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Safran Schedules Silvercrest Solutions



WE HAD ISSUES, Safran Aircraft Engines CEO Olivier Andriès says of his company's new Silvercrest engine. But Cessna's election of Silvercrest to power its new flagship Hemisphere is a **"VOTE OF CONFIDENCE... I CAN SAY TODAY THAT THE ISSUES ARE BEHIND US."**

—See Page 4

Corporate Angel Network: 50,000 Flights

Co-sponsors Phillips 66, Safe Flight Instruments and Aviation Week's *Business & Commercial Aviation* presented this year's Corporate Angel Award on Tuesday. On hand were Eli Lilly aviation department Capt. Greg Mullett and senior operations director Scott Farrar, Aviation Week's Elizabeth Zlitni, *Business & Commercial Aviation* editor-in-chief William Garvey, Corporate Angel Network executive director Gina Russo, Phillips 66 general aviation marketing manager Greg Still, Nationwide Insurance aviation business center flight coordinator Diane Bassetti, and Safe Flight president and CEO Randy Greene.

—CAN Update Page 12



Booth 235

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NBAA-BACE 2016, November 2

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Bill Koch, chairman of Hawthorne Global Aviation Services. **PAGE 56**

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Safran Schedules Silvercrest Solutions

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ShowNews is published by Penton Media Inc., 9800 Metcalf Ave., Overland Park, KS 66212-2216. Also the publisher of *Air Transport World*, *Aviation Daily*, *Aviation Week & Space Technology*, *Business & Commercial Aviation*, *SpeedNews*, *The Weekly of Business Aviation* and *World Aerospace Database*.

ShowNews at NBAA-BACE 2016: Room N210 E
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NBAA-BACE Opens With a Caveat



Guests of honor opening the path to the 2016 Convention on Tuesday were (l to r) U.S. Rep. Sam Graves (R-Mo.), author and Wright brothers biographer David McCullough, and Wright family descendant Amanda Wright Lane.



The late, great business aviation advocates Bob Hoover and Arnold Palmer

Losing two of its best generals just before a battle is a misfortune the NBAA will almost certainly need to overcome – quickly. Moments after president and CEO Ed Bolen reminded the opening general session of the debt the association owes to the lately departed ambassadors of business aviation, Arnold Palmer and Bob Hoover, both he and first speaker U.S. Rep. Sam Graves (R-Mo.) were reminding delegates of the truism that in Washington, D.C., “Nothing goes away.”

User fees most certainly fall into the category of the undead. Congressman Graves sounded the warning that “there is a lot of opposition out there” to the situation currently giving flyers satisfaction, and he says he foresees the future formation of a new committee to bring the issue back into play.

“No plane, no gain” is once again to be the NBAA’s rallying cry. With Palmer and Hoover gone, advised Bolen, “we need to

take [their] mantle of advocacy and make it our own.”

Accordingly, the NBAA launched on Tuesday the #bizavworks hashtag, which will enable the advocates of business aviation to tweet their positive opinions of the industry.

In a following address that deservedly received a standing ovation, David McCullough, author of the recently published book *The Wright Brothers*, informed and entertained attendees with a description of the earliest days of aviation and the determination to succeed that inspired the Wright brothers. McCullough’s book, while adhering strictly to the legal constraints of the 1948 Wright-Smithsonian contract, has gained best-selling status.

Wilbur and Orville might not have comprehended the word *hashtag*, but it could prove as useful to the furtherance of aviation as did their endeavors.

—Paul Jackson

Global 7000 to Fly Soon

As Bombardier nears first flight of its Global 7000 large business jet, the company is making progress on the additional flight-test vehicles for the test program.

The aircraft is expected to make its maiden flight this year.

After a series of delays, the \$72.8 million Global 7000 is a top priority for Bombardier, the company said.

“It’s a segment-defining aircraft,” Michel Ouellette, Bombardier SVP of the Global 7000/8000 program said recently at the company’s factory complex near Toronto’s Downsview Airport.

The first flight-test vehicle moved from the assembly line to a dedicated hangar. The aircraft has achieved power on. Safety of flight testing and ground vibration testing has been completed, Ouellette reports.

On a recent day, the first test aircraft was on the ramp undergoing testing at the factory. Taxi testing is underway.

The aircraft is loaded from tip to tail with data recording, ballast tanks and ground-test and flight-test equipment. “Functional test procedures are progressing well,” Ouellette said.

Delivery of the first Global 7000 is scheduled for the second half of 2018.

Eventually, the test program will move to

Bombardier’s test center in Wichita.

The second and third test aircraft are on the assembly line inside the factory. The fourth aircraft has moved into position on the line.

Bombardier is employing a state-of-the-art automated position system that moves the wing structure, built by Triumph, into place for joining with the fuselage. The system uses laser-guided measuring to ensure the components are joined consistently each time.

Two robots - dubbed Drillby and Drillbert - are used to drill and deburr most of the 3,000 holes needed to rivet and join sections with a tolerance of less than one-thousandth of an inch. The robots provide high-quality precision and are fast and predictable.

In addition to the robots, an automated movement system is in place to move the sections from one position on the line to another using weight sensors on rails.

The larger Global 8000 will undergo assembly on the same production line.

Completions will be done at Bombardier’s Global Completions Center in Montreal.

The Global 7000, introduced in 2010, has a four-zone cabin and will carry up to 12 passengers. It is powered by GE Aviation Passport engines and has a range of 7,400 nm and a top speed of 530 kt. —Molly McMillin



First of a new breed: The Global 7000 is put through its paces at Bombardier’s facility in Toronto.

Safran Reveals Revised Silvercrest Test Plan

Bolstered by the selection of its Silvercrest mid-thrust turbofan for Cessna’s newly launched Hemisphere business jet, Safran Aircraft Engines has detailed a revised development schedule incorporating improvements made to counter problems uncovered in early tests.

First announced at the 2006 NBAA convention, the Silvercrest was launched by Dassault to power the Falcon 5X, which was originally targeted at entry into service in 2017. However, development issues with the oil-fuel heat exchanger and later performance retention have delayed the debut of the French business jet until 2020.

Designated the Silvercrest 2C for the Hemisphere, the new variant will be modified with external accessories for the Cessna jet but will otherwise be architecturally identical to the -2D for the Falcon 5X. Describing the Cessna decision as a “vote of confidence” in the engine, Olivier Andriès, CEO of Safran Aircraft Engines, says, “We had issues with the development of the Silvercrest that became apparent over the course of last year. We have worked very quietly and hard with Dassault to solve the issues, and I can say today that the issues are behind us.”

The modifications are targeted mainly at

performance retention, says Silvercrest program general manager Michel Brioude. “What we looked at was carcass distortion and clearance control as well as software. But the hardware modifications were mainly driven by vibration, distortion and performance and secondary airflow optimization for clearance control.” The design, which unusually for an engine in the Silvercrest’s 10,000-to-12,000-lb.-thrust range incorporates an axi-centrifugal compressor, is also being revised to include active clearance control in both the high- and low-pressure turbines.

An engine in the Dassault configuration combining all the modified features is under assembly and will enter tests in December. “Then next year we will conduct different tests for certification like vibra-

tion, cyclic and high-temperature endurance, and later next year we will have an engine going to Russia for extreme and cold weather conditions,” Brioude says. “At the same time, we will develop software and power management and have two engines ready for evaluation at altitude test facilities in Saclay, France, and in Russia. Plus we have another on the Gulfstream II flying testbed in San Antonio,” he adds. —Guy Norris



Silvercrest engines in assembly in Villaroche, France

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American Aero Donates \$21,000 to Navy SEAL Foundation

Riggs Brown, general manager of American Aero Fort Worth, a Signature Select FBO (Booth 2619), presented a check for \$21,346 to former Navy SEAL and SEAL Team 1 member Rory O'Connor on behalf of the Navy SEAL Foundation. The Foundation will use the funds for active duty service member "warrior support," educational assistance, tragedy assistance, survivor support and legacy preservation.

"Teddy Roosevelt once said 'Do what you can, with what you have,

where you are,'" says O'Connor, who also is director of development for the Tampa Bay-based Frogman Swim organization. The \$21,000 donation is a significant boost for the Foundation, which operates on a very lean budget. "SEAL Team Foundation ranks very high with Charity Navigator," an organization that vets 501(c)3 non-profit organizations. "Ninety-three cents of every dollar goes

to its charitable activities."

Brown said that American

Aero will match patrons' contributions to the Foundation up to 10 cents per gallon of fuel purchased. American Aero presents the annual donation to the SEAL Foundation every year at the NBAA convention.

—Fred George



American Aero Fort Worth GM Riggs Brown (far left) shakes with former Navy SEAL and SEAL Team 1 member Rory O'Connor. Aero Fort Worth's Jackie Gates and Lindsey Leland are at right.



Celebrating here are Ac-U-Kwik strategic account director Jennifer Shafer-Doyle, Aviation Week business insights director Dylan Goodwin, Skyplan Services sales VP Craig Mariacci, Skyplan Services EVP Jim Ives and Skyplan Services president Muhammad Sami.

Skyplan Taps Ac-U-Kwik Data

Skyplan Services (Booth 1679), a global provider of comprehensive flight operation and trip support services, said here yesterday that it has partnered with Aviation Week affiliate Ac-U-Kwik (Booth 2035) to provide worldwide airport data for Skyplan's SkyTools flight planning tool and Aurora users.

In addition to Ac-U-Kwik's

worldwide aviation data that includes extensive airport information, diagrams and 25,000 service providers, SkyTools provides European IFPS flight validation, an ICAO flight plan generator, time and distance calculator, worldwide weather, and a charter cost estimator powered by SkyPlan's Aurora Global Flight Planning System.

Avinode Powers Online Air Charter Revolution

A RECORD NUMBER of end-client searches in the Avinode online air charter marketplace demonstrates the shift to booking charter flights online is growing rapidly. Avinode (Booth 2219) web apps and APIs have now powered 2.3 million searches, with prominent companies such as Victor and JetSmarter leading the way, the company says.

Although it was in 2010 that Avinode first enabled its clients to operate their own private consumer-facing websites and apps, the surge in booking private jets online has been over the past 18 months.

Additionally, Avinode is celebrating a second industry

record: In July, half a million trip requests were sent through the system in one month. By the end of the year, Avinode predicts total trip requests will be in excess of 3.5 million, notably from its U.S. clients, who have increased in number by 20% over the past two years.

And how would you like to pay for that, sir? Avinode announced at the convention that it has also launched the PayNode service to make it easier to pay for charter flights using the American Express card at an exclusive, significantly lower processing fee than the market average. Wire bank transfer payments will be introduced next year.





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Rolls CorporateCare Tops 2,000

Rolls-Royce reports that it now has some 2,000 business jets enrolled in its CorporateCare engine maintenance program - double the number covered in 2010, or better than two-thirds of the eligible fleet.

The program brings guaranteed maintenance costs to new and in-service Rolls-Royce BR725, BR710, Tay and AE 3007 engines. Operators pay a fixed cost-per-flying-hour fee for a comprehensive range of scheduled and unscheduled

engine maintenance events and benefits.

The reason for the program's popularity, according to Stephen M. Friedrich, VP sales and marketing, business aviation, is that it "has been proven to enhance asset value and liquidity." And

by "liquidity," he means that covered aircraft simply "sell faster" than comparable aircraft that are not. Moreover, it eliminates the financial risk to operators should something go awry with an engine.

Both new and used aircraft can enroll in the program, with the latter required to pay for prior use.

Regardless of entry point into the program, Friedrich says of CorporateCare, "Financially, it's just a great deal." So why would any operator hesitate to sign up?



The Rolls-Royce CorporateCare maintenance program, available on a variety of business aircraft engines, "has been proven to enhance asset value and liquidity."

He posits, "Some people have a very high risk tolerance."

Rolls-Royce is at [Booth 3300](#).

—William Garvey

VistaJet Business Jet Fleet Hits 70 Aircraft Mark

VistaJet has taken delivery of three new Bombardier aircraft, worth \$115 million, bringing its global fleet to 70 aircraft, the company said.

The company has added one new Bombardier Global 6000 and two new Challenger 350 business jets to its fleet.

With the additions, VistaJet has the largest owned super-midsize-to-large-cabin business jet fleet in the industry, it said.

In the past two years, the company has doubled its fleet - from 35 aircraft in 2014 to 70, with an average age of less than two years.

During the first half of 2016, the company's global flight traffic rose 23% and passenger numbers increased 20%, it said.

In early 2016, VistaJet moved its global headquarters to Malta, where its operations are concentrated.

"With three new aircraft added to our fleet, we have cemented our position as the only company in the market with the global infrastructure necessary to provide a truly worldwide service to our customers - 24 hr. a day, 365 days a year," says VistaJet chairman and founder Thomas Flohr.

Flohr founded VistaJet in 2004 and offers long-range private jet travel. Static Display 30.

—Molly McMillin

Esterline CMC for GPS, Connected Tablets

ESTERLINE CMC Electronics is promoting a new GPS sensor and PilotView tablet electronic flight bag and related equipment at [Booth 3619](#).

"It's a whole bunch of building blocks that allow us to do a whole bunch of things for whole groups of customers," says products, strategy and customer support VP Claude Chidiac.

The CMA-6024 GPS sensor is a high-reliability Satellite Based Augmentation System and Ground Based Augmentation System (SBAS/GBAS) CAT-I/II/III precision approach solution, "suitable for all aircraft," CMC says.

The CMA-6024 sensor is an upgrade to the existing CMA-5024, with an embedded VHF Data Broadcast (VDB) receiver. It is fully compliant with Automatic Dependent Surveillance-Broadcast (ADS-B) and Required Navigation Performance (RNP), certified to Design Assurance Level A (DAL-A).

The CMA-6024 is a "plug and play, stand-alone unit requiring no specialized installation or integration support," CMC says. It's available for OEM installation or as a retrofit, fitting in the same space as the CMA-5024 it replaces.

With the new tablet EFB (the PilotView



Esterline CMC's CMA-6024 GPS sensor, CMA-1525 aircraft information server, and PilotView CMA-1310 tablet: a "value chain of products."

CMA-1310) and compact CMA-1525 aircraft information server (AIS), CMC is augmenting the popularity and, indeed, the sexiness of iPad-type devices for aviators with better connectivity, says Chidiac, to both ground aircraft systems.

