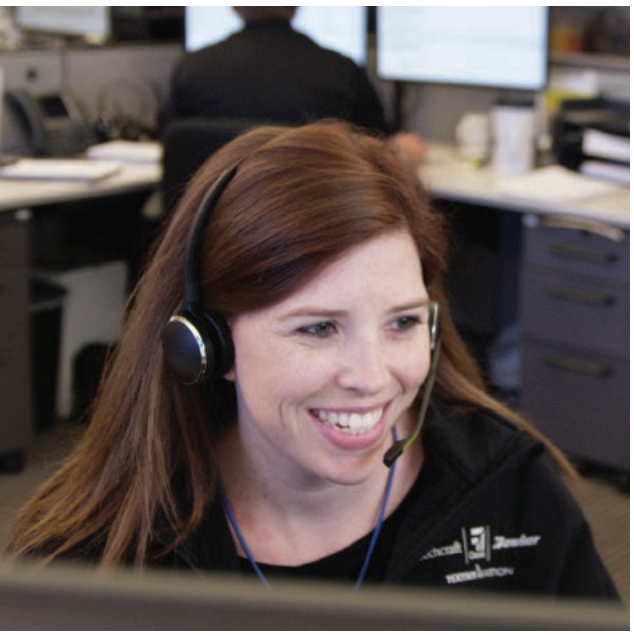
Aviation International News

AIN PUBLICATIONS

Vol.49 | No.5

$9.00

MAY 2018 | ainonline.com



SERVICE INSPIRED **BY YOU.**

1CALL FOR AOG SUPPORT.

When you're AOG or facing unscheduled maintenance, dial one number. We'll take care of the rest. Get prioritized support by calling +1.316.517.2090.

FASTEST PART DELIVERY.

We ship 99.6 percent of parts the same day you order them. With our 7 p.m. cutoff, you have more time to order.

EXPERTS AT YOUR SIDE.

No one knows your aircraft like we do. Our model teams and field service engineers offer exclusive support.

FACTORY-DIRECT CUSTOMER CARE.

Across the world, our 18 company-owned service centers raise industry standards for aircraft maintenance.

TECH PUBS AT YOUR FINGERTIPS.

Our 1View library has technical publications, flight documents and manuals. Digital, searchable and available anytime.

HELP US GET THE WORD OUT.

Please take a moment to tell others how we keep you flying. Your voice not only inspires us, but the entire industry.

Visit txtav.com/survey.

Beechcraft | Cessna | Hawker

TEXTRON AVIATION

Aviation International News

AIN PUBLICATIONS

Vol.49 | No.5

$9.00

MAY 2018 | ainonline.com

DAVID McINTOSH

OEMs seek clarity on China tariff

by Chris Kjelgaard

Manufacturers of aircraft in the 15,000- to 45,000-kg (33,069- to 99,207-pound) empty-weight range specified by China as potentially being subject to a 25 percent import tariff await the results of negotiations between the two nations' official trade bodies to find out if and when their sales and deliveries to China might be affected.

When China announced the proposed tariff on April 4, financial analysts quickly identified the Boeing 737NG series (including the 737-700-based BBJ) and the Gulfstream G550, G650, and G650ER as the only U.S.-made aircraft types affected. However, while at first glance Boeing would be most affected and Gulfstream Aerospace also impacted by China's proposed tariff (Textron Aviation could also be affected depending on the Cessna Citation Hemisphere's design empty weight), some industry observers believe other OEMs could also see aircraft imports to China impacted.

Key to the OEMs' full understanding of whether (and how) China will apply the tariff—which, for business-aircraft imports to the Chinese registry, JetNet iQ creator and business aviation analyst Rolland Vincent said would be added to an existing 5 percent import duty and 17 percent value-added tax—will be answers to various questions that to date remain unanswered.

Myriad Questions

One question is whether or not China's proposed tariff would apply to aircraft assembled in the U.S. by OEMs—such as Airbus—headquartered in other countries, according to business aviation consultant Brian Foley. "It would appear this is all about the U.S., not other countries, but there is still not enough information to make a firm conclusion," he said.

Another question is whether the tariff might affect aircraft assembled in other countries but that have substantial content such as engines and systems made in the U.S. While it seems unlikely, Foley noted "there still hasn't been enough detail released to know for certain." (United Technologies declined to provide a response to **AIN** regarding its view of China's proposed tariff.)

A related question is whether China plans to impose its tariff on U.S.-made aircraft spare parts, said Phil Seymour, CEO of UK-based aviation technical consultancy IBA Group. "That would mean even operators continuing to operate Boeing aircraft they already operate" would be affected,

› continues on page 26

Read Our SPECIAL REPORT

Int'l Operations

The industry gathered in Las Vegas for a series of educational sessions that covered flying "safely, legally, and securely" wherever operators' trips take them. In addition to region-specific information, topics included health and weather.

› page 20

PHENOM® 300E
BY EMBRAER

The best-selling light jet in the world for six years running, Embraer's Phenom 300 platform has achieved breakthrough status and dominates as the fastest, longest range single-pilot aircraft on the market. And now, with the introduction of the brand-new Phenom 300E, a whole new standard in value and customer experience has been set. Designated "E" for "enhanced," this modern, clean-sheet light jet delivers top-tier performance and next-generation avionics, along with a revolutionary new interior design for improved ergonomics, ease of maintainability, advanced connectivity and unmatched comfort and space. Add to that the industry-exclusive upper technology panel, plus a generous baggage compartment and low operating costs, and it's easy to see why the Phenom 300E is truly in a class by itself.

PHENOM 300: GOING ABOVE AND BEYOND

“It’s important to have a vehicle that’s exciting to fly. The one I came out of was okay; it worked. But the Embraer Phenom 300 is unbelievable. The ramp presence was appealing to me, and the jet outperforms anything I’d flown prior. The idea that you can get that kind of performance and economy out of an aircraft is important.

And I recognized early on with Embraer that customer care is important to them as well. It’s almost like, ‘Is this real that they care this much?’ The product performs. The support team is always there. You really can’t ask for anything more.

This is actually my second Phenom 300, and both experiences were identical. I felt very important. They left no stone unturned. They covered everything. They held your hand through the walk-through. You could put together a punch list that day, and by the next morning it was taken care of. In both instances the experience was seamless, so I knew it wasn’t an anomaly that I was pleased the first time, because it happened the second time as well.”

- Dennis Hourany , Real Estate Developer

Watch Dennis’s story and request more information at
EmbraerExecutiveJets.com/Dennis

EMBRAER

CHALLENGE.
CREATE.
OUTPERFORM.

INSIDE this issue

FEATURE

TBM 910 ferry flight

The 5,400-nm flight took **AIN**'s Matt Thurber from Daher's facility in Tarbes, France, to Camarillo, California, in 23.5 flying hours during the middle of winter in the Northern Hemisphere.

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 EDITORS – Samantha Cartaino, Alexa Rexroth
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
ASSOCIATE PRODUCTION EDITOR – Lysbeth McAleer
GRAPHIC DESIGNERS – Mona L. Brown, John A. Manfredo, Grzegorz Rzekos
LEAD DEVELOPER – Michael Giaimo
DEVELOPERS – Nathan Douglas, Ryan Koch
VIDEO PRODUCER – Ian Whelan

GROUP PUBLISHER – David M. 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 47628, Plymouth, MN 55447 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.

SYMMETRY IN MOTION

The Gulfstream G500™ introduces the Gulfstream Symmetry Flight Deck™.
With touch-screen avionics, ergonomically fitted active control sidesticks and timesaving
Phase-of-Flight™ integration, Symmetry is an intuitive connection to a pilot's mind, body and skill.

GULFSTREAM.COM/SYMMETRY

SCOTT NEAL | +1 912 965 6023 | scott.neal@gulfstream.com

Gulfstream™
A GENERAL DYNAMICS COMPANY

As We Go To Press

BIZ AIRCRAFT DELIVERIES, SALES SOAR AT TEXTRON AVIATION

Deliveries of business jets and turboprops in the first quarter at Textron Aviation rose 18.2 percent year-over-year, while "strong bookings" so far this year yielded a 1.3:1 book-to-bill ratio. The division delivered 36 business jets and 29 turboprops in the quarter, compared with 35 jets and 20 turboprops in the first three months of 2017. According to Textron chairman and CEO Scott Donnelly, the jet deliveries and sales increases are thanks to increased demand from U.S. buyers for replacement aircraft. Aviation backlog stood at $1.6 billion at the end of March, up $400 million from the end of last year.

ATLANTIC UNVEILS SALT LAKE CITY FBO COMPLEX

Atlantic Aviation held the grand opening of its new FBO at Utah's Salt Lake City International Airport on April 18. Since 2015, the chain has spent approximately $30 million there on ramp reconstruction, renovation of an adjacent vacant hangar to use as a temporary FBO while the old terminal was demolished, a new fuel farm, and, now, a brand-new FBO complex. The new facility features a 12,700-sq-ft terminal, and pair of new 30,000-sq-ft heated hangars bring the location to more than 100,000 sq ft of aircraft storage.

NTSB: CJ4 PILOT DIDN'T MAKE UNICOM CALL BEFORE COLLISION

The pilot of the Cessna Citation CJ4 that collided with a Cessna 150 at the intersection of Runways 15 and 22 on April 2 at Indiana's non-towered Marion Municipal Airport "did not recall making a radio call on Unicom," according to an NTSB preliminary report. Two witnesses heard the Cessna 150 pilot on the Unicom frequency. The Cessna 150 was departing Runway 15 when it struck the twinjet, which landed on Runway 22. Both occupants of the piston single were killed, while the CJ4 sustained "substantial damage." According to the NTSB, the CJ4 pilot did not see the departing Cessna 150 while he was on a straight-in approach to Runway 22 or during the landing roll. Weather at the time of the accident was VFR, with four miles of visibility due to haze.

BBJ MAX MAKES FIRST FLYAWAY

Boeing Business Jets celebrated the flyaway of the first BBJ Max on April 16. The BBJ Max 8, registered as N329BJ, departed Seattle Boeing Field and landed at Georgetown, Delaware, where it will be outfitted with PATS auxiliary fuel tanks at Aloft AeroArchitects. The BBJ Max 8's auxiliary fuel tanks will allow for a 6,640-nm range. Comlux previously said it was awarded the cabin completions contract for the first-to-be delivered BBJ Max 8. After auxiliary fuel tanks are installed at Aloft, the green airplane is planned to arrive at Comlux's Indianapolis facility in the fourth quarter, with delivery of the fully outfitted BBJ Max 8 to the customer in fall 2019.

TBM 930 GETS NEW AVIONICS FUNCTIONS

Daher introduced new features and functionality for the Garmin G3000 flight deck on its TBM 930, including Surface Watch, Baro Vnav, visual approach, Flight Stream 510 Wi-Fi and Bluetooth connectivity, and enhanced symbology. The company also announced a new name for its North American division: Daher Aircraft Inc., née Socata North America.

OJETS KICKS OFF CHARTER OPS WITH GLOBAL, CHALLENGER

OJets, a Singapore-based private aviation services provider, launched operations on April 5 with a Bombardier Global 6000 and Challenger 650 financed through Minsheng Financial Leasing. It also acquired Slovenia-based business aviation services provider Elit'Avia. This acquisition will help to accelerate that growth and gives OJets an anchor in the European aircraft management, charter, and aviation services market. With it, the number of owned and managed aircraft jumps from two to 23.

EMBRAER AIRCRAFT DELIVERIES SLUMP IN FIRST QUARTER

Brazilian airframer Embraer delivered 25 aircraft in the first quarter—14 commercial airliners and 11 executive jets. These figures represent a 24.2 percent drop compared with the 33 aircraft (18 commercial jets and 15 executive jets) delivered in the same period last year. In the most recent quarter, it shipped eight light jets (three Phenom 100s and five Phenom 300s) and three "large jets" (two Legacy 450s and one Legacy 500). In the first three months of last year, the airframer delivered 11 light jets (three Phenom 100s and eight Phenom 300s) and four large jets (one Legacy 450, one Legacy 500, one Legacy 650, and one Lineage 1000).

CLAY LACY AVIATION OPENS MX FACILITY IN CONNECTICUT

Clay Lacy Aviation held an opening ceremony last month for its business aircraft maintenance facility at Connecticut's Waterbury-Oxford Airport. The facility can complete light line maintenance for engine and airframe, avionics troubleshooting and repairs, and minor interior updates and reconditioning. Clay Lacy Aviation expects to receive FAA Part 145 certification later this year.

One Aviation put the Kestrel project on the back burner in 2016 to focus on the Eclipse series.

Work continues at One, as Kestrel lawsuit looms

by Mark Huber and Rob Finfrock

As of last month, the State of Wisconsin was considering launching legal action against One Aviation unit Kestrel Aircraft to recover an estimated $3.6 million in combined delinquent state, county, and local loan payments made to the company since 2012, when it agreed to develop and build the K-350 single-engine turboprop in Superior, Wisconsin. Wisconsin Economic Development Corporation (WEDC) spokesman Mark Maley told **AIN** in mid-April that the state, county, and city finalized a "joint litigation agreement" the previous week to pursue Kestrel, and that legal action was imminent.

The Wisconsin package for Kestrel included a $2 million loan from WEDC in 2012 and another $2 million federally funded state small business credit incentive loan; Kestrel has repaid approximately $865,500 on the former. The company also owes the City of Superior $2.2 million and Douglas County $500,000.

The bigger part of the deal was tens of millions of dollars in state-backed tax credits that Kestrel planned to use to leverage private financing, provided on a sliding scale tied to the number of jobs the company created. Had the Kestrel K-350 actually entered production and the estimated workforce of more than 600 been hired, those could have amounted to close to $20 million in state job-creation tax credits. But Kestrel's payroll never reached one-tenth of that and the actual employment tax credits paid topped out at just over $700,000. Another part of the deal, for up to $90 million in federal tax credits facilitated by the Wisconsin Housing and Economic Development Authority, collapsed, with Kestrel only receiving about $9 million of those credits.

Kestrel Aviation was formed by former Cirrus chairman and co-founder Alan Klapmeier in 2010 and originally intended to build in Brunswick Landing, Maine, but later opted for Superior when state and local officials presented the company with a more lucrative incentive package. However, the company retained its rented facilities in Brunswick until it was evicted by the Midcoast Regional Redevelopment Authority in late 2017 for non-payment of rent.

In 2015 Kestrel merged with Eclipse Aerospace to form One Aviation and Klapmeier became CEO of the combined company. In 2016 One announced that it was devoting its resources to developing an improved version of the Eclipse with more speed, range, and cabin space, the EA700, while ceasing production of the Eclipse 550 and suspending the K-350 project.

In addition, last month One Aviation and partner company Eclipse Aerospace entered into a voluntary agreement with officials at Chicago Executive Airport (PWK) to vacate the factory-owned Eclipse service center at the airport by May 31. Last month Klapmeier told **AIN**, "We intend to open a new facility in the Chicago area within the next few weeks." He would not give an exact date for the transition or the location of the new service center.

The agreement, obtained by **AIN**, notes that airport officials served the company with a notice to terminate its lease at PWK last October, followed by a Forcible Entry and Detainer Action in February. Terms of the voluntary surrender agreement include specified deadlines for One Aviation's payment of approximately $50,700 in rent to the airport from February 2018 through the end of May.

Moving Forward

Meanwhile, the company works to accomplish as much as possible with limited resources. Last December, One Aviation relocated from the former Eclipse Aviation headquarters to smaller offices at its primary assembly facility at Albuquerque International Sunport.

Following two rounds of layoffs in 2017 and halting Eclipse 550 production, the remaining workforce has focused on preserving a revenue stream through maintenance, upgrades, and training to support the existing Eclipse fleet, while working to bring the larger Eclipse 700 to fruition.

"Work has continued on new product development, including the path to the EA700 and other upgrades to current aircraft," Klapmeier said. ■

AIR ELITE

The Difference Is The Difference

CONGRATULATIONS

to the **Air Elite Diamond Service** locations recognized in the *2018 AIN FBO Survey*

Recognized Air Elite Diamond Service Locations

Alliance Aviation Services	KAFW
Clay Lacy Aviation – Seattle	KBFI
Dassault Falcon Service	LFPB
Grafair Jet Center	ESSB
Harrods Aviation Luton, London	EGGW
Hawker Pacific – Sydney	YSSY
Hill Aircraft	KFTY
J.A. Air Center	KARR
Jackson Jet Center	KBOI
Jet Aviation – Bedford	KBED
Jet Aviation – Houston	KHOU
Jet Aviation – WA/Dulles	KIAD
Jet Aviation – Geneva	LSGG
Jet Aviation – Zurich	LSZH
Jet Aviation – Nassau	MYNN
Jet Aviation – Dubai	OMDB
Jet Aviation – Palm Beach	KPBI
Jet Aviation – Teterboro	KTEB
Lane Aviation	KCMH
Northeast Air	KPWM
Provo Air Center	MBPV
Ross Aviation – Long Beach	KLGB
Skyservice FBO – Montreal	CYUL
Skyservice FBO – Calgary	CYYC
Skyservice FBO – Toronto	CYYZ
Swift Aviation Services	KPHX
World-Way Aviation	SDCO

Discover the Diamond Difference at any of our 79 locations – AirEliteNetwork.com

World Fuel Services®

Lockheed will build the Low-Boom Flight Demonstrator that NASA will fly to measure the noise signature and community response to supersonic booms over land in the U.S.

Supersonic R&D continues with NASA, Lockheed deal

by Kerry Lynch

NASA is moving into the next phase of its supersonic research, awarding a $247.5 million contract to Lockheed Martin Aeronautics to build an X-plane called the Low-Boom Flight Demonstrator (LBFD). The 94-foot-long LBFD will be used to test new technologies that would result in a low-boom, or softer "thump," as NASA officials describe it, rather than the traditional sonic boom that has accompanied supersonic speeds and served as the environmental barrier to such flight over land.

The LBFD, which will fly at Mach 1.4 at 55,000 feet, will be developed over the next two years in preparation for first flight in 2021. A three-year test program will follow that will involve measuring the noise signature and community response to supersonic flight, and accompanying thump, over land. NASA will select a series of communities representing a variety of demographics to conduct the flights. The communities will subsequently be surveyed for reaction to the noise.

The goal is to gather data that could be presented to regulators such as the FAA and the International Civil Aviation Organization for evaluating future regulations regarding supersonic flight.

The aircraft was built "as a system" that is long and slender, with a shape that controls the strength and position of shockwaves. But it will be developed with existing components to lower risk. The canopy for instance, is off the T-38, landing gear is from the F-16, and a number of other components are from F-16s and F-18s. The aircraft will use the F-18E/F's GE F414 engine.

The airplane is not intended to be sized up for commercial flight or to be used for defense purposes, but rather solely to design technologies that could one day transfer into military or commercial applications, program team officials stress.

Jaiwon Shin, associate administrator of NASA's Aeronautics Research Mission Directorate in Washington, called the announcement "history-making," saying "NASA is opening a new era: the 21st century X-plane era." Noting that NASA in the past century had flown a number X-planes with the U.S. Air Force and industry to achieve aerospace breakthroughs, he said, "Our long tradition of solving the toughest problems of flights through X-planes continues."

Lockheed was the sole bidder for the contract, and the award follows a contract the company received in February 2016 to develop a 15-percent scale Quiet Supersonic Technology (QueSST) preliminary design model that was the precursor of an LBFD. The QueSST was used to demonstrate that an LBFD design could achieve the mission objective of creating the softer thump rather than loud boom while flying over land. NASA and Lockheed engineers and experts concluded that the technologies could achieve the objective and finalized the design last year.

In recent years, Congress has demonstrated a heightened interest in taking a fresh look at restrictions placed on supersonic flight, writing various measures directing the FAA to evaluate whether regulations could be updated.

Supersonic Experience

For Lockheed Martin, this is a continuation of a long history of supersonic flight with a portfolio that includes the Mach 3 SR-71 reconnaissance aircraft, along with the F-16, F-35, and F-22 fighters.

Late last year, Lockheed Martin signed a memorandum of understanding with Aerion to explore development of the Aerion AS2 supersonic business jet. Under the MoU, Lockheed Martin and Aerion planned to develop a framework this year for all phases of the program, from engineering to certification and production.

But the Aerion work is separate from this project, involving a different design that does not eliminate boom but rather focuses on supersonic flight over water and subsonic flight over land, said Dave Richardson, director for air vehicle designs and technologies at Lockheed Martin Skunk Works. He left open the possibility that technologies derived from this project could make their way into subsequent Aerion designs.

Aerion agreed, adding in a statement following the contract award: "Aerion will closely follow the results of the QueSST program and will evaluate how it might incorporate low-boom technology in future aircraft beyond the AS2. We congratulate Lockheed Martin on this win. Together we expect to lead the industry in the advancement of commercial supersonic aircraft." ■

Elbit completes purchase of Universal

Elbit Systems has finalized its purchase of Universal Avionics Systems for approximately $120 million, and the now wholly owned Elbit subsidiary "will continue to operate, with the same management and workforce and under the same name," according to Elbit.

The acquisition combines Universal's expertise in business aircraft avionics manufacturing and NextGen avionics development with Elbit's commercial aviation avionics products, which include head-up displays and enhanced flight vision systems. Elbit now has direct access to the Part 25 business aircraft market and potential opportunities to combine its products with Universal's to offer integrated cockpit solutions for business aircraft manufacturers as well as the retrofit market.

"We have been providing unique enhanced flight vision and head-up display systems for commercial aviation platforms for the last several years and see this business line as a key growth engine," said Elbit Systems president and CEO Bezhalel Machlis. "Elbit Systems and Universal Avionics share the same DNA of innovation and technological leadership, and our combined portfolio creates synergies that will strengthen our competitive position. I welcome the management and employees of Universal Avionics to Elbit Systems, and I believe that their skills and experience will greatly contribute to our activity in the commercial aviation area." **M.T.**

ABACE News Briefs

Global 7000 Gets Longer Legs

Bombardier Business Aircraft is boosting the range of its flagship Global 7000 by 300 nm, positioning the four-zone business jet to claim the long-range title at 7,700 nm. The range increase was announced at ABACE 2018 after the Global 7000 completed several long-haul flights to destinations including Sydney, Dubai, and Hawaii. This new range will open up city pairs such as New York to Hong Kong and Singapore to San Francisco. The Global 7000 first flew in November 2016. Bombardier expects the aircraft to enter service during the second half of the year.

Nanshan Jet Adds Ground Services Business

Nanshan Jet has increased its portfolio of services with the recent founding of a wholly owned subsidiary, Xin Long Business Aviation Services Group. Launched late last year Xin Long Business Aviation provides ground services, navigation support, fuel supply, catering, and service consulting. Xin Long primarily has focused on supporting Nanshan Jet charter and managed aircraft but plans to gradually expand the business into an established ground support brand in China. In addition to building up its ground-handling businesses, Nanshan Jet is looking to increase its aircraft management services. The Yantai, China-based company has 10 aircraft in its management fleet.

Million Air Looks Ahead to New Beijing Airport

U.S.-based FBO chain Million Air, which has a joint venture with CJet to manage the lone FBO at Beijing Capital International Airport, is looking forward to the opening of Beijing's second airport, Daxing International. When completed in September 2019, it will be the world's largest international airport. CJet is a subsidiary of the Beijing airport authority, and its joint venture with Million Air will also operate the only FBO facility at Daxing. Planned for construction is a 7,430-sq-m (80,000-sq-ft) terminal which, like the facility at Beijing Capital, will house CIQ and security, along with private lounges and all the necessary passenger and crew services. Plans for the new airport include than 100,000 sq m (25 acres) of ramp space reserved specifically for business aviation.

Bolen: Asian Market Maturing, but Challenges Remain

ABACE has been undergoing a slow evolution, said Ed Bolen, president and CEO of ABACE co-host NBAA. Unlike other trade shows, he said, ABACE also brings together government leaders to educate and discuss key policies that would help advance the industry. But Bolen acknowledged that challenges remain: "We would like to see more airports and more business aviation airports." The industry also is encouraging more policies that recognize the value of business aviation.

Bombardier Support Checklist

We are committed to exceeding your expectations.
In 2017, we improved our performance and have plenty to show for it.

Increased responsiveness and faster turnaround times

Enhanced worldwide presence with additional technicians, service facilities and mobile response team vehicles

OEM tailored in-service products, training and services

We want to hear from you. Vote for us in the upcoming AIN survey.

businessaircraft.bombardier.com

BOMBARDIER

Exceptional by design

Bombardier boosts its worldwide support network

Step inside any of Bombardier Business Aircraft's nine world-class service centers and you will be delighted by the new customer amenities.

All the entrance foyers, offices and meeting rooms have been upgraded to a high standard to provide visiting flight crew and maintenance personnel with comfortable surroundings.

With a focus on providing exceptional support, Bombardier set out to further heighten the customer experience by encouraging customers to bring their business jets to a highly skilled Bombardier service center where they will benefit from know-how only the OEM can provide.

As a result, Bombardier embarked on a plan to ensure it reaches its customers – wherever and whenever – by expanding its worldwide footprint and enhancing processes. The new Bombardier Customer Experience organization, based on three functional teams – Products, Services and Delivery – offers Bombardier customers peace of mind and satisfaction knowing that their aircraft are in good hands at a Bombardier facility. One of the new Customer Experience team's first initiatives was to launch the "bring your jet home" campaign, encouraging customers to visit one of Bombardier's top-notch service centers around the world to benefit from the OEM's expertise, knowledge and new product offerings.

Customer driven expansion

Chris Debergh, Vice President of Delivery for Customer Experience, Bombardier Business Aircraft, leads a 1,600-member team that supports the rapid growth of Bombardier's service centers, as well as the timely worldwide distribution of parts.

"As the Bombardier fleet continues to grow, so does our service center network. We are currently focused on opening new facilities for scheduled maintenance and expanding existing ones, so we can provide our OEM expertise and knowledge, whenever and wherever customers need it," says Debergh.

With its growing fleet in China, Bombardier opened the Tianjin Service Center in April 2017, and the facility has since received numerous certifications. The Tianjin Service Center recently completed its first 60-month inspection on a Global aircraft and a 120-month inspection on a Challenger aircraft.

Another important step in Bombardier's commitment to reaching more of its customers around the world was the inauguration of its London Biggin Hill Service Center in May 2017.

Less than a year after opening its Biggin Hill Service Center, Bombardier expanded the facility with an additional hangar, which is now operational.

With an installed base of more than 600 Bombardier business aircraft in Europe, the London Biggin Hill Service Center is well positioned to provide world-class heavy maintenance and support services to Bombardier customers and operators in the region. The London Biggin Hill Service Center also offers numerous aftermarket products to further enhance the flight experience on board a Bombardier business jet, including Ka-band, Pro Line 21, Take-off Safety Enhancements and interior refurbishment modifications, among many others.

"Bombardier's investment in, and efforts to ramp up capacity at, its services centers have made it possible to turn out aircraft faster and have brought greater value and peace of mind to customers," says Debergh.

Bombardier is also driving global operational standardization across nine maintenance, repair and overhaul (MRO) facilities and three global parts distribution centers since implementing a Customer Experience protocol. According to Debergh, this keeps customers "in the loop when an aircraft visits our facilities." Customers can follow the progress and make real-time decisions regarding any new work that may arise.

"We survey our customers constantly and move fast to address any concerns that are raised. We promote a culture of transparency, open communication and accountability. Many of our customers tell us they are so pleased, they would recommend Bombardier to colleagues," adds Debergh, highlighting the positive response to the service initiatives.

Another of Bombardier initiatives in 2017 was to open a state-of-the-art interior-design center at Bombardier's Tucson Service Center – the largest support facility in its worldwide network – thereby replicating the refurbishment capabilities established in Singapore a couple of years ago.

"Our interior designers work with you to understand your preferences to propose the best looking cabin for you and your needs," says Debergh.

Bombardier continues to explore opportunities to further increase its footprint, "because any successful MRO business will eventually run out of hangar space," says Debergh, adding that more hangar space will also be required to maintain the new Bombardier Global 7000 aircraft – the industry's largest and longest-range business jet – which enters service in 2018.

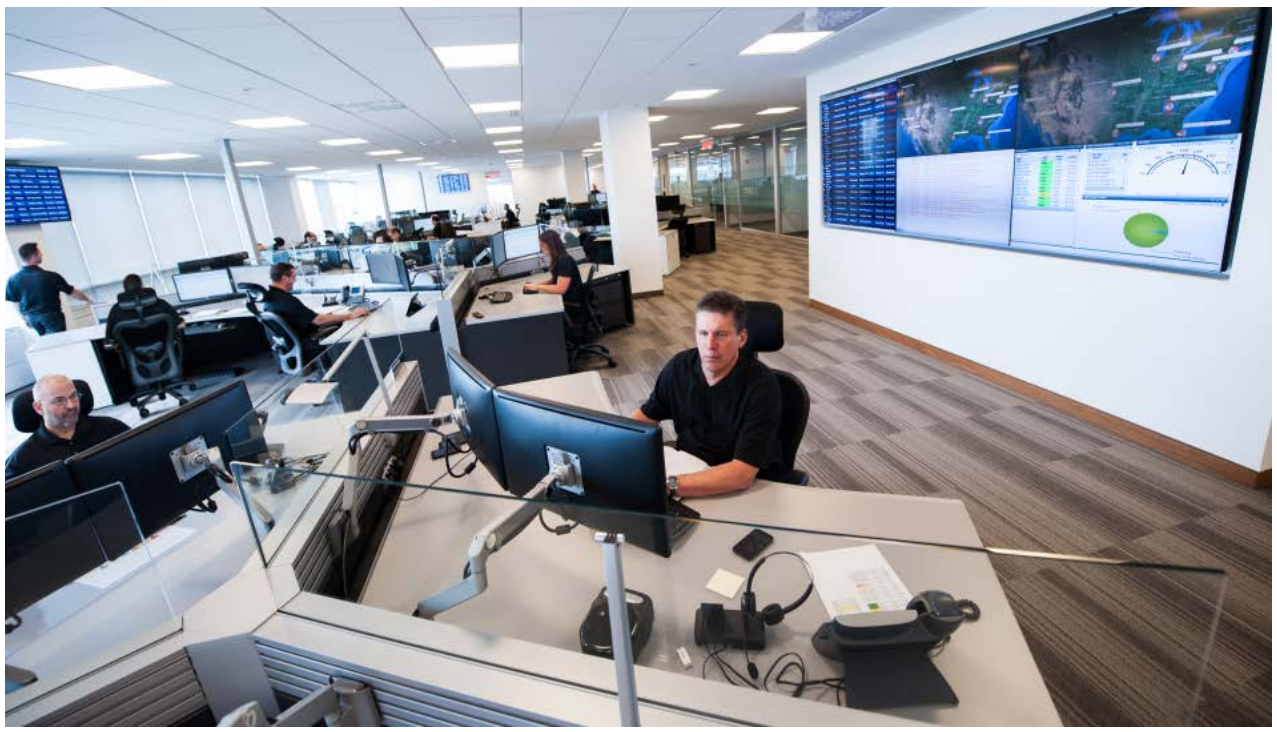
Just what facility will expand next will be "customer driven," adds Debergh.

Delivering added value

Design, technology and consumer electronics are constantly evolving – Bombardier believes business aircraft should do the same.

In 2016, Bombardier became the first aircraft manufacturer to offer the revolutionary Ka-band high-speed internet connectivity system in a business aircraft cabin. The system is now available on new Challenger 650 aircraft and Global series aircraft, and as a retrofit on Challenger 604, Challenger 605, and Challenger 650 aircraft, as well as on all Global aircraft, through Bombardier's extensive service network.

The aircraft maker also partnered with Duncan Aviation to bring to market Gogo Business Aviation's 4G next-generation air-to-ground (ATG) internet system, known as Gogo Avance L5, on new Bombardier business jets, and as a retrofit on in-service aircraft. The system uses the Gogo Biz 4G ground network of more than 250 towers, providing reliable connectivity over the continental U.S. and large parts of Canada and Alaska.



Bombardier's service centers allow customers to optimize downtime on their aircraft by pairing the installation of products like Ka-band or Gogo Avance L5 installation with a scheduled maintenance check and other important upgrades, such as Automatic Dependent Surveillance-Broadcast (ADS-B Out V2).

Aviation authorities such as FAA and EASA require all business aircraft to be equipped with ADS-B Out V2 by January 1, 2020, or face being grounded for non-compliance. Bombardier believes that if a customer waits too long, it might be too late. As such, it recommends combining the installation of ADS-B Out V2 with an upcoming maintenance event at one of its worldwide service centers to save time and money.

"Our technicians combine upgrades with maintenance events to ensure minimal interruptions," explains Debergh.

Customers have responded positively to the opportunity to have new flight deck and cabin upgrades installed while an aircraft is visiting Bombardier for maintenance or a 96- or 120-month inspection, Debergh adds.

Increased responsiveness

In between service center visits for maintenance, inspections and upgrades, Bombardier Business Aircraft customers can rely on a multi-layered global network with more than 100 sites for support.

Two large parts distribution hubs in Chicago and Frankfurt help create one of the most expansive parts distribution networks in the business aviation industry. The two facilities, strategically located at large airline hubs, have a combined footprint of 292,000 square feet (27,126 square meters) and ship more than 2,300 line items every day to customers around the world, as well as to nine regional parts depots and nine service center locations.

The two new Maintenance Control Centers in Linz, Austria, and Wichita, Kansas, are connected to the centralized Customer Response Center and provide customers with a single point of contact to a team of aviation professionals with an in-depth understanding and knowledge of aircraft maintenance. The Customer Response Center is a one-stop resource that puts the proper team into motion to support a customer in any situation.

The six new Line Maintenance Stations in Europe (Linz, Austria; Cannes and Nice, France; Milan and Olbia, Italy; and Luton, UK) are also successful. Staffed with expert technicians, they are equipped with specialized test equipment for in-depth troubleshooting and unscheduled maintenance.

"The addition of the line maintenance stations is an integral part of our overall strategy to enhance OEM support for our European customers, including the opening of our brand-new heavy maintenance facility at London Biggin Hill Airport," explains Debergh.

With 14 Mobile Response Team vehicles placed at strategic locations in the United States and nine in Europe, the team provides line maintenance support, complementing the tip-to-tail heavy maintenance services provided by Bombardier's service and support network in the region and worldwide.

Bombardier's bolstered support network does not stop at service centers and its Mobile Response Team: the OEM is also looking to grow its team of technicians.

"We are constantly on the lookout for the best of the best," says Debergh. "We are currently recruiting in all locations for avionics, interior, quality, project management, and more." **BOMBARDIER**

No U.S. jet fatal accidents in first quarter

by Gordon Gilbert

There were no fatalities resulting from U.S.-registered business jet accidents in the first quarter of this year compared to one in the same period last year, according to **AIN** research. However, there were two nonfatal accidents in each of the quarters, and the number of incidents doubled, to 16, in the first quarter from eight a year ago. Part 91 accounted for all the accidents in the first quarter of 2017; Part 91 and Part 135 accounted for one accident each in the first three months of this year.

A Beechjet 400A on a Part 135 flight suffered substantial damage during a landing overrun on Feb. 4, 2018 and became the 13th aircraft (and seventh business jet) to be safely stopped by an Engineered Material Arresting System (EMAS) at the end of the runway. The cause and circumstance of the mishap are still under investigation, but there were no injuries to the four occupants.

A Cirrus SF50 mishap was among the incidents in the first quarter. On Feb. 26, 2018, the pilot of the single-engine business jet being operated as a Part 91 personal flight lost directional control on the landing rollout and went off the side of the runway into a snow berm. No one was hurt. Another incident in which no injuries were reported involved a Dassault Falcon 2000 that landed on grass and snow adjacent to the runway on Jan. 7, 2018.

The only U.S.-registered business jet fatal accident in all of last year was the March 24, 2017 crash involving a single-pilot, Sierra-modified Cessna Citation 500 on a Part 91 business flight. The twinjet crashed while being radar vectored for an IFR approach in night VMC.

