators last month in an effort to assemble meaningful statistical data on the European general aviation industry that can be used to more accurately assess and drive safety. The survey is designed to develop a central data source that can provide a more accurate picture of general aviation operators, operations, and aircraft, all of which will provide a more accurate measurement of accident rates. Right now, such a central source does not exist in Europe, said GAMA director of regulatory affairs for Europe Kyle Martin. The groups hope to have the results ready for release at Aero Friedrichshafen in April.

The Greatest Value in Aviation Training

Quality • Experience
Service • Technology

Your Most Trusted Safety Partner

Customers choose FlightSafety for our unequaled experience, master instructors and advanced-technology training devices. But they return for the consistent value they receive in every safety-focused training program we offer. At each of our numerous locations that span the globe, Customers know they're trained by experts, and assisted by FlightSafety teammates who go above and beyond to ensure the best possible experience. With unmatched service and support, Customers become part of the FlightSafety family during and after their training. They train on precision simulators designed and manufactured by engineers and technicians with decades of real-world training experience to match today's sophisticated aircraft. Expect the greatest value from your most trusted training provider. Only FlightSafety delivers it.

Unmatched Advantages

- 1,800 master instructors deliver 1.4 million hours of instruction annually
- Outstanding Customer service, amenities and benefits including Proficiency Protection
- Global network of Learning Centers provides worldwide reach for training
- Unequaled advanced training programs and most complete range of courses
- Master Aviator™ takes pilots beyond proficiency delivering the highest standard in safety
- Largest fleet of advanced-technology simulators manufactured by our experts
- Dedicated to enhancing aviation safety since 1951

BUILT OVER TIME
TRUST
EARNED EVERY DAY

Aviation professionals from around the world trust us to provide the highest-quality training and outstanding service. More than 1,800 highly experienced professional instructors deliver aircraft- and mission-specific courses, using our comprehensive training systems and advanced-technology flight simulators designed to enhance safety. Trust your training to FlightSafety. You'll see why so many aviation professionals make the same choice. And have since 1951.

For more information, please contact Steve Gross, Senior Vice President, Commercial
314.785.7815 • sales@flightsafety.com • flightsafety.com • A Berkshire Hathaway company

FlightSafety international

The UK's first digital tower goes active at Cranfield

by David Donald

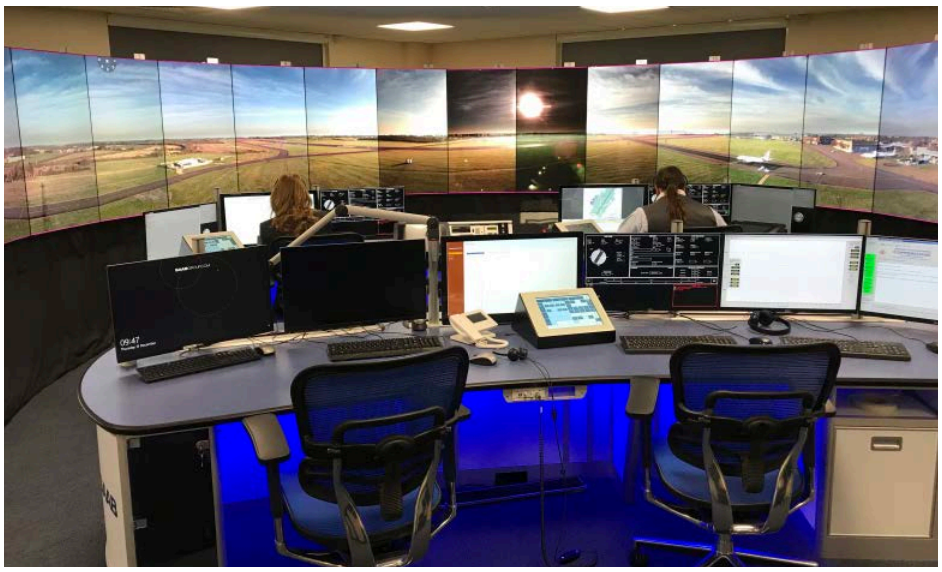
On December 13, the UK's aviation minister, Liz Sugg, formally opened the digital air traffic control center at Cranfield University airfield in Bedfordshire. In the early afternoon, the center handled its first live air traffic, marking the first time in the UK that an aircraft had been controlled from an all-digital "tower."

Saab Digital Air Traffic Solutions installed Cranfield's new tower in a jointly funded partnership with the university. Implementation has been swift: the contract was signed in October 2017, with construction beginning in March. Completion of the installation permitted air traffic control officers (ATCOs) to "shadow" the operations of the existing traditional visual tower for six weeks while Saab technicians fine-tuned the system. The "opening" of the control center was made possible under a temporary approval to gain live experience with limited traffic. Now the stakeholders are embarking on a phase of working closely with the UK Civil Aviation Authority (CAA) to clear the system for unrestricted use. Cranfield hopes to complete the transition in around six months, at which time its aging visual tower can be closed.

The system installed at Cranfield comprises two elements: a sensor "tower" and the control center. The former mounts 14 cameras that are arranged to provide 360-degree surveillance of the entire airfield and surrounding airspace. The cameras are fitted with compressed air blowers to clean moisture from the lenses. The tower also has cameras that can be panned, zoomed (up to 30 times), and elevated to the vertical to provide controllers with the ability to examine targets of interest in detail, effectively replacing the binoculars in a traditional tower.

The 360-degree imagery from the cameras is displayed in real time on a 225-degree arc of screens around the operator consoles. This provides the ATCOs with a measure of directional awareness, but without the need to turn all the way around to see behind. Each controller can operate the pan/zoom function, imagery from which appears in a picture-in-picture box on the main screens.

Security and safety are of paramount concern, and the system features high levels of redundancy, with digital data handled through two independent networks and powered by three independent sources. There is a spare TV screen available in the control center should there be any issues with the "live" screens. All imagery is automatically recorded, along with ATC voice communications, making it readily available for investigation in the case of an incident.



The Cranfield digital control center presents a 360-degree view of the airfield and its environs. Note the dimming applied to two screens in the center to minimize the glare from the low winter sun.

The system automatically handles varying light conditions, with four preset settings that cater to seasonal differences in the environment, such as sun elevation and vegetation color. Manual control permits the controllers to adjust for specific conditions; for instance, an individual screen can be dimmed to reduce the effects of sun glare in a particular sector. There is also a geo-referenced graphic overlay function that can present various data to the ATCOs that is not possible with a traditional tower, such as the exact location of taxiway/runway boundaries. This can be very useful in poor visibility or snowy conditions.

Cranfield's ATCOs, who are employed directly by the university, have found the transition easier than expected and have adapted quickly to the new working environment, which has been designed with input from controllers at every stage.

For Saab—a pioneer in digital towers—the Cranfield installation represents a good investment to showcase the company's technology. The company began digital tower operations in Sweden in 2015 as part of a joint venture with air navigation services provider LFV. The first installation was a control center at Sundsvall airport that also controls operations at Örnsköldsvik remotely. In this case, the center has two separate "cabs" for the two airfields, but Saab could configure one screen array to handle two airfields on an active-inactive sequential basis. While one airfield is active the screen array shows that airfield, with possibly a separate small display to permit secondary monitoring of the inactive field. Saab is now installing digital systems at Linköping and at the new-build Scandinavian Mountains Airport at Sälen-Trysil. The company is also providing digital systems to the Irish CAA and at London City Airport.

Augmented Reality

As well as replicating the view from a traditional tower, the Saab system allows advanced augmented reality functions, some of which will be researched in the Cranfield center. An automatic tracking function can be added to the zoom camera, allowing it to alert ATCOs to drones and other potential hazards, while the graphic overlay function permits the display of numerous other data, such as radar and secondary surveillance information as provided by wide area multilateration and other technologies. The control center can also be expanded to monitor and control the operations of ground vehicles, especially those that operate autonomously.

Research into these fields, and especially into the integration of manned and unmanned systems, is the primary reason that Cranfield has adopted the digital tower as part of its Cranfield Global Research Airport vision. The University—which grew out of the College of Aeronautics that was founded in 1946 as a post-graduate research center, and which is situated at the heart of the Oxford-Cambridge "innovation arc"—is globally unique in owning and operating its own airfield and research/flying classroom aircraft (two Jetstream 31s, one of which is shortly to be replaced by a Saab 340, plus a British Airways-donated Boeing 737 ground trainer). It has the ability to completely shut down the airfield to conduct trials of new innovations on behalf of both industry and academia.

The new digital tower is an integral part of the future activities of the University's DARTeC (Digital Aviation Research and Technology Centre), a venture part-funded by industry that will open in 2020. DARTeC is tasked with exploring areas such as drone and unmanned vehicle integration, secure data communications, increased aircraft reliability and availability through self-sensing and self-aware technologies, and to the harnessing of digital technologies to enhance airport efficiencies. ■

News Briefs

GE Aviation's Passport Gets European Approval

GE Aviation has received EASA certification for its Passport 20 engine, which powers the new, ultra-long-range Bombardier Global 7500. The 16,500-pound-thrust powerplant received the FAA nod in April 2016 and has amassed 4,000-plus hours of testing and 8,000 cycles as it approaches entry into service. Certification comes nearly a decade after GE Aviation made a strategic decision to fully jump into the business and general aviation market.

Aircraft Cleaner Acquires West Coast Rival

General aviation aircraft cleaning specialist Sharp Details has expanded its national footprint with the acquisition of T. Brennan Aircraft Cleaning and Performance Carpet Upholstery Cleaning, both under the same ownership. The purchase gives Sharp Details, a PrimeFlight Aviation Services subsidiary, a presence on the West Coast for the first time in its 25-year history. Sharp Details provides interior and exterior aircraft cleaning and detailing for aircraft including wet and dry washing, waxing, Teflon paint protection, leather protection, and interior restoration services.

LHT Offers Eco-friendly Disinsection Spray

Lufthansa Technik (LHT) is offering the first environmentally and material-friendly disinsection spray for aircraft that can be shipped by air directly to operators. Previously available disinsection sprays are considered hazardous materials that can be shipped solely by ground and in most instances can be purchased only from FBOs at ports of exit, limiting the ability of flight departments to keep the product on hand when needed. Many local health authorities require aircraft cabin disinsection—either a short-term top-of-descent or long-lasting residual treatment—when entering the country by aircraft to kill any insects. Lufthansa Technik has co-developed two water-based, non-flammable disinsection products: top-of-descent "Detmol Pheno" spray, which retails for €14.40 ($16.42) for a 200-ml can, and longer-term "Detmol Bio.A," which costs €19.80 ($22.57) for a 200-ml spray can.

Flightworx Adds Fuel-procurement Portal

Global trip support provider Flightworx Aviation has launched a fuel portal application through its independent fuel comparison and procurement division, Flightworx Fuel Services. Known as Fuelworx, the portal offers users the ability to view global fuel pricing through the web-based system, as well as create and send instant fuel quotes and release requests and navigate through the various options available at any location. Pricing is updated continually, and users can review previous quotes and fuel-release information.

GARMIN

G5000® FLIGHT DECK UPGRADE FOR BEECHJET 400A/HAWKER 400XP

- **ZERO-TIME** AVIONICS
- **LOWER** OPERATING COSTS
- **ESTIMATED 200-LB** WEIGHT SAVINGS
- **ADS-B** COMPLIANT
- **INDUSTRY-LEADING** 3-YEAR WARRANTY

For more information, contact Dave Brown, integrated flight deck retrofit programs sales manager, at Dave.Brown@Garmin.com or 913-440-1714.
Or visit Garmin.com/Beechjet.

U.S. bizjet accidents and fatalities both higher in 2018 than in 2017

by Gordon Gilbert

Accidents of U.S.-registered business jets resulting in fatalities doubled from two to four in 2018 versus 2017, and the number of fatalities more than tripled, from three to 10 year over year, according to preliminary data compiled by **AIN**. Nonfatal accidents and incidents of N-numbered business jets also increased year over year.

Notably, all four fatal accidents last year occurred under Part 91; three of the four involved single-pilot operation; and the fourth was being flown by an unqualified crew. The first fatal accident of last year occurred on April 15 when a Cessna Citation 525 on a Part 91 personal flight hit terrain in night IMC, although no flight plan was filed. The private pilot and sole occupant was killed.

On September 27, the two pilots died when their Dassault Falcon 50 on a Part 91 personal flight overran the runway while landing in day VMC. The NTSB's preliminary investigation revealed that neither pilot was legally qualified to fly the tri-engine business jet.

Last year closed out with two single-pilot fatal Citation accidents, both of which occurred shortly after takeoff. The pilot and two passengers aboard a Citation 525A perished on November 30 when the twinjet crashed a few minutes after takeoff on a planned Part 91 business flight. The last fatal accident in 2018 occurred on December 20 when a Citation 560 crashed shortly after takeoff in IMC. The pilot and the three other occupants were killed.

AIN tables show "incidents" as well as "accidents" to distinguish mishaps based on their degree of severity. Investigators often draw fine distinctions between the two events, but, typically, incidents result in minor or no damage and their investigations are sometimes delegated to local officials.

Accidents are events that range from minor damage to destruction and/or injuries. Also, some incidents ultimately get upgraded to accident status during the investigative process.

Accidents/Incidents Worldwide (2018 vs. 2017)

U.S.-registered Business Jets and Turboprops

Business jets	Total		Part 91		Part 91K		Part 135		Public/Gov't		Mfr.	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Total accidents	**14**	**8**	**11**	**6**	**0**	**1**	**2**	**1**	**1**	**0**	**0**	**0**
Nonfatal accidents	10	6	7	4	0	1	2	1	1	0	0	0
Fatal accidents	4	2	4	2	0	0	0	0	0	0	0	0
Fatalities	10	3	10	3	0	0	0	0	0	0	0	0
Incidents	76	51	54	41	1	2	20	8	0	0	1	0

Business turboprops	Total		Part 91		Part 91K		Part 135		Public/Gov't		Mfr.	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Total accidents	**16**	**32**	**13**	**22**	**0**	**0**	**2**	**9**	**1**	**1**	**0**	**0**
Nonfatal accidents	10	23	7	15	0	0	2	7	1	1	0	0
Fatal accidents	6	9	6	7	0	0	0	2	0	0	0	0
Fatalities	16	20	16	16	0	0	0	4	0	0	0	0
Incidents	48	17	38	9	0	0	10	8	0	0	0	0

All data preliminary. Sources: FAA, NTSB, Aviation Safety Network, AIN research

Non-U.S.-registered Business Jets and Turboprops

Business jets	Total		Private		Charter		Other*		Unknown	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Total accidents	**9**	**11**	**6**	**6**	**1**	**3**	**1**	**2**	**1**	**0**
Nonfatal accidents	6	7	3	4	1	2	1	1	1	0
Fatal accidents	3	4	3	2	0	1	0	1	0	0
Fatalities	16	19	16	7	0	3	0	9	0	0
Incidents	10	15	6	12	2	1	0	1	2	1

Business turboprops	Total		Private		Charter		Other*		Unknown	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Total accidents	**28**	**35**	**9**	**17**	**9**	**12**	**6**	**6**	**4**	**0**
Nonfatal accidents	23	23	7	12	8	9	4	4	4	0
Fatal accidents	5	12	2	5	1	3	2	2	0	0
Fatalities	19	58	2	19	5	28	12	11	0	0
Incidents	13	13	3	3	5	5	4	5	1	0

**For example: ambulance, survey, ferry, training, testing, manufacturer, government (non-military) and head of state.*

Non-U.S. Jets Fatalities Drop

Non-U.S. business jets were involved in three accidents that resulted in 16 fatalities last year compared to 19 people killed in four fatal accidents in 2017. Eleven of the fatalities in 2018 died in a single crash of a privately operated Turkish-registered Bombardier Challenger 604.

Probably the most unusual fatal accident last year happened on January 5 when the captain of an Austria-registered Gulfstream G150 died from injuries sustained when the passenger door blew open as he was trying to open it. The jet was being readied for flight, the flight attendant was inside, the APU was running, and the cabin was being heated. Investigators concluded that the cabin was "over-pressurized" and once the door locking mechanism was released, it "blew open by force striking the captain."

Accidents, fatalities, and incidents from crashes of both U.S. and non-U.S. business turboprops decreased significantly in 2018 compared to 2017 across regulatory operating segments. The highest number of fatalities (five) in a single U.S. turboprop accident occurred on October 25 when a Piper Cheyenne on a Part 91 personal flight suddenly started descending after climbing through 24,000 feet to its assigned altitude of FL250. During the descent the pilot transmitted "emergency, emergency." The twin-turboprop crashed into the ocean with the loss of all five aboard.

Included in the "nonfatal" statistics category for 2018 are two day VMC accidents involving collisions between turbine airplanes and piston airplanes in which fatalities occurred in the non-turbine aircraft. On April 2, a Cessna 150 on takeoff hit a Cessna Citation 525 rolling out on an intersecting runway and then crashed into the ground. The two people in the single-engine piston airplane were killed. The pilot and four passengers in the twinjet were unhurt.

On November 4, a Canadian-registered privately operated Piper Cheyenne III with a pilot and one passenger aboard was hit from below by a Cessna 150. The sole pilot in the Cessna died in a crash after the collision. There were no injuries to the two people in the damaged twin-turboprop that was able to make an uneventful landing.

AIN's data does not include the August 13 crash of a CitationJet that killed the sole-occupant pilot since it was an intentional act. ■

News Briefs

HondaJet Elite Takes Off in Japan

Honda Aircraft handed over a HondaJet Elite to the first customer in Japan on December 20, marking the entry into service of the light jet in Honda's home country. Delivery came two weeks after the Japan Civil Aviation Bureau (JCAB) of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) validated the model. Honda Aircraft opened the order book for the model in June for the first time through its dealer HondaJet Japan. Since then the company has taken orders for more than 10 from the region, it said. "It has been our dream to see the HondaJet flying in the skies above Honda's home country of Japan, and we are proud to mark this major milestone for Honda's aviation business," said Honda Aircraft president and CEO Michimasa Fujino.

Airbus Helicopters Flies First Serial-production H160

The first serial-production Airbus Helicopters H160 medium twin made its first flight on December 14, joining the three prototypes that have already accumulated more than 1,000 flight-test hours The helicopter, which will be delivered to launch customer Babcock in 2020, is one of 10 pre-serial-production aircraft that the company plans to assemble in the coming months as it refines its production process. When the helicopter achieves full-rate production, Airbus expects to assemble an H160 in as little as 40 days on the helicopter's new, dedicated production line in Marignane, France. The H160 features the Helionix avionics suite, an all-composite airframe, and Blue Edge active-tracking main rotor blades that reduce noise and contribute to a smoother ride. Its cabin can be configured to seat four or eight passengers in executive/VIP layouts, or 12 in a utility configuration.

MJet Signs as First ACJ319 Skywise Operator

Austria's MJet became the first ACJ319 operator to sign up for Skywise, Airbus's single-point solution for obtaining, managing, and reviewing anonymous aircraft operational data. Under the program, MJet will share its Airbus operating data and benefit from accessing other A319 operators' aggregate aircraft reliability data. MJet will also work with Airbus to further develop product and support services specifically for ACJ operators. Airbus said its Skywise service will provide MJet "new insights at aircraft, company, and global levels" while "improving operational reliability, reducing operational interruptions, and identifying efficiencies, cost savings, and enhanced revenue opportunities." Airbus Skywise provides its users with a single access point for operational data by combining information from multiple sources.

University Air Center

Gainesville, Florida | KGNV

A PREMIER AVFUEL-BRANDED FBO

For more than 35 years, University Air Center and its staff have provided comprehensive FBO services for business, general and military aviation in North Central Florida, while also offering top-notch flight training for aspiring aviators.

- On-Site, Full-Service Maintenance
- FAA-Approved Avionics Repair
- 24-Hour, On-Call Medevac
- Open 24/7
- GPU
- WiFi on Ramp
- Crew Cars Available
- FAA Part 141 Flight School
- On-Site Catering

UAC.aero | ***Avfuel Contract Fuel and AVTRIP available*** | ***Avfuel Training System (ATS) Certified***

Powering your flight with more than just fuel. Learn more at avfuel.com.

› continued from page 1

Bell Nexus air taxi

system redundancy and space for passengers to safely embark and disembark the vehicle while operating. The ducted fans also offer improved performance and a quieter noise signature than comparable open-rotor designs, according to the company.

Bell also announced four collaborating partners on Nexus, with Safran providing the hybrid propulsion and drive systems. Thales will provide flight control computer hardware and software, Moog will develop flight control actuation systems, and Garmin will integrate the avionics and the vehicle management computer.

While not expected to enter widespread service until the mid-2020s, the Nexus features a mix of existing and forward-leaning technologies intended to surmount today's market concerns and regulatory hurdles while also providing a path toward future evolutions.

For example, the Nexus propulsion system incorporates a series hybrid layout in which a turbine engine feeds an electrical distribution system, which in turn routes power to a battery pack that drives the fan motors. In addition to providing system redundancy in the event of turbine failure, the series hybrid architecture offers an upgrade path towards eventual fuel cell and/or full-electric propulsion.

Similarly, the prototype's cabin is configured in a "4+1" layout with room for a single pilot/operator in addition to four passengers—a bridge between existing capabilities and regulations and a future that might ultimately enable fully autonomous Nexus operation.

"We believe the great engineering endeavor of all these things is working the problem," said Bell vice president of innovation Scott Drennan. "That is the only way the operational, certification, manufacturing, and technology frameworks [required for practical urban air taxis] will come to be solved to offer a safe and reliable solution to the future of mobility."

While Bell's CES 2018 display emphasized the passenger experience onboard an urban air taxi, this year the company will focus on the pilot/operator of such vehicles. An array of augmented reality Future Flight Controls (FFC) simulators—fitted in single-, dual-, or tri-control configurations, the latter essentially emulating current helicopters—will help Bell gauge feedback on what could evolve as the final control configuration for the Nexus and other urban VTOL vehicles.

Bell will incorporate user data from each configuration to determine the actions and interfaces that are most intuitive to remain under the control of a human operator, and which aspects of vehicle control might be automated. ■

› continued from page 1

Industry feels shutdown effects

the hardest hit by a shutdown. And just a few weeks into the shutdown, General Aviation Manufacturers Association president and CEO Pete Bunce warned that any additional time could cost the industry billions in the first quarter.

The shutdown began on December 22 after a stopgap funding measure expired for numerous federal agencies, including the Departments of Transportation, Homeland Security, and Commerce. This directly affected activity at the FAA, Transportation Security Administration, and Customs and Border Protection.

For the FAA, nearly 18,000 positions not deemed "life and safety" roles were furloughed. The majority of the workforce, specifically air traffic controllers, remained on duty, but without their regular paychecks.

Key services came to a full stop: on the FAA's list of interrupted services were airmen certificate issuance, NextGen development, unmanned systems exemption, aviation rulemaking, facility security inspections, routine background checks, air traffic control specialist development, certain drug testing, dispute resolution, and air traffic performance analysis, among many others.

While not specifically spelled out by the FAA, most Flight Standards duties halted, slowing many projects and leaving designated airworthiness representatives in limbo. As the shutdown entered its fourth week, the FAA announced it would bring some inspectors back, but it remained unclear as **AIN** went to press which activities would be affected. NBAA, however, said it anticipated that the primary focus would be on safety surveillance.

KERRY LYNCH

NATCA chief Paul Rinaldi calls on Washington leaders to end the government shutdown.

Service Disruptions

"Since the partial government shutdown began [at the end of] December 21, our nation's aviation system has functioned safely and efficiently thanks to the hard work of dedicated FAA professionals," said NBAA president and CEO Ed Bolen. "That said, general aviation is a highly regulated industry, so it's no surprise that some service disruptions are becoming visible."

NATA outlined a number of company-specific experiences, from disrupted Airbus and Embraer aircraft deliveries (because they couldn't get the appropriate sign-offs) to one member company that had two aircraft stranded in Canada because the FAA was unavailable to provide special approval for their return to the U.S.

Numerous operators were having issues obtaining ferry permits and/or special flight permits for both domestic and international flights, the association added. Further, NetJets wasn't able to add new aircraft into its operations, and the shutdown of FAA knowledge testing and check rides created scheduling issues and delays for organizations. Training companies, including FlightSafety International, reported multiple delays and cancelations.

"We as manufacturers have had to slow down our activity significantly," GAMA's Bunce told a January 10 rally held over the shutdown. The FAA's involvement is necessary for certification and validation, aircraft and equipment modifications, and other approvals such as Instructions for Continued Airworthiness and MMELs. This lack of availability ultimately will result in layoffs if the manufacturers can't get their products approved or delivered, he added.

Thanks to the most recent FAA reauthorization bill, the aircraft registration office remained open, he acknowledged. But, Bunce said, the DOT's and FAA's narrow interpretation of what stays open has hampered registration activity. For example, non-routine aircraft registrations halted since Aeronautical Center Counsel attorneys were furloughed, resulting in additional leasing costs, limited access to capital, and reduced liquidity for aircraft trades.

Industry to Congress

The National Air Traffic Controllers Association (NATCA) and Air Line Pilots Association (ALPA) jointly highlighted delays that were setting in with controller pilot datalink communications (CPDLC), or DataComm, noting this is a key component of FAA modernization efforts.

The groups further expressed concerns about the inability to continue controller training during the shutdown. "Staffing has fallen each of the last six years and this is the second prolonged closure of the FAA Academy to significantly worsen the staffing crisis," the groups said.

Ramifications extended beyond the FAA. The Aerospace Industries Association (AIA) pointed to the inability to process export licenses with the lapse of funding for the Departments of State and Commerce. This additionally delayed delivery of products to foreign countries, AIA said.

Further, government contractors couldn't work and major research projects at the FAA, NASA, and NOAA were suspended. Government-industry stakeholder meetings have also been on hold. "Every day the shutdown lasts, the impacts grow and become more difficult and more expensive to fix," said AIA president and CEO Eric Fanning.

More than 30 organizations in January sent a letter to congressional leaders urging them to work to end the shutdown and outlining many of the issues that have resulted from it. "As the partial government shutdown continues, the human and economic consequences are increasing and doing greater harm," they said in the letter. "Civil aviation supports more than 7 percent of the U.S. gross domestic product (GDP) and $1.5 trillion of economic impact, creating over 11.5 million jobs, but this shutdown is hampering our ability to function effectively." Of chief concern to the organizations was the stoppage of pay to the workers.

NATCA took a multi-pronged approach to ratchet up pressure on Washington leaders to reopen the government. The union spearheaded the January 10 rally, bringing together air traffic controllers and technicians, pilots, and flight attendants, along with numerous industry leaders and lawmakers, outside the Capitol. The participants chanted "End This Shutdown...Today!" and "Open the Government...Today!" as they faced the prospect of the first missed paycheck on January 11.

"We don't care what the issue of the day is...we don't want to be in the middle of a political tug of war," NATCA president Paul Rinaldi said at the event, stressing that the shutdown threatens the National Airspace System.

Along with the rally, NATCA launched a leaflet campaign at major airports to encourage the general public to voice their concerns and filed a lawsuit against the government alleging violation of the Fifth Amendment for unlawfully ceasing wages without due process and for violation of the Fair Labor Standards Act for failure to pay at least the minimum wage to controllers who are working during the shutdown.

The U.S. District Court of the District of Columbia denied NATCA's request for a temporary restraining order but scheduled briefings for a preliminary injunction for the end of January.

While outraged by the shutdown's harm to its workforce, NATCA did welcome last month's passage and signing into law of the Government Employee Fair Treatment Act of 2019, which guarantees back pay to federal employees affected by the shutdown. ■

Embraer-Boeing deal gets Brazilian sign-off | by Richard Pedicini

The Brazilian federal government issued a statement on January 10 indicating it would not exercise its right to block the proposed partnership between Embraer and Boeing, thereby lowering one of the last remaining hurdles the companies need to clear before executing on the joint venture agreement reached in December.

"It's clear that sovereignty and the national interest are protected," Brazilian President Jair Bolsonaro tweeted on January 10, along with a photo of a meeting with the ministers of Defense, Science and Technology, Foreign Relations, and National Security; the heads of the three Armed Forces; and representatives of the Finance Ministry. "The Federal Government does not oppose the [Embraer and Boeing partnership] moving forward."

Government Support

The united front presented by a meeting with more uniforms than suits sets a different tone from that during the administration's first week, marked by several contradictions between the newly inaugurated president and his staff and a 5 percent drop in Embraer's stock price driven by Bolsonaro's comment suggesting second thoughts on the deal.

An official follow-up release stated that the government will not use the "golden share" it received upon Embraer's privatization in 1994 to veto the deal calling for a joint venture to produce and market Embraer's regional airliners. The deal calls for Boeing to pay $4.2 billion for an 80 percent interest and gives it the option to purchase the remaining 20 percent after five years.

The release included part of a presentation by the Brazilian air force concentrating on the defense aspects of the merger, including the KC-390 joint venture in which Embraer will control 51 percent and Boeing 49 percent. The briefing points include that the business aviation and defense and security businesses will remain 100 percent with Embraer, production of aircraft already developed will remain in Brazil, and Embraer will have an initial cash reserve of about $1 billion.

Embraer and Boeing issued a joint release welcoming the approval. ■

Brazilian Science and Technology Minister Marcos Pontes speaks at the meeting that marked the approval of the Embraer-Boeing partnership.

Full-throttle opinion from former NTSB member John Goglia

Significant equipment failures call for an emergency landing

I thought by now pilots—especially professional pilots—would know not to troubleshoot equipment problems in the air. Especially significant equipment problems. Everyone should know by now that the best place to troubleshoot is on the ground. When significant failures occur, land the aircraft as soon as possible. Recent events suggest this is a lesson worth repeating.