The new AIS works with CMC's new CMA-1310 or other tablets to secure connectivity with aircraft systems and wireless and satcom aircraft-ground communications. "This platform enables our customers to introduce advanced flight-ops applications and highly innovative functionalities to the aircraft," Chidiac says.

"You need something to bridge between the aircraft and the outside world," he told ShowNews.

"What started out as a self-contained device is now a part of the value chain of products," he says. The PilotView family is offered as a standard option on Dassault Falcon 900, 2000, 7X and 8X, Embraer Legacy 600/650 and

Bombardier Challenger 600 series business jets, and by Boeing for Next-Generation B737s and BBJs. They may also be found on transport aircraft such as the Bombardier C Series, ATR, Embraer E-jets (170/190), Airbus A320 and A330, and Boeing 737, 747, 757 and 767 jets.

—Rich Piellisch

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Use It or Lose It! A Call to Action to Solve Hong Kong Crisis

Are slot restrictions and lack of parking disrupting your business jet trips to Hong Kong? Then use the nearby and mostly empty Zhuhai on the mainland to park the plane, and take a helicopter back to base, says Charlie Mularski, chairman of the Asian Business Aviation Association.



Charlie Mularski

“This is a call to action,” he told *ShowNews*. AsBAA has been central in negotiating for Customs, Immigration and Quarantine (CIQ) services to be made available at Zhuhai, and local

and government agencies, including the CAAC, have granted a three-month trial.

“If there is sufficient demand the trial could go on longer. We would like to extend it through the first quarter and make a business case for it becoming permanent,” Mularski says. “If we don’t use this facility, we will lose it.”

The catalyst was the Zhuhai air show. CIQ services have historically been available at the airport only for that event and for other very special occasions, and the authorities agreed to keep them on this year for the trial. For its duration, business jets can enter China from Hong Kong via Zhuhai and fly on or park; ordinarily the closest points of entry would be the increasingly crowded airports in Guangzhou or Shenzhen.

“We can help relieve the Hong Kong crisis by using Zhuhai. We must show the world it can be done,” says Mularski.

“I urge anyone planning to fly to or route through Hong Kong to seriously consider Zhuhai,” he says. Mularski is also regional VP APAC for trip planner and flight services company Universal Weather and Aviation Inc.

The AsBAA will recognize the trial with a commemorative flight by helicopter today, from Hong Kong to the air show site in Zhuhai, where it will hold a press conference to promote the trial.

—John Morris

AvFab Receives STC for PC-12 Stretcher

Aviation Fabricators (AvFab) has received FAA STC approval for the installation of its medical stretcher for Pilatus PC-12 series aircraft. AvFab’s Pilatus PC-12 Medical Stretcher Kit provides an operator with the option of transporting an ill or injured non-critical patient. AvFab says these stretchers are an economical alternative to complete medevac systems for the operator who doesn’t need critical-care medical equipment. Models are available for both left-hand and right-hand installation. The kit includes the stretcher, mattress, Ferno 12-1 adjustable patient litter, safety restraint system, complete installation instructions, diagrams, and weight and balance data.



CAE Unveils New Training Agreements

TAG Aviation Holdings, as well as an undisclosed large fleet operator in Europe, have selected CAE (Booth 4057) as their training partner of choice for the provision of multiple programs. Training will span across CAE’s global network of heavy, midsize and light jets. Additionally, CAE has announced that its Upset Prevention and Recovery Training (UPRT) has been endorsed by Dassault Aviation. The endorsement follows an extensive audit of both ground and simulator training contained in the new program. CAE also has unveiled its new CAE Terminal online portal, which provides line pilots and flight department leaders instant access to appropriate documentation, training records and reservation details.

Duncan Installs Winglet Upgrade on Sovereign



Duncan Aviation (Booth 3126 and Static Display) and Winglet Technology LLC have announced their collaboration on FAA STC certification testing of Winglet Technology’s Transitional Winglet design for the Cessna Citation Sovereign. The Transitional Winglet upgrade will provide Sovereign owners and operators with greater operational flexibility and performance benefits, such as increased speed at altitude, increased range/payload, improved time-to-climb and more. Duncan has been authorized by Winglet Technology to install the Transitional Winglet STC on the Citation X and, upon issuance of the new STC, plans to begin the first production Transitional Winglet installation on the Sovereign during the first quarter of 2017.

Simcom Selects Frasca for TBM 930 Sim

Frasca International Inc. has been awarded a contract to supply a TBM 930 Level 6 Flight Training Device (FTD) to Simcom Aviation Training (Booth 4875). The FTD will be the first device to simulate the TBM 930 aircraft and will feature the actual aircraft cockpit, RSI XT4 Visual System with a 220-deg. display system, actual Garmin G3000 avionics, weather radar, a synthetic vision terrain awareness system and a traffic advisory system. The FTD will be installed at Simcom’s Lee Vista Training Center in Orlando where it will allow Simcom instructors to provide pilot training in a highly realistic environment.

Win a Rolex With Avfuel

In honor of the retooling of AVTRIP, Avfuel will give away one silver, one gold and one platinum Rolex watch at this year’s show, representing the new silver, gold and platinum AVTRIP tiers. Conference attendees earn chances to win the watches by stopping by Avfuel

(Booth 2207) and visiting with its branded FBOs. Depending on the number of FBOs visited (as marked by a special game card), attendees will earn one, two or three game pieces to distribute between the three prizes as they wish for a chance to win.



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Corporate Angel Network: 50,000 Flights

As the Corporate Angel Network nears its 35th anniversary this winter, the organization has already passed an even more meaningful milestone: In April, it made its 50,000th flight serving a cancer patient.

“To be over the 50,000 flight mark is a huge accomplishment and really speaks to how we have become established in the aviation community,” said Gina Russo, CAN executive director.

But the organization can’t maintain cruising speed without continued support. CAN will hold its biggest fundraiser of the year, “An Evening With Angels,” tonight at the Orlando Hilton Ballroom. The NBAA is a co-sponsor.

“The success of this event is instrumental in bringing cancer patients closer to their cure,” Russo said.

CAN flies thousands of cancer patients each year to and from treatment in the empty seats of corporate jets. The organization was founded in 1981 by three people: Leonard M. Greene, founder of Safe Flight Instrument Corp.; Pricilla H. Blum, a licensed commercial pilot; and Jay N. Weinberg, owner of a Mt. Vernon, New York, Avis Car Rental franchise. Blum and Weinberg were cancer survivors who knew how costly and difficult it is for cancer patients to fly long distances for specialized cancer treatment. Greene had lost his wife to cancer. Together the three came up with the idea of asking corporations to take cancer patients along as passengers when their flights and the patients’ treatment needs lined up.

Greene, also a pilot, donated his funds, expertise and contacts in aviation to the



From the moment we got on the plane to the moment we arrived at the hangar, the hospitality was unreal.”

—Jonathan Yerby,
father of cancer patient Baron Yerby

network. And on Dec. 21, 1981, he personally flew the first CAN flight, ferrying a patient home to Detroit from treatment in New York in time to celebrate Christmas.

Today, over 500 companies participate, half of them members of the *Fortune* 500.

CAN was started when the number of “centers of excellence” for treating the various forms of cancer was small. Today there are many more, but travel still remains an obstacle to patients.

“Our mission hasn’t changed,” Russo said. “We have a clean, focused mission.”

She said CAN had adjusted to the reduction of flight departments in some companies by becoming “well-versed in the fractional market. We have really found wonderful support from companies in that space. That’s been an important resource for us as the industry shifts.”

Flight No. 50,000 took a one-year-old boy, Baron Yerby, and his parents home to Atlanta from New York City, where he had been treated for a rare eye disease at Memorial Sloan Kettering. They flew on a Bombardier Challenger 300 owned by NCR.

Baron’s father, Jonathan, said, “The pilots were fantastic. This flight took away so much of our stress, and it was also much easier for Baron, who tends to squirm and get feisty when we fly commercial, because he’s sitting on our laps and can’t move around.”

Russo took over as CAN’s executive director the same month as Baron’s flight. She has a master’s degree in social work from New York University and came to CAN from the Leukemia & Lymphoma Society, where she worked on patient access



CAN Executive Director
Gina Russo

and education. “I’ve always been focused on getting patients the best possible treatment regardless of insurance barriers or travel barriers.”

At CAN, based in White Plains, New York, she heads up a staff of six and more than 30 volunteers. The network receives about 400 to 500 requests for flights a month and is able to serve about half of them. Participating companies share their flight schedules with CAN, which consults the schedules to see if any of the flights coincide with a patient’s need for travel. “If there is a match we will call a company and see if they have availability on that plane and if there are empty seats they’re willing to share,” she said.

Russo didn’t want to single out a company but said several serve more than a hundred patients a year. Patients need to be ambulatory, able to travel independently of oxygen and not be on an IV.

This year’s CAN/NBAA gala will for the first time use electronic bidding for the silent and live auctions, “which will help many people access them in a very streamlined and fun way.”

Also, well-known husband-and-wife political duo James Carville and Mary Matalin will mingle with guests during the cocktail hour, perhaps giving their take on the upcoming presidential election.

In addition to raising money and serving as a big thank-you to the aviation community, the gala will, ideally, help recruit additional companies to join the network. “We’re always looking to increase our flight list,” Russo said. “We have new companies joining on a regular basis, but we’re always looking to expand the network.”

—Joe Stumpe



Russo with cancer patient Baron Yerby and his parents, Casey and Jonathan Yerby

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Universal Weather Targets ‘Seamless’

Better Wheels Once You’re Done with Wings

Ask Universal Weather & Aviation about clients’ biggest “pain points” and the top two answers are “catering and ground transport.”

Universal solved the former by acquiring Air Chef Holdings and its multinational Air Culinaire operations in 2011. Now, here at NBAA 2016, Universal (Booth 2611) is trumpeting its answer to the second with the establishment, with its security partner FAM International, of a new joint venture with global reach for safer and more reliable ground transportation.

“Schedule changes not communicated, late arrivals, the wrong size vehicle, uninformed drivers and bad information are all common ground transport risks that can adversely impact mission success,” says Universal chairman Greg Evans. The Universal Private Transport JV, he says, “was created to fulfill our clients’ request to help give them more control by bulletproofing those issues and eliminating unnecessary risk and stress to their missions.

“Every change in a trip creates a ripple effect not just at your current destination but at the next,” says Brian Leek, CEO at FAM. “Imagine your passenger decides to depart an hour early. Now the scheduler calls the trip support provider, who calls the handler, who calls the transport provider to adjust the schedule at the current location and then the handler at the arrival airport.

“This introduces multiple points of failure and risk, as each vendor only sees its portion of the mission.”

Operating as a private company, Universal Private Transport works in conjunction with Universal Trip Support Services, allowing users to arrange VIP ground transportation anywhere in the world. “When an operator makes a trip change,” the company says, “the ground transport automatically changes with it.”

“Universal Private Transport is operated by experts who understand the challenges of business aviation,” says Chris Kim, managing director of the new venture.

“We see the total scope of your mission, no matter how many destinations or legs, reducing the number of calls, vendors and risk of error. So when things change, we adjust the entire mission seamlessly.”

Customers can make ground transport arrangements and changes via phone, email, SMS or online. They also can manage preferences for receiving confirmations, driver details, and updates for passengers and anyone else on their team.

—Rich Piellisch



Universal Weather & Aviation’s uvGO can now do more.

New Partner AviationManuals

Universal also this week named AviationManuals as its preferred safety management system provider, with AviationManuals’ ARC software now available via the uvGO mobile app for iPads.

“We developed a new relationship with AviationManuals to help further drive down our clients’ operating risk by incorporating ARC seamlessly into uvGO,” said Universal operations EVP Denio Alvarado. “We chose AviationManuals because it is 100% dedicated to offering the latest in SMS technology and tools,” he said.

Universal describes ARC as a flexible online solution for submitting, storing and analyzing SMS data. The software serves as a central location to store files, complete risk assessments, post company news, and manage both read and initial logs.

Universal Weather & Aviation (Booth 2611) was founded in 1959. The Houston-based company boasts 1,700 employees at more than 50 ground support locations in 20-plus countries, has 21 owned and operated inflight catering kitchens, runs a contract fuel program with 19,500 cardholders, and claims the experience of more than three million facilitated trip legs.

—RP

With One Exception

“We’re able to deliver a car no matter where in the world you go, and I mean no matter where you go,” says Chris Kim, managing director of the new Universal Private Transport. “We can get you anywhere,” he says.

An exception? The 26-atoll Maldives, that are lacking in roads. There, Kim told ShowNews. “We can arrange for a boat.”



Universal Private Transport has been established by Universal Weather & Aviation in league with its security partner FAM International.

Gentlemen, You May Smoke

Since the thaw in American-Cuban relations, and the partial relaxation of travel restrictions, Universal Weather & Aviation has been swamped by inquiries about how best to fly there.

The short answer? Universal can indeed arrange for travel to Cuba. But Americans have to have a reason to go.

For persons meeting one of a dozen travel license requirements (tourism is not one of them), more Cuban airports are now available for private jet travel, and operators are now allowed to make more than one stop once they’re in-country, says Keith Foreman. He’s a master trip owner with 26 years at Universal and, before that, more than a decade as an air traffic controller for the U.S. Air Force in Europe and the Middle East. Today he writes a helpful blog on <http://www.universalweather.com/blog/tag/cuba/>

Prefer to discuss your questions about business flights to Cuba in person? Universal stands ready to answer them at Booth 2611.

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Gama Aviation Is Riding High

UK-based Gama Aviation continues to expand, adding a new maintenance base in Massachusetts and adding aircraft, including turboprops and jets, to the Wheels Up fleet, which accounts for most of its U.S. operations.

The present-day Gama Aviation, which is based at TAG Farnborough Airport, launched via a merger with Hangar8 in late 2014, immediately creating one of the five largest business aircraft operators in the world, valued at some \$200 million.

“Gama Aviation now manages 106 aircraft in the U.S. and another 50 worldwide, with several more to come by year-end,” says Gama’s U.S. president, Tom Connelly. “We have had a very successful year on

the managed aircraft side. The majority of our aircraft are internationally capable.

“With operating bases in New York, Palm Beach, Van Nuys, London, Dubai and Hong Kong, Gama is uniquely capable of handling our clients’ needs around the world and back again.”