Fatalities from crashes of N-numbered business turboprops numbered seven in the first quarter, compared to two in the same period last year, while the number of nonfatal crashes plunged from eight in 2017 to two this year. All three fatal accidents in the period this year occurred in February 2018 while operating under Part 91. In this year's first quarter, there were no accidents of Part 135 on-demand operations; last year there were three nonfatal mishaps.

On Feb. 18, 2018, a Socata TBM 700A crashed while on an IFR approach in IMC, killing the pilot and passenger. The turboprop single was operating as a Part 91 personal flight.

Just three days later, on Feb. 22, 2018, three people were killed in the crash of a Cessna Conquest 441. The pilot reportedly lost control of the twin turboprop during the departure climb in night IMC on a planned Part 91 business flight.

On Feb. 27, 2018, two people died in the crash of a Quest Kodiak 100 while on a Part 91 personal flight. The single-turboprop overflew its intended destination, made a right turn circling back to the airport, overflew it again, and entered a left turn. The airplane continued the left turn, again overflew the airport, and went into a river that was about one mile from the airport.

Non-U.S.-registered Operations

The 12 fatalities from two non-U.S.-registered business jet accidents in the first three months of this year may have been the greatest loss of life for this segment on record for a single quarter. The March 11, 2018 crash of a privately operated Turkish-registered Bombardier Challenger 604 en route from the UAE to Istanbul accounted for 11 of those who were killed. Flight tracking data showed the aircraft reaching FL360 about 30 minutes after takeoff when it suddenly entered a pronounced descent. The aircraft then crashed in mountainous terrain. Weather conditions at the accident site included thunderstorms, heavy winds, and rain.

On Jan. 5, 2018, the captain of an Austria-registered Gulfstream G150 died in what can only be described as a freak accident. According to an official report, the twinjet was being readied for flight, the APU was running, the cabin attendant was inside, and the cabin was being heated. The captain was on the ramp preparing to open the passenger door. "For some reason the cabin was over-pressurized and the door blew open by force," striking the captain, who later died from his injuries.

Non-N-numbered business turboprops significantly improved their accident record quarter over quarter, with one fatality in the first three months of this year versus 13 killed in the same timeframe last year.

The one fatality in an accident involving a non-U.S.-registered turboprop in the first quarter occurred on Jan. 10, 2018 when a Kenyan-registered Cessna 208 failed to clear a fence on takeoff and then crashed, killing one person on the ground. ■

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.

U.S.-registered Business Jet and Turboprop Accidents/Incidents Worldwide (1Q/2018 vs. 1Q/2017)

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	2	3	1	3	0	0	1	0	0	0	0	0
Nonfatal accidents	2	2	1	2	0	0	1	0	0	0	0	0
Fatal accidents	0	1	0	1	0	0	0	0	0	0	0	0
Fatalities	0	1	0	1	0	0	0	0	0	0	0	0
Incidents	16	8	10	6	0	0	6	2	0	0	0	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	5	9	5	6	0	0	0	3	0	0	0	0
Nonfatal accidents	2	8	2	5	0	0	0	3	0	0	0	0
Fatal accidents	3	1	3	1	0	0	0	0	0	0	0	0
Fatalities	7	2	7	2	0	0	0	0	0	0	0	0
Incidents	11	12	8	11	0	0	3	1	0	0	0	0

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

Involving Non-U.S.-registered Business Jets/Turboprops

Business jets	Total		Private		Charter		Other*		Unknown	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Total accidents	3	4	2	2	1	1	0	1	0	0
Nonfatal accidents	1	4	0	2	1	1	0	1	0	0
Fatal accidents	2	0	2	0	0	0	0	0	0	0
Fatalities	12	0	12	0	0	0	0	0	0	0
Incidents	4	4	2	4	1	2	1	0	0	0

Business turboprops	Total		Private		Charter		Other*		Unknown	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
Total accidents	4	11	0	8	3	0	0	1	1	2
Nonfatal accidents	3	7	0	5	2	0	0	0	1	2
Fatal accidents	1	4	0	3	1	0	0	1	0	0
Fatalities	1	13	0	12	1	0	1	1	0	0
Incidents	1	2	0	1	1	0	0	1	0	0

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

ABACE News Briefs

HondaJet China To Launch FlightJoy

Honda Aircraft Chinese dealer HondaJet China (Honsan General Aviation Co.) plans to launch a new charter operation at Guangzhou Baiyun International Airport and to build an 8,800-sq-m addition to the dealership facilities there. In October, Honda Aircraft appointed Honsan General Aviation as its sales, service, and support provider in China, Hong Kong, and Macau. Since that presence was established, the HondaJet has attracted "tremendous interest" from buyers in the region with eight orders already in hand. The company hopes to deliver the first HondaJet into China by year-end.

ASG: Asian Bizjet Fleet Growing

Asian Sky Group's *Asia Pacific Business Jet Fleet Report*, released at ABACE 2018, tallies 1,179 business jets in the Asia-Pacific fleet at the end of 2017, a 2.1 percent increase over the 2016 total. During the year, 115 business aircraft were added to the fleet, consisting of 54 new and 61 preowned airplanes. Bombardier, Gulfstream, and Textron Aviation's Cessna are the top three OEMs in the region, with 26 percent, 25 percent, and 19 percent of the total fleet, respectively.

AsBAA Broadens Influence

Gary Moran, vice chairman of the Asian Business Aviation Association (AsBAA), said the association's first priority is to understand the existing landscape before focusing on how AsBAA could increase its participation in the industry and welcome new members. He also outlined how the association is reaching out in specific parts of the region. In Singapore, the association is working with Changi Airport Group, and in the Philippines AsBAA has a strong chapter. At the same time, Moran said AsBAA's efforts with Malaysia have been reignited, and the association is turning its attention to Indonesia and the Mekong Region. For the Mekong region AsBAA intends to bring together Vietnam, Thailand, Myanmar, Laos, and Cambodia under one chapter.

Jetcraft 'Positive' on Preowned Market

"Things are moving in a very positive way," David Dixon, president of aircraft brokerage Jetcraft Asia, said last month at ABACE 2018, commenting on the regional market for preowned aircraft. Averse to anything but new aircraft a few years ago, buyers in the region have accepted preowned models, and sales now equal those of new airframes in the Asia-Pacific region, reflecting greater understanding of aircraft and better aftermarket support capabilities in the region, Dixon said.

G500 Sets Speed Records

Gulfstream Aerospace's new G500 set eight new city-pair speed records on continent-to-continent flights, the company announced at ABACE 2018. The record-setting flights were undertaken as part of a customer-focused world tour.

OPTIMUM FREEDOM AND FLEXIBILITY

The possibilities are infinite and all things are possible when you travel with OJets.

OJets focuses on providing a truly bespoke luxury experience to fulfil your every need.

Contact our 24/7 concierge for your travel itinerary.

Concierge Desk

+65 6350 7199

charter@ojets.com

Textron suspends Citation Hemisphere

by Mark Huber

Citing ongoing problems with Safran's Silvercrest engine, Textron Aviation announced on April 18 that it has suspended work on its large-cabin Cessna Citation Hemisphere. Textron chairman and CEO Scott Donnelly said the company is "waiting to see how the engine plays out. And then, based on that, we'll make our decisions and move forward knowing what the performance of the engine is."

Textron Aviation has suspended its large-cabin Citation Hemisphere program as it waits for issues with the twinjet's Safran Silvercrest engines to "play out."

Some aviation analysts think that Safran's ongoing engine problems might give Textron an off-ramp from, or at least further delay entry into, what was promising to be an already crowded new-model, large-cabin market. "Hemisphere always seemed a bit of a leap for Cessna, in terms of resources and market position," said Richard Aboulafia, vice president of analysis at the Teal Group. "It's particularly hard to make the jump to the top half of the market, where only Bombardier, Gulfstream, and Dassault play.

"The Silvercrest's problems might serve as a rationale to kill the program. Alternatively, Cessna could simply go with Pratt & Whitney Canada's PW800, as Dassault did. Looking at the spec change between the Falcon 5X and 6X, there wouldn't be much of an impact to the Hemisphere's performance goals," he said.

Rolland Vincent, managing director of JetNet iQ, believes Textron is likely to defer the program rather than stay on the pre-announced program schedule. "They have still to certify and then sell bunches of Longitudes, which over time will provide them a natural step-up customer base for the redefined Hemisphere program," Vincent said. "This is a major body blow to Safran, but not unexpected."

Analyst Brian Foley thinks it still makes sense for Textron Aviation to pursue a large-cabin program, even if that means delaying it so it can be reworked with a new engine. "Whatever the outcome, it still behooves Cessna to eventually offer a new, top-of-the-line flagship product to allow loyal customers to trade up to and remain in the family," he said.

As late as December 2017, Textron Aviation had reaffirmed its commitment to the troubled Silvercrest program, even though the engine's only other commercial customer, Dassault Aviation, then had canceled its Falcon 5X program due to continuing development problems with the engine. The problems eventually led Dassault to launch the Falcon 6X program in February and turn to P&WC's PW800-series engine for that aircraft. It also prompted Safran to take a $720 million write-down against the Silvercrest program in 2016.

"We're committed to being an industry leader and will not back off on the performance specifications we want for the Citation Hemisphere," a Textron Aviation spokesperson told **AIN**. "We remain in touch with Safran on the 18- to 24-month delay of the Silvercrest engine."

A Safran Aircraft Engines spokesman said the company "is fully committed to continue and complete the development of the Silvercrest engine, all the way to certification, with our primary objective being to deliver to Cessna an engine in compliance with the specifications of its new Hemisphere. We are working on the high-pressure axial compressor optimization and improvements, and all the progress made has been shared regularly with Cessna." ■

Congress to address shared flight operations

by Kerry Lynch

While the U.S. Supreme Court last year declined to take action on the debate surrounding flight-sharing operations, the issue is now working its way through Congress and may get settled through long-term FAA reauthorization.

In April, U.S. Sen. Mike Lee (R-Utah) introduced a bill to clear the way for flight-sharing operations. That bill is not expected to move forward independently, but it could find its way to the larger, more comprehensive FAA reauthorization bill that is pending in the Senate.

The legislation is one of a few measures that have emerged in the wake of the court decisions that back the FAA's move to strike down Flytenow's website that connected pilots with potential passengers who would share expenses on pre-planned Part 91 flights. The FAA essentially deemed that activity illegal charter, determining that pilots who solicit passengers using the website are "common carriers" and subject to commercial transportation requirements.

Lee's bill, "The Aviation Empowerment Act," directs the FAA to revise regulations within 60 days of enactment to ensure a person who holds a pilot certificate is able to communicate with the public in any way that person deems appropriate to facilitate a flight in which the pilots and passengers share operating expenses. The bill adds that "such flight-sharing operations...shall not be deemed a common carrier."

The bill language would specify flight for compensation "requires the intent to pursue monetary profit, but does not include flights in which the pilot and passengers share aircraft operating expenses or the pilot receives any benefit."

It further specifies that personal operator is a "person providing air transportation of persons or property for compensation or hire in aircraft that have eight or fewer seats, provided that the person holds a private pilot certificate pursuant to Subpart E of Section 61 of Title 14, Code of Federal Regulations (or any successor regulation)," and adds that a flight conducted by a personal operator does not constitute a common carrier requiring a Part 119 or 135 certificate, nor is that person a commercial operator.

The comprehensive House FAA reauthorization bill, H.R. 2997, contains similar language. Section 617, Pilots Sharing Flight Expenses with Passengers, would give the FAA 90 days to make available "clear and concise guidance that describes how a pilot may share flight expenses with passengers."

This guidance would include examples where pilots and passengers could share expenses, when they may not, and what types of communications can be used to arrange flights where expenses are shared.

The House late last month was expected to take up consideration of the legislation. When the Senate may take action on its version of FAA reauthorization legislation is less clear, as is whether a measure such as Lee's bill will make its way to a Senate bill. ■

News Briefs

Microburst Causes Hangar Collapse at HOU

A violent storm on April 4 in Houston destroyed a hangar at the Jet Aviation facility at William P. Hobby Airport (HOU). The 30,000-sq-ft structure, leased to charter provider Jet Linx, and which contained a private passenger lounge, collapsed during a "wet microburst" with winds exceeding 80 mph that spread debris hundreds of feet from the site. According to Jet Aviation, eight aircraft were involved, including four in the hangar. Videos of the scene show a pair of Bombardier Learjet 45s, a Bombardier Challenger, and a Mexico-registered Dassault Falcon among the wreckage. Jet Linx confirmed that five of the aircraft in its fleet were affected. No injuries were reported.

Cirrus Aircraft Wins Collier Trophy for SF50 Jet

The National Aeronautic Association's (NAA) 2017 Robert J. Collier Trophy winner is Cirrus Aircraft for its SF50 Vision single-engine jet. The NAA cited the Duluth, Minnesota-based company's efforts in "designing, certifying, and entering-into-service the Vision Jet—the world's first single-engine general aviation personal jet aircraft with a whole-airframe parachute system." The Collier Trophy is awarded annually "for the greatest achievement in aeronautics or astronautics in America... during the preceding year." It will be formally presented at the Annual Robert J. Collier Trophy Dinner on June 14.

NARA: U.S. Tax Law a Boon for Aircraft Sales

The National Aircraft Resale Association (NARA) said the recently enacted U.S. tax law—which allows 100 percent bonus depreciation for new and preowned aircraft and lowers corporate taxes and effective pass-through rates—will help the business aviation industry turn the corner this year. "Our NARA-certified brokers have recognized a change in the marketplace just in the first few months of 2018 since the U.S. tax reform was enacted," said NARA chairman Brian Proctor. "The market is generating more activity and demand, and that is likely to increase as the economy continues to heat up, interest rates rise, and most indicators point to a general economic upturn."

Gulfstream Reaches 300th G650 Delivery Milestone

Gulfstream has delivered the 300th G650. The first aircraft entered service in December 2012, and the model continues to be in high demand, the Savannah, Georgia manufacturer said. "The continued popularity and demand for the G650 affirms its position as the leader in the ultra-long-range segment," said Gulfstream president Mark Burns. "The aircraft amassed an impressive backlog of orders when we announced it in 2008, and that backlog is still strong today."

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

Falcon 8X

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

DASSAULT AVIATION

ENGINEERED WITH PASSION

Congress acts on reauth, bill excludes ATC reform

by Kerry Lynch

House Transportation and Infrastructure (T&I) Committee leaders on April 13 re-introduced a revised FAA reauthorization bill that is absent the air traffic control organization reform measure that had been a stumbling block to the comprehensive aviation legislation. The new bill, which was jointly introduced and supported by both Republican and Democratic leaders on the committee, would reauthorize FAA programs for five years and address a range of aviation safety and technology advancement issues.

While the bill is revised to account for the shelving of the ATC provision and includes a few other new measures, House leaders have indicated a desire to limit amendments and controversial measures in particular to smooth the path for the bill to passage.

The revised bill was introduced as H.R.4 and packaged with the Disaster Recovery Reform Act (DRRA), which is designed to help communities to prepare for and respond to disasters.

"Our aviation system is essential to our economy and to the American way of life," said T&I chairman Bill Shuster (R-Pennsylvania) in introducing the bill. "This bill provides many important reforms that will help U.S. manufacturers and job creators lead in a very competitive global marketplace. This legislation ensures long-term investment and stability in aviation infrastructure for America's large, small, and rural communities, and it addresses issues to help maintain the safety of our system."

Rep. Pete DeFazio (D-Oregon), who had been a chief opponent to the ATC measure in earlier FAA reauthorization, added, "I'm glad we finally had the opportunity to come together and introduce a bipartisan, long-term FAA reauthorization bill, a bill that gives the FAA long-term funding it needs to do its job and includes mandates to improve aviation safety, to continue leading the world in aviation research and innovation, and to make needed and targeted reforms to critical aviation programs."

The bill would authorize a $3.35 billion airports budget each year through Fiscal Year 2023, scale up facilities and equipment funding from $2.92 billion this year to $3.26 billion in Fiscal Year 2023, and gradually increase the FAA's operations account to as much as $11.329 billion by 2023 (about $1.1 billion more than Fiscal Year 2018 levels).

Aside from funding levels, the bill address myriad issues. While the legislation would not alter the ATC organization, it does seek biennial studies on the costs incurred in air traffic services by each user segment. Such studies in past have been used to justify proposed changes in the ATC organization and proposals to shift the amounts users pay into the system.

On the environmental front, the bill seeks a Government Accountability Office study of the benefits, costs, and other impacts of a phaseout of Stage 3 aircraft. General aviation operators, along with commercial operators, would be included in the study.

The bill further would call for a study on the potential health effects of aircraft noise, including sleep disturbance and elevated blood pressure. This study is to look at high-impact areas such as in California and New York. It further seeks community involvement in FAA NextGen projects in metroplexes. And it would facilitate use of unleaded aviation gasoline.

Simplying Processes

As anticipated, the bill would address FAA certification reform, creating an advisory committee to conduct a comprehensive review to advise on policies that are affecting certification. In addition, the bill would direct the FAA to establish performance objectives and track metrics related to aircraft certification activities and provide for fuller use of organization designation authorization. The bill seeks similar reforms for the FAA's Flight Standards Service.

Along with certification reform within the U.S., the bill seeks to smooth the process for U.S. product validations internationally, directing the FAA to promote U.S. aerospace standards and easing the ability to accept foreign safety directives.

In addition to the broad reforms, the bill would seek a comprehensive reform and streamlining of Part 91 through the input of a government/industry task force. Noncommercial general aviation aircraft registration would be extended to 10 years and the aircraft registry would be shielded from closure during a government shutdown.

The bill looks to accommodate a number of new technologies through directives for studies, including on advanced cockpit displays such as synthetic and enhanced vision systems and on supersonic flight. In addition, provisions call for a joint research program with NASA on single-pilot cargo operations and for a new rule authorizing the carriage of property by small unmanned aircraft systems for compensation or hire. Also on the emerging technology front, the bill would establish a remote tower pilot program for rural and small communities.

Further, the bill has a section focused solely on unmanned operations and a roadmap for their safe integration into the National Airspace System.

In the safety arena the bill seeks to support voluntary safety disclosure programs for both operations and maintenance activities, and also would create a formal aviation rulemaking committee to develop recommendations for Part 135 flight and duty time regulations.

Several of the measures are aimed at workforce shortage issues, including a study on maintenance industry technician shortages, opportunities for women in aviation, and the aviation and aerospace workforce of the future.

Other measures seek clearer guidance on pilots sharing flight expenses with passengers and to permanently protect the privacy of operators who want to shield their registration number from real-time public flight tracking. Congress focuses on the growing concerns surrounding cybersecurity with a mandate to review FAA's activities and plans in this arena. Among the many other provisions is a section on improving airline customer service.

"This FAA authorization is the culmination of years of hearings and listening sessions to solicit input from aviation stakeholders, commercial passengers, general aviation pilots, and our colleagues," said Frank LoBiondo (R-New Jersey), chairman of the House aviation subcommittee. "In the truest sense, this legislation represents bipartisan cooperation and compromise to advance the nation's aviation interests and safety in the skies."

Rick Larsen (D-Washington), the ranking Democrat on the aviation committee, also expressed support for the bill, and said, "With this continued commitment to bipartisanship, the difference between the House and the Senate bills is now merely inches apart." ■

NEWS note

Textron Aviation received orders for 52 Cessna Skyhawk piston singles that will help build up China's trainer fleets as well as expand on operations in the country. The orders include a deal for 39 Skyhawks from Hairuo General Aviation and 13 from Hubei Sky-Blue International Aviation Academy. The aircraft are to be delivered this year.

Hairuo, an authorized sales representative and service facility for Cessna piston singles in China, plans to add a few of the 39 Skyhawks to its own fleet, but most will head toward the company's customers, including aviation academies, flight schools, aviation clubs, general aviation operators, and other enterprises.

Hubei Sky-Blue International Aviation Academy, also an authorized Cessna piston single sales and service provider in China, has focused on developing the country's training needs and has acquired Skyhawks since its establishment in 2007. The company is planning to purchase 50 more Skyhawks over the next five years, along with some business jets. ■

News Briefs

Amstat: Bizav Not ADS-B Ready

Less than 40 percent of U.S.-based business jets and turboprops meet the FAA's ADS-B Out equipment mandate, according to data from business aviation information firm Amstat and ADS-B Exchange, a co-op of ADS-B/mode-S/MLAT feeders from around the world. The companies worked together to cross-reference their respective global data sets to identify aircraft with or without ADS-B DO-260B, the avionics requirement that meets the FAA's Jan. 1, 2020 mandate. Specifically, they said 39 percent of U.S.-based business jets and 38 percent of U.S.-based business turboprops are currently known to be compliant.

Supersonic Bizjet Launch Inches Closer, Says Analyst

"We're much closer to a supersonic business jet [SSBJ] being formally launched" as costs and persistent risks related to regulatory, engines, and sonic boom noise are "progressively mitigated," according to aviation analyst Brian Foley. "The final impetus will be from the realization that to command this relatively small but high-value market requires being early to capture finite sales." The FAA is currently re-examining the supersonic flight over land ban, which Foley hopes will result in "much needed guidance and design latitude" in the coming months.

Flexjet Pilots To Vote on Union Decertification

The National Mediation Board will oversee an election this month for pilots at fractional provider Flexjet to decertify Teamsters Local 1108 as their union. This move comes more than two years after the company's 600 pilots voted for representation by IBT 1108. That vote followed the 2013 merger of Flight Options and Flexjet, subsequent combination of the pilot groups in 2015. "As in the past, we respect our pilots' legal right to choose representation," said Flexjet CEO Mike Silvestro. IBT 1108 said the effort "would mean that all Flexjet/Flight Options pilots would go back to being 'at will' employees," and charged that the "decertification petition...has been sponsored and encouraged by company management."

Bose Unveils ANC Headset for Jet Pilots

Bose introduced its first active-noise cancelling (ANC) headset designed specifically for turbine aircraft pilots last month at Sun 'n' Fun 2018. The new FAA TSO C139a- and EASA E/TSO C1-certified ProFlight Aviation Headset, which weighs 4.9 ounces, features an in-ear configuration, three user-selectable levels of active noise cancellation, and Bluetooth functionality. The microphone/down cable can be swapped to either side in seconds without tools. The ProFlight Aviation Headset retails for $999.95 and will start shipping later this month.

THE LIFESTYLE THAT TAKES OFF WITH YOU

The BBJ MAX 7 raises the bar with a class-leading 7,000 nmi range, enabling nonstop travel between global hubs like Dubai and New York. Feel at home in the clouds with 884 ft² of customizable cabin space as you travel with a team, conduct business and arrive refreshed. From work to leisure, let the BBJ MAX 7 take your lifestyle to greater heights.

boeing.com/bbj

BBJ | BOEING BUSINESS JETS

Full-throttle opinion from former NTSB member John Goglia

Beware aviation's record of safety

Like many of you, I, too, celebrate—albeit cautiously—aviation's accident record; or rather the lack-of-accidents record. This past year saw zero fatalities worldwide in commercial passenger jet travel, causing many to laud it as "the safest year in aviation ever."

This statistic includes only "passenger," "commercial," and "jet" flights. There were 10 other airliner accidents (including cargo and turboprop aircraft) that resulted in 79 fatalities, involving crewmembers, passengers, and people on the ground. In the U.S., the last fatal crash involving a scheduled, FAA-certified airline was the 2009 Colgan accident outside Buffalo, New York.

There's no question great strides have been made in managing risk and creating a safer system. I applaud all those who have made the accident rates as low as they are.But lately, I worry, too, that there's been too much patting on the back about this "safety" record. Whenever people equate accident statistics with safety, I am reminded of the famous words of Jerome Lederer: the absence of accidents doesn't mean your operation is safe. (Jerome Lederer is an aviation safety pioneer, widely credited with being the father of the system safety approach to aviation safety.)

Beware Complacency

All this bragging about the accident rate or how safe the system is has me concerned that complacency will rear its ugly head and that people will—consciously or unconsciously—dismiss airline safety concerns because "there hasn't been a fatal passenger airline accident in the U.S. since 2009."

And that complacency is inimical to aviation safety. Complacency, which the Flight Safety Foundation defines as "a feeling of self-satisfaction accompanied by a loss of awareness," is one of the preconditions for the most common human errors that lead to accidents or incidents.

I've been concerned about complacency setting in but was particularly concerned by a quote in a news report attributed to the acting FAA Administrator in response to a DOT Inspector General report highly critical of the FAA's actions regarding suspected unapproved parts. The report found the "FAA's oversight of industry actions to remove unapproved parts is ineffective."

According to the NBC news report, "FAA Acting Administrator Daniel K. Elwell told the investigative unit his agency is reviewing the inspector general's recommendations while also touting his agency's safety track record. 'There has not been a commercial passenger fatality in the U.S. in nine years. It's an amazing safety record that is borne from a collaborative approach to safety,' Elwell said."

Statements like this make my head spin. In the accident involving ValuJet Flight 592, the McDonnell-Douglas DC-9 that went down in the Everglades in 1996 killing all 110 people on board, then-FAA Administrator David Hinson and Secretary of Transportation Federico Peña rushed to the scene of this deadly crash to reassure the public that the airline was safe and if it wasn't, the FAA would have grounded it. Well, just a month later, ValuJet was indeed grounded for serious deficiencies the FAA noted both before and after the crash.

So now, some 20-plus years later, we have an acting FAA administrator assuring us basically not to worry about an IG report on unapproved parts getting onto airlines because the system is so safe. And sure enough, a week later, the FAA issued a press release revoking the repair station certificate of an Arlington, Texas company for, among other things, allegedly overhauling turbine engine bearings for General Electric, Pratt & Whitney, and CFM International engines without using approved data. The company planned to appeal the FAA's emergency order.

So much for not worrying about unapproved parts. I hope the FAA is doing more than just revoking a Part 145 certificate and actually doing something about any of these engine bearings that may be flying around the system. ■

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

EASA proposes tightening FDR/CVR regs | by Gordon Gilbert

An EASA notice of proposed amendment (NPA) aims to improve the reliability of flight recorders. In particular, the aim of the proposal is to increase the robustness of flight recorders to the loss of their power supplies; prevent the premature termination of recordings due to the untimely triggering of negative acceleration sensors; and define the certification requirements for combination recorders and deployable recorders. Comments on the NPA are due by June 27.

Some accident investigations revealed that CVRs have depowered prematurely while they could have kept recording useful information if an alternate power source had been installed. In some cases both the flight data recorder (FDR) and the cockpit voice recorder (CVR) were powered by the same electrical bus, so that a failure of this bus disabled both recorders while the aircraft was still flying. The NPA would require that for newly manufactured aircraft, no single electrical bus failure can terminate the recording on both the CVR and FDR.

New rules would also require that the CVR and cockpit-area microphone are provided with an independent 10 minute backup power source, to which the CVR and cockpit-area microphone are switched automatically.

Several safety investigation agencies have reported reliability issues with negative acceleration sensors, or so-called "g-switches," which are used to stop the flight recorders after a crash impact. In several occurrences involving high levels of airframe vibrations, some g-switches were triggered prematurely and, therefore, recordings stopped before the end of the flight. The NPA proposes a specific reference prohibiting the use of g-switches as a sole means of complying with end-of-recording requirements.

The NPA also contains certification requirements for installation of combination recorders. A combined FDR/CVR recorder "provides savings in weight and maintenance costs," EASA said. "Furthermore, when two combination recorders are installed, this can increase the likelihood that the FDR and CVR data are fully retrieved after an accident."

Finally, the proposed requirements establish the basis for the certification of deployable recorders, a crash-protected flight recorder that is designed to automatically eject from an aircraft in the event of an accident. "The deployable recorder is a technology that can also greatly facilitate the localization of an aircraft after an accident over an oceanic area or a remote area because it is designed to be buoyant and fitted with an ELT," EASA said. ■

NEWS note

Fokker Techniek announced at ABACE 2018 it has been awarded a contract from long-term customer K5-Aviation to perform the first VIP completion on an ACJ319neo. The project is slated to commence in May 2019 and be ready for delivery at the beginning of 2020. The cabin will include the latest communication, in-flight entertainment, and other technologies, while a focus on weight reduction will enhance the aircraft's range and payload. ■

PHOTOS: FOTOLIA/MONTAGE JOHN A. MANFREDO

Sharing a world of knowledge

by James Wynbrandt

The 41st annual NBAA International Operators Conference (IOC), March 26-29, brought some 600 corporate pilots, dispatchers, service providers, and authorities to Las Vegas for four days of focus on key issues and the fine points of flying business aircraft beyond U.S. borders. The IOC's 20 intensive educational sessions and dozen specialty topics covered coming regulatory changes, best practices, medical issues, regional operational reviews, and a variety of other pertinent topics, led by panels of experts who provided actionable information.

"Nobody knows everything, but everybody knows something," said Craig Hanlon, a DuPont corporate pilot and chair, NBAA International Operators Committee, invoking one of the IOC's core tenets in his welcoming remarks. He urged attendees to "Get together, share your knowledge and share your passion."

The organization's mission, "to ensure that international operators fly safely, legally and securely," was further served by opportunities to mingle with colleagues at conference events designed to connect attendees by areas of interest.

Going Global

Outbound from the U.S., flight paths in many directions cross Special Areas of Operation (SAO), which include North Atlantic High Airspace (NAT HLA), Areas of Magnetic Unreliability and Polar regions, Gulf of Mexico control areas and the Pacific Organized Track System. Operators may need a Letter of Authorization (LOA) to fly in SAOs, and the approval process can include "tabletop" validation tests with FAA examiners.

In the Global Regulatory Updates session Dave Moloy, an FAA SAO specialist, cited current areas of emphasis in tabletops for operators pursuing LOAs for the NAT HLA, the most sought-after airspace approval: "Timing errors are a hot topic," he said, as controllers seek more operational and reporting accuracy from crews in the reduced separation environment. Strategic Lateral Offset Procedures (SLOP) is another focus. SLOP "mitigates the risk of collision; it's not for avoiding wake turbulence," he said, and it should be used for all oceanic operations. Applicants can expect to be asked about contingency procedures and reclearances, as well; mistakes in following the latter are the primary cause of Gross Navigational Errors (GNEs) in this airspace, Moloy said.

Accessing the preferred routes in NAT HLA (Eastbound tracks from FL350 through FL390) requires FANS 1/A, but being FANS equipped isn't enough anymore, Carey Miller, business development director at Universal Avionics, explained during a review of upcoming mandates in the Avionics Updates session.

FANS comprises ADS-C (automatic dependent surveillance-contract), which provides automatic position reports; and CPDLC (controller-pilot datalink communications), which provides text communication for requests and intervention. Both are linked to ATC through satellite (Inmarsat or Iridium) or VHF radio. In addition to installing the required FANS equipment, operators must now ascertain and certify their installations meet domestic and oceanic datalink performance-based communication and surveillance (PBCS) minimums. The ICAO-led initiative is aimed at improving safety, and secondarily enabling reduced longitudinal separation minimum (RLongSM) to five minutes in-trail, and reduced lateral separation minimum (RLatSM) to a proposed one-half degree (30 nm).

The PBCS rules (AC 90-117), issued October 2017, called for then-authorized operators to update their LOAs to reflect the aircraft datalink system performance, and have FAA approval by March 29 of this year. Due to the resulting onslaught of applications (about 1,100 according to Moloy), the FAA has given Part 91 operators until September 30 to have LOAs, but until in their possession they are barred from NAT HLA routes requiring FANS.

The new PBCS requirements mandate RSP180 (required surveillance performance: max 180-second signal interval) and RCP240 (required communication performance: max 240-second com response interval) 95 percent of the time. However, issues associated with

The New Symbol for the Pinnacle of Charter Travel

OJETS

An Asia-based operator with an owned fleet, aircraft under management, superior service, and deep experience.

A SPECIAL ADVERTISING INSERT PREPARED FOR OJETS BY AIN PUBLICATIONS • 2018

International travelers accustomed to luxury and superior service are welcoming the debut of OJets, a new name in bespoke air charter that is owned and operated by a seasoned, world-class team and backed by leading financial institutions. With its fleet of large-cabin Bombardier business jets providing effortless trans-Pacific and transcontinental travel, OJets offers discerning business aviation users the convenience, flexibility, and capability they demand and deserve.

"Yes, we're the fresh face in the marketplace, but our leadership has decades of experience operating aircraft around the world," says industry veteran Nick Houseman, OJets' CEO. "We've all worked with and even created some great organizations, but OJets is a culminating point of our careers. The stars and our own paths seemed to align for this."

Inaugurating its pay-as-you-fly and block-hour services in early April, OJets is initially focusing on the Asian market, whose business aviation customers have a frequent need for intercontinental travel and "an expectation of a high level of service," Houseman says. "Because of our aircraft, our people, and our operating philosophy, we're perfectly suited to the market in this region."

Houseman, meanwhile, is perfectly suited to head Singapore-based OJets, with its all-Bombardier fleet. He founded Zenith Jet, the world's premier Bombardier Global aircraft consultancy for the past decade; has co-owned Slovenia's Elit'Avia since 2011, which operates 20 aircraft around the world, including five Globals; and has played senior management roles at Bombardier Aerospace.

OJets officially marked its launch at ABACE, Asia's largest business aviation exhibition, where it showcased a Global 6000 in fleet livery, highlighted by the company's signature Japanese "ensō" symbol on the tail. The "O" in OJets is inspired by the circular sign, representing a global reach connecting east and west, with strength, elegance, and infinity, this last quality encapsulating a value "impossible to describe, but understood as the pinnacle once experienced," says Houseman. "We think OJets is like that, and as a company, we aspire to emulate these characteristics through our commitments to client service and operational excellence."

OJets' Global 6000s and Challenger 650 average just two years in service, and all are outfitted with the luxuries and conveniences that discerning Asian and International clientele expect: high-speed Internet connectivity, comfortable and efficient workspaces, and plush sleeping configurations. The Globals feature a rear stateroom, conference groupings, and club seating. Handpicked appointments include cashmere blankets, 100 percent Egyptian cotton bedding, and silk eye masks.

And unlike most charter services, which use third-party-owned aircraft—often with restrictions on use—OJets owns its jets and is ready to take customers anywhere, anytime. "It's our private fleet, and that gives us a lot of flexibility to serve our clients," says Houseman.

En route, OJets customers enjoy gourmet food and beverage menus reflecting their tastes and preferences, with dishes prepared by in-house chefs or by special arrangement with the distinguished restaurants favored by clients. Catering is "a key piece of the service on long-range flights, especially in Asia," explains Houseman. So too is the presentation. OJets' international team of cabin atten-

Nick Houseman, OJets CEO

dants receive special training—including attending the School of Hospitality of Lausanne, Switzerland (white-glove service and training in Chinese culture). They also delight in helping customers use all the amenities and communication and entertainment systems these exceptional aircraft offer. Of course, OJets pilots, as well as cabin crews, are trained and certified according to the highest international standards, ensuring complete passenger safety and comfort.

Access to the world's finest service is easy with OJets: occasional travelers can choose the competitive and highly flexible pay-as-you-fly offering, while frequent travelers can take advantage of the OJets Block Hour Program, which offers 48-hour guaranteed availability at a fixed hourly rate. There are no membership fees, minimum flight hours, annual renewals, capital investments, or other costly commitments.

"We've seen all the charter models: jet cards, fractional, whole ownership, memberships," says Houseman. "Now is a great time for simple, no-commitment plans. A lot of clients in Asia like the asset-light model—they don't want to own but definitely need access to an aircraft, so it's the perfect environment for us."

OJets has operations centers at its headquarters in Singapore and in Ljubljana, Slovenia—base of Elit'Avia, which operates the OJets fleet. OJets has purchased Elit'Avia and is leveraging that company's operational heritage and experience, a linchpin in the long-term strategy.

"OJets has an owned-and-operated fleet," says Houseman. "When coupled with Elit'Avia's expertise in aircraft management and charter, we have created a global company with access to numerous markets, resources, and opportunities."