Reading the preliminary accident report of the Lion Air crash on October 29, 2018, I was shocked that the pilots on the flight before the fatal flight lost significant instruments in flight and yet did not make the decision to land immediately. The cockpit voice recorder of the fatal flight has not yet been recovered, but the air traffic control tapes are available both for the accident flight and the earlier flight in the same Boeing 737 Max. Investigators are questioning whether the problems experienced on the fatal flight were related to problems that occurred on earlier flights and whether the problems were properly addressed by maintenance when the aircraft was released for service on its fatal journey. For that reason, the preliminary report has more detailed information on earlier flights than one would typically find.

Problems Reported Earlier

The preliminary accident report highlights actions by the earlier flight crew that are worthy of note for all pilots, whether airline, corporate, or GA. According to the report, the Lion Air crew on the October 28 flight (the day before the fatal crash) was advised that maintenance had been performed on the angle-of-attack sensor and that it had been replaced and tested. The flight took off from Denpasar, Indonesia, en route to Jakarta. The report states that while the crew reported a normal takeoff, about two seconds after gear retraction problems began. Within five minutes of takeoff the following was reported:

About two seconds after landing gear retraction, the Takeoff Configuration Warning appeared then extinguished. About 400 feet, the PIC noticed on the primary flight display (PFD) that the IAS [indicated air speed] DISAGREE warning appeared and the stick shaker activated. The FDR [flight data recorder] showed the stick shaker activated during the rotation. Following that indication, the PIC maintained a pitch of 15 degrees and the existing takeoff thrust setting. The stick shaker remained active throughout the flight.

The PIC realized that as soon as the SIC stopped trim input, the aircraft was automatically trimming aircraft nose down. After this happened three times, the captain declared "PAN-PAN to the Denpasar Approach controller due to instrument failure." Pan pan is an international term that indicates an urgent situation but not one requiring immediate assistance (as a mayday call would.) ATC asked if the crew wanted to return to land. Just five minutes from its departure airport, the crew chose to attempt to fix it in flight.

This was clearly not the correct decision and likely violated Indonesian regulations, which—like the Federal Aviation Regulations—require that a pilot-in-command discontinue a flight when an unairworthy condition arises. One of the safety recommendations in the preliminary accident report addresses this very problem, recommending that Lion Air remind its crews:

[*Indonesian Civil Aviation Safety Regulations require that*] *the pilot-in-command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur. The flight from Denpasar to Jakarta experienced stick shaker activation during the takeoff rotation and remained active throughout the flight. This condition is considered an un-airworthy condition and the flight shall not be continued.*

So while the pilots decided to continue the flight, believing apparently that the aircraft's problems had been corrected (although the stick shaker remained on), 16 minutes later the crew again declared pan pan, telling air traffic control that the flight experienced instrument failure involving altitude and autopilot. Once again, the crew determined to keep flying.

The aircraft landed safely in Jakarta an hour later. Many of you may be shaking your heads thinking this could happen only in a developing country. Or with a low-cost carrier. But I've seen this same in-air troubleshooting happen with aircraft and crews of all types, including major airlines in the U.S.

The October 28 Lion Air crew and passengers got lucky that their in-air troubleshooting did not result in disaster. There's no room in aviation for relying on luck. If there's an airworthiness problem that requires troubleshooting, find a suitable place to land first. ■

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

John Goglia is a safety consultant.
He welcomes your e-mails at:
gogliaj@yahoo.com

EXPERIENCE. MILLION AIR.

The greatest journeys *Begin* and *End* with Million Air.

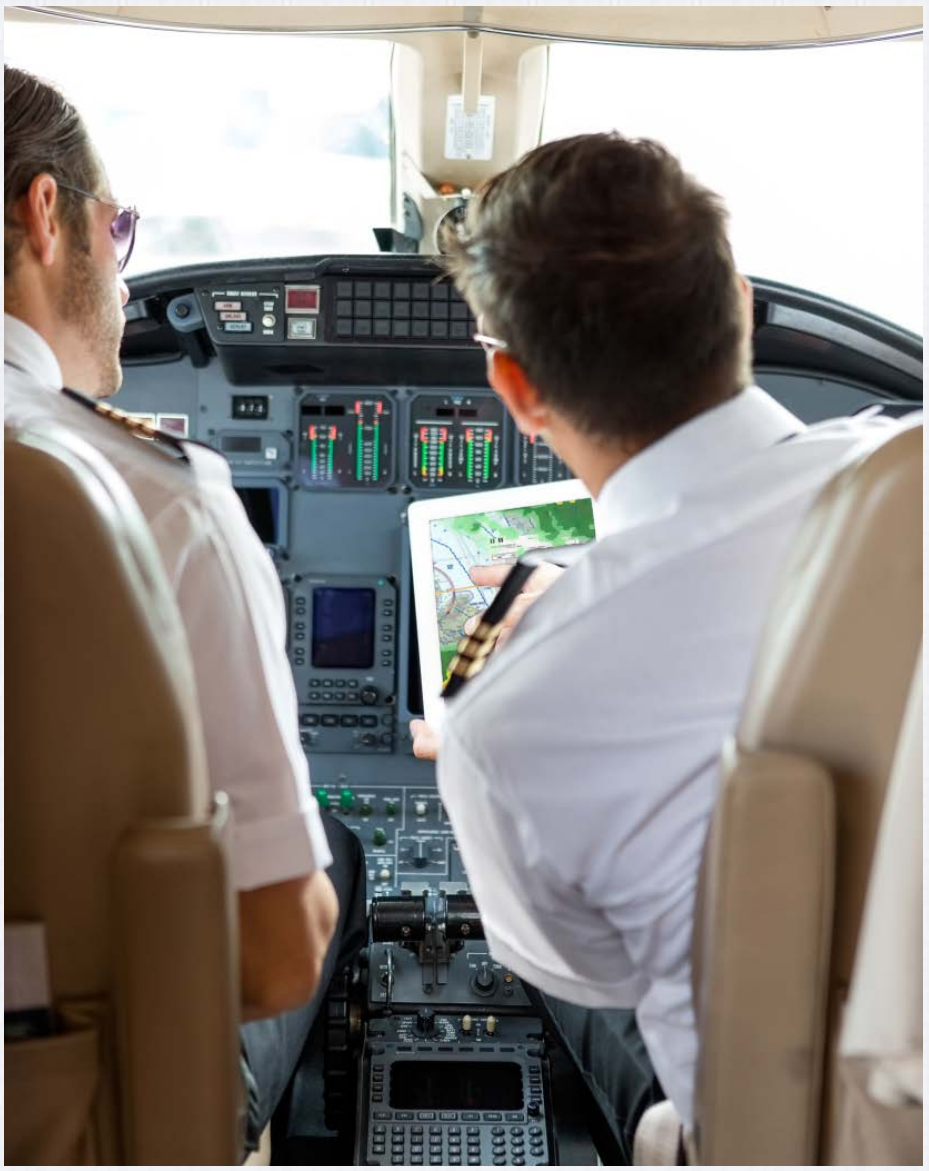
MILLION AIR

VISIT MILLIONAIR.COM

US: Albany, Alexandria, Austin, Burbank, Dallas, Gulfport/Biloxi, Houston, Indianapolis, Lake Charles, Medford, Moses Lake, Orlando, Richmond, Riverside, Rome, San Antonio, St. Louis, Stennis, Syracuse, Tallahassee, Topeka, Tucson, Victorville, White Plains, Yuma Canada: Toronto, Vancouver, Calgary
China: Beijing Colombia: Cartagena Puerto Rico: San Juan

Amazing Apps

by Matt Thurber



It's been just eight years since Apple's iPad changed aviation forever, ushering in an era of portable electronic devices that can not only carry all the charts needed to fly anywhere in the world but also provide the ultimate in situational awareness with moving maps and AHRS-driven synthetic vision displays.

The landscape of the aviation app arena has changed dramatically over those eight years. What started as a simple alternative to paper charts has turned into full-blown electronic flight bag (EFB) apps that took the concept further than ever conceived and upended the traditional PC-based EFB market. At the same time, the tablet-based EFBs running Apple's iOS, Google's Android, or Microsoft's Windows operating systems are now the computers that flight crew carry to help run their operations. The number of applications or apps that run on these devices has also grown rapidly, and the choices for organizations and end-users has likewise expanded.

One element hasn't changed, and that is iOS's dominance among the EFB apps. Android devices have a decent amount of support, with Windows still not heavily supported by aviation app makers, although there are some interesting developments for Windows users.

The big news late last year was Garmin's purchase of free flight-planning service FltPlan. The addition of FltPlan's capabilities gives Garmin not only new revenues from flight-handling services provided by FltPlan but an instant entree into the Windows EFB market. The FltPlan Go app is still the only EFB app that runs on all three operating systems (Android, iOS, and Windows).

(Note: EFB app prices are for full IFR versions)

HARDWARE PLATFORMS

Android

The Android operating system is here to stay, and for those who don't want to be beholden to the Apple ecosystem, Android offers a perfectly useful alternative. Android tablets and phones tend to be much less expensive than their iPad/iPhone counterparts, and this could provide a reasonable way to set up a backup system. While it isn't required that pilots carry paper charts as a backup, having two devices running different operating systems could be a good way to provide a backup in case a problem develops with a particular operating system.

Apple iOS

Apple users have a bunch of new choices for hardware, and even some reduced prices in the iPad arena. The entry-level iPad now costs just $329, although with just 32 GB of storage, this unit is not terribly useful if needed to run more than one EFB app and some other smaller apps. Notably, the basic Wi-Fi version of the iPad does not include a GPS receiver; this is found in the cellular/LTE version, which starts at $459. The newer versions of the iPad are the Pro, and the latest is the 11-inch version with 64 GB of storage. The 11-inch Pro fits a sweet spot in iPad development, being not much larger than the traditional 9.7-inch devices because the edge bevels are much smaller. Keep in mind that the Pro iPads use Apple's Face ID instead of the fingerprint sensor, so if you mount the iPad in a position where it can't get a good view of your face, you may have to unlock it using a passcode.

Microsoft Windows

There are an uncountable number of Windows-based lightweight computers available from a variety of manufacturers, but for true tablet-like operation, Microsoft's Surface series are the go-to devices. The latest is the Surface Go, a lower-cost ($399, 64 GB) lighter device that is still powerful enough to run aviation apps. Sadly, the landscape of EFB app development for Windows remains at a relatively low level compared to Android and iOS, but for those who really want the Windows experience, there are solutions such as Garmin's FltPlan Go, Jeppesen FliteDeck, and Logipad. What makes the Surface tablets useful for aviation operators is that they provide an easy transition to tablets for operators who already use Windows programs.

APPS FOR AVIATING

Aerovie

(iOS, $69.99/year)

Aerovie's EFB app offers all the expected EFB features including geo-referenced maps and charts, weather overlay, synthetic vision, and flight planning and filing. A unique Aerovie feature is an automatic warning of hazards such as icing, IMC, and convective available potential energy values according to the planned route and time of departure. The app displays an information-rich vertical weather profile showing how forecast weather will affect the route of flight. Creation and submission of pilot reports is another Aerovie strength, and for internet-connected aircraft, pilots can submit reports right away. Aerovie is also one of the few EFB apps compatible with the Apple Watch, with functions that include multiple timers, airport information and weather, automated landing briefing, and checklists.

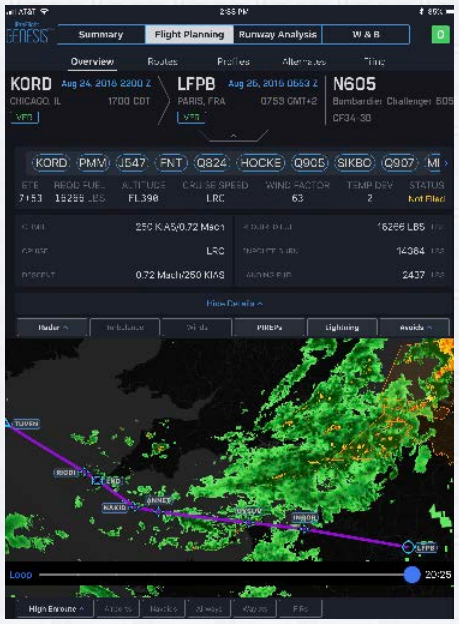
APG iPreFlight Genesis

(iOS, requires subscription to APG services)

Aircraft Performance Group (APG) launched its new flight-planning app—iPreFlight Genesis—at last year's NBAA show. Genesis picks up where APG's iPreFlight app leaves off, adding a new flight-planning engine to iPreFlight's weight-and-balance and runway analysis modules. With Genesis, pilots, dispatchers, and flight operations staffers can plan and file a flight plan after loading up the airplane and evaluating

runway performance capabilities, which include takeoff and landing data for that particular airplane. The analysis shows the departure procedure for each runway and the weight limits calculated by APG's Max Payload Estimator.

Genesis optimizes the flight plan based on winds and temperatures aloft using the SelectRoute tool, which also offers recently cleared and preferred routes. Genesis has an autorouter that automatically plots the route based on the aircraft settings. For example, a non-RNAV-capable aircraft won't be given a flight plan that it can't fly, or an aircraft without life rafts won't be given an overwater route. The flight planning capability is available when the app is not connected to the internet, and in this case, Genesis taps its historical weather database to help the user determine whether the route can be flown and to provide an overall view of the trip.

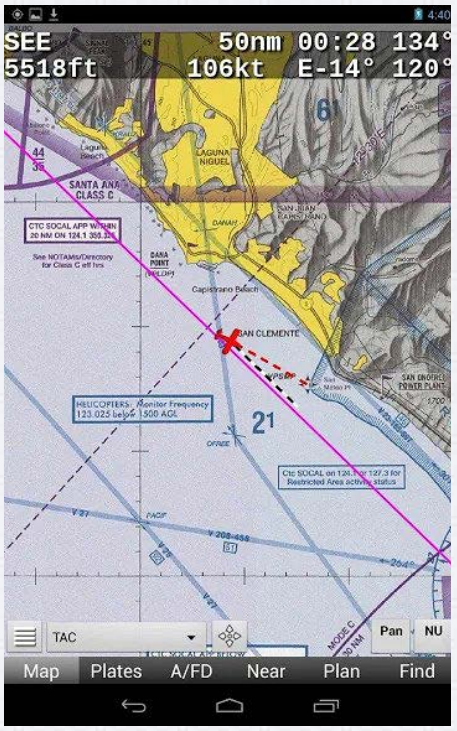


A key benefit of Genesis is the ability to change parameters and see how those affect the flight. If the user started with a dry runway, for example, that can be changed to wet, and this instantly updates all of the modules (weight-and-balance, runway analysis, and flight planning). Genesis is capable of planning international trips and also determines valid tracks for ocean crossings or calculates the route if flying above the tracks. Genesis also provides a graphical view of SIDs and STARs to help the user see which one might be optimal for the planned route.

Avare

(Android, free, no advertisements)

Avare is one of the few completely free Android EFB apps and is fairly comprehensive, with geo-referenced FAA maps and charts, and in addition to U.S. maps, includes coverage of Puerto Rico and parts of Canada, the Caribbean, and Mexico and terrain maps for most of the world. A



handy Avare feature is a "GPS compass direction," where a long press on a point on the map shows bearing and distance to and from that point. Add-on apps provide more functionality without burdening the core software. Examples include an external I/O plugin to enable use of ADS-B In and GPS receivers via Bluetooth or WiFi and a Bluetooth GPS plugin for use of a second GPS-equipped Android device as the position sensor for one or more non-GPS-equipped devices running Avare.

AvPlan EFB

(Android Lite version $39/year, iOs Premium version $149/year)

AvPlan's EFB app is one of the other apps that comes with Apple Watch functionality, but its global flight-planning and flight plan filing make it a viable option for business aviation users. AvPlan can gather weather information globally and includes weight-and-balance, geo-referenced maps and charts, terrain profile view, preflight briefings, and integration with flight-planning services such as RocketRoute and SkyVector. AvPlan flight plans can also be shared with Jeppesen Mobile FliteDeck.

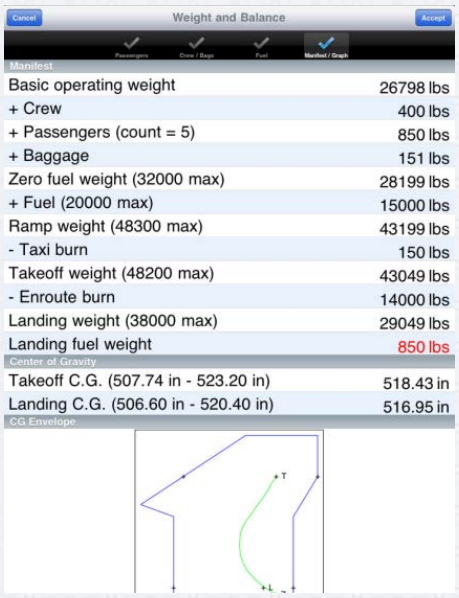
Other AvPlan features include synthetic vision, glide range display, and "virtual copilot" with runway, terrain, airspace, and frequency change warning, both audio and in the app. AvPlan also allows sharing of

crowdsourced weather information. Apple Watch features include Zulu time, flight time, endurance, four timers, and nearest airport with Metar. The Lite version (available for both Android and iOS and the only version available for Android) has reduced utility but could serve as a useful charts backup system; iOS users can install the Lite version on an Android device for no additional cost.

Cavu Companies EFB-Pro

(iOS, pricing depends on aircraft type)

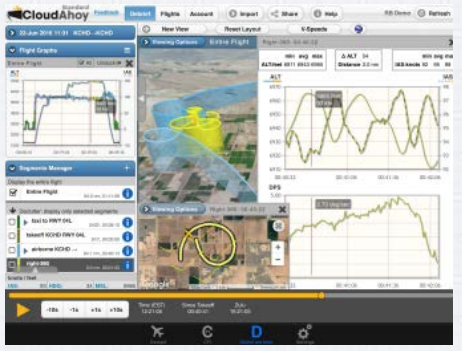
EFB-Pro is a full-featured weight-and-balance and performance calculator with information based on OEM performance data. Performance calculations can be done offline with user-input weather information, or with an internet connection, current airport weather is used to determine runway performance and generate a TOLD card. Cavu's PCast performance forecasting shows a quick "view of takeoff performance as a function of temperature," according to the company, enabling the user to vary "what-if" parameters for various departure times. EFB-Pro also offers fuel tankering analysis, including taking into account FBO fees and fuel rebates, as well as deice fluid holdover time calculations.



CloudAhoy

(Android, iOS, $65/year)

The CloudAhoy app is a debriefing tool useful for pilots and flight instructors, allowing detailed postflight examination of a flight. The quality of the debriefing depends on the quality of the data captured, ranging from a portable GPS or GPS-equipped smart device to comprehensive data recorded by onboard avionics. But even with just GPS data, the CloudAhoy debriefing is highly detailed and accurate, deriving information from a rule-based knowledge engine. Data can be captured using CloudAhoy running

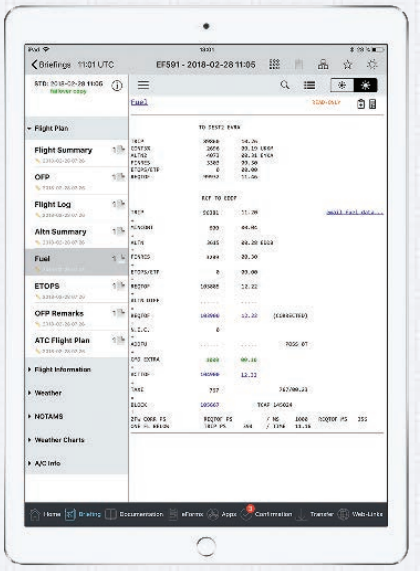


on a smartphone or tablet, or from other apps that capture flight data such as Garmin Pilot and ForeFlight, onboard avionics, and external GPS devices. Debriefing is done on the CloudAhoy website and displays various 2D and 3D views, from outside and inside the cockpit, along with overlays of instrument approaches, and easily viewable depictions of maneuvers. Users can sync flight video inside CloudAhoy to view a side-by-side depiction of the debriefed flight alongside the video.

DextraData Logipad

(iOS/Windows, pricing info NA)

One of the few aviation EFB apps available in both iOS and Windows versions, Logipad is highly customizable and can be managed remotely from any browser. The Logipad app is populated by information from the customer's flight-planning system, which synchronizes with the app. The flight-planning system must support the Arinc 633-2 electronic flight folder standard. Various document types are supported, and the administrator can restrict document actions by users such as printing, copying, sending, and releasing.



DroidEFB

(Android, $149.99/year)

DroidEFB is a full-featured Android-based app with geo-referenced maps and charts, weight-and-balance, integration with AOPA's Flight Planner, and it works with a variety of ADS-B In and GPS

› continues on next page

› continued from preceding page

receivers. Like most EFB apps, DroidEFB users can test it using a PC simulator such as X-Plane to learn the app before taking to the skies. Other useful features include drawing/writing on maps and charts, fuel prices, vertical speed required, a runway finder tool, flight plan briefing and filing, search-and-rescue patterns, flight log sharing, and external SD card storage.

FltPlan Go

(Android/iOS/Windows, free with advertisements)

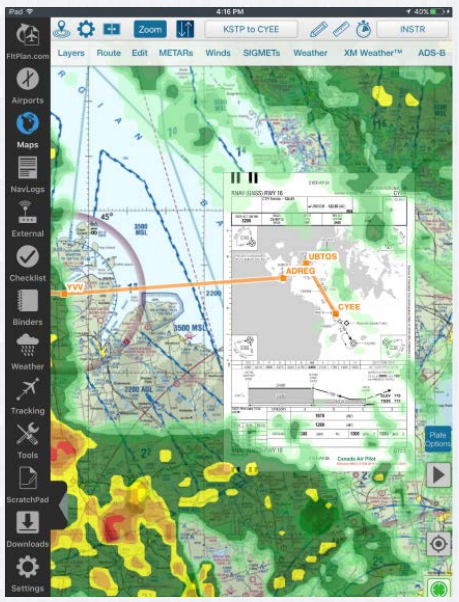
Garmin's purchase of FltPlan gave the company instant entree into the Windows world with the free FltPlan Go app, which also runs on iOS and Android devices, giving users enormous flexibility and an easy way to carry a backup on a separate device running a different operating system. FltPlan Go offers all the EFB capabilities and it is tightly integrated with the FltPlan website and its flight planning tools. FltPlan Go allows pilots to overlay approach charts on the map and add layers for weather, wind, etc. The iPad version of FltPlan Go works with AHRS devices (like those included in some ADS-B In receivers) to provide attitude information on the instrument page. Departure and arrival procedures can be displayed with transitions on the planned route. Other features include weight-and-balance, elogbook, a cloud tops tool, integration with AOPA Flight Planner, and built-in calculators.

ForeFlight

(iOS, $99.99 Basic Plus; $199.99 Pro Plus; $299.99 Performance Plus)

ForeFlight has carved out a significant share of market in the business aviation arena. For pilots traveling all over the world, ForeFlight offers worldwide flight planning services and integration with Jeppesen maps and charts. The flight planning functions were augmented when ForeFlight purchased European flight-planning software developer AviationCloud. It also purchased JetFuelX, a fuel-planning provider.

The Performance Plus version of ForeFlight includes all the moving-map, weight-and-balance, logbook, charts and maps, weather, and checklist features in the Basic Plus version and additional features from Pro Plus, such as geo-referenced maps and charts, synthetic vision, hazard alerts, and terrain profile. Performance Plus brings features optimized for business aircraft, including performance profiles, time and fuel calculations, optimized autorouting, pre-departure clearance and D-ATIS, fuel load planning and limit checks, integration with JetFuelX as well as fuel orders and releases, and the new Trip Assistant. This tool allows users to plan a trip door-to-door with estimates for ground and air time included along with fuel-stop planning.



Garmin Pilot

(Android/iOS, $149.99/year)

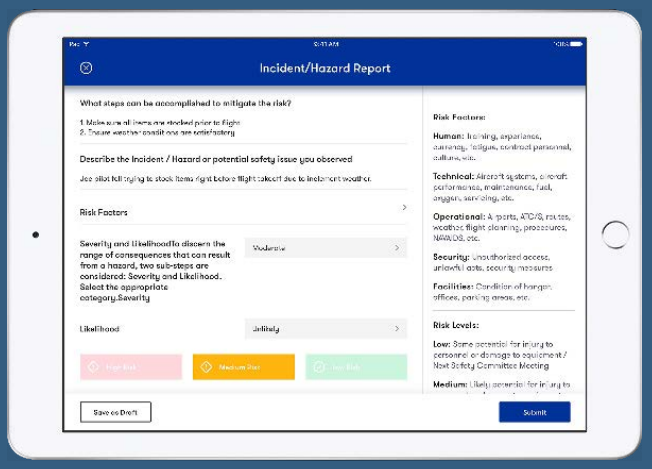
Garmin Pilot is tightly integrated with Garmin integrated flight decks and avionics. With Garmin Pilot and Garmin's Connext system, users can update onboard databases, share flight plans, and download flight data. The Pilot app has worldwide weather and mapping information and can integrate with Jeppesen maps and charts for global operations. IFR flight planning is available in the U.S. and Europe. With the purchase of FltPlan, flight plans generated in FltPlan can now be imported

› continues on page 24

Special-purpose Apps

AviationManuals ARC Safety Management

(iOS, pricing depends on SMS services provided by AviationManuals)

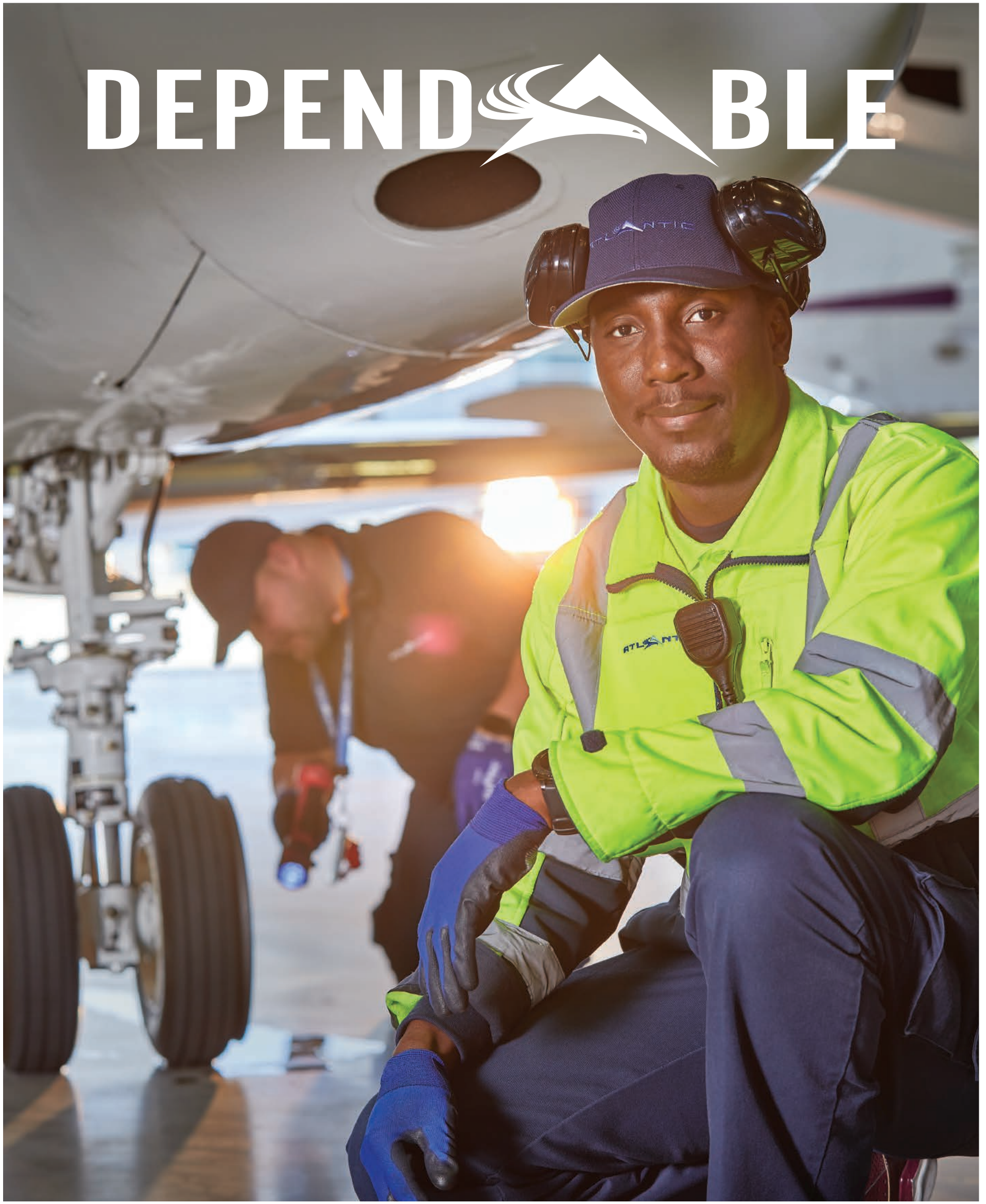


The AviationManuals ARC Safety Management app is designed to work with the company's web-based safety management system (SMS) service. The SMS and web service are designed for all sizes of operations and are modular, customizable, and embrace a philosophy of simplicity to encourage participation in the SMS process. The modularity allows operators to use only the functions needed, and AviationManuals will customize certain modules to fit the operator instead of forcing conformance with a rigid system. ARC Safety Management's functions allow operators to "manage documents; analyze data; manage, read and initial; track communications; create internal audits and quizzes; develop surveys; open chat rooms; monitor the progress of SMS within their department through metrics; and more," according to Aviation Manuals. Late last year, AviationManuals added a metrics module populated with core data. This allows users to provide AviationManuals with safety performance indicators and metrics that serve their operations' needs and also will help the metrics module evolve.