In addition to an expanding Gama Aviation fleet, “Gama Engineering continues to grow our line and AOG maintenance bases in support of our managed aircraft operations,” Connelly says. As an example, Gama late this past summer acquired the Technicair maintenance business at Hanscom Field in Bedford, Massachusetts, increasing the firm’s northeast coverage.

Gama (Booth 3319) also this year signed a partnership agreement

with CAE for business aviation training on more than 30 aircraft types. Together they have certified more than 170 pilots.

“Gama continues to enjoy very positive and growing relationships with our major training partners, FlightSafety, CAE and TRU,” Connelly reports.

“With the complexity of newer aircraft avionics and increasing changes to the ATC system both in the U.S. and around the globe, the need for corporate aircraft owners to have a management company with the operational infrastructure and safety management systems in place is vitally important to sustained safe and compliant operations,” he says.



Gama Aviation-operated Falcon 2000



Gama Aviation facility at McCarran Las Vegas

Wheels Up, and Up, and Up...

Wheels Up made waves at NBAA 2013 in Las Vegas by promoting the newest iteration of the venerable King Air as an economical alternative to business jets, beginning with a fleet of 35 of the turboprop twins operated by Gama Aviation.

“In less than three years, Wheels Up has grown from a disruptive start-up to a category leader that offers a total private aviation solution,” the company said earlier this year.

Coming into NBAA 2016, “Wheels Up has grown to 69 total aircraft since our launch, consisting of 54 King Air 350i’s and 15 Citation XL/XLS jets,” says cofounder and COO David Kaufman.

“For the King Air 350i, for which we have exclusivity in fleet format, we believe the opportunity is now larger than the 105 aircraft we originally contracted to purchase.”

Wheels Up late last year projected 50% revenue growth for 2016. “We are happy to report that we have surpassed those projections, both in terms of membership and revenue growth,” Kaufman says.

In April, Wheels Up announced a program dubbed “8760” – the number of hours in a year – allowing members to purchase individual seats on private shuttles, take advantage of lift on empty-leg flights at prices



A Gama Aviation-operated Wheels Up King Air 350 at Teterboro.

“less than the cost of most commercial flights,” and secure access to longer-range and larger aircraft beyond the Wheels Up fleet.

For 2017? “More planes. More members. Continued growth,” Kaufman says. “We expect in 2017 to significantly grow our offering through both the Wheels Up and 8760 membership programs, while continuing to provide the industry’s best value and unsurpassed service.”

The Wheels Up operation boasts more than 3,000 members and is even available through Costco.

—RP



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BizAv: Route to a Quick Buck?

Business Aircraft About to Enter the Marketplace

Welcome back, old friends. Four additions to this review since the last NBAA Convention are relaunched projects that more-or-less failed first time round and have been dusted-off for a second outing. And, had it been slightly better off for financing, we could have made that five by including the Spectrum S-40 Freedom twinjet.

In all, 28 aircraft are described, seven of them having Chinese funding. Ten are more than a decade old and still wearily plodding to market. Another five are spinoffs from established airliners, leaving 13 to be described as new designs.

Even then, the personal and light jet categories are suffering from lack of interest from manufacturers not represented therein, and poor levels of investment (thus, gastropod-like progress) from those that are. Only in the midsize realm are OEMs jostling for a share of the action.

While there is a commercial case to be argued for making use of a Type Certificate or development program that has not been fully exploited, scouring old volumes of *Jane's All the World's Aircraft* for stillborn projects of yesteryear is no way to secure aerospace's knowledge base for a bold advance into the mid-21st century. Turning a quick buck with obsolescent technology might be regarded as the current ploy.

—Paul Jackson

Props and Turboprops

Nextant's G90XT drops out of this survey, having gained certification a few days after the last NBAA Convention. Likewise, the Piper M600 went to its first customer on July 13, and we have despaired of seeing short-term progress with transfer of the ASI (Reims Cessna) F406 Caravan II to a U.S. production line. Blink and you'll miss it, the latest TBM

is planned for next year in spite of funding difficulties caused by AI's heavy exposure to the falling Russian ruble.

Anticipated NG performance improvements include flight lifetime doubled to 30,000 hr.; maximum cruising speed of 227 kt.; and max-fuel range of 1,350 nm. Payload is 4,748 lb.

AI Spirit

UK-based Aircraft Integrated Solutions Ltd. is managing the return to market of the Ibis Aerospace Ae 270 Spirit on behalf of COPS investment house of Lebanon, which has acquired the Type Certificate. This light utility turboprop was developed in the Czech Republic by Aero Vodochody and the Taiwanese AIDC, first flying in 2000. However, the money ran out in 2007 after three prototypes and three production-conforming aircraft had flown and EASA certification obtained.

A Pratt & Whitney Canada PT6A-66A turboprop flat-rated at 850 shp raises two crew and either eight passengers or 2,645 lb. of freight loaded through the 4 ft., 1 in.-wide cargo door. NBAA IFR range is 1,420 nm. Price and proposed manufacturing location are still to be determined.

CAIGA Leadair AG300

In 2010, China bought the rights to the Epic company's family of large kitbuilt jets and turboprops. The five-seat Epic Escape is first to be placed in production, becoming the factory-built AG300, albeit suffering unexplained delays. Although the prototype, powered by an 850-shp General Electric H85 turboprop, made its "official" first flight in



July 2014, it did not fly with wheels retracted until November 2015. However, the static test airframe passed its trials in May of this year and two more pre-production aircraft are under construction. Range is 1,350 nm and cruise 324 kt. Price: about \$1.5 million.

Cessna Denali

Some time between this year's EBACE at Geneva and AirVenture, Oshkosh, the Beechcraft Single-Engine TurboProp Concept metamorphosed into the significantly different Cessna Denali, now fully launched and accepting orders at \$4.5 million per go. With its 4 ft., 5 in.-wide freight door, it is intended to compete with the Pilatus PC-12, Daher TBM 900/930 and Piper M600 in terms of "capability, pilot interface and ownership costs." The Denali will fly in 2018 and be certified to FAR Part 23 (single pilot).

Propelled by an all-new, 1,240-shp General Electric GE93 turboprop, the aircraft accommodates two pilots and a typical six passengers in a pressurized cabin, the front-seaters assisted by Garmin G3000 avionics, weather radar and today's other standard aids. Basic data so far announced mentions 1,100-lb. payload, 285-kt. maximum speed and 1,600-nm range with five-up.

Diamond DA50-JP7

After earlier engine options had been tried and rejected, the "Jet Prop 7" version of the DA50 flew in Austria in January 2015, powered by a 465-shp Ukrainian Motor Sich AI-450S turbine. Certification, once planned for mid/late-2016, is now estimated in early 2018 after two more prototypes have flown. The standard "Speed" version, selling for \$1.1 million, will be partnered by a large-wheeled "Tundra" model, with slotted flaps and enlarged door, intended for the Russian

CONTINUED ON PAGE 20



from Daher, the 930, was both introduced and entered service in April.

AI Spirit and Taihang Angel, making their "debuts" here, are actually long established, while the EV-55 is another newly invigorated project. Inclusion of the Cessna Denali is, of course, closely related to deletion of the Beechcraft SETP.

AI L 410 NG

Aircraft Industries of the Czech Republic has a small but steady market for the Soviet-era Let L 410 19-seat utility twin-turboprop. The "new generation" version - with 850-shp General Electric H85-200s, Garmin G3000 avionics, modernized cabin, extra fuel capacity and a longer nose for additional baggage space - flew in July 2015. EASA certification



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CONTINUED FROM PAGE 18

market. Range is 1,200 nm at speeds in excess of 200 kt.

After the JP7, Diamond will return to its earlier plan of offering a piston-Diesel DA50, now envisaged with the planned eight-cylinder 440-hp Austro Engine HIPE AE440.



Dornier Seawings Seastar

Reborn in 2015 with Chinese money, the Dornier family's 1980s company is back in business, building the first production Seastar amphibians at Oberpfaffenhofen, Germany, out of composite parts supplied by Diamond Canada. The first will roll out in June 2017 and revalidate its 1990 Type Certificate the following year, in deference to its Honeywell Primus Epic cockpit, new propellers and numerous other upgrades. Only two prototypes of the 12-seat, push-pull (PT6A) turboprop were built by previous incarnations of the company. Selling for \$7.5 million, the aircraft cruises at 180 kt. and has a range of 900 nm.

Epic E1000

Russian-owned, Oregon-based Epic is in slow-motion mode, having endured delays with completion of the final Epic LT factory-assist kits and also failing to fly on schedule the second prototype of that aircraft's E1000 production-line equivalent. The first E1000 was, belatedly, airborne last December, but delay of the first conforming aircraft to later this year makes the 1Q 2017 certification target appear unachievable.

Priced at \$2.995 million, typically equipped, and claimed to be the "fastest single-engine turboprop on the market,"



the pressurized E1000 offers three-screen Garmin G1000 EFIS and 1,385-nm range at 325 kt. with its 1,200-shp (derated) PT6-67A turboprop. It is some time since the tally of 60 sales was updated, the fact that half of them are in Russia perhaps being associated with the above-mentioned slowdown.

Evektor EV-55 Outback

All systems are "go" again in the Czech Republic, where the first flight of the conforming second EV-55 on April 8 signaled that funding is available to take the attractive T-tail twin to certification stage next year. A failed Russian partnership had been responsible for the previous slow progress after the first Outback flew in June 2011, yet the manufacturer is now working to secure the financial means to launch production after EASA signs the CS23 Normal Category TC.

A pair of PT6A turboprops optimizes the EV-55 for international markets. Payload is 3,915 lb. - either cargo or between nine and 14 passengers, according to certification.

Range with nine pax is 800 nm, cruising at up to 220 kt. Estimated equipped price is \$3 million.

Taihang Angel

Who? It might help to explain that a production license for the former Iowa-based King's Angel 44 pusher twin-prop was acquired in 2013 by Hubei Taihang Xinghe Aircraft Manufacturing of China. This May, the Hubei local government provided funds to establish a manufacturing plant, immediately prompting an order for 50 aircraft by Qinghai General Aviation. Others are required by the Blue Leopard organization for disaster relief operations.

The King's Engineering Fellowship managed to place only four aircraft between its 1984 first flight and 2008, despite its optimization for missionary flying and utility and humanitarian duties. Two 300-hp Lycoming IO-540s propel this six-seat STOL machine at 169 kt. on 65% power, covering 1,248



nm at the same setting, or 1,720 nm on full economy. No details are available of Chinese equipment installation or price.

Tecnam P2012 Traveller

This Italian manufacturer flew its largest aircraft for the first time on July 21 at a new purpose-built factory at Capua. Due for EASA and FAA certification by December 2018, it is intended to replace ageing Part 23 workhorses such as the Piper PA-31 and Cessna 400-series twins.

As such, it is an economic, rugged, 10-passenger transport with high cantilever wing and fixed landing gear, powered by a pair of 350-hp Lycoming TEO-540-A1A flat-sixes that can run on avgas or mogas. The Traveller will cruise at 170 kt. for 450 nm with full passenger load, or 720 nm with eight. Pure-freight and six-person executive versions are among the options.



XTI TriFan 600

The innovative VTOL TriFan is seeking a \$20 million investment, and planning to start construction of a 10% scale flying model on passing the \$1.2 million mark. A propulsion jet stand to ground-test engine, drivetrain, fans and flight controls will follow, then a 67% manned prototype two years after the model flies.

TriFan is fitted with three five-blade ducted fans - two in the wing leading edges, which swivel through 90 deg. between hovering and forward propulsion, and one fixed vertically in the rear fuselage that will be employed only during takeoff and landing. Control is fly-by-wire, while carbon fiber and epoxy feature prominently in the structure. Two 820-shp Honeywell HTS900 turboshafts in the center fuselage drive the propfans. At this stage, performance data for the \$12 million craft are sparse, with XTI only quoting a 695-nm range.

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Personal Jets

Read very carefully, and evidence will be found below that something is happening in the personal jets world - but with agonizing slowness. Last year's trio are still there, but nobody is rushing to join them.

Cirrus Vision Jet SF50

May 5 was a red-letter day for Cirrus: the first flight of the first production Vision Jet. By then four prototypes had accumulated some 1,700 hr. during a drawn-out test program that had begun in July 2008 and was only saved by an injection of Chinese funding - which is why the SF50 is promoted on the website of the Aviation Industry Corp. of China.

Cirrus broke ground last November for the customer center at McGhee Tyson Airport, Knoxville, Tennessee. When the company does begin tackling its 600 orders, it expects to deliver around 50 in the first full year, and 75-125 per year thereafter.

Cirrus quotes a cruising speed of 300 kt. on the 1,800-lb.-thrust of the spine-mounted Williams FJ33. Ceiling is FL 280 and disposable load 2,428 lb., of which up to 2,000 lb. can be fuel. Like its piston-engined SR stablemate, it is equipped with a recovery parachute as standard for its maximum five-plus-two occupants. Price is equivalent to \$1.96 million in 2011 dollars.

The FAA officially awarded Cirrus with an FAR Part 23 Type Certificate for the Vision Jet here at NBAA on Monday.

Flaris LAR1

This is a most promising aircraft. It has been regularly promising an "imminent" first flight since its June 2013 Paris Air Show debut, yet still remains unlevitated at the time of writing. That has been partly the result of it abandoning the original, spine-mounted and low-powered 1,460-lb.-thrust PW615F turbofan in favor of a 1,910-lb.-thrust Williams FJ33-5A and, partly by a move to new company premises at Podgórzyn, Poland. The



Flaris LAR1

FJ33 was installed and tested in August, so the absence of an aviating situation might be soon rectified.

With its new engine, the LAR1 will have a range of 1,200 nm when all five seats are occupied. Cruise is 380 kt. and certified ceiling FL 280. Optimized for the private pilot, the \$1.5 million LAR1 features ease of handling; operation from grass airfields of moderate length; automobile-like cabin; wings detachable for economical storage; and a parachute rescue system. First aircraft built are to be in the Experimental category. Subsequent European CS23 certification will lead to FAA approval.



Pilatus PC-24

Stratos 714

As the NBAA Convention approached, the long-awaited Stratos prototype was conducting taxiing trials in anticipation of its maiden flight. Designation 714 indicates Mach 0.7 (415 kt.), one engine and four people, the last-mentioned and their baggage carried over a 1,500-nm NBAA range at up to 41,000 ft. However, the "one engine" is changed, now that Stratos has jumped the Williams ship in favor of P&WC with a 2,900-lb.-thrust JT15D-5 in the prototype, and a PW535 of 3,400-lb.-thrust in certified aircraft.