The combination will also allow more customers in Asia to take advantage of Elit'Avia's aircraft management and charter portfolio. Elit'Avia has achieved business aviation's highest standards, including the prestigious Stage 3 International Standard-Business Aircraft Operations (IS-BAO) accreditation from the International Business Aviation Council (IBAC). With more than a decade and over 35,000 flight hours of international operational experience, Elit'Avia's AOCs from Slovenia, Malta, and San Marino provide global access to OJets' aircraft.

"Elit'Avia will continue to operate as a wholly owned OJets company, and the Elit'Avia team look forward to continuing to serve their existing clients while seeking new opportunities within OJets' global network," says Houseman. "Also, with several aircraft based in Russia and Europe and a decade of experience operating there, Elit'Avia boosts OJets' ability to serve clients who travel in those regions."

Houseman notes that basing a portion of operations in Slovenia provides an economic advantage, as "costs are considerably lower than in other EU countries."

But today the story belongs to OJets, the new, yet experienced, face of luxury charter for the discerning Asian business jet traveler. "Asia is booming," concludes Houseman. "A lot of people don't realize the size of Asia. Wherever you're going, it's a long way. The current market is growing, and our fleet, service, and operating model are perfect for its needs."

OJets' principal stakeholders include key Singapore private and corporate investors, and leading financial institutions, such as Minsheng Financial Leasing Co., Ltd.

Looking ahead, Houseman believes OJets' signature style of service will translate well to other markets. "While we draw inspiration from Asian culture," he says, "we think the values it exemplifies are universal."

OPTIMUM FREEDOM AND FLEXIBILITY

The possibilities are infinite and all things are possible when you travel with OJets.

OJets focuses on providing a truly bespoke luxury experience to fulfil your every needs.

Contact our 24/7 concierge desk for a bespoke travel itinerary.

Concierge Desk

+65 6350 7199

charter@ojets.com

OJETS

the installations can interfere with achieving those performance benchmarks, noted Mike Mitera, president and a pilot at Chicago Jet Group. Avionics will try to communicate via VHF before satellite "because it's faster, more efficient and less expensive" he said. This can cause problems in offshore transition areas, as the FANS tries to make VHF transmissions beyond reception range, consuming RSP and RCP time, and potentially affecting compliance with the 95 percent performance requirement. "Turn off the VHF receiver when entering the transition zone," Mitera recommended.

Beyond U.S. borders, the Terminal Instrument Procedures (TERPS) that domestic flight crews are accustomed to using for approaches and departures are largely supplanted by Procedures for Air Navigation Services (PANS-OPS). PANS-OPS is the ICAO and de facto international standard, used throughout Europe and in many countries worldwide. TERPS, in addition to the U.S., is used in Canada, Korea, Saudi Arabia, and Taiwan, among others. Brad Crosier, FlightSafety International's lead international procedures instructor, urged pilots to understand how this affects corresponding procedures, such as circling approaches, where minimum obstacle clearance criteria are markedly different.

Regional Reviews

Europe is the top destination for U.S. overseas bizav flight, and private aircraft can enter Europe under Temporary Admission or Full Import. The former is best for occasional operations to and within the continent, as there's no cost. For frequent visitors or those who want unfettered access, and/or often carry European nationals within the EU, Full Import is often more advisable, or even mandated. But the dividing line between when Temporary Admission is acceptable and Full Import is required is undefined.

Phil Rawlins, project manager at the UK's Martyn Fiddler Aviation, offered this guiding principle for differentiating the two during the Europe Regional Review: "If you're selecting airports to avoid hassles you know you could expect with Temporary Admission, consider Full Importation." With Full Import, "You can do what want, there are no time limits [on staying in the EU), you can carry whoever you want," Rawlins said. "Duty has been removed, so no duty is involved in full importation." However, he noted each EU member state can decide its own importation tax, which can vary from 17 percent to 27 percent, and that should factor into the decision of where to base the aircraft.

Concerns about SAFA (Safety Assessment of Foreign Aircraft) Ramp Inspections appear to have subsided, though no uniform standards for the inspections exist. EASA gives wide latitude to inspectors, simply instructing them to be "reasonable," according to Dustin Duke, senior captain for Anadarko Petroleum.

Recognition, if not acceptance, of business aviation appears to be growing even in the world's most resistant corners.

"Be prepared, well organized, and talk to the inspector politely," Duke advised. "We have an aircraft document binder with copies of everything—no originals—and can hand over the binder to the inspector," said Duke. "Be confident."

Many in the audience had already undergone a SAFA check, but the inspection went badly for only one, according to a show of hands.

The impacts of Brexit remain a matter of interest for operators. For those entering the UK from a third country, little is expected to change. "You'll still get flight charges from Eurocontrol," Rawlins said. Any changes "will be over time." Operators who imported aircraft into the UK as a base for use in the EU "shouldn't lose that free circulation," he said, but "clarity is being sought" on the rules. Changes are forthcoming for UK- and EU-based aircraft flying between the two jurisdictions, but "we don't know what they are," Rawlins said.

The conference's Regional Reviews served as detailed miniatures of the business aviation infrastructure and rules across six continents, and reminders of the stark differences awaiting U.S. operators beyond U.S. borders. Several pieces of advice apply to many regions. "Patience" was cited as an essential attribute by several panelists. Crews should also set passenger expectations regarding possible CIQ delays and all aspects of the experience that will be different from flights to more developed parts of the world. Many panelists advised working with local handlers; it's mandated in many states, and a smart move in most of the others to ensure all applicable rules and procedures are followed.

Operators should recognize that in many parts of the world, commercial operators receive priority over general aviation operators for fueling and runway access. Be familiar with peak commercial air traffic times at your destinations, as it can affect operations.

"Private or VIP travel in Africa is a blip on the statistics," said Björn Ischner, general manager of South Africa FBO Fireblade Aviation, in explanation.

Most nations strictly enforce prohibitions on cabotage. Only passengers who arrive in country in a private aircraft can depart in it, and a foreign-registered aircraft may be prohibited from providing carriage within a country to those passengers, with the exception of technical stops.

Spares of any items that have high failure rates or are difficult to repair should be brought along on the aircraft, as should a tow bar.

Yet recognition, if not acceptance, of business aviation appears to be growing even in the world's most resistant corners. "AfBAA and MEBAA [the African and Middle East and North African Business Aviation Associations] are making inroads, albeit at a snail's pace, convincing African governments that general aviation has a role to play, that [aircraft] owners can shape the destinies and economies of every nation," said Ischner. "Over last decade, the regulation of handlers and licensing has improved, screening of personnel at airports has improved security, and transactions [for fee payments] are traceable."

The World Cup (to be held from June 14 to July 15), hosted by Russia is expected to draw a global contingent of business aircraft this summer. U.S. operators should "account for the current political climate" in anticipating the welcome they'll receive, said Paul Lourenco, director of operations, Eurojets. *(See detailed story on page 28.)*

International operations in Brazil have declined from peaks seen when it hosted the 2014 World Cup and the 2016 Summer Olympics, but it remains the largest country and economy in South America and a major destination for U.S.-based business aircraft. Looking ahead, Brazil expects GA operations, currently numbering about 900,000 per year, to grow at an annual rate of 8.3 percent for the next 20 years. In the South America and Brazil Regional Review, Dario Rais Lopes, National Secretary, Civil Aviation Brazil, outlined efforts under way

› continues on next page

Dealing with stormy weather

Daily morning weather briefings by meteorologists and flight planners covered weather and climatic patterns around the world, highlighting their impacts on flight operations.

Mark Stalcup, senior meteorologist at Universal Weather & Aviation, called 2018 "a remarkable year for nor'easters," pointing to the new popularity of the term "bomb cyclogenesis," defined as a rapid intensification of low-level surface pressure that drops at least 24 millibars in 24 hours. These storms cause massive arrival and departure delays at airports in Flow Constrained Areas (FCAs), which are used to manage airspace affected by weather.

"Have a plan, especially if you're coming in from Europe or on a transoceanic flight" during a nor'easter, Stalcup advised. "Make sure you have a detailed weather briefing for what may come, where your alternate is, and how it's impacted." Airports in the New York area affected include GA hubs Morristown (MMU) and Teterboro (TEB). Real-time information on FCAs is available from the Air Traffic Control Systems Command Center (ATCSCC; https://www.fly.faa.gov/ois/).

Mike Wittman, director of operations at Evo Jet Services, noted 2017's "disastrous hurricane season," caused by two factors, he said: a change in the upper level steering mechanism that typically impedes storms from moving westward; and above-average sea temperatures that intensified the storms. The extreme weather may be the result of climate change, he said, and if so, "we can expect bigger, more intense storms" in coming seasons. Operators need to update their contingency and emergency response plans as threats evolve, a recommendation echoed in sessions on topics ranging from this one to security and medical issues.

William "Billy" Bohlke, president and chief pilot of St. Croix's Bohlke Aviation, gave a first hand account of hurricanes' impact during the Regional Review of Mexico, Cuba and the Caribbean. Two weeks after Irma just missed it, Maria, another Category Five hurricane, hit St. Croix, leaving "no area on the island untouched," Bohlke said, destroying the power grid and communications networks as well as many homes and commercial buildings. There's "no manual for how to deal with these situations" in the aftermath of devastation this vast, Bohlke said, but he recommended having a sat phone. "When cell towers go down, that's all you have," he said.

In both storms, Bohlke Aviation relocated its fleet, which includes a Gulfstream G100, King Air B200, and MU-2, to Curacao, 480 nm south, the refuge of choice for regional aircraft when hurricanes threaten.

Currently fuel and services are largely available and private aircraft can operate in and out of affected islands, but many hotels remain closed. **J.W.**

› continued from preceding page

to accommodate the expected increase and encourage its growth.

In a first step toward expanding CIQ services for private aviation, Lopes said, authorities are enhancing "the operational readiness of existing gateways, to ensure the presence of immigration and Customs all day," along with creating new international GA gateways at Sorocaba in São Paulo and São José Dos Campos. Air navigation services, formerly provided by both civilian and military controllers, are being consolidated under a new organization to improve service, governance, and efficiency. New regulations for air taxis up to 19 seats will simplify and reduce costs of certification, Lopes said.

U.S. passengers need visas for Brazil (flight crews operating the aircraft are exempt), but Adonis Bastos, an operations supervisor with Universal Aviation, Brazil, noted Americans, along with Canadians and citizens from a handful of other states, are now eligible to file e-visa applications, which can be approved in five business days.

Flight Planning—for Today and Tomorrow

Flight departments have choices for their trip planning protocol: handling it in house, relying on third-party services, or some combination of the two. The rapid development of technology-based trip-planning solutions is leading many departments to re-evaluate their approach to planning and executing international operations, said John Harpool, international operations resource at Sky Plan. Focusing on Best Practices & Operator Obligations in International Trip Planning, Harpool and a panel of seasoned captains reviewed items that should be on every pilot's and planner's checklist.

Whatever the planning model for the flight department, outsourced or in-house, Phil Tyler, head of special projects and business development at Scott IPC, and panelists on this and other sessions, advocate having one person in charge of planning for each trip.

"For me it's all about accountability," Tyler said. If multiple people are in charge, "then no one is." Acknowledging its "negative connotations," Tyler countered "true accountability is about unleashing your people and their potential, not constraining them. We need that part of the process for excellence to be achieved. Encouraging them to take personal responsibility is paramount for an organization's success."

Another key element in ensuring successful international operations, Harpool said, is having an international operations manual that is constantly updated and incorporates "robust procedures that everyone embraces and consistently follows."

For individual trips, a primary obligation is to ensure crews are familiar with regulations of the states in or over which they are operating, which go beyond TERPS or PANS-OPS distinctions. Nations' procedural rules are found in each's Aeronautical Information Publication (AIP) as well as in Jeppesen manuals. The AIPs typically provide more comprehensive information, yet may only identify which of a country's regulations differ from international standards as defined in ICAO's Annex 2, rather than identify the differences. "Take time before trip to understand what the rules are," Harpool urged.

> **"The science of international flying is all about picking up the pieces when they fall."**
>
> – James Albright, chief pilot and IOC attendee

In identifying "gotchas" that can snag the unwary, James Albright, a chief pilot, said, "The science of international flying is all about picking up the pieces when they fall." He advised crews to verify runway lengths and the weight-bearing capacities of hard surfaces, the latter point illustrated with a photo of a Gulfstream on an unidentified ramp with its right main gear sunk halfway into the asphalt.

Albright also noted difficulties in parsing useful information from Notams, citing the notice issued for the temporary restricted area defining the airspace in which Malaysia Airlines Flight 17 was shot down over Ukraine in 2014, a hazard the Notam never mentions. Fourteen aircraft were shot down in the airspace in the previous 14 months, and including that fact would have likely achieved the Notam's purpose, Albright surmised. Nonetheless, information about the hazard was available through other channels, which led several airlines to routinely fly around the airspace, while many others ignored the ongoing warnings.

Security in the air and on the ground is a critical planning issue, as speakers emphasized in several sessions. In the Regional Review of India & the Middle East, Kurt Stehling, a Global 6000 international captain with UTC, said overflight decision-making provoked "big discussion" in his department. For traversing areas where security is a concern, "I developed a 'dry ocean' ETP (Equal Time Point) concept," he said, which includes providing flight crews a list of pre-negotiated airports of safe harbor.

Meanwhile, to ensure lessons are learned and mistakes aren't repeated, Tyler recommended having a debriefing protocol for "getting feedback from crews after a trip," which is otherwise difficult to obtain, he said. "Without a trip wrap-up process, its going to be impossible to get where you want to go."

Emergencies and Contingencies

Of course things don't always go according to plan, or the plans themselves may fall short, and operators have to be prepared for contingencies. In the event of an engine loss, for example, after drift-down the aircraft will have to proceed to an alternate at a lower altitude. The winds at those lower altitudes need to be factored into the ETP and the calculations for reaching alternates. In the event of a loss of pressurization, the aircraft will have to descend to an altitude balancing performance and oxygen requirements, and the APU may need to be engaged to heat the cabin. That additional fuel burn needs to be factored into planning along with the extra fuel consumed from flying at lower altitudes, Harpool said. Planners also need to ensure the alternate airports selected have the services needed for specific emergencies.

Meteorologist Rich Nath of World Fuel Services (WFS) advised having a business continuity plan to deal with disruptions caused by natural disasters. "Have specifics, with items to take effect before a forecast tropical storm" hits. A Houston resident, Nath said Hurricane Harvey didn't meet the company's criteria to trigger its continuity plan, as its first threat had passed, and he displayed photos of WFS's flooded premises in its aftermath. "We have to review and change the plan this year," he concluded.

For those who wonder what happens when an aircraft goes AOG in a faraway land, John Tuten, chief pilot with Honeywell, related the experience of being AOG in Tashkent, Uzbekistan, planned as a 24-hour stopover on a six-day trip. The passengers airlined home while the crew stayed to oversee repairs. "After five days it was evident it wasn't going to be a quick fix," he said. The crew requested visa extensions, "but in the current political climate we didn't trust leaving the crew in country with expired visas," so a replacement crew got visas and took over on-site repair management, and the original crew airlined home. Replacement parts from Gulfstream took four days to assemble and ship from London, then spent "five or six days in Customs jail in Uzbekistan," said Tuten. Once the parts were released, the repairs were quickly completed, but the airplane wasn't released until the Customs duty was wired to the agency. Gulfstream got the tools back two weeks later.

Health issues can have immense impact on international operations, whether they involve crewmembers, passengers, or an on-ground situation at a destination. In the session on medical issues, Neal Sikka, M.D., of GW Medical Faculty Associates, focused on influenza, "one of most highly contagious infections we know." This year's flu outbreak included "very severe syndromes," he said, adding that the vaccine formulation developed this year was less effective than batches released during recent flu seasons. "Make sure everyone gets an influenza vaccination," he said, stressing that while it might trigger a "mild reaction," a vaccination "will not give you the flu, and will reduce the severity if you

› continues on page 24

Finding and retaining the next generation

Industry statistics and the sparse show of hands of millennials—those 35 and younger—attending the conference foretell coming flight department staffing shortages. A session titled The Generation: Next, focused on how to attract and retain tomorrow's corporate aviation workers. Moderator Brian Koester, NBAA operations manager, recalled being the only millennial at his first leadership training program, where every other participant "said something about managing millennials" in a discussion of job challenges.

Millennials on the session panel agreed companies have to ensure they offer the pay, incentives, opportunities, and quality of life millennials are looking for, and offered recommendations: conduct industry salary and benefits reviews to ensure compensation is competitive; recognize some employees will choose to be heavily involved in department operations and others won't, and provide bonus programs for the former and don't penalize the latter; and establish internships. Stehling suggested employers "invest in people," for example by funding ongoing education. Brandon Williams, lead training captain with Richardson Aviation, recommended exposing new hires to opportunities that lie ahead. "Put them in the jump seat of a Global, [so they can see] what kind of flying they're going to be able to do," he said. **J.W.**

Supported by Air BP air bp

Your lower carbon journey

starts here

At Signature Flight Services we're reducing the carbon impact of our operations. We're also helping to improve livelihoods and the environment through low carbon energy projects around the globe.

Because it matters to our customers, and it matters to us.

It's your **Signature.**™

signatureflight.com

Signature® FLIGHT SUPPORT
A BBA Aviation company

Visit Us at **EBACE 2018** | Booth **#O104**

› continued from page 22

get the flu." He also advised providing six feet of isolation aboard an aircraft for any symptomatic individual, and to assign one crewmember to deal with that passenger. The affected individual should wear a protective facemask. "It's becoming common in many countries," he said, "and becoming more common here."

Frances Pena, lead flight attendant, provided a first-person account of the potential for an emergency to strike unexpectedly, recounting the stroke she suffered in the midst of a medical training session with other flight attendants. "They recognized the symptoms and responded appropriately," Pena said. "I thought I was fine. I even did my own stroke test and said, 'See, I'm fine,' and the look in their faces said, 'Girl you are not fine!' I tried to downplay the situation. I wasn't embarrassed, I just didn't want them make a fuss over me."

> **"It's all about recognizing the kind of passenger you're flying with, and having a protocol for dealing with them."**
>
> -Michael Braida, M.D., Medaire medical director

After calling 911, her colleagues immediately contacted their in-flight medical assistance provider while waiting for the ambulance. One takeaway, Pena said: "As pilots, remember the closest place isn't necessarily the right choice. Had the medical team sent me anywhere other than a stroke hospital, I think things would have worked out differently."

Flight departments have paid greater attention to drug and alcohol abuse among flight crews in recent years, but if the cockpit isn't immune to these problems, neither is the cabin, said Michael Braida, M.D., Medaire's medical director, Global Response Centre. He advised flight crews to be mindful of passengers who may be unfit to fly because of drug abuse. "We don't have very many numbers or statistics on what's happening in the executive aviation sector, but feel it's an increasing number of events," Braida said.

Drug overdoses and withdrawal are both concerns. Alcohol withdrawal, for example, can cause "intense seizures."

"High-net-worth individuals are paying a lot for flights, but safety is most important, Braida concluded. "It's all about recognizing the kind of passenger you're flying with, and having a protocol for dealing with them. Have ground-based medical experts, and [narcotics] antidotes."

Homecoming

Clearing Customs on the trip home has gotten easier in recent years, as U.S. Customs and Border Protection (CBP) has become more accommodating toward general aviation, a policy shift spearheaded by Eric Rodriguez, CBP program manager, general aviation. Though scheduled to speak, Rodriguez, a semi-regular at IOC, didn't receive funding to attend this year's conference, Laura Everington, senior manager, government and industry affairs at Universal Weather & Aviation, told attendees at the top of the CBP Update session.

APIS (Advance Passenger Information System) data quality–the information sent to CBP about passengers and crew onboard—remains at about 98 percent, "but the two percent are the problem," Everington said, as that fraction impedes further relaxation of CBP's GA policies. "We've got to have 100 percent compliance" with mandates for accuracy in information submitted to CBP via APIS.

Common errors, she said, include misspellings of names and leaving out middle initials.

"Somebody has to check documents as people board the airplane against the information transmitted on the APIS," Everington said. "Ultimately it's the PIC's responsibility. That five-minute exercise can save so much heartache."

A lack of codified CBP inspection procedures and requirements at AOEs has been an ongoing issue. Sarah Wolff, NBAA senior manager of security and facilitation, reported that the draft of the GA Operators Guide developed with CBP, which will define uniform CBP inspection procedures and requirements, has been turned over the CBP for final review before publication. "Our hope is that we will get something out toward the end of the year on that document," Wolf said. "

In the absence of the guide, Everington, citing Rodriguez's backing, urged attendees not to comply with CBP demands for documents that aren't required. "Unless we comply exactly as we need to do [legally] as an industry together, there will continue to be inconsistencies across the country," she said.

Everington also announced that any penalty imposed by CBP on a general aviation aircraft at an AOE would henceforth be reviewed by Rodriguez before levied, a change in CBP policy. ■

AMAC AEROSPACE

Completely bespoke.

Private jet ownership or charter is often the most efficient and time-saving option for senior VVIPs. Your office in the sky provides utmost security to discuss high-level deals, faceto-face. Or do you want a quiet space to contemplate the next meeting, have an excellent meal and a great night's sleep?

We are the largest privately-owned facility in the world offering VIP, private and corporate aviation services in maintenance, completion and refurbishment and charter / aircraft brokering.

www.amacaerospace.com

OEMs face fallout from trade dispute, AsBAA warns

by Kerry Lynch

The Asian Business Aviation Association (AsBAA) expressed concern about potential consequences of a growing trade dispute in light of the recent announcements for planned new tariffs on U.S. and Chinese goods. "The newly proposed tariff announcements may affect a certain weight category of business jet aircraft being imported into China," AsBAA chair Jenny Lau wrote in a memo to members. "This could influence buyers' decision making, having an effect on manufacturers and the wider business aviation industry, although it is too early to predict the magnitude of any potential impact."

The Aerospace Industries Association has warned about potential increased costs U.S. aerospace manufacturers will face as a result of U.S. tariffs on steel and aluminum. The Chinese tariffs, meanwhile, could hit Gulfstream and Boeing Business Jet sales.

Lau noted that the tariffs not only could affect business jet manufacturers, but also the supply chain. "AsBAA does not comment on public policy; however, we are concerned about the consequences of a growing trade dispute in the medium term," she said. "AsBAA's priority is to continue to represent the needs of our members, advocating the positive economic impact business aviation brings while finding solutions that allow business and trade to continue as normal, despite these political issues."

Lau added, however, that the bigger picture of the business jet market in China and Asia remains bright and advised members "to treat these announcements with caution while we await further clarity on the potential impact of the tariffs before we take any necessary actions to counter such measures." ■

Air transport and defense boost GIFAS, while business aviation stagnates

Business aviation and helicopters represent the low points for the French aerospace industry, according to the recently released GIFAS results for 2017. While those markets have not recovered as much as the air transport sector, "steadily, we see the market going a little bit up," said GIFAS president Eric Trappier, chairman and CEO of Dassault Aviation. In the helicopter segment, the weakness of the oil-and-gas market has still weighed on the business, even if some other segments, like search-and-rescue, police and security, aeromedical, and VIP, have compensated.

In positive news, the association reported, "We are facing an historical period, because the French industry has never produced so many airplanes as in 2017, due to the good performance and competitiveness of the supply chain," added Trappier. Airbus produces 60 of its A320 family per month and aims to reach a 63-per-month rate within one year.

Defense orders accounted for only 16 percent of the 2017 total, compared to 31 percent the previous year, when three orders of Dassault's Rafale fighter (from Egypt, Qatar, and India) inflated the numbers. However, recent Rafale orders spell a future increase in production rates, up to two or three per month from one today. Trappier noted that several cooperate defense programs are under study, notably the Future Combat Aerial System. It is "still on track even if many questions are still on the table." He added that Dassault and Airbus would make "some announcements" at the ILA Berlin airshow in late April.

The industry recruited 12,000 employees in 2017, bringing to 190,000 workers the total number of people employed by the 391 GIFAS members. The same amount of recruitments is envisioned for 2018 to secure expected ramp ups in production. **G. L-B.**

› continued from page 1

OEMs seek clarity on China tariffs

he said. "I don't think that would be the intention on the Chinese side."

A fourth question is whether the Boeing 737 Max 8—the manufacturer's empty weight (MEW) of which lies just 70 kg (154 pounds) above the specified 45,000 kg limit—could be affected by the tariff, according to Seymour. He said that, while MEWs for aircraft are usually lower than operators' empty weights (OEWs) for aircraft in operators' seating configurations, a single-class configuration with low-weight seating can easily reduce an aircraft's OEW by more than 70 kg.

The IBA iQ database of commercial aircraft shows that, in addition to 37 Boeing 737-800s (which would be affected by the tariff), Chinese customers have 188 Boeing 737 Max 8s on order, as well as dozens of 737 Maxs of unspecified model. The net delivery prices of all these aircraft will total $18 billion and their list-price total double that, according to Seymour.

The 737 Max 8 question is relevant for three reasons. One is that China could move the goalposts on its proposed specification for tariff-affected aircraft. Calling China's initial tariff proposal "a piece of showmanship," Foley said "it seems China is positioning, but it could add more [aircraft to its specification] if it wanted." Seymour agrees.

Second is that some Chinese airlines that have ordered 737 Max 8s have aircraft on existing leases that they may be planning to replace with new Boeings. If the 737 Max 8 were subject to the tariff and Chinese airlines wished to avoid paying it, they could defer delivery of new Max 8s and extend their existing leases instead, said Seymour.

Third is that China hasn't said whether the proposed tariff applies only to purchases—or leases—of new aircraft or also to imports of used aircraft. Were only new aircraft to be affected, Chinese airlines could defer 737 Max 8 deliveries and buy and/or lease used aircraft to help fuel their growth in the short term.

Two other important questions for Boeing and Gulfstream are whether China's proposed tariff would affect aircraft that Chinese customers have already ordered, or just aircraft yet to be ordered; and whether the tariff will apply only to aircraft placed on China's B-prefixed national registry. Were this the case, as Asian business aviation insiders believe it is, it would represent good news for Gulfstream—and to some extent Boeing.

Of the 20 G550s, G650s, and G650ERs Gulfstream delivered to Chinese customers in the 15 months to March 31 (representing 21 percent of its total deliveries of those types during the period), only 10 were placed on the Chinese registry; the other 10 were registered elsewhere, according to Vincent. While the Chinese Government requires all aircraft operated by Chinese airlines to be B-registered, Chinese customers can register their business jets offshore. China is important to Gulfstream: of 431 business jets operated in China today, 181 are Gulfstream types and 112 of those are G550s, G650s, and G650ERs, according to JetNet iQ.

Definitive answers to all these questions likely won't be forthcoming until China learns what the U.S. Government's own final plans are for levying tariffs on U.S. imports of Chinese goods. No one will know what those plans are until the U.S. International Trade Commission issues its findings following a May 15 hearing on the Trump Administration's tariff proposals.

Meanwhile, continuing U.S.-China negotiations over the respective tariff proposals hold out the hope China won't impose a tariff on U.S.-manufactured aircraft at all, according to Foley. Noting that the U.S. acted quickly to exclude key trading partners Canada and the European Union from its planned tariff on imported steel and aluminum, Foley said the move indicated "there is likely to be some back and forth" between the U.S. and China on what, if any, tariffs each might decide to impose. ■

Air China became the first Chinese carrier to take delivery of a Boeing 737 Max, receiving its first 737 Max 8 on Nov. 3, 2017. As of April 2018 Chinese customers had outstanding orders for 188 of the 737 Max 8s, according to IBA Group.

Air Service Basel

Basel, Switzerland | LFSB

A PREMIER AVFUEL-BRANDED FBO EN ROUTE TO ART BASEL

Travelers visiting Air Service Basel enjoy the ease of a seamless experience from landing to takeoff as luxurious amenities accompany reputable service and comprehensive capabilities within a 10-minute drive of Messe Basel.

- Accommodates up to a Boeing Business Jet and Airbus 319
- Ample, secure parking
- Direct ramp access
- Anticipatory service with expert concierge on-site
- Multiple international maintenance approvals

AirServiceBasel.com ***Avfuel Contract Fuel and AVTRIP available***

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

AVFUEL

Upcoming World Cup means challenges for bizav

by Curt Epstein

With private aviation traffic to this summer's World Cup in Russia expected to equal, if not exceed, the level seen four years ago when Brazil hosted the tournament, trip support experts are urging operators to make their plans as soon as possible. In the 11 host cities scattered across the country, a strictly enforced slot system will be in effect during the course of the tournament, and even though operators may have already placed requests for their preferred dates and times, Russian authorities have noted that confirmations will not be released until two to three weeks before the start of the matches on June 14.

With the exception of Moscow, aircraft parking will be a major concern, with priority being given to team transports, and flights carrying FIFA officials or diplomatic delegations. As a result, in most cases, aircraft operators will be limited to drop-and-goes at most airports. "What [authorities] are saying is depending on the number of passengers that you have on board, they are going to give you anywhere between 40 minutes and two hours [on the ground]," noted Christine Vamvakas, Universal Weather and Aviation's operations communications manager. "They are not wanting you to receive services such as fuel, catering and the sort, simply because during those days where they're expecting heavier traffic because of the games, they're wanting people to come in, drop off, pick up and go."

Be Prepared to 'Drop and Go'

From all available information, Russian authorities will look to strictly enforce the slot system and operators who miss their designated slot may find it revoked, with the possibility of imposed fines, and cancellation of further downstream slots. Faced with such a scenario, an operator would be required to reapply for slots in what is certain to be a vastly depleted pool, and may be required to change travel plans to accommodate them. Aircraft operators will be expected to hit their slots with a general deviation of plus-or-minus 30 minutes for short flights (up to three hours), and 45 minutes for flights longer than three hours. Some airports may have differing times, which are expected to be announced in early May.

With a dearth of airport parking, Vamvakas said relocation of the aircraft is a near certainty, and notes operators should expect to park up to several hundred miles away after dropping off their passengers, adding that operators need to take that into consideration when planning crew duty periods. While Moscow's three main airports Sheremetyevo, Vnukovo, and Domodedovo will likely be handling the majority of the inbound World Cup traffic, two smaller airports, Ostafyevo and Zhukovsky, farther out from the capital are expected to have available parking for business aircraft. Depending on which city the passengers are interested in, Vamvakas notes that preferred alternate airports might even be outside Russia itself, such as Helsinki, Riga, Talinn, or Vilnius. "You've got to drop and go, which means you will have to tanker fuel," she told **AIN**. "That means maybe an additional stop closer to the airport of entry, and then they will receive fuel at their destination where they will park."

Those that do choose to fuel in Russia should note that jet-A is not available, and while TS-1 is very similar, operators especially those of older aircraft should consult their operating manuals to see if it is compatible with their specific airplane.

Accommodations Tight

The games being spread throughout the country will put a strain on the airports in smaller cities, which in many cases will see traffic, particularly private aviation traffic far and above anything they have previously experienced. Operators should expect to encounter higher than normal landing and ground handling fees as a result, and the airports and ground handlers involved have been slow to publish prices. Vamvakas recommends using a trip support provider with local personnel who can help ensure they receive the services they require. Russia's customs and immigration agency is expected to increase staffing at the host city airports to help the flow of passengers.

Aside from Moscow, another concern is the lack of suitable hotel rooms. "The five-star hotels that U.S. crews and passengers are accustomed to will be extremely expensive and limited," said David Kang an account manager with Avplan International Trip Support. "Furthermore, what Russia classifies as a four-star hotel is more relatable to a three-star hotel in America, if that."

In a situation of supply-and-demand meets old-fashioned capitalism, there are reports of hotels jacking their prices by up to 20 times the standard rate during the span of the tournament, while specifying a minimum number of nights, all with non-refundable pre-payment required. "This trip will be expensive," Kang stated. "While Russia promises pricing will be "more reasonable" than during the Sochi Olympics, those prices were so high they deterred some of the world's wealthiest individuals and organizations. Russia's idea of "reasonable" pricing is much higher than what would generally be considered reasonable."

> **"...they're wanting people to come in, drop off, pick up and go."**
>
> – Christine Vamvakas, Universal Weather & Aviation's operations communications manager

While certainly an issue for passengers remaining for the games, those accommodation prices should not be a concern for crews relocating their aircraft farther afield from the game venues.

The availability of ground transportation, another finite supply, will also require advance planning explained Vamvakas, with some providers demanding minimum engagements of one to two days, even for customers simply looking to transit between their hotel and the stadium.

If they have not done so already, operators should apply for their landing permits, especially those planning on making multiple stops in country, or multiple entries due to relocating their aircraft outside the country, as such permits could take up to two weeks to process under normal conditions. Likewise crews should obtain their visas well ahead of time. In an emergency, with proper documentation and advance notice to the ground provider, crew visas can be obtained at the three major Moscow airports, but Vamvakas noted the process could take up to six hours. For passengers attending games, a Fan ID, which can be applied for online, will suffice, but working crews will still require a business visa.

For charter operators, the issue of cabotage rights is a concern, as Russia's civil aviation authority is very stringent on this. According to regulations, it is illegal to pick up passengers in Russia and transport them to another point in country and then leave them. Vamvakas noted there have been indications that Russia might be willing to relax its cabotage rules for the duration of the World Cup, but as of this publication there has been no official ruling. During the course of the tournament, private aviation traffic into airports near stadiums may be halted while games are being conducted if the stadium is close to the airport, so operators should be aware of the schedule and check Notams.

While only Ukraine and Georgia currently bear any restrictions on travel to Russia, both Vamvakas and Kang agree the tense geopolitical situation in the run-up to the World Cup requires watching. ■

Nonprofit seeks volunteers for school supplies deliveries

Business aviation has a long tradition of philanthropy, both in the U.S. and on a global scale. One organization that tackles the latter is Aviation for Humanity, a not-for-profit organization dedicated to using the international aviation network to deliver humanitarian aid on a global scale. Kimberly Perkins, founder and executive director of Aviation for Humanity, developed the idea for the organization while she was a pilot in West Africa. Perkins recognized a lack of educational resources for students and communities in the region and realized that the aviation industry could help serve the deficit through volunteer action.

That action includes assembling and delivering backpacks filled with supplies to places in need, such as an underfunded school or orphanage. If volunteers want to deliver backpacks to a developing nation they are intending to visit, they will be put in touch with an in-country contact established by Aviation for Humanity to arrange necessary logistics. Aviation for Humanity supplies the requisite number of backpacks, and once in the country, the travelers purchase school supplies to fill the backpacks. It is recommended that supplies be purchased in-country to support local economies while also guaranteeing books are published in local languages, but the organization does accept donations of promotional pens and other items that can be used to fill the backpacks.

"My goal is to provide a way for a traveler to have a great interaction with students, so when they get home, they are enthusiastic to do more. I hope that my nonprofit is the catalyst for more humanitarian work," said Perkins.

Aviation for Humanity has delivered supplies all around the world through the efforts of volunteers. This year, Perkins said, "Uzbekistan and Mongolia are looking like real possibilities. We have someone out in Kenya right now and another traveler set up for a school visit in Tanzania later this summer. I am personally taking supplies to Nepal this October."

Last year, the organization handed out 500 backpacks and is looking for sponsorship from a company to purchase pencil cases and backpacks for 2018 donations.

The group is always happy to receive donated funds, but also suggests support in other forms. "If your company does sponsorships, donation-matching, or has marketing pens, pencils, etc. that you think it would donate, we would greatly appreciate your support. If you'd like to be a hands-on volunteer either by taking supplies or organizing a school visit, we would love your help. This non-profit is a grassroots effort to use aviation to empower children and support education. I can't do it without your help," said Perkins.

More information is available on the association's website. **A.R.**

When efficiency matters.

Avanti EVO, a legend reborn.

©Piaggio Aerospace/Paul Cordwell.

PIAGGIO AEROSPACE

Experience pioneering efficiency without compromise.

With a single aerodynamic curve and an innovative three lifting surfaces concept, enjoy 30% lower operating costs than comparable jets.