Aeronautical Data Systems Ergo 360

(iOS, price varies depending on type of aircraft)

Ergo 360 was first developed to help dispatchers and pilots calculate emergency options based on fuel and oxygen supplies and depletion rates and incorporate that into safety management systems. Recently the ADS team added a new feature to its Ergo 360 iPad app, graphical information about ships, depicted on a map of the flight-planned route. Ergo 360 users can now download ship information before takeoff and, if equipped with airborne connectivity, update the information during the flight. Knowing the ships' position, velocity, and name can help pilots during an emergency requiring an immediate landing or ditching. Pilots can even communicate with ships using a low-cost marine handheld radio, something that ADS recommends that over-ocean pilots carry in their kitbags. The ship information is derived from the Automatic Identification System that tracks about 230,000 vessels worldwide.



Being your extra set of eyes and ears on the ground. *That's Atlantic.*

ATLANTIC
atlanticaviation.com

› continued from page 22

into Garmin Pilot. The freehand flight planning mode allows users to draw a flight plan on the moving map, and the app automatically creates the flight plan with airports, navaids, and intersections for the route.

The app supports full EFB features including flight plan auto-routing, weight-and-balance with an available library of aircraft with built-in cruise, climb, and descent performance, geo-referenced charts and maps, profile view, synthetic vision, and pilot logbook. Unique Garmin Pilot features include Smart Airspace, which highlights airspace that is at or near the aircraft's altitude to avoid nuisance warnings about airspace that won't impact that flight. For traffic display, Garmin's TargetTrend and TerminalTraffic provides improved views of aircraft trajectories and closure rates (TargetTrend) and aircraft and ground vehicles equipped with ADS-B Out on the airport surface (TerminalTraffic).

Hilton Software WingX Pro7

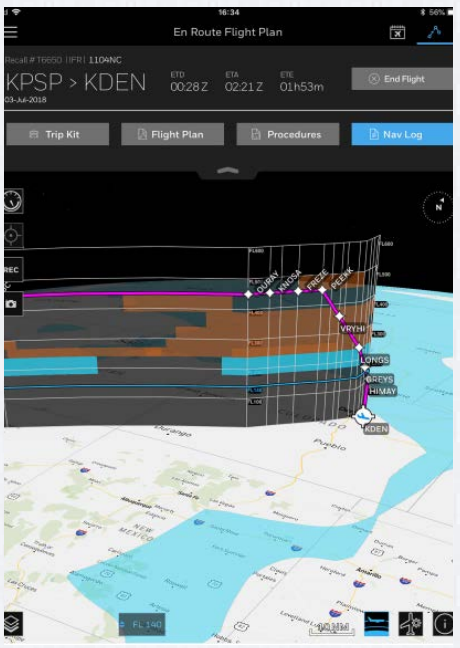
(Android/iOS, $149.98/year)

WingX pioneered many features that are standard in today's EFB apps, including synthetic vision, split screen, terrain warning, and search-and-rescue functions. With geo-referenced charts and maps, WingX offers weather data from Baron Velocity Weather. WingX's unique "traca" feature allows pilots to trace a route on the screen around weather, airspace, etc., and the app automatically creates a set of waypoints along the new route. A new feature is downloading of flight plans from the AOPA flight planner. WingX also provides routing on the moving map for departure and arrival procedures and instrument approaches (iPad only).

Honeywell GoDirect Flight Bag Pro

(Requires subscription to GoDirect Flight Services)

Honeywell's GoDirect Services have grown to cover the entire aircraft, from monitoring and managing airframe components and systems and engines to apps designed for pilots. Two such apps are Flight Bag Pro, a full-featured EFB app, and Flight Preview, which allows users to preview flying an instrument approach on their tablets to gain familiarity before flying the actual approach. Flight Bag Pro is a worldwide flight planning system with weather information and route forecasting. Cruise optimization, fuel burn/time calculations, and weight-and-balance data are from Honeywell's GoDirect Flight Engine and based on OEM flight manual information and aircraft-specific weights. Pilots can download trip kits and use Jeppesen maps and charts. Trip support is available from Honeywell flight data specialists and dispatchers.



iFlightPlanner

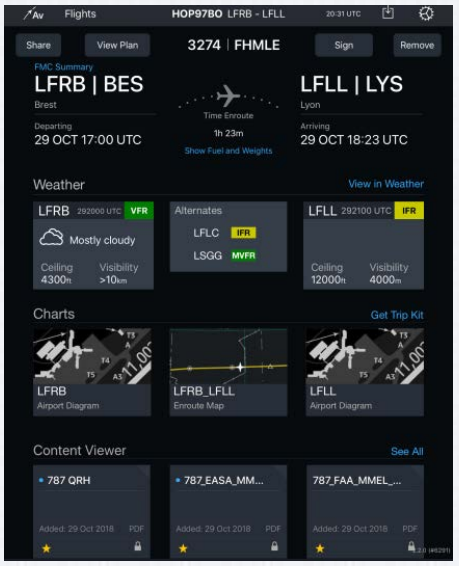
(iOS, $89.99/year)

The iFlightPlanner app is part of an ecosystem of flight-planning and EFB tools and is tightly integrated with the iFlightPlanner website. The iFlightPlanner EFB app is designed for flying in the U.S. and among its many features offers flight-planning with auto-routing, weight-and-balance, geo-referenced maps and charts, Baron Velocity Weather, cockpit voice recorder with auto-pause, instrument approach timer, pilot log, and flight plan integration with Jeppesen FliteDeck.

Jeppesen FliteDeck and Aviator

(FliteDeck Pro iOS/Windows/ Aviator iOS, price varies depending on data subscription)

For subscribers to Jeppesen data, installing its Mobile FliteDeck or FliteDeck Pro app makes sense, because users often have an unused Jeppesen product key that can provide the data for the app. (FliteDeck Pro is also available for Windows devices.) But Jeppesen offers a more integrated experience with its Aviator "all-in-one" app that combines a suite of EFB tools in one application. Aviator brings together FliteDeck's geo-referenced maps and charts, airport moving map, and navigation capabilities plus tools for flight briefing, weather, performance, flight optimization, content viewing, and other utilities such as a calculator, unit conversions, timer, stop watch, and a deicing holdover timer. Users can integrate their company's own applications with Aviator, including, according to Jeppesen, "any integrated EFB application, Ground Web Service, or Dynamic Data Distribution providing ARINC 633-1 or 633-2 formatted flight folders." Jeppesen's Trip Kit on Demand is also integrated with Aviator, so data for a particular trip is always available. Aviator users can share data, flight plans, and trip kits with each others' devices.



Seattle Avionics FlyQ EFB

(iOS, $139)

FlyQ's latest version adds a number of new features to this popular EFB app, including wireless Seattle Avionics ChartData transfer to onboard avionics, recently cleared IFR route, a buddy list that highlights selected airplanes when displayed as ADS-B targets, and ADS-B tail number display. Integration with the FlyQ Online flight planning system is standard. The terrain X-ray feature allows the user to examine the terrain layout in any direction by touching the screen to pop up a terrain view bar that highlights the tallest obstacle in the direction that the bar is pointing. Users can change text size or pop up a larger text box in various areas to make them easier to read.

Synthetic vision is included and provides attitude information when coupled with an AHRS. FlyQ works with more than 20 ADS-B In receivers. It also includes checklists. One of FlyQ's most popular features is augmented reality, which shows airport markers overlaid on video from the iPad or iPhone, by simply pointing the device's camera outside the airplane. ■

It’s time.

What are the most precious things in your life? Your family, your friends, your business? Whatever they are, the most precious resource that links them all together is time.

That’s why we’ve taken the time to make CorporateCare® even more comprehensive, with additional line maintenance, expanded support and even nacelle coverage on later engine models.

Supported by the industry’s leading global service network and cutting-edge digital tools, we are focused on getting you to your destination on time, every time.

It’s time to protect your most precious resource. It’s time to consider CorporateCare Enhanced.

For more information, email corporate.care@rolls-royce.com

The future. **Rolls-Royce.**

IBAC shines light on its industry outreach efforts

by Mark Phelps

The International Business Aviation Council (IBAC) is "here to help" business aviation. That was the message at the recent MEBAA Convention. "We need to do a better job of spreading that word to the industry," IBAC director general Kurt Edwards told **AIN**.

Terry Yeomans, who directs IBAC's International Standards-Business Aviation Handling (IS-BAH) program, added, "Too many people think of us as regulators, but really we try to reach out to industry for ways we can help them. If there is a regulation that is impeding their business, we can work with ICAO [International Civil Aviation Organization] for relief."

Founded in 1981, non-profit IBAC is one of 46 non-governmental organizations in the UN's ICAO and holds permanent observer status. With 192 member states, ICAO's mission is to coordinate all facets of civil aviation. By far, its largest member organization is the International Air Transport Association (IATA), the international airline representative. Edwards acknowledges that the relationship between IATA and IBAC is not always smooth. "We're there to make sure that if a new rule or policy comes up in discussion, the interests of business and general aviation are represented."

Edwards explained that IBAC had "flown under the radar" for too long, and with its IS-BAO (International Standards-Business Aviation Operations) and IS-BAH (for ground handling) programs, it was often viewed as the maker of the rules. Over the past several months, IBAC has committed to reaching out to industry, starting with a series of round tables where industry members are encouraged to voice their concerns about existing or upcoming rulemaking. "The idea is for the round tables to not be IBAC driven," said Yeomans. "We needed more outreach."

He explained that nuances in language can sometimes create confusion, and "tiny misunderstood words" can lead to crossed wires.

Speaking of the nature of IS-BAO and IS-BAH audits, Yeomans said, "They're really snapshots. The auditors need to be intuitive in their evaluations. Everyone is human, and humans seek out shortcuts. The problem is when shortcuts become the norm. If you make it a habit to do things the right way every time, then it's less likely that shortcuts will work their way into procedures."

Asked to assess the progress of the IS-BAH program, Yeomans said, "We're getting there. We are further along than we thought we'd be. We currently have 149 locations at Stage 1, which is really the stage where you say what it is you're going to do. Stage 2 is an important step because that's where you have shown that you're actually doing what you said in Stage 1. We have 50 operations at Stage 2. And we recently awarded our first Stage 3 registration to American Aero Fort Worth at Meacham International Airport in Texas. ■

Qatar Executive takes first int'l G500

Gulfstream Aerospace announced the first international deliveries of its G500, to Qatar Executive early last month following a delivery ceremony at its Savannah, Georgia headquarters. The Gulf-based VIP charter operator has taken two of the aircraft, as per the originally envisioned 2018 schedule. Qatar's civil aviation authority validated the G500's U.S. type certificate in October, three months after the U.S. agency gave its nod for the new large-cabin Gulfstream.

The aircraft will join five Gulfstream G650ERs already in service with Qatar Executive, Qatar Airways' executive charter business. "Gulfstream and Qatar Executive have been good partners since we announced the G500 [in 2014] and their intention to be its international launch customer," said Gulfstream president Mark Burns.

Qatar Executive also has Bombardier Global 5000s, Global XRSs, and Challenger 605s in its fleet. In 2015, the charter operator placed a $1.5 billion order for up to 30 Gulfstreams, including 19 G500s, five G600s, and six G650ERs. Bombardier is known to be keen to sell the Global 7500 to the Gulf charter firm, but no official announcements to this effect have yet been made. **P.S.-S.**

One Aviation continues slog through Chapter 11

by Rob Finfrock

Despite hopes for an expedited journey through Chapter 11 reorganization, Albuquerque, New Mexico-based One Aviation is still awaiting court approval for its plan to exit bankruptcy and facing a challenge from some company stakeholders.

Formed shortly after One Aviation's October 10 bankruptcy filing, the Official Committee of Unsecured Creditors (UCC) filed a motion November 15 to prevent Citiking International LLC from receiving debtor-in-possession (DIP) financing to continue operating the company under Chapter 11. That motion also questioned the process by which Citiking came to be the presumed owner of One Aviation upon its exit from bankruptcy.

"The committee understands, upon information and belief, that Citiking is owned by a Chinese national with little or no experience in the aerospace industry," read the UCC's motion obtained by **AIN**. The committee further claimed that Citiking intends to "recommence the debtors' aircraft manufacturing operations in mainland China" upon acquisition of the company.

One Aviation Response

One Aviation promptly countered those accusations, asserting the UCC "cast [Citiking] in the starring role as the evil, over-controlling lender seeking to undermine the bankruptcy process for its own benefit and at the expense of the company's other interested parties."

While the court ultimately approved the DIP financing, the UCC continues to seek answers about Citiking's ultimate intentions. Oral depositions from several key figures, including One Aviation CEO Alan Klapmeier, company chairman Michael Wyse, and Citiking CEO Chenliang Zhang, were scheduled for late last month ahead of a final hearing on court approval for the bankruptcy plan.

In December, Citiking received court approval to extend an approximately $28,000-per-month lease for the Sunport 10 manufacturing facility. While that building hasn't seen much activity in recent years, contained within are the friction stir welding gantries used for Eclipse 500/550 fuselage production. ■

ROB FINFROCK

One Aviation continues to grind through Chapter 11 reorganization, with debtor-in-possession funding being used to maintain some of its manufacturing facilities at New Mexico's Albuquerque International Sunport.

Bombardier's Learjet legacy carries on with the 70/75

by Matt Thurber

To say the Learjet 70 and 75 are versions of the 40/45 updated with new Garmin G5000 avionics is accurate, but there is more to the newer models than just the flight deck. Every upgrade is an opportunity to improve the marque, and Bombardier engineers certainly did that.

The $13.8 million Learjet 75 is the pinnacle of the classic Bill Lear design that probably did more to usher in the business jet than any other aircraft. It retains the classic Learjet layout but is equipped with the latest Garmin G5000 integrated flight deck and a modern interior that maximizes space in Bombardier's sole light jet product. The 40/45 was Bombardier's first new design in the Learjet line after the purchase of Learjet in 1990. The 70/75 was the first jet to enter service (in 2013) with Garmin's G5000 touchscreen-controlled flight deck and the first to be designed with a pocket door.

In 2017, Bombardier celebrated delivery of the 3,000th Learjet, 54 years after the Learjet 23 was certified.

To Bombardier's credit, it has kept the Learjet production line running in Wichita, even though sales of the 70/75 have dropped. During this production run, Bombardier has delivered 132 Learjet 40/40XRs, 454 45/45XRs, and nearly 130 70/75s.

Bombardier remains committed to the Learjet line, and both the 70 and 75 remain in production. During the first three quarters of 2018 Bombardier delivered nine of both the Learjet 70 and 75, and final quarter sales were expected to climb thanks to the new U.S. tax law's bonus depreciation. The total reached 14 in 2017 and 24 in 2016.

The 70 and 75 are basically the same airplane, both powered by the 3,850-pound-thrust Honeywell TFE731-40BR turbofan, but differing in cabin length and range/payload capability. The Learjet 70's cabin is 17 feet, 8 inches long and seats up to seven passengers. Maximum range with four passengers and two pilots is 2,060 nm, and maximum payload is 175 lb greater than the Learjet 75's at 2,285 pounds versus 2,110 pounds. Both have the same maximum takeoff weight (mtow) of 21,500 pounds and carry the same amount of fuel, 6,062 pounds. The Learjet 75's cabin measures 19 feet, 10 inches and range is nearly the same at 2,040 nm, with a typically equipped capacity of up to nine passengers.

Two key competitors for the Learjet 75 are Embraer's Phenom 300 and Textron Aviation's Citation CJ4. The Learjet is certified to FAA Part 25 regulations, however, while the Phenom 300 and CJ4 are certified under Part 23. Certification to Part 25 regulations requires meeting higher standards for bird-strike requirements, flight control redundancy, rotor-burst protection, ice testing, and takeoff performance after engine failure.

The Learjet 75 beats its competitors in cabin volume, boasting 364 cu ft versus the Phenom 300's 327 cu ft and the CJ4's 295 cu ft. The Learjet's cabin height is 4 feet, 11 inches and width is 5 feet 1 inch, the same dimensions as the Phenom 300, although the Phenom's cabin length is more than two feet shorter at 17 feet, 2 inches. The CJ4 cabin measures 4 feet, 9 inches high and 4 feet, 10 inches wide and is 17 feet, 4 inches long.

With a top speed of Mach .81, the Learjet 75 edges out the Phenom 300 at Mach .78 and the CJ4 at Mach .77. High-speed cruise in the Learjet is Mach .79 and typical cruise speed Mach .76. From a range perspective, the Phenom 300 can fly 1,971 nm with six occupants, while the CJ4 can fly 2,165 nm (number of occupants not specified).

INTERIOR APPOINTMENTS

The Learjet 75 standard interior consists of two four-seat, double-club seating areas in a flat-floor cabin with a forward galley opposite the entry door and an aft lavatory with its own window and a belted seat. A pocket door between the cabin and the galley/entry door area quiets the cabin by up to 8 dB SIL, making it possible for passengers across from each other or even in the opposite zone to hear each other.

› continues on page 30

REVOLUTION

A revolutionary new approach to aircraft acquisition • *Advance notification of pre-market aircraft • 100% verified listings • Never duplicates • Immediate notification of price changes • No phantom aircraft • Vetted network of support services • Featuring only aircraft from The International Aircraft Dealers Association*

AIRCRAFTEXCHANGE.COM

Powered by the world's most trusted aircraft dealers.

› continued from page 28

The cabin management system is Lufthansa Technik's nice system with niceview moving-map.

Each seat except the one next to the emergency exit is equipped with a popup 7-inch touchscreen monitor mounted in the side ledge. Passengers can see and control the monitors while they are in the stowed position, or they can also use a mobile device app to control the nice system. A larger 12-inch HD monitor is mounted on the forward bulkhead. The touchscreens control the lights and cabin environment, but each seat also has dedicated switches for overhead and table lights. The emergency exit seat has a smaller 4.3-inch monitor. A Blu-ray player opposite the galley stores up to 250 movies that can be served to any of the seat monitors. User content can also be viewed via USB ports at each seat, and there is an HDMI port located at the VIP seat. Universal power outlets are fitted between each seat as well. The immersive sound system uses transducers instead of speakers.

The VIP seat controls the bulkhead monitor and all lights, although each passenger can control their own lights. The VIP controls can be assigned to any seat.

Window blinds are manually adjustable and can be set to fully dark, shear (allowing some light through), or completely open.

Leather inserts are an option for the tables between the club seats. The normal table can't be fitted on the right rear where the emergency exit is located, so for those two seats, a plug-in table is available. When not in use, the plug-in table is stowed in a cabinet behind the left rear seat.

Each cabin seat has a small "candy" drawer at the bottom. An optional seat back and track option allows the seats to move farther back, and the seats can even be tilted back and, with their seat pads removed, reversed to make a sleeping surface.

The lavatory can store up to 150 pounds of baggage in 15 cu ft, secured by a cargo net. The 50-cu-ft external baggage compartment is heated but not pressurized and can carry up to 500 pounds. It is long enough to store surfboards and golf bags.

The Learjet 75's clamshell entry door saves cabin space up front and allows room for an optional galley rest seat, which is usable only in flight.

The galley has plenty of storage space and a hot liquid dispenser. A microwave oven is an option.

Gogo Business Aviation air-to-ground connectivity is available for domestic U.S. operators, and Gogo's Inmarsat Swift-Broadband satcom is an option for international travel.

The cabin altitude at typical cruising altitude of FL450 is 6,450 feet. The Learjet 75's maximum operating altitude is FL510, where the cabin altitude is 8,000 feet.

LEARJET 75 FEATURES

Automatic lights in the entry area, flight deck, and on the pylon near the rear baggage door switch on when opening the cabin door. A pushbutton next to the cabin door switches these lights back on if the timer times out.

A dedicated AC alternator supplies the two-ply windshield with electricity for heating.

Dual-wheel main landing gear are equipped with carbon brakes, and thrust reversers improve landing performance and allow pilots to take full landing credit on contaminated runways.

Nosewheel steering is digitally controlled via the rudder pedals, with up to 60 degrees' turning at slow speeds and limited to 7 degrees once speed reaches 70 knots. In towing configuration, the nosewheel can pivot 360 degrees, with the sole limitation the configuration of the towbar.

Fuel tanks can be pressure-filled or by gravity filling. The gravity port is mounted on the upper right side of the rear fuselage, and the fuel panel is under the right engine pylon. There is no provision for overwing fueling. The fuselage tank flows into the wings then engines to maintain balance.

The Honeywell RE-100(LJ) auxiliary power unit (APU) is approved for unattended use, but is only for ground operations and not while in flight.

The Honeywell TFE731-40BR engines are flat-rated to ISA +23 degrees C, but automatic power reserve (APR) extends the flat-rating to ISA +27 degrees to deliver more thrust in a one-engine-inoperative situation or emergency such as windshear.

Aileron fences improve roll control at low speeds, even in a full stall. When rolling more than five degrees, spoilerons extend to augment roll control and they can also provide roll control in case the ailerons jam.

VISION AVIONICS

The Garmin G5000-based Vision avionics suite is a vast improvement for the Learjet line and makes the front office of the Learjet 75 look more modern and much less cluttered than the previous models.

› continues on page 32

Bombardier Learjet 75 Specifications and Performance

Price:
(typically completed and equipped)
$13.8 million

Engines (2):
Honeywell TFE731-40BR, 3,850 lbs

Avionics: Bombardier Vision (Garmin G5000)

Passengers: (typical)
2 crew + 9 pax

Range:
(w/NBAA reserves, 200-nm alternate)
2,040 nm

High-speed cruise:
Mach 0.79

Long-range cruise:
Mach 0.76

Fuel capacity: 6,062 lbs

Max payload w/full fuel:
2,110 lbs

Ceiling (certified)**:**
51,000 ft

Cabin altitude at ceiling:
8,000 ft

Max takeoff weight:
21,500 lbs

Balanced field length at mtow: (sea level, standard)
4,440 ft

Landing distance:
2,325 ft

Length:
58.0 ft

Wingspan:
50.9 ft

Height:
14.0 ft

Cabin:
Volume: 364 cu ft
Width: 5.1 ft
Height: 4.9 ft
Length: (seating area) 19.8 ft

Baggage capacity: (exterior)
50 cu ft/500 lbs

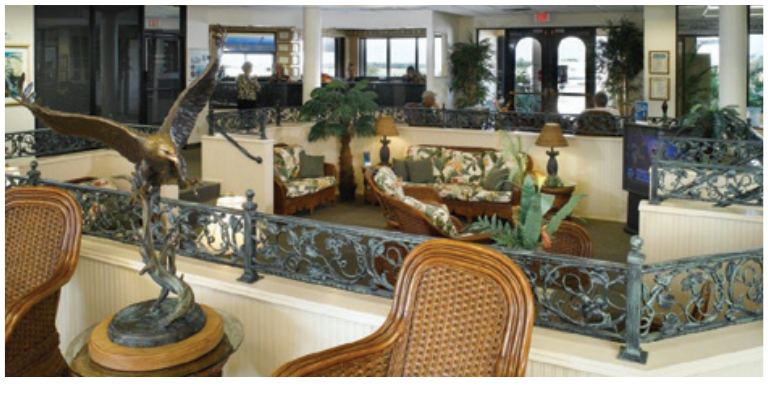
FAA certification:
FAR Part 25

Number built: (through 11/01/18)
126

STUART JetCenter

Strength of a Chain,
Flexibility of an Independent

Your designated alternate for West Palm Beach (PBI)
TFR Just 15 miles North of Palm Beach County



Stuart Jet Center, LLC

Concierge Services • Aircraft Charter • Aircraft Maintenance
Aircraft Sales • Aircraft Hangars • Executive Offices

2501 SE Aviation Way, Stuart, FL 34996
Phone: 772-288-6700 • Fax: 772-288-3782 • Toll free: 877-735-9538 • stuartjet.com

› continued from page 30

Three 14-inch WXGA high-resolution displays populate the panel, supported by two GTC 570 touchscreen controllers below on a tilt at the top of the between-seats console. Above the displays are three panels, the flight guidance panel in the center for autopilot and navigation and two identical panels in front of each pilot for baro setting, PFD settings, range, and buttons for flight planning and procedures selection.

The touchscreen controllers are infrared technology, which means that they can be actuated with ordinary gloves, a pencil eraser, or finger.

The center display has an always-on section for engine instruments, fuel readouts, gear/flaps/spoiler indicators, trims, and CAS messages. The rest of the screen can be a single pane, for example, a moving-map, or split into two panes, with a moving-map on one side and systems synoptics, charts, etc., on the other side. Each pilot can control the center MFD by taking over priority. On the two PFDs, Garmin's Synthetic Vision Technology is standard.

WAAS-LPV is standard as is ADS-B Out. Performance planning and management enables full takeoff and landing data (TOLD) calculations. Also new is weather information, with graphical worldwide weather delivered via Garmin GSR-56 Iridium satcom and U.S. weather information from SiriusXM Weather. The GSR-56 can also be used for inflight text messaging. Controller-pilot datalink communications for the European ATN-B1 (formerly Link 2000+) requirement is optional.

An upcoming update to the G5000 software in the second half of 2019 will make possible an optional FANS 1/A+ upgrade as well as the Flight Stream 510 wireless gateway for Connext services (also optional). The upgrade will also include smart airspace decluttering, visual approaches, and a flight path angle reference cue. This upgrade will be available for in-service Learjet 70/75s.

LEARJET 75 FLYING

It was a perfect Wichita day in early November when I joined Bombardier senior production flight test pilot Ken Wise for a flight in the Learjet 75. The winds were gusting from 17 to 22 knots from the northwest, not unusual for Wichita.

With three occupants—myself, Wise, and production flight test pilot Nick Weyers—and 4,000 pounds of fuel, the Learjet weighed 18,236 pounds. Maximum ramp weight is 21,750 and mtow is 21,500. The G5000-calculated takeoff speeds were V1: 109; Vr: 113; and V2: 123 knots.

Steering a Learjet on the ground takes a little getting used to as the digitally controlled nosewheel is super sensitive. However, the steering is also precise and gives the pilot lots of control. In tight spaces it's possible to turn within one wingspan. Once underway, just slight pressure on a rudder pedal was all that I needed to keep the nose exactly where I wanted.

Lined up on Runway 1L, I advanced the power levers three detents to the takeoff setting, and the TFE731s accelerated promptly and pushed us firmly back in our seats. Wise's speed calls came quickly, and I pulled back on the yoke to rotate—it didn't take much of a pull—and set the aircraft symbol into the flight director command bar, about 9 degrees on the attitude indicator. After retracting the landing gear and flaps, I set the power to maximum continuous (MCT) and began trimming for about 15 degrees, which Wise had recommended for setting up the climb.

Turning on the autopilot and setting flight level change (FLC) for the climb using the FMS climb schedule (250 knots to 10,000 feet then 275 knots until transitioning to Mach .73), we flew east towards Butler, Kansas, climbing at about 4,000 fpm.

Wise wanted to demonstrate the effect of anti-icing on the climb, so I switched the system on at 17,000 feet and the climb rate dropped to 3,300 fpm. Climbing through FL210, I turned the anti-ice off and the climb rate rose to 3,700 fpm. We had to level off for ATC at FL230 then FL310 and FL350 before proceeding to FL410.

With the Learjet 75, Bombardier builds on the offerings of its trusted marque. The aircraft delivers as expected, AIN editor-in-chief Matt Thurber reported after a recent flight.

At FL410 with maximum continuous power set, the Learjet 75 sped along at Mach .80, burning about 700 pph per engine at ISA + 3 deg C. Wise pulled the left engine to idle and deselected the right bleed-air system to demonstrate how the remaining system could maintain the 6,000-foot cabin altitude on its own.

Slowing to Mach .78 and a true airspeed of 462 knots, fuel flow dropped to just over 500 pph per engine, and Wise said that the Learjet 75 flies along comfortably and efficiently at this speed.

After climbing to FL430, I shut off the autopilot and tried some 45-degree banked turns, using the G5000 flight-path marker to help maintain a level attitude. There was zero wing buffet, and pitch and roll control felt solid and crisp. "This airplane has plenty of wing," Wise said.

While the Learjet 75 does not have an automatic emergency descent mode, steep descents are quick when using the spoilers. I tried actuating the spoilers rapidly, and there was no sharp bump or trim change as they extended. We set a FLC descent at 320 kias, near MMO, and dropped at more than 7,000 fpm. "It doesn't take long to get down if you want to," he said.

Back below Class A airspace, we worked our way towards Hutchinson, Kansas and practiced some slow-speed handling so I could get used to the landing configuration. I set up the RNAV approach to Runway 31, which is an easy process with the Garmin avionics: push the PROC button on the touchscreen controller, then select the desired approach for the destination airport, plug in the 1,770-foot msl decision altitude, and then brief the approach. Pulling up the approach chart is a simple matter of pushing the "Charts" button and selecting the applicable chart.

The plan was to fly the missed approach procedure, and I hand-flew the approach, trying out the G5000's cross-pointer setting for the flight director, which Wise prefers. I'm used to the V-bars, and the cross-pointers were a little confusing for me. We intercepted the final approach course and followed the LPV vertical path, the Learjet easily plowing through the gusty winds.

Once at minimums, I pushed the TO/GA button on the left power lever, raised the nose and pushed the levers to the takeoff setting. Wise set flaps 8, then retracted the landing gear and flaps. We then followed the missed approach procedure until resetting the nav to return to Wichita.

I programmed the autopilot to fly us to intercept the ILS approach to Runway 1L, planning for a touch-and-go. After turning the autopilot off, Wise could tell that the cross pointer flight director was hindering me and he switched me back to the command bar. The Learjet 75 handled perfectly, responding swiftly and precisely to my control inputs as I crabbed into the left crosswind and followed the glideslope down to the runway. He disarmed the spoilers so they wouldn't activate after landing.

After a few gusty bumps between 100 and 200 feet, I transitioned to slightly left wing low into the crosswind at about 100 feet and initially pulled the nose up too soon, but then allowed it to drop and raised it just slightly for the touchdown, which was a little firm.

Wise set flaps 20 and checked the trim setting, then I advanced the power levers three detents—click, click, click—to takeoff power, centered the ailerons, and lifted off as Wise called out rotation speed.