Landing speeds and distance requirements for the 714 are considerably below those of twin-jets, making many more airports accessible to Stratos owner/pilots, while side-stick control, Garmin G3X Touch EFIS cockpit, docile handling and fully integrated autopilot lighten the workload.



Cirrus Vision Jet SF50

Very Light and Light Jets

HondaJet was signed-off by the FAA a few weeks after the last NBAA Convention and is now in customers' hands. Pilatus and SyberJet continue to progress, while the long-lost VisionAire Vantage returns to the limelight in search of funding.

Pilatus PC-24

A pair of prototypes, flown in May and

November of last year, are slightly overdue for augmentation by a third to share the 2,300 hr. of trials that will lead to certification and first deliveries in the third (make that fourth?) quarter of 2017. The Williams FJ44-powered twin can lift up to 12 (including a single pilot) from unpaved runways of 2,690 ft. Offering PC-12-type versatility, there's a large-volume cabin with freight door and rapidly removable seats, permitting easy reconfiguration for transport, medevac and other utility roles.

Cruising at 425 kt. the \$8.9 million PC-24 will cover 1,800 nm with six passengers or 1,950 nm with four. Pilatus ACE avionics, developed with Honeywell, include a synthetic vision system, autothrottle, graphical flight planning, TCAS II and localizer performance with vertical (LPV) guidance capability.

SyberJet SJ30

At the last NBAA Convention in Las Vegas, SyberJet showed its NWORX Cabin

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Demonstrator and announced its first European service center. The unhurried return of Ed Swearingen's SJ30 to production (two previous owners of the company built only four production examples between them) has been under way since SyberJet took control in April 2011, and built a new facility at Cedar City, Utah. A converted SJ30 testbed will fly soon with the Honeywell SyberVision avionics suite comprising four 12-in. LCDs, paving the path to certification and deliveries late in 2017.

Two Williams FJ44-2A turboprops power the baseline SJ30i, while the more powerful FJ44-3AP-25 comes in the SJ30x. Despite its age - it flew in 1991 and was certified in 2005 - the \$8.3 million SJ30i delivers high performance, including Mach 0.83 maximum cruising, FL 490 operating ceiling and an NBAA IFR range of 2,130 nm with three passengers.

VisionAire Vantage

Only one Vantage has been built and flown - way back in 1996 - but the project has had an eventful life, including two false starts, transfer to a new company in Brazil, conversion to twin engines, and a return to the U.S., back under the same CEO (James Rice) who started it all in 1988. The six-seater is now foreseen with a single Williams FJ44-3AP turboprop in place of the prototype's P&WC JT15D, and with the forward-swept wing lowered and the main landing gear stowage moved from fuselage to mainplanes. One minor detail it does *not* have yet is the \$115 million investment needed to bring it to market.

Vantage offers 375-kt. high-speed cruise, or 250 kt. for long-range flight. Six-up range is 1,500 nm plus 45 min., extending out to 2,400 nm with two aboard. A Garmin G3000 cockpit, three-axis autopilot, and other modern avionics are the upside of the program's delayed departure, all included in the \$2.25 million price ticket. Production, by VisionAire Jets LLC, is planned at Hickory, North Carolina.

Midsize and Super Midsize Jets

The "usual suspects" are active in this market sector, although the Longitude is not quite as long (legged) as it was before

resizing was announced at the last NBAA Convention. Chinese bids for representation have become more credible in the past year. Fuselages come in all lengths but, these days, 8 ft., 6 in. is the industry-standard width.

AAT CBJ800 Pegasus

Dassault is no longer the only company offering both supersonic fighters and business jets. China's 611 Design Institute of the Chengdu No. 132 Aircraft Factory has been working on the CBJ800 since at least 2012, confirming its continued interest by releasing, in January, latest artist's impressions of exteriors and interiors. The move suggests China is pressing ahead with its previously announced plan to finalize design of an indigenous business jet during 2016 and place it in production by 2020.

The aircraft will be marketed by AVIC Aviation Technologies (AAT) and is stated to have long range, a large cabin, high cruising speed, digital fly-by-wire, integrated avionics and a "new-generation propulsion system."

Cessna Longitude

Cessna "re-announced" and showed a realistic engineering mockup of the \$23.9 million Longitude in Las Vegas last November. The prototype first flew on Oct. 8 and will achieve certification in the second half of next year.

What was revealed in 2012 as the Model 800 has been "demoted" to Model 700 to reflect its lower size/range positioning in the Textron Aviation portfolio, now that it has abandoned the troubled Safran-Snecma Silvercrest turboprop.

Two 7,550-lb.-thrust Honeywell HTF7700Ls enable a cruising speed

of 476 kt. and a range, with four passengers and the usual reserves, of 3,400 nm. Max-pax is 12 in the stand-up, flat-floor cabin, with eight a more normal seating plan. Part 135 operations with nine will be permissible. External appearance and controls are typical Citation, except for fly-by-wire rudder and roll spoilers, fully automated autothrottles and Garmin G5000 avionics with synthetic vision as standard.

Cessna Hemisphere

"Least said, soonest mended." The launch of the Hemisphere at last year's Convention left much to the imagination - for example, whether Cessna is expecting the Silvercrest turboprop to come right in time to provide power for its 2019 maiden flight. This clean-sheet, \$35 million, king-of-the-Citations is offering an unprecedented 8 ft., 6 in.-wide cabin with a stand-up, flat floor and seating for 12 passengers in at least two reconfigurable zones. Range target is 4,500 nm.



Dassault Falcon 5X

An 18-month development delay with the 11,450-lb.-thrust Safran-Snecma Silvercrest turboprop has stopped the 5X twinjet in its tracks since the rollout in June 2015. It will not now fly until some time in 2017, pushing certification into 2019 and first deliveries to early 2020.

Eventually, the "largest and most advanced Falcon jet" will provide new levels of operating efficiency, carrying 16 passengers and three crew in an 8 ft., 6 in.-wide cabin at

CONTINUED ON PAGE 26



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CONTINUED FROM PAGE 24

speeds up to Mach 0.85. Estimated range with eight passengers is 4,750 nm, lengthening to 5,200 nm at Mach 0.80. The \$45 million (2013) price includes a Honeywell EASy cockpit, including HUD and inflight engine health monitoring.

Gulfstream G500 and G600

Since May 2015, Gulfstream has flown five of the shorter-fuselage three-cabin G500s; taken a prototype to England in July to show at the Farnborough Airshow; and completed the prototype G600. With its Gulfstream Symmetry flight deck, the G500 is scheduled for certification and deliveries next year. In 2018, customers will receive the 5 ft.-longer four-cabin G600. Both types accommodate 19 passengers, however, and share 8 ft., 6 in. cabin width. Prices are \$44.7 million and about \$54.5 million, respectively.

Pratt & Whitney turbofans provide the power for eight-passenger, Mach 0.85 flights spanning 5,000 nm (G500 with PW814s) or 6,200 nm (G600 with PW815s). Mach 0.90 cruising is possible, with some loss of range.

Ultra-Long Range Jets

EASA and the FAA inked their rubber stamps for the Dassault Falcon 8X's benefit in June, leaving only the delayed Bombardier twins awaiting joining instructions for this circuit of the market.

Bombardier Global 7000 and 8000

Airplane spotters are not the only ones rejoicing that the first Global 7000 has, at long last, received a "C-registration" as one of the final formalities before keeping its two-



Bombardier Global 7000

year-delayed appointment with the clouds. Four prototypes will speed the 7000 toward certification in the second half of 2018, the 8000 following it a vague interval thereafter.

The two are derivatives of the Global 6000 long-range twinjet, with different fuselage stretches: 11 ft., 3 in. for the 17-seat 7000, and just 2 ft., 3 in. for the 13-seat 8000. Similarities with the past end there, for they have a new, transonic wing - which was

partly responsible for the program delay - of increased area and reduced thickness and a couple of 16,500-lb.-thrust GE Passport 20 turbofans. The 8000 covers 7,900 nm under NBAA conditions with four crew and eight passengers, while the 7000 will reach 7,400 nm with the same complement. Long-range cruise for both is at Mach 0.85, but 0.90 is attainable over shorter distances. Cost is in the region of \$73 million (7000) to \$71 million (8000).



Airbus ACJ320neo

Large Jets

Moving with the times, bizjets receive a make-over when the "parent" airliner is refreshed part way through its production run. That said, the product shake-up is not shaking out many new buyers.

Airbus ACJ319/320neo

The "new engine option" (neo) available to airlines was officially extended to business operators in May 2015. Deliveries of green ACJ319neos begin in mid-2018 and ACJ320neos before the end of that year. Two and four, respectively, are on order, the 319 costing some \$87 million in equipped form.

Airbus ACJ350

From a peak of eight orders, just one of these \$300 million airliners remains on the books for an undisclosed business operator, intended delivery date unknown. For completion centers

nervous about drilling holes in a carbon fiber fuselage, Airbus has just introduced Easyfit: some 200 brackets installed on the production line that can be used as anchors

for bulkheads, cabinets and fixtures without further reference.

Boeing BBJ MAX

Flight trials of the airliner 737 MAX began on Jan. 29 and Boeing Business Jets has had an equivalent to the BBJ2 on offer since the first BBJ MAX 8 was ordered in April 2014. The latter's first delivery to a cabin outfitter is due in 2018, completed cost being some \$95 million. An initial contract for a \$103 million, stretched BBJ MAX 9 (replacing the BBJ3) was announced on June 17, 2015, although it was received some time before.

Finally, it was revealed in July that the baseline BBJ will be discontinued in 2019 and replaced from 2022 by the MAX 7, which, like its airliner counterpart will have a modest 6 ft., 4 in. fuselage stretch over the 737-700 and increased fuel. MAX 7 range is "in the region of" 7,000 nm, which is greater

than the MAX 8's 6,555 nm and MAX 9's 6,255 nm.

CCAC StarLiner 100

At EBACE Geneva in May 2015, purpose-formed Chongqing Commercial Aircraft Corp. announced plans to place in Chinese production the former Alliance StarLiner, a U.S. 50-seat airliner that was first promoted in the early 2000s. CCAC is offering a business jet version for \$22.9 million, to be available in 2020. Powerplant, avionics, and much else, have yet to be announced, but, at least, work on building the new CCAC factory began in January.

COMAC ARJ21 Xiangfeng

An executive version of the 90-seat ARJ21-700 airliner obtained one order and two MoUs in 2014 from two Chinese companies. Fokker Services of the Netherlands has been appointed to design a suitable interior for installation by Shanghai Aircraft Manufacturing. Availability is in great doubt, with airliner production since certification (December 2015) running at one per year.

COMAC ARJ21 Xiangfeng



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All Business? A Tough Business

The details of Bliss Jet's new offering (see page 28) are unique, but the company's product has a familiar look about it. The scale may be smaller and the target market subtly yet significantly different - but many have tried, and failed, to make a viable business out of an all-business-class scheduled service.

The concept was pioneered by Swiss firm Privatair, which began operating a 48-seat service between Düsseldorf and Newark on a Boeing Business Jet for Lufthansa in 2002. Munich-Newark and Düsseldorf-Chicago routes followed, with KLM (Amsterdam-Houston) and Swiss International Airlines (Zurich-Newark) services inaugurated in 2005.

That was the year when all-business-class peaked. Eos (initially known as Atlantic Express) launched a 48-seat Boeing 757-200 service between New York's John F. Kennedy and London Stansted airports. Two competitors - fellow American company Maxjet and the British-run Silverjet - entered the UK-U.S. market with similar offerings, though with greater passenger capacity (each offered around 100 seats on 767s). Yet by 2008, all three had gone out of business.

The three carriers targeted a different market segment than that identified by Bliss Jet, and unlike Privatair, each put all its eggs into the all-business-class basket. The headline ticket price was pitched at around double that of a scheduled economy flight between London and New York. The

service was not aimed just at business travelers but at holidaymakers and shoppers willing to pay extra for a measure of exclusivity.

Several factors may have contributed to the sector's sudden implosion. All three companies claimed load factors of between 60% and 80%, and were planning both expansion of extant services and new routes, when the credit crunch of 2007 began to have an impact on business travel and personal fliers' discretionary spending. A UK government decision to double air-passenger duty for business-class-only airlines was announced the same year.

The emergent interest of legacy carriers also played a part, though by the time British Airways announced its intention to run a London-to-New York all-business-class service, Maxjet had already gone bankrupt. Eos followed early in 2008, before Silverjet failed to secure further funding and the company was placed into administration that June.

With their greater economies of scale and ability to sustain medium-term losses on building up profitable scheduled services, larger carriers ought to have had more success than start-ups in turning the all-business-class concept into a viable product. But those who dipped their toes into the sector have met with only partial success.

Qatar Airways' entry into the market came in 2014, with an Airbus A319 in a 40-seat all-business configuration introduced between Doha and London. The operator's deep pockets and the smaller capacity than the Silverjet/Maxjet/Eos model ought to have helped the proposition succeed, but Qatar canceled the service in November 2015, turning the slot over to a three-class 787.

British Airways bought the French all-business-class start-up L'Avion in summer 2008 and folded its Paris-Newark operation into its OpenSkies brand, which ended up operating a mixed-class fleet. In 2012, BA began operating an all-business-class service between London City Airport and JFK; its flights include a refueling stop at Shannon, Ireland, where passengers can clear customs and arrive in the U.S. as if on a domestic flight.

This service is marketed as Club World London City and is still flying, though as of last week, the company reduced the frequency from 11 flights per week to six. Unlike the Silverjet/Maxjet/Eos model, this is very much a business-aviation product: There is no Saturday departure, and prices are pitched around a tourist-scaring 3,000 pounds each way.

L'Avion's founder, Frantz

Yvelin, rejoined the fray in 2014: His La Compagnie currently flies two 74-seat all-business-class 757s between Paris Orly and Newark. However, the second daily service has only been possible following the suspension of service on a route between Luton and Newark, which La Compagnie had operated since April 2015.

"The recent result of the EU referendum has created an unprecedented level of legal and economic uncertainty for airlines that service Great Britain," Yvelin said in a statement announcing the suspension, which came into effect in September. "As soon as the Brexit consequences will be clarified, we will reevaluate our development opportunities from London and other British cities."