So sit back and relax. You'll be there sooner than you think.

www.piaggioaerospace.it

A long trip in a TBM 910

Text and photos by Matt Thurber

We turned right and lined up on the inbound course for the ILS approach, still able to see the frozen ground out the side windows. But looking straight ahead, we saw nothing but white snowy gloom. The end of a near-maximum-range leg over Greenland beckoned, hopefully with a warm FBO lounge, a quick load of fuel and no need to spend an unplanned night in far northern Nunavut.

The TBM 910's dependable 850-shp Pratt & Whitney Canada PT6-66D was running perfectly, having propelled us from our departure the previous day from Daher's Tarbes, France factory to our next fuel stop at Iqaluit, the capital of Nunavut on Canada's Baffin Island, perhaps more familiar to some as Frobisher.

We were roughly halfway to the destination on this ferry flight to deliver a new TBM 910 to Daher distributor Avex in Camarillo, California, and already I had developed a keen appreciation of the challenges of ferry flying. Gilles Glatz, who flies as many as 30 to 40 of these kinds of trips per year, kindly assented to my joining him on this one, perhaps the most challenging of its type, being the middle of winter in the Northern Hemisphere. Daher's Philippe de Segovia wanted me to experience the true performance capabilities of the TBM 900 series—I had flown one a few years ago for a pilot report—and what better way than a delivery flight from the Tarbes factory to California?

The logistics of such a trip are daunting, but Glatz has done this many times, and Daher is well experienced at preparing TBMs that roll squawk-free off the assembly line, ready for long-distance delivery flights. De Segovia said that the trip should take three to four days, and it was arranged that I would depart the U.S. East Coast for France on a Sunday and arrive on Monday afternoon. Because of the outlandish prices for flights to Tarbes, I chose to fly to Toulouse and rent a one-way car to drive to Tarbes.

The travel was slightly complicated by my having to pack an extra bag full of winter clothing, which Glatz had recommended (and that I was glad I brought). It took a large extra suitcase to fit a pair of hiking boots, snow boots, my Carhartt winter jacket (the brand that scientists and technicians wear during winters in Antarctica), three pairs of gloves, long underwear, two winter hats, a down jacket, and a thick sweater.

I arrived on a cloudy and drizzly day and found my way onto the highway to Tarbes. Not having slept much on the overnight flight from New York, I struggled to stay awake and stopped at a roadside cafe for a cup of coffee, once again stunned at the high quality of food in such places, compared to the crappy food we Americans put up with.

Arriving at Tarbes, De Segovia offered a bag of baguette sandwiches that he had procured for us, but as I had arrived later than expected, I put off eating, and this later proved highly beneficial. He gave me a tour of the vast Daher factory complex, where the company builds not only the TBMs but also major structural components for Airbus (airplanes and helicopters) and Dassault (I'm pretty sure I saw some Falcon 6X components there, in advance of Dassault making the formal announcement of the 6X program on February 28).

Then it was time to climb on board N910GE, a new 910 model with only 4.7 hours' total flight time. The exterior is painted a handsome two-tone gray with a sporty yellow stripe, and the interior features matching yellow stitching on the optional gray leather seats. The interior was still protected with floor coverings and plastic over the seats. Although the turboprop carries six occupants, our luggage took up all of the 30-cu-ft baggage compartment and some space in the cabin. Glatz brought a life raft and two survival suits along with his own winter wear. In addition to my luggage, I had a spare external Bad Elf GPS receiver, a Spot satellite emergency beacon, a handheld marine radio, and binoculars. The latter two items were for help finding ships in an emergency, as I was trying out a new iPad app called Ergo 360, which shows locations of ships on over-ocean legs. For tracking our flight, I used the ForeFlight app, which has an excellent

The TBM 910's large cabin door offers easy access to the cabin and a 30-cu-ft baggage area. For the ferry trip, the carpets and seats wore protective plastic covering to keep the interior fresh for the new owner.

world basemap. Glatz uses Jeppesen Mobile FliteDeck for charts.

Of course all the information we needed was available on the TBM 910's Garmin G1000 NXi avionics suite, which features the latest G1000 displays with faster processors and HSI map with multiple overlay options such as weather, terrain, traffic, etc.

On the instrument panel, the two 10-inch GDU 1050A primary flight displays flank a 15-inch GDU 1550 multifunction display. This TBM 910 had a long list of standard equipment and many options installed, including synthetic vision, GSR 56 Iridium datalink, GWX 70 digital radar, RVSM (although not available to us because the new owner would apply for the RVSM letter of authorization), ADS-B Out/In, Mid-Continent MD302 Standby Attitude Module, and much more.

The TBM 910 is filled with creature comforts: cupholders in the cockpit, USB ports on the panel in front of the right pilot seat, a single-lever power control, automatic fuel tank switching, three-axis electric trim, electrically adjustable rudder pedals, and automatic pressurization and environmental control.

With a maximum-fuel payload of 891 pounds, we had plenty of capacity when taking off with a full load of fuel (291 gallons or 1,980 pounds). Published range for the TBM 910 is 1,730 nm, but that is at a slower speed, 252 ktas, while carrying one pilot and landing with a 45-minute reserve. At maximum cruise speed (326 ktas) at FL280, a single pilot should be able to fly 1,200 nm with NBAA reserves (100-nm alternate). If able to fly higher at the maximum altitude of FL310, that range would climb to 1,350 nm.

Day 1 Tarbes to Prestwick

Glatz is not one to waste time, and at 5:02 p.m. we taxied past rows of aging airliners stored at the airport. Then he pushed the power lever forward and took off in cloudy but clearing weather.

The 783-nm flight to Prestwick, Scotland, took us over Cherbourg, France, at FL280 in the evening light that was still brightening the cloud layers accompanying us as we flew north across the English Channel toward Portsmouth.

With fuel nearly full, our takeoff weight was just under 7,000 pounds, about 400 pounds below the 7,394-pound mtow, and we climbed at 150 kias, burning 70 gph in the climb. We leveled briefly at 14,000 feet, then resumed climbing and picked up a faint trace of ice on the booted leading edges passing through 17,000 feet, where the outside temperature was -20 degrees C. Once we reached FL280 (OAT -41 degrees C), the airplane's optimal cruising altitude for the highest we could go without RVSM approval, cruise speed initially settled at 301 ktas, and fuel flow dropped to 55 gph. Cabin altitude at FL280 was 8,400 feet.

Taking off from Tarbes-Lourdes-Pyrénées Airport in France.

The TBM can fly faster at this altitude, more than 320 ktas, Glatz explained, but it's not worth burning the extra fuel. He generally picks the altitude (FL280 when possible) and sets the fuel flow, depending on whether the wind is on the nose or tail. If a strong tailwind is blowing, he will pull back the fuel flow to 45 gph. Our RocketRoute flight plan estimated 3:14 flight time and 199 gallons of fuel burned.

The headwinds initially blew 80 knots on the TBM's nose, but over the Channel these dropped to the low 30s. The setting sun lit up the western horizon with a rainbow of orange hues deepening to purple as we descended into Prestwick, where the wind was calm and cloud layers ranged from 10,000 feet scattered to 15,000 feet broken. Glatz lined us up on the ILS to Runway 30, and we landed 3:08 after departing Tarbes, having burned just 148 gallons.

The delightful and inexpensive Carlton Hotel awaited us once we cleared customs—thankfully the customs officer came to the FBO—and Glatz happily pointed out that we were much better off having flown this first leg Monday evening instead of spending a potentially sleepless night in Tarbes then trying to get an early start. Otherwise we might have risked a possible overnight in a tiny, frozen outpost in Greenland.

Day 2 Prestwick to Winnipeg

A full Scottish breakfast was an excellent way to start what turned out to be a long day of flying. Ferry pilots must be ready to take advantage of good weather.

Glatz had arranged the previous night for a taxi to meet us at 7:30 a.m., and I could tell he was getting a little anxious when it didn't arrive exactly on time. The driver finally arrived a few minutes later, and after a short ride to the airport, the friendly staff at the Executive FBO helped us load up the TBM. They had already filled it with fuel, so once again, it was a prompt launch with no delays, this time for what should have been a relatively short hop to Reykjavik, Iceland.

The weather was benign, considering we were flying across the Atlantic Ocean at the worst time of the year. What would challenge us on the first leg of the day were extremely strong headwinds. Our routing from Prestwick to Reykjavik was 751 nm, but the wind would be right on our nose, and unavoidable if we wanted to make headway on this journey.

Ferry pilot Gilles Glatz has flown the Atlantic crossing many times in TBMs, PC-12s, and other airplane types. Below, just after takeoff from Glasgow Prestwick International Airport in Scotland, about to battle 100-plus-knot headwinds all the way to Reykjavik, Iceland, still an easy task for the capable TBM 910.

This impressed on me yet again the unrelenting constraints that come with ferry flying. In this part of the world, we had some airports to choose from if we had to stop for fuel before the ocean crossing; the Faroe Islands was one such alternative, but that is a location with what Glatz characterized as skimpy services, and he avoids landing there unless absolutely necessary.

As it turned out, even with massively strong headwinds, the TBM had the range to make Reykjavik with decent reserves, and it's a good thing, because as is typical with headwinds, they were worse than forecast.

We departed Prestwick as the sun began warming the wet ground, not wasting any time getting moving once loaded up.

On this leg, traffic was more sparse, and we were quickly cleared to FL280. Once past Stornoway and feet fully wet, we were cleared direct to BARKU intersection, and now the wind did its thing, howling from the northwest, churning up the sea far below and relentlessly forcing our groundspeed numbers down into the low 200s. Glatz pulled the power back, lowering fuel consumption to 50 gph, but groundspeed dropped to 219 knots, so he pushed the power up to 56 gph, and while the true airspeed crept up, groundspeed remained the same. About fifty miles shy of BARKU, the wind reached its peak at 126 knots from 297 degrees, which translated to 116 knots on the TBM's nose. The wild ocean below seemed to be moving by us extremely slowly.

Watching the fuel over destination (FOD) number on the G1000 moving map helped illustrate the effects of the wind and our attempts to mitigate those effects as much as possible by descending, climbing, and descending again. Nothing really helped, and we ended up settling on FL260, where the FOD was 89 gallons, about 15 better than at FL280. Going any lower would have increased fuel consumption without adding speed, so we were in the most efficient space possible.

The TBM soldiered on while I tested the ADS Ergo 360 ship-mapping program on my iPad. I had downloaded a fresh load of ships at the FBO just before takeoff, and now I practiced pulling up the ship information, then plugging their lat/long positions into ForeFlight and creating a user waypoint that we could navigate to. There were a surprising number of ships, mostly cargo and fishing vessels, plying their trade in the chilly North Sea.

› continues on next page

› continued from preceding page

A long trip in the TBM 910

During this leg we were in the clear with cloud layers below so I couldn't spot any of the ships that I was monitoring, but knowing they were there was a big comfort. Although the windspeed dropped slightly after we turned left at BARKU, now it was even more aligned with our flightpath. Groundspeeds remained frustratingly low.

Flying long distance is a lot of straight-and-level with the autopilot on, monitoring the airplane and, in this case, managing the all-important fuel resource. Glatz doesn't like to eat much while flying; he does so much ferry flying that he feels he would just be snacking constantly if he allowed himself to indulge. I, however, had no qualms about digging into the food bag that de Segovia had so kindly provided, and it contained three wonderfully tasty chicken and cheese sandwiches, one of which had been yesterday's dinner, and the second today's lunch. Glatz had brought a thermos of coffee and shared it with me as the wind tried to hold us back, eventually slowing us to 194 knots' groundspeed. Even so, Glatz retained his optimistic viewpoint, noting that if we were in anything other than a TBM, we might not have been able to make the Prestwick-Reykjavik hop in those conditions.

Finally, after three hours and 47 minutes, we skimmed over the snow-dusted rooftops of Reykjavik and touched down on an ice-free Runway 19 in excellent visibility and high clouds, still with nearly 80 gallons of fuel on board. Not that there are many alternates in this part of the world, but this is the reality of ferry flying. Without wind, the flight would have taken 2:39.

We spent less than 40 minutes fueling up, checking weather, and clearing customs in Reykjavik. Glatz suggested I put on my long underwear to prepare for landing in Canada. Sadly, we had no time to spend a night at the airport's decadently comfortable former Loftleider Hotel (now the Icelandair Hotel Reykjavik Natura) with its fluffy pillows and duvets and geothermal heat, but Glatz said prices had climbed to outrageous levels with the recent growth in Iceland tourism, and in any case, we needed to make tracks while the going was good, which it was for the most part.

For the next leg, the wind wasn't such an issue, and it looked like over Greenland we would even pick up some tailwinds, according to the handy Windy.com app and website that Glatz uses. This would help enormously, as we were about to fly our longest leg, 1,207 nm over Greenland to Iqaluit on Baffin Island, where the forecast was not bad except for gusty winds and blowing snow cutting visibility on the surface.

I did the takeoff from Reykjavik. Glatz suggested bringing the torque to near 90 percent while rolling, then keeping it below 100 percent with small adjustments. The TBM accelerated quickly and I soon pulled back on the yoke and as the speed built up, retracted the landing gear, then flaps. The TBM has comfortable handling, but trim is needed to keep pitch forces from getting too heavy. Turning to the west, I trimmed, climbed at 150 kias, then switched on the autopilot as we neared 10,000 feet.

After a quick-turn in Reykjavik, our trusty TBM 910 N910GE was ready for the maximum-range leg to frozen Iqaluit on Canada's Baffin Island.

It wasn't long before we crossed the east coast of Greenland, north of the airport at Kulusuk, although there wasn't much to see because of clouds below. We started out with headwinds, much lower now that we were flying more westerly, and 100 nm from Greenland the wind shifted to our tail, giving us a much-needed push toward our destination.

As we flew farther west, the groundspeed gradually increased as the wind dropped, and the FOD number kept climbing into the eighties. We were able to pull the power back and lower fuel consumption to 45 gph, and even at 274 ktas our groundspeed climbed to 307 knots.

The groundspeed stayed comfortably high as the mountainous icy surface of Greenland passed beneath, just 17,000 feet below us, according to the agl readout on ForeFlight.

The OAT was quite cold this far north, in the minus fifties (centigrade), and this might have been why we suddenly heard a keening noise from somewhere in the flight deck. It sounded like an air leak. A look at all the engine and pressurization gauges showed all systems nominal, but the noise persisted.

Glatz decided we should descend and try to find warmer air, and perhaps that would help with what we figured was a leaking seal on the TBM's pilot door. We asked ATC for FL260, and I dialed the autopilot down for the descent. The temperature situation improved, but it didn't solve the leak, which was annoying, even with our Bose A20 active-noise-reduction headsets. Finally Glatz did a quick on/off cycle of the pressurization system, and that took care of the leak and the sound stopped. For flying in such cold temperatures, the TBM pilot information manual recommends applying silicon grease to door seals, probably to prevent just such an occurrence.

The lower layers of cloud began to break into towers, leaving clear views of the Greenland landscape, which was utterly devoid of any human activity. We flew over giant steep mountain passes buried under mounds of ice and snow, and flat fields that looked snowy soft from up high but likely hid deep crevasses and unyielding boulders. The terrain dropped lower and lower as we flew over the west coast, and Glatz pointed out one of the few airports just a dozen miles north of us; it was Sisimuit, and we could see the 2,600-foot runway, free of ice and snow and black against the surrounding endless whiteness; a good emergency field, but not suitable for regular stops, as ForeFlight's information indicates the airport has no fuel or other services. So far the wind and groundspeed still made Iqaluit a good stop.

Glatz took over about an hour from Iqaluit as conditions there were going to require an approach to near minimums. We kept flying high as long as possible to maximize endurance; the TBM is a champion at descending quickly when necessary.

One benefit of flying so far off the beaten path is little or no traffic. ATC cleared us straight to the final approach fix for the ILS Runway 34, and a simple 90-degree turn put the TBM on final. The visibility wasn't bad, and we could see

After the clouds broke up, Greenland revealed its icy, snowbound glory.

terrain out the side windows, but looking ahead was somewhat murky. The approach lights materialized from the snowy gloom just before we reached minimums, pointing the way toward the welcome runway. The blowing snow made the runway hard to see, but there was plenty of visibility while looking ahead along the runway. Glatz made what must be one of the shortest TBM landings in the 24-gusting-to-30-knot wind, which was blowing almost straight down the runway. The 4:25 flight was our longest leg, but we still had 70 gallons of fuel, plenty to make it to the few airports on Baffin Island.

We taxied to the FBO ramp in the blowing snow, and while Glatz was shutting down the engine and calling the fuel truck, I climbed in back and prepared to go outside in the -27 degree C gusty weather. I put on a sweater, then my down jacket and my Carhartt winter jacket on top. On my feet I wore two layers of socks—one a thick winter pair—then I stuffed my well-insulated feet into my winter boots. My head was covered with a wool balaclava and the down jacket hood, and I wore thick gloves.

When we opened the door—after Glatz put on his winter outerwear—the wind sucked the heat right out and almost blew me over when I climbed onto the snowy ramp. The FBO office beckoned, but oddly we could see no lights. We trudged through thick snowdrifts to the door, and it was locked. No warm office for us.

The fuel truck pulled up, and two courageous linemen dressed in thick full-body cold-weather suits quickly topped off the TBM. We had given up on finding anything open at the airport, except for the flight service station, which we deemed too far to walk to, so we climbed back onboard after Glatz double-checked the fuel caps and paid for the fuel.

We had been told in Iceland that we would need to call Canada's border service agency—via the CanPass service—once we arrived, to gain clearance, as there were no officers at Iqaluit that day. Unfortunately, none of our telephones—Glatz had two, each with different service providers—was able to capture any cellular signals. This was the first place in the world where my T-Mobile-powered iPhone wouldn't connect.

By great good luck and a bit of forethought, Glatz had logged in to the FBO's Wi-Fi network on his last trip through Iqaluit a few months earlier, and more luck, the password had not been changed, so he was able to connect and make a Wi-Fi call on his T-Mobile phone to CanPass and get us cleared into Canada.

After starting the engine, Glatz taxied back to the runway, and we waited for a break in the blowing snow before advancing the torque and pushing on into the heart of frozen Canada. We did not want to dally in Iqaluit, he pointed out, because if we stayed there too long, we'd run the risk of the airplane icing up and cold-soaking the engine, in which case we'd have to stay overnight and pay to hangar the TBM. At Iqaluit, he said, it cost several hundred dollars to open the hangar door and the same amount to close it. An overnight stay would cost a minimum of two openings and closings. Not that there was any pressure to pit safety against cost;

› continues on page 34

STREAM MORE
SPEND LESS

UNLIMITED DATA. LIMITED-TIME OFFER.

Sign up by June 30 for the transformative connectivity of the SmartSky 4G LTE-based beamforming network. Use all the data you want for an affordable, fixed monthly fee on the Enterprise plan.

Go to smartskynetworks.com/unlimited to see how much you can save.

800.660.9982 ▪ info@smartskynetworks.com ▪ smartskynetworks.com

SMARTSKY NETWORKS®

› continued from page 32

A long trip in the TBM 910

Glatz is paid regardless, and the manufacturer normally covers such operational expenses. But our mission was to deliver the TBM to California, and unnecessary overnight stays were not productive.

We had hoped to make it 1,241 nm from Iqaluit directly to Winnipeg, where Glatz's friend Dylan Fast owns the Fast Air Jet Centre FBO. But flight planning scenarios showed that we would arrive with little extra fuel if the wind wasn't favorable. A direct leg to Winnipeg would also mean an extra-long flight across the frozen Hudson Bay with no nearby airports. A better option would be to fly more westerly to Churchill, just 792 nm, then the 542 nm to Winnipeg. If the winds proved helpful, it could have been possible to turn the corner at Churchill and make it to Winnipeg; otherwise a stop at Churchill looked likely.

With the airplane leveling at FL260, the OAT was still cold, and the wind was back on the nose; it was obvious early on that we would land at Churchill. Hudson Bay is massive, and it took what seemed like endless hours to cross the frozen lumpy expanse. Although it was midwinter, long open cracks in the ice zigzagged tens of miles into the distance. The visibility was nearly unlimited on this leg, but there was little to look at outside, other than the sun shining on the white iciness far below.

The winds started in the 20s, but not on the nose so didn't have a huge effect. We had dropped lower to FL240 because of the low OAT, and pulled the power back to the 45-gph setting, for a true airspeed of 257 ktas. As we crossed the western side of Hudson Bay, the wind shifted back to the west and slowed us down. Back at FL260, with a true airspeed of 283 knots, groundspeed was a low 227 knots.

It was late afternoon, and the sun shone brightly on our little airplane as we traversed the vast emptiness. Finally it was time to descend into Churchill, and we skimmed over a light fluffy layer of stable wispy clouds, which suddenly enveloped us in a clammy embrace, forcing us to remove our sunglasses and adapt to the gray-lit landscape below.

Not much to see at windy cold Iqaluit, our first stop in northern Canada, except for drifting snow, a locked-up FBO, and a brave team of linemen who filled the fuel tanks of the TBM in record time.

The flight to Churchill took 3:28, and thankfully the FBO was open. It turns out we were lucky to get fuel, as the railroad tracks that serve the airport had been damaged in a storm, and trainloads of fuel were unable to get through. In any case, we landed with more than 100 gallons and would have had plenty to make it to one of the other airports southwest of Hudson Bay.

One more short leg, and we would call it a day. We spent as little time as possible at Churchill, where the OAT was a balmy -21 degrees C, much more comfortable and less windy than Iqaluit.

It was just another 2:18 to Winnipeg. After a quick climb to FL260, the airspeed settled at 292 ktas and groundspeed 248 knots, burning 55 gph. The door seal did its cold-OAT thing again, but Glatz took quick care of it, and that was the last we heard from the seal on this trip.

After what seemed like hours of emptiness, occasional signs of civilization appeared. Tiny towns, many with airports, gradually passed by as we motored on into the sunset. At 100 nm from Winnipeg, ATC asked us to descend slowly at high speed, so we tipped the nose into a 1,000-fpm descent, and the leading edges of the wings lit up as if we were flying so fast that the air molecules were sparking into tiny orange burning embers.

It was dark by the time Winnipeg appeared, and the sight of the bright runway lights was most welcome after a challenging day. We had logged nearly 14 hours flying and made it from Prestwick to Winnipeg in one day. Tomorrow's trip should be relatively easy, and the remaining challenge was clearing customs in the U.S.

Glatz and I celebrated the long day's work with a well-deserved steak-and-beer dinner at The Keg Steakhouse, and Fast showed up later and entertained us with Canada flying stories.

Day 3 Winnipeg to Camarillo

While the last day's distance was much less challenging, Glatz did want to try to get to Camarillo in time to catch a taxi to Los Angeles International Airport for a flight to Geneva, where his next assignment on his endless journey around the planet awaited. The TBM was fueled and ready, so we took off soon after arriving at the airport and headed for the border and our customs stop at Williston, North Dakota.

This was a relatively short leg, just 273 nm, and took less than an hour and a half. Glatz is an expert at importing aircraft into the U.S., and he had made all the arrangements ahead of time, so the customs process at Williston went smoothly. We didn't need fuel, and took off planning to stop somewhere in Utah, depending on the winds and fuel prices, which I could handily view on the ForeFlight app.

With so many airports to choose from, it was almost hard to make a decision, but we made it to Fillmore, a small town 100 nm south of Salt Lake City. I took the controls for the landing on Fillmore's 5,000-foot Runway 04. Although I came in too high, the TBM loses altitude easily, and I pulled the power and lowered the nose until we were on the proper glidepath, then added a little power and flew down to the runway and a decently smooth touchdown. The TBM's handling is precise but somewhat heavy, although lighter at slow speeds. Like most high-performance airplanes, trim helps the pilot manage pitch control forces.

Fillmore is one of those typical barely used airports that dots the U.S. landscape, populated with a few airplanes and a hangar trustingly left unlocked for visiting pilots. The fuel is all self-serve. We topped off the tanks, adding a can of Prist to each one, enjoying for the first time warm sunny weather and the unobstructed view of the snow-capped mountains to the east.

I did the takeoff from Fillmore, and it was a pleasant way to start the final leg of the trip. We had plenty of fuel and calm winds, so didn't need to climb all the way to FL280 and settled at FL240 with 35-knot headwinds. Glatz took advantage of the opportunity to climb back into the cabin and pack up his bags while I dealt with ATC and a clearance change that was easy to input in the G1000 NXi flight plan.

All too soon it was time to descend, and Glatz took the controls for the remainder of the leg. Moderate turbulence bounced us around as we flew over Barstow and Victorville, through the Mojave Desert and over Palmdale, past Edwards Air Force Base through Simi Valley, familiar territory from when I lived in Los Angeles.

The turbulence finally calmed as we descended toward Camarillo Airport, and Glatz brought the TBM to a gentle landing on Runway 26, just 23.5 flying hours from our departure in France only two days previously. It was hard to believe we had flown 5,400 nm in such a short time, but that is the life of a ferry pilot. ■

Landing the TBM 910 in much more comfortable conditions at our destination, Camarillo, California. This was yet another delivery to TBM distributor Avex, the Daher dealer for California, Nevada, Utah, Arizona, New Mexico, and Colorado.

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

NEW

BOSE® PROFLIGHT AVIATION HEADSET

Introducing our smallest, lightest active noise cancelling aviation communication headset ever.

Contoured Headband

Clean, modern design produces less clamping force for a comfortable fit, even during extended use.

FAA TSO & E/TSO-C139a Certified

Rotating Side Pads

Up for storage, horizontal for use. Provides comfort and stability. Side cushions are easily replaceable.

Digital ActiveNoise Cancellation

Significantly reduces ambient noise, allowing users to lower radio volume and hear what they need to hear.

Tap Control for Talk-ThroughCommunicationtion

Double tapping either earbud optimizes that side for communication outside of the intercom without having to remove an earbud.

Replaceable Silicone Eartips

Silicone material provides a more comfortable fit. Three sizes included. Easily removed and replaced without tools.

We took 30 years of Bose research and innovation, incorporated more than 30 U.S. design and utility patents, added new features ...

... and fit it all into 4.9 ounces on your head.

Designed for the professional pilot, the Bose® ProFlight is the industry's smallest, quietest and most comfortable active noise cancelling communication headset, and the most advanced that Bose has ever produced, with many new features designed specifically for airline and corporate flight decks.

Connect with us @BoseAviation

BOSE

AVIATION

Replaceable Headband Pad

No tools required, easily replaced for long wear, comfort and hygiene.

Three User Selectable Levels of Noise Cancellation

Allows for user preference and aircraft noise environment.

***Bluetooth*® connectivity**

Connect wirelessly to mobile devices, audio systems and electronic flight bags.

Audio Prioritization

Allows users to mix Bluetooth audio with intercom audio, or have intercom transmissions temporarily mute Bluetooth.

Active Equalization

Automatically shapes and equalizes the incoming signal for enhanced clarity and intelligibility.

Bose Connect App

An enhanced way to enable Bluetooth audio sharing, manage connections, pair and unpair, rename devices. Updateable and scalable with continuously developed features.

Quick release side-swappable mic and down cable

Easily mount the boom mic and down cable on either side of the headset. No tool required.

Control Module

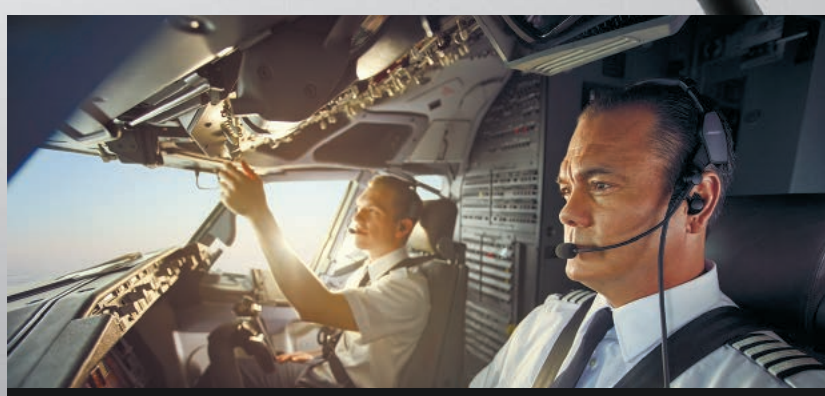
Ergonomic design, provides control of headset's primary functions. Configuration switches located inside provide additional customization settings.

Adjustable Boom Mic

Remains stable with head movement and through turbulence.

Electret Noise Cancelling Mic

Increases clarity and reduces background noise when transmitting, ideal for aircraft with "hot mic" or PTT systems.



Learn more at Bose.com/ProFlight.

JOHN RIEDEL

This year's Women in Aviation conference attracted more than 160 exhibitors and 3,200 attendees to Reno.

Annual WAI gathering looks to aviation's future

by Samantha Cartaino

"Connect. Engage. Inspire." This continued to be the mantra for Women in Aviation International's (WAI) 29th annual conference in Reno this year. With more than 3,200 attendees—including 114 international representatives from 21 countries—filling the Reno-Sparks Convention Center from March 22 to 24, approximately 162 aviation companies and organizations worked on connecting, engaging, and inspiring young women and men to find their paths in the aviation industry.

This year, conference organizers offered educational sessions on topics such as aviation legal issues, drones and unmanned aircraft, digital transformation in aviation, and aviation professions, among others. Organizers also introduced a "Minute Mentoring" program that allowed students and young professionals to meet with industry mentors for short amounts of time.

Engaging Interviews

One way companies and organizations engaged with attendees was by offering face-to-face interviews. In previous years, the conference allowed attendees to sign up for a Fast Pass program that guaranteed participants a time slot for a job interview with six different U.S. airlines. Because of the program's popularity, women and an increasing number of men waited in line for hours to receive a pass. These attendees would also wait by the airlines' booths, causing congestion in the exhibit hall.

The Fast Pass program did not take place this year, but commercial airlines and other companies took part in hiring briefings. Companies such as Alaska Airlines, Horizon Air, Pratt & Whitney, Delta Air Lines, UPS, and FedEx held 30- to 40-minute briefings that outlined their application procedures, discussed current positions available, and answered general questions.

Business aviation and charter companies were also looking to hire at the conference. Charter company XOJet is adding four new aircraft this year and is looking to fill approximately 30 pilot and office positions. XOJet recruiter Tess Mannering told **AIN** that the company received 15 to 20 resumes on the first day. XOJet hoped to educate prospective employees by offering them another option besides airline work.

"A lot of folks who go into aviation may go to major airlines like United and Delta," Michelle Bauman, senior v-p of human resources for XOJet told **AIN**. "They don't realize there's this whole other side of aviation from a business aspect right now."

Similarly, Desert Jet was looking to fill three summer intern positions, as well as some pilot and dispatch positions. An NBAA Certified Aviation Manager, president and CEO Denise Wilson told **AIN** that she did not see as many men at the conference compared to when the Fast Pass program was running, meaning that she had more time to engage with female candidates. In speaking with them, she found that many were not aware of the various opportunities in the aviation industry.

"There were three [young women] I spoke to who are junior level at their colleges, and they're aviation management majors, but no one in their university has told them what it will actually look like when they get out of college," Wilson told **AIN**. "At this conference, everyone has direct access to people who are actually in these roles. Just being able to sit down with the students and say, 'Hey, here's what it's like in our company. Here's what I went through and how I worked in other companies. This is what you might or might not look like.' I could tell it's already been beneficial to some of the students."

Inspiring Individuals

Among the keynote speakers who came to inspire the next generation of women in the aviation industry were Dr. Janet Lapp, CFI, Ph.D., a 3,500-hour certified flight instructor and clinical neuropsychologist; Lynne Hopper, vice president of engineering, modifications, and maintenance for Boeing Global Services; Marily Mora, president and CEO of the Reno-Tahoe Airport Authority; retired astronaut-turned-artist Nicole Stott; and Janine Shepard, a former athelete.

The organization also devoted all of Saturday to Girls in Aviation Day. Approximately 200 girls, including local Girl Scouts, between the ages of eight and 17 participated in games and spoke with industry leaders. Attendees took part in events such as a VFR navigation chart scavenger hunt, flight simulation, air traffic simulation, Morse code deciphering, and a college fair for older girls.

Shaesta Waiz, the founder of non-profit organization Dreams Soar, served as the keynote speaker during the lunch session. In October 2017, Waiz became the youngest woman to complete a solo trip around the world in a single-engine aircraft after flying 24,800 nm to 22 countries and accumulating 176 flight hours. She is also the first certified civilian female pilot in her birth country of Afghanistan.

"I am taking it back to when I was their age," Waiz told **AIN** about her speech. "I was a refugee Afghani girl and English was my third language. I grew up with five sisters in a very poor underprivileged school district [in California]. I'm sharing how I went from that to becoming a pilot who flew around the world. I want these young girls to walk away with the confidence to say, 'I know how to fly an airplane and I know that this is where I want to be.' It's just having that attitude to say 'I belong and I'm going to do it.'"

Looking Forward

With all of the tools the Women in Aviation conference has given its attendees, it is important to continue to grow. Amy Laboda, a founding board member of WAI, believes that women who attended the conference must move forward with this new knowledge. Using the friendships and connections made during the conference is key to paving the way for the next generation of women in aviation.

In her speech during the March 23 opening session, Boeing's Hopper outlined the future of women in aviation: "We need more female talent across the board in aviation, and there's a huge demand for that talent. If you talk about just pilots in the United States, we predict a need for 17,000 pilots between now and the year 2036. Are you alarmed? Do you feel defeated or frustrated? You can feel that way, but you can also feel hopeful because with that there's going to be a pipeline for our daughters and our nieces and our neighbors to fill those open spots." ■

Scholarships and Awards

Women in Aviation International awarded 142 scholarships worth $695,500 to WAI members this year. At the 2017 conference, the organization awarded 120 scholarships ranging from cash awards to jet type ratings and maintenance training that totaled $640,000. Since 1995, WAI has given out $11,495,581 in scholarships.

Organizations also took part in presenting awards at the conference. For example, the National Aeronautic Association presented the Katharine Wright Memorial Trophy to U.S. Air Force pilot Major Chrystina Jones and the Katherine and Marjorie Stinson Trophy to pilot Shaesta Waiz during the general session on the second day.

WAI also inducted three women into the International Pioneer Hall of Fame: Bonnie Tiburzi Caputo, the first woman hired by a major airline as a member of the cockpit crew; Kathleen Fox, chair of the Transportation Safety Board of Canada; and Brigadier General Linda K. McTague, who served as the commander of the District of Columbia Air National Guard. **S.C.**

Business doesn't stop at 40,000 feet.

Now, neither does high-speed internet.

Our fast, reliable technologies have powered businesses, governments, and militaries around the world for more than 30 years—and we apply the same high standards to your in-flight experience.

So go ahead. Conference, stream, and surf just like you would in your office—even at 40,000 feet.

From the leader in business jet connectivity

T: +1.760.476.4755 E: business-aviation@viasat.com **viasat.com/business-aviation**

Viasat will be at EBACE Geneva, May 29-31, please visit us at booth P107

Viasat™

Drone deicing coming soon

by Mark Huber

Norway's Ubiq Aerospace is launching a drone deicing system that should be ready for commercial customers in late 2019 or early 2020, CEO Kim Sorensen told **AIN** last month. While Ubiq has not set a price for the system, Sorensen said it will be cost effective and that Ubiq is looking for manufacturing partners on the carbon-nano thermal panel components of the system and to address any industry certification standards. He said that the design is CANaerospace (controller area network) compliant and designed to work with established vehicle communication protocols. The patent-pending system began tests aboard a NASA Dragon Eye in 2015.

The system is an offshoot of Sorensen's 2013 Ph.D. research at the Norwegian University of Science and Technology's Research Center of Excellence for Autonomous Marine Operations and Systems (AMOS). Sorensen said his research was inspired by the U.S. Coast Guard's issue with icing of UAS aboard ice breakers. Sorensen and his team were able to integrate the compact system into a Dragon Eye, a UAS with a wingspan of one meter, for flight testing.