I had to pull the power back and trim rapidly to keep from rocketing through pattern altitude while climbing at 180 knots, then set up for our final landing. This time I managed to keep from pulling the nose too high over the runway, and the landing was smoother. We slowed quickly, aided by the spoilers and thrust reversers, and as I taxied back to the Bombardier hangars, Wise started the APU.

The last Learjets in production are still strong contenders for a light jet purchase, with speed and range that combine with a roomy cabin to deliver an efficient mode of travel. For pilots, the 70 and 75 models are pure Learjet, not just in appearance but also performance and handling. It would be nice to see further development of the Learjet line, but that might have to wait for a significant upturn in the lighter end of the business jet market. ■

Because her treatment isn't just around the corner.

Brooklyn D., is a burn patient from New York receiving treatment at Shriners Children's Hospital in Cincinnati. She has received over 26 free PALS Flights.

Patient AirLift Services - PALS Flights

connecting people in need, like Brooklyn, with Charitable Aviation

PALS
PATIENT AIRLIFT SERVICES

www.PALSflight.org ◆ 631-694-PALS (7257)

Volunteer, Request a PALS Flight, Make a Donation

ALERION

Alerion's new owner portal is designed to provide owners with a clearer view of the schedules for their managed aircraft, as well as insight on all the related expenses

Alerion rolls out owner portal beta version

by Kerry Lynch

In 2006, when Bob Seidel, now CEO of Alerion, was new to the aircraft management world, he sat down with the owner of a Boston-area sports team. His then-firm, Jet Aviation, managed an aircraft for the owner. The owner "was rather animated about a situation," Seidel said, recalling him pulling out a rudimentary paper calendar he had printed out.

"He thrust these papers at me and said, 'This is how I keep the schedule on this airplane,'" Seidel continued. The owner explained how his assistant took an orange crayon to mark out charter flights and a green crayon to mark the owner's flights. A red crayon tracked when the airplane was down for maintenance. "This is a modern, private business jet," the owner said and then asked, "Does that seem like the right way to manage a schedule?"

Only six months into his stint managing the aircraft, Seidel initially sat with a blank look on his face, finally responding, "No sir, that's a terrible situation."

That, he said, "was the beginning of my search for the holy grail." In the more than 12 years since, he joined JFI Jets as CEO and then merged it with ACP Jets in 2015 to form Alerion. Now, Seidel is rolling out an online owner portal that can provide insight for owners, not only on tracking, but on nearly every aspect of managing the airplane.

Getting to that point was not easy, he said. "It seems like a very silly thing. Why can't you just tie your system together with Outlook or something like that."

The systems charter-management firms typically use are complex, designed for multiple purposes such as scheduling, managing operational control, matching crew schedules with requisite rest periods, ensuring pilot records are up-to-date, ensuring runways are long enough, and tracking "all sorts of other checks."

Simply tying that together to provide owners with access to such a system proved to be a complicated task. "None of the makers of the software really created a side view that could be given to the owners," he said, adding that quotes to develop such a system ran well over a half-million dollars.

Then he jumped to JFI Jets and other priorities took root. "But almost three years ago, I really...got the bug again. I said, 'we need to do this.'" Seidel began developing the portal in-house with a "very talented" person who worked hand-in-hand with management and its enterprise software firm.

Unified Information

The portal, which launched in beta version in December, is designed to provide access to an array of real-time information, including schedules, expenses, maintenance updates, and passenger lists. It enables owners to look both backward and forward to have a more comprehensive overview of operations and trends. In addition, the portal will enable multiple owners to coordinate schedules with aircraft itineraries. The data is accessible anywhere on a computer, tablet, or smartphone, according to the company.

Alerion, working with customers who have been testing it, hopes to incorporate any resulting changes and roll it out to all of its customers by early spring.

"Customers need this," he said, adding it answers "the kinds of questions we get every single month as they look at their statement. It's the sort of thing that if they had this information, it would save numerous phone calls, fretting, and hand wringing. It would save all kinds of miscommunications between us and the customer."

For instance, he said, a customer's assistant might call up and say the boss wants to go to Columbus on Thursday the 12th. But the assistant may not specify or be clear on which month; or even which "Columbus." The portal will confirm that the planned trip is exactly what the customer requested.

Seidel said he once ran into a similar situation. His firm took an urgent "pop up" trip from New York to Minneapolis and then, just before the flight took off, received a request to change the destination to "Grand Rapids" and generate a new quote. The new quote was lower, because of course Grand Rapids, Michigan, is closer to New York than Minneapolis, Minnesota. The quote puzzled the travelers. Then it became apparent after the flight had departed that the travelers wanted to go to Grand Rapids, Minnesota. So the pilots altered the flight plan and refiled for the correct destination.

"That just goes to show you how important it is to have everything in writing and acknowledged," Seidel added. One of the advantages of the portal, he said, is it enables an owner or any person designated by the owner—whether a spouse or assistant—to look at the schedule and confirm the plans.

Bob Seidel, CEO of Alerion

> **"...It would save all kinds of miscommunications between us and the customer."**

It also gives owners an overview of the future plans for the aircraft and the crew and perhaps alter their travel schedules when they have flexibility. "They can look and see, oh, the crew is down this week for training," he said. Without that information, the customer may have asked for the aircraft that week. "If we're told that a customer wants to use the airplane, we would cancel the training skills session." Then the crew would need to rebook training, which could launch a domino effect on scheduling issues.

"But if the customer had known and could wait one day, the customer could have easily made that change," he said. "So just the simple matter of sharing a calendar that shows the maintenance schedule, the training schedule, the airplane status, the owner's schedule, and the charter schedule...can save so much in the way of miscommunication, errors, unhappiness, and dissatisfaction." And it can be done at all hours since it is online. "We're trying to show how we're trying to pack all the sausage into the casing," Seidel said.

Another major benefit is transactional. The portal gives clients access to interactive reports based on the time period of their own choice. "They can see every single purchase of fuel. Since they're responsible for paying for the fuel, they would like to know how much they paid for the fuel, how much fuel is this airplane burning, and how are prices affecting cost of operation." The portal provides access to multiple charts to provide clear views of such transactions.

The reports also cover maintenance, showing every step, labor hours, parts, and warranty. "They can dig down, select a particular maintenance work order, open it up and see all the subcategories within that work order."

Clear Cost Outline

All monthly statements are posted on the portal, with expense reports that track "every single expense down to a pack of gum." Trips are mapped, including multiple legs, hotels where crews stayed, rental car costs, and potential cost savings, he added.

"My goal will be that we don't have to do monthly statements anymore," Seidel said, adding all those reports would be accessible on the site. "That's one of the areas where some of the customers in this industry have been frustrated, because it's all mumbo jumbo. I mean, they know how much a bagel costs, but they don't really know how much a nosewheel costs."

By having receipts for every transaction, customers will have more clarity and assurance that there is no markup. "There're a lot of tricks of the trade that less savory people could use to really pad the bills. [With the portal, customers] don't have to be suspicious. They can see what's happening, and they have an understanding."

Further, any mistakes can be easily identified and rectified, providing confidence for the owners.

Also, owners have a better understanding when invoices arrive, which can be unpredictable, particularly for international travel. Seidel noted that he once received an invoice from a country in Africa for €2,900 ($3,307) in fees five years after the trip. Then Alerion was in the position of having to either pay or protest the charge. "Some of the Caribbean islands are notorious. They get around to billing when they get around to it."

In addition, insurance premiums are listed on the portal, as well as passenger manifests. The passenger manifest was particularly welcomed by clients as they attempt to track each flight for tax purposes.

As word of the portal initiative has become better known, Seidel said, he has begun to receive inquiries from competitors and software companies. "This has been a holy grail for them too," he said.

The site will be a value-added benefit for customers, but Seidel believes it will pay for itself in time saved managing inquiries and transactions. "Hopefully it'll bring us more customers. Customers who are experienced in aircraft management will really know what the value of this is, and they're going to say, 'Well, I want that.'" ■

ABACE®
SHANGHAI, CHINA
APRIL 16-18, 2019

REGISTER FOR THE PREMIER BUSINESS AVIATION EVENT IN ASIA

Join thousands of top business aviation leaders, entrepreneurs, and other aircraft-purchase decision makers for the Asian Business Aviation Conference & Exhibition (ABACE2019) in Shanghai. Save the date and visit the ABACE website to learn more.

REGISTER NOW | www.abace.aero

London's popularity as a destination and limits on bizav at other area airports combined to drive movements at Farnborough to more than 30,000 last year, a number that can ultimately reach the movements limit of 50,000.

Farnborough sets traffic record in 2018

by David Donald

One of London's primary business aviation gateways, TAG Farnborough Airport in Hampshire, England, experienced record air traffic movements in 2018. The annual total of 30,279 movements represented a year-on-year increase of 13.8 percent over 2017 and was also 8.2 percent up on Farnborough's previous busiest year in 2007, just before the economic crash.

"TAG Farnborough Airport's improved performance last year is a clear vote of confidence from the business aviation sector," remarked CEO Brandon O'Reilly. "It underlines the success of TAG Farnborough Airport's philosophy—to consistently offer a five-star service of the highest standard with no compromises—and our position as Europe's leading business airport."

O'Reilly offered two reasons for the airport's growth: the continued popularity of London as a global destination, and the squeeze being placed on business aviation at London's commercial airports. In terms of aircraft size, no appreciable change was reported in the large aircraft (ACJ, BBJ) class or in the midsize sector, but a significant uptick was experienced in the 30- to 50-tonne (Gulfstream, Global) sector, with a greater number of smaller aircraft also using the airport.

Speaking to **AIN**, O'Reilly noted that there had been a slight decrease in traffic to and from Russia, but a major increase in transatlantic traffic, with flights to and from the U.S. up by 22.5 percent. European destinations had shown a 15.5 percent increase.

Movements are expected to surpass 32,000 in 2019, which could push the annual passenger figures past 100,000 for the first time. Farnborough expects to collect approximately 50 percent of Northolt's business when the West London airfield closes for runway work. There is plenty of capacity for further traffic growth, as Farnborough has been approved for up to 50,000 movements per year.

Traffic increase was just one exciting development for the airfield last year: "2018 was an important year of milestones for TAG Farnborough Airport," explained O'Reilly. "We were delighted to be selected by Gulfstream as the location for a state-of-the-art, purpose-built maintenance, repair, and overhaul facility, and to be awarded carbon-neutral status, the first business airport in the world to achieve this."

Gulfstream selected Farnborough as the site for a major European MRO center, bringing at least 350 skilled jobs to the area, many to be fulfilled locally. At a 16-acre site on the eastern end of the airport, the 220,000-sq-ft building is being constructed on the site of the former "A" Shed, which has already been demolished. Building work begins in April and is expected to be completed by July 2020. The Gulfstream facility could generate as many as 3,000 extra aircraft movements each year.

Located in a relatively built-up area, TAG Farnborough has always strived to be a "good neighbor" in both local terms and on a wider environmental scale. In May, the airport was accredited by Airport Councils International Europe as being carbon-neutral, becoming the fourth UK airport (after East Midlands, Gatwick, and Manchester) to achieve this.

Another important development was the approval in October by the CAA of Farnborough's airspace change proposal, which should see the implementation in February 2020 of controlled airspace with standard instrument departures and terminal arrivals. Designed in conjunction with local authorities, the new prescribed flight profiles will not only reduce track-miles, but also take aircraft over less-populated areas. Combined with steeper climb-out profiles, this aims to reduce noise pollution in the surrounding area. ■

› continued from page 8

VNY hosts bizav biofuel event

commercial producer of SAJF in North America, has a renewable fuel capacity of 40 million gallons a year (currently 15 percent of which consists of SAJF) and is also planning to boost its production to 350 million gallons over the next two years.

The worldwide consumption of jet fuel, accounting for all its uses, is approximately 87 billion gallons a year, according to Steve Dryzmalla, World Fuel Services' senior vice president for business aviation bulk fuel. "In the last couple of years, we've been at an order of magnitude of 4-5 million gallons total [SAJF] production, so a very small amount of total worldwide use."

Of that current amount, most is purchased by the airlines. Indeed, anyone flying commercially out of Los Angeles International Airport is burning some component of SAJF, courtesy of United Airlines. Due to an offtake agreement, the airline has poured approximately three million gallons of SAJF a year into the airport's general fuel supply for the past several years.

Yet the business aviation groups hope that, with these increases, SAJF will soon be available for their constituents, at least at some key airports. There is an "underlying need to improve fuel access and infrastructure," David Coleal, Bombardier Business Aircraft president and chair of GAMA's environment committee, told **AIN**, adding that it will ultimately be triggered by supply and demand. "The bottom line remains that as demand increases, we will need more fuel at more airports, and this will require more production."

Bombardier has had interest in renewable fuels since 2006 when its commercial division joined CAAFI. Gulfstream, which has used the fuel since 2011, signed its own offtake agreement with World Fuel Services in 2015 for SAJF to support its daily flight activities in Savannah.

World Fuel provided 8,000 gallons of the blended renewable fuel produced by California-based World Energy for the Van Nuys event. Meanwhile Gevo, through its distributor Avfuel, offered another 6,200 gallons. The SAJF was delivered to the four FBOs on the field and in most cases mixed into their fuel supplies. According to Van Nuys Airport Association head Curt Castagna, between the time the fuel was delivered at 6 p.m. on Wednesday and Thursday afternoon, the airport saw more than 140 departures of turbine-powered aircraft. Also drawing from those supplies were aircraft supplied by Gulfstream, Bombardier, and Embraer, which took event attendees on hour-long flights to demonstrate that the fuel is a seamless replacement.

Gulfstream set a city-pair record, flying its SAJF-fueled G280 from Savannah to Van Nuys for the event. "This is drop-in fuel. It is jet-A. It just comes from a different source. You can mix it in the fuel tanks," explained Charles Etter, head of environmental and regulatory affairs and technical fellow with Gulfstream. "It has better freeze-point qualities to it, it has more energy density to it. It's actually a better fuel." In addition to those benefits, SAJF contains less sulfur and other impurities than standard jet-A.

The Van Nuys event, sponsored by the same coalition that launched the SAJF use guide last year, attracted a list of industry luminaries, including Ed Bolen, NBAA president and CEO; Pete Bunce, GAMA president and CEO; Gary Dempsey, NATA president; Athar Husain Khan, secretary general of EBAA; Bruce Parry, environment director for IBAC; Bombardier Business Aircraft's David Coleal; and Michael Amalfitano, Embraer Executive Aircraft president. Also attending the event were experts from the biofuel production and distribution sectors.

A similar event will be held this spring at London-area Farnborough International Airport. "Our industry is uniquely poised to make a huge, positive difference in the fight against climate change, not by changing how much we fly, but by changing how we fuel," said Coleal. "SAJF will enable a future of clean, efficient propulsion in business aviation." ■

Take the future of flight to a higher note

SINGAPORE AIRSHOW 2020

Asia's largest aerospace and defence event

The show returns in 2020 to propel your business to new heights. Strike a chord with global industry leaders, gain access to top decision makers in this thriving region, and impress them with your latest technologies and innovations.

HIGHLIGHTS FROM SINGAPORE AIRSHOW 2018

1,062 participating companies from 50 countries

287 VIP delegations from 91 countries and regions

54,151 trade attendees from 147 countries and regions

1,464 meetings conducted during the exhibition

SECURE A CHOICE SPOT NOW AT SALES@SINGAPOREAIRSHOW.COM SINGAPOREAIRSHOW.COM

SINGAPORE AIRSHOW 2020 11-16 Feb

Organised by: experia events that influence

Official Media Partner: AVIATION WEEK NETWORK

Supporting Media Partners: AIN PUBLICATIONS, FlightGlobal

Held in: SG singapore Passion Made Possible

› continued from page 10

Vision Jet G2

and cabin structure were modified to allow for a maximum differential of 7.1, up from 6.4, delivering an 8,000-foot cabin at FL310. At FL280, the G2 Vision provides a lower cabin altitude of 6,400 feet. Passenger oxygen masks are now automatically deployable.

With the new maximum operating altitude of FL310, the G2 Vision is now RVSM capable from the factory. Cirrus is offering a training program to help buyers meet RVSM requirements and will also help them submit a letter of authorization application where this is needed.

The original Vision base price was $1.96 million plus consumer price index increases from July 2012. Today's G2 Vision base price is $2.38 million, with the fully loaded Elite configuration at $2.75 million. Some of the G2 features will be retrofittable to Vision jets, including the Flight Stream 510, noise improvements, executive seats, and center console.

Vision Jet Training

About three quarters of buyers of the Vision jet are upgrading from a Cirrus SR series single-engine piston, with the rest coming from high-performance single-engine pistons and turboprops as well as light jets, according to Matt Bergwall, Cirrus's director of the Vision Jet product line.

Pilot training for a Vision Jet type rating begins six months before delivery, starting with Cirrus's online training program. A type rating is required because the jet is powered by a turbine engine. "The foundation for the type rating is IFR skills," he said. Generally, recently licensed IFR pilots have an easier time in the type rating course because they are more familiar with modern avionics and procedures. Vision pilots also need to learn about minimum equipment lists and now, with the G2 Vision, RVSM operations. Fortunately, an FAA letter of authorization is no longer needed for RVSM in the U.S. for aircraft that are ADS-B Out-equipped like the Vision Jet.

Cirrus's Knoxville, Tennessee campus includes a Part 142 training organization, and this is where all Vision Jet training is done in a CAE Level C full-flight simulator (which will soon be certified to Level D). Type-rating training includes two Cirrus Airframe Parachute System (CAPS) drills, and this also has to be demonstrated during the checkride, which is performed in the simulator.

Studying the online training before the type-rating course will help new Vision pilots get up to speed quicker, plus they can come to Knoxville beforehand for a course on the jet's Perspective avionics. At Knoxville, the training center also has cockpit procedures trainers replicating the Perspective system for each Cirrus model (two SR and one Vision Jet) as well as two Vision Jet and one SR flight training device that students can practice on.

Pilots who are new to turbofan flying also need to fly 25 hours of supervised operating experience with a mentor pilot after getting their Vision type rating. But even professional pilots with turbine experience can benefit from some mentoring, Bergwall said.

The type rating course lasts 10 days, and annual recurrent training takes two to three days. The preferred timeline is for pilots to get type rated about a month before the delivery of their new jet, which separates the stress of the checkride from the delivery experience. "It should be an exciting time," he said.

Flying the G2 Vision Jet

This was my second time flying the Vision Jet, and it felt just as comfortable as the first time. Sitting in the roomy Vision feels a lot like a Cirrus SR, with many similar ergonomic features to make an SR pilot feel at home and simplify the transition to the jet.

Recognizing that many operators fly without the rearmost three seats, Cirrus added wider center seats. For the pilot the sidestick falls readily to hand, as does the new autothrottle.

The big difference between the Vision and an SR is the three Garmin GTC 580 touchscreen controllers mounted in landscape orientation below the PFD and MFD, a big upgrade from the keyboard-based Perspective suite in modern SRs. One of the controllers doubles as a backup display, so there is no need for a separate space-hogging backup unit. The new Garmin displays operate much faster and have sharper graphics, and I was able to read small print without having to zoom in.

The sidestick (not a side-yoke like the SR flight control) falls readily to hand, as do the touchscreen controllers, throttle quadrant, and other controls.

After starting the engine, we flight-planned a route from Knoxville to Dayton, Ohio, via Huntington, West Virginia, where we planned an autopilot- and autothrottle-flown missed approach. For pilots already used to the Garmin avionics environment in an SR, the touchscreens in the Vision are even easier to use. The touchscreens are infrared-based, so pilots can wear ordinary gloves or even use a pencil eraser or other thin blunt item to work the screens.

We were limited to FL280 because of some FAA Flight Standardization Board paperwork that was pending, but I would be able to see the G2 Vision's improved efficiency at that altitude, even if we couldn't climb to the new FL310 maximum operating altitude.

Taxiing the Vision is just the same as an SR, with differential braking for steering. Winds were calm as I lined up with Knoxville's Runway 23L and pushed the power lever to the stop; the Williams International FJ33-5A's Fadec automatically sets maximum power. Bergwall and I had briefed the takeoff and the 1,000-foot-agl minimum height needed for deployment of the CAPS. Checklists are all electronic and controlled using a wheel/button just below the MFD.

The Vision Jet's controls are crisp and positive, and I like the feel of the sidestick. Rotation came quickly; I lifted the nose and, as we began climbing, reached up to retract the landing gear, then flaps. At 400 feet, I engaged the autopilot and autothrottle, and the latter soon pulled power back to maximum continuous (MCT) and maintained speed at our selected 155 kias with flight level change (FLC) selected on the autopilot.

Passing through 15,000 feet, climb rate was 1,500 fpm, then at FL240 1,000 fpm. We leveled at FL270 briefly, and cabin altitude was 5,850 feet. After climbing to FL280, the autothrottle kept power set at MCT and speed settled at 300 ktas and fuel flow 62 gph with temperature at ISA +10 deg C. Bergwall said that at FL310, fuel flow would be in the high 50s (gph). I like the Vision's percent thrust display because it's easy to set power compared with referring to the engine instruments.

The autothrottle works with Garmin's ESP system to keep the Vision from going too fast at one end, or stalling at the other. As we descended toward Huntington in vertical speed mode, the autothrottle pulled the power back to keep the speed below the redline. Bergwall demonstrated setting up a VNAV descent with a target altitude of 3,200 feet and 189 Kias at the KOSME initial approach fix, and the autothrottle did a perfect job of slowing us down, first to below 250 kias before reaching 10,000 feet then to the target airspeed and altitude at KOSME. The autothrottle is an excellent helper for single pilots.

I selected flaps 50 (percent) then lowered the landing gear as we lined up with the final approach course for the RNAV 30 approach. The autopilot and autothrottle tracked the vertical path perfectly smoothly. I lowered flaps to full as we continued descending, then at decision altitude I pushed the TO/GA button on the power lever and the autothrottle pushed the power to takeoff while the autopilot raised the nose to seven degrees for the missed approach. I set flaps 50 then raised the landing gear and retracted the flaps fully while the autopilot and autothrottle began following the missed approach procedure.

For the leg to Dayton, we climbed to FL180, where speed was 294 ktas and fuel flow somewhat higher at 81 gph.

I tried the manual setting on the autothrottle, which is helpful when flying ATC-assigned speeds instead of according to the FMS flight plan or schedule. In manual mode, I could select speed with a wheel mounted near the autothrottle, which is also the location of the on/off switch and manual/FMS buttons.

The weather was clear and calm at Dayton as I hand-flew the ILS approach to runway 24L. I came in a little low as we neared the runway, but the Williams International FJ33-5A engine responded quickly to my power input. Landing the Vision is a lot like an SR, but the avionics automatically calculates Vref based on actual weight. In this case, at about 5,000 pounds, Vref was a low 81 knots.

The Vision feels less like a jet during touchdown, and just like an SR, I flew it down to the runway with a little speed above Vref to provide some extra energy then pulled the nose up slightly for a smooth touchdown on the mains and moderate braking to make the next taxiway.

As of early January, Cirrus had delivered 88 Vision Jets, and this year plans call for building at least another 80, with a production rate of six to seven per month. The backlog is 540 jets, but prospective buyers don't have to wait years to get one, Bergwall said, as some earlier slots are usually available. Cirrus can also increase the production rate if the market demands faster deliveries.

"The Cirrus Aircraft story is one of relentless innovation," said Pat Waddick, president of innovation and operations. "The G2 Vision Jet is...made possible by the world-class team we have at Cirrus Aircraft." ■

YOUR GLOBAL CONNECTION

EBACE®
21-23 MAY 2019 | GENEVA

Business growth requires a global perspective. It starts with the latest technologies, trends and ideas, and comes full circle with a world of connections that are key in helping you manage multiple budgets, high-performing teams and large-scale purchases. Find everything you need to make the most informed decisions all in one place: **the 2019 European Business Aviation Convention & Exhibition (EBACE2019)**. Join us at EBACE to build relationships and explore the entire marketplace of options. And leave with the best solutions for your business. Get connected and move forward faster. Visit the website to learn more.

▶ LEARN MORE | www.ebace.aero

African event to highlight need for open market

by Peter Shaw-Smith

As they did two years ago, African aviation leaders and government representatives meet this month in Rwanda to further promote the industry on the world's largest continent. Among the topics a new open-skies initiative.

Aviation Africa returns to the Rwandan capital, Kigali, in February, as African regulators continue to grapple with air transport liberalization across the continent by adopting the newly devised Single African Air Transport Market (SAATM) initiative to open skies. Speakers representing airlines, MRO, governments, and aviation finance are expected to attend the two-day event, which will highlight the need for the world's largest continent to continue to open its aviation market in the face of international competition.

"We are particularly thrilled that as well as [Qatar Airways CEO and IATA chairman] Akbar Al Baker, we also have Adriana Marais, who is part of the Mars 1 project, and will be Africa's first extra-terrestrial when she takes her one-way trip to Mars," said Alan Peaford, chairman of Aviation Africa and editor-in-chief of Times Aerospace publications. The South African scientist hopes to participate in a voyage to the Red Planet, which will allow her no possibility of ever returning to Earth.

A keynote interview with Peaford will see Al Baker address "Africa's position in the global aerospace market, how Qatar's strategy has worked and why Africa is important as part of that strategy."

Rwandan president Paul Kagame, whose one-year tenure as chairman of the African Union ended in mid-January in favor of Egypt's president Abdelfattah El-Sisi, is to give the event's opening address on February 27. At a ceremony in Kigali in January 2018, the AU unveiled the SAATM, a project designed to spur the continent's economic integration through full implementation of a 1999 treaty, the Yamoussoukro Decision (YD), which grants fifth-freedom rights to all signatory countries.

Faure Gnassingbé, president of the Togolese Republic and chairman of the Economic Community of West African States, will also address the opening session to stress the importance of SAATM. Although 44 of Africa's 54 nations are YD signatories, only 15 had fully implemented it by 2017, while SAATM saw 21 countries sign its own "solemn commitment." Some, often smaller, African states are wary of greater integration, as likely to favor the bigger countries and airlines, instead of creating a level playing field.

"Many African airlines are members of the African Airlines Association (AfRAA), an association responsible for protecting the general interest of its members," said a recent African Union report. "The establishment of the Single African Air Transport Market is strongly supported by members of AFRAA who account for 85 percent of the total international traffic carried by African airlines." Organizers said the response from previous delegates and exhibitors had been strong, with many repeat attendees for both the exhibition and the conference, and claimed the event is growing year-on-year.

International Exposure

Aviation Africa launched in 2015 in Dubai, then came to in Rwanda in 2017, and took place last April in Cairo, Egypt. Organizers told **AIN** that the conference is to take place in Rwanda every second year, as they believe that visas-on-arrival offered to all sub-Saharan African visitors can add impetus to the conference's goal of bringing all Africans together to plan the future of the regional aviation industry.

"Many have commented on the excellent networking opportunities with real decision-makers and of the high-level open debates in the conference sessions," said Peaford. "We made the decision to anchor the event in Rwanda every two years—and then in alternate years, we would move around the continent. Rwanda is a superb venue. Apart from being one of the great sights of Africa to visit, with beautiful scenery and friendly people, it is also a country with huge ambitions for its aviation sector.

"With visa-on-arrival for nearly all nationals, and a safe environment, it has become one of Africa's foremost conference and exhibition hubs, and with [a] high standard of hotels and no corruption, it is a perfect place for the aviation community to come together."

An African Union Passport was launched by the Union in 2016 and should be ready for worldwide use by 2020. The continent-wide common identity document replaces existing individual-country papers, and removes the requirement for visas for the individuals of all 55 member states.

Exhibitors, including the major Western aircraft manufacturers as well as competitors from Russia and China, have the opportunity to bring aircraft for private demonstration flights from Kigali International Airport, a short distance from the International Convention Centre where the event is being held. Work on the new Bugesera International, outside Kigali, to accommodate increased traffic, began in 2017.

More than a dozen air chiefs, with particular interests in VIP aviation and airspace issues, are also expected to attend, along with mopre than 100 exhibiting companies. Times Aerospace is the show organizer, in conjunction with the Rwandan government and its Civil Aviation Authority. Aviation Africa takes place at the Radisson Blu Hotel and Convention Centre, Kigali, Rwanda February 27-28, 2019. ■

NBAA pushes for more scenario-based training

NBAA is encouraging the FAA to take further steps toward scenario-based training. In comments on the FAA's draft Advisory Circular on Airline Transport Pilot (ATP) and Type Rating for Airplane Airman Certification Standards (ACS), the association supported the development of standards and guidance that are "evidence- and scenario-based" and that emphasize crew resource management, as well as single-pilot resource management.

"NBAA recommends recurrent training and checking be evidence-based and target operations and procedures that address leading accident causes for turbine-powered aircraft," the association said. It further asked the FAA for greater clarification on pilot proficiency requirements and for more guidance on teaching and evaluating risk-management skills.

The agency announced the release of the draft AC in October, outlining standards and guidance for pilot preparations for the FAA ATP knowledge test, practical test, and ultimately ATP certificate or airplane type rating, as applicable. Its draft AC addresses areas including preflight preparation, takeoffs and landings, in-flight maneuvers, stall prevention, instrument procedures, emergency operations, and post-flight procedures. In addition, it includes guidance on eligibility requirements for single-engine or multiengine airplane knowledge tests and practical tests.

The FAA developed the draft following the release of recommendations of a government/industry work group that was tasked with exploring the creation of ACS for type training and ATP training.

"NBAA members have long wanted to move beyond 'cookie cutter' maneuvers-based training standards," working group participant Robert Wright, president of Wright Aviation Solutions and a member of the NBAA Safety Committee, said in an NBAA article on the AC comments. "Operators want more scenario-based training, tailored to their specific operation and addressing the safety issues they're most concerned about."

NBAA acknowledges the proposal moves toward more "real world" instruction but believes more needs to be laid out on how to carry through on such instruction, particularly in recurrent training. The same is true for improved risk-management proficiency.