Privatair still operates all-business-class services, though the company's once broad range of scheduled flights has reduced to one route. It currently flies a 48-seat A319-100 between Riyadh and Jeddah for Saudia Private Aviation. They and La Compagnie will surely welcome the implicit vote of confidence that Bliss Jet's entry into the market implies.

—Angus Batey



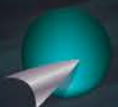
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NATA Backs Atlantic On SMO-Santa Monica: Airport's Future Is at Stake

The NATA has thrown its support behind FBO chain Atlantic Aviation in its fight to remain at Santa Monica Municipal Airport in California.

In mid-September the city of Santa Monica served Atlantic with a 30-day eviction notice as allowed under Atlantic's current lease. Earlier, Atlantic filed a Part 16 complaint with the FAA against the city of Santa Monica over the municipality's desire to remove Atlantic and other aviation companies from the airport.

The battle now moves to the court, with the FAA, FBOs and SMO tenants on one side and the city of Santa Monica and its residents on the other.

"NATA is actively supporting Atlantic Aviation's Part 16 complaint against the city of Santa Monica," says NATA President Martin Hiller. "Despite Atlantic's investment and job creation, the city is trying to use a backward approach to close the airport."

The city also has issued a Notice to Vacate to American Flyers Flight School.

The eviction notices are the latest in a string of stories on Santa Monica's plan to close the airport and convert the land to a large public park. The public-use airport dates back to the 1920s, but complaints over aircraft noise in recent years have led to calls to curtail operations initially, then close the facility outright. Some residents complain that the airport caters only to the rich, who can afford private jets.

In late August, the Santa Monica City Council passed a controversial resolution to close the airport by 2018, even though the FAA ruled it could not close until 2023. The city remains undeterred and according to reports continues to make the airport as unappealing as possible for tenants.

In late September, the FAA announced it would investigate the city's plan to evict all airport tenants and close the facility within two years.

—Robert W. Moorman



The city of Santa Monica wants to evict SMO tenants in favor of a park.

Sheltair Grows With Tampa Facility

Sheltair's recent acquisition of the Tampa International Jet Center at Tampa International Airport (TPA) brings its total FBO holdings to 17. The facility features four hangars totaling 108,000 sq. ft., with 19,000 sq. ft. of office space and 14,000 sq. ft. of terminal/FBO space. In addition, there is 12,000 sq. ft. of canopy for aircraft parking and over 10 acres of apron and aircraft parking space. Sheltair (Booth 2207) is building a \$5.5 million, 32,000-sq.-ft. hangar and executive office at TPA with completion slated for the second quarter of 2017. Sheltair's other FBOs are located in New York, Florida and Georgia.



Sterling Group Launches FBO Network

Destin Jet, an FBO based at Destin Executive Airport in Destin, Florida, is the first property of The Sterling Group's plan to develop an FBO network of service providers throughout the U.S. The Houston-based private equity firm has already assembled an experienced management team to build the network. They include Greg Elliot, a partner at The Sterling Group and former board member of Landmark Aviation. Chad Farischon and Tyson Goetz, former members of both the Trajen and Landmark Aviation management teams, will lead and expand the network through a buy-and-build strategy.

Talon Air Joins Signature Flight Support



Talon Air (Booth 2239), based at Republic Airport, Farmingdale, New York, has joined Signature Select as the newest location in the Signature Flight Support network and the first on Long Island. The company is a full-service business and private aviation provider offering aircraft charter, management, FBO and flight-support solutions. With more than 100,000 sq. ft. of hangar, executive terminal and office space, it is the largest operator at Republic, where it also runs an FAR Part 145 Repair Station and performs maintenance repair and overhaul on most modern aircraft, along with non-destructive testing, avionics installation and repair, interior outfitting and refurbishment.

Wilson Air Keeps Plugging Along

Wilson Air Center, which is celebrating its 20th year in the FBO business, says that this year has been a good one. At its Memphis facility, Wilson signed a 10-year lease for 30,500 sq. ft. of hangar space and an additional 20,000 sq. ft. of office space. It spent just under \$1 million in repairs and upgrades at the facility that is already at capacity and rented out. "Over the last 24 months, we've had a tremendous influx of new [business] aircraft into the Memphis market," says VP Dave Ivey. Much of the increase across the board is for larger business aircraft. Wilson (Booth 2239) has other facilities at Charlotte, North Carolina; Memphis and Chattanooga, Tennessee; and Houston Hobby airports.



TAC Air's Keystone Hires Key Personnel

TAC Air (Booth 3106), which has 14 FBOs across the U.S., hired three officials recently for the sales and maintenance departments of its Keystone Aviation unit. Brian Miller is Keystone's new VP of aircraft sales. He is responsible for managing the sales team for company's three dealerships representing Piper Aircraft, Daher TBM and HondaJet. In addition, Miller is further developing Keystone's aircraft brokerage business. Mark Stevenson is now responsible for the sale of new and pre-owned Piper aircraft in Wyoming, Colorado and New Mexico. Bruce Tanis is the new service manager for Keystone Aviation's piston maintenance department in Salt Lake City.

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Cutter Is Building & Buying: 'Our Volumes Are Up at All Locations Over Last Year'

Cutter Aviation is having a busy year with ongoing construction of a new FBO terminal in Colorado Springs; the purchase of a hangar complex in Addison, Texas; delivery to customers of three HondaJets; and the acquisition of Atlantic Aviation's FBO in Phoenix.



Will Cutter

"We also built a new fuel farm in Colorado Springs and are in the short stages of building additional hangars in Deer Valley next to the facility we bought from Atlantic," says Will Cutter,

president and CEO of what is billed as the oldest running FBO in the U.S., with seven operations in five states.

Cutter says his company is the top Honda and Piper dealer in North America and gaining strength with TBM. He is hoping for approval from the Addison City Council to get additional land to build a full-blown FBO there.

At Deer Valley, a bustling airport owned by the City of Phoenix, "we're selling a lot of fuel." In Albuquerque, Cutter is up "about 25% on gallons of fuel, and Colorado Springs is up," he says. Cutter is building a 60,000-sq.-ft. hangar at Colorado Springs.

"We're an 88-year-old family business and we're not looking to get out," says Cutter. "Although I still get calls every week from the investment players that want to bundle up the FBOs.

"I hate to see the moms and pops that understood customer service leave. The new guys have a lot of money, but they sell fuel and hangarage. That is the FBO game today. Yet there is so much more."

—Robert W. Moorman



Cutter Aviation broke ground in August for a new FBO terminal at Colorado Springs Airport.

Meridian Tabs Epic for Hayward Executive FBO



Meridian, based at Teterboro Airport, New Jersey, has selected Epic Fuels as the branded fuel supplier for its new FBO at Hayward Executive Airport in Hayward, California. The facility features a new 6,300-sq.-ft. terminal and offices; a 30,000-sq.-ft. hangar capable of accommodating any corporate aircraft, up to and including a Global Express and Gulfstream G650; and a 3.5-acre ramp. Epic Fuels will supply Jet-A and avgas and the FBO will accept the Epic Card. Meridian (Booth 3617) also will provide charter and management services, and eventually an FAR Part 145 repair station and aircraft detailing, at the facility.

Saker Aviation Acquires Aircraft Services Inc.

Saker Aviation Services has acquired 100% of the stock of Garden City, Kansas-based Aircraft Services Inc., an aircraft maintenance services business. Under terms of the deal, Saker paid \$150,000 cash at closing and will make installment payments totaling an additional \$150,000 over the next two years. Funding for the closing cash payment came from internal resources. Through its subsidiaries, Saker Aviation Services serves as an operator of a heliport, an FBO, a provider of aircraft maintenance services and a consultant for a non-owned seaplane base.

ExecuJet Acquires FBO in St. Maarten



ExecuJet has purchased its first FBO in the Caribbean region, at Princess Juliana International Airport on the island of St. Maarten. The new FBO, acquired from TLC Aviation, expands the ExecuJet network to 24 locations globally. The St. Maarten FBO offers ground handling, fueling, air charter, flight planning, executive transport and accommodation services. In 2015, the FBO handled 1,868 movements ranging from small

light aircraft to large aircraft such as the Airbus A340-500. ExecuJet is now working closely with TLC Aviation to transition the business, including the rebranding of the facility to ExecuJet's corporate identity.

Tulsair Celebrates 71 Years With Beechcraft

Family-owned Tulsair Beechcraft, a Phillips 66 Aviation branded FBO servicing Tulsa International Airport (KTUL) in Oklahoma and Millington Regional Jetport (KNQA) in Tennessee, is celebrating 71 years as a provider of Beechcraft parts to maintenance and repair facilities. The FBO also offers fuel and line service, heavy airframe and engine maintenance, advanced avionics installation and repair, and other services. Tulsair (Booth 4639) has been selling Phillips 66 fuel since 1947, making it the second-oldest branded FBO out of Phillips' 850+ network.



Cerulean Replaces Stevens at GSP

Cerulean Aviation is replacing Stevens Aviation at Greenville-Spartanburg International Airport (GSP). The 3,500-acre facility has its own runway for commercial and business aircraft and provides fuel for all aircraft at GSP, as well as maintenance services. Stevens Aviation's contract with GSP expires at the end of 2016, after which Cerulean takes over. The airport-owned Cerulean Aviation will employ up to 40 people. In a related development, GSP is finishing its four-year, \$125 million Wingspan project to renovate and expand the 54-year-old main terminal.



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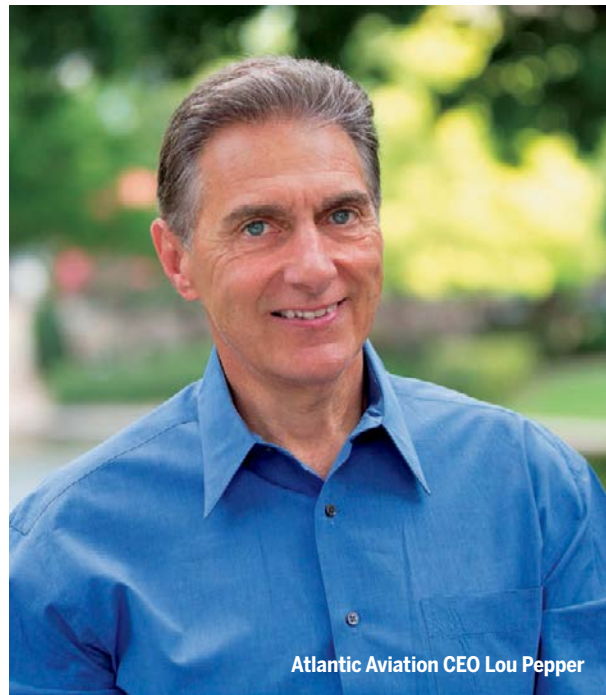
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Slow and Steady Growth Is Atlantic's Mantra

Atlantic Aviation's acquisitions FBOs in Colorado and California in the last year aptly demonstrate the large chain's measured long-term growth strategy.



Atlantic Aviation CEO Lou Pepper

“I think it is a bad idea for municipalities and local airports to run FBOs. It is also bad business to evict tenants, which have made long-term investments at an airport.”

“We are in Santa Ana, Palm Springs and still clinging on at Santa Monica,” said Pepper. “Being halfway between Orange County and San Diego is very important to us.”

Both acquisitions bring to 69 the number of FBOs in Atlantic's network, including 10 properties in California.

Atlantic currently is embroiled in a dispute with the city of Santa Monica over its threatened replacement of the FBO and closure of the Santa Monica Municipal Airport. Atlantic claims that the city is discriminating against airport tenants, particularly those selling aircraft-related services.

The city gave Atlantic a 30-day quit notice on Sept. 15, prompting NATA president Martin Hiller to respond in a letter to the FAA that “Despite the significant investment and job creation of Atlantic at Santa Monica Municipal Airport, our member company finds itself being used as a cat's paw in the city's ongoing effort to close the airport in advance of the 2023 expiration of the current Grant Assurance.”

Pepper would not comment specifically on the Santa Monica suit. But, speaking generally, he said, “I think it is a bad idea for municipalities and local airports to run FBOs. It is also bad business to evict tenants, which have made

long-term investments at an airport.”

Atlantic continues to reinvest in its properties. The company is finishing the remodeling of its existing FBO in Charleston, South Carolina (CHS) which includes a new 22,000-sq.-ft. hangar. Completion of the FBO and hangar is slated for fourth quarter of 2016 and February 2017, respectively.

In April, Atlantic unveiled its massive 37,000-sq.-ft. hangar with 5,000-sq.-ft. office space at Los Angeles International Airport. The 28-ft. door height of the \$9 million hangar is capable of housing large business jets.

In March, Atlantic broke ground on its leasehold property in Portland, Oregon. The ongoing project will include a new 12,000-sq.-ft. terminal, two 30,000-sq.-ft. hangars, office and shop space, plus a 90,000-gal. Jet-A fuel farm and 5,000-sq.-ft. ground office support building.

As for growth overall, “FAA data indicates little, but we see growth as strong on the way to robust,” says Pepper.

“These are strategic moves for us,” says Lou Pepper, CEO of Atlantic Aviation, which is owned by Macquarie Investments. “We are not going to grow for growth's sake.”

Atlantic acquired Black Canyon Jet Center (KMTJ) in Montrose on Colorado's Western slope near the resort town of Telluride in June. Pepper says the acquisition “fits nicely” with Atlantic's other mountain FBOs at Aspen, Hayden and Rifle, Colorado, and Sun Valley, Idaho.

Black Canyon has 350,000 sq. ft. of ramp space and 40,000 sq. ft. of hangar space capable of housing large business jets such as the Bombardier Global Express and Challenger series.

“FAA data indicates little, but we see growth as strong on the way to robust.”

In January 2016, Atlantic added to its strength in California with the acquisition of the Premier Jet FBO at McClellan-Palomar Airport in Carlsbad, California (CRQ). The facility, located on 15 acres north of San Diego, includes 131,000 sq. ft. of hangar space and around 60,000 sq. ft. of office space.



Atlantic Aviation lobby at Los Angeles International

Atlantic is at [Booth 2600](#), and its recently remodeled Orlando FBO (ORL), will host the NBAA [Static Display](#) here. —Robert W. Moorman



Atlantic Aviation is remodeling its FBO in Charleston.