He said the fully autonomous and automatic system, which has four main elements—thermal panels with embedded temperature sensors, an energy source, a central computational unit, and atmospheric sensors—can be scaled up to aircraft the size of a USAF Global Hawk. Sorensen said the system, driven by intelligent control algorithms, automatically turns itself on and off, and is designed to use the minimum power required to achieve safe deicing. "There is a lower boundary for what power you do require to ensure that icing doesn't build or you can deice, and we are trying get as close to that boundary as possible," he said.

Sorensen said Ubiq will begin work on deicing solutions for rotored UAS systems this summer and is already working with Norway's defense department. "The technology is transferable [to rotor]," he said. ■

NEWS note

Satcom service provider AirSatOne has added a capability to its Flightstream SA service, HTTPS web filtering. HTTPS provides protection for web access by encrypting communications between network clients and servers.

AirSatOne's new service allows customers to "control access to the internet by restricting or granting access to not only HTTP-based, but now also HTTPS-based web pages and services," according to the company. This includes "domain/URL blacklist and whitelist, category-based blacklisting, file-type filtering and file-size filtering."

Flightstream SA also permits whitelisting of aviation-specific web apps that are encrypted, for example, flight-planning and weather websites, while still allowing management of passenger web access. Special-mission operators and business users can use Flightstream SA to blacklist all web sites then whitelist HTTPS-based secure websites and software, the company explained. "Flightstream SA is deployed globally at the edge of the satcom network and the public internet. Being deployed globally is important to reduce hops and latency; our backbone and its efficiency matter to passengers on your aircraft." ■

XJET

XJet: The only one to rank in the top 5% of both AIN's FBO surveys in 2018.

THANK YOU to our loyal customers for your continued support & we would like to recognize our amazing global team of XJetters at KAPA & EGSS!

AIN 2018 TOP 5%

· DENVER · LONDON · DUBAI ·

All new **XJET.COM** launching soon

Manufacturers express optimism at AEA

Sold-out show signals a bright future for the avionics industry

by Matt Thurber

The 61st Aircraft Electronics Association (AEA) International Convention & Trade Show was held in Las Vegas from March 26 to 29. The gathering of avionics manufacturers, distributors, and government-certified repair stations showcased products and services from 135 exhibitors in a sold-out exhibit hall at the MGM Grand Hotel.

Exhibitors and attendees expressed optimism at this year's show, and AEA president Paula Derks welcomed the improving business climate in the avionics industry.

Just before the show, when Derks asked the 19 AEA board members how they viewed their prospects, "all 19 had great news about their companies and businesses," she said. "Ten years ago not one of the 20 there had positive news. I don't think that will stop in 2020 [when ADS-B mandates take effect]. We are looking forward to seeing what our industry will look like in the next 10 years."

Derks, who has led the AEA since 1996, announced that she plans to retire after next year's event in Palm Springs, California.

"I have stood at this podium every year for the last 22 years as the president of this association, and prior to that, I have worked for this great organization since the day I graduated from college nearly 40 years ago," Derks said. "As you might imagine, the AEA is my passion. Aside from my family and my faith, the AEA is a huge part of my life. I will be retiring approximately 12 months from now. This may seem unusual to announce 12 months out, but I want this succession to be as smooth as possible for the AEA. This 12-month transition will allow the board of directors time for a thoughtful and strategic search for the next president. It is the right time for me, awnd it's the right time for the next generation of executive leadership."

Among the 37 presentations at the opening day's New Product Introductions session were a variety of avionics and electronics developments.

CABIN ELECTRONICS

Alto Aviation Cadence Adds In-Line Relay Controller

Alto Aviation has released a new In-Line Relay Controller for its Cadence Switch System. Cadence switches minimize installation costs with pre-defined harness configurations and universal overlay options, and they can be installed without having to change the existing woodwork. Vertical and horizontal orientations within the same assembly are available, and a final configured switch panel can consist of several modules placed together in the same bezel. The switch modules are available in sizes from one to six positions, as well as pre-defined headphone and other accessory modules.

The In-Line Relay Controller can be plugged directly into the switch panel, or it can be used as a standalone controller, according to Alto. The number of relay functions (single, dual, and triple configurations are available) is scalable. It also offers "up to 2A relay action with No/Common," the company said, and "does not require operating software [and] has universal design and common part numbers."

Alto Aviation

AEA president Paula Derks

> **"As you might imagine, the AEA is my passion. Aside from my family and my faith, the AEA is a huge part of my life..."**

FDS Gets Hollywood Nod for HD Streaming on Bizjets

Six big Hollywood studios have approved movie content rights on business aircraft equipped with FDS Avionics's do Capsule wireless in-flight entertainment system. The company's licensing agreement with Global Eagle, the airline industry's provider of in-flight content, was central to securing the studio streaming approvals for movies and TV shows to be shown aboard business jets.

"FDS and the do Capsule inflight entertainment platform are bringing the first-ever wireless HD streaming content to business jet passengers," said FDS Avionics CEO Reed Macdonald. "Leading HD movies and television shows together with our high-definition 3D moving maps have positioned FDS and the do Capsule as the in-flight entertainment standard."

To load the tiered content, aircraft operators insert a solid-state drive into the do Capsule, enabling up to 22 passengers to simultaneously navigate and watch hundreds of HD and SD titles. FDS is taking orders for the streaming content, which will begin shipping shortly aboard its IFE platform. Entertainment packages include a premium-level lineup of 360 titles, a mid-level package with 180 titles, and another with 90 titles.

Honeywell Adds Iridium Next to Satcom Lineup

Honeywell's new Aspire 150 and 350 are designed to offer airborne connectivity via Iridium's Next satellite constellation. Lighter and smaller than previous-generation Aspire hardware, the 150 and 350 are also equipped with a built-in router.

Iridium's new Certus high-speed service is set to begin service after the network's satellites finish launching this year. An advantage of Iridium is that it provides full global coverage, even over polar regions where Ku- and Ka-band satcom lacks coverage. Iridium satcoms also require smaller antennas, making them easier to install on aircraft that don't have space for larger antennas. Certus will eventually offer speed up to 1.4 Mbps.

The Aspire 350 can be installed now and use the existing Iridium network until Certus enters service. The Aspire 350, which has a separate modem and antenna for cockpit safety services, can be used for future air navigation system (FANS), aircraft communications addressing and reporting system (ACARS), and air traffic control secure voice. The model 350 can be installed along with other satcom systems, and each system can act as a backup for the other.

Both the Aspire 150 and 350 allow use of Honeywell's GoDirect software to manage cabin connectivity services and usage, to help operators keep usage costs down.

Honeywell Aspire Iridium satcom

Honeywell did not provide any pricing information for Aspire 150 and 350 hardware and airtime service, but said that "operators can reduce costs by up to 30 percent compared with legacy satellite communications offerings."

SmartSky Lite Bringing 4G to Smaller Aircraft

As SmartSky Networks continues building out its air-to-ground (ATG) connectivity network in the continental U.S., it introduced a new system for light jets

and turboprops, SmartSky Lite. The Lite system will offer the same 4G LTE network speed as SmartSky's current system for midsize and larger jets, but Lite is limited to six devices.

The Lite system is expected to cost less than $50,000, according to SmartSky, and early adopters can take advantage of a promotional offer of airtime at a fixed rate of $75 per hour, which includes unlimited data. While SmartSky doesn't provide speed numbers, the 4G LTE network does allow video streaming by multiple users. The service provider for SmartSky airtime is Satcom Direct. Almost any router can be used with SmartSky systems.

SmartSky hasn't yet released specifications for the Lite system, "but it's far enough along to know that it's going to be a beautiful solution for the light jet and turboprop market," said Alan Goodnight, vice president of business aviation. Another difference between the Lite and the jet system is the size of antennas, with larger antennas required for the midsize and larger jet system. The Lite system is designed for aircraft weighing up to 19,000 pounds.

SmartSky's ATG network is about 55 percent completed, and the company has been flight testing the equipment in a Citation Excel since last year. The Excel is the first aircraft STC'd with the SmartSky 4G LTE system. SmartSky recently received FAA parts manufacturer approval for its hardware, which will make STCs easier to obtain. STCs for other midsize and large-cabin business jets are under way and are under development by SmartSky dealers, which will own the STCs. "We don't plan to be in the STC business," said Goodnight. SmartSky is also in discussion with manufacturers for possible installations in newly built aircraft.

As STCs are completed, some aircraft owners that committed early to buying a SmartSky system will likely have the installation done before the network goes live sometime this year, and they will be able to use the system where it is available. "As we continue with the certification program, the geography gets better," he said. "We've been flying the network since last year." SmartSky's data centers are active, and "we're still optimizing" the network, he added.

When the network is officially launched, it will provide full coverage for areas where more than 95 percent of business aviation flight hours are flown by business aircraft. This includes the Northeast U.S. to Florida, for example, and Boston and New York to and from California, plus popular areas in the central U.S., but not the upper Midwest. The continental U.S. will eventually have full SmartSky coverage.

"This is a market that has been underserved for decades," said Goodnight. "There has not been a good solution for [the light jet and turboprop] market in our opinion."

SAFETY EQUIPMENT

ACR Offers New ELT and PLB

ACR Electronics recently introduced its latest aircraft-mounted 406 MHz emergency locator transmitter, the ELT 4000, which is powered by alkaline batteries and thus exempt from FAA requirements applying to the installation of lithium batteries.

ACR also introduced a new personal locator beacon, the Artex PLB. With a seven-year battery life and priced at less than $300, the PLB weighs 116 grams and is small enough to fit in a shirt pocket. To activate the PLB, a user extends the unit's antenna, then flips open the protective cover and presses the "on" button.

In addition to transmitting GPS location via 406 MHz to Cospas-Sarsat satellites, the waterproof PLB includes a 121.5-MHz homing beacon and a one-candela strobe light.

"The Artex PLB is an affordable and user-friendly solution for pilots, crew, and passengers flying on a range of small, non-commercial aircraft who may want to improve their safety measures and greatly increase their chances of survival," said Jeffery Geraci, director of aviation sales for ACR Electronics.

Artex PLB and ELT 4000

Latitude's ENode To Acquire Twin-turbine Data

Latitude Technology introduced the ENode engine-data acquisition unit, which is designed for the twin-engine turbine-powered aircraft market and enables engine condition trend monitoring (ECTM), flight data monitoring (FDM), and fuel management.

Once data is captured, Latitude's web-based Flight Data Analytics can store, view, manage, and analyze the flight data to help a flight operation improve safety and fly more efficiently. Engine and flight data can also be sent to service providers for ECTM and fuel-use analysis.

Operators can opt for an ENode installation where engine signals are converted to Arinc 429 or also install a Latitude IONode FDM recorder, which can wirelessly upload saved data when the aircraft is parked near enough to a Wi-Fi network. Data can also be downloaded via a USB port on the IONode unit.

The ENode weighs 500 grams and includes inputs for rotor, compressor, turbine, and propeller rpm, synchro inputs for position sensing, thermocouple inputs for ITT and EGT signals, general purpose analog voltage inputs for data acquisition, and discrete inputs.

MATT THURBER

The Aspen Avionics non-TSO'd E5 Dual Electronic Flight Instrument garnered plenty of attention at this year's AEA show, and shipments are set to begin in mid-2018.

Latitude is planning to obtain STCs for installation of ENode in legacy King Airs, Twin Otters, the Bell 212 and 412, and other aircraft types. "Those coincide with the market we deal with," said David Thomas, director of helicopter and general aviation sales. "Those are our largest markets."

AVIONICS

Aspen Avionics Joins Low-cost PFD Market

As the FAA expands opportunities for avionics manufacturers to offer low-cost, non-TSO'd avionics for light airplanes, Aspen Avionics unveiled the $4,995 E5 Dual Electronic Flight Instrument (EFI). The E5 is STC'd for installation in a variety of airplanes and will be available in mid-2018.

The new E5 EFI looks similar to Aspen's unique Evolution Pro 1000 flight display, but it is fitted with a higher-resolution display. E5 buyers can later upgrade their unit into the more capable and costly TSO'd Pro 1000 configuration. Unique to Aspen's displays is that they are designed to replace the artificial horizon and horizontal situation indicator in a traditional "six-pack" instrument panel, by fitting into and over the panel cutouts left by removing the original instruments.

The Aspen E5 consolidates the attitude indicator and directional gyro/course deviation indicator into a single six-inch-diagonal display with resolution of 400 by 760 pixels. Other features include a rechargeable backup battery, GPS steering, air data computer, and attitude heading reference system. TruTrak's Vizion autopilot can be installed along with the E5 for a total package price of less than $10,000 (not including installation cost). The E5 can also integrate with other autopilot types.

ACSS Celebrates 5,000th ADS-B Transponder

Doing its part to help aircraft operators comply with the 2020 ADS-B mandates in the U.S. and Europe, ACSS has delivered the 5,000th production unit of the NXT-600/-700/-800 mode-S transponder that it makes for business, air transport, and military aircraft. ACSS (Aviation Communication & Surveillance Systems) is a joint venture 70 percent owned by L3 and 30 percent by Thales, and the company is managed by L3's Commercial Aviation Solutions sector.

"This significant milestone demonstrates our proven industrial capabilities and the performance of the NXT transponder family in providing ADS-B Out-compliant solutions," said ACSS president Terry Flaishans. "NXTs have been delivered to operators worldwide since the beginning of production in 2014, helping them equip their aircraft and meet the ADS-B compliance mandates set forth by the FAA, EASA, and other regulatory bodies."

Chicago Jet STCs Latitude DL150 as FANS Datalink

Chicago Jet Group has expanded the choices for datalink systems for upgrades to FANS 1/A+ and ATN capabilities with a new STC for installation of the Latitude DL150 Satellite Data Unit (SDU) Iridium satcom.

Chicago Jet's DL150 approval was done under an FAA approved model list (AML) STC for an additional 12 business jet models, and the STC is for FANS 1/A+ upgrades, which require a controller pilot datalink communications (CPDLC) and ADS-C datalink. The STC incorporates the Universal Avionics satellite-based augmentation system FMS. Models covered by the AML STC include the Falcon 50/50EX/2000/2000EX, Gulfstream G100, GII/GIII, GV, and G550, and Bombardier Challenger 600/601/604. Additional models to be added to the AML STC soon include the Falcon 900/900B, GIV, and Boeing 767-200.

Chicago Jet offers training programs to help pilots learn how to fly FANS operations, and the company can also help operators obtain the required letters of authorization to avoid any downtime after the upgrade is installed.

"The operation of Latitude's DL150 is unmatched from what we have seen in our experience," said Chicago Jet president Mike Mitera. "The Latitude SDU terminals are high performance, and it enhances our position by using Latitude's TSO-certified equipment."

DAC International STCs Litef AHRS in Citation 560s

Aero Precision Holdings subsidiary DAC International has received FAA STC approval for installation of the Northrop

› continues on next page

› continued from preceding page

Grumman Litef LCR-100 attitude heading and reference system (AHRS) in the Cessna Citation 560, Excel, and XLS. The LCR-100 is a drop-in replacement for the older LCR-93, according to DAC, "which means very little downtime and modifications to the aircraft to perform this installation."

Designed with fiber-optic gyro technology, the LCR-100 "is capable of self-aligning (gyro compassing) and does not require magnetic sensors for heading alignment," according to Northrop Grumman Litef. The unit also can integrate external or embedded global navigation satellite system data to provide a hybrid output for "a blended position solution for navigation and flight control purposes."

"We're excited to be able to now offer this STC to our customers," said DAC president Cisco Hernandez. "This STC allows units to be exchanged separately or at the same time, thus making it much easier for the operators to incorporate [in their aircraft]."

MATT THURBER

FreeFlight Adds Twin-turboprop ADS-B Solution

FreeFlight Systems expects approval later this summer for an STC for ADS-B Out and In for twin turboprops. The new Avail Performance Package will be an approved model list STC covering King Airs and other popular twin-engine turboprops.

The Avail STC includes dual FDL1090TX mode-S/extended squitter transponders, a Rangr RX/G ADS-B In receiver with internal WAAS GPS, built-in Wi-Fi, and a single control head. The FDL1090TX transponders are remote-mountable, and can be installed anywhere inside the pressure vessel, according to FreeFlight. The control head fits in a standard 2.25-inch instrument mounting and features a sunlight-readable, backlit-LED display. ADS-B In traffic and weather can be displayed on panel-mounted MFDs or mobile devices.

"With just over two years remaining to meet the ADS-B rule, there is a lack of cost-effective, high-quality options for twin-turboprop aircraft," said Pete Ring, FreeFlight Systems vice president of sales and marketing. "This is an ideal solution for many of our clients where a nondisruptive, remote-mounted option is preferred."

FreeFlight also announced that it has partnered with Avidyne to offer an ADS-B solution for Avidyne's IFD series GPS/com navigators. The solution includes Avidyne's IFD and AXP340 or AXP322 ADS-B-Out-capable mode-S transponder plus FreeFlight's Rangr RX ADS-B In receiver. Avidyne can provide the entire package at a bundled rate.

Garmin Gains Additional GFC 500 Autopilot Approvals

Garmin announced the addition of more airplane models to its STC for installation of the GFC 500 autopilot.

The STC, which requires installation of Garmin's G5 electronic flight instrument, now include the Beechcraft Bonanza S35 and V35 through V35B, and Piper PA28-150 through 181. The next airplanes to be added include the Grumman AA-5 through AA-5B/AG-5B; Bonanza C33 through G33; Cessna 210L through T210N; and the Mooney M20 and Piper PA32 (models to be determined).

The GFC 500 starts at $6,995. With a

Garmin G5s and GFC 500 autopilot

G5, price without installation is less than $10,000.

Some of the GFC 500 features include altitude pre-select; indicated airspeed hold mode; Garmin's Level Mode button for recovery to straight-and-level; Garmin Electronic Stability & Protection, which works even when the autopilot is off to help pilots avoid too-steep bank and pitch angles; underspeed and overspeed protection; built-in GPS roll steering; and coupled go-arounds.

JetTech: STC Soon for G700 TXi in Citations

Owners of older Citation jets will soon be able to upgrade their instrument panels with Garmin's 10.6-inch touchscreen G700 TXi display, under an STC that JetTech expects to be approved soon, the company announced.

The STC covers Citation models 500, 550, S550, and 560, and it will allow installation of one or two G700 TXi displays. JetTech will also offer a special upgrade path for customers who have previously installed a Garmin G600 display in their Citation.

With two G700 displays installed, a variety of display options are available, including PFD, MFD, and engine indicating system. The TXi displays feature single-finger zoom control, faster panning and chart rendering, and pinch-to-zoom capability. The PFD-configured display includes an HSI map, with overlay of maps, terrain, weather, traffic and other information.

JetTech also announced:

- Addition of VNAV to its STC for installation of the Garmin GTN 650/750 in the Citation 550B and 650 series equipped with the Primus 1000 integrated flight control system.
- Availability of a remote flight director annunciator panel for the Citation 500, 501, 550, 551, S550, and 560 series. Installation of the remote annunciator allows the primary flight director mode control panel to be moved elsewhere to provide space to add new products such as the soon-to-be-certified 10.6-inch Garmin G700 TXi displays.
- JetTech is offering the CD-125R retrofit, a replacement of the command display on the Citation 500, 501, 550, 551, S550, and 560 series. The CD-125R "allows vertical speed and indicated airspeed adjustments while the autopilot is engaged," according to JetTech. When not showing vertical speed or indicated airspeed, it displays Mach.
- A new glareshield modification for Citation 500, 501, 550, 551, S550 and 560 series, which relocates the annunciator panel and frees up space on the center panel to allow adding more avionics.

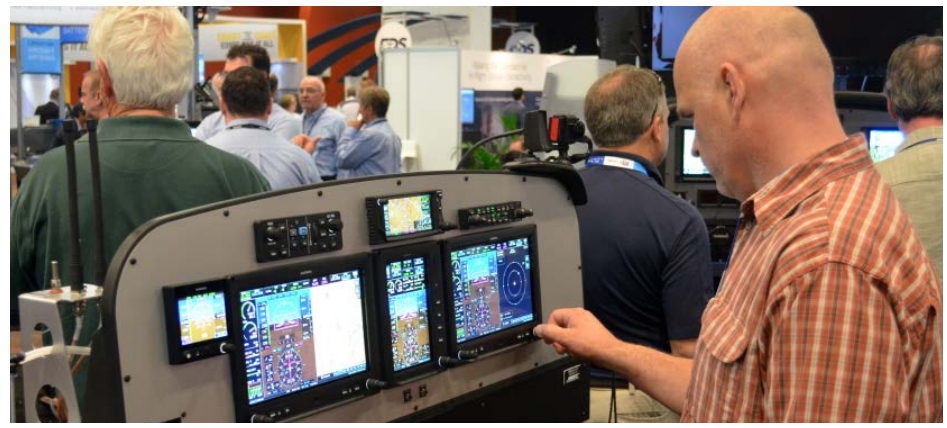
FlightSafety will soon complete installation of JetTech's Garmin GTN 650/750 GPS com/navigator upgrade in its Citation 550 full-motion simulator at the Long Beach learning center. The upgrade will include the ability to fly autopilot-coupled LPV WAAS approaches, voice-activated intercom, and ADS-B Out and In.

Mid-Continent Introduces MD32 Magnetometer

Aircraft manufacturers and avionics shops installing the Mid-Continent Instruments and Avionics MD302 Standby Attitude Module (SAM) can now add heading information independent of primary avionics using the newMD32 Magnetometer.

The MD32 "delivers independent heading reference without orientation limitations or the need for special installation hardware," according to Mid-Continent.

› continues on next page



continued from preceding page

"With this optional magnetometer, [the MD302] SAM is now the first certified indicator to deliver independent attitude, altitude, airspeed, vertical trend, slip, and heading information in a two-inch format," according to Mid-Continent director of sales David Copeland.

Mid-Continent's True Blue Power division introduced the 2,000-watt TC2000 AC-to-DC voltage converter, designed to provide 28-volt DC power for aircraft with AC power systems. According to True Blue Power, one TC2000 can power more than 100 True Blue UBS charging ports. The FAA- and EASA-approved TC2000 weighs less than 10 pounds and features transient, temperature monitoring, short-circuit, and overload protection.

MD302

True Blue Power also announced that its TA102 and TA202 USB charging ports are now covered by a limited lifetime warranty. The TA102 provides 2.1 amps per port, while the TA202 provides 3.0 amps per port and is available in a variety of configurations, including single- and dual-port and USB Type A and Type C.

Thommen ADCs Support Supersonic Flying

Thommen Aircraft Equipment has added new capabilities to its AC32 air data computer, including support for supersonic flight and angle-of-attack (AOA) computations to help prevent critical flight attitudes at low speeds. The company also highlighted "substantial investments in a new line of digital avionics and display solutions."

Thommen AC32

The AC32 now incorporates high-speed sensors to compute supersonic speeds, according to Thommen, "which greatly expands the range of applications and aircraft types of the product." The unit uses high-performance vibrating cylinder pressure sensors to measure barometric altitude and airspeed, "providing outstanding accuracy and stability for both static and pitot ports."

The AOA sensor provides inputs to the air data systems via dedicated labels on the Arinc 429 bus. "Correction factors from wind tunnel tests can also be applied to derive the corrected angle and guarantee precise and reliable measurements, from takeoff to landing," according to the company.

Trig Avionics Speeds Up ADS-B Installs

Trig Avionics unveiled its ADS-B Express Lane Service, designed to lower ADS-B Out installation costs for aircraft already equipped with the necessary GPS sensor and transponder hardware.

"Aircraft owners often overlook the expense of fitting ADS-B," said Trig CEO Andy Davis. An Express Lane ADS-B Out upgrade can be installed in five to eight hours, which is "three times faster than many competitors," according to Trig. The company was able to speed up installation time by improving the software in the Trig TT31 transponder.

The optimal setup for an Express Lane upgrade is an existing BendixKing KT76A, KT76C, or KT78A transponder and a WAAS GPS sensor such as a Garmin GTN or GNS navigator. In this case, the installer would swap out the BendixKing transponder with a Trig TT31 mode S transponder, which fits into the original tray and uses the existing antenna, encoder, and wiring.

The $2,995 TT31 is approved under an approved model list STC for installation in more than 650 aircraft.

UAvionix Wingtip ADS-B Nearing Certification

The uAvionix skyBeacon wingtip-mounted ADS-B Out solution is on target for FAA TSO approval in this year's second quarter. SkyBeacon is a self-contained 978UAT ADS-B Out transceiver and GPS sensor mounted in a small

unit that replaces the existing Whelen or Grimes navigation light mounted on many light aircraft.

SkyBeacon works with existing transponders, and its installation is relatively simple, requiring connection of power, ground, and if equipped, a strobe wire, then configuration using a mobile app. SkyBeacon also replaces the original navigation light and strobe with its own built-in LED nav and strobe lights.

For aircraft with incompatible wingtip lighting, uAvionix is also developing the tailBeacon, a similar ADS-B Out-compliant unit that replaces the white rear navigation light. TailBeacon is expected to receive TSO approval in the fourth quarter. TailBeacon will also be available for rotorcraft, and it has already been test flown successfully on helicopters.

MATT THURBER

TailBeacon by uAvionix

ADS-B In will be available with the skySensor, a nav light/strobe unit that will also mount on the wingtip. SkySensor will provide ADS-B In to mobile devices in the cockpit via Wi-Fi.

The company is planning for an approved model list STC for skyBeacon covering many Piper and Cessna models, and skySensor should also be approved for installation under an AML-STC. Other aircraft types should be able to be approved under field approvals, but uAvionix plans to expand the AML-STC to more aircraft.

SkyBeacon is currently available for experimental aircraft for $1,499, and uAvionix expects the certified version to sell for $1,750 to $2,000. The target price for a skyBeacon and skySensor package is $2,500. The tailBeacon price should be the same as the skyBeacon.

Universal, Chicago Jet Approved for ATN B1 AML STC

Universal Avionics announced that Chicago Jet has received FAA and EASA approval for an STC amendment adding Europe-mandated ATN B1 capability to the UniLink UL-800/801. The amendment is for an approved model list STC covering the Challenger 600, 601, and 604; Falcon 50/50EX and 2000/2000EX; and Gulfstream Astra, G100, GII, GIII, GV, and G500 (older version).

Those aircraft equipped with the Chicago Jet FANS/CPDLC STC with the Universal UL800/801 Communications Management Unit can add the amendment with Aeronautical Telecommunications Network Baseline 1 (ATN B1) controller pilot datalink communications (CPDLC) and context management functions, and this meets Europe's Feb. 2, 2010 ATN B1 mandate.

The STC offers a choice of Iridium datalink satcoms, including the Rockwell Collins ICS-120/220A, True North TN 1007-100, and Latitude DL150.

Chicago Jet is developing an STC to cover additional models, including the Falcon 900/900EX, GIV, GIV-SP, and Boeing 767-200.

"I'm very pleased that we've been able to add the ATN B1 capability to our AML STCs for CPDLC," said Mike Mitera, president of Chicago Jet Group. "This is a significant accomplishment that is going to provide datalink solutions for not only the operators based in Europe, but also for the operators here in the U.S. that will be traveling to the EU with their aircraft." ■

G1000 NXi coming to Phenoms

by Matt Thurber

Embraer's Phenom 100 and 300 light jets equipped with the Garmin G1000-based Prodigy Flight Deck will be upgradeable to the G1000 NXi configuration under an STC that is targeted for approval in the first quarter of 2019. The G1000 NXi adds new displays with faster processors, HSI map overlays, visual approaches, SurfaceWatch runway monitoring, and the Flight Stream 510 wireless gateway. The upgrade will be available from some Garmin dealers and from Embraer service centers, and will also be available as an option for factory-new Phenom 100s.

Phenom 100s and 300s equipped with the Garmin G1000-based Prodigy Flight Deck will be upgradeable to the G1000 NXi configuration.

With the G1000 NXi, the HSI map overlay allows pilots to view Nexrad, FIS-B weather, weather radar, SafeTaxi airport diagrams, traffic, terrain, and other information on the HSI, instead of having to look over at the MFD or PFD inset (for some of this information).

In addition, visual approaches can be selected from the procedures menu, just like a normal instrument approach, and provide a three-degree glideslope from the runway threshold.

Once the glideslope is selected, the pilot can set minimums and choose vectors or straight-in to intercept the final approach. Visual approaches can also be flown coupled to the autopilot.

Further, the NXi package adds the Flight Stream 510 and Connext technology, via an MMS card installed in the face of one of the G1000 displays.

This allows transferring of database updates from the Garmin Pilot app wirelessly into the G1000, as well as two-way flight plan sharing, and sharing traffic, weather, GPS, back-up attitude, and other information between the G1000 and a mobile device.

Other NXi features for the Phenom upgrade include overlay of European visual reporting points on moving maps; display of sectional charts and IFR low/high en route charts on the MFD; highlighting of nearby airspace, and non-pertinent airspace de-emphasized via the Smart Airspace function; decoded com frequencies displayed underneath radio frequencies on the PFD; and the ability to view decoded terminal aerodrome forecasts. ■

rolls-royce.com

Rolls-Royce

CorporateCare®
Relax, we've got you covered.

CorporateCare delivers comprehensive worldwide support adding value and liquidity to your aircraft - so relax, Rolls-Royce has you covered. For more information, email corporate.care@rolls-royce.com.

Trusted to deliver excellence.

Jeppesen, Bad Elf simplify updates

by Matt Thurber

Jeppesen has released an iOS app version of the Jeppesen Distribution Manager (JDM) flight data updating software and announced a strategic alliance with Bad Elf, which has just released its Bad Elf Wombat portable dataloading/downloading accessory. The Wombat device is a wireless data transfer system, and JDM enables downloading updates via an iOS device, for avionics that use Jeppesen databases, without having to carry a data card to an Internet-connected computer.

Bad Elf's Wombat device allows updating Jeppesen navigation databases using an iPhone or iPad to download the data.

The Wombat is available in piston and turbine versions from both Bad Elf and Jeppesen, and it also is a backup battery, equipped with a 9800-mAh battery pack for charging up to two mobile devices simultaneously. For avionics that allow downloading aircraft data, the Wombat can be used to download flight and engine logs, then share that data with apps and services such as CloudAhoy, SavvyAnalysis, and CirrusReports.

The piston version costs $249.99 and can be used to update Jeppesen databases in Garmin (not including G3000/G5000) and Avidyne avionics. Bad Elf plans to add support soon for Aspen Avionics, Dynon Avionics, Advanced Flight Systems, Genesys Aerosystems, Grand Rapids Technologies, and MGL Avionics.

The turbine version sells for $499.99 plus an annual $100 service fee and supports the same avionics manufacturers as the piston edition, plus Rockwell Collins and Honeywell avionics. Support for Garmin G3000/G5000 and Universal Avionics is coming soon.

Updating a database with the Wombat is a simple three-step process: download the update via Wi-Fi or cellular networks on an iPhone or iPad using the JDM app; connect the iPhone or iPad to the Wombat's Wi-FI network; insert a USB drive, SD card, or Garmin NavData card (using the Skybound adapter) into the Wombat; plug the card into the avionics to compete the update.

"Previously, many aircraft operators needed to update data cards offsite, which often meant working a long distance from their aircraft due to a dependency on traditional landline PC technology," said Mike Abbott, director, Jeppesen Data Solutions, Product & Portfolio Management. "Through our relationship with Bad Elf, most of our general and business aviation customers will now be able to use JDM Mobile and the Wombat device to wirelessly update essential charts and data, right in the cockpit. This

› continues on facing page

Honeywell adds to satcom offerings

Honeywell has introduced the Aspire 400 satcom, an Inmarsat SwiftBroadband system that provides connectivity for both the cockpit and cabin. Weighing about 100 pounds less than comparable systems, according to Honeywell, Aspire 400 consists of a satellite data unit, configuration module, high-power amplifier, and diplexer/low noise amplifier.

Buyers can choose between an intermediate- or high-gain antenna for the first release of the system. Upgrading to the Aspire 400 is "quick and easy" when replacing Honeywell's older satcom systems such as the MCS-7000 or MCS-7200, the company said.

Satcom service is provided by two independent SwiftBroadband channels and Inmarsat's I-4 network. For the cockpit, SwiftBroadband-Safety offers a secure data channel, which Honeywell said can be used for messaging with ATC, in-flight tracking, and electronic flight bag applications.

The second channel is available for passenger voice and data connectivity. For tracking and managing satcom usage, Honeywell's GoDirect Cabin Connectivity software is available with the new system.

Aspire 400 can be installed alongside an Iridium-based Aspire 350 for a dual-satcom setup "to provide redundancy over multiple networks," according to Honeywell. **M.T.**

› continued from preceding page

capability also extends to tens of thousands of customers operating legacy avionics that are not designed for wireless navigation data update capabilities."

Bad Elf had pre-announced the Wombat in 2015, but held off on releasing it because of the opportunity to add the new features just announced.

"By working [with Jeppesen] we're able to bring wireless database updating to over 80 percent of the general aviation market, including legacy avionics," Bad Elf CTO and co-founder Brett Hackleman told **AIN**. "We think pilots are going to love the convenience of iPhone- and iPad-based database updates with JDM Mobile and the Wombat Piston Edition."

Bad Elf also saw an opportunity to serve the business jet market. "[We were] approached by several large business jet operators who saw how Wombat could improve their decentralized fleet operations," he explained. "We worked closely with them to refine the Wombat app and hardware solution to meet their requirements. Over the last 18 months the Wombat Turbine Edition has been deployed in 400-plus business jets worldwide, equipped with Honeywell, Rockwell Collins, and Garmin avionics."

Bad Elf is planning to announce "several OEM partnerships around the Wombat's flight and engine log collection capabilities," according to Hackleman. ■

Updated Genesys HeliSAS offers even more benefits

by R. Randall Padfield

"It was like déjà vu all over again," as Yogi Berra might have described it.

Five years ago at Heli-Expo 2013 in Las Vegas, I flew a pristine, privately owned Bell 407 with a newly installed Cobham HeliSAS autopilot and stability augmentation system (SAS). Now I was again flying over the Nevada desert in another HeliSAS-equipped helicopter at Heli-Expo 2018, also in Vegas. The main differences between these two flights are the company's name and ownership, the helicopter and a few enhancements to HeliSAS itself.

In April 2014, Cobham sold S-Tec Corporation (the producer of HeliSAS and other autopilots) and Chelton Flight Systems to Genesys Aerosystems, a new company formed by Gordon Pratt and Rick Price (the original co-founders of Chelton) and former Cobham Avionics executives Roger Smith and Tammy Crawford.

The helicopter that Chad Howard, Genesys field service engineer and test pilot, flew to Heli-Expo 2018 for demonstration flights is a former U.S. Army OH-58A+ Kiowa, a militarized version of the Bell 206, and therefore considered an experimental aircraft by the FAA. No longer olive drab, the shiny white N762MF sports a blue and black Genesys Aerosystem's logo and looks very much like a garden-variety 206...until you notice "EXPERIMENTAL" painted on the lower section of the cockpit doors. When it wore olive drab, the helicopter carried a 7.62 mm M134 Minigun, Howard said, and its four seats still sport their original military-style harnesses. Genesys uses its OH-58A for flight-testing and customer demonstrations, he told **AIN** editor-in-chief Matt Thurber, me, and "Chuck" (a pseudonym for another pilot who preferred not to be identified in this report) during our safety briefing before our flight on March 1.

This same month Genesys delivered its 1,000th HeliSAS to an EMS operator for an Airbus EC130T2. "Almost 25 percent of our 1,000 installations are in EMS helicopters in the United States," Jamie Luster, Genesys director of sales and marketing, told me. "We've captured most of the EMS market here." The obviously successful product, which weighs in at less than 15 pounds, "brings safety and workload-reduction advantages to a wide range of light and medium helicopter models," she explained.

Although the company's name and ownership have changed over the years, it has always been based in Mineral Wells, Texas. This small town of about 15,000 residents was once the home of the Army's Fort Wolters, where thousands of Vietnam-era Army and a smaller number of Air Force helicopter pilots (including this writer) and non-U.S. military pilots became hover lovers in Bell 47s and Hughes TH-55A trainers. Fort Wolters itself was deactivated in 1973.