Further, NBAA is encouraging the FAA to incorporate guidance that includes language from the association's Risk Management Guide for Single-Pilot Light Business Aircraft. **K.L.**

Fill an empty seat with hope.

Give a cancer patient a lift on your next flight.

Corporate Angel Network arranges free flights to treatment for cancer patients in the empty seats on corporate jets.

Since 1981, Corporate Angel Network, a not-for-profit organization, has worked with more than 500 major corporations including half the *Fortune* 100, to fly more than 50,000 cancer patients to specialized treatment and currently transports 225 patients each month.

The process is simple. Corporate Angel Network does all the work. All you have to do is offer an empty seat to a cancer patient on your next flight.

50,000 flights and counting!

Corporate Angel Network

(866) 328-1313
WWW.CORPANGELNETWORK.ORG

BRINGING CANCER PATIENTS
CLOSER TO THEIR CURE.

WestAir will offer charter flights on this Pilatus PC-24 that's in its aircraft management program.

WestAir to charter PC-24

by Jerry Siebenmark

Western Aircraft has added a Pilatus PC-24 to WestAir Charter's Part 135 certificate, which makes it the first in the U.S. to offer the Swiss-built business jet for charter, the company said in an announcement on January 14. "This aircraft has superior speed, range and runway performance," said Phil Winters, Western Aircraft v-p of aircraft sales and charter management. "It is also the first business jet in the world that has a standard pallet-sized cargo door, making the loading of even the bulkiest of items, such as a kayak, easy. It's a true benefit for our charter customers."

The Boise, Idaho-based FBO and MRO provider said the PC-24 is in WestAir's aircraft management program. Western Aircraft noted WestAir's experience operating Pilatus's legacy and NG PC-12s turboprops, as well as its role as a Pilatus dealer and authorized service center.

WestAir has aircraft based in California, Idaho, and Washington, and provides service to more than 5,000 airports in the U.S., Canada, and Mexico. ■

FAA explores new flying concepts, technologies

by Kerry Lynch

The FAA is collaborating with Embry-Riddle Aeronautical University on an EZ Fly aircraft and demonstrator designed to help the agency develop policies that will make flying easier and safer as the industry is on the cusp of urban mobility.

The agency detailed the ongoing project during a recent meeting of the General Aviation Manufacturers Association's Simplified Vehicle Operations Subcommittee at Embry-Riddle Aeronautical University in Daytona Beach, Florida, the association said.

There, the FAA gave a presentation, "A Revolutionary Cockpit Concept Research Sponsored by the FAA Office of Policy and Innovation," highlighting the project to a group of more than 70 government and industry leaders and researchers.

According to GAMA, the agency launched the project about two years ago to demonstrate capabilities of simplified small aircraft operations to an average person and use that research to make piloting more intuitive.

GAMA

The FAA is collaborating on an EZ Fly aircraft and demonstrator that will be used as a learning tool on simplifying flying.

During the presentation, the FAA selected a non-pilot to take the controls of the demonstrator. The volunteer was able to conduct a series of maneuvers. "Because the interface has been designed to completely protect the aircraft, the simplicity of flying with limited or no training was immediately apparent and the minutes-old pilot quickly matched the skills of an experienced pilot," a GAMA spokesperson said.

One anecdote involving the demonstrator was a change of heart that occurred when the demonstrator was shown to a person with a fear of flying. Within minutes of using the demonstrator's automated approach, the person became comfortable with using it, and the experience ignited an enthusiasm toward flying. But once the automation was shut down, the student became frustrated and no longer wanted to pilot the demonstrator.

"GAMA's members are working hard on building amazing innovations that will make flying easier and more accessible while maintaining the highest level of safety," the spokesperson said. "The FAA has been researching these innovations and has been working arm-in-arm with the industry to bring amazing new capabilities into the air."

The agency has brought together internal experts to collaborate with industry to build on lessons learned and bring new ideas into fruition, the association added. ■

Vision Jet spurs proposed change

An FAA notice of proposed rulemaking would remove what is considered an unnecessary and unrealistic training requirement in FAR Part 61 for pilots seeking to obtain an initial airline transport pilot (ATP) certificate concurrently with a single-engine airplane type rating. Current regulations require a pilot seeking an ATP certificate concurrently with an airplane type rating to complete training in a simulator that represents a multiengine airplane. However, because of the way the regulations are written, the requirement for training in a multiengine airplane has the unintended effect of applying to a pilot seeking a type rating for a single-engine airplane concurrently with an ATP certificate.

When this training requirement became effective in 2014, there were no single-engine airplanes that required the pilot to obtain a type rating. However, with the certification of the Cirrus SF50 Vision Jet in 2016, there is now a single-engine airplane that requires the pilot to obtain a type rating. Under the current regulations, if a pilot seeks to obtain the type rating in the Cirrus Vision Jet concurrently with the initial issuance of the ATP certificate that pilot would be required to complete the multiengine training to be eligible for the practical test.

To avoid the multiengine training requirement, a pilot could use a single-engine airplane that does not require a type rating to obtain the initial ATP certificate and then complete a second practical test in the SF50 to add the type rating to the ATP certificate. Or a pilot could add the type rating to his or her commercial pilot certificate first and then complete an ATP practical test in a different single-engine airplane, and the SF50 type rating would be carried forward to the ATP certificate.

In either case, the pilot would be taking an additional and unnecessary practical test to avoid completing the multiengine training.

The NPRM would change the regulations to reflect that the multiengine ground and simulator-training requirements apply to pilots seeking an ATP certificate with a multiengine airplane rating or an ATP certificate obtained concurrently with a multiengine airplane type rating.

The FAA maintains this will not compromise safety because a pilot would still be required to obtain specific training and testing that is appropriate to the single-engine airplane type rating.

Comments on the NPRM are due Feb. 19, 2019. **G.G.**

PREVIEW Heli-Expo

Transformative new rotorcraft near certification as annual event approaches

by Mark Huber

As the industry gathers for this year's Heli-Expo, three of the big four Western helicopter OEMs are scheduled to bring new, long-awaited civil models to market in 2019. Each promises to be a game-changer in its respective category with regard to speed, efficiencies, and capabilities. Their success in the marketplace will in no small measure be at least partially determined by the willingness of offshore energy companies to continue to increase capital expenditures for exploration and production. These increases are relatively modest this year. They follow a period of severe retrenchment that started in 2014 and has left helicopter lessors and operators with significant overcapacity. In some cases, that has led to bankruptcy filings and attempts to diversify their business models to be less dependent on oil-and-gas revenues.

Airbus Helicopters flew the first production model of its new **H160** medium twin in December. It will join the three prototypes, which have already accumulated more than 1,000 flight-test hours. It is one of 10 pre-serial-production aircraft that the company plans to assemble in the coming months as it refines its production process. The helicopter will be delivered to launch customer Babcock in 2020. When the helicopter achieves full-rate production, Airbus expects to assemble an H160 in as little as 40 days on the helicopter's new, dedicated production line in Marignane, France. Babcock plans to take delivery of a fleet of the aircraft "for worldwide operations" over a five-year period. Airbus said it expects EASA and FAA certification for the H160 by the end of this year.

The H160 features the Helionix avionics suite, an all-composite airframe, flat-floor cabin, oversize cabin windows, and a baggage compartment that can hold 661 pounds. Its cabin can be configured to seat four or eight passengers in executive/VIP layouts, or 12 in a utility configuration. The H160 also incorporates a variety of new technologies, among them Blue Edge active-tracking main rotor blades in a five-blade system with a double-sweep design that reduces noise and contributes to a smoother ride, and 10 to 15 percent better fuel consumption than the H155 family it replaces. The aircraft is powered by a pair of Safran Arrano engines (1,300 shaft horsepower each) that feature a two-stage centrifugal compressor and variable inlet guided vanes, which cut fuel consumption in all phases of flight, particularly at cruise power. They help propel the H160 to its estimated maximum cruise speed of 160 knots and service ceiling of 20,000 feet and give it an anticipated range of 450 nautical miles. Airbus Helicopters also maintains that the Arranos will have lower maintenance costs than other engines in their class.

Next year Airbus is planning the first flight of its **Racer** (rapid and cost-efficient rotorcraft) compound helicopter. The Racer uses elements of the H160's fuselage mated to a conventional main rotor, a box wing, and twin pusher propellers. Top speed is expected to be in the area of 250 knots. Power comes from a pair of Safran Aneto turboshafts (2,500-shp each). The Racer is expected to be 25 percent more fuel efficient than a conventional helicopter. Last year, suppliers began fabricating key Racer components, including the lateral drive shafts, the gearbox housing, wing cradle composite side panels, and primary tail structure.

Bell expects to certify its super-medium **525 Relentless** twin by the end of 2019. Four aircraft are currently in flight test. Two are slated for additional cold weather testing in Yellowknife NWT Canada early this year, while a third will undergo snow testing in upstate New York. During cold weather testing last year, the aircraft was tested at temperatures down to -37 degrees F. Over the summer, it flew hot weather testing in Yuma, Arizona at temperatures up to 120 degrees F as well as completed high-altitude operations to density altitudes of 14,000 feet. The 20,500-pound 525 features fly-by-wire flight controls, Garmin G5000H avionics, and two GE Aviation CT7-2F1 engines. The cabin features 88 square feet of floor space and can be configured for 16 passengers (utility seating) and 8-12 (executive-VIP). Cruising speed is expected to be 160 knots and maximum range 560 nm. The 525 flight-test program was interrupted for a year following the fatal 2016 crash of the first prototype aircraft. After the accident, Bell incorporated a variety of design changes, including filtering of the biomechanical and sensor feedback by the control system to prevent amplification of vibrations in specific flight conditions.

Leonardo is aiming for FAA certification of its **AW609** civil tiltrotor this year and plans to fly test aircraft AC4 soon. Program milestones last year included successful drop testing of the production landing gear, production engine certification testing on AC3, continued fuselage and empennage fatigue testing, and installation of a new production main cabin door designed with an embedded rescue hoist for search-and-rescue operations. AC4 will fly with the new embedded hoist that will be fitted on AW609s kitted for SAR operations. It will also have the new Rockwell Collins Pro Line Fusion flight deck. The executive interior will feature six single executive seats and a small forward refreshment center. ■


Leonardo AW609


Airbus Racer

Bell 525 Relentless

DAVID McINTOSH

Airbus H160

BARRY AMBROSE

Bristow's acquisition of Columbia Helicopters has stalled. Under the plan, Bristow would acquire Columbia for $560 million in a cash/debt/stock deal.

$560 million Bristow-Columbia deal stalls

by Mark Huber

Bristow Group's plan to merge with Oregon-based Columbia Helicopters appears to have hit a snag. In November, Bristow announced its intention to acquire Columbia for $560 million in a cash/debt/stock deal that was expected to close by the end of 2018. One month after announcing the deal, Bristow filed a Form 8-K with the U.S. Securities and Exchange Commission in which it revealed, "The purchase agreement provides for the acquisition by the purchaser of all of the issued and outstanding shares of Columbia (the "acquisition") on the terms and subject to the conditions set forth in the purchase agreement. Based upon current market conditions, the company no longer expects to complete the acquisition on or before December 31, 2018."

The purchase agreement provides that either party can terminate the deal if it does not close by April 9, 2019, subject to an additional "marketing period." If the deal fails, Bristow would owe Columbia a $20 million termination fee.

Under terms of the proposed deal, the Lematta family and current management will convert their $77 million stake in Columbia to 7.1 million shares of Bristow stock, which plunged 20 percent to $7.96 a share immediately after the deal was announced. Bristow's share price has continued to fall, reaching a low of $2.12 per share on December 24 before rebounding in recent days to the $3 range as the price of oil began rising again from year-end lows that approached $40 per barrel.

Early last month, a Bristow spokesman told **AIN** that the company was still "working hard" to close the deal. However, the dramatic drop in Bristow's share value since the deal was announced raises the possibility that the company might need to raise more cash to close it, delay closing in the hope that its share price will continue to improve, or a combination of both.

When the deal was announced, Bristow said it would yield immediate financial benefits by allowing Bristow to access Columbia's MRO capabilities, heavy-lift helicopters, and military approval certificates to cut costs and diversify from the volatile offshore energy sector. ■

Bell 525s Fly North for the Winter

Two Bell 525s departed Arlington, Texas, for Yellowknife, Northwest Territories (NWT) Canada (CYZF), 250 miles south of the Arctic Circle, last month for more cold-weather testing, according to Bell. One is expected to remain on site for six weeks. The second aircraft is expected to arrive at the end of January and remain on site for approximately two weeks.

High temperatures in mid-January in Yellowknife are expected in the -27 degrees F range, with windchills down to -43 degrees F with a "risk of frostbite" during the day, according to Environment Canada. During cold-weather testing last year a 525 was tested at temperatures down to -37 degrees F in Northern Manitoba and was also cold soaked down to -31 degrees F.

To date the 525 fleet of four test aircraft has accumulated more than 1,200 test hours with 850 hours of flight time. Bell is aiming to obtain FAA certification of the 20,500-pound, fly-by-wire, super-medium twin later this year. A Bell spokesman told **AIN** that the company will be releasing an updated product specification book on the aircraft at this year's Heli-Expo show in Atlanta next month. **M.H.**

News Update

Leonardo Sells More Firefighting AW139s

Leonardo has signed a $50.8 million deal to provide three new AW139 intermediate twin-engine helicopters to the Italian National Fire Corps (part of the Italian Ministry of Interior) with options for 12 additional aircraft. The contract includes support and training for pilots and technicians. Deliveries will be completed in 2019.

The helicopters will be equipped with external rescue hoists, cargo hooks with bambi bucket provision, weather radar, multi-band and satellite communication systems, high-definition Forward-looking Infrared/Low Light TV (FLIR/LLTV) systems, Leonardo's high-definition mission consoles with digital recorders, high-definition downlinks, Leonardo's Optical Proximity LiDAR Systems (OPLS), night-vision goggle (NVG) capability, new-generation Trakka searchlights, emergency flotation systems and external life rafts, external loudspeakers, medical racks and bubble windows.

505 Flies with Sacramento PD

Bell has delivered the first law enforcement-configured 505 Jet Ranger X light single helicopter to the Sacramento (California) Police Department. The aircraft is equipped with high-skid gear, forward/aft hard points for mounting equipment, a 15-inch monitor with moving map system, loudhailer, MX-10 EO/IR Sensor, and Trakka Beam Searchlight. As equipped, the helicopter cost approximately $2.8 million, with associated police equipment accounting for $1.1 million of that.

AW139 Crashes After Hitting Zipline in UAE, Crew Killed

An SAR-configured Leonardo AW139 crashed in late December after clipping the world's longest zipline on Jebel Jais Mountain in the United Arab Emirate of Ras Al Khaimah. All four crew aboard were killed. Photos of the crash show the helicopter hitting the zipline and being consumed in a post-crash fire. The helicopter was operated by the UAE's National Search and Rescue Center. The UAE's General Civil Aviation Authority (GCAA) is investigating.

VSR700 Makes Unmanned Flight

Airbus Helicopters completed the first unmanned, autonomous flight of its VSR700 demonstrator "tactical vehicle" in late December. The highly modified Helicopteres Guimbal Cabri G2 took off from the military airbase in Istres. The 30-minute flight consisted of a variety of flight patterns before landing autonomously. It was piloted and monitored from the base. It had been flying autonomously since May 2017 with a safety pilot. The VSR700 is a light military tactical unmanned aerial system able to carry multiple payloads, with an endurance of around eight hours.

SB>1 Defiant breaks cover

by David Donald

Sikorsky and Boeing have released the first images of the jointly developed SB>1 Defiant as the compound helicopter nears its first flight. Registered N100FV, the SB>1 (also given the Sikorsky in-house model number S-100) has been assembled at Sikorsky's facility at West Palm Beach, Florida.

The two companies joined forces in January 2013 to offer a bid for the U.S. Army's Joint Multi-Role Technology Demonstrator (JMR-TD) program, which is intended to provide data that will inform the development and specifications for the U.S. Army Future Vertical Lift requirement that will, in turn, create a new generation of medium utility helicopters for service from the 2030s with double the speed of today's rotorcraft and a significant range increase.

The Defiant employs the advancing blade concept and is configured with coaxial main rotors and a pusher propeller. Power is initially provided by two Honeywell T55 turbines, although a new FATE (Future Affordable Turbine Engine) powerplant is under development by GE Aviation for future application. The Defiant design is based on Sikorsky's Schweizer-built X2 demonstrator, which has also spawned the smaller Sikorsky S-97 Raider demonstrator for the FARA (Future Attack and Reconnaissance Aircraft) requirement.

The SB>1 Defiant employs a rigid coaxial main rotor with an eight-blade pusher propeller.

First flight for the SB>1 was originally scheduled for 2017 but was delayed at the request of the U.S. Army to incorporate automated fiber placement production technology in the construction of the main rotor blades. Sikorsky/Boeing hoped to fly the Defiant before the end of 2018, but that date has been pushed back into 2019 to enable the completion of comprehensive ground runs.

The Defiant is pitted in the JMR-TD program against the Bell V-280 Valor tiltrotor, which made its first flight in December 2017. ■

Veteran operator makes case for cockpit cameras

by Mark Huber

Cameras in the cockpit don't just improve the safety of helicopter flight operations, they save money, and occasionally can even save a pilot's job, according to Paul Spring, president of Phoenix Heli-Flight in Fort McMurray, Alberta, Canada. Phoenix operates a mixed fleet of Airbus light singles and twins and has had cameras in its cockpits for nearly 10 years as part of its flight data recording systems.

"The environment we work in can go from good to bad in a hurry, but when you know better, you do better," Spring said. "Cameras should be in the cockpit of every aircraft. Cameras always seem to be a touchy subject for a lot of reasons and there are cases of crews intentionally defeating these devices. But if cameras are operated responsibly, the pilots do not need to fear these recordings. In some cases, cameras validate that crewmembers did nothing wrong during the post-incident investigation. We've learned a lot in my company over the last 11 years" that Phoenix has been using aircraft data and cockpit video recorders, Spring said.

He dismisses pilot concerns about privacy. "Who says you have a right to a private work environment in an aircraft? I never guaranteed that when I hired anybody. If you are doing your job correctly, you have nothing to fear from a cockpit recording. To those who say this takes the fun out of flying, I never said this was going to be fun. Our clients come to us looking for safe transportation; they don't want fun when they walk in the door."

Spring said the financial cost of installing a system is small, starting at $10,000, considering that a new turbine single starts at $3 million and that damage awards from accident lawsuits can easily top $50 million. According to Spring, the decision to install recorders and cameras comes down to culture and that the two are used in unison. "What kind of organization are you? Are you an organization that lets your pilots do whatever they want, or are you an organization whose aim is to provide safe transportation and continually improve? If you're the latter, you need to understand what is going on in your organization. Without the data, you don't know what you don't know."

Spring said recording flight data helped the company map speed, descent rate, roll rates, approach angles, and G-forces and compile a list of 30 triggers for unsafe or approaching unsafe conditions. For example, below 500 feet agl the maximum approved descent rate is 500 fpm; a low warning triggers at 600 fpm. "If you are doing 800 you are going to get an e-mail and if you are over 1,000 you are going to have a sit down with the chief pilot, the operations manager, and the safety manager to explain why you needed to do that."

He added that there are missions that necessitate flying outside what are normally considered safe parameters, such as movie and seismic work or firefighting operations and that data recorders and cameras aren't meant to be applied as blunt instruments to his pilots, but as tools that are part of a just culture environment.

Cost Savings

Spring gave several examples where cockpit cameras have saved his company substantial amounts over the years and/or helped improve the quality of operations. A helicopter with a relatively new engine experienced a torque exceedance. The camera showed the event occurred at 40 knots so no teardown was required. Had the airspeed been 55 knots or greater a teardown would have been mandated, costing hundreds of thousands of dollars.

In another case, an EC130T2 long-lining a 2,300-pound Kubota mini-ho (small bulldozer) prematurely jettisoned the load. The cockpit camera showed that the pilot's hand was nowhere near the hook release button when the load departed the aircraft. The pilot, who initially thought he would be fired over the incident, kept his job and Phoenix recovered $83,000 from the company that overhauled the hook prior to the accident in an out-of-court settlement.

In yet another incident, a pilot coming off 15 days of firefighting duty spun an aircraft during an engine wash, damaging a ground power cart and breaking some of the helicopter's windows. The video showed the pilot, who initially blamed the mishap on the helicopter, was on his phone, not wearing a helmet or flight suit, didn't have his feet on the pedals or hands on the controls at the time of the accident. Several of these conditions were violations of the company's operating procedures, but Phoenix Heli-Flight also used the video to revise its policies concerning fatigue.

Finally, an EC135 on a medevac mission returned shortly to dispatch when its two-pilot crew said the rotor tach failed. The video showed the rotor tach was never working, the crew breezed by the problem during the takeoff checklist and then took 20 minutes to discover the condition after departure.

Putting cameras in the cockpit and then using the lessons learned from that video also helps Spring pays what he said are some of the lowest hull insurance rates in Canada: 0.5 percent. Cameras also help him safeguard his firm's most valuable asset: its reputation. He said the company generally keeps this encrypted data and video for up to six months, unless for some reason it is needed longer. ■

'People totally forget the cameras' are in the cockpit, said Paul Spring, president of Phoenix Heli-Flight. His company has been using cameras in the cockpit for nearly a decade.

FAA to simplify approvals for several drone flying ops

by Mark Huber

At a Transportation Research Board meeting in January, U.S. transportation secretary Elaine Chao unveiled three FAA initiatives designed to further integrate drone operations into the National Airspace System (NAS). Chao said drones "are well on their way to mainstream deployment" and as of Dec. 14, 2018 the FAA had registered 1.3 million and more than 116,000 operators.

The first was an FAA draft notice of proposed rulemaking (draft NPRM) to allow drone flights over people and at night without first obtaining a formal waiver as a possible modification to Part 107 of the Federal Aviation Regulations (FARs). The second was an FAA-proposed advance notice of proposed rulemaking (ANPRM) dealing with drone safety and security issues including the possibility of instituting mandatory standoff distances between persons and buildings for drone operations. And the third involved the award of additional contracts for unmanned traffic management (UTM) research.

Under the proposed NPRM abolishing the waiver requirements, operators would be required to hold a Part 107 remote operators certificate and undergo recurrent training every 24 months. The draft NPRM would also establish different categories of drones that qualify for waiver exemption based on weight classes from 0.55 pounds to their ability to transfer up to 25 foot-pounds of kinetic energy from rigid object and associated impact risks, laying the groundwork for possible FAA airworthiness certification or an equivalent process for these aircraft.

Through the end of 2017, the FAA had received applications for 4,837 night waivers and granted 1,233; and the agency notes that night flying is the most common type of UAS waiver request. It notes that waiver requests are generally rejected for lack of information, that safe operations rely on an anti-collision light and operator knowledge, and that future routine safe night operations would rely on knowledge testing and/or training with regard to night operations and an anti-collision light that would be visible for at least three statute miles.

Flights over people would be allowed effective immediately, provided the operator holds a Part 107 certificate and the aircraft falls into one of three categories: Category 1, total aircraft weight of 0.55 pounds (250 grams) or less; Category 2, the manufacturer demonstrates that if the aircraft crashes into a person it yields injury below an established threshold (below the transfer of 11 foot-pounds of kinetic energy from a rigid object); and Category 3, demonstrated injuries below those induced by the transfer of up to 25 pounds of kinetic energy from a rigid object.

Safety Hazards Identified

Additionally, aircraft could not have rotating parts or blades that could lacerate human skin and could not be operated with an "FAA-identified safety defect" such as exposed wires, hot surfaces, sharp edges, faulty construction, or corrupted software. Because of their assumed increased size, Category 3 aircraft would be barred for operating over open-air assemblies, operations must be over or within a closed access site, people within the site must be notified of a potential UAS flyover, and UAS may transit but may not hover within these sites.

The FAA also noted in the ANPRM that it was considering future safety and security rulemaking with regard to UAS operations and would examine questions and comments related to performance and further operating limitations. Chao said DOT "is keenly aware that there are legitimate public concerns about drones, concerning safety, security, and privacy. Recent events overseas have underscored concerns about the potential for drones to disrupt aviation and the national airspace."

Finally the FAA announced participants in its Unmanned Aircraft Systems Traffic Management System Pilot Project that will run through September 2019. The project is designed to demonstrate a traffic management system that safely integrates drones into the NAS. The participants are the Nevada UAS Test Site Smart Silver State; Northern Plains Unmanned Aircraft Systems Test Site; and Virginia Tech Mid-Atlantic Aviation Partnership. ■

UK to tighten restrictions on drone operations

The UK will introduce larger drone restriction zones around airport boundaries, give the police more powers against lawbreaking operators, and explore and deploy technology to detect, track, and potentially disrupt illegally used drones.

The drone exclusion zone around airports will extend to about five kilometers (three miles) from one kilometer now, while authorities put in place additional extensions at runway ends to better protect aircraft landing and taking off as well as other low-flying aircraft, such as helicopters. The new zone will apply to all small drones weighing more than 250 grams (0.55 lb). Commercial drone operators can continue to apply for permission from air traffic control to fly within the zone to inspect aircraft for MRO purposes, for example.

Aviation minister Lizz Sugg said the transport department worked with the CAA and air navigation service provider NATS to develop the optimum exclusion zone. She acknowledged that increasing the restriction zone would not prevent a deliberate incident while stressing the importance of taking proportional measures to help protect aircraft, while minimizing restrictions on legitimate drone activity.

In early January, London Heathrow Airport suspended all flight departures due to reports of a drone sighting, becoming the second UK airport in a month's time to see its operations disrupted by the threat of small unmanned aircraft. The possible drone sighting follows the pre-Christmas shutdown of Gatwick airport due to reported drone sightings and comes just one day after the UK transport secretary Chris Grayling revealed a set of new measures to ensure adequate protection of the country's national infrastructure, including airports. The disruption caused by drones to flights at Gatwick in December, he said, "was deliberate, irresponsible and calculated, as well as illegal."

The proposed measures come in response to a consultation on the UK's future policy on drones, which took place last year, before December's disruption at Gatwick. **C.B.**

Air med ops feel pinch from insurance | by Mark Huber

Imagine a business where 70 percent of your customers only pay for 50 percent of the cost of the service you provide. The remainder of your customers contest their bills. When they do decide to pay, they delay payment by 120 to 140 days and probably don't pay the full amount. Now, further imagine that the 70 percent share of the underpayers is growing and so are your equipment, personnel, and training costs while your bad debt rate is running 10 to 12 percent or around $10 million a month? And your company is getting slammed in the national media almost daily for allegedly overcharging customers. This is the current situation at the nation's largest air ambulance provider: Air Methods. And things aren't much better at its competitors.

The nation's air ambulance providers are getting squeezed by public and private payers while being asked to do more as the country's rural health care system contracts. What's happening to the nation's air ambulance providers is in many ways symptomatic of larger problems with a broken national health care system that has expanded public benefits in part by under-reimbursing health care providers who in turn shift costs onto private payers, including commercial insurance carriers.

At Air Methods, 70 percent of the patients it flies are covered by Medicare or Medicaid, said Chris Myers, the company's executive vice president for reimbursement. The average Medicare reimbursement per flight is around $5,800 Myers says, about 50 percent of the actual cost. Medicaid reimbursements are far worse, sometimes amounting to as little as a "few hundred dollars." The reason Air Methods and other air ambulance companies must charge what they do, Myers says, is that 85 percent of their costs are fixed: aircraft, hangar, crew and support salaries, etc. The average air medical base costs $3 million a year to maintain.

And while Medicare and Medicaid have underpaid for air medical services for years, Myers says the "majority" of private insurance claims are now denied on the first submission on the grounds of "medical necessity."

"Insurers are looking for a preauthorization, which in our business you don't have because the service is emergency in nature," Myers said. "These are not scheduled flights. We are responding to 911 or a call from a hospital. Time is of the essence."

Air Methods employs a staff of 25 "patient advocates" to work with patients dealing with the paperwork tsunami associated with attempts to get their private insurance claims paid.

The company is also working with private insurers to expand its participation in their coverage networks, from 10 percent in-network coverage where the company flies to 26 percent by the end of 2018. Myers hopes to double that number by the end of 2019. However, given the dynamics of the aging patient population, a divided Congress needs to act to increase Medicare reimbursement rates, Myers said. "It needs to be fixed in the long run. We do have a challenging situation here. But everyone is aware of the need to have the services covered." ■

Photo by Francsco Fluxá, Courtesy Rotortec, Chile

Zunum runs into financing trouble

by Dan Catchpole

Aspiring Seattle-area airframe maker Zunum Aero has encountered trouble closing its latest fundraising round. The delays could set back the startup's timeline in its bid to develop an electric hybrid passenger airplane—and revolutionize short-haul air travel. The company already has pushed back its target for entry into service of its ZA10, a short-haul hybrid designed for a capacity of nine to 12 passengers.

The startup had hoped to close its latest fundraising round in August, then October. "That fell through, which put us in a lurch," CTO Matt Knapp said in early December. The company could soon have to start scaling back its development work to buy time to find enough investors, he added. Toward the end of last month, Knapp said the company was "making progress," but had nothing to announce.

Zunum Aero already has attracted big names to back it, including Boeing's venture-capital unit HorizonX and JetBlue Airways' Technology Ventures. Zunum also received an $800,000 research grant from the state of Washington's Clean Energy Fund. The company is working to build a core group of new investors to close the latest fundraising round in the next couple months, Knapp said.

Aerospace has become a hotbed of venture capital activity, as investors poured about $2.3 billion into the industry in 2018, according to data from Crunchbase. However, Zunum must compete with drones and space rockets—perhaps sexier investment targets than low-cost, low-carbon short-haul passenger service.

Zunum envisions a family of electric hybrid airplanes ranging in capacity from nine seats to 48.