Beechjet 400A/400XP

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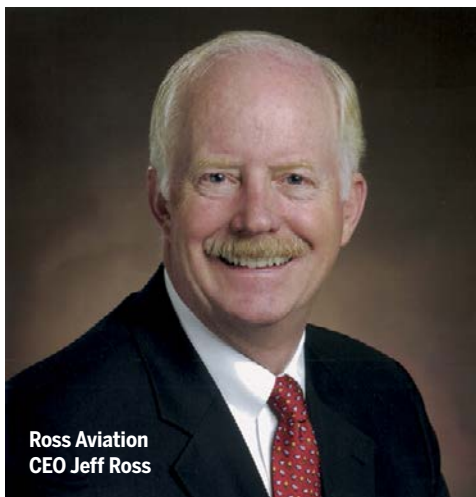
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Ross Aviation Comes Full Circle

Ross Aviation is back! The Denver FBO chain, founded in 2004, grew to be the fourth-largest FBO network in the U.S. before selling its chain of 19 FBOs to Landmark in 2014. Then, earlier this year, it acquired six former Landmark Aviation FBOs divested as Signature Flight Support and its parent BBA acquired the Landmark empire.

Not content with that, Ross Aviation is acquiring the Long Beach, California-based AirFlight FBO.

On AirFlight, “We are in that awkward middle stage where we’ve reached a full



documented agreement with the seller but are going through the steps of seeking approval from the landlord,” says Ross Aviation CEO Jeff Ross. “We are told that there is no problem with the approval.”

In late September, Ross met with the landlord in Long Beach, who said it would be a few weeks before the company could close on its acquisition of AirFlight.

“We’re ready to close,” says Ross. “My guess is that we will close just before NBAA.”

Once the sale is finalized, Ross Aviation will have eight FBOs, six former Landmark Aviation bases, a second FBO in Anchorage and AirFlight, said Ross.

Located at Long Beach Airport (LGB), aka Daugherty Field, AirFlight is a 24/7 full-service FBO with various amenities, including a flight planning room, pilot lounge and meeting rooms. The city-owned airport serves passenger and cargo airlines and

business and general aviation aircraft with two parallel runways; one is about 6,000 ft. long, the other around 5,000 ft. Long Beach also has a 10,000-ft. runway for commercial operations. The airport, which sits on 1,166 acres, is 3 mi. northeast of downtown Long Beach and located halfway between major business clusters of Orange and Los Angeles Counties.

Long Beach Airport has one of the tougher noise abatement plans in the nation with three full-time noise specialists on staff. The city can prosecute an aircraft owner and pilots for breaking the noise ordinance. The airport has a multi-million-dollar Airport Noise and Operations Monitoring System. Plus there are 18 noise monitors located throughout the city.

Ross says the company has a list of FBOs for possible acquisition but is not ready to move on any of them just yet.

Asked about the state of the industry, Ross says: “We are in an extraordinary period of low fuel costs, interest rates and prices of previously owned aircraft. They all add up to a positive platform for all of us.”

Ross Aviation is at [Booth 2207](#).

—Robert W. Moorman

Full Throttle Growth for Jet Aviation

Jet Aviation Holdings USA Inc. is on the move.

Within the past six months, Jet Aviation acquired aircraft management company Avjet, adding 50 managed aircraft to the worldwide fleet, now totaling 300, of which 150 are in the U.S.

The company also started FBO operations in Van Nuys, California, a key West Coast market and site of a multi-year \$40 million redevelopment project. It received approval from the Port Authority of New York and New Jersey to expand its Teterboro FBO facilities significantly. And it has achieved major milestones on its Boston/Bedford hangar and FBO expansion, with an anticipated opening during the first quarter of 2017.

The General Dynamics-owned company also expanded its Jet Aviation Flight Services unit by increasing its Gulfstream, Bombardier and Dassault fleets. And it has opened a Jet Professionals staffing office on the West Coast to better serve that market.

“The North American FBO market continues to show promising signs and future opportunity,” says David Paddock, SVP and general manager, Jet Aviation Holdings USA, Inc. “Overall traffic activities [fuel and handling volume] are growing, driven largely by large cabin aircraft...and economic growth [GDP] in the U.S.”

Paddock concedes that certain domestic and international markets remain flat, but he predicts that “increasing oil prices will spur new activity in places like Russia internationally and Texas domestically.”

Asked about challenges facing the U.S. segment, Paddock says, “Our

primary challenge is capacity. We are investing heavily in facility expansion over the next few years to grow hangar and ramp space.”

That will include investing in technology upgrades to the company’s aircraft management, FBO and maintenance businesses.

With its heavy maintenance operations in Basel, Switzerland, and St. Louis, Jet Aviation hopes to expand its aircraft management product into the narrow and widebody markets. The company also plans to expand its aircraft cleaning business in key U.S. markets.

Paddock says the company has no immediate plans to acquire FBOs and related businesses. “That said, we see some great opportunities to expand our footprint in the U.S. market through organic growth and bolt-on acquisitions,” he notes.

Jet Aviation is finalizing “some FBO partnership discussions and actively considering new markets.” The company will have important announcements in 2017. “However, this is too early to announce at NBAA,” says Paddock.

Jet Aviation is at [Booth 265](#).



Jet Aviation is developing an FBO at Van Nuys.

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DayJet's Promise Lives on Through Software

A good idea survives and thrives despite terrible timing.

It was a bold, potentially breakthrough concept. Using a fleet of small, on-demand jets serving a network of small airports, let different passengers pick the time and day they'd like to travel from one to another, and adjust the seat price accordingly. Oh, and confirm the trip and fare instantly.

That business experiment was called DayJet. Although it failed for several reasons, its plan was so revolutionary, even mighty Boeing was watching with concern. And with good reason.

Think about it. A passenger goes online and inputs the date and times of a desired trip from A to B, knowing that the wider the time span for departure or arrival, the lower will be the price. Seconds after pressing the Send key, there's the fare and flight. Every flight is direct so there won't be any changing of planes, but it may stop en route to board others. In other words, the passengers, rather than the carrier, had control of the trip's parameters and pricing.

For the carrier, delivering such a service is as complicated as a moonshot because the variables are nearly infinite. It must make an airplane that's current in inspections and servicing available at the locations, times and dates - near or far off - chosen by a variety of customers. The pilots must be available and current. The routing selected must be efficient yet probably account for passengers then unknown traveling on the same aircraft from and to other airports. It needs to do all that while accommodating any weather, ATC, staffing or other unanticipated problems or delays. And the provider has to do all that profitably and guarantee it instantly.

Doing all that fast and

automatically requires serious computational muscle involving daunting mathematical calculations, heavy-duty algorithms and custom-designed programming. The effort addresses two interlocked halves of a system anchored in complexity science - one that manages reservations for on-demand trips, and another that manages a fleet of aircraft, those who fly and maintain them and a staff that supports ground activity.

The person behind the DayJet concept was Ed Iacobucci, a Silicon Valley superstar with experience at IBM and Microsoft before cofounding Citrix Systems in 1989. He drew some Citrix veterans to the new project along with other software developers. The team then spent more than three years creating, refining and testing the system.

In 2002, DayJet ordered 239 Eclipse 500 very light jets, then still in development. Iacobucci calculated that even



DayJet at one time expected to operate hundreds of Eclipse 500 VLJs.

with two pilots up front, the minijet's break-even load factor would be about 1.3 passengers. Unfortunately, he never really got to prove that. DayJet eventually took delivery of 28 aircraft, but by then the recession of 2008 had a stranglehold on the economy. That, combined with the late start, financial contraction and lack of capital, ultimately resulted in the company suspending operations just one year after launch.



Ed Iacobucci at the controls

Software Sees Wider Application

However, a group of Silicon Valley investors recognized the potential of the DayJet computer program. They purchased the technology and created BoldIQ, a new entity to refine and expand its applications. Based in Redmond, Washington, the 20-person enterprise is led by Roei Ganzarski, the former chief customer officer for Boeing's Flight Services division, and one who had monitored DayJet's evolution.

Today, BoldIQ's technology is employed by charter, fractional and managed business aircraft operators, airlines and aviation service companies, including Jeppesen, Executive AirShare, Bye Aerospace, JetSuite, Europe's GlobeAir and New Zealand's Merlot Aero.

Iacobucci died of cancer in 2013 at the age of 59. Ganzarski sees DayJet's computerized engine as a true legacy of the entrepreneur.

—William Garvey



BoldIQ president and CEO Roei Ganzarski

BoldIQ is an integral element of Operator, Jeppesen's new cloud-based online business aviation platform announced here at NBAA BACE 2016.

The platform integrates flight planning, runway performance, weight and balance, crew and aircraft scheduling, accounting, pricing, regulatory compliance and trip check lists, among other features.

BoldIQ provides fleet optimization and management, allowing operators to improve collaboration, increase productivity and reduce errors.

Roei Ganzarski, president and CEO of BoldIQ, says his company's new contribution to the platform can be best utilized by operators with 10 or more aircraft, and particularly by large charter outfits.

"The complexities and real-time dynamic nature of on-demand aviation operations are significant and much more than many other industries we have seen," he said, adding that combining BoldIQ with Jeppesen's trip planning offerings and database makes Operator "powerful and applicable."

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U-Turning a Corner in Flight Planning

UAS shows the way ahead: pocket companion for pilots and dispatchers

Launched at the Convention on Monday after a successful trialing at EBACE in Geneva in May, FlightEvolution is an all-in-one trip planning and weather solution created exclusively for pilots and dispatchers. "It's designed to be as user-friendly as possible," says Jay Ammar Husary, EVP of UAS International Trip Support, and it's set to revolutionize the process of advanced global flight planning, weather checking, aircraft performance calculation and inflight situational awareness.

Ryan Frankhauser, regional director, Americas, is offering practical demonstrations at [Booth 2682](#), highlighting the system's rapidity, clarity, simplicity and convenient mobile capabilities. Missions can be planned,



Jay Ammar Husary, EVP, UAS International Trip Support, launched the FlightEvolution planning aid this week.

reviewed and executed, with or without a data connection (this being essential only for filing the flight plan). FlightEvolution sits in

the user's pocket because most internet connections today are made via mobile device.

It displays hazards, special events and restricted areas without lagging or unresponsive web pages or client-side software applications. A typical flight plan can be run in less than 5 sec., and the mapping engine renders high-definition graphics without delays, pixilation or frustration, says UAS.

Lining up for later introduction are advanced features such as ETPs, drift-down calculations, ETOPS, runway analysis, weight and balance, reclearances, and much more.

"UAS FlightEvolution is truly cutting-edge technology that has never been seen before," Husary says. "The system was built for the large group of users that are not satisfied with the status quo in the flight planning market. We're extremely proud of this tool and excited about future launches from the UAS Evolution suite." —Paul Jackson

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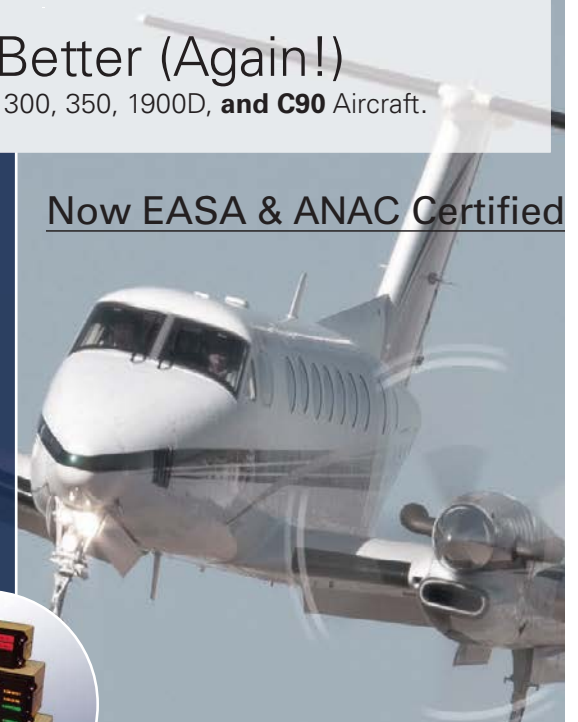
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VanAllen-GSU for Leadership Skills

Georgia's VanAllen is promoting a business aviation leadership course it conducts with Georgia State University's J. Mack Robinson College of Business. The course emphasizes character as a necessary adjunct to knowledge - effectively making knowledge effective in the real aviation world, it says.

The course "targets the gap that is left by traditional business science education programs," says VanAllen chairman Pete Agur.

"It's about leadership and getting people in your organization aligned to create the best value for your owners and your customers," he says.

In addition to key corporate

sponsors Solairus and Jet Aviation (Booth 265), "Coca-Cola has been sending people regularly," Agur told ShowNews.

Here in Orlando, "We're trolling the aisles," he says, promoting the course for "developing leadership knowledge and skills for in-house managers and emerging managers."

"The vast majority of corporate executives to whom the aviation function reports state they spend more time supporting their aviation managers on low-level issues than any other business unit for which they are responsible," Agur says. "Additionally, it is my observation that a significant number of aviation departments have been closed down or outsourced to management companies for

that same reason.

The next GSU-VanAllen Business Aviation Leadership course kicks off on March 20 and runs through March 24, 2017. Each session accommodates as many as 24 participants - and 12 seats for March are already taken.

Tuition is \$4,500, with discounts for NBAA members and veterans. Participants earn points that are awarded toward NBAA Certified Aviation Manager qualifications or renewals.

Find more information on the GSU Business Aviation Leadership program web page: <http://execed.robinson.gsu.edu/certificate-programs/leadership/business-aviation-leadership/>



VanAllen chairman Pete Agur



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Football Season Scores for Business Aviation

Football is bucks. Big bucks.

Take Super Bowl 50 in Santa Clara, California, last February, for example. The game pitted the Denver Broncos against the Carolina Panthers. More than 71,000 fans crowding Levi's Stadium spent about \$11 million. Television advertisers paid \$5 million for a 30-sec. commercial. The highest priced tickets were in the \$15,000 range, and the economic impact on the San Francisco Bay area was estimated at \$500 million.

While there were no bottom-line figures available for FBO revenues during the three-day event, there was plenty of evidence of activity.

According to Kaiser Air at Oakland International Airport,

there were 250 aircraft on the ramp. At Signature Flight Support, 433 aircraft operations were recorded from Friday through Monday at its Oakland International facility and 200 at its new San Jose International center. Atlantic Aviation at San Jose International reported 200 aircraft served.