On before Takeoff/Off after Landing

HeliSAS is designed to be engaged at all times during flight—"SAS on before takeoff and SAS off after landing," as Howard put it—but a pilot can easily override the system and even fly without it, although this defeats the purpose of having it. While hand flying is a good way to maintain "stick-and-rudder" skills, flying manually does get fatiguing on long legs and in turbulence; it can also become a safety factor in low visibility, especially when flying single-pilot. HeliSAS provides attitude stabilization and force feel, which improve handling and help the pilot avoid inadvertent cyclic control inputs that could result in dangerous attitudes. Roll trim limits are plus-5-degrees to minus-5-degrees and pitch trim limits are plus-11-degrees to minus-6-degrees. In whiteouts, brownouts, and other low-visibility situations, where a pilot may lose visual reference, HeliSAS is invaluable in maintaining a safe and stable attitude.

"HeliSAS has a wonderful feature that allows the pilot to recover from an unusual attitude," Howard explained. "If HeliSAS is off and the pilot inadvertently climbs into IMC [instrument meteorological conditions] trying to avoid a cloud bank or flies into clouds, he can press the SAS button on the panel or press and hold the force trim release button on the cyclic for 1.5 seconds and HeliSAS will engage. The pilot can then remove his or her hand from the cyclic; and the aircraft will roll to zero-degree roll angle and two-degrees nose-up, establishing a safe and stable attitude. This allows the pilot to gather his wits, and by using the upper autopilot modes—altitude hold [ALT] and heading [HDG] or navigation [NAV]—to fly out of the clouds."

A Safe and Stable Attitude

The "safe and stable attitude" capability of HeliSAS appears to have been a primary factor in saving three crewmembers and one patient from injury and possibly death on January 12 of this year. The four were onboard a HeliSAS-equipped, single-pilot Bell 206L4. In this medical configuration, the feet-end of the patient's stretcher extends into cockpit, replacing the left-side pilot seat and controls.

According to a "Mishap Notification" posted on the Concern Network, "An Air Evac Lifeteam flight crew was transporting a patient from a scene when the pilot suffered a medical emergency that impaired his ability to operate the aircraft. The pilot had engaged the stability augmentation system and autopilot systems (HeliSAS) after departure from the scene and moments later stopped responding to the medical crew over the ICS. After several attempts to elicit a response from the pilot, the flight paramedic accessed the cockpit and assisted the pilot, who landed the aircraft safely in a rice field while the flight nurse contacted the company's Operations Control Center. The flight paramedic and nurse performed an emergency shutdown of the aircraft and removed the pilot from the aircraft. Additional resources were dispatched to transport the patient and the pilot to appropriate medical facilities."

[The Concern Network was created in 1984 by the now-named Air & Surface Transport Nurses Association as a means of collecting and distributing information about a variety of airmedical and critical-care, ground transport mishaps. For privacy reasons, Air Evac Lifeteam declined to provide additional information about this incident for this article.]

Genesys offers HeliSAS in three configurations: SAS only; SAS with beep trim; and SAS with two-axis autopilot and beep trim. The company's OH-58, being a demo and test aircraft, has the latter configuration.

Above 40 knots, the pilot can engage the upper modes HDG (heading), NAV (navigation) and ALT (altitude). If the aircraft has a heading bug or HSI, the autopilot's HDG mode will follow it; NAV mode can also hold a GPS track. The pilot selects an airport or waypoint in NAV mode and the HeliSAS will fly to the destination. When in ALT mode, raising the collective increases airspeed, while lowering the collective decreases airspeed.

"In the upper modes," Howard continued, "HeliSAS can fly an approach—ILS or LPV. If you are given vectors to intercept, you can have HeliSAS in HDG and ALT hold and turn to the intercept heading and press NAV. NAV will arm—HDG and ALT hold remain on—and as the CDI comes in, HDG releases and NAV steers the course. Pressing VRT arms vertical navigation for either the localizer or GPS and then captures the glide slope."

Slipping the Surly Bounds of Earth

Our demonstration flight during Heli-Expo 2018 took us from Henderson Executive Airport (HSH) to Boulder City Municipal Airport (BLD) and back. Howard, the pilot-in-command, flew from the right seat with Chuck in the left front seat; Thurber and I rode in the back. At Boulder City Airport, Chuck and I switched seats for the return flight to Henderson. During both legs, Howard demonstrated the

MATT THURBER

R. RANDALL PADFIELD

SAS engages the system to provide attitude stabilization at all speeds. HDG selects the desired heading the pilot wants to fly. If there is no HSI, the HDG function will maintain the existing GPS track. NAV selects the active GPS, VOR, or localizer course and automatically intercepts and tracks it. BC intercepts and flies a back course localizer approach ALT maintains the existing altitude for an indefinite period.

R. RANDALL PADFIELD

R. RANDALL PADFIELD

A former U.S. Army OH-58A+ Kiowa serves as the Genesys flight-test and demo helicopter.

various HeliSAS functions and then had Chuck and me try them while he talked us through the maneuvers. The weather was severe clear, but with a steady wind of 15 to 25 knots that became turbulent over and downwind of the rocky hills between the two airports. Total flight time was about an hour.

At Boulder City, I lifted into a hover with HeliSAS and the force trim engaged. In gusty wind it took me a while to stabilize the hover both with and without depressing the trim button to compensate for the wind. After few minutes' practice this became a bit easier, but I still felt rusty.

Howard had me do a normal takeoff straight ahead into the wind and then he selected heading hold (HDG) on the HeliSAS panel, which is below the center console in the OH-58. A pilot in the right seat can easily push the HeliSAS buttons with his left hand while keeping his right hand on the cyclic. This action is more awkward for a left-seat pilot, especially in turbulent conditions. I did not yet feel comfortable holding the cyclic with my left hand and looking down and to the right to find the HDG button on the panel. So I gratefully accepted Howard's suggestion that he do the button-pushing.

As we flew toward Henderson, Howard showed me the system's "recovery from inadvertent IMC" capability. He had me put the aircraft nose-up and in 30-degree left bank, and then told me to press and hold the force trim release (FTR) button one-and-a-half seconds ("Should I count?" I thought) until I felt HeliSAS taking control of the cyclic, at which time I should let go of it. I did as told, although I kept my hand close to the cyclic grip, and watched as HeliSAS rolled the helicopter wings level and settled into a slight nose-up attitude. I kept my left hand on the collective to control altitude. Seeing how well this worked, I asked to try it again. This time I took my right hand completely away from the cyclic. Cool!

I did more maneuvering while heading in the general direction of Henderson, and soon felt comfortable with HeliSAS doing most of the work. Traffic and wind at Henderson (and another demo flight for Howard) cancelled our planned instrument approach to the airport, but I have no doubt that the NAV, BC and VRT functions would have worked, too, as they had on my previous HeliSAS flight in 2013. Howard took control to safely bring N762MF back to its parking spot on the southernmost Henderson ramp.

Later, Luster told me, "We used to hear objections from owners who would say, 'I got my pilot's license to fly. Why would I want an autopilot?' And we would try to get them to understand that HeliSAS is the augmentation system that saves lives." But more recently there seems to be a change of mentality in the marketplace, she continued. "We've had helicopter owners come to us at trade shows and say, 'If I hadn't had HeliSAS installed, I would be dead now.'"

Luster concluded, "We offer the stability augmentation only, or stability augmentation with autopilot. All VFR. We're continuing to add capabilities to the system. We've improved some of the handling characteristics. We worked with EFIS manufacturers to enable altitude preselect on their EFIS displays and feed that to the HeliSAS. Our most recent STC was for the EC120; we changed the VERT button to an airspeed button. Push it once and it holds airspeed; push it twice and it holds vertical speed."

Airframes currently STC'd for HeliSAS are the Bell 206B/L and 407, the AS350 series, the EC120, EC130B4, EC130T2, and the Robinson R44 and R66. ■

Health-and-usage monitoring systems would be more useful if the crew and maintainers had access to the information in real time, not at the end of a flight, the AAIB concluded after its investigation into a North Sea incident involving an S-92 that lost tail-rotor authority.

AAIB recommends real-time HUMS

by Mark Huber

While current helicopter health-and-usage monitoring systems (HUMS) are valuable tools, they are not always fail-safe. That's the takeaway from a report released earlier this year by the UK's Air Accidents Investigation Branch (AAIB) detailing a potentially catastrophic hard landing on a North Sea oil platform by a CHC Sikorsky S-92 on Dec. 28, 2016, and using it to make the case for real-time HUMS.

The accident resulted from a failure of the tail rotor pitch change shaft bearing (TRPCS), a misreading of the downloaded HUMS data the night before the accident flight by the maintenance crew, and the flight crew's misinterpretation of the helicopter's flight behavior before losing yaw control and gouging Total's West Franklin wellhead platform helideck during landing. The helicopter sustained left outer main wheel rim distortion and a seized tail rotor. There were no injuries to the two crewmembers and nine passengers.

The investigation determined that the TRPCS bearing failed for undetermined reasons, precipitating damage to the tail rotor pitch control servo. During a flight a day before the accident, the helicopter's HUMS unit recorded vibrations that included exceedences related to the TRPCS bearing. This data was downloaded and an anomaly for tail rotor gearbox (TGB) bearing energy was detected by the maintenance engineer; however, the exceedences were not identified due in part to the way they were presented on the analysis tool, and the helicopter was released back into service. HUMS recorded further exceedences on the day of the accident but there was no way that either the flight or maintenance crew could know of these until the end of the flying day when the data could be downloaded.

Lifting off for West Franklin the day of the accident, the helicopter suffered an uncommanded right yaw through 45 degrees. After immediately landing, lifting into hover, and running a control check, the crew attributed this to wind effect and departed en route for the five-minute flight to West Franklin, where, in the later stages of landing, yaw control was completely lost, the helicopter yawed right, and the crew landed immediately and heavy on deck,

› continues on facing page

Former FAA inspector pleads guilty to fraud

A former FAA safety inspector has pleaded guilty to multiple federal felonies. He's accused of accepting bribe money he used to buy a Taylorcraft, paid in exchange for intentionally failing to conduct required inspections on a helicopter operator in Guam, Hansen Helicopters. The company's maintenance practices have been called into question by the NTSB. In an agreement with federal prosecutors revealed this week, Timothy J. Cislo pleaded guilty to three counts of honest services wire fraud. He could face up to $750,000 in fines and 20 years in prison.

Prosecutors charged Cislo with accepting funds from Hansen Helicopters or its representative in 2014, to purchase a Taylorcraft BC-12D with an estimated value of approximately $20,000. The money was paid in exchange for issuing and reissuing special airworthiness certificates for helicopters without performing the requisite inspections. In e-mails with Hansen employees, Cislo referred to these illegal certificate approvals as "sign-fests," according to prosecutors. Hansen operates a fleet of Hughes/MD 369/OH-6s for a variety of missions, including fish spotting throughout the Pacific for large Japanese tuna boats.

In late 2016, FBI agents raided Hansen facilities in Guam, Saipan, and Georgia, seizing airworthiness certificates, registrations, and logbooks for 15 of the company's helicopters. They also confiscated several helicopters outright, including one being maintained by Hansen in the Philippines. This shut down most, but not all, of Hansen's operations.

In February 2017, a Hughes 369A helicopter operated by a Hansen-affiliated company, "Jim's Air Repair" (both companies have the same ownership nexus) based on the small island nation of Vanuatu, made a hard landing into the Pacific near Guam during a fish-spotting mission. The American pilot and the Japanese spotter survived with serious injuries, and the utility float-equipped helicopter was recovered.

Maintenance Discrepancies

The accident report NTSB Identification: WPR17LA075 highlights several discrepancies. The pilot held only a third-class medical at the time of the crash, and therefore was not qualified to fly commercially. The engine had 393.7 hours since last overhaul but the two hour meters inside the helicopter varied—one displayed a reading of 937.8 hours, and the other one displayed a reading of

› continues on facing page

News Update

ICAO Developing Global UAS Standards

The International Civil Aviation Organization (ICAO) has begun the consultative work needed to establish "harmonized" and "globally aligned" low-altitude traffic management guidance for domestic unmanned aircraft systems (UAS). "Many new proposals and innovations are emerging on a daily basis regarding unmanned aircraft and their operations at low altitudes," said ICAO council president Olumuyiwa Benard Aliu. "ICAO is the natural agency to bring together the best and brightest...to define how these aircraft can be safely integrated into modern airspace, and in a way that optimizes their benefits." ICAO will convene its second "Drone Enable" in Chengdu, China, on September 13 and 14 to focus on the global coordination of UAS development activities, among other topics.

Curti Aerospace Launches Two-seat Turbine Zefhir

Last month at the Aero Friedrichshafen show in Germany Curti Aerospace unveiled its Zefhir, a project formerly known as "Disrupt," and development of which was funded by the European Commission. The helicopter is designed for both recreational and commercial applications and features crashworthy seats, a whole-aircraft ballistic parachute system designed by Junkers Profly, and a new 241-shp turbine engine (derated to 141-shp) from PBS Velká Bíteš in the Czech Republic. Curti said the helicopter was developed to meet the need for a better designed light helicopter with a more powerful engine.

Leonardo Expands Support in Chile

Leonardo Helicopters has appointed Aerocardal its authorized service center in Chile. Aerocardal will provide support and maintenance for AW109 light twins and AW119 singles from its base at the Comodora Arturo Merino Benitez International Airport. The Chilean company already flies two AW109 Grands in EMS configuration and has been providing maintenance services for AW109 Power and GrandNew helicopters for the last eight years. More than 20 Leonardo helicopters are in service in Chile, flying VIP transport, firefighting, law enforcement, EMS, and utility missions.

CHC Goes to the Dogs

CHC Group Aberdeen has selected Veterans With Dogs as its charity of the year. The organization is dedicated to training fully accredited assistance dogs to help former and serving armed forces personnel with post-traumatic stress disorder (PTSD) and other mental health conditions lead more independent lives. CHC Aberdeen has raised £7,000 (US$9,890) for the charity and will sponsor a puppy for the program. **M.H.**

Best practices take root at EMS and offshore operations

by Mark Huber

Offshore energy and helicopter EMS operators are leading the way in the implementation of best safety practices, according to the third annual global safety survey from the International Helicopter Safety Team (IHST). In addition, overall use of IHST key safety recommendations increased to 59 percent from 42 percent among respondents year-over-year.

U.S. operators provided 69 percent of the survey responses, and their overall use of the key recommendations improved from 39 percent to 61 percent. Australia showed even better improvement, to 62 percent last year from 36 percent in 2016. Operators across a spectrum of applications showed significantly more use of the key safety recommendations. Personal/private operators still report the lowest use of the IHST's key safety recommendations, and they remain the focus of the IHST's ongoing safety promotion efforts.

The IHST found that the offshore oil-and-gas industry is using automated and manual health-and-usage monitoring systems (HUMS) at a rate of nearly 100 percent, including key parameters such as engine start data—especially hot starts—power check data, oil sampling, and overall trend monitoring. The manual monitoring techniques were used in older/smaller models without automated systems to identify equipment problems before failures.

Offshore operators also lead in the implementation of flight data management (FDM) usage, with the helicopter EMS industry showing a "promising" increase in utilization. IHST reported that "globally, 56 percent of the 105 EMS operators who responded to the survey said they now use FDM. In 2016, that percentage was 33 percent. In the U.S., use of FDM by EMS operators increased from 40 percent to 62 percent." However, the IHST reported that overall usage of FDM programs was relatively low.

"It is particularly disappointing to see that of the 83 operators using helicopters for instruction and training, only 24 percent are using FDM. FDM can be particularly valuable in the training environment by enabling students to review their flights," the IHST reported.

Helicopter EMS operators were also noted for their widespread implementation of night vision goggles (NVGs); 100 percent of U.S. EMS survey respondents said they are NVG users.

Private Ops Still Behind

The IHST noted that the use of structured programs to comply with manufacturers' recommended maintenance practices is more widespread than the use of HUMS or FDM, but "not as universal as it should be," and that the trend of private operators' safety practices to lag behind those of institutional, commercial, and corporate operators continues.

"Private operators using helicopters for personal use have adopted relatively few of the IHST's recommendations. This result correlates with the IHST's analysis showing that the personal/private operators have high accident counts. Hence, these operators have the most to gain from adopting the IHST's key recommendations."

The IHST concluded that the latest survey results show that adoption of its key recommendations is highest in the groups with the lowest accident rates, particularly the offshore helicopter operators, and are effective tools in preventing helicopter accidents.

IHST best practices include safety management systems (SMS); structured programs for initial and recurrent training; mission-specific systems and equipment including HUMS, FDM programs, night vision goggles, and wire strike protection; and structured programs to comply with manufacturers' recommended maintenance. ■

The safety record of EMS operators reflects the industry's adoption of IHST best practices.

› continued from preceding page

Real-time HUMS

rotating through 180 degrees before closing the throttles.

The investigation found that while the impending failure of the TRPCS bearing was detected by the HUMS, routine maintenance missed it due to a combination of human factors and the design of the HUMS ground station man-machine interface. The HUMS GS software in use at the time also has a previously unidentified "anomaly" in the way data was displayed to maintenance personnel, and the recommended method for viewing data per the manufacturer was not always used by maintenance personnel.

In the wake of the accident, Sikorsky introduced HUMS software with enhanced diagnostic capabilities and improved user interfaces and "took tighter control" of bearing manufacturing and assembly tolerances, lubrication quality and application, and in-service temperature monitoring.

The accident followed the issuance of an FAA emergency airworthiness directive on Nov. 18, 2016 after a report of another S-92A losing tail-rotor authority. That AD called for inspecting helicopters with recently installed TRPCS assemblies before further or significant flight. The December 28 accident prompted an Alert Service Bulletin (ASB 92-64-011) from the manufacturer that called for a special one-time inspection of the tail rotor and bearing assemblies and a data check of the aircraft's HUMS. It mandated an off-the-aircraft check of the tail-rotor pitch-change-shaft (PCS) bearing.

The AAIB found that the operator's practice of downloading HUMS data every five flight hours, which surpassed the UK regulatory standard of 25 hours, still failed to provide timely warning of impending TRPCS failure; that the time between detectable degradation of the bearing by HUMS and bearing failure was four flight hours; and by the time HUMS data was reviewed by a second organization, the TRPCS bearing had already failed. The investigators concluded that if the loss of yaw control had occurred earlier in the flight, the helicopter likely would have made an uncontrolled descent into the North Sea.

The AAIB noted that the current vibration health monitoring (VHM) regulatory requirements for intervals between data downloads are ineffective for the detection of imminent in-service component failures and that opportunities to detect problems from low frequency data-capture from individual VHM sensors are missed. It recommended that the European Aviation Safety Agency (EASA) conduct research into VHM data with the aim of enhancing its usefulness to predict failures and amend regulations to require VHM analysis in near real-time with that information made available to the flight crew. ■

› continued from preceding page

Fraud guilty plea

1,245.9 hours. No one at Hansen seemed to know why. No fuel was observed in the fuel tank during the examination. The fuel pump power wire was not wrapped around the start pump fuel line, as it was required to be; this condition can result in an erroneous fuel quantity indication. In addition, the in-tank quantity sensor exhibited visible corrosion. A vacuum check of the engine fuel system indicated that there was a slow leak within the fuel system. During the check, systematic isolation of components traced the leak to a line that connected the fuel pump to the fuel control.

In addition, there was a lot of water in the fuel system, and it was unlikely that it was as a result of the water landing. As the NTSB found the "evidence was consistent with the water being present in the helicopter fuel system before the flight."

Hansen declined to make the helicopter's mechanic available to NTSB investigators or to provide an accounting of his qualifications. The company's director of maintenance supplied the NTSB with maintenance records, flight records, and 337 forms. The NTSB wrote, "Exclusive of the 337 forms, none of the contents conformed to the FAA maintenance entry requirements." The records contained multiple internal service time and/or component number discrepancies. According to the FAA inspector, cursory comparisons of the 337 forms with the records on file with the FAA in Oklahoma City revealed numerous discrepancies. The most recent recorded 100-hour/annual, 300-hour, or 600-hour inspection was completed and signed off by the Hansen Helicopters' DOM on 5/7/16. On that inspection entry, the airframe time was listed as 6,891.1 hours, and the "Hobbs time" was listed as 544.1 hours. The inspection entry stated "Next inspection due is a 100 hour at 6991.1 [hours]." However, despite the fact that all available information indicated that the helicopter has accumulated nearly 400 hours since that inspection, no additional FAA-compliant inspection entries were observed for dates subsequent to 5/17/16.

Hansen Helicopters maintained that it merely provided employment recruiting, training, and logistical support for Jim's Air Repair of Vanuatu.

Hansen Helicopters recorded two fatal crashes in the late 1990s. In a 1997 accident, the NTSB found that a non-repairable trim switch had been disassembled and reassembled. In an accident a year earlier, the Board found that tail-rotor control was lost due to improper maintenance. **M.H.**

Airbus awash in orders for EC145e and Lakota

by Mark Huber

The $125 million fleet order for 25 EC145es from Metro Aviation announced in February was only the start of orders for the helicopter that will keep the production line flowing through 2023.

A flood of recent new orders for military UH-72A Lakotas and civil EC145es assures that Airbus Helicopters's production line for those medium twins in Columbus, Mississippi, will remain open through at least 2023. Aggregate orders announced through early last month amount to 76 aircraft: 51 UH-72As and 25 EC145es. Both aircraft use the same airframe, with the former being used by the U.S. Army for primary training, National Guard, and homeland security missions and the latter by mainly civil EMS and utility operators.

Airbus and Metro Aviation announced an order for the 25 EC145es on February 27. Deliveries have already begun and are scheduled to continue over the next four years. The EC145e is a lower-cost variant of the out-of-production EC145C2, a model similar to the UH-72A. Metro was the first customer for the lighter-weight, lower-cost EC145e when it was launched in 2015, and it already flies six of them in air medical roles in various U.S. locations. Airbus's standard VFR avionics package for the EC145e features a glass cockpit with the Garmin G500H and GTN 650 GPS and communication system. It has an mtow of 7,903 pounds. The weight savings from Metro's VFR-only avionics package allow an extra 70 gallons of fuel or 200 to 250 pounds of payload, which translate into another hour of endurance or an additional patient, respectively, a Metro spokesman told **AIN**.

Metro is developing an STC for a lightweight IFR package that it will install into its EC145es at its Shreveport, Louisiana completions facility. Working with Genesys Aerosystems, Metro has developed and received FAA STCs for a VFR electronic flight instrument system (EFIS) and an autopilot and stability augmentation system for the EC145e. IFR certification is expected this year. Metro plans to operate some of the new EC145es in its own medevac fleet, but said it would also remarket others in medevac, utility, and VIP configurations.

On March 8, Airbus announced it had received an order for 35 UH-72A Lakotas from the Army valued at $273 million. The contract includes aircraft, associated technical and flight operator manuals, and program management. This procurement is broken into two configurations: 17 UH-72A Lakotas for the flight training Initial Entry Rotary Wing mission at Fort Rucker, Alabama, and 18 UH-72A Lakotas for the observer/controller mission at the Army's Combat Training Centers.

Two weeks later Airbus announced that it had received a second contract valued at $116.9 million for an additional 16 UH-72As to support the mission at Fort Rucker. The contract includes the UH-72A production aircraft, associated technical and flight operator manuals, and program management. Fort Rucker is in the process of converting its mixed training fleet of Bell TH-67s and OH-58s to an all UH-72A fleet. Deliveries of this block of aircraft will continue through 2023.

Airbus has delivered more than 423 Lakotas since the award of the first U.S. Army contract for the aircraft in 2005. ■

Fuel lever, floats ID'd in NYC helo crash

by Mark Huber

An NTSB preliminary report released in late March on the fatal doors-off March 11 helicopter photo flight in New York officially reveals the pilot's version of events and the fact that the right side emergency tri-floats appear to have not been fully inflated at the time of impact. The accident killed all five passengers after the Airbus Helicopters AS350B2 lost power and autorotated into the East River and then rolled over on its right side to inverted after impact. The flight was operated by Liberty Helicopters for FlyNYON under the photo exemption of Part 91.

In the wake of the accident, the FAA formally issued an emergency order prohibiting use of supplemental passenger restraint systems that cannot be released quickly in commercial doors-off operations. The March 22 order further prohibits doors-off flight operations unless passengers are secured with FAA-approved restraints.

The pilot, Rick Vance, escaped with minor injuries and subsequently told investigators of trying to restart his helicopter's engine after a portion of a passenger's supplemental harness possibly snagged the fuel shutoff lever into the off position.

Post-accident wreckage examination by the NTSB also found that "the three floats installed on the left landing gear skid appeared to be more inflated than the floats on the right landing gear skid. The emergency floats' left pressurization gas cylinder gauge indicated about zero psi, while the right pressurized gas cylinder gauge indicated about 4,000 psi.

The NTSB performed a functional check by actuating the cyclic trigger, which is used to activate the floats. The trigger mechanism was smooth, with no evidence of binding, the Board said. In addition, "continuity of the float system control was established between the trigger, dual cable block, and the activation cable clevis connection. When the trigger was released, the dual cable block returned to its normal position (via spring within the junction box), but the upper and lower turnbuckles remained in their actuated positions."

In interviews with investigators, the pilot said the sole front-seat passenger turned sideways and slid back toward him on the two-place bench seat next to the pilot position to take photos. Photos provided to **AIN** show that the accident helicopter was laid out with a right-hand pilot-in-command configuration. Then during a right turn he received an aural low rpm warning in his headset, observed engine and fuel pressure warning lights, and believed he had experienced an engine failure.

He lowered collective and continued with the right turn toward the East River, told passengers to get back into their seats, tried an engine restart, checked the fuel control lever and found it in the normal detent, and activated the float system at approximately 800 feet agl. At that point, committed to impact, the pilot reached down for the emergency fuel shutoff lever, and noticed it was already in the OFF position and that a portion of the front seat passenger tether was underneath the lever.

Descending through 600 feet, the pilot said he repositioned the lever to the ON position and attempted a restart, observing positive engine indicators, but had to continue with the autorotation as the engine "wasn't spooling up fast enough." He switched the shutoff lever back to OFF before impact at an estimated five to 10 degrees nose up.

During the NTSB wreckage investigation "the fuel control lever was found in the OFF position. The fuel shutoff lever was found in the OPEN position. The snapwire (witness wire) between the fuel shutoff lever and the engine control housing was broken at its lower end where it is normally secured through a hole in the control housing."

The pilot reported that after impact, the helicopter quickly filled with water and rolled past 45 degrees. He made a fast attempt to unscrew the front seat passenger's carabiner, attached to a floor hardpoint, before releasing his own restraint and exiting the helicopter after it had filled with water.

FlyNYON provided the passengers with nonstandard harnesses that allowed them to lean out helicopter door sills for the photo flights. In the event of an emergency, passengers were supposed to cut themselves out of these harnesses with an integrated knife located in a holder on the front strap of the harness. ■

NEWS note

CHC Group has launched a new hoist training facility at its Den Helder, Netherlands base that is certified to train offshore workers, SAR hoist operators, and technical crewmembers in on- and offshore hoist operations. The facility has been designed to resemble a Leonardo AW139 cabin and can also be used to simulate helicopter hoist operations (HHO) conditions from an AW169.

The one-day HHO course, with an optional second day on the aircraft, is designed to offer theory and practice to between four to six candidates.

The company recently won its first dedicated hoist contract with Eneco, one of the largest producers and suppliers of natural gas, electricity, and heat in the Netherlands. The contract will be supported by Leonardo AW139s from CHC's Den Helder base. ■

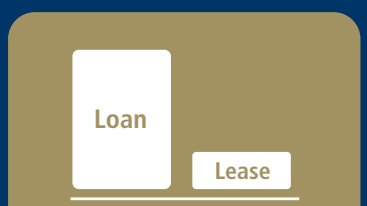
Learn why savvy business owners are turning to operating leases

Visit Us at EBACE - **Booth Z115**

An operating lease is a popular financing tool that can provide you with the benefits of a private aircraft without the traditional risks of aircraft ownership. There are several different options, but in each case you do not take ownership of the aircraft, but have the full use of it as if you did. Plus instead of a large down payment, you put down a more modest security deposit and return the aircraft at the end of the lease term to Global Jet Capital.

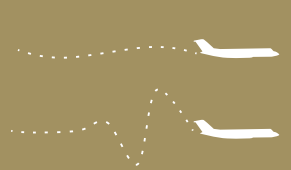
You can choose to:

· Enter into a sale and leaseback arrangement for your current aircraft
· Identify a new or pre-owned aircraft for us to purchase
· Assign your purchase contracts to us for your new, on-order aircraft



Allocation of Capital


Lower Residual Value Risk


Predictable Costs

Off Balance Sheet


Easily adjust to changing needs

If you're thinking about a true operating lease, give us a call at +**1 (844) 436-8200**.
We'll get you in the air.

globaljetcapital.com | LEASING & LENDING SOLUTIONS FOR PRIVATE AIRCRAFT

GLOBAL JET CAPITAL

Embraer delivers first E190-E2 to Wideroe

by Gregory Polek

Embraer and Norwegian regional airline Wideroe on April 4 celebrated delivery of the first production E2 series E-Jet, a 114-seat E190-E2 that was scheduled to enter service on a route between Bergen and Tromso, Norway, on April 24. The first E2, a high-density example configured with a 29-inch seat pitch, two days earlier had finished a roughly two-hour acceptance flight with Wideroe crew from Embraer's main production site in São Jose dos Campos, Brazil.

Wideroe, which holds a firm order for three E190-E2s and options on another 12 E2s of any variety, chose the Embraer jets over the Bombardier C Series despite its long relationship with the Canadian manufacturer vis a vis a fleet consisting solely of Q Series and Dash 8 turboprops. Wideroe CEO Stein Nilsen explained that the airline's potential requirement for smaller jets such as the E175-E2 played a large part in influencing its decision-making. "I think the most important thing was the rightsizing strategy of Wideroe," said Nilsen. "When we looked around to try to find a solution for an aircraft carrying around 100 seats, there were a lot of good opportunities. But we were fascinated by the possibility to further develop this rightsizing strategy...This was the key issue."

The airline plans to use the airplanes to connect its bases in the southwest of the country to far-flung destinations in the north, as well as to launch services from Bergen to, potentially, several European destinations.

A New Era

Speaking with members of the press just before the ceremony, Embraer CEO Paulo Cesar de Souza e Silva called the delivery the start of a new era for the company, coincidentally as talks with Boeing about a possible buyout or joint venture involving Embraer's commercial airplanes division intensify. Silva expressed optimism about the possibility, notwithstanding the potential for disruption that inevitably could result. He also acknowledged that the motivation for Embraer lay in part with a desire to mitigate the "challenge" associated with selling the E190 and E195 in a capacity segment approaching that dominated by Boeing and Airbus. Nevertheless, he insists Embraer stands ready to compete with Boeing if the sides don't eventually reach a deal.

"We are not at all afraid to compete with the narrowbodies," said Silva. "We do believe that we have a very efficient, if not the most efficient family of aircraft in the segment from 70, 80 to 150 seats. However, we have to be mindful of the dynamics of the market."

Silva added that Embraer does not feel any desperation to move ahead with a tie-up, given the strong financial position in which the company finds itself following six to eight years of investing 10 percent of its revenues in new products and business structures.

"We're talking about an investment of about four or five billion dollars," explained Silva. "So we are ready to monetize these investments now. So we don't need it. However, when we look more towards the future, given the dynamics that exist now, and given that every company would like to grow...it's a natural aspiration. In order for Embraer to grow faster, I think we would need to [consider a collaboration]." ■

The first production E190-E2 taxis into position for a ceremony to mark its delivery to launch customer Wideroe at Embraer's main factory in São Jose dos Campos, Brazil.

Embraer E190-E2s to get fully compliant GTFs by October

Pratt & Whitney expects to begin delivering PW1900G geared turbofans with more durable Combustor C packages to Embraer after E190-E2 launch customer Wideroe takes the first three examples of its 114-seat configured narrowbodies fitted with the current Combustor B configuration. Speaking with **AIN** after last month's delivery ceremonies for the first E190-E2 at Embraer's main production plant in São Jose dos Campos, Brazil, Pratt & Whitney vice president of commercial engine programs Graham Webb said that the company continues to work on the software associated with the new combustors, and that once it completes the job—likely in September—mechanics will remove the engines from the three aircraft and install engines fitted with Combustor C in October.

The engine company will do the same for all in-service Bombardier C Series airplanes, whose PW1500Gs closely resemble the engines in the Embraer E-Jets and Mitsubishi MRJ.

Pratt has amassed a lot of experience swapping engines lately, following its well-publicized trials with the PW1100Gs in the Airbus A320neo. Thankfully for Embraer and Bombardier, their engines haven't seen the kind of problems Airbus and its customers have reported, starting with excessive rotor-bowing and, more recently, faulty knife-edge seals in the high-pressure compressor. Other problems have involved the engines' number-three bearing oil seal and the same premature combustor-lining degradation seen in the C Series and E190-E2 engines.

Speaking just ahead of the delivery ceremony in São Jose dos Campos, E-Jet program director Fernando Antonio Oliveira expressed satisfaction with Pratt & Whitney's level of responsiveness and praised the engine for its performance and fuel consumption rates.

"We have the benefit of being the third in line," said Oliveira. "Our engines will have all the solutions incorporated for what they identified on the A320neo and the C Series. We follow [Pratt & Whitney's progress] very closely and from my perspective I see Pratt putting in a lot of effort to improve." **G.P.**

News Update

Great Lakes Shuts Down

Cheyenne, Wyoming-based Great Lakes Airlines ceased operating scheduled flights March 26, following several years of declining service capacity. However, the company said it would continue to support scheduled service between Denver and Pierre and Watertown, South Dakota, by Aerodynamics Inc. (ADI), which flies Embraer ERJ-145s as Great Lakes Jet Express.

Great Lakes, which flew as a code-share partner of United Airlines, became an early casualty of a 2013 rule that required Part 121 first officers to have flown at least 1,500 hours, exacerbating a pilot shortage that had already stunted the growth of the regional airline industry in the U.S.

Consequently, the airline shut down 17 cities between July 2013 and May 2014 and went as far as to prevent access to 10 seats in half of the company's Beech 1900 turboprops, effectively turning them into nine-seaters and allowing their operation under FAA Part 135 rules. By July that year Great Lakes converted all of its Beech 1900s to the nine-seat configuration and its B1900 fleet shrunk from 28 to 17. Of the six Embraer Brasilias in its fleet, it flew only two.

SAS Orders 50 Airbus Neos

SAS Group has decided to order 35 Airbus A320neos directly from the manufacturer and source another 15 through leasing companies, the airline announced last month. Calling for delivery from spring 2019 through 2023, the order means SAS for the first time will operate a single fleet type within five years. The airline, which hasn't yet chosen an engine type for its new narrowbodies, plans to develop its mainline European network and extend domestic services in Scandinavia.

SAS now flies 17 Airbus A320neos out of a previous order for 30. Last month's order means that SAS will have placed at least 80 Airbus A320neos into service by 2023.

The order also includes options for another five A320neos with Airbus, and SAS holds the option to increase the number of aircraft it takes from lessors. The airline said it would finance the aircraft through a combination of direct leases, sale and leaseback, and cash flow generated by its own operations.

Trent 1000 Headaches Continue

Rolls-Royce has advised operators that its Trent 1000 Package C engine will require more inspections that previously planned to address premature wear of compressor blades, a problem that first came to light in 2016 and is outlined in the company's 2017 full-year results. Rolls-Royce reported that 380 Package C engines operate in service, and that airworthiness authorities would issue service management and flight-operations guidance to airlines.

Package C engines power roughly 25 percent of all Boeing 787s in service. The issue does not affect current-production 787s, the Trent 1000 Package B, Trent 1000 Ten or GEnx-1B engines, said Boeing in a statement. **G.P.**

An American Airlines Boeing 787-9 takes off from Los Angeles International Airport.