Zunum's business case rests on three important breakthroughs, according to material prepared for potential investors: much lower operating costs, unleashing a new regional travel market, and nearly eliminating carbon emissions. The ZA10 would tap into thousands of currently little-used regional airports spread across the country. That means passengers can skip traffic, security, and other hassles associated with major airports. The company pitches it as an attractive solution for business travel in congested corridors, such as California and the Pacific Southwest, the Northeast, and the Pacific Northwest.

Energy density in batteries does need to improve for the ZA10 to make good on its promised economics. But the company only needs batteries to improve along the existing trend, which falls in line with most major forecasts for battery technology. Zunum claims the ZA10 will cut operating costs by 60 percent to 80 percent of comparable traditional commuter airplanes. In investor material, it compares the ZA10 to the Pilatus PC-12NG and the Cessna CJ4.

A larger electric hybrid, the ZA50, which Zunum hopes to develop by 2030, will carry 48 passengers and offer slightly better operating costs than a Bombardier Q400, according to the investor material. The company plans to begin flight testing systems in 2019. In October, it announced a deal with Safran to provide a modified helicopter engine dubbed the Ardiden 3Z. The ZA10 will use a gas turbine to supplement the battery fuel cells during critical flight stages, such as takeoff, or to extend the range.

Zunum announced a contract covering 100 airplanes from JetSuite for scheduled and chartered flights. It has not said whether or not the deal involves a firm order or whether JetSuite has placed a deposit. ■

Indian airlines get relief from Gagan delay

by Neelam Mathews

As airlines in India suffer severe losses despite high passenger loads, relief has come by way of an extension of the Directorate General of Civil Aviation's (DGCA) mandatory deadline for installing GPS-Aided Geo Augmented Navigation (Gagan) equipment on all India-registered aircraft from January 1, 2019, to June 2020.

A dip in international aviation turbine fuel prices by 14.5 percent has also provided a reprieve. "While we welcome the respite, we hope the prices could be in line with the $52 a barrel global price," said Sanjay Kumar, chief commercial officer of budget carrier AirAsia India. Heavily taxed fuel comprises about 40 percent of total airline operating costs in India.

The compulsory use of Indian satellite-based augmentation system (SBAS) called Gagan has faced vociferous opposition from airlines for the past two years. Estimates place costs at about $200,000 for equipment and training per aircraft and an additional cost of keeping aircraft on the ground for 10 to 14 days for retrofits. Airlines that have seen a deteriorating financial position include Jet Airways, which has delayed salaries and defaulted on payment of interest and principal installment owed to some banks

› continues on facing page

FLICKR

Indian low-fare airline IndiGo expects to install Gagan equipment on its entire fleet of more than 200 Airbus A320s by 2020.

News Update

Qatar Airways Takes Stake in China Southern

Qatar Airways has taken a 5 percent stake in China Southern Airlines, the companies announced last month, marking the Gulf carrier's first investment in the fast-growing and strategically vital Chinese market. The acquisition, completed on December 28, signals Qatar's continuing efforts to spread its influence across the globe even as a Saudi-led quartet of Gulf neighbors hamper profitability with a political and economic boycott of Qatar instituted in June 2017.

The investment gives Qatar a significant stake in its fifth foreign airline. It already holds 20 percent in British Airways parent International Airlines Group, 10 percent of Latam Airlines Group, 49 percent of Air Italy, and 9.99 percent of Cathay Pacific.

Boeing, Spirit Reach Pricing Accord

Spirit AeroSystems and its largest customer, Boeing, have reached a new, long-term agreement on a broad range of commercial airplane programs, the Wichita-based aerostructures supplier announced in late December. Spirit did not disclose financial terms of the memorandum of agreement but said it sets pricing terms for the Boeing Next Generation 737, 737 Max, 767, 777 freighter, 787 Dreamliner, and the 777-9, the first variant of Boeing's new 777X.

Specifically, the agreement addresses investments for tooling and capital for certain 737 rate increases, and pricing that's based on production rates that are above and below the current rate of fifty-two 737s a month. Also, the agreement provides for the release of liability and claims from both companies over 737 "disruption activity." Earlier last year Spirit fell behind in 737 fuselage production but has since recovered.

Spirit said the agreement also calls for Boeing's consent to Spirit's acquisition of the parent company of Belgian supplier Asco Industries. Lastly, the deal includes joint cost reduction programs for Boeing's new 777X and the 787.

Boom Secures Funding Round

Colorado-based Boom Supersonic, which hopes to fly a scale version of its supersonic commercial transport later this year, has closed a $100 million investment round, bringing its total funding to more than $141 million. This latest round, which includes $56 million in new investment, will allow the company to continue development of its planned Mach 2.2 airliner.

Now in the midst of assembling its one-third-scale XB-1, the company claims the new supersonic transport will fly faster than any civil aircraft ever built. Boom, which recently relocated its operations to Denver Centennial Airport, currently employs more than 100 workers. Selection of a production site for the full-scale aircraft continues.

Incongruent rules threaten delays to EASA certification of Russian jets

by Vladimir Karnozov

The European Aviation Safety Agency (EASA) has warned Moscow that a number of discrepancies in current European and Russian airworthiness legislation might result in the need for a considerably more-than-anticipated number of test flights in Europe for EASA certification of the MC-21 and modified SSJ100 jetliners. The requirement, in turn, might delay the issuance of internationally recognized airworthiness certificates for months, if not years.

The discrepancies result largely from the Kremlin's 2015 decision to strip civil aircraft certification functions performed by the Commonwealth of Independent States' Air Register of International Aviation Committee (ARMAK) and hand them over to the Federal Air Transportation Agency (Rosaviatsiya), an arm of the Russian government. The Russian government-issued Order 1283, dated November 28, 2015, and other actions that followed have widened differences between the European and Russian legislation bases to such an extent that a number of interstate agreements signed before 2015 lost their value and no longer apply. As a result, new and modified Russian jetliners will need to repeat some two-thirds of the flight-test program already flown in the home country to meet EASA airworthiness requirements.

A delay in EASA certification would not just affect deliveries to foreign customers, because many Russian airlines, including Aeroflot, demand Western certification to ensure their airplanes meet global airworthiness standards. In fact, The promise of EASA certification for both SSJ100 and MC-21 proved a factor in Aeroflot's choice of those models over the Antonov An-148/158 and Tupelev Tu-204SM, respectively.

Even though Rosaviatiya and the local manufacturers did make efforts to address the issue, they have so far failed to persuade the lawmakers and various governmental bodies to introduce, pass, and validate the changes necessary to keep the previous agreements with EASA in place. But the EASA warnings seem to have produced an effect, and Russia's Ministry of Justice promised to approve changes proposed by the civil aviation team into the set of laws that correspond with those in use in the European Union. In turn, EASA did recognize Rosaviatsiya in a number of documents signed between the two, including the framework "Working Agreement in the Sphere of Flight Safety," dated January 29, 2018.

If Russia validates in a timely manner new, EASA-harmonized aviation rules, certification of an SSJ100 modified with so-called Sabrelets and a strengthened wing could happen in the third quarter of 2019, according to official schedules. Rosaviatsiya hopes such validation happens before the planned signing in February of documents on mutual recognition of procedures related to flight testing and type certification.

Sukhoi Civil Aircraft (SCAC) hopes that the new winglets on the modified SSJ100 will increase lift to drag ratio by 0.5, resulting in a 4 percent fuel savings and a 270- to 380-nautical-mile increase in range. The first airframe—msn 97006—flew with the Sabrelets two years ago, but a hard landing in windy conditions in July 2018 crushed its undercarriage. SCAC has recently repaired the first airplane and completed a second for the final part of the tests. The manufacturer hopes to win national certification in the first or second quarter of 2019, and deliver the first winglet-equipped SSJ100 delivered by the year-end. Severstal has agreed to become the first operator of the aircraft, followed by Mexico's Interjet and Aeroflot. SCAC plans to deliver four Superjets with Saberlets this year.

Meanwhile, Irkut rolled out a third flyable MC-21 on December 26. The maker hopes for a national type certificate next year, and EASA certification in 2021. Should the certification discrepancies remain, the number of MC-21 flights needed with EASA inspectors aboard could rise from 40-60 to more than 300. ■

IRKUT

The third MC-21 prepares for rollout from the Irkut factory on December 26.

› continued from preceding page

Gagan relief for Indian airlines

by December 31, 2018, due to "a temporary cash flow mismatch," it said.

The International Air Transport Association has indicated that individual airlines should have the freedom to assess whether or not to invest in SBAS based on their operational needs. An IATA spokesperson told **AIN** that states that decide to implement SBAS should not make it mandatory, and airlines should not suffer the penalty of unjustified restrictions to their operations due to the lack of SBAS equipment. "Costs related to SBAS should not be imposed directly or indirectly on airspace users who are not using this technology," he said.

Still, as airlines struggle with cost overruns and continue to question Gagan's benefits, IndiGo plans to equip all of its more than 200 aircraft by 2020, an airline spokesperson told **AIN**.

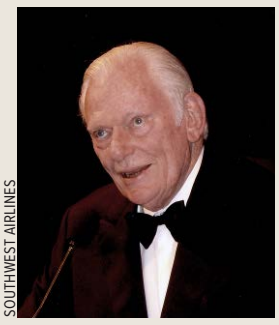
Gagan will prove effective at small airports whose instrument landing systems cover only one end of the runway and when ground-based operations feel the effects of natural calamities including floods. "Airlines need to be given a higher subsidy than the 5 percent on route charges offered to use Gagan," he added.

Meanwhile, the industry awaits full preparedness for Gagan by the Airports Authority of India (AAI). The authority has yet to design procedures for maintenance and flight paths on the simulator; flight trials would likely to take another eight months. Meanwhile, a lack of experts stands to delay verification, resulting in a likely further extension of the 2020 deadline.

Domestic carriers will continue to depend on low fuel prices to improve profitability for years, an analyst told **AIN** on condition of anonymity. "The Indian market is not yet mature," he said. "Fuel will remain an important factor for a long while until airlines bring sanity into their fare pricing." ■

Herb Kelleher dead at 87

Herb Kelleher, the colorful co-founder of Southwest Airlines known as a principal architect of low-cost air travel, died January 3 at the age of 87.



SOUTHWEST AIRLINES

Southwest Airlines co-founder Herb Kelleher

Born in Camden, New Jersey, Kelleher studied English and philosophy at Wesleyan University and earned his law degree from New York University. He practiced law on the East Coast before relocating to Texas with plans to start his own law firm. In 1967, Kelleher and one of his clients, Rollin King, incorporated Air Southwest, planting the seed for a series of legal challenges by competing airlines and what would become Southwest Airlines in 1971.

Kelleher's idea of offering low fares, eliminating unnecessary services, and eschewing hub-and-spoke networks in favor of direct flying between secondary airports serves as a model LCCs emulate to this day. But the chain-smoking industry icon became as well known for his irreverent personality as his business acumen, famously dressing as Elvis Presley and wearing a paper bag over his head in a television commercial in response to competitors' characterizations of Southwest as a cattle-car operation for cheapskates. Also known as a hard drinker, Kelleher offered a free bottle of liquor to Southwest passengers in a stunt to undercut Braniff during a 1973 fare war. Southwest would soon find that business travelers on expense accounts would gladly pay a few extra dollars for a full-fare ticket in exchange for a bottle of Chivas Regal.

In a statement mourning Kelleher's death, Southwest chairman and CEO Gary Kelly characterized the icon's influence on the industry as "profound."

"His vision for making air travel affordable for all revolutionized the industry, and you can still see that transformation taking place today. But his legacy extends far beyond our industry and far beyond the world of entrepreneurship. He inspired people; he motivated people; he challenged people—and, he kept us laughing all the way. He was an exceptionally gifted man with an enormous heart and love for people—all people." **G.P.**

Garmin TXi touchscreen displays certified, available for VFR helicopters

by Matt Thurber

Garmin's touchscreen TXi displays for normal-category VFR helicopters are now certified and delivering, offering a variety of capabilities for rotorcraft equipped with Garmin's G500H flight display and/or GTN 650/750 touchscreen navigators. Garmin has also unveiled new software for GTN 650/750 units installed in helicopters. Helicopters equipped with a G500H flight display can be upgraded to the TXi displays without replacing existing sensors, and Garmin is offering an upgrade program for these configurations.

The TXi displays are available in 10.6-inch and 7-inch sizes, each with concentric knobs allowing alternative inputs to the touchscreens as well as video input, NVG compatibility, and map overlay on the HSI. The 10.6-inch display is mounted in a horizontal format and can display primary flight display (PFD) and multifunction display (MFD) information simultaneously, according to Garmin. The 7-inch display can be mounted in portrait or landscape orientation, including as "a dedicated PFD with instrument tapes and an arc-view HSI" for helicopters with limited panel space.

G500H TXi displays include helicopter terrain awareness and warning system (HTAWS)—when paired with a GTN navigator equipped with HTAWS—and Garmin's WireAware wire-strike avoidance technology. TXi options include synthetic vision, Connext connectivity via Garmin's Flight Stream 510 wireless gateway, and Database Concierge for uploading databases using the Garmin Pilot app on a smartphone or tablet. The Connext features include, according to Garmin, "streaming of traffic, weather, GPS information, back-up attitude information, and more from the G500H TXi to the Garmin Pilot, FltPlan Go, or ForeFlight Mobile applications."

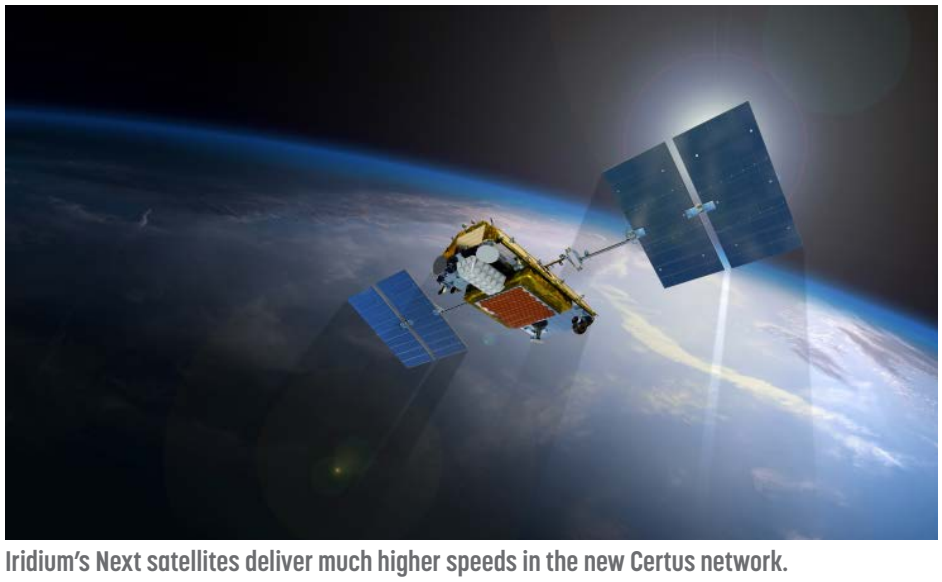
Garmin's touchscreen TXi displays for helicopters include knobs for alternate inputs.

The GTN software update for helicopters adds setting of user-defined waypoints as airports to minimize terrain alerts when landing at an airport that isn't in the aviation database; a qwerty keyboard; configurable comm sidetone settings; support for Irish, Swiss, and English coordinate systems for easier entry of GPS coordinates; approval of the GMA 35c Bluetooth remote audio panel in helicopters equipped with the GTN 750; and VNAV descent profiles. ■

Iridium switches on Certus satcom

The airborne connectivity arena is going to see a surge of new products now that Iridium's Certus network is live. Iridium's new constellation of 75 satellites (66 primary and the remainder backups) was completed January 11 after the launch of the final 10 Iridium Next satellites on a SpaceX Falcon 9 rocket.

Although Certus aviation services won't begin until later this year, Collins Aerospace, Gogo, L3 Aviation, Satcom Direct, and Thales are developing airborne terminals that will enable high-speed voice and data communications on the Certus network, according to Iridium. The company has selected 36 service providers to accommodate Certus customers.


Iridium's Next satellites deliver much higher speeds in the new Certus network.

The Certus network's satellites are positioned in low earth orbit and communicate with each other to provide coverage anywhere on Earth, including polar regions and oceans. The 66 cross-linked satellites eliminate the need for an extensive ground station network.

The Certus 350 service will offer speeds of 352/352 Kbps (upload/download). A subsequent firmware upgrade will facilitate Certus 700 at 352/704 Kbps. While these are roughly comparable to Inmarsat SwiftBroadband speeds, the Inmarsat satellites don't cover the entire planet. Current Iridium satcom speeds are 2.4 Kbps, so the Certus network is a significant improvement. Other service levels will be available, from Certus 20 (for ACARS) through 1400 (for high-speed video).

In addition to improving the passenger experience, Certus will open the door for new flight deck communications technologies. This includes, according to Iridium, advancing "efforts toward adopting satcom as a primary means of aircraft communications." M.T.

News Update

Aireon ADS-B Raises Funds, Preps for Launch

The Aireon satellite-based ADS-B network will launch in the first quarter of 2019, and the company has signed a $200 million credit facility led by Deutsche Bank that will facilitate Aireon operations. Aireon's ADS-B payload is installed on each of Iridium's Next satellites and provides a means of tracking ADS-B-equipped aircraft over oceanic and remote areas where it is difficult or impossible to install ADS-B ground stations. Aireon has signed agreements with 11 air navigation service providers. According to Aireon, the satellite-based ADS-B capability "will usher in an era of enhanced safety, as well as enable on-the-fly route adjustments, more direct flightpaths, improved fuel efficiency, and increased predictability."

Avionics Upgraded on Cessna, Beechcraft Pistons

Textron Aviation is offering new features for its Cessna and Beechcraft piston-powered airplanes, which are equipped with Garmin G1000NXi avionics suites. New features include the Garmin GMA 1360 audio panel with Bluetooth audio and enhanced audio capabilities. The GFC 700 autopilot is upgraded with the Enhanced Automatic Flight Control System (E-AFCS), which adds Garmin's Electronic Stability and Protection with auto-level functionality, underspeed protection, and coupled go-around. E-AFCS is standard on the 2019 Cessna Skylane and Turbo Stationair HD and Beechcraft Bonanza G36 and Baron G58 and an option for the Cessna Skyhawk. Garmin's GSR 56 Iridium satcom is optional for all piston models and provides access to datalink weather as well as voice calling and texting

Alto Adds CMS Upgrades for GIV, GV

Alto Aviation's new cabin management system (CMS) upgrades for the Gulfstream GIV and GV provide a simple means of replacing the original legacy Pacific Systems/Airshow cabin switches. The Alto switches are a direct replacement and are fit-compatible, which means that existing wood and furnishing are not compromised. Alto solutions include and fit "Micronet round, squared, raised-oval button, and the concave curved side ledge panels," according to the company. Customers can select a variety of Alto solutions to fit their aircraft and budget needs. For example, headphone functionality can be removed, and those jacks replaced with blanking plates and new panels with USB charging and seat lighting controls. Headphones can be retained too, when needed for viewing video. If more capability is required, such as aux input ports for VIP or entertainment cabinet panels, HDMI ports, and USB charging ports, Alto's Cadence Switch System can accommodate this functionality without having to change the original switch cutout.

MROs look to high schools to alleviate tech shortage

by Jerry Siebenmark

C&L AEROSPACE

An upcoming surge in retirements and fewer students in the classroom have the MRO industry concerned about a prolonged shortage of A&Ps.

Brian Youngers is looking to hire an A&P for his rural Kansas company and expects it to be a challenge. Youngers, operations director for Southwind Global Aviation, an aircraft delivery and services company, thinks Southwind's rural location—42 miles north of Wichita—and an industry-wide shortage of mechanics could make filling the vacancy tough.

"I do think we're going to have a hard time finding someone," Youngers told **AIN**. When he called in mid-January to post Southwind's job opening at schools in Kansas that train A&Ps, he was told by one that nearly all of its graduating students had already found employment. "We've got to get in there now if we even want to have a shot," Youngers said.

His experience is a familiar one to MRO owners, directors, and aircraft manufacturers across the country. With a 3.9 percent U.S. unemployment rate and a strong economy, finding qualified talent is difficult for a lot of industries.

But for aviation, the mechanic pool is only expected to get tighter as 30 percent of them are at or near retirement age, according to the Aviation Technician Education Council's December 2018 ATEC Pipeline Report. The report also projects the aircraft mechanic population will shrink 5 percent in the next 15 years.

What's more, in its 20-year Technician Outlook published in October 2018, Boeing projected North America alone will need 189,000 new technicians by 2037 (120,000 in commercial aviation; 55,000 in business aviation; and 14,000 in civil helicopters). Worldwide, Boeing's projections said the industry will need 2.43 million new technicians in the next two decades (622,000 commercial; 89,000 business; and 43,000 helicopter).

The shortage didn't happen overnight and it likely won't be quickly solved, industry officials said. It's a function of a rash of anticipated retirements, increased demand for aircraft maintenance, competition from outside the industry, and a broader lack of awareness of the need for mechanics outside of aviation, they said.

Attracting New Talent

According to ATEC, the shortage is not a training capacity issue. In its report, ATEC said only one of every two seats available is filled in a technical school offering A&P training. That means even without expansion, there's capacity for 17,000 additional students. ATEC executive director Crystal Maguire said that schools are increasing their recruiting activities and expect enrollment to increase. "But there is still significant opportunity for industry employers to help define career paths and attract more students into the pipeline—students that they will need as technicians in the coming years," she said.

What could also help fill those seats is progress on a five-year pilot program providing annual grants of up to $500,000 to partnerships between businesses, unions, schools, and governments to recruit and retain new aviation maintenance technicians. The program was contained in the FAA authorization passed by Congress in October 2018. But the program hasn't yet been funded. "An authorization is an important step," Aeronautical Repair Station Association v-p of operations Brett Levanto told **AIN**. "Now we need an appropriation."

For officials on the frontlines of the shortage, most said they are fighting every day to attract and retain mechanics. "I would say we continue to struggle to fill our A&P jobs," Maggie Topping, Textron Aviation senior v-p of human resources and communications, told **AIN**. "We hire them on a global basis, so yes, absolutely there's a shortage." The biggest struggle for the Wichita-based Cessna and Beechcraft airframer is competition from commercial airlines, Topping said, as well as companies outside the aviation industry such as amusement parks, wind farms, utility companies, and heavy machinery manufacturers and dealers. "With an A&P license, you can work in a multitude of industries, so then we compete on that, and then (applicants) have to decide on us versus United or us versus Delta," she said.

C&L Aerospace's Phil Miholovich told **AIN** he once attended an aviation job fair where one of the recruiting companies was Bobcat, a construction equipment manufacturer. "Some of these other industries can afford to pay more by the nature of what they do," said Miholovich, director of maintenance for Bangor, Maine-based C&L.

The ATEC report said of the students graduating from A&P programs participating in its survey, 13 percent took a job outside aviation. ATEC said that's down from 25 percent in 2015 and 2016, and 20 percent in 2017.

But competition from outside the industry remains a concern for MRO companies. "This industry could be better" in terms of compensation, Jim Hansen, owner of Western Jet Aviation in Van Nuys, California, told **AIN**. Hansen, whose company employs about 40 A&Ps, said he can recall a time not too long ago when an aircraft mechanic could "get a job at a local garage paying pretty good" wages. Hansen said this year Western Jet has been able to raise its pay at or above market rate for mechanics. "We have also put more money in their pockets through health benefits," he said, by Western Jet taking on more of the costs of employee health insurance.

ATEC said that schools responding to its survey reported an average starting hourly wage of $19.70, up 40 cents an hour from its 2017 survey.

That's almost in line with where Miholovich expected it to be, considering inflation over the past 30 years. He said when he started as an A&P in 1988, he was making $9.50 an hour. Adjusted for inflation, that would be $20.29 in 2018. "That's stayed fairly constant," Miholovich said. "I just question if the younger generation expects more."

According to the Bureau of Labor Statistics, the median hourly wage for aircraft mechanics and service technicians was $29.34, based on data from May 2017.

Raising Awareness

Miholovich and others think there are ways to increase the ranks of A&Ps. One of those is through apprenticeships, which C&L started about four years ago. So far, Miholovich said the company has trained 20 of its A&Ps that way. The attraction, he said, is the company is paying them to learn the trade. "We're basically hiring kids who have mechanical aptitude and are willing to learn," Miholovich said. "That's proven to be quite successful." But the downside is a company has to have the resources to be able to train and pay someone with no experience, he said. It also has to have experienced A&Ps willing to mentor apprentices, Miholovich added.

"I think one of the biggest solutions is awareness; and that's lacking," he said. "Awareness is huge. I think that's something the industry needs to focus on."

That awareness, said Textron's Topping, begins at the high school level. "It's a volume game of how many can we attract and retain, because it's very competitive. I think that's why we need to work on the high schools." That's just what Textron is doing. In May 2018, Textron along with Wichita Public Schools and Wichita State University Tech unveiled a program called Aviation Pathways, which is being piloted by four Wichita high schools with plans to expand it across Kansas. The aim of the program is to promote skilled careers in aviation to high school students. It takes it a step further from mere promotion by allowing students to take classes at WSU Tech that can satisfy their high school graduation requirements, while also receiving training in an aviation manufacturing trade or as an aircraft mechanic. Topping said for those students pursuing an A&P, Aviation Pathways won't give them all the courses in high school that they need to complete their training, but it gives them a big head start. "It accelerates their path," she said.

"Our hope for that program is that we'll start in the high schools exposing students to what does an A&P mean, what does avionics mean?" Topping said. "That's a huge step for us in regard to exposure for the future workforce and pipeline. I think at the end of the day it's exposure for students and understanding what job opportunities the industry provides."

Western Jet's Hansen said he's watched the growth in recent years of a Los Angeles Unified School District program that exposes students to aviation careers. He thinks that's helping to restock the population of A&Ps in his area, who he said are either retiring or moving out of state. "Things are looking better," he said. "We try to hire ex-military, trainees, everything we can to try to help. But we've still got a long way to go." ■

Gulfstream Aerospace's customer support organization made a number of MRO facility expansion and new hiring announcements in 2018.

Gulfstream Bolstering Customer Service

Gulfstream Aerospace's customer support organization will mark 2019 with the opening of a southern California maintenance, repair, and overhaul facility following a year of expansion and new hiring announcements. In 2018 the Savannah, Georgia-based airframer announced plans to add a combined total of 700,000 sq ft (65,032 sq m) to its existing MRO facilities in Savannah; Appleton, Wisconsin; Farnborough, England; and West Palm Beach, Florida.

Gulfstream also said it would hire 400 more technicians and support personnel, bringing its total customer support staff to nearly 5,000 people across its service network.

"With the opening of these state-of-the-art maintenance facilities in the next two years, along with beginning operations in 2019 at our world-class Van Nuys, California MRO that we announced in 2017, we will have significantly enhanced accessibility for our customers, reinforcing our commitment to them," said Gulfstream Customer Support president Derek Zimmerman.

Gulfstream's plans for the Van Nuys service center calls for a 43,200-sq-ft (4,013-sq-m) facility with nearly 24,000 sq ft (2,230 sq m) of attached shop and office space.

Ontic Expands Portfolio with Twin Commander Acquisition

Aerospace legacy parts manufacturing and support special Ontic has completed its acquisition of Firstmark Corp., the parent of Twin Commander, Aircraft Belts, and Firstmark Aerospace, among other companies.

Firstmark provides a range of engineering, propriety components, and subsystems for the aerospace and defense industries. Its portfolio expanded in the general aviation realm with the 2008 acquisition of Twin Commander, which has supported and provided parts and services for the Aero Commander/Twin Commander families since production ceased more than two decades ago.

Under the new ownership, Brian Harbaugh, a long-time senior manager at Twin Commander, has taken the role of acting business unit director of Twin Commander and Aircraft Belts. "Ontic is a great fit for Twin Commander. As a company dedicated to legacy product support, the expertise and resources Ontic brings will help propel Twin Commander long into the future," he said.

Twin Commander will continue to focus on strengthened Twin Commander customer support through its factory authorized service center network, engineering upgrades, and opportunities for Twin Commander owners and operators to network, Harbaugh said, adding he plans to reach out to the Twin Commander community over the next few months to discuss the plans for the Twin Commander family.

For Ontic, the acquisition adds about 70 workers and expands the presence of Chatsworth, California-based Ontic in the East Coast with facilities in Creedmoor, North Carolina, and Plainview, New York. These sites complement Ontic's locations in Cheltenham, UK, and Singapore, in addition to Chatsworth, Ontic said.

Flying Colours Starts Hangar at Peterborough

Canadian MRO and aircraft completions provider Flying Colours has broken ground on a hangar that will become its largest at the company's Peterborough Airport headquarters. The 100,000-sq-ft structure, which will cost more than $18 million, will be able to accommodate aircraft as large as an Airbus A220 and will include a climate-controlled paint shop, interiors workshops, customer meeting rooms, a boardroom, and offices. It is slated to open by mid-2019.

"Our business has grown significantly over the past 12 months, and we were running out of space to accommodate all our clients' requests," said company president John Gillespie. "Once the building is complete, we will be using it to provide additional capacity for completions, refurbishment, and heavy maintenance work scopes on large jet airplanes."

At the company's St. Louis location, a leased fifth hangar is undergoing preparations to come online next month, adding 40,000 sq ft of space to the Spirit of St. Louis Airport facility.

To keep up with the increases in capacity at both sites, Flying Colours, which specializes in mid-size to large business aircraft and is an authorized service facility and preferred completions center for Bombardier, expects to add another 100 workers with experience in maintenance, interiors, and painting.

Duncan Inaugurates Utah Maintenance Facility

Duncan Aviation has accepted the first aircraft into the new maintenance hangar at its Provo, Utah facility. The initial phase of what will by the end of 2020 be a $70 million, 275,000-sq-ft facility, the hangar was completed as the New Year set in, with the issuance of the necessary permits in time to welcome the first occupant, a Bombardier Global XRS. That aircraft is now undergoing a 120-month airframe inspection along with a 10-year landing gear overhaul. A 53,000-sq-ft paint facility is slated for completion in the first quarter, followed by a second 40,000-sq-ft maintenance and completions hangar by the end of the summer.