The NFL opened its 2016 regular season on Sept. 8. During the season, 265 games will draw thousands of business and private jets to FBOs in 32 NFL cities.

The latest business aviation news featured Dallas Cowboys owner Jerry Jones, president and general manager of one of the country's most recognizable



Dallas Cowboys owner Jerry Jones unveiled a customized Airbus Helicopter H145 corporate rotorcraft as his new "go-to" business transportation tool.

football franchises. On Sept. 8, three days before the Cowboys' opening day, Jones unveiled a customized Airbus Helicopter H145 corporate rotorcraft as his new "go-to" business transportation tool.

The helicopter will provide Jones and seven to nine passengers a comfortable ride to and

from the team's headquarters complex at Frisco, just north of Dallas, and AT&T Stadium in Arlington, Texas.

"This helicopter will save us valuable time and allow members of our organization to work and live more efficiently," Jones said. "It says Cowboys."

—Kirby Harrison

A Touchdown for Wheels Up

WHEELS UP HAS BEEN FLYING members to their favorite college football games this

autumn via a King Air 350i-powered program dubbed "Same Day Game Day."

Flights arrive 2 hr. before kickoff and return 1 hr. after the game ends.

"The King Air 350i is uniquely positioned to offer shuttle service at the right price, seating eight passengers comfortably. It's the flying SUV," says Wheels Up founder and CEO Kenny Dichter.

"Many of our members are passionate about college football, and maximizing the cost-efficiency of the King Air 350i is a way that we can bring them to the game with like-minded members and fans.

Still to be played:

- Yale vs. Harvard (New York to Boston) on Nov. 19.
- Michigan vs. Ohio State (New York to Columbus) on Nov. 26.

In addition to the scheduled games, Wheels Up members can propose shared flights to any college football game through the Wheels Up member app, and split the cost of travel with other members traveling to and/or from the game.

"We're leveraging the sharing economy to bring people together," Dichter said.

—Rich Piellisch





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Embraer Phenom 100 EV Third-Generation...

Whoosh! It took a little more than 1 hr. of test flight to convince us that the Phenom 100 EV, short for “Evolution,” finally has shed the original Phenom 100’s matronly image. Although the earlier versions of Embraer’s first purpose-built business jet were roomy, rugged and reliable, they were the perennial last-place finishers in speed contests with comparably priced light jets.

Key to the peppier performance is the pair of Pratt & Whitney Canada PW317F-1E turbofans, engines that produce up to 15% more thrust for hot-and-high airport take-offs and up to 10% more thrust for climb and cruise. No physical changes were made to the original PW617E engines, but a FADEC throttle push bumps output with no change to TBO.

Hot-and-high airport performance is dramatically improved. Departing Mexico City’s Toluca Airport on a 25C day, for example, a typically equipped Phenom 100 could fly four occupants about 145 nm. The Phenom 100 EV, in contrast, can fly the same payload more than 1,050 nm, assuming the same airport density altitude.

Last Friday, we belted into the left seat of s.n. 381, the first production configuration Phenom 100 EV and the last one to be built in Brazil. S.n. 382 and subsequent aircraft will be assembled at Embraer’s Melbourne, Florida, facility.

Similar to the latest version of the Phenom 300, the EV’s flight deck has been upgraded with Prodigy Touch avionics. That’s Embraer’s version of the Garmin G3000, featuring larger flat-panel displays and twin 5.7-in. touchscreen controllers in the forward console that host some functions that used to require stand-alone control panels in the cockpit. The combined AC and USB power outlet has been moved to the left sidewall, where it

provides convenient access for a single pilot.

One nit to pick: The left- and right-side circuit breaker panels, located in the foot wells, have black labels on dark gray strips that are difficult to see without a strong flashlight, even in bright daylight. The labels need to be black on white or white or black to make them easier to see. We’d also like to see the circuit breaker and labels color-coded for quick identification.

The new 14.1-in. displays have significantly better screen resolution than the original Garmin G1000 12.4-in. displays. Electronic charts and EICAS, for instance, easily can share the split-screen mode of the MFD. The package also includes Garmin’s solid-state GWX70 weather radar with optional 40-nm turbulence detection and ground clutter suppression, and 3-D VNAV with both climb and descent modes. An ice detector now is standard.

Other options include an Iridium satcom radio, Garmin SurfaceWatch runway and taxiway alerting system, and reactive wind-shear warning system.

The cabin also has been upgraded with abrasion-resistant dropped-aisle rails, AC and USB power outlets relocated for more convenient access, and a durable metal tread plate cover for the bottom step of the airstair entry door.



40 kt. at FL 330!

We belted into the left seat with senior demonstration pilot and instructor Luis Fernando C. Berto in the right seat and Rafael Menezes Ricardo along as safety pilot. Chock-full of 266 lb. of popular options, including the eight-seat interior, the aircraft had a 7,563-lb. single-pilot BOW. All the EV’s operating weights have been upped, but the aircraft still had a lean 381-lb. tanks-full payload.

Air-conditioner performance remains one of the Phenom 100 family’s strong points. As soon as we started the right engine and switched on the vapor cycle machine, the cabin cooled quickly. With both engines running, we dialed down the air-conditioner fan speed in less than 5 min.

For our flight, our zero fuel weight was 7,900 lb. and we had only 1,755 lb. of fuel in the tanks. We started engines at Embraer’s Melbourne facility (elev. 33 ft.) on the warm 28C afternoon at a ramp weight of 9,655 lb., and we computed our takeoff weight at 9,600 lb. Using flaps 1, V1 was 105, Vr was 106, V2 was 109, and final segment speed was 126 KIAS. Computed takeoff field length was just over 3,000 ft., with 6,000 ft. available on Runway 09L.



Embraer’s Phenom 100 EV is powered by twin Pratt & Whitney Canada PW317F-1E turbofans.

...Light Jet Cruises at 400 Knots

Our planned flight would take us east over the Atlantic and close to several offshore trunk routes used by the air carriers. We requested a direct climb to FL 410 from Miami Center. Keeping us safely clear of those busy sectors proved to be a challenge. But, once again, U.S. ATC proved that it sets the world standard for flexibility and professionalism. Our controllers vectored us several times off-course and only interrupted our direct climb for very brief periods.

We mostly used a 180 KIAS/Mach 0.55 climb profile. OATs averaged close to ISA+10C until we climbed through FL 380, where the air mass cooled sharply. We reached FL 410 in 25 min. At a weight of 9,049 lb. and at ISA-5C, the aircraft settled into a 374 KTAS cruise while burning 640 lb./hr. Embraer's preliminary flight-planning guide predicted a max cruise speed of 372 KTAS on 655 lb./hr. for an ISA-4C OAT.

Down at FL 330 and at ISA+8C, the aircraft trued at 401 KTAS on 860 lb./hr. The book predicted 394 KTAS while burning 863 lb./hr. Assuming standard day conditions, the book predicted a cruise speed of 406 KTAS. At FL 300, top cruise speed should be 412 KTAS. That's only 8 kt. slower than the class-leading HA-420 HondaJet.

We took off our headsets to check cabin sound levels. Oh, what an improvement over the original Phenom 100 we flew in Brazil. This aircraft seemingly sops up noise just

as well as the Citation M2, one of the quietest light jets we've flown. But the HA-420 HondaJet's near-silent cabin remains in a class of its own.

We headed back to Melbourne, passing north of the airport for a left downwind entry to Runway 09L. Our VREF landing speed was 95 KIAS at a landing weight of 8,600 lb. We had 14 kt. of left crosswind, but the aircraft handled it nicely. In the flare, we used a little wing-down/top-rudder slip and touched down gently on centerline.

The Phenom 100 EV's braking performance remains an opportunity for improvement. Six revisions of software for the Meggitt Brake Control Unit have yet to tame its attention-riveting yaw swings if precisely even pressure isn't simultaneously applied to both pedals. BCU Rev. 7, due for release in 2017, incorporates a number of enhancements that will tame the behavior of the brakes, predicts Embraer.

Other product improvements on the road map include Garmin Flight Stream Wi-Fi/Bluetooth connectivity between pilots' tablet computers and the avionics system and Phenom 300-style full-width, foldout tray tables for passengers.

Phenom 100 EV is making its NBAA debut. It has much improved hot-and-high airport capabilities, stronger climb and cruise performance, and a higher tanks-full payload. Look for it at the [Static Display](#) at Orlando Executive Airport.

—Fred George



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From left: Embraer safety pilot Rafael Menezes Ricardo, Embraer senior demonstration pilot and instructor Luis Fernando Berto, and Aviation Week/BCA's Fred George.



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*Comparison of overall annual operating costs of a Cessna XLS+ with those of a Piper M600, using the Conklin & de Decker Aircraft Cost Evaluator.

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Partners in Aviation Helps Cut Costs

Business aircraft owners often fly smaller, older or less capable aircraft than they'd like because they aren't flying enough or can't afford to buy their ideal aircraft.

Enter Partners in Aviation, a newly established company that matches prospective aircraft owners who live in a common geographical area with one another. The company helps them own and operate a new or late-model aircraft at about half the cost of individual ownership, the company said.

"Partnerships aren't anything new, but a lot of them are not done well," said Partners in Aviation cofounder Tom Bertels, who recently retired as managing partner of Sullivan Higdon & Sink, a Wichita advertising agency that works with aviation clients.

Often there are problems with partnerships, such as the way expenses are shared, documentation and scheduling, Bertels said. He and partner Mark Molloy, a Chicago-based Beechcraft sales veteran, tackle those problems up front. The two have teamed with aviation experts in legal, tax, management and maintenance to refine a structured program that mitigates the challenges in typical

partnerships, Molloy said.

"Despite the considerable economic benefits of a partnership, wisely, most operators would never have considered it," Molloy said. "Our challenge was to structure a co-ownership program that conservative operators - and their counsel - would embrace."

The partners are at the NBAA Convention to speak with manufacturers and operators. The company doesn't compete with plane-makers or their sales departments for sales. Instead, their endeavor generates sales by matching clients who can't afford an aircraft on their own with another partner to share the cost, Bertels explained. Partners in Aviation helps with the co-owners' partnership.

Aircraft co-ownership fills the gap between fractional programs and sole ownership, he said. Partnerships are optimal for those who fly 100 to 200 hr. a year.

"They are probably already operating an airplane, but they are smaller and older than what they'd like," Bertels said. "Let's say if you came to us and said, 'I want to buy a new Sovereign or a new Phenom,' and you're in a certain geographical area, we would go out and find a partner for you and help you put together a partnership."

Unlike most partnerships, which are set up as limited liability companies, each partner owns 50% of the aircraft and operates it separately.

"One of the big problems with a typical partnership is: What do you do when you want out?" Bertels said. Under the terms of the contract, the partnership will have an expiration date and a formula for the aircraft's sale. Partners in Aviation helps market the aircraft. On the other hand, if the partnership is going well and both partners want to keep going, the contact can be extended. —Molly McMillin



Partners in Aviation's Mark Molloy



Partners in Aviation's Tom Bertels

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UAT is a division of Stallion 51 Corp. and has been conducting high performance flight operations for more than 25 years.

Viking Brings 100th Twin Otter to NBAA

Viking Air celebrated the production of its 100th Series 400 Twin Otter in Calgary this past summer, and is showing the aircraft, replete with seaplane floats and executive interior, on the NBAA 2016 static line.

Viking showed the prototype Series 400 here in Orlando in 2008. “It’s been a long tradition,” Viking Air president and CEO David Curtis told *ShowNews*. “We like to put it in front of all those white jets and show off something different.”

The 100th, s.n. 944, is operated as a factory demonstrator by Viking’s sister company, Victoria, British Columbia-based Pacific Sky Aviation. Pacific Sky also provides Twin Otter training, in support of which it’s installed a new Level D simulator, also in Calgary. The new unit by

Textron-owned TRU Simulation + Training (Montreal) is the first in the world to feature a seaplane configuration, Viking says.

Viking holds the type certificates for all out-of-production de Havilland Canada aircraft, from the DHC-1 Chipmunk through the DHC-7 Dash-7 50-passenger STOL regional airliner. The Twin Otter was introduced as the DHC-6 in 1965.

Viking acquired the de Havilland type certificates in February 2006. The decision to launch the Series 400, the company says, “was made after a

market study, supported by the worldwide Twin Otter operator group, revealed a strong demand for the new platform to replace the aging legacy fleet.” The Series 400 was formally launched in March 2007, and the first production aircraft flew in February 2010. Transport Canada issued the Series 400 type certificate that June. Aircraft have since been delivered in nearly 30 countries.

“The Series 400 is an all-new airplane,” says Curtis. Viking collaborator (and competitor) Ikhana, he notes, continues to convert legacy Twin Otters. Ikhana provides service and support for Viking-built aircraft too, and in fact did the VIP interior for the aircraft on display here today.

Viking’s Series 400 Twin Otter is available with standard landing gear, straight or amphibious floats, skis, wheel skis or IFG/intermediate flotation gear – with multiple quick-change interior configurations available. “The Series 400 Twin Otter is a versatile aircraft that can be utilized

for multiple roles, such as regional commuter, environmental monitoring, parachute operations, cargo and infrastructure support, corporate shuttle and personal use,” the company says.

“We build a new Twin Otter every 15 days,” Curtis notes, adding that the current backlog is about 15 months. He says the number flying passengers is difficult to pinpoint, as interiors can be readily changed to suit the mission – an attraction for numerous customers.

“When I take a moment to reflect on the Series 400 program from the original launch to completion of our 100th aircraft, and all the challenges we have overcome in between, I am truly amazed at what the Viking team has accomplished,” Curtis said this past summer. “While there was doubt that a relatively unknown aerospace manufacturing company on the west coast of Canada would be up to the task, here we are, 100 production aircraft later.”

The \$6.9 million Series 400 Twin Otter is powered by upgraded Pratt & Whitney Canada PT6A-34 engines, and features a fully integrated Honeywell Primus Apex digital avionics suite. Viking has fitted its modernized Twin Otter with internal and external LED lighting, “and approximately 800 other modifications incorporated to improve upon the original production model.”

Viking is now offering a “Phase II” avionics upgrade including Honeywell digital autopilot, TCAS II and ADS/B capabilities.

And, for operators flying shorter VFR missions, Viking is promoting 400S (with floats) and 400L (with wheels) aircraft, priced at \$5.995 million with PT6A-27 engines. They are about 400 lb. lighter than the standard Series 400 Twin Otter. Bleed air heating and cooling is absent, and there is a more modest avionics package.