American 787 order strikes another blow to Airbus in U.S.

by Gregory Polek

An order from American Airlines for 47 new Boeing 787s announced April 6 dealt a blow to Airbus's efforts to boost its A350 XWB family's presence in the U.S., as AA and the European manufacturer agreed to terminate an order for 22 A350s originally placed in 2005 by US Airways. The order with Boeing consists of 22 GEnx-1B-powered 787-8s and 25 787-9s, scheduled to begin arriving in 2023. Plans call for the 787-8s to replace American's Boeing 767-300s, while later 787-9 deliveries replace Airbus A330-300s and aging 777-200s.

The development marks yet another U.S. marketing victory for Boeing over Airbus in the fight pitting the Dreamliner against the XWB and A330neo. In March Airbus lost its only order for the smallest of its A330neo line, the A330-800, when Hawaiian Airlines confirmed its intention to buy 10 Boeing 787-9s and drop an order announced in 2014 for six of the Airbus widebodies.

"We have two excellent partners in Boeing and Airbus, and our relationship with both manufacturers goes back many years," said American Airlines president Robert Isom. "Both offer specific aircraft that provide us with the right lift on specific missions across our global network. This was a difficult decision between the Boeing 787 and the Airbus A350 and A330neo, and we thank both manufacturers for their aggressive efforts to earn more of American's business. In the end, our goal to simplify our fleet made the 787 a more compelling choice."

American now flies a fleet of 35 Boeing 787s. Once it takes delivery of all its 787s under a previous order and those announced on Friday, its fleet will consist of 89 Dreamliners. "Today's announcement is influenced by our goal to simplify our fleet and reduce the number of aircraft types we operate," said American Airlines CFO Derek Kerr. "Our prior plan would have had us operating five widebody aircraft types, and with today's announcement we will soon reduce that to three.

"We see significant advantages to carrying common fleet types, including creating less friction in our operation when aircraft swaps are necessary, reducing inventory needs, and creating a more consistent service for customers and team members."

As part of the latest order, American also reached an agreement with Boeing to defer delivery of forty 737 Max narrowbodies previously scheduled to arrive between 2020 and 2022. According to American, the revised delivery schedule will better align with planned retirements of other narrowbody aircraft. ■

Three parties bid for Alitalia but sale deadline pushed

by Cathy Buyck

Bankrupt Alitalia on April 10 said it received takeover bids from three parties, adding that its commissioners will now examine the offers "over the next days." It did not disclose who submitted an offer, but several key EU airlines including UK low-cost carrier easyJet, Lufthansa, Air France-KLM, and Wizz Air reportedly tabled interest in buying the whole or part of the group. Delta Air Lines has also expressed interest in Alitalia, a stake that would add to its expanding European portfolio that already includes 10 percent of Air France-KLM and 49 percent of Virgin Atlantic.

However, it appears unlikely a transaction will conclude in the coming weeks. The cabinet of the current caretaking government decided on April 9 to push back the sale by several months and issue a special decree to postpone the sale deadline, an Alitalia executive told **AIN**. "The deadline has been postponed, that is for sure," the executive said, adding that no new definite deadline appears set. "The sale is put on hold until most likely September 30 when also the first tranche of the bridging loan has to be paid back," according to the executive.

The Italian government handed Alitalia a €600 million ($742 million) interest-bearing bridge loan after the company filed for extraordinary bankruptcy proceedings in May and employees rejected a deal on salary and benefits cuts proposed by the company, in which UAE-based Etihad committed a big investment. The government proffered an additional €300 million ($371 million) of taxpayer funds in October, while simultaneously extending the deadline for the repayment of the loan, which was to come due from November 2017 to September 30, 2018. It also extended the initial sale deadline by almost six months, to April 30, citing "extraordinary events" changing the "strategic dynamics" in the sector, including the collapse of Air Berlin, the failure of Monarch in the UK, and the operational crisis at Ryanair.

The reason for this month's delay is political. Alitalia's future became a hot topic in the country's general election, which took place March 4. No clear winner emerged, nor did an agreement on how to form a government. The two political parties that gained the most votes (5Stars and Lega Nord) said during their campaign they wanted to keep Alitalia under state ownership, therefore it appears unlikely anyone will decide on Alitalia's sale until a new government takes power.

Italian Solution

The idea of at least a partial state ownership and a Italian solution for the Italian airline received support from the chairman of Italian state lender Cassa Depositi e Prestiti, who said the CDP wouldn't rule out opening a discussion over a financial partnership with a potential buyer of Alitalia. Such a move, however, would require a change in mandate of the semi-state entity, which requires it invest only in companies with positive results. Alitalia has posted losses in most of its 71-year history.

In a stock market filing, easyJet confirmed it submitted "a revised expression of interest for a restructured Alitalia consistent with easyJet's existing strategy for Italy." The airline said the content of the expression of interest remains subject to confidentiality, though it specified it bid together with other parties "as part of a consortium."

EasyJet already last year expressed interest in Alitalia and now has formed a consortium with U.S. equity fund Cerberus Capital Management, Air France-KLM, and Delta. The Franco-Dutch group has remained tight-lipped about its potential interest in Alitalia—it used to hold a 25 percent stake in Alitalia—but the Franco-Dutch group and its U.S. SkyTeam and transatlantic joint venture partner Delta won access to Alitalia's data room last year. "Air France-KLM and Delta woke up last year after Lufthansa wanted to snap Alitalia up for a mere €200 or €300 million [$247 million or $371 million]," the Alitalia executive noted. "They have a vast interest in keeping close ties to Alitalia and not handing the Italian market to Lufthansa."

A spokeswoman for Air France-KLM told **AIN** that the company does not plan to take a stake in the company. A company official who asked for anonymity, however, noted that an equity stake is not the only way to be involved in a takeover, reflecting statements made by Air France-KLM CEO Jean-Marc Janaillac in February that the group could not afford to spurn interest in Alitalia because the Italian airline is part of SkyTeam and a partner in the transatlantic joint venture.

Lufthansa said it submitted a document with ideas for a "new Alitalia," though it reiterated it would be interested only in a restructured airline.

While its future remains unclear, Alitalia continues with turnaround efforts. A new round of temporary layoffs will start in May, affecting 90 pilots, 350 flight attendants, and some 1,200 ground staff and head office employees. ■

Hawker Pacific's FBO and MRO facility at Shanghai's Hongqiao International Airport, with its newly added, 48,500-sq-ft hangar, is one of the crown jewels in Jet Aviation's $250 million deal to buy Hawker Pacific.

Jet Aviation To Buy Hawker Pacific

Before last month's Asian Business Aviation Conference and Exhibition (ABACE), General Dynamics subsidiary Jet Aviation announced plans to purchase business aviation services provider Hawker Pacific for $250 million. Included in the deal was Hawker Pacific's share in the joint venture Shanghai Hawker Pacific Business Aviation Centre, the FBO/MRO at Shanghai's Hongqiao International Airport that has played host to ABACE for the past seven years.

Hawker Pacific provides ground handling for business aviation at Shanghai's Pudong International Airport and expects to build a full-service FBO there upon completion of the airport's new runway. It also operates FBOs at four locations in Australia (Sydney, Brisbane, Cairns, and Perth), as well as in Singapore at Seletar Aerospace Park (where Jet Aviation is already well established), and has offices and maintenance bases throughout the region, as well as in Dubai, offering scheduled and unscheduled maintenance and AOG services.

Phoenix Heli-Flight To Complete Iris Upgrades

Phoenix Heli-Flight will upgrade older analog audio, video, and flight-data recording devices with the Outerlink Iris System. The Canadian company will work with Outerlink and Maxcraft Avionics to develop Transport Canada and FAA STCs for the Airbus Helicopters EC130T2 and EC120, and for AS350B2s equipped with both analog and vehicle engine multifunction display instrumentation.

Replacing older technology with the Iris system will provide digital voice, video, and flight-data recording with dual-satcom-network connectivity and push-to-talk technology. The system allows customers to synchronize this information on one display with the ability to add a 3D simulation over Google Earth.

Hongkong Jet To Expand G550 Mx Services

Hongkong Jet will upgrade and expand its HKAR 145 maintenance capabilities to include approval for 144-month inspections on the Gulfstream G550. This approval expansion covers 40 G550s under the company's Hong Kong and joint-maintenance management approvals.

Diarmuid O'Shea, Hongkong Jet's head of maintenance, said the company will extend this G550 capability increase to the rest of its authorizations, including those for the Cayman Islands (CAACI), Bermuda (BDCA), and the U.S. (FAA). The company will then expand the process to other aircraft, including Gulfstream G450 and G650, and the Bombardier Global Express.

StandardAero, R-R Sign 20-year MRO Agreement

StandardAero signed a memorandum of agreement with Rolls-Royce to provide maintenance and overhaul services for the AE 2100, AE 1107, and T56 Series IV engine models for the next 20 years. StandardAero, which won a competitive bidding process within Rolls-Royce's authorized maintenance center networks, will be the primary MRO provider for these engines. Through 2038, the agreement's projected value is expected to exceed $15 billion. Both companies are working to ensure full capability in 2019.

This agreement increases StandardAero's work on the Rolls-Royce AE 2100 and T56 engines. It also expands the company's MRO support for Rolls-Royce's military engine product lines and customers. StandardAero will now perform engine services at its facilities in San Antonio, Texas; Maryville, Tennessee; and Winnipeg, Canada.

BLR Aerospace's FastFin enhancement includes vortex generators and tailboom modifications to improve anti-torque characteristics in low-speed and hover operations.

Vector Aerospace Africa Gets EASA Nod for Engine MRO

StandardAero company Vector Aerospace Africa recently received EASA aircraft maintenance organization certification for its engine MRO facility in Lanseria, South Africa. The Lanseria International Airport facility, which was opened in 2010, is a Pratt & Whitney Canada (P&WC) PT6A designated overhaul facility with distribution rights.

This new certification for Vector Aerospace Africa adds to the facility's other authorizations from the South African Civil Aviation Authority and Transport Canada. The facility, which completed its first PT6A-140 overhaul in 2017, also holds local AMO approvals from the civil aviation authorities of Angola, Botswana, Kenya, Namibia, Zambia, and Zimbabwe.

Seletar Shop Completes 1st Global 6000 Ka-Band Install

Bombardier's Singapore service center completed its first installation of a high-speed, Ka-band Internet connectivity system on a Global 6000. In July 2016, the Seletar Airport facility installed its first of the Honeywell JetWave systems on a Global 5000. Bombardier worked closely with the equipment provider to streamline the installation, so operators can adopt the technology with minimal disruption to their flight schedules. According to the OEM, Ka-band installation on a Global 6000 takes 18 days and fits into Bombardier's optimized 60-month inspection.

Airbus H125 Gets Factory Install of BLR FastFin

BLR Aerospace completed the first factory installation of an Airbus Helicopters BLR FastFin system on an Airbus H125. Twenty-five Airbus Helicopters Customer Centers worldwide have been authorized to sell and install FastFin. The first so-equipped helicopter is expected to be delivered next month to Heli-Austria, a long-time user of the BLR FastFin on its H125s and Bell medium helicopters, all of which had retrofit installations.

BLR's FastFin System uses advanced airflow management to increase the effectiveness of a helicopter's anti-torque system. This facilitates increases in useful load and aircraft stability, especially in high-and-hot conditions. For the H125, this can mean an increase of useful load up to 120 pounds and a 10 percent improvement in tail-rotor pedal margins.

Arrow Aircraft Tapped as HondaJet Dealer for India

Honda Aircraft appointed New Delhi-based Arrow Aircraft Sales and Charters an authorized sales representative for the HA-420 HondaJet, expanding sales of the very light jet to India. The aircraft manufacturer made the announcement at Wings India, where the HondaJet was on display for the first time at this show.

Honda Aircraft has established a worldwide dealer and authorized sales network to provide service and support for HondaJet customers. So far, this network spans territories in North America, Latin America, Europe, and Asia.

StandardAero Introduces App for Power Checks on R-R M250

StandardAero has a new PowerCheck app that makes it easier to calculate engine performance based on Rolls-Royce power assurance charts for the M250 turboshaft engine. With the app, a pilot simply selects the airframe and powerplant from a drop-down menu and inputs basic parameter information. The app then calculates the engine's performance margin, eliminating the need to manually plot parameters on paper graphs in airframe manuals.

Results can then be stored and tracked within the app, making it available to maintenance personnel. And the operator can share the saved data with StandardAero, where technicians will review it and provide proactive recommendations to the operator based on the indicated performance metrics. The StandardAero PowerCheck mobile app is available at the Apple App Store and Google Play. A desktop version is also available.

Lufthansa Technik Offers Component AutoInspect

Lufthansa Technik AG recently industrialized AutoInspect, its in-house-developed automated inspection procedure for engine components. AutoInspect, which will be introduced for combustor components in CFM56 and CF34 engine series, is a procedure conducted by robots that perform digital crack inspections on engine components using "high end" sensors. The optical measurement procedure not only improves crack detection but also further increases process reliability.

The newly developed inspection procedure is now being made robust enough for industrial use. Lufthansa Technik AG expects to combine AutoInspect with AutoRep, its automated repair procedure, into a process chain by the middle of the year. ■

“CONTINUALLY DELIVERING EXCELLENT CUSTOMER SERVICE IS HOW WE BUILD BUSINESS, AND BUILD RELATIONSHIPS.”

Traci Fremin’s radiant personality is legendary. It shines through in every aspect of her care for our customers. If you need anything, at any Atlantic location, Traci will get it done. She’s just one of hundreds of Atlantic team members nationwide who make every stop an exceptional experience. Fly to Atlantic, and fly with a legend like Traci.

TRACI FREMIN, *DIRECTOR OF SALES AND CUSTOMER SERVICE STANDARDS*

ABSOLUTELY ATLANTIC

atlanticaviation.com

As a tribute to the airport's heritage as a World War II fighter training base, city planners at Fernandina Beach, Florida, have designed their airport's new GA terminal to evoke the F4U Corsair. It is expected to debut this summer.

Amelia Island Airport To Build New GA Terminal, FBO

Florida's Fernandina Beach Municipal Airport will soon be receiving a new general aviation terminal along with a new company to manage it. Taking a page from the airport's origin as a World War II training base for the F4U Corsair, Bent Wing Aviation Services took over from long-time FBO operator McGill Aviation on April 1 and is providing services from a temporary facility. In further homage to the Vought fighter, the entire 12,500-sq-ft terminal, which is expected to open next month, echoes the Corsair's design, including the iconic inverted gull wings that shelter an observation deck, a nose section, skylight cockpit, and tail. The two-story glass lobby will have a suspended model F4U, and historic memorabilia will be displayed throughout the building.

"The unique design of the new terminal building will quickly distinguish Amelia Island's airport as an iconic aviation landmark," said Bent Wing owner Brian Echard. "As the FBO providing services from the new terminal, it made sense to name our business to reflect the community's pride in the distinguished history of the airport and pay tribute to the memories of our military who served in WWII."

The $4.5 million, Avfuel-branded, 7,000-sq-ft FBO will offer all the necessary amenities, including pilots' lounge and shower, flight-planning room, concierge, two conference rooms, canteen coffee bistro, crew and rental cars, and pilot shop.

Sheltair Chain Achieves IS-BAH Registration

Sheltair Aviation has achieved Stage I registration in IBAC's International Standard for Business Aviation Handling (IS-BAH) at all 17 of its FBOs. It received the acknowledgement after an audit of its operational practices was concluded and approved by IBAC. The Florida-based FBO chain anticipates receiving Stage II company-wide by 2020.

"This [achievement] is all about safety management and reflects the strict protocols handlers and operators must meet under safety management system requirements being promulgated under the International Civil Aviation Organization," said COO Warren Kroppel, adding that the company views the process as an integral part of its corporate culture, rather than simply as a paper certificate. "Many of our customers recognize the significance [of having IS-BAH registration]."

Montreal FBO To Relocate Early Next Year

CYHU H-18 Services, one of two FBOs at Montreal Saint-Hubert Airport, has sold the Hangar H-18 building, which houses its current facility, to commercial charter operator Nolinor Aviation, for CDN$5.5 million ($4.2 million). This paves the way for CYHU H-18 to break ground on a new FBO facility, to be called Aéroparc H-19, at the airport. At 46,000 sq ft, the new-build FBO complex will offer 25,000 sq ft of hangar space, offices, shops, and a high-end arrivals and departures lounge. It will be located on a 4.6-acre lot of private land next to the 7,800-foot main Runway 24R/06L.

"We are excited about the arrival of Nolinor Aviation at Saint-Hubert airport and to have concluded this transaction," said H-18 president M. Gordon Livingstone. "We will continue to expand our operation with the development of Aéroparc H-19, which will complement the services offered to the clients of Saint-Hubert Airport."

This rendering shows the proposed new AÉROPARC H-19 FBO at Montreal's Saint Hubert Airport. Construction is expected to begin shortly with an anticipated completion date early in 2019.

He added that all services offered to current tenants and other clients of the Hangar H-18 building will remain in place until construction of Aéroparc H-19 is completed in the first quarter of next year.

Signature Opens Renovated FBO in Virginia

Signature Flight Support recently held the grand reopening of its newly renovated FBO at Virginia's Charlottesville Albemarle Airport. The lone aviation services provider on the field, Signature spent nearly $2 million on the upgrade to the facility's 10,000-sq-ft terminal. The four-month project included the exterior façade and a full interior refit, complete with a new lobby, CSR desk, coffee bar, conference room, internet café, and the installation of LED lighting throughout the facility. For crewmembers, there is a new pilots' lounge with quiet rooms.

"Our recent investment in Signature Charlottesville is directly representative of our commitment to engage in capital-improvement projects throughout our worldwide network of fixed-base operations," said Signature president and COO Maria Sastre. "Every single location in our network strives to provide an extraordinary experience, and the renovation of our existing FBO facilities represents a key component of our strategy to drive long-term value for our stakeholders."

Montgomery Aviation Rebrands

Montgomery Aviation is rebranding as First Wing Jet Center, with the company's Indiana FBOs at Indianapolis Executive (TYQ) and Frankfort/Clinton County Airports (FKR) taking on the new name. Its flight school at TYQ will be known as First Wing Flight. Montgomery Aviation sister companies—Indianapolis-based aircraft sales, maintenance, charter, and management firm Eagle Creek Aviation and the Naples Jet Center FBO in Florida—will retain their current names but will get new logos to match the First Wing branding.

"Since Montgomery Aviation was purchased by Eagle Creek Aviation in late 2015, we've been working to develop a new brand and identity to help take us into the future, and we believe the First Wing name is key to taking us there," said First Wing Jet Center v-p and general manager Sean White. "Our customers will receive the same service they've come to expect."

CHARTER NEWS notes

Sun Air Jets of Camarillo, California, **has added a Challenger 650 to its charter fleet**. The jet can carry up to 10 passengers and is equipped with an airborne connectivity system.

• • •

Charter broker **Victor is collaborating with Air BP on a carbon-offset program** for charter flights in Europe, which will help aircraft operators meet Corsia emissions requirements. Victor aims to achieve carbon-neutral fuel for 100 percent of its flights by 2020. Customers can track carbon credits on a Victor digital flight log, and the credits are available at no extra cost to Victor customers.

• • •

Silver Air of Fresno, California, **is the newest member of the Air Charter Safety Foundation**. "At Silver Air, safety is at the foundation of all our services," said director of safety Shawn Grenier. "Silver Air's steadfast dedication to passenger safety and security is supported by a comprehensive and ongoing program of internal review and third-party audits. Our ACSF membership represents that commitment to safety, and we're very pleased to have the organization's support."

• • •

A **Challenger 605** based in the Washington, D.C. area **is now available to Flightworks customers**. The 605 is equipped with seats for nine passengers (with a three-place divan), includes free airborne connectivity, and offers a cabin manager on all charter trips.

• • •

Elliott Aviation's charter fleet now includes a Citation Excel based in Eden Prairie, Minnesota. The fleet now totals five aircraft: the Excel, a Sovereign, Hawker 400XP, Nextant 400XT, and another Excel based in Des Moines, Iowa.

• • •

Inferflight Middle East has expanded with the addition of a Falcon 2000 for charter trips in Europe and the Middle East. The Falcon seats eight passengers in a double-club configuration and has sleeping arrangements for two single beds and one double bed.

• • •

Deer Jet is offering a Russia itinerary for customers traveling to the FIFA World Cup 2018. The tour lasts for nine days, starting on July 8, and includes visits to world-heritage sites and museums in St. Petersburg and Moscow, exclusive access to VIP lounges for some semi-final matches and the final matches, and a "culinary circuit" of exemplary restaurants. ■

Customs Now Available at Jo-burg's Fireblade FBO

Fireblade Aviation, an FBO that opened at South Africa's O.R. Tambo International Airport in 2014, has handled its first international flight, marking the culmination of years of effort and a rigorous approval process, according to the company. Present at the event were officials from the South African Revenue Service and the South African Police Service to provide the required government clearance for the flight.

"We are excited to service international movements, which will complement our current domestic aircraft movements and enable Fireblade Aviation to fulfill its intended potential," said company CEO Jonathan Oppenheimer. International handling at the Johannesburg-area FBO is done through a sterile customs and immigration facility designed by and under the control of the government, located on the ground floor of the Fireblade terminal, adjacent to the business lounge.

Fireblade Aviation's FBO at O.R. Tambo International, Africa's busiest airport, situated near Johannesburg, South Africa, offers in-house customs and immigration services.

"Our main terminal at O.R. Tambo International will be freed up for additional capacity when commercial business aviation can use the Fireblade terminal," the airport authority, Airports Company of South Africa, noted in a statement. "There is also a genuine need for the premium services offered by Fireblade at the largest airport in Africa, since the lack of these facilities had affected our reputation and brand."

New FBO Company Makes First Acquisition

Modern Aviation, a new FBO company, has launched with its first acquisition: Air Wilmington, the lone service provider at North Carolina's Wilmington International Airport. The location, which features an 8,400-sq-ft terminal and more than 100,000 sq ft of hangar space, had been owned by current president and CEO Bill Cherry and his family for the past four decades. The airport board gave its approval of the sale on February 7, and the facility is expected to retain its name and staff.

"We look forward to continuing Air Wilmington's legacy of exceptional customer service, quality, and safety; strong relationship with the airport; and active involvement in the community," said Modern Aviation CEO and co-founder Mark Carmen. He stated that his company's goal is to "build a national network of premier FBO properties characterized by excellent facilities and outstanding service," and he has added Emmanuel Yapo, previously director of corporate development with Atlantic Aviation, to his staff.

Modern is supported by Tiger Infrastructure Partners, a middle-market, growth-oriented private equity fund. "We are very excited to back Mark and his team at Modern Aviation with our capital and work with them as they seek to build a major new FBO platform company," said Tiger founder, CEO, and managing partner Emil Henry, Jr.

Florida FBO Adds Hangar, Terminal Facility

Apex Executive Jet Center, one of three service providers at Florida's Orlando Melbourne International Airport, has unveiled a 28,000-sq-ft hangar with an additional 8,400 sq ft of office space and upscale pilot and passenger lounge on the ground floor and an additional 2,000 sq ft of space on the mezzanine. The new structure, part of a $3.5 million Phase I upgrade, which includes 60,000 ft of ramp, brings the Avfuel-branded facility (formerly Baer Air) to 52,000 sq ft of storage, capable of sheltering aircraft up to a Gulfstream G650.

"In 2015 when we came to take a look at the existing facility for sale, other potential buyers saw runways, but we saw potential," said company president Gary Hall. "We are keeping pace with this incredible airport's growth." The existing FBO terminal will serve as home to Apex's new FAA-certified air ambulance services. Phases two and three will add 24,500 sq ft of hangar space and 53,000 sq ft of ramp to accommodate the company's maintenance division and extend aircraft parking. ■

FBO PROFILE: National Airways

South African operation offers a full menu of bizav services

When it comes to running an aviation business, the challenges facing South African general aviation companies are enormous, and National Airways Corporation (NAC), headquartered at Lanseria Airport near Johannesburg, is an example of long-term survival in an extremely tough market.

NAC has been in business for 72 years, said CEO Martin Banner, "and we've never made a loss." That said, the company's typically most profitable business, aircraft sales, is no longer the revenue leader, although it comes in second place, after its FlyAwesome international charter and aircraft leasing operations.

NAC is a new aircraft distributor for One Aviation (Eclipse) and Piper Aircraft and is a sales partner for Daher and Dassault. The company was a Beechcraft dealer for 42 years before the factory took over all new-airplane sales activity.

The operations-based activities include fixed-wing charter, aircraft leasing, flight training, and NAC's helicopter business. The company operates more than 150 aircraft in Africa and elsewhere, including two Afghanistan-based Embraer EMB-120s equipped with Saab anti-missile defense systems. The fleet also includes seven Beech 1900s, which are an NAC specialty. "We sold and refurbished more than 270 Beech 1900s," said J.P. Fourie, executive director of NAC's aircraft division, education, and training. "We really understand them."

While NAC's maintenance department focuses on supporting the company's own fleet and managed aircraft and no longer provides third-party fixed-wing maintenance, the helicopter division does serve Bell and Robinson helicopter operators. NAC is a Robinson dealer and independent representative for Bell and it is an authorized maintenance facility for both brands.

Another important business for NAC is its Awesome Air Evac air-ambulance service, which operates three jets—two Learjet 35s and a Falcon 10—fitted with medical equipment. The company used to work with a big medevac provider, but now NAC's operation is independent, with its own medical staff, flight crew, and Lanseria-based 24/7 call center. "We fly missions every day," said Banner. Trips have ranged as far as Europe as well as Malta, Mauritius, and Nigeria. Earlier this year, NAC based a jet in Malta to enhance the service in that region.

Helicopter operations are a key business for NAC, which bases six machines in Cape Town primarily for tourism flights. These include the R44 and Bell 206 and 407. In the Johannesburg area near Lanseria, NAC flies helicopters, primarily R44s, under contract with the police for tracking stolen cars.

Flight training is handled by NAC's 43 Air School, which also offers training for air traffic controllers and aircraft technicians. At Lanseria, the school's Advanced Training unit does type conversions on the EMB-120, King Air 200, and Beech 1900. Ab initio pilots learn to fly at 43 Air School's base in Port Alfred, where the company has a fleet of 60 aircraft, 14 training devices, student housing, and 50 full-time instructors. Training is offered through to the integrated airline transport pilot license, and then the jet pilot program for airline first officers using 737NG and A320 simulators.

The FBO business at Lanseria is not NAC's primary revenue generator. "There is so little heavy-metal traffic," Banner explained. "On a typical day, no business jets [show up]." The company sold its FBO in Cape Town to Signature Flight Support years ago. As it is in many countries outside the U.S., the business model for FBOs in South Africa is challenging, because they do not get to participate in fuel revenues; and they compete with airlines for prioritization of aircraft needing fuel.

On the other hand, South Africa is an easy country to fly into, and NAC is able to provide handling services there and for other African countries. International visitors must first taxi to the Lanseria Airport terminal for customs and immigration, then they can be towed to the NAC ramp.

NAC's Lanseria facility consists of five hangars, including a large hangar for displaying aircraft for sale, four conference rooms, classroom space for employee training, a parts department, and administrative offices. The FBO has a large, elegantly appointed VIP passenger lounge, trip-planning work stations for pilots, and it can arrange catering, fuel, hangar storage, hotel reservations, landing and parking slots, passenger assistance, and ground support services. **M.T.**

by David Jack Kenny

PRELIMINARY REPORTS

Deaths in NY Ditching Linked to Restraints

U.S. EUROCOPTER AS350B2, MARCH 11, 2018, NEW YORK, NEW YORK

The off-the-shelf safety harnesses used to allow passengers to leave their seats during a doors-off photo flight appear to have kept them from escaping after the helicopter overturned after a ditching in the East River. All five passengers drowned after the Liberty Helicopters sunset sightseeing flight ditched, following a total loss of engine power, rolling inverted after touchdown. Statements by both the surviving pilot and first responders cited in an NTSB preliminary report described aftermarket fall-protection harnesses fastened to nylon lanyards by locking carabiners behind the passengers' backs; a second set of locking carabiners secured the lanyards to hard points inside the fuselage. The carabiners were normally unscrewed by ground personnel after landing and could not be released by the wearers. Emergency egress required cutting the webbing with a knife retrieved from an attached pouch. The pilot reported having briefed his passengers on this procedure, but none were able to accomplish it.

The pilot recalled that the power failure came immediately after the front-seat passenger slid backwards across the bench seat to photograph his feet hanging outside the helicopter. While securing the aircraft for impact during autorotation he found that the passenger's tether had snagged the emergency fuel shut-off lever; he turned it on and attempted to restart the engine, but concluded that it "wasn't spooling up fast enough" to recover in the remaining altitude. Salvagers found the shut-off lever's witness wire broken, confirming that it had been moved, and noted that the right skid's emergency floats had not fully inflated, possibly causing the helicopter to roll over.

Following the accident the FAA issued Emergency Order No. FAA-2018-0243 prohibiting "the use of supplemental passenger restraint systems that cannot be released quickly in an emergency" in commercial doors-off operations, and requiring passengers on these flights to be "properly secured using…FAA-approved restraints" at all times. Families of the victims have filed suit against multiple defendants including Liberty, Airbus Helicopters, and Dart Aerospace.

Two Killed in Indiana Runway Collision

CESSNA 525C CITATION AND CESSNA 150, APRIL 2, 2018, MARION, INDIANA

Two members of the Pipe Creek Township Volunteer Fire Department died after their 1958 Cessna 150 struck the tail of a Cessna 525C Citation during a late-afternoon takeoff attempt. Reports from the scene suggest that the 150 began its takeoff roll on Runway 15 of the Marion Municipal Airport just as the Citation was landing on Runway 22; the collision occurred at the intersection. The 150 came to rest in the grass and was partly consumed by fire. The Citation remained on the runway, its vertical stabilizer completely severed by the impact. None of the five people on the jet was injured.

Marion Municipal is one of the thousands of airports not served by control towers; pilots communicate via a published radio frequency and maintain visual lookout for conflicting traffic. This was the first fatal aircraft collision in the United States since April 1, 2017, when both pilots were killed in the midair collision of two small airplanes near Edgewater, Florida.

Dash-8 Crashes in Nepal

DE HAVILLAND CANADA DHC-8-402Q, MARCH 12, 2018, KATHMANDU, NEPAL

All four crewmembers and 48 of the 67 passengers were killed when U.S.-Bangla Airlines Flight 211 crashed on approach to the Kathmandu-Tribhuvan Airport. The crew broke off their initial approach to Runway 02 and circled, requesting clearance to land on Runway 20; subsequent communications between the pilot and tower controller revealed some confusion, with the pilot's readback of a clearance to land on "Runway 02" followed by the controller's warning another aircraft of traffic landing on Runway 20. Witnesses described the approach as "much too low," and a surviving passenger recalled the airplane "wobbling" before crashing into a field near the airport. Thunderstorms were reported in the vicinity, and other pilots operating nearby described visibility over the hills as "poor."

FINAL REPORTS

Crew Autopilot Error Blamed for Indian King Air Crash

BEECHCRAFT B200 KING AIR, DEC. 22, 2015, DELHI, INDIA

The Board of Inquiry convened by India's Air Accident Investigation Bureau determined that a catastrophic loss of control resulted from the pilots' failure to engage the autopilot's heading mode before takeoff in below-minimums visibility. The airplane was destroyed after crashing into the airport's perimeter road and boundary fence, then the holding tank of a water treatment plant, killing all 10 on board. The investigation further cited the pairing of two relatively inexperienced pilots as just one example of the lack of safety culture within India's Border Security Force, the airplane's operator.

The flight was intended to be a round trip between New Delhi and Ranchi, taking technicians to carry out maintenance on a BSF Mi-172 helicopter. The King Air took off in visibility of half a mile; then, at 400 feet above the ground, began a descending left turn. Twenty-one seconds before the crash, the pilot flying realized that the autopilot hadn't been set to heading mode, disconnected it, and tried to recover the aircraft by hand. Bank angle, altitude, and stall warning alarms sounded continuously for the last eight seconds of the flight.

The investigation found that both pilots held the necessary certifications to act as pilot-in-command but had limited experience in that role. The pilot flying had slightly less than 1,000 hours of total experience, just 77 of which were as PIC of a King Air B200. He had also logged 620 hours as second-in-command. The pilot monitoring had less than 900 hours of total time; his B200 experience included 183 hours as SIC and 196 hours as PIC. The independent pilot examiner who'd conducted their check flights eight months earlier approved both, but recommended that each "fly under supervision of a suitably experienced senior commander" until they had amassed "a good amount of experience and training." Two more senior captains—the internal pilot examiner and a former India Air Force pilot—were on the BSF's roster.

The report notes that although the operator's organizational chart included chiefs of flight safety and safety management systems, both positions were frequently vacant. The chief of flight safety at the time of the accident "had not undergone any safety training" and was serving a six-month interim appointment. Staff were generally unaware of the provisions of the SMS manual and safety policy, which the Board concluded "were prepared for fulfilling the regulatory requirements only."

Pilot and Passenger Escaped Mast-bumping Episode

BELL 206B, SEPT. 12, 2016, ROCKPORT, WASHINGTON

The pilot"s "failure to maintain helicopter control while on the ground" was the probable cause of a mast-bumping incident, according to the NSTB. After the helicopter landed on Mount Prospect in the North Cascades National Park, a "series of oscillations" prompted the pilot to shut down the engine and inspect for possible damage. The helicopter was conducting "call-when-needed" external load operations for the National Park Service (NPS) and had landed to disembark the sole passenger, a NPS employee tasked with attaching the long line and receiving the cargo. The oscillations began when he climbed out and secured the cabin door. The passenger said that the helicopter "bounced and lurched," but the tail rotor did not strike the ground.

The pilot's inspection revealed enough damage to require the aircraft's extrication as an external load by a larger helicopter. An Interior Department airworthiness inspector examined it at the operator's hangar, and while "not given full access…to conduct a thorough airframe and engine inspection," he documented damage to the main drive shaft's forward coupling and main transmission. The main rotor mast had made contact with the rotor's static stops, an event known as "mast bumping" that can fracture the mast and separate the main rotor from the fuselage. The pilot reported variable winds of five to ten knots at the time of the accident.

Hard Landing Attributed to Bearing Failure

SIKORSKY S-92A, DEC. 28, 2016, WEST FRANKLIN OIL PLATFORM, NORTH SEA

A total loss of yaw control while landing on the oil platform was caused by the failure of the tail rotor pitch change shaft (TRPCS) bearing, which in turn damaged the tail rotor pitch change servo, according to the UK's Air Accidents Investigation Branch The pilots immediately entered autorotation and landed "expeditiously, but heavily, on the helideck." The craft rotated through another 180 degrees, nearly sliding off the deck before the crew shut down the engines. There were no significant injuries to the two pilots or nine passengers on board

The aircraft's health and usage monitoring system (HUMS) had registered excessive vibration in the TRPCS and tail rotor gearbox the previous day. This data was downloaded during scheduled maintenance overnight; however, the analysis software didn't identify the source of the exceedences, and the helicopter was released for service without further investigation. The HUMS recorded additional exceedences on earlier flights the day of the accident, but the system does not present this information to the flight crew.

The first leg from the company's base in Aberdeen was uneventful. On takeoff for the second leg the helicopter experienced an uncommanded right yaw of some 45 degrees, but control response seemed normal after a precautionary landing and the excursion was blamed on wind conditions. The accident sequence occurred at the end of the five-minute flight to the West Franklin platform. Sikorsky's response to the event included improved diagnostic capabilities and user interfaces for the HUMS software and tighter manufacturing and assembly tolerances for the TRPCS bearing. ■

A REFLECTION OF EXCELLENCE

We would like to thank AIN readers for their continued support.

Please come and visit us on stand **W33** at EBACE.