"We have been working hard to prepare and plan for our new maintenance and modifications center in Provo, and we are thrilled to have the first maintenance hangar ready and open for work," noted Chad Doehring, the facility's vice president of operations. He added that customers who bring their aircraft to the Provo MRO will receive the same level of customer service and knowledge they would at the company's other locations. "Our goal was to carefully plan our staffing to expand the overall feeling, culture, and experience to our growing base in Provo," Doehring said.

This Bombardier Global Express XRS launched the service entry of Duncan Aviation's new maintenance facilty at Utah's Provo Municipal Airport last month. The long range twinjet will receive a 120-month airframe inspection and 10-year landing gear overhaul during its stay.

Stevens Expands to Macon

Greenville, South Carolina-based Stevens Aerospace and Defense Systems is adding a fourth location with the opening of a facility in Macon, Georgia, that will be used to handle its rapidly growing large-cabin aircraft business.

The MRO is shifting its large-cabin maintenance, avionics, and interiors business from Donaldson Center Airport in Greenville to Middle Georgia Regional Airport in Macon. The relocation is providing additional room to accommodate that end of the business, as well as space for other potential business plans in Greenville, Stevens said.

"Stevens is pleased to have additional and dedicated space for our large-cabin customers and be less dependent on our Greenville facility for meeting customer requirements in the southeastern U.S.," said company CFO Neal McGrail.

In addition to Macon and Greenville, Stevens has bases in Dayton, Ohio; and Nashville, Tennessee. The company provides services for a range of aircraft from Beechcraft, Piaggio, and Pilatus up to large-cabins such as Gulfstreams, Bombardier Globals, and Dassault Falcons. Along with the four locations, Stevens has a 24/7 AOG-mobile repair team unit.

Wichita Avionics Firm Sees Growth in Bizjet Work

Bevan-Rabell, a 64-year-old aircraft maintenance and avionics repair and installation shop in Wichita, Kansas, officially changed its name to Bevan Aviation on January 1, reflecting its growing turbine airplane work. "For years everybody just said, 'Call Bevan,'" Bevan owner Kent McIntyre said. "We've changed direction. We're working on more jets and turbines than we used to, and we thought [changing the name to] Bevan Aviation reflected it."

Bevan, which employs 21 people and occupies 22,000 square feet of hangars at Wichita Eisenhower National Airport (ICT), has completed 11 Garmin G5000 installations on small twinjets, including nine Beechjet 400A/Hawker 400s, beginning in late 2016. The last three of those installations, added Bevan marketing director Sarah Johnson, were delivered squawk free. "We have some Citations we're going to do in the coming year," McIntyre said.

Bevan continues to perform maintenance and bench repair on piston airplanes as well as ADS-B installations,

JERRY SIEBENMARK

Avionics technician Scott Merchant works on a Beechjet 400A/Hawker 400 at Bevan-Rabell in Wichita, which effective January 1, changed its name to Bevan Aviation to reflect its growing work on light twinjets.

McIntyre said. The ADS-B installations have led owners to include other avionics upgrades on their piston airplanes, such as replacing older navigation equipment and legacy autopilots, he added.

TAG Maintenance Marks 15 Years at Farnborough

TAG Aviation celebrated the 15th anniversary of its maintenance operation at the UK's Farnborough Airport, with the completion of its first 48-month check on a Bombardier Challenger 350. The procedure at the Bombardier authorized service facility (ASF) involved a cabin removal and refit. Over the last few years, TAG Aviation Farnborough Maintenance Services, part of the TAG Aviation Maintenance Services brand (the company's Pan-European network), has performed more than 60 heavy maintenance checks, ranging from 48-month to 120-month on Bombardier Challengers and Globals.

This past year, the location, which is also a Dassault-approved service center, delivered more than 100,000 hours of maintenance work.

"Our aim is to be the most flexible and customer-focused European line and base station support services center, not necessarily the biggest," noted Cyrille Pillet, the facility's managing director and vice president of maintenance operations for TAG Aviation Europe. "We pride ourselves on developing lasting relationships based on mutual trust and flexibility and [on making] maintenance program deliveries on time for each one of our valued customers."

Baker Aviation Breaks Ground on Fort Worth HQ

Texas-based aircraft maintenance, management, and charter provider Baker Aviation has broken ground on a new headquarters facility at Fort Worth Meacham International Airport (FTW). The development signals the centralization of the company's business at FTW, as it plans to relocate its Part 145 repair station there from nearby Addison Airport in January.

The project on the east side of the airport consists of a 30,500-sq-ft climate-controlled maintenance hangar, which will be completed by November 2019, and a 35,850-sq-ft hangar with a spacious lobby, which will house the company's Part 135 aircraft charter and management unit, scheduled for completion the following January. Both will feature 28-foot-high doors to accommodate the latest large-cabin business jets.

"This is a terrific opportunity for us to carry out our strategy to further expand the Baker operation," said Roy Goyco Jr., president and CEO of the company's aviation maintenance division. "Just seven years ago, we established the Part 145 repair station and quickly expanded into three hangars at Addison Airport 30 miles from here. As we centralize our operations, our existing infrastructure will remain intact, including the experienced and talented team of employees who are familiar to our clients."

TAG Aviation's maintenance hangar at London-area Farnborough Airport sees constant activity, as the company (which also operates the airport) services more than 1,600 aircraft a year there.

Traxxall Continues Growth with new Denver Base

Maintenance tracking specialist Traxxall is continuing its expansion with the opening of a new office in Denver. The 2,300-sq-ft office, located in Englewood, Colorado, will house the firm's western sales and operations team. Traxxall expects it will staff up to 15 employees at the new base. "Our client base and aircraft enrollments continue to grow," said Traxxall president Mark Steinbeck. "And to effectively manage our growth, we are hiring new people."

The location is the fourth for the company and its third in North America. "This office complements our operations centers in Montreal and Jacksonville, Florida, by providing a strong western presence and the capacity to better serve clients anywhere in North America from three strategically placed locations," he said. Traxxall also operates a sales office in London.

MRO Insider Launches Customer Rewards Program

MRO Insider has launched a customer loyalty program—Mx Rewards—that allows participants to accumulate points for different transactions via the company's web-based business aircraft maintenance request tool. Points are awarded for activities such as registering an account or aircraft, submitting a maintenance request for quote (RFQ), accepting a quote, and completing a facility review at the completion of maintenance.

The company is offering rewards such as cash back that can be utilized for future maintenance events, MRO Insider-logoed items, excursions in cities across the U.S., tickets to sporting events, cruises, and charity donations.

"We are excited to offer our latest program, Mx Rewards," said Andy Nixon, MRO Insider co-founder and v-p of sales. "We conducted a survey of owner/operators and Part 135 management companies and compiled a list of rewards that interested our users. From there we created our program with our users' interests in mind, adding charity donations and cash back on their booked maintenance events as a direct result of our survey."

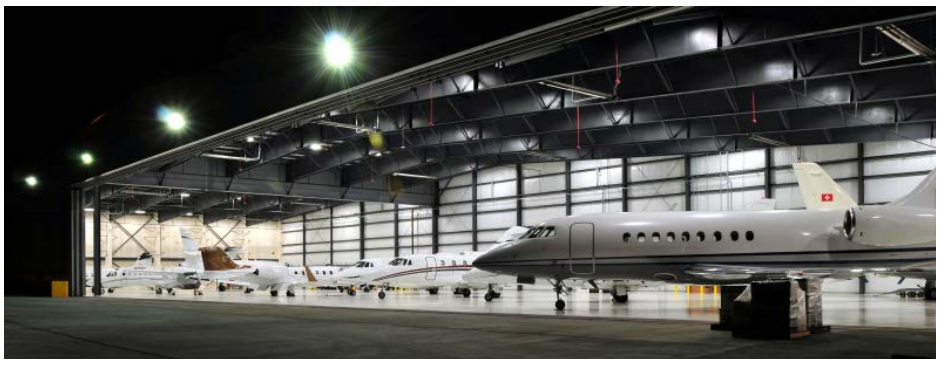
Winner Completes First Premier I Pro Line 21 Package

Ohio-based aviation service provider Winner Aviation has completed the first upgrade of a Hawker Premier I with the Collins Aerospace (formerly Rockwell Collins) Pro Line 21 airspace modernization package. The installation included a display and FMS upgrade, ADS-B, provisionally installed graphical weather and integrated flight information systems (IFIS), synthetic vision (SVS), database unit, and localizer performance with vertical guidance (LPV). The company performed a "squawk free" test flight before the aircraft was returned to service.

Winner Aviation installed this Collins Aerospace Pro Line 21 airspace modernization package on a Hawker Premier I. It will prepare the aircraft for the 2020 ADS-B mandate and beyond.

"As the ADS-B Out requirements become the standard in 2020, many business jet owners are now struggling to find qualified repair stations to meet their needs on time," said Winner Aviation avionics manager Neil Simon, adding that completion of this modification demonstrates the company's expertise in major integrated avionics upgrades. "Having the Collins Aerospace dealership and maintenance authorization further showcases how we can provide reliable technology at predictable costs. These upgraded aircraft will meet and exceed all requirements for years to come."

Winner operates an FBO/MRO at Youngstown-Warren Regional Airport.■



Clay Lacy Aviation FBO at Boeing Field (BFI) in Seattle will be rebranded as Modern Aviation.

Modern Aviation Acquires Clay Lacy FBO in Seattle

Modern Aviation, an upstart FBO network backed by a private equity firm Tiger Infrastructure Partners, has acquired the Clay Lacy Aviation FBO at Boeing Field (BFI) in Seattle, the company announced on December 26. The deal with Clay Lacy owner Gateway USA gives Modern Aviation 65,000 sq ft of hangar space, 18,000 sq ft of terminal and office space, as well as MRO services through its Part 145 repair station. Modern Aviation also acquires the Quest Kodiak dealership and service center for the Pacific Northwest through the deal.

Founded in 2017, Modern Aviation jumped into the FBO market with the purchase of Air Wilmington at Wilmington International Airport in North Carolina in February and then significantly expanded with the acquisition of XJet at Centennial Airport (APA) in Denver in September. Modern Aviation operates under its own name in Denver and as Air Wilmington in North Carolina. It will rebrand the Seattle FBO as Modern Aviation in this year's first quarter.

"Gateway is known for its outstanding customer service, commitment to safety, and its pool of talented employees, making it a perfect fit for the Modern Aviation platform," said Modern Aviation CEO Mark Carmen. In 2019 Carmen said Modern Aviation will develop Gateway's additional leasehold at BFI by building 48,000 sq ft of additional hangar and office space. Chuck Kegley will remain the FBO's general manager.

Nebraska Airport Gets FBO

Nebraska's Hastings Municipal Airport (HSI) has its first FBO in more than a decade with the selection of local aviation business operator Meyers Aviation to provide fueling service. The airport, which has a 6,450-foot main runway, sees approximately 50 operations a day. Its clients, mainly based aircraft owners, had previously relied on its self-service jet-A and 100LL pumps.

The City of Hastings, hoping to build on that utilization and possibly draw traffic from nearby Central Nebraska Regional Airport, issued an RFP for an aviation services provider. The FBO, which will be known as Hastings Air, is expected to be operational by March 1. It will include a terminal with pilots' lounge, conference room, and crew car, and will be staffed from 8 a.m. until 5 p.m. Monday through Friday, 8 a.m. to noon on Saturdays, and by appointment on Sunday. Hangar space is available.

According to city attorney David Ptak, terms of the two-year agreement call for $500 per month rent, and a 10-cent-per-gallon fuel flowage fee. Long-term plans call for the addition of maintenance services.

Sky Valet Expands European Network

European FBO operator Sky Valet has won tenders from Spanish airport manager AENA to establish FBOs at Madrid-Barajas Adolfo Suárez and Barcelona-El Prat Airports. It will be the lone aviation services provider at the latter airfield. Over the course of five-year contracts, Sky Valet said it will pursue IS-BAH registration for the two locations. "By awarding us the Madrid and Barcelona FBO contracts, AENA is acknowledging our expertise and renewing its confidence in our ability to boost the attractiveness of these two destinations, via a competitive pricing policy and the service quality standards that underpin Sky Valet's reputation," said Michel Tohane, Sky Valet's executive vice president and director of parent company Aéroports de la Côte d'Azur Group's general aviation business unit.

Sky Valet also announced the first French service provider to join its Sky Valet Connect affiliate program. It signed an agreement with the operator of Avignon-Provence Airport for its IS-BAH-registered business aviation terminal to be branded under the Sky Valet Connect label. Located at the heart of the triangle that covers the Lubéron and Provence regions, stretching from Montpellier to Marseilles, the airport plans to increase its private aviation traffic. "We are delighted to join the Sky Valet network, and we are convinced that business aviation will be the major source of growth for Avignon-Provence Airport," said Michel Maridet, director of the airport's management company. Sky Valet launched the Connect brand in October, with its first locations in Italy and Bulgaria.

The company's own 22 FBOs are found throughout France, Spain, and Portugal. "This new destination confirms the strength of our strategy and presents another step forward in our expansion strategy," said Tohane.

Texas Airport To Receive New Private Hangar Complex

Aviation real estate developer Western LLC has broken ground on a corporate hangar project at San Antonio International Airport. The development, which consists of seven hangars with 28-foot-high doors, ranging in size from 12,000 sq ft to more than 15,000 sq ft, along with 25,000 sq ft of attached offices, is being constructed on a nearly nine-acre lot, formerly occupied by Hawker Beechcraft. Western is designing, building, and financing the complex, which will then be leased to corporate flight departments. According to the company, only one 15,400-sq-ft unit remains available.

"This $25 million, multi-hangar development initiative is the largest single private/corporate capital project in San Antonio International Airport's history," noted Russ Handy, the city's aviation director. "Partnerships like this are not just good news for the [airport] but for all of San Antonio, as the economic impact will be substantial for the entire region."

Scottsdale Airport To Receive Third FBO

Arizona's Scottsdale Airport, which is currently served by Signature Flight Support and Ross Aviation FBOs, will be receiving a third service provider. The proprietors of what will be named the Scottsdale Jet Center (SJC) have secured a 40-year lease for more than 14 acres of land at the airport and expect to break ground in the summer on a $24 million FBO complex.

An artist's rendering shows the proposed Scottsdale Jet Center, the first phase of which is expected to be completed by mid-2020. When it opens, it will become the third FBO at Arizona's Scottsdale Airport.

The first phase of the project, which is expected to be completed in mid-2020, will consist of an approximately 10,000-sq-ft terminal and a 30,000-sq-ft hangar, which can accommodate the latest large business jets. The remaining phases will see the construction of additional hangars with a target date of mid-2025.

According to company partner John Marchman, the airport has seen strong fuel sales growth over the past few years, and the master plan calls for an increase in large-capacity private aviation hangars in both the near and long term. SJC's lease with the city calls for it to construct a minimum of 80,000 sq ft of hangar space, less than half of the airport's projected need over the next decade.

ExecuJet Partners on FBO at Switzerland's Lugano

ExecuJet parent company Luxaviation Group and Swiss finance company Colombo Wealth Management have partnered with Switzerland's Lugano Airport to launch a co-branded FBO, providing joint marketing in return for the airport's FBO and aircraft handling services.

"Joining Luxaviation Group's global network opens up our network to an extensive FBO, operations, and marketing support base," said airport CEO Maurizio Merlo. "These resources will boost our customer-service capabilities for existing clients, as well as help us welcome those traveling to Lugano for the first time."

Lugano is the third-largest financial market in Switzerland, situated in the Italian-speaking canton of Ticino, bordering Italy. The new ExecuJet Lugano FBO, located in the airport's main passenger terminal, offers fueling (jet-A and avgas), catering, deicing, potable water, and lav servicing, VIP and crew lounges, crew transport, and nearby parking. Luxaviation believes the location will be of interest to those attending the annual World Economic Forum held in Davos.

"With 40-minute helicopter transfers available directly from the airfield and no slot restrictions, Luxaviation's new Lugano Airport gives customers an excellent alternative route into Davos," explained Ettore Poggi, the company's group FBO director. "Lugano offers a very low chance of snowfall during the winter season, making it a safe option for those traveling to the January event."

Signature Unveils New Nashville FBO

Signature Flight Support has opened a new $15 million FBO facility at Nashville International Airport, the result of a new 30-year lease from the Metropolitan Nashville Airport Authority. It features an 8,000-sq-ft terminal, which will serve both private aviation and

Signature Flight Support unveiled its new $15 million FBO facility late last year at Nashville International Airport.

sports charter flights. Honoring the city's rich music history, the interior is furnished with artifacts from musicians and celebrities who have passed through Signature's previous location at the airport, while the sports charter area pays homage to the city's professional and collegiate sports teams.

Included in the project was a 25,000-sq-ft hangar, which can accommodate the latest big business jets and brings the facility up to 138,000 sq ft of aircraft storage space. An additional 16,000-sq-ft hangar is planned. Over the next year, the BBA Aviation subsidiary will renovate the FBO's former 4,000-sq-ft terminal, which will be used as office space for the company and its tenants.

Paragon Aviation Group Adds New Member

Ross Aviation's facility at California's Jacqueline Cochran Regional Airport is the latest to join the Paragon FBO Network. One of three service providers on the field, it offers more than 100,000 sq ft of hangar space and can handle aircraft up to a Boeing BBJ, along with a terminal featuring four conference rooms, computer workstations, shower facilities, concierge, rampside vehicle access, on-site car rental, and a snack bar.

This marks the third Ross Aviation location to join the global network of high-end FBOs, following the company's facilities in Long Beach, California, and New York's Westchester County Airport. Each location to join the group, which currently numbers 57 locations, must pass a comprehensive quality audit and uphold strategically developed core standards to remain a member.

Florida Airport Rebrands Its FBO

Florida's Naples Airport Authority, which operates the sole full-service FBO at the dedicated GA airport, has rebranded it Naples Aviation. The Avfuel-branded facility will also add contract fueling to its services, pumped by the location's NATA Safety-1st-trained staff. The facility, which specializes in quick turns, includes a passenger lounge with refreshment bar, business center, conference room, fitness center with showers, crew lounge, flight-planning room, crew cars, and onsite access to U.S. Customs.

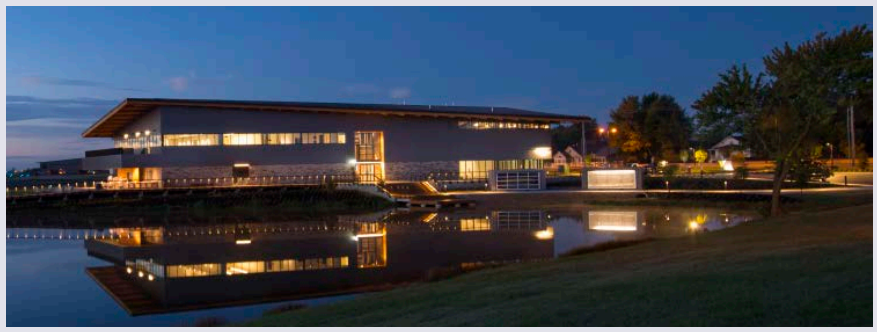
"We're excited about the new name, along with all of the changes that come with it," said FBO manager Mike Hushek. "We have launched a new website for easier customer use and are offering competitive rates on jet fuel with Avfuel contract fuel."

With that service addition, aircraft operators at Naples Airport will also benefit from no-fee purchases, the ability to put all purchases (both fuel and non-fuel) on their accounts, tax savings, and streamlined online account management.

"Our operators are looking forward to taking advantage of the Avfuel contract fuel program in another high-profile destination location," said Joel Hirst, the fuel provider's vice president of sales. "We've had a long, successful partnership with Naples Aviation and are happy to be a part of the operation's progression with rebranding and adding the program." ■

Naples Aviation is the new name of the airport-owned FBO at Florida's Naples Airport. The Avfuel-branded facility now offers contract fuel in addition to Avtrip rewards points.

FBO PROFILE: Summit Aviation (VBT)



FBO offers easy access to Ozarks backcountry

While many FBOs in the U.S. are similar, it comes as a surprise to find one that breaks the mold. One of them is Summit Aviation, the lone service provider at the Arkansas Bentonville Municipal Airport/Louise M. Thaden Field (VBT), which recently relocated across the airport to the brand new Thaden Fieldhouse. Summit has been the FBO at the 1940s-era, dedicated GA airport for more than a decade, ever since VBT was ravaged by a tornado to the point that its future was in jeopardy. Dave Powell, the company's owner, decided to take on the aircraft servicing at that point and began to build infrastructure.

Nestled on the shore of Lake Bentonville, the $12 million Thaden Fieldhouse (like the airport, named after local pioneering aviatrix Louise Thaden) opened in October after a year-long construction program. It includes the FBO's 10,000-sq-ft two-story terminal (which more than tripled the size of its previous facility), with a passenger lobby, and CSR desk on the ground floor and flight-planning area, pilots' lounge, shower facility, and two snooze rooms upstairs. Among its amenities are a 20-seat A/V-equipped conference room, full kitchen, crew car, and onsite car rental. Café Louise is a popular destination for pilots and non-aviators alike and overlooks the ramp, serving breakfast, lunch, and dinner, as well as the best airport coffee in the country, according to Brad Elliott, who as the FBO's recently named general manager, oversees the entire complex. The café can also cater box lunches, and there are several other restaurants within a mile of the airport.

The interior of the 22,000-sq-ft building is finished in wood and polished concrete, to tie into the area's outdoor tourism activities. The area is a prime mountain biking destination, so aircraft often arrive carrying bicycles, and for those who forgot to pack theirs, the FBO has several for borrowing. Also available for crew use are paddleboards, canoes, and kayaks, accessible from the dock just in back of the building. In the warmer months, the FBO staff will have fishing poles available as well. A retail store offering camping supplies, provisions, and sports equipment is also part of the complex, along with the company's Part 141 flight school offices, flying club lounge, and museum hangar. The latter typically features a rare, flyable warbird on display, loaned by a local owner on a rotating basis, currently a Griffon-engined Spitfire. Since the airport is also home to Game Composites, the FBO can also arrange factory tours for arriving customers.

Attracting New Clients

Located just two miles from retail behemoth Walmart's headquarters, as well as that of food giant Tyson Foods, the airport sees a steady flow of aircraft carrying vendors and distributors to business meetings. Turboprops and small to midsize business jets are common sights on the donut-shaped ramp.

The FBO has 30,500 sq ft of heated hangar space, which can accommodate aircraft up to a Cessna Sovereign. It is home to a handful of turbine-powered aircraft ranging from an Embraer Phenom 300 to an Airbus Helicopters AS350. Elliott noted that the facility's hangars are fully booked and the company is looking to add another 12,000-sq-ft structure.

The facility, which has a staff of approximately 40 people, is open from 7 a.m. until 7 p.m. seven days a week. Elliot noted that the airport sees approximately 20,000 operations a year and pumped 160,000 gallons of fuel from its Shell-supplied fuel farm, which holds 10,000 gallons apiece of jet-A and 100LL. The FBO has a 3,000-gallon jet-A tanker and a 1,500-gallon avgas truck.

"Everyone who works here is passionate about aviation," Elliott told **AIN**, adding that every current member of the location's line service staff holds a pilot's license. The facility is a Textron Aviation service center, providing maintenance for aircraft up to Beechcraft King Airs, as well as charter.

With a 4,426-foot main runway at VBT, larger aircraft typically use nearby Rogers Executive Airport, but Summit's ownership is aiming to make its airport into the gateway to the Ozarks backcountry. "The whole goal of this facility is to bring in the public, so we're getting more people involved in aviation who normally wouldn't be introduced," said Elliott. "They sit down at the restaurant that overlooks the ramp, and we have airplanes sitting right outside, so once they leave, they are really intrigued." **C.E.**

by David Jack Kenny

At press time, the U.S. NTSB had not filed any new reports since December 19 due to the partial closure of the U.S. government. The FAA had not published any preliminary reports since December 21.

PRELIMINARY REPORTS

Four Dead in Atlanta Citation Crash

CESSNA 560 CITATION V, DEC. 20, 2018, ATLANTA, GEORGIA

A Memphis-based Citation V crashed just after taking off from Atlanta's Fulton County Airport, killing all four on board and igniting a post-crash fire. Press reports indicate that among the victims was Memphis businessman Wei Chen. The airplane was bound for the Millington-Memphis Airport on an instrument flight plan but went down less than two miles from the runway threshold.

A weather observation recorded five minutes later included seven miles' visibility in light rain below a 600-foot overcast.

Runway Excursion Closes Sendai Airport

BEECHCRAFT 300 SUPER KING AIR 350, DEC. 23, 2018, SENDAI, JAPAN

Twenty-eight commercial flights were canceled and four more had to divert after a landing King Air veered off the left side of Runway 27, causing the closure of the 3,000-meter (9,843-foot) Runway 09/27 for some two and a half hours. Video footage shows the airplane abruptly veering off the left side of the runway following an apparently normal touchdown and ground roll. The U.S.-registered turboprop was arriving for maintenance after a ferry flight from New Chitose. The solo pilot was uninjured.

No Injuries in Oklahoma HEMS Accident

AEROSPATIALE AS 350 B2, JAN. 11, 2019, PONCA CITY, OKLAHOMA

Both crewmen escaped injury after their medical helicopter rolled over while landing at the Ponca City Regional Airport. The aircraft, operated by Air Evac EMS of St. Charles, Missouri, was being repositioned at the time.

The circumstances of the accident remain unclear. Photographs show the aircraft lying on its right side with apparent damage to the tailboom; the main and tail rotors were destroyed.

FACTUAL REPORT

Nebraska Pilot Never Opened Flight Plan

MITSUBISHI MU 2B-40, SEPT. 23, 2017, AINSWORTH, NEBRASKA

The pilot of a twin-engine turboprop that crashed just after takeoff from the Ainsworth, Nebraska Regional Airport had filed an instrument flight plan but never activated it, instead departing into instrument conditions without a clearance. The airplane came down 3.5 miles northeast of the airport, killing the 69-year-old solo pilot. Local conditions cited in the NTSB's factual report include visibility of 1.75 miles in mist under a 500-foot overcast.

Active alerts along the route included "a convective SIGMET for embedded thunderstorms, a Center Weather Advisory for an area of heavy rain showers, and AIRMET Sierra for an extensive area of IFR conditions," but a review of National Weather Service composite radar imagery showed "no significant echoes in the immediate vicinity of the accident site."

The pilot contacted the Fort Worth Flight Service Station less than 15 minutes before the accident to file an IFR flight plan to the Bottineau, North Dakota Municipal Airport at a requested altitude of 16,000 feet. He declined a briefing on adverse weather conditions along his route of flight. Notams in effect at Ainsworth that day advised that the remote communications outlet and hazardous in-flight weather advisory service frequency were out of service; however, the pilot had filed his flight plan via his mobile telephone, which he presumably could have used to obtain an IFR clearance.

Based on the pilot's most recent application for a medical certificate and interviews with the airplane's co-owner, investigators estimated that he had about 3,775 hours of flight experience that included approximately 2,850 in type. He had completed recurrent training at SimCom three months before the accident. The co-owner reported that the two had jointly owned several MU-2Bs since 2000.

The airplane was reported missing at noon after failing to arrive at Bottineau. The wreckage was not located until 6 p.m. No primary or secondary targets on air traffic control radar could be associated with the flight, but low-altitude radar in the area was also out of service.

The airplane was equipped with a Chelton electronic flight display as well as two back-up attitude indicators, one on each side of the instrument panel. During a flight the previous Wednesday the pilot had seen what he described as a "transient display" on the Chelton system, which he'd reported to both his partner and the manager of their avionics shop; no further details were provided. Impact damage prevented functional testing of the system after the accident.

The factual report cites the FAA's Introduction to Aviation Physiology and Airplane Flying Handbook on the subject of spatial disorientation.

FINAL REPORTS

Wingtip Strike Traced to Icing During Approach

EMBRAER EMB-500 (PHENOM 100), FEB. 15, 2013, BERLIN-SCHÖNEFELD AIRPORT, GERMANY

Investigators for Germany's BFU have determined that ice accumulated on approach caused the Phenom's left wing to stall during the landing flare. The airplane rolled left, striking the wingtip, then back to the right, fracturing the right main landing gear. The pilots' faulty understanding of the interaction between the airplane's anti-icing and stall warning protection systems was cited as a contributing factor.

The accident occurred at the end of a flight from Belgium's Kortrijk-Welvelgem Airport with one passenger on board. Although Schönefeld's ATIS Information Zulu reported moderate icing below 3,000 feet, the captain chose not to activate the pneumatic boots on the wings and horizontal stabilizer during an ILS approach to Runway 07L because he did not see ice on the portion of the left wing visible from the cockpit. (He did turn on the engine and windshield anti-icing systems.) As noted in the BFU's report, the EMB-500 Airplane Flight Manual calls for the use of all anti-icing systems at temperatures below 5 degrees Celsius when visible moisture is present; the temperature at the time of the accident was 0 Celsius with a 1,400-foot ceiling and three miles' visibility in mist.

Engaging the wing and stabilizer boots increases landing reference speed by 23 knots and reduces the angle of attack that activates the stall warning system from 21 to 9.5 degrees. The stick pusher is triggered at a 15.5-degree AoA compared to 28.4 degrees with the wing and stabilizer anti-icing turned off.

Loose Bolt Caused Helicopter Drive Shaft Failure

BELL 206B, MAY 26, 2017, ROCKVILLE, IDAHO

Fatigue cracks in one of the flexible couplings of the engine-to-transmission drive shaft were traced to a loose bolt whose washer wore a depression in the outside surface of the coupling while the bolt itself gouged the inner surface of its mounting hole. Fatigue cracks propagated, subsequently causing the remainder of the coupling to fail in overstress.