“They don’t need a full suite in what to them is a pickup truck,” Curtis says. —**Rich Piellisch**



Canada’s Viking Air has built 100 modern-day Twin Otters.

Teaching to World to Fly – and Twin Otters to Swim

Viking Air ([Static Display](#)) and its affiliate Pacific Sky Aviation are putting the finishing touches on a new Level D simulator in Calgary for the Series 400 Twin Otter. It is not only the first of its kind for the Twin Otter but is the first for seaplanes, says Viking Air president &

CEO David Curtis.

He perceives “a huge new market” as waterside operators realize they can provide air service without building an airport. Instead, “they can use any waterway.”

The new sim, Curtis told *ShowNews*, “will

remove a constraint on our business model by making us able to train seaplane captains faster.”

The multi-million-dollar unit, built by Textron-owned TRU Simulation + Training in Montreal, is to be ready for Twin Otter students in early 2017.

—RP

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Gulfstream Wraps Up Two Classic Model Lines

Say “Cheerio” to two of Gulfstream’s long-term staple products as the company cements its position in the large-cabin market for years to come. The small-cabin G150 no longer fits Gulfstream’s business plan, while the ever-popular G450 is giving way to its technologically advanced, state-of-the-art replacement, the G500.

The company plans to deliver its last G450 to a customer in early 2018. The \$44.65 million G500 is expected to receive type certification and enter service in 2017.

The transition to the G500 is an important milestone.

“The G500...flies faster, farther, and carries more passengers and baggage,” noted Jefferies analyst Howard Rubel. The G600, a longer version of the G500, is expected to fly shortly.

“We believe the program is ahead of schedule, and enables a seamless entry-into-service

process,” Rubel wrote in a note to investors.

Gulfstream has built more than 870 GIV, GIV-SP and G450 aircraft. The company will continue its fleet support.

“The GIV and G450 ushered in a business aviation renaissance that has led to increased safety, greater reliability, better technology and improved performance,” said Gulfstream president Mark Burns. “It’s fitting that the G500 will replace the G450 and build upon its performance legacy, creating another industry game-changer from Gulfstream.”



Gulfstream expects to deliver its last G450 in early 2018.

The G500 is in flight test with five aircraft in the test program. The first test aircraft made its first flight in 2015. The fourth test aircraft made its first transatlantic flight in July. The fifth aircraft is a fully outfitted production aircraft that focuses on the cabin interior.

The flight test program has amassed more than 1,600 flight hours. A G500 simulator is operational and in use at FlightSafety International in Savannah.

The G500 will fly 5,000 nm at

Mach 0.85 or 3,800 nm at Mach 0.90 and has a maximum operating speed of Mach 0.925. It will seat up to 19 passengers in three living spaces, and include Gulfstream’s Symmetry Flight Deck with active control sidesticks, integrated touchscreen controllers and a next-generation enhanced vision system.

The G500 is powered by new Pratt & Whitney Canada PW814GA engines.

—Molly McMillin

The End of the Line for Gulfstream’s G150

Gulfstream Aerospace will cease production of its G150 midsize business jet to focus on the super-midsize and large-cabin aircraft market. The company has sold the last Gulfstream G150, marking the end of more than 10 years of production. It will be delivered to a customer in mid-2017.

“Our long-range plan calls for us to focus on the super-midsize and large-cabin

markets,” said Mark Burns, president of Gulfstream Aerospace. “We have an excellent mid-cabin offering in the G280. Since it entered service in late 2012, we have delivered nearly 100 of those aircraft, demonstrating the appeal of incorporating large-cabin-type capabilities into a super-midsize aircraft.”

Gulfstream’s fleet includes nearly 120 G150s in the U.S., Canada, Central America, South America, Europe and Asia. It is certified in more than 45 countries.

The G150 will remain an important part of Gulfstream’s business, Burns said, as the company will continue to provide support and ensure there are enough parts, tooling, engineering and personnel available to support the fleet.

Gulfstream’s products

now include the super-midsize G280, and the G450, G550, G500, G600, G650 and G650ER large jets. The G450 and G550 are being phased out for replacement by the upcoming G500 and G600, respectively.

In the first half of 2016, Gulfstream delivered 15 G150s and G280s – flat compared to the first half of 2015, according to the General Aviation Manufacturers Association. Gulfstream does not break down delivery results by specific aircraft.

The decision to stop G150 production is not surprising given the low levels of production over the past few years, said Teal Group aviation consultant Richard Aboulafia.

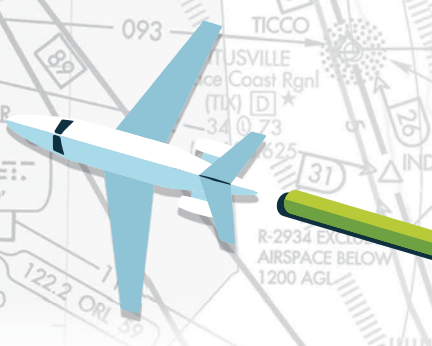
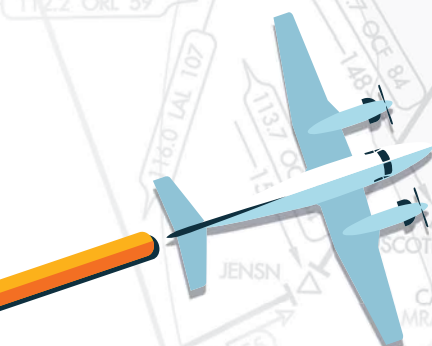
The first G150 entered service in August 2006 as a replacement for the G100, formerly known as the Astra SPX. The G150 is manufactured by Israel Aerospace Industries in Tel Aviv and delivered to the U.S. for outfitting.

Gulfstream is at [Booth 250](#) and in the [Static Display](#) here.

—MM

Gulfstream has sold the last G150, marking the end of more than 10 years of production.





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OPINION

BY RICHARD ABOULAFIA
VICE PRESIDENT OF ANALYSIS, TEAL GROUP

Why Low Oil Prices Are Bad for Business Aircraft

With business jet and civil rotorcraft demand linked to oil prices rather than the usual basket of economic indicators, forecasts are in less well-known territory.

Business jet demand was once linked to a wide array of economic indicators, especially equities markets and corporate profits. Since 2008, these links have broken down. Stock prices recovered and profits have set new records, but most business jet segments stayed flat.

As documented by Bank of America/Merrill Lynch analyst Ron Epstein, there is a close cor-



parts of both markets that were still growing – large-cabin jets and super-medium twin helicopters – have been hit hard.

Last year, the civil rotor market fell 10.6% to \$5.3 billion in deliveries, off from 2014's \$5.9 billion.

The story is the same with business jets, where the higher-priced large-cabin segment has taken all the damage. Large-cabin deliveries in 2015 fell 8.2% by value from 2014 (small- and medium-cabin aircraft deliveries actually increased). First-half 2016 deliveries of all business jets fell 11%

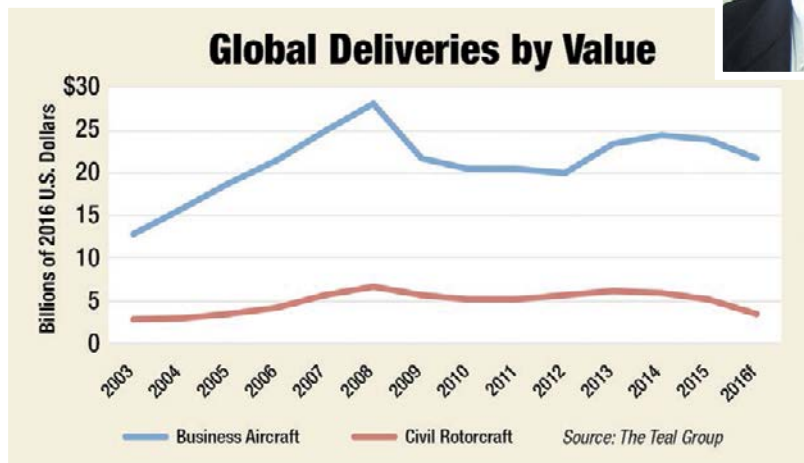
by value from the first half of 2015, according to GAMA. Unit deliveries fell just 4.5%, indicating that again it was the larger, more expensive jets that led the decline.

Like the rotorcraft market, these high-end business jets benefit from resource-extraction company orders but, more important, resource-rich countries are a key component of demand, particularly in the Middle East and Russia. These economies, and the high-net-worth-individual wealth in these countries, have been affected by low oil prices, too. Meanwhile, the ongoing anticorruption campaign in China has hurt demand from the only BRIC (Brazil, Russia, India, China) country where demand had been holding up.

We don't know when the market will find a deliveries floor. Last year, the three top-tier producers – Bombardier, Dassault and Gulfstream – reduced 2016 output guidance significantly. Bombardier Global series output is falling to about 50 this year, from 73 in 2015. The OEMs are now talking about a market that is stabilizing, but many indicators are still in troubling territory. And in August, Bombardier said it would "pause" Global production in 2017 for an unspecified period – probably about 20 days. This implies output will fall to the mid-40s.

Of all the macroeconomic indicators, oil and energy prices are easily the hardest to predict. Long-term GDP numbers, stock prices, high-net-worth wealth creation and corporate profits all have very long track records and a clear story of long-term growth. By contrast, oil prices may stay at \$43 per barrel or lower or may shoot back up above \$100. Their cycles are unpredictable.

For forecasting purposes, Teal Group assumes that the consensus view – oil prices at \$80-90 per barrel before the end of the decade – is correct. But in reality, the range of possibilities is all over the map. And, therefore, these two aircraft market segments face much greater uncertainty.



relation between high-end business jet demand and oil prices. Even as other segments collapsed, high-end business jet demand rose after the 2008 meltdown, in line with oil prices. It is now falling in line with oil.

Business aircraft and civil rotorcraft markets were transformed by unprecedented growth waves in the early 2000s, and both have spent the last eight years seeking renewed growth, with no success.

Most of all, these two markets are now falling, largely due to the decline in energy prices and other factors. Given the volatile nature of energy prices, forecasts for these aircraft markets have become much less reliable.

The transformation of both segments took place in 2003-08, with growth rates seldom seen in mature industries: Business aircraft grew at a 17.1% compound annual growth rate (CAGR) by value, while civil rotorcraft grew at an 18.2% CAGR. Both reached new peaks: Business aircraft hit \$28.1 billion in deliveries in 2008 (in 2016 dollars), and civil rotorcraft reached \$6.6 billion. Both markets had doubled in value over the course of about five years.

After that peak, both markets deflated, and neither has recovered to their 2008 peak. Over the past 18 months, the



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William "Bill" Koch

A lifelong Texan, Bill Koch was immersed in the business of business aviation from childhood. His father was an executive with aircraft parts distributor Cooper Airmotive, which later evolved into Aviall. As a teen, Koch attended NBAA conventions with his father. After graduating from Southern Methodist University with a degree in political science – “I had intended to go to law school” – Koch became intrigued with news that AMR, American Airlines’ parent, was bidding to acquire Combs Gates, a premier FBO chain. AMR acquired Combs Gates and branded the business AMR Combs. Koch cold-called AMR, angling for any entry-level job at Combs, and got it. Ten years later, he was president. When financial setbacks in 2000 caused AMR to shed its non-core businesses, AMR Combs – then its most profitable subsidiary – was assimilated by Signature Flight Support. Koch later headed the SevenBar chain of FBOs and Wayfarer Aviation. He served as chairman of the National Air Transportation Association and joined Hawthorne as the Charleston, South Carolina-based chain was taking form in 2010.

Questions for William “Bill” Koch

Chairman, Hawthorne Global Aviation Services, Dallas, Texas

1 Combs Gates and AMR Combs was surely an exceptional training ground, was it not?

Koch: It was a tremendous experience. It was a place that combined the legacy of Harry Combs, known for entrepreneurship and a service culture, with a *Fortune* 20 airline run by Bob Crandall, one of the sharpest executives ever. Bob Anderson had a big impact in my development at AMR Combs. I was the business development point man on the Alliance Program, AMR’s aircraft management and charter operation. And I worked with Bombardier in creating Flexjet, the fractional program in which AMR had 51% control. At one point we were considering acquiring Signature; our 15 FBO locations made us about the same size then. But when the airline started bleeding cash and needed to make a statement to Wall Street, we got characterized as a distraction, along with seven other AMR subsidiaries that were divested all at once.

2 Today there’s Delta Private Jets, and Lufthansa partners with NetJets. Do you think other airlines will embrace business aviation?

Koch: Oh yes, it’s going to happen. Somebody’s going to crack the code, and it could be Delta. It provides a real benefit to premier passengers. The question always is, How do we get them to that last mile? Well, put those passengers on a business jet. That’s what American had in mind under Crandall. I think there’s a significant place in the market for connecting airlines with business aviation.

3 At this point Hawthorne has just five bases. How do you compete with giants like Signature and Atlantic?

Koch: The big networks have loyalty programs and can compete on price, but there’s always a place for a premier FBO. Many aircraft owners and chief pilots prefer personalized service but say it’s getting harder and harder to find. With the big FBO chains, just like hotels, you know what you’re going to get, but for the most part they’re all the same. Then there’s the Four Seasons and the Ritz-Carlton. That’s our design. We provide tailored service where our people know customers by name and preference.

4 You added three locations – in Atlanta, Chicago and Eau Claire, Wisconsin – in the past year. Will there be more?

Koch: We are definitely in an acquisition mode. The ideal candidate operation is one focused on business aviation, located in a major metro or resort area, and pumping at least one million gallons of Jet-A annually. It will likely have owners who care deeply about the future of their employees. Hawthorne offers terrific growth potential for staff and has great financial backing. In five years, I’d hope we’re operating at some 20 locations.

5 You’ve been early in fractionals, aircraft management and FBO consolidation. What’s next?

Koch: Good question. I am curious as to what will be the next exciting disruption in the business aviation market. What’s the next big thing? The technology is available to deliver on-demand aircraft by the seat, though the regulations prohibit that now. I don’t think it will be the supersonic business jet. I don’t know what it will be, but it just feels like it’s time for something. We’re always looking for innovations we can incorporate, but whatever develops, it won’t replace the quality of our service. That’s what makes Hawthorne special.

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