TAG Farnborough Airport
Design and people working beautifully together
The purpose-built airport for BUSINESS, for PRIVACY, for LONDON

tagfarnborough.com

TAG
Farnborough Airport

by James Wynbrandt

Ameco Unveils Dreamliner Cabin Concept

Ameco Beijing, the maintenance, repair, and overhaul (MRO) provider, last month at ABACE introduced its latest cabin interior design concept, "Chinese Dragon," developed for the Boeing Business Jet (BBJ) version of the 787 Dreamliner. The unveiling highlights a new "strategic focus" on business aviation undertaken since the integration of all its MRO resources in 2015, according to the Beijing-based company.

The Chinese Dragon concept is Ameco's interpretation of the mythical symbol expressed in a modern aircraft interior. The cabin's nine functional areas incorporate geometric shapes, stripes, and gratings that represent abstract forms of dragon scales, spine, and even skeleton. Interior spaces include crew area, guest area, cinema, dining room, VIP lounge, bar, galley, master office, and master suite, containing a bedroom, bath, and dressing room. The color palette, drawn from traditional Chinese art, includes taupe, white, beige ivory with auxiliary turquoise green, and sky blue. Materials such white oak, marble, and metal are employed throughout the interior.

Pentastar Broadens Connectivity Options

Pentastar Aviation of Waterford, Michigan, has expanded its repertoire of broadband connectivity solutions for several Gulfstream models. It recently received FAA STC approval for the Gogo Avance L5 air-to-ground (ATG) system for large-cabin Gulfstreams, and it announced the first-ever aftermarket installation of combined Honeywell JetWave satcom and Avance L5 setup on a G550.

The newly issued STC for the Avance system, which connects aircraft to the Gogo Biz 4G network, covers the GIV, GV-SP, G450, and G550. According to Gogo, Avance L5 provides 4G data speeds that allow in-flight streaming of audio and video, email with large attachments, and faster web browsing. Gogo's 4G service operates on an air-to-ground network of more than 250 towers throughout the U.S. and large swaths of Canada and Alaska.

Meanwhile, the Avance L5 ATG and Honeywell JetWave Ka-band satcom systems were concurrently installed on a G550, marking the first aftermarket installation of both systems on this airframe. Operating on the Inmarsat Global Express network, JetWave provides "seamless, broadband class" data connectivity anywhere in the world.

Embraer Executive Jets Delivers First Phenom 300E

Embraer Executive Jets delivered the first Phenom 300E, an updated version of the Phenom 300 with an entirely new cabin, in late March, to South African businessman John McCormick. This follows recent type certifications of the light jet from the FAA, EASA, and Brazil's ANAC.

Cabin enhancements for the Phenom 300E—"E" stands for "enhanced"—include new customizable seats, available in a wide choice of leathers and stitching, that incorporate extendable headrests with bolsters, extendable leg rests, and retractable armrests. Seat coverings can also be easily removed for repair or replacement.

Embraer's Phenom 300E sports an entirely new cabin with customizable seats, updated side walls and valances, and an upper technology panel.

The table, side ledge, side wall, and valence designs are also new, while the cabin is more spacious thanks to a three-inch-wider aisle and an additional inch of headroom compared with the Phenom 300. Embraer's 300E also incorporates an upper technology panel along the centerline of the cabin ceiling and a Lufthansa Technik nice high-definition cabin management system.

Because the 300E has all-new interior attach points and the seats have different rails, the updated cabin cannot be retrofitted to the approximately 450 in-service Phenom 300s.

More Upgrade Options for In-service Bombardier Bizjets

Bombardier Business Aircraft today announced a dozen new product enhancements for Learjet 40/45s, Challenger 300s and 604s, and Globals, including cabin improvements. They are now available for installation at any of Bombardier's nine service centers worldwide, the company said.

The cabin enhancements for Challengers and Globals include custom-crafted stone flooring and conference tables with a single-pillar pedestal. In particular, Bombardier said the new interior studio at its Tucson service center is equipped to provide these interior enhancements with its cabinet workshop and climate-controlled work environment.

Additional improvements include a cockpit audio control panel switch guard for the Challenger 350/350; forward cabin bulkhead retrofit for the Challenger 300; tire pressure-measuring system for all Learjets, Challengers, and Globals; and an automatic entry door/main passenger door switch for Globals. ■

by Gordon Gilbert

Within 6 Months

June 16, 2018 and Jan. 1, 2019

Upgraded CVRs and Underwater Locators

The European Aviation Safety Agency (EASA) will require upgraded CVRs and underwater locating devices (ULDs). New ULDs must be capable of transmitting for at least 90 days instead of 30 days. By Jan. 1, 2019, airplanes with an mtow of at least 59,500 pounds with more than 19 passenger seats and performing transoceanic flights must be retrofitted with an additional ULD with "very long detection range." Also by Jan. 1, 2019, all CVRs with a 30-minute recording duration must be replaced by units with two-hour recording capability. Additionally, CVRs recording on magnetic tape must be replaced by solid-state units.

June 27, 2018 **NEW**

Proposal Tightens FDR/CVR Requirements

An EASA notice of proposed amendment (NPA) aims to improve the reliability of flight recorders. In particular, the aim of the proposal is to increase the robustness of flight recorders to the loss of their power supplies, prevent the premature termination of recordings due to the untimely triggering of negative acceleration sensors, and define the certification requirements for combination recorders and deployable recorders. Comments on the NPA are due by June 27.

Sep. 30, 2018 **NEW**

Deadline Revision for Part 91 CPDLC

The FAA extended its deadline for Part 91 operators to receive revised authorizations for using controller pilot datalink communications (CPDLC), although operators hoping to take advantage of reduced spacing along certain North Atlantic Tracks (NAT) must also be in compliance with ICAO's performance-based communications and surveillance (PBCS) requirements. The new deadline is Sept. 30, 2018 to provide additional time for the agency to process revised LOA applications. While the FAA's datalink deadline is separate from the PBCS mandate, the two are linked through use of CPDLC.

Nov. 8, 2018

15-minute Position Reporting

The International Civil Aviation Organization Council adopted a tracking standard for certain international flights that requires crews to report their aircraft's position at least every 15 minutes. It will become applicable on November 8. The new requirement will be made formal as Amendment 39 to Annex 6—Operation of Aircraft, Part I. The new standard is the outcome of recommendations stemming from the disappearance of Malaysia Airlines Flight MH370 on March 8, 2014.

Within 12 Months

Jan. 31, 2019

Canada CRM Requirements

Transport Canada has introduced so-called "contemporary" crew resource management (CRM) training standards applicable to commercial aircraft operations, including air taxis. The new requirements go into effect Jan. 31, 2019. This latest iteration of CRM now includes the concept of threat and error management (TEM). TEM "advocates the careful analysis of potential hazards and taking the appropriate steps to avoid, trap, or mitigate threats and manage errors before they lead to an undesired aircraft state."

Beyond 12 Months

Jan. 1, 2020 and June 7, 2020

ADS-B Out Mandates

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

Jan. 30, 2020

Expansion of Datalink Com in North Atlantic

Phase 2 of the North Atlantic datalink mandate began with Phase 2a in February 2015, at which time flights within the North Atlantic Tracks (NAT) between FL350 and FL390 were required to be equipped with FANS-1/A controller-pilot datalink communications (CPDLC) 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.

Jan. 1, 2021

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 the existing noise standards that apply to the production nor operation of current models. ■

Compiled by Kerry Lynch

JOHN DAUT

JASON KIELAU

SUREN MERAS

ALAN HUNG

DIANE TERRILL

Jean-François Delepau was appointed chairman of *Sofradir Group*, the high-performance imaging specialist jointly owned by Thales and Safran. Delepau previously was managing director of Sofradir's ULIS operation and has held roles with various companies specializing in electronics and components.

John Owen, who has served as interim president of *Executive AirShare* for the past two months, was formally named president and CEO. Owen takes over for **Keith Plumb**, who announced in February that he was stepping down after co-founding and steering the company since 2000. Owen had joined Executive AirShare in 2016 as CFO after serving as vice president for national search firm EFL Associates and as CFO for OrTran, a supply-chain management company and also working for Capitus Group, Street, Accenture, and KPMG.

XoJet promoted **James Henderson** to president of commercial operations and **Gregg Slow** to chief client officer. Henderson previously was chief commercial officer. Slow formerly was executive v-p of sales and client services.

Jet Linx appointed **John Daut** base president of the Northeast region. Daut has more than 25 years of industry experience, holding positions as Northeast regional vice president at Nextant, executive v-p at Marquis Jet, and vice president of sales at NetJets.

Sandel Avionics named **Larry Riddle** vice president of sales and marketing. Riddle has 23 years of avionics experience, including serving as vice president of sales and marketing for L3 Technologies Aviation Products.

Duncan Aviation appointed **Chad Doehring** v-p of operations for its Provo, Utah location. Doehring joined Duncan in 1994 as a mechanic and since has held positions of increasing responsibility, including airframe assistant manager, airframe services manager, and customer service manager. In addition, **Mike Dunham** joined *Duncan Aviation* turbine engine service sales team, covering the Great Lakes region with a focus on the MRO provider's Pratt & Whitney Canada services in Battle Creek, Michigan. Dunham has 31 years of aviation experience, previously holding sales positions for Vector Aerospace and Cessna Citation.

Jason Kielau was named vice president of sales and marketing for *Eagle Copters*. Kielau joins Eagle Copters from ATCO Structures & Logistics, where he led several business units across North America, South America and Europe.

FlightSafety International promoted **Suren Meras** to senior director, operations. Meras, who has 35 years of aviation experience, joined FlightSafety in 2007 at its Toronto learning center as assistant center manager and most recently was director, training operations. In addition, the company named **Jeff Rose** manager of the company's learning center in Columbus, Ohio. Rose joined FlightSafety in 2001 as an instructor for the Cessna Citation 500 series in Toledo, Ohio, later became assistant manager of the Savannah, Georgia center, and most recently was manager of the Atlanta facility. Succeeding Rose in Atlanta is **Jamie Hopkins**. Hopkins joined FlightSafety in 2014 at the Wichita Cessna Center as an instructor in the Cessna Caravan program, later became assistant manager of the Savannah center. **Brian McNelly** was promoted to assistant manager of the company's maintenance learning center in Wichita, Kansas. McNelly, who has 32 years of aviation maintenance experience, joined FlightSafety in 2006 as an instructor and since served in a number of roles including his most recent position of regional director of regulatory affairs, maintenance.

Asian Sky Group named **Alan Hung** director of business development, responsible for Greater China and APAC. He previously was director of business development for Jet Support Services, Inc.

Guardian Jet appointed **Matt Rosanvallon** sales director. Rosanvallon previously served as a commercial and real estate consultant and broker for his own consultancy and also has served as director of sales and marketing for the New York-based high-end commercial real estate firm Coalition.

Diane Terrill was selected as deputy executive director for *the Naples Airport Authority* (NAA). Terrill was most recently senior director of strategy and communication for NAA.

The *Unmanned Safety Institute* (USI) named **Michael Wilson** director of operations. Wilson joined USI with nearly 40 years of commercial and defense experience, most recently as strategic business operations manager for Columbia Helicopters.

Jet Support Services, Inc. appointed **Jeff Soderberg** director of business development for the Southwest U.S., including Southern California. Soderberg, who previously served as global sales director for StandardAero, brings 32 years of experience working with turbine engines to his new role.

Dan Larsen was promoted to general manager of Aerospace & Defense for *Donaldson*. Larsen is an 18-year company veteran, serving in OEM sales, engine aftermarket and most recently, engine business for greater China.

Fire Boss added **Stephen Johnson** as global sales director. Johnson, a certified flight instructor and commercial pilot in rotorcraft, has more than 20 years of aviation experience, including with Timberline Helicopters.

Western Aircraft promoted **Don West** to avionics account manager and **Jeff Watson** to turboprop service manager. In addition, **Paul Harrington** joined the company as an avionics team lead. West joined Western Aircraft in 2000 as an avionics technician and most recently was avionics lead. Watson has served with the company for more than 11 years, most recently as jet team lead. Harrington previously spent 20 years with Jet Aviation in St. Louis, most recently as Challenger team avionics lead.

MROinsider.com added four account managers: **Craig Miracle**, Austin Texas; **Guy Shaginaw**, Orlando; **Jacob Kingsley**, Tecumseh, Michigan; and **Richard Hatfield**, San Diego, California. Miracle, who holds an A&P, served in the U.S. Army as a UH-60 mechanic and earned a bachelor's of business administration from Texas State University. Shaginaw has more than 20 years of business experience, holds a degree in risk management and is completing his private pilot license. Kingsley is stepping into the aviation industry after growing up around the aviation industry. Hatfield has worked in FBO and MRO environments, providing service to commercial, private, and military customers.

Andy Brookins joined *DFW Instrument* as a shop manager. Brookings has 30 years of commercial and military instrument and avionics repair experience, including with Pacific Southwest Instruments, Western Avionics, Otto Instruments, and most recently Global Tech.

Ryan Robertson was appointed sales manager for component repair for *C&L Aviation Group*. Robertson previously served with Worthington Aviation and INAir Aviation Services. ■

FINAL FLIGHT

Gary Briggs, founder and president of Ascend Development in Hayward, California, died October 29 after a short illness. He was 64. Briggs's aviation career spanned more than four decades beginning with fueling jets at Spokane International Airport (GEG) while attending Eastern Washington University. After earning a business degree in 1975, he was promoted to a management position with the Flightcraft FBO at GEG. He moved over to Flightcraft's location at King County International Airport (Boeing Field, BFI) in 1983, and subsequently took a position with Raisbeck Engineering in Seattle. Over the next 15 years, he held various management roles with companies including Aero Services, Van Dusen, and ultimately returned to Flightcraft in Oakland and Hayward.

During his time with the aviation businesses, Briggs began to see a growing need for hangar space for a rapidly expanding business aircraft fleet in the San Francisco area. This led him to form Ascend Development in 2001 to provide real-estate development services for the aviation community. His son and business partner, Scott Briggs, is continuing to steer the firm.

Along with his son Scott, Briggs is survived by his wife, Patricia; son, Justin, a jet-charter broker in Silicon Valley; his daughter, Liberty Charpentier, also formerly of Ascend; and six grandchildren. ■

AWARDS and HONORS

The National Aircraft Resale Association (NARA) Business Aviation Scholarship program awarded $36,000 to 12 college students seeking business aviation careers. The program, which is providing $3,000 individual scholarships, was founded to assist full-time graduate and undergraduate students majoring in corporate aviation management, aerodynamics, aircraft systems, aviation safety, finance, business marketing, economics, and other studies that relate to aviation business and management.

This year's winners are **Matthew Aniello**, senior at Vaughn College of Aeronautics and Tech; **Patrick Ekhlas**, senior at Auburn University; **Dennis Mugenyi**, senior at the University of North Texas; and **Sheppard Stutts**, senior at Louisiana Tech University. The other recipients are students at Embry-Riddle Aeronautical University (ERAU): **Tanya Baham**, junior; **Robin Frey**, master's student; **John Girouard**, master's student; **Justin Guth**, master's student; **Faisal Khalifa**, master's student; **Ivan Kut**, senior; **Hemant Saria**, senior; and **Benjamin Uribe**, junior. ■

Solutions and services for **your World**.

Discover our fuel
and service solutions
aviationsolutions@wfscorp.com
wfscorp.com/aviation

From reliable fuel delivery and faster payments with card programs and processing, to providing state-of-the-art global trip support, World Fuel Services has the breadth to work as a true partner by developing solutions created specifically for you.

Whether we're helping customers meet operational performance goals, or investing in facilities to help drive growth, we're able to deliver the bespoke solutions you need.

Contact us, and meet the aviation solutions provider who understands your World.

Fuel | Trip Support | Card and Reward Programs | Logistics | Technology | Brand Programs

World Fuel Services®

Letters and Opinions

AIN readers weigh in on loss-of-control accidents

Editor:
When I read John Goglia's "MU-2 crash shows challenges of eliminating loss-of-control accidents" *(March, page 18)*, it just took me back about 30 years to a flight that I made in a Metroliner at SGF.

I was the maintenance check pilot for Air Midwest on Metroliners back in the late 1980s. I always flew them single-pilot. We had no autopilots or flight directors; that's what the FO was for in the revenue flying.

In this incident, I got called out of bed about 3:30 a.m. to check-fly a Metro at SGF for a NTS shutdown check. I had to fly it to release it for a 7 a.m. revenue flight. After a preflight, everything was looking good, other than the weather, which was just above ILS minimums with the tops about 6,000 feet. It was normally not a problem: just a quick hop up to 10,000 feet, do the shutdown, restart the engine, and return. I took off on Runway 1 and all was well until I retracted the gear, then my side of the instruments went dead about the same time that I went into the clouds.

I quickly shifted my scan to the copilot's instrument panel and all continued good in the climb as I told the tower that I needed to return immediately via radar vectors due to a problem. To my dismay, they said that they were working an inbound flight and for me to go out, hit the 16 DME arc and circle left to land ILS Runway 1. Again, to my dismay, as I looked longingly at the copilot's panel, I noticed a distinct lack of an RMI. I had just a DME and OBS. I didn't even have an HSI on that side.

I told the tower my plight and reiterated that I would indeed like to have radar vectors and a little more help. Again, they said just continue on the 16-mile arc that I was doing fine and they were busy. As I swung through the black innards of the clouds, I was able to stay within a half mile of the 16-mile arc, but getting set up for the lead-in radial was getting dicey. I overflew the lead-in radial. Basically I noticed it as it swung past center, at which time I cranked into the turn but was flying the localizer like a swimming fish.

I realized that even though I was cleared to land, and inside the outer marker, continuing on would not have a good outcome. I declared a missed approach and for the first time in my aviation career radioed "Mayday, Mayday, Mayday." I asked for no-gyro turns and radar vectors to the ILS. After that, all went well. The tower was very professional about it, brought me back around to the localizer, and after that, it was not that big of a deal; other than still flying from the copilot's instruments. I took the tower a big box of donuts later that morning.

My thoughts about where I could have improved the situation: after the pilot's instruments died, I should have just manned up and declared a Mayday at that moment. I was trying to be accommodating to the tower and the inbound flight while I was in dire straits. I definitely never thought that I'd be doing a DME arc to the ILS and hope that I never have to do one again. I was a fairly high-time pilot, very skilled in most of the problems seen in Metros, since basically troubleshooting and operationally checking problems was my job. I was doing my best Maverick imitation I guess.

I nearly have a cold sweat going now just remembering that early morning flight.

Bob Hays, ex Air Midwest Mtc check pilot
ATP, A&P, IA

Editor:
I've been enjoying your recent articles about LOC-I (loss of control in flight). They aren't dry and are interesting to read, and I hope a lot of people read them. LOC-I certainly seems to be a big topic these days, as it should be.

As the owner of an aerobatic school and upset training program, I also think a lot about LOC accidents and their causes, and while I don't want to sound like a know-it-all, I get very frustrated about the apparent lack of basic stick-and-rudder skills given to pilots in their flight training.

As far as go-arounds, I was fascinated by the recent Flight Safety Foundation Go-Around study. They discuss how few pilots even do go-arounds and how it is not part of the culture of commercial operations, even rarely discussed. When we give our students, who range from student pilots to ATPs, a go-around they often get flustered, and the first thing they do is raise the nose, slowing the airplane down even more and putting themselves in a precarious position.

All of the high-profile LOC accidents/incidents that we tend to discuss—Air France, Colgan, the Challenger 604 wake turbulence incident—boil down to lack of knowledge of angle of attack and not having good rudder skills, which is really apparent in the MU-2 crash as well.

When I was growing up, my dad and his airplane pilot buddies, who were mostly trained in the Army Air Corps or Air Force, did not use the term "unusual attitude" nor did they use the word "upset." I think they would have laughed at those terms. They did, however, have good stick-and-rudder skills even in the big airplanes they flew because of their superior training.

Patty Wagstaff

In addition to operating an upset-recovery training program, Patty Wagstaff has beeen an airshow headliner performer for decades, three-time national U.S aerobatic champion, International Aerobatic Club champion, member of the U.S. National Aviation Hall of Fame, and member of the Presidential Advisory Committee to the Centennial of Flight Commission—among countless other honors.—Ed

Editor:
I wanted to comment on your LOC-I article in the March **AIN**. I am a captain for a major airline and even with strict go-around polices in place, my company still does have a small number of grossly unstable approaches. In my opinion, one of the primary factors that causes crews to continue is expectation bias and reduced situational awareness (tunnel vision). I have often thought if there were a GPWS warning that would indicate an unstable approach, crews would be more likely to go around. Our compliance data for GPWS warnings is very high ("wind shear; go-around," "too-low; terrain; pull up") so my assumption would be that an external warning system for unstable approaches would have similar compliance results. I was curious if the NTSB ever suggested such systems be incorporated in future generations of GPWS systems.

Mark Pratt

Editor:
Pilots focus too much on the end game of *completing* the approach and landing. We study the plate, and we know what to do when we get to minimums and cannot land, because it is written down for us in the missed approach procedures.

In my 9,000-plus hours of flying experience, I have seen my share of ugly approaches. But in the end, the aircraft was where it needed to be for a safe landing. In the moment, I was evaluating my performance by whether or not I had put myself into a position to a) land or b) go missed.

A chain of events leading toward an accident can be broken only when one identifies the bad links. Ideally, the pilot recognizes these potential bad links before beginning the approach. If diligent forethought is not given to the approach, you can easily find yourself correcting one problem after another, and not realize you are quickly losing control of the situation.

I find it helpful to mentally fly the approach, while en route or on the ground, and think about the "what if's" that could happen given the current weather conditions on the approach path and on the field at the destination airport. What will I do if I am too high and/ or too fast before the IAF? What if I am asked to maintain an uncomfortably high airspeed on final to accommodate aircraft behind me? I am too fast to lower the landing gear and I am past the FAF, what now?

Pilots too often prepare for the approach and missed approach without taking into consideration the hurdles they might encounter. More important, they must consider a game plan to overcome "what if" scenarios. These challenges might be exacerbated by last-minute controller requests, or they might be created by inattentive flying.

It all comes down to creating an alternative plan—well before it becomes necessary to use it—and implementing that plan promptly when the approach is not going as visualized.

For example, if you request a late descent, you must evaluate how this will affect your approach and what actions you will take to correct this deviation. This visualization of the amended approach brings you to the conclusion if you are too high at the IAF, you simply request a hold at the IAF until you are comfortable to continue. By doing this ahead of time, you take the stressful, last-minute decision-making out of the equation and break a chain of compounding mistakes before it begins.

Instrument approach training should put pilots in unconventional positions that require them to:

- Evaluate the current situation and how it can affect the outcome of the approach and landing.
- Determine a corrective plan of action that allows the approach to be conducted using normal maneuvers.

The ability to anticipate issues and create a plan of action is key to staying ahead of the aircraft. Create a visual corridor that represents your aircraft from descent, approach, and touchdown. Know where you want your aircraft altitude and airspeed to be throughout this visual corridor. Think about the corrective action you would take if any of your visualized parameters are exceeded. Take the time to think about possible curveballs an approach may throw your way. Put those thoughts in the foreground. You will find yourself in a more confident position during one of the most taxing phases of flight.

Chris Terry
Citation XLS captain Part 91
CFI

A real-world take on the pilot shortage:

Editor:
I would like to see an editorial about the aviation staffing shortage, mainly pilots. I have been in this business for the last 39 years. I received a degree in aviation and all my ratings in 1985 from Louisiana Tech University, graduating summa cum laude. I quickly got out of the real aviation business by getting a government job as a federal agent. This position still allowed me to fly but it gave me the security of having the primary position of federal agent. During my time in the government I was able to build a pretty substantial amount of flight time.

I remember applying for pilot jobs where I was offered mostly pay-for-training positions. I felt I had spent enough of my money getting all my ratings. I retired from the federal government and I can now do the flying I want to do, not have to do. I find it interesting all these companies that abused their applicants with low pay, poor schedules, and pay-for-training are the ones bemoaning the "poor pilot demographics." No wonder few are wanting to spend thousands of dollars to get all their ratings to spend most of their lives away from home when other industries offer much better opportunities. Children of pilots are now the upcoming professionals. They listened to what their parents had to put up with.

The conditions for pilots have improved only in the last year or two. Memories are long, and the most competent people got out of the business. Of the 100 or so pilots/federal agents that I retired with, all in our 50s, only about three of us are still flying. The only reason we still do this is because we love the challenge. Other competent people just got on with their lives in other industries and did much better financially than anyone in the aviation industry.

I think it would be reasonable for **AIN** to highlight the fact that if this industry wants to have a future pool of applicants it should treat people well through the good times and the bad. I suspect that every industry including the aviation industry will just figure out how to automate and get rid of all those pesky employees. Someone explain to me who will have the money to buy the services?

Scott Woodward, ATP, CFI, CFII, MEI, SES, SEL MEL, glider and numerous type ratings

Meet us at...

EBACE

29th-31th
MAY, GENEVA

BOOTH
W58

We're CHAUFFEURS

BiZAV.

Manage secure ground transportation from booking to completion

Contact us to create an account to get all-inclusive pricing in our Drivania Booking Platform

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

info@drivania.com

Drivania®

CHAUFFEURS

Let your voice be heard.
Complete the 2018 AIN
Product Support Survey.

HUNDREDS OF PEOPLE. THOUSANDS OF PARTS. TWO INDUSTRY FIRSTS.

Falcon customers deserve the best in every way, including service. From our 24/7 command center to our mobile repair teams to our extensive parts inventory, you're covered. Our portfolio of AOG support services includes two long-range, large cabin Falcon 900s with everything needed to put an AOG back in service, or provide alternative lift for passengers. Something you can only get from Dassault. Whatever it takes™.

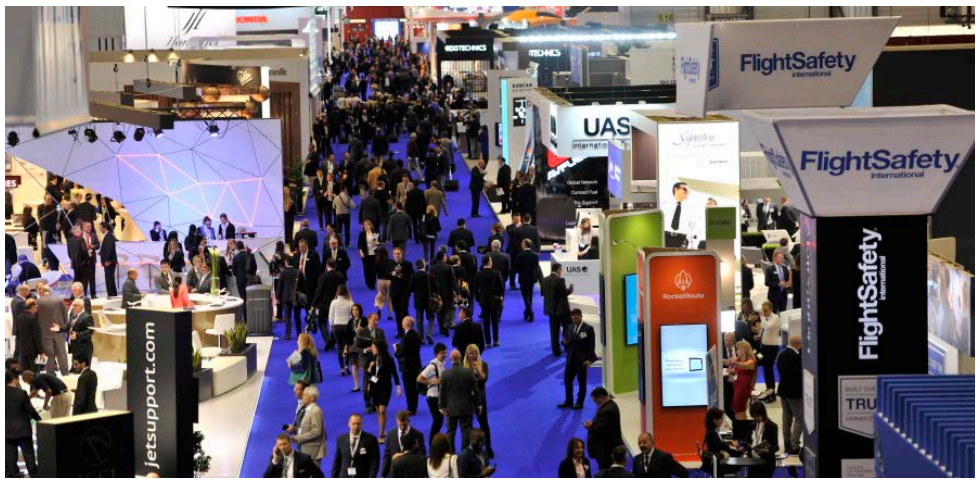
Falcon Response

WWW.DASSAULTFALCON.COM | FRANCE: + 33 1 47 11 37 37 | USA: +1 201 541 4747

DASSAULT AVIATION

ENGINEERED WITH PASSION.
SERVICED WITH CARE.

EBACE 2017



FARNBOROUGH 2016

PHOTOS: MARK WAGNER

MAY

NBAA MAINTENANCE CONFERENCE... May 1-3, Albuquerque Convention Center, Albuquerque, NM. Info: info@nbaa.org; www.nbaa.org/events/maintenance-conference/2018/.

NATA CERTIFIED FBO SAFETY MANAGER WORKSHOP... May 8-10, Thunderbird Aviation, Minneapolis, MN. Info: events@nata.aero; http://nata.aero/Events/2018-NATA-Certified-FBO-Safety-Manager-Workshop.aspx.

NBAA SECURITY CONFERENCE... May 9-10, The Adolphus Hotel, Dallas, TX. Info: info@nbaa.org; www.nbaa.org/events/security-conference/2018/.

NBAA BUSINESS AVIATION TAXES SEMINAR... May 10-11, Dallas, TX. Info: info@nbaa.org; www.nbaa.org/events/taxes-seminar/2018/.

63RD ANNUAL BUSINESS AVIATION SAFETY SUMMIT... May 10-11, Radisson Blu Aqua Hotel, Chicago, IL. Info: solorzano@flightsafety.org; https://flightsafety.org/event/bass-2018/.

4TH ANNUAL BUSINESS AVIATION GOLF OUTING... May 15, Safari Gold Club, Powell, OH. Info: trentd5@nationwide.com; www.golfevent.org/.

EASA WORKSHOP ON FLIGHT TIME LIMITATIONS AND FATIGUE RISK MANAGEMENT... May 24, Konrad- Adenauer-Ufer 3, Cologne, Germany. Info: air_ops@easa.europa.eu; www.easa.europa.eu/newsroom-and-events/events/workshop-flight-time-limitations-ftl-and-fatigue-risk-management-frm.

EUROPEAN BUSINESS AVIATION CONVENTION & EXHIBITION... May 29-31, Palexpo Convention Center, Geneva, Switzerland. Info: info@ebace.aero; https://ebace.aero/2018/.

6TH ANNUAL SAFETY FORUM... May 29-30, Eurocontrol headquarters, Brussels, Belgium. Info: solorzano@flightsafety.org; https://flightsafety.org/event/6th-annual-safety-forum/.

JUNE

EASA STC WORKSHOP... June 4-5, -Konrad- Adenauer-Ufer 3, Cologne, Germany. Info: CT1.4.AdminSTCandSpecialProjects@easa.europa.eu; www.easa.europa.eu/newsroom-and-events/events/stc-workshop-2018.

MAINTENANCE RESERVES SEMINAR 2018... June 5-6, Jury's Inn, Prague, Czech Republic. Info: info@everestevents.co.uk; https://everestevents.co.uk/event/maintenance-reserves-seminar-2018/.

SAE AVIATION TECHNOLOGY FORUM... June 5-6, Crowne Plaza Century Park Shanghai, Pudong Shanghai, China. Info: + (86) 21 5190 8886; www.sae.org/attend/aviation-technology-forum.

PILATUS OWNERS AND PILOTS ASSOCIATION ANNUAL CONVENTION... June 7-9, The Roosevelt Hotel, New Orleans, LA. Info: http://pilatusowners.org/popa-annual-convention-off-season/.

GREATER WASHINGTON AVIATION OPEN... June 11, Army Navy Country Club, Arlington, VA. Info: msmanage@cox.net; www.gwao.org/.

NATA ANNUAL MEETING AND AVIATION BUSINESS CONFERENCE... June 12-14, Grand Hyatt, Washington, DC. Info: events@nata.aero; http://nata.aero/Events/2018-Annual-Meeting-and-Aviation-Business-Conference.aspx.

NBAA REGIONAL FORUM... June 21, Westchester County Airport (HPN), White Plains, NY. Info: info@nbaa.org; www.nbaa.org/events/forums/2018hpn/.

ASA ANNUAL CONFERENCE... June 24-26, Omni Scottsdale Resort & Spa at Montelucia, Scottsdale, AZ. Info: www.aviationsuppliers.org/Annual-Conference.

AEA CERTIFIED REPAIR STATION TRAINING... June 25-29, 702 Helicopters, Las Vegas, NV. Info: info@aea.net; www.aea.net/Training/courses/CRS/.

NBAA FLIGHT ATTENDANTS/FLIGHT TECHNICIANS CONFERENCE... June 26-28, Saint Paul, MN, Info: jevans@nbaa.org; www.nbaa.org/events/fa-ft/2018.

JULY

FARNBOROUGH INTERNATIONAL AIRSHOW... July 16-22, Show Centre, ETPS Rd, Farnborough, England. Info: +44 (0) 1252 532800, enquiries@farnborough.com; www.farnboroughairshow.com/trade/.

EAA AIRVENTURE... July 23-29, Wittman Regional Airport, Oshkosh, WI. Info: www.eaa.org.

AUGUST

LATIN AMERICAN BUSINESS AVIATION CONVENTION & EXHIBITION... August 14- 16, São Paulo, Brazil. Info: www.abag.org.br/labace2017.

AEA PITOT STATIC & TRANSPONDER CERTIFICATION TRAINING WITH ADS-C IMPLEMENTATION SESSION... August 23, AEA headquarters, Lee's Summit, MO. Info: info@aea.net; www.aea.net/Training/courses/pitotstatic.

AEA RVSM MAINTENANCE... August 24, AEA Headquarters, Lee's Summit, MO. Info: info@aea.net; www.aea.net/Training/courses/rvsm/.

SEPTEMBER

NBAA REGIONAL FORUM... September 6, San Jose International Airport (SJC), San Jose, CA. Info: info@nbaa.org; www.nbaa.org/events/forums/2018sjc/.

AEA EAST CONNECT CONFERENCE... September 12-13, DoubleTree by Hilton-Tampa Airport, Tampa, FL. Info: katier@aea.net; www.aea.net/connect/east/.

RUSSIAN BUSINESS AVIATION CONFERENCE & EXHIBITION... September 12-14, Moscow, Russia. Info: www.rubace.aero.

NATA GROUND HANDLING SAFETY SYMPOSIUM... September 18-19, NTSB Training Center, Asburn, VA. Info: events@nata.aero; http://nata.aero/Events/2018-NATA-Ground-Handling-Safety-Symposium.aspx.

TRANSACTIONAL SUPPORT & RISK MANAGEMENT SEMINAR... September 19, Copthorne Tara Hotel, London, UK. Info: info@everestevents.co.uk; https://everestevents.co.uk/event/transactional-support-risk-management-seminar-london-2018/.

AEA WEST CONNECT CONFERENCE... September 24-25, Grand Sierra Resort, Reno, NV. Info: katier@aea.net; www.aea.net/connect/west/.

REGIONAL AIRLINE ASSOCIATION ANNUAL CONVENTION... September 26-28, Long Beach, CA. Info: www.raa.org.

OCTOBER

COMMERCIAL UAV EXPO AMERICAS... October 1-3, Westgate Resort & Casino, Las Vegas, NV. Info: https://www.expouav.com/.

NBAA BUSINESS AVIATION CONVENTION & EXHIBITION... October 16-18, Orange County Convention Center, Orlando, FL. Info: (202) 783-9000; www.nbaa.org.

2018 ROTORCRAFT SAFETY CONFERENCE... October 23-25, Hurst Conference Center, Hurst, TX. Info: eugene.trainor@faa.gov; http://faahelisafety.org.

IAWA 30TH ANNUAL CONFERENCE... October 24-26, South's Grand Hotel, The Peabody Memphis, Memphis, TN. Info: info@iawa.org; https://iawa.org/30th-annual-conference/.

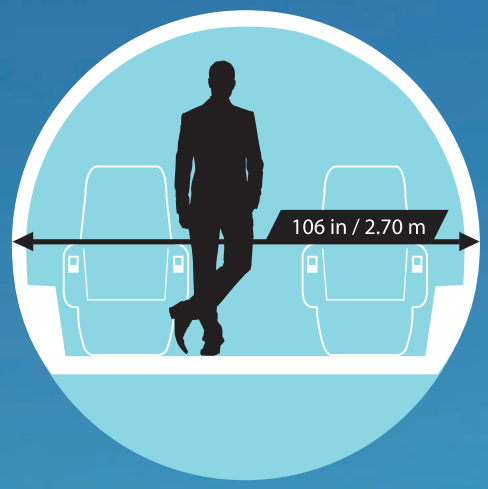
BOMBARDIER SAFETY STANDDOWN... October 30-November 1, Wichita, KS. Info: www.safetystanddown.com.

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.**

IT RAISES THE BAR WIDER.



Get ready to experience the largest, tallest and widest cabin in business aviation. The Falcon 6X has a 5,500 nm (10,186 km) range and a top speed of Mach .90. In setting a higher, wider standard, it truly stands alone. **Falcon 6X.The roomiest, most productive 5,500 nm you'll ever experience.**

Falcon 6X
A CLASS ALL ITS OWN

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

DASSAULT AVIATION
ENGINEERED WITH PASSION