During an aerial application flight at about 40 to 50 feet above ground level, the pilot heard a "growling" noise followed by a sudden bang and complete loss of power. The pilot attempted an autorotation and the helicopter landed hard in a marshy field, damaging the tail boom and fuselage. Disassembly of the remaining flexure elements did not identify any similar patterns of damage.

Premature Liftoff, Maintenance Practices Implicated in NWT Accident

AIRBUS HELICOPTERS AS350B2, FEB. 15, 2018, TULITA, NORTHWEST TERRITORIES, CANADA

The pilot's rushed response to a possible episode of ground resonance was the proximate cause, but the TSB also drew attention to the operator's failure to investigate increased vibration observed after the main rotor blades were removed and reinstalled. Contrary to Canadian Aviation Regulations, the operator did not routinely log blade removal and reinstallation or track vibration levels. The accident occurred near a timber helipad at a remote telecommunications tower at Bear Rock.

About 30 minutes after landing, the pilot conducted a ground run in accordance with the cold-weather supplement to the helicopter's operating manual. During a second ground run, the aircraft began bucking back and forth on its skids, which intensified after the pilot reduced fuel flow. Suspecting ground resonance, he increased power to take off, but did not advance fuel flow completely. The helicopter lifted with main rotor and engine rpm below the flight governing range, descended, and tumbled down a hillside. The pilot extricated himself and was subsequently evacuated with a badly broken arm.

Ground resonance is a phenomenon specific to helicopters with fully articulated main rotor systems. Vibration in the main rotor (sometimes caused by a hard landing that pushes one blade out of phase with the others) sets up a sympathetic vibration in the fuselage; if its frequency is close to the airframe's natural harmonic frequency, the two vibrations amplify one another until the helicopter shakes itself to pieces. Lifting off allows the vibration to dissipate while the blades realign.

The pilot had been aware of increased vibration levels since the main rotor blades had been removed and reinstalled three days earlier. Though the equipment was available on site, maintenance personnel did not measure vibration levels or check blade track and balance. The helicopter had been flown another six hours at the time of the accident. ■

DEDICATED TO HELPING BUSINESS ACHIEVE ITS HIGHEST GOALS.

NBAA

ATTEND THE 2019 NBAA WHITE PLAINS REGIONAL FORUM

Thursday, June 6, 2019
Westchester County Airport (HPN)

LEARN MORE
www.nbaa.org/2019hpn

by James Wynbrandt

Because the computer-controlled Mototok tug doesn't protrude beyond the nose of the aircraft it is towing, it can conserve 40 percent of hangar and ramp space with its maneuverability.

Mototok computerized tug optimizes hangar space

by Mark Phelps

Mototok sprang from the frustration of an 18-year-old student pilot in Germany, who could not imagine there wasn't a better way to maneuver aircraft on the ground. Kersten Eckert put his "efficiency-minded" energy to work and established the Mototok company to design and build electronic battery-operated tugs. The first Mototok model went into service in 2014, and today there are examples in service with international FBOs, MROs, aircraft manufacturers, airports, airlines, military, industrial companies, and individual and fleet operators.

Jetex was the first client in the Middle East region, according to Marc Hemery, in charge of EMEA sales. Mototoks are also in service with Falcon Aviation Services at the Al Bateen business aviation airport in Abu Dhabi and also Dubai. "The need is growing," Hemery told **AIN** during the MEBAA show in December.

"It is the most versatile machine in the field," he said. "One machine can work with aircraft from the size of a PC-12 up to a Boeing BBJ." Depending on the power capability of the unit, it can handle aircraft up to 100 tonnes on level ground. Prices run from $61,000 to $79,000, depending on their power output.

The biggest assets of the Mototok, said Hemery, are its compactness, precision, and ease of operation. He said those attributes combine to optimize hangar space. Because of the Mototok's small size and the fact that it doesn't project beyond the aircraft nose, it can maneuver an aircraft so precisely that hangars can accommodate an average equivalent of 40 percent more floor space. "If you calculate hangar rental costs, saving 40 percent, you could cover the cost of a Mototok in one year," said Hemery.

The reason for the machine's efficiency is its computer-centric operation. Onboard computers automatically control the nosewheel clamp pressure, govern the power required (the Mototok can operate for up to four days between charges), and regulate acceleration and deceleration to within one centimeter for precise aircraft placement. Optional features include oversteer and overtorque protection (to protect nose struts), visual and aural overspeed alarms, contour steering control, and tele-maintenance, with which the factory can even perform maintenance tasks via computer link.

The Mototok also records and stores performance data, such as speed and even accuracy of aircraft towing and placement, enabling FBOs and fleet operators to monitor the performance of their tug operators. This is "not so they can fire them," said Hemery, "but so they can make safety and efficiency recommendations." There is also a feature requiring every operator to swipe an identity card to help log operations.

The Mototok also serves as a ground power unit, with a plug-in for 14- or 28-volt power. ■

Citadel Completions Shows ACJ340-500

Newly launched Citadel Completions of Lake Charles, Louisiana, showcased at MEBAA 2018 a VIP ACJ340-500 highlighting the company's interior completions and refurbishment capabilities. The ACJ340 features a large conference/dining room that can be converted into sleeping quarters, some seven private sleeping compartments and a large first-class seating area in the aft cabin. The aircraft's owner, casino magnate Sheldon Adelson, commissioned the interior refurbishment, and liked it so much he bought the completion facility when it became available, and is now offering its services under the Citadel name. Citadel owns the STCs developed for the A340's refurbishment, and managing director Joe Bonita noted Airbus is due to receive several A340s back from lease that will be available for VIP retrofits, and "if [buyers] like that floor plan, a completion could be done in the same plan very quickly."

The conference/dining room of the ACJ340 by Citadel can be converted for sleeping.

The company's facilities at Chennault International Airport include two hangars totaling some 260,000 sq. ft., one large enough to house a pair of 747s "nose to nose," Bonita said. In addition to the Airbus 340, the company can complete Boeing 737, 747, 767, and 777 airframes, and Airbus A330 and A340 widebodies. Citadel is pursuing authorizations as Airbus and Boeing approved completion facilities.

Signature Platings Expands Capabilities

Metal finishings specialist Signature Plating has added plating on plastics to its in-house capabilities, allowing many metal parts with decorative finishes to be replaced by plastic parts, "reducing the weight in some cases by half," said Zane Leake, v-p of sales at the Texas company. Parts that could be replaced by plastic include headrest bezels; seat adjustment levers and the recessed seat bezels they're often set in; placards; surrounds that border electronics switches; PSUs and gaspers; and light trim. Signature is eager to put the plastic plating capability to work, and ready to "produce samples for customer evaluation," Leake said. "With our plastics division now on line, there is sufficient capacity to start work on programs and support aircraft interior suppliers', designers' and OEMs' growing need to provide lighter components that require decorative plating."

OmnAvia To Distribute Wollsdorf Leather Products

Austria's Wollsdorf Leather has selected OmnAvia Interiors of Winston-Salem North Carolina, as exclusive North American distributor for its aviation leather for the business and private aircraft markets. Wollsdorf's flame-treated leather for aircraft seating is known for its haptic (bodily sensation) quality and durability, according to the company. Wollsdorf currently produces seat covers for Lufthansa Airlines and all Diamond Aircraft.

The company maintains an inventory of 35 flame-proof aviation leather colors in its Ambassador Collection, and 25 stock colors of the Mammut line that meets the horizontal burn requirements for Part 91 and experimental aircraft. OmnAvia's managing partner Robin Butler declared Wollsdorf's product lines "the best value in the market for flame-treated aviation leather."

Jet Aviation Basel Adds Widebody Hangar

In a November ceremony, Jet Aviation inaugurated Hangar 3, its new widebody hangar at its Basel headquarters facility. Built to meet increased demand for widebody completions and refurbishments, the 94,000-sq-ft wooden arch structure can house two widebody aircraft simultaneously, and is tall enough to accommodate a 747 on jacks. The new building also incorporates an additional 22,000 sq ft of shop and office space, and 54,000 sq ft of tarmac.

Secant Panels Alter Aircraft Lighting

Rockwell Collins is offering its Secant Luminous panels, which can display environmental scenery or lights on interior panels, to the bizav market. Embedded white, RGB, or RGB+W µLED clusters in the panel can be programmed to create "virtually any lighting environment [customers]

Secant Luminous panels can change color.

desire, whether it's imagery to help passengers sleep, or a source of general lighting," said Steve Scover, the company's v-p and general manager of lighting and integrated systems.

The panels are currently available in monochromatic color or white, and by 2020, operators will be able to add full color addressable displays. ■

by Gordon Gilbert

Within 6 Months

Feb. 14, 2019

U.S.: Air-taxi and Broker Disclosure Rules

The DOT has issued final rules to toughen the requirements to better protect charter passengers from unscrupulous operators and brokers. The new requirements, effective Feb. 14, 2019, stem from several accidents in the early 2000s in which the NTSB investigations revealed illegal operations, unclear delineation between broker and operator, murky responsibilities, and poor federal oversight of the air-taxi business.

Feb. 19, 2019 **NEW**

U.S.: Single-engine ATP Candidates

An FAA proposal would remove the requirement to complete training in a simulator for multiengine aircraft for pilots seeking an initial ATP certificate concurrently with a single-engine airplane type rating. When this training requirement became effective there were no single-engine airplanes that required a PIC-type rating. However, there is now a single-engine airplane—the Cirrus Vision Jet— that requires the PIC to obtain a type rating. Comments are due Feb. 19, 2019.

Feb. 28, 2019

Australia: Fuel Rules

New rules covering minimum fuel requirements for all Australian aircraft re-introduce a 30-minute fixed fuel reserve requirement, reduce reserve requirements for day VFR operations in small piston or turboprop airplanes, and require pilots to conduct in-flight fuel management with regular fuel-quantity checks.

March 28, 2019 **NEW**

North Atlantic Tracks

An upcoming trial of Advanced Surveillance-Enhanced Procedural Separation (ASEPS) using ADS-B in the Shanwick, Gander, and Santa Maria Oceanic Control Areas of the North Atlantic Track is scheduled to begin on or soon after March 28, 2019. Aircraft need to be ADS-B compliant, meet RNP-4 specs and have RVSM approval to participate in the reduced separation trial..

Within 12 Months

Jan. 1, 2020 **11 Months to Deadline**

U.S./Taiwan: ADS-B Out Mandate

ADS-B Out equipment must be operational starting Jan. 1, 2020, in aircraft that fly in the U.S. under IFR and where transponders are currently required, and in Taiwan IFR airspace above FL290.

Jan. 1, 2020

Aircraft CO2 Emissions

The first international standards for CO_2 aircraft emissions enacted by ICAO initially apply to large subsonic jets for which a type certificate application is submitted on or after Jan. 1, 2020.

Jan. 30, 2020

Datalink Com in North Atlantic

Phase 2 of the North Atlantic datalink mandate began in February 2015, at which time flights within the North Atlantic Tracks between FL350 and FL390 were required to be equipped with FANS-1/A controller-pilot datalink communications and ADS-C. The program expanded to these altitudes in the entire ICAO NAT region on Dec. 7, 2017, and will apply to all flights in this region above FL290 on Jan. 30, 2020.

Beyond 12 Months

June 7, 2020 **16 Months to Deadline**

Europe: ADS-B Out Mandate

The ADS-B Out retrofit requirement in Europe takes effect June 7, 2020.

Aug. 14, 2020

EU: Pilot Mental Fitness

The European Union has published revised air operations safety rules to incorporate provisions to better identify, assess, and treat the psychological fitness of air crew. The new rules, applicable to commercial air transport operators, go into effect Aug. 14, 2020.

Jan. 1, 2021

U.S.: Stage 5 Noise Rules

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

Jan. 1, 2023 and Jan. 1, 2028

Aircraft CO_2 Emissions

Standards for CO_2 emissions apply to deliveries of current in-production large aircraft starting Jan 1, 2023. All covered in-production airplanes must meet the standard by Jan. 1, 2028. Jet airplanes with an mtow under 12,500 pounds, and piston-engine airplanes and turboprops below 19,000 pounds mtow, are exempt. ■

Compiled by Kerry Lynch

DAN DUNN

PETER CABOOTER

STUART LOCKE

JANNIE DE KLERK

SARAH HUMPLEBY

John Yegerlehner has become president of *Spectra Jet*, in addition to serving as chief inspector. Yegerlehner, who co-founded the repair station in 1998, is taking over for **Mike Catherwood**, who retired. **James (Jim) Major**, meanwhile, was promoted to vice president. He will also continue as logistics manager.

Mente Group promoted **Dan Dunn** to executive vice president of transactions. Previously v-p of transactions, Dunn has 23 years of business aviation experience, having held roles with larger international brokerage and charter and management firms.

Aireon appointed **Peter Cabooter** v-p of customer affairs. Cabooter joins Aireon with 17 years of sales and air traffic management experience, holding executive positions at Navblue (previously Airbus ProSky) and Barco Orthogon (now a part of Harris Corporation).

Stuart Locke is joining *Oriens Aviation* as general manager of maintenance at the London Biggin Hill Airport facility. Locke formerly was head of maintenance for TAG Aviation Farnborough and also spent 19 years with Flybe.

National Airways Corp. (NAC) appointed **Jannie de Klerk** to the board as executive director of flight operations. De Klerk, who became general manager of flight operations after NAC acquired his former firm Naturelink Aviation, has a 27-year aviation career that also included serving as operations manager for Avia Air Charter, Tropair Charter, and Debonair Tours.

Aspen Avionics promoted **Sam Wallace** to v-p of operations. Wallace, who has 13 years of experience beginning as a manufacturing engineer, joined Aspen in 2015 and was most recently director of quality.

Asian Sky Group named **Matthieu Guisolphe** rotary program sales manager for the Southeast Asia market. Over the past five years, Guisolphe, who most recently has served in the Malaysian office of Airbus Helicopters, also served with Thales.

Walkers added **Sarah Humpleby** and **Richard Williams** as senior counsel for its Finance & Corporate Group in the Cayman Islands office and **Aaron Bennett** as vice president at Walkers Fiduciary in Dubai. Humpleby brings an aviation financing background to Walkers from Pillsbury Winthrop Shaw Pittman in London, where she was counsel in the asset finance practice. Williams, who also has an aviation finance background, formerly was with Dentons in London, where he was counsel in the banking and finance practice. Bennett has five years of experience in fiduciary services in Dubai with a background in Sharia-compliant Islamic finance transactions, conventional finance structures, and asset finance transactions.

Aircraft Specialties hired **Russell Wilbanks** to oversee inside sales and purchasing. Wilbanks brings 38 years of experience to his new role, previously steering sales for Professional Aviation Associates.

Donaldson Aerospace & Defense appointed **Vince Testa** as senior account executive for rotorcraft. Testa, previously a logistics program manager for Pratt & Whitney, has 30 years of aerospace experience that included helicopter flight-testing and international commercial and military business development.

Mac Swindell joined the aircraft sales team of *WildBlue*. Swindell, a corporate pilot for Johnston Seed Company, began his career with Boeing and Gulfstream before moving into roles in the healthcare and oil-and-gas fields.

David Chamberlain joined *The Air Law Firm* as senior associate. Chamberlain previously served with the law firm Watson Farley and Williams, where he specialized in transactional work involving commercial airliners, business jets, and helicopters.

Pattonair hired **Jason Rance** to be the company's first group innovation director. Rance formerly was global head of product innovation and global v-p of marketing and e-commerce for Speedo and led its Global Innovation Team Aqualab.

Presidential Aviation named **Leon Knight** director of maintenance and **Sean Anthony** chief inspector. Knight has more than 23 years of experience in aviation management, maintenance planning, quality control, and FAA auditing, most recently serving as chief inspector at Thrust Aviation and before that as vice president of quality control and director of maintenance for Gulfstream International Airlines. Anthony has more than 34 years of aviation experience, including 24 in maintenance, serving as vice president of maintenance, general manager, director of maintenance, and director of quality.

Metrojet Limited appointed **Janet Chen** as regional sales manager, MRO. Chen, who has more than 14 years of experience in the aviation industry in a range of disciplines from sales and marketing to supply chain and business development, most recently was commercial manager for Haeco Private Jet Solutions. ■

FINAL FLIGHTS

Anthony "Tony" Broderick, 75, once the top safety regulator in the U.S whose policies helped advance aviation safety globally, died December 30 in Bealeton, Virginia. Broderick spent two decades with the FAA, culminating in his position as the associate administrator for regulation and certification (AVR).

Broderick helped spearhead numerous initiatives such as the development of international audit standards for civil aviation agencies and standards for twin-engine operations over oceans and the polar regions. He is also credited as the first in the FAA to recognize the potential of GPS to support Cat III operations and steered the implementation of numerous voluntary compliance programs and industry-led safety initiatives such as FOQA, ASAP, and AQP.

Born in New York in 1943, Broderick graduated from St. Bonaventure University in 1964 and spent seven years developing optical systems for the private sector. He took a position with the Department of Transportation's Volpe Center in 1971.

This led to his move to the FAA's Office of Environment and Energy High Altitude Pollution Program in 1976. Two years later, Broderick joined the AVR organization, ultimately leading it until he retired from the agency in 1996.

He subsequently became an advisor to several key aviation companies, including Airbus, Atlas Air, and FedEx, and retired altogether in 2014.

He is survived by wife Sylvia, children Sean and Pia, and two grandchildren. His son Sean followed Broderick into the aviation business, holding association positions and as a long-time aviation writer with *Aviation Week,* as well as a former contributor to **AIN**.

William Harwood Juvonen, 81, a long-time aircraft salesman and co-founder of charter and aircraft management firm Flight Services Group, died December 22 at his home in Stamford, Connecticut.

Juvonen had a corporate aviation career that spanned more than 40 years and led him to sales positions involving Pan Am Business Jets, Cessna Citations, and Canadair Challengers. Ultimately, he helped found and became chairman of Flight Services Group, which grew into one of the larger charter and management firms that was later acquired by PrivatAir.

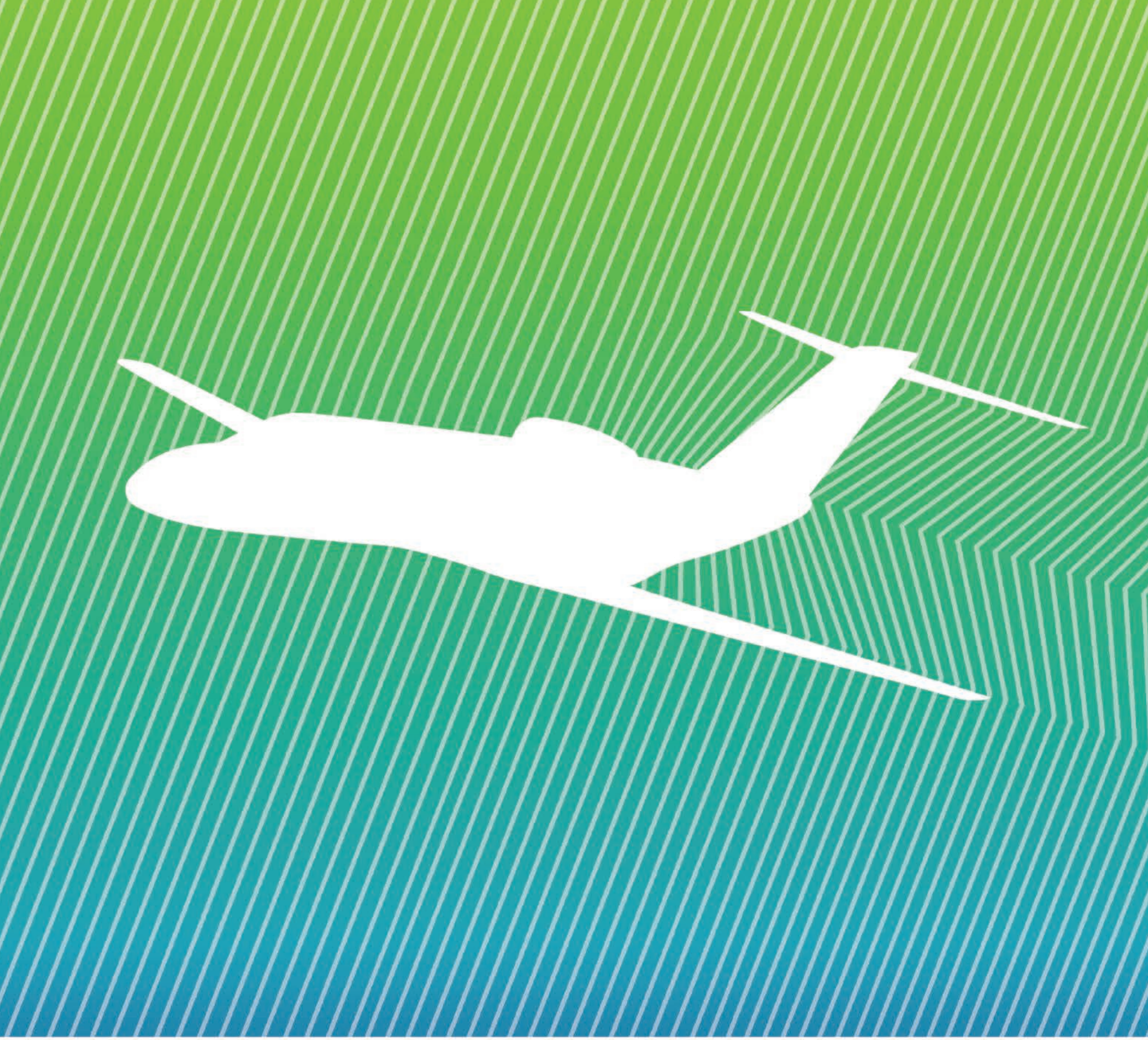
Born in Santa Ana, California, Juvonen joined the U.S. Marine Corps after graduating from Stanford University. He was trained as a carrier-based fighter and helicopter pilot, attending the Replacement Air Group, later known as Top Gun. He flew the supersonic F8-U Crusader.

Later he joined Pan American World Airways as a sales manager for Pan Am Business Jets. He then became a sales manager for Cessna, introducing the Citation series, beginning with the 500. After launching the Citation series, Juvonen introduced the Canadair Challenger 600 program as vice president of sales. He joined Polaris Aircraft Leasing as v-p of marketing before helping establish Flight Services Group.

He is survived by his wife, Karen Coleman Juvonen, and children Nancy Juvonen Fallon (Jimmy) and Jim Juvonen (Sarah), along with five grandchildren. ■

AWARDS and HONORS

Conklin & de Decker, in association with NBAA, named **Najla Dorsey** of Columbus, Ohio, as the recipient of the annual Al Conklin and Bill de Decker Business Aviation Management Scholarship. The $5,000 scholarship is awarded to an undergraduate student who is enrolled in an aviation management program at a University Aviation Association member school. Dorsey, a senior at Ohio State University is majoring in air transportation with a professional pilot specialization. A former ramp agent for an airline in Philadelphia, she has served as an aerospace education officer for the Civil Air Patrol since 2011, is the current president of the Organization of Black Aerospace Professionals, OSU Chapter, and a member of the College of Arts & Sciences Dean's Student Advisory Board. ■



NBAA|BACE®

OCTOBER 22–24, 2019 • LAS VEGAS, NV

Join over 25,000 industry professionals for the most important three days of business aviation, with 1,100 exhibitors, 2 static displays of aircraft – one inside the exhibit hall and the other outside at Henderson Executive Airport, and more than 50 education opportunities. Save the date and visit the NBAA-BACE website to learn more.

www.nbaa.org/2019

ABACE 2018

DAVID McINTOSH

HELI-EXPO 2018

BARRY AMBROSE

FEBRUARY

NBAA REGIONAL FORUM... February 6,
Palm Beach International Airport, West Palm Beach, FL.
Info: (202) 783-9000;
https://nbaa.org/events/2019-west-palm-beach-regional-forum/registration/.

NBAA LEADERSHIP CONFERENCE... February 12-14,
Austin, TX. Info: info@nbaa.org;
https://www.nbaa.org/events/leadership/2019/.

INTERNATIONAL OPERATORS CONFERENCE...
February 25-28, San Antonio, TX. Info: www.nbaa.org.

MARCH

HELI-EXPO... March 4-7,
Georgia World Congress Center, Atlanta, GA.
Info: (703) 683-4646, rotor@rotor.org; https://heliexpo.rotor.org/.

5TH ANNUAL SINGAPORE AVIATION SAFETY SEMINAR...
March 5-7, Singapore. Info: https://flightsafety.org/events/.

SAUDI AIRSHOW... March 12-14,
Thumama Airport, Riyadh, Saudi Arabia.
Info: http://saudiairshow.aero/.

NBAA REGIONAL FORUM... March 14,
William P. Hobby Airport, Houston, TX. Info: www.nbaa.org.

WOMEN IN AVIATION... March 14-16,
Long Beach Convention Center, Long Beach, CA.
Info: www.wai.org/conference.

NBAA BUSINESS AIRCRAFT FINANCE, REGISTRATION & LEGAL CONFERENCE... March 17-19, Sanibel Harbour Marriott Resort & Spa, Fort Myers, FL. Info: (202) 783-9000; https://nbaa.org/events/2019-business-aircraft-finance-registration-legal-conference/.

AEA INTERNATIONAL CONVENTION & TRADE SHOW...
March 25-28, Palm Springs Convention Center,
Palm Springs, California. Info: (816) 347-8400;
debbiem@aea.net; www.aea.net/convention.

APRIL

SUN 'N' FUN INT'L FLY-IN EXPO... April 2-7,
Florida Air Museum, Lakeland, FL.
Info: www.flysnf.org/.

COMMERCIAL UAV EXPO EUROPE... April 8-10,
RAI Amsterdam, Amsterdam, The Netherlands.
Info: www.expouav.com/europe/.

AVIAPAGES SWISS PRIVATE JETS SHOW... April 11,
Lugano Airport, Switzerland.
Info: http://Aviapages.com; Email: yuri.dzun@aviapages.com.

ASIAN BUSINESS AVIATION CONFERENCE & EXHIBITION... April 16-18,
Shanghai Hongqiao International Airport, Shanghai China.
Info: info@abace.aero; https://abace.aero/2019/.

MAY

NBAA BUSINESS AVIATION TAXES SEMINAR...
May 2-3, Marina del Rey, CA.
Info: (202) 783-9000; https://nbaa.org/events/2019-business-aviation-taxes-seminar/.

NBAA FLIGHT ATTENDANTS/FLIGHT TECHNICIANS CONFERENCE... May 7-9, Fort Worth, TX.
Info: (202)783-9000; https://nbaa.org/events/2019-flight-attendants-flight-technicians-conference/.

EUROPEAN BUSINESS AVIATION CONVENTION & EXHIBITION... May 21-23,
Palexpo Convention Center, Geneva, Switzerland.
Info: info@ebace.aero; https://ebace.aero/2019/.

JUNE

NBAA REGIONAL FORUM... June 6,
Westchester County Airport, White Plains, NY. Info: www.nbaa.org.

PILATUS OWNERS AND PILOTS ASSOCIATION ANNUAL CONVENTION... June 6-8, Terranea Resort, Rancho Palos Verdes, CA.Info: http://pilatusowners.org/popa-annual-convention/.

PARIS AIRSHOW... June 17-23,
Exhibition Center of Le Bourget, Paris, France.
Info: www.siae.fr/.

ISLE OF MAN AVIATION CONFERENCE... June 27,
Villa Marina, Douglas, Isle of Man, UK.
Info: www.iomaircraftregistry.com/events/isle-of-man-aviation-conference/.

JULY

ASA ANNUAL CONFERENCE... July 14-16,
Hotel OMNI Mont-Royal, Montreal, QC.
Info: www.aviationsuppliers.org/annual-conference.

EAA AIRVENTURE...
July 22-28, Wittman Regional Airport, Oshkosh, WI.
Info: www.eaa.org/en/airventure.

AUGUST

LATIN AMERICAN BUSINESS AVIATION CONVENTION & EXHIBITION...
August 13-15, São Paulo, Brazil.
Info: https://labace.com.br/.

OCTOBER

NBAA-BACE BUSINESS AVIATION CONVENTION & EXHIBITION...
October 22-24,
Las Vegas Convention Center, Las Vegas NV.
Info: (202) 783-9000; www.nbaa.org/events/bace/2019/.

NOVEMBER

DUBAI AIRSHOW... November 17-21,
Airport Expo, Dubai, UAE. Info: +97 1 4286 7755;
http://www.dubaiairshow.aero.

AFRICAN AIR EXPO... November 27-29,
King Shaka International Airport, Durban, South Africa.
Info: http://africanairexpo.com/.

Indicates events at which **AIN** will publish on-site issues or distribute special reports.

Indicates events for which **AIN** will provide special online coverage or e-newsletter.

Indicates events at which **AIN will produce AINtv.com videos.**

See **ainonline.com** for a comprehensive long-range aviation events calendar.

Assisting to...

NBAA
Regional Forum

West Palm Beach

6 Feb.

We're CHAUFFEURS

BiZAV.

Deliver an exceptional door-to-door experience

You organise the flight, we take care of the ground transportation service **wherever your aircraft lands**

Contact our SVP of Global Sales to open your Drivania account.

Frank Davidson
fdavidson@drivania.com

US +1 415 366 96 54
EUR +34 93 176 0215
UK +44 203 769 1926

Drivania®
CHAUFFEURS

THE SCIENCE OF COMMAND AND CONTROL

EASY III FLIGHT DECK

FLIGHT CONTROL SYSTEM

ELECTRONIC FLIGHT BAGS

FALCON EYE

MULTI-SENSOR CAMERA

From an advanced flight deck and digital flight controls to the FalconEye combined vision system and advanced aerodynamics, Falcons are built to fly you fast, safely and smoothly. Day or night, in any weather, wherever your business takes you, fly smart. **Fly Falcon.**

Falcon 8X/6X

WWW.DASSAULTFALCON.COM | FRANCE: +33 1 47 11 88 68 | USA: +1 201 541 4600

DASSAULT AVIATION

ENGINEERED WITH PASSION