

# Aviation International News®

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## Dassault unveils Falcon 8X

by Thierry Dubois

On December 17, Dassault unveiled the Falcon 8X ultra-long-range business jet, keeping the program on time for a first flight in the first quarter, probably in February. The event took place in an assembly hall at the Bordeaux Mérignac factory, gathering customers, operators, industrial partners and representatives of certification authorities in an atmosphere that mixed “prestige, passion for aviation and the French touch,” as the organizers put it.

The Falcon 8X's key features are its 6,450 nm range and its cabin, which is 3.5 feet longer than that of the Falcon 7X.

As recently as six days before the ceremonial dinner the aircraft shown was still in the paint hangar, and at 6 a.m. the following morning it was undergoing modifications as a result

of testing conducted in the preceding months. Ground testing of flight controls, vibration and the fuel system concluded in November, and engine run-ups took place in early December. “The program is right on schedule,” said Olivier Villa, senior v-p for civil aircraft.

### Final Validations Pending

Results of the December ground runs prompted Dassault to devise a series of minor modifications that will be implemented by January. Many of the systems will receive final validations from their respective manufacturers, which are tasked with performing testing such as vibration, electromagnetic interference and lightning, Frédéric Petit, vice president for Falcon programs, told AIN.

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DAVID MCINTOSH

### BUSINESS AVIATION IN THE MIDDLE EAST

The 2014 edition of the Middle East Business Aviation show topped numbers from the previous show in 2012, reporting 44 aircraft on static display, 422 exhibitors and 7,863 attendees. What the industry needs in the region now, according to representatives, is a receptive regulatory environment and the infrastructure to support growing traffic. ■



DASSAULT FALCON

*The wraps were taken off the first Falcon 8X inside an assembly hall at Dassault's Bordeaux Mérignac factory.*

## Replenishing the caucuses

by Kerry Lynch

Rep. Sam Graves believes one of his first and most pressing tasks in the new Congress will be to rebuild the membership of the General Aviation Caucus.

The elections cost the seats of a number of members of both the House and Senate caucuses, while others retired or switched chambers. The House went down about 30 members from its high of 254, while the Senate lost about seven members from 41.

“My first challenge is getting the numbers back up,” Graves told AIN. At 224, the number of caucus members returning to the House is still safely past the “magic” number necessary for a majority. But Graves

knows that numbers will matter in an upcoming FAA reauthorization year that will be complicated by an overarching federal budget, sequestration and taxes debate.

The Republican lawmaker from Missouri, one of GA's staunchest

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#### Users pick up slack in FAA budget

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### Rotorcraft

#### EC175 delivered

Airbus Helicopters handed over the first EC175s to the first of three launch customers. All were scheduled to take aircraft by year-end. **Page 54**



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## SPECIAL REPORT NEWSMakers 2014

Our annual look back at what and who made headlines in the preceding 12 months. Despite years of optimistic predictions, only last year did business aviation begin to rise above the recession. **Page 20**

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# FAA budget for FY2015 puts cost burden on users

by Kerry Lynch

The House and Senate cleared a comprehensive funding bill that keeps the FAA's budget in Fiscal Year 2015 slightly above last year's level but shrinks the general-fund contribution to the agency's budget to near all-time lows.

The House narrowly cleared the so-called "cromnibus" bill on December 11 by a 219-206 vote. The Senate followed with a 56-40 vote during a rare Saturday session on December 13, just a few hours before a temporary extension for the federal funding was set to expire. (The term CRomnibus was coined by political observers to reflect the bill's origins as an omnibus bill, which is how Congress would normally fund the government, and a continuing resolution [CR], which is how Congress funds the government in the absence of agreement.)

Lawmakers provided \$15.84 billion in Fiscal Year 2015 funding for the FAA, slightly higher than the \$15.76 billion budget for 2014 and \$440 million more than the White House request of \$15.4 billion (figures do not include rescission funds or other accounting adjustments).

The FAA's operations fund will receive \$9.74 billion, while \$2.6 billion was set aside for facilities equipment, \$3.35 billion for Airport Improvement Program grants and \$156.74 million for research, engineering and development.

The cromnibus called for the

user-paid Airport and Airway Trust Fund to cover more than 88 percent of the FAA's operations funds. In Fiscal Year 2014, the trust fund covered slightly more than two-thirds of the agency's operations budget, and in 2013 it paid for a little more than half.

Both the White House and Congressional Budget Office documents show an eventual "zeroing out" of the general fund contribution to the aviation system over the next decade, with the users covering the entire cost of the FAA's budget. The White House would accomplish this goal through new user fees. Congress, however, has only accounted for existing taxes covering the costs.

## Long-term Agency Goals

NBAA president and CEO Ed Bolen last week told an Air Line Pilots Association symposium that the industry needs to work together to emphasize the message that the general public benefits from a healthy national air transportation system—the underlying reason for the general fund contribution.

But arguing for larger general-fund contributions might become difficult as Congress in 2015 faces renewed debate on the debt ceiling and cuts to blunt sequestration. In the bill, Congress renews its ban on the agency's developing any new user fees, a provision that reinforces Capitol Hill's general opposition to

them despite the White House's repeated request for \$100 per-flight ATC charges.

The budget contains funding to continue implementation of NextGen initiatives, including additional funding for ADS-B. Congress also places an emphasis on the FAA's certification and inspection activities, as evidenced by a measure calling for the agency to submit an annual report on its Flight Standards and Aircraft Certification staffing by March 31. The measure builds in a \$100,000 penalty each day it is late. The FAA further is directed to report on its efforts to streamline certification activity and improve its use of delegation authority.

Congress paves the way for the FAA to begin adopting practices recommended by the Part 23 aviation rulemaking committee, permitting the agency to enter into a grant agreement with "a non-profit standard-setting organization to assist in the development of aviation safety standards." Report language accompanying the bill stresses that Congress expects the FAA to issue a final rule on the Part 23 by late 2015, as required by law.

The contract tower program—at risk for steep cuts recently under sequestration—will be funded at \$144.5 million, largely in line with the request of contract tower representatives and industry leaders.

Unleaded fuel research also is funded, with Congress setting aside \$6 million for the effort, \$300,000 more than requested by the administration.

The Fiscal Year 2015 budget also carries over a number of miscellaneous provisions from previous budget bills, including the continued ban on an increase in the 100,000-pound weight limit at Teterboro Airport in New Jersey and the continued call for the FAA to permit aircraft operators to request privacy from flight tracking programs.

The bill further prohibits the FAA from raising its fees for aeronautical navigation products unless the agency justifies to Congress the need for the fees.

NATA president and CEO Tom Hendricks stressed the importance of passing an FAA budget that covers all of 2015, rather than more stopgap measures, as had been the case for the past several months. "Taking such action funds important priorities such as NextGen and removes the budgetary uncertainty the agency faces when operating under short-term funding bills," Hendricks said. □

## As we go to press

### TRAINING CENTER GROWING IN DUBAI

Emirates-CAE Flight Training (ECFT) is expanding its second Dubai training facility at Dubai Silicon Oasis. As part of the expansion, it will double the number of simulator bays to 10 from five and add two full-motion simulators for the Boeing 737-800W/BBJ2 and Gulfstream G650, as well as a CAE Simfinity integrated procedures trainer and virtual classrooms. The CAE-built 737-800W and G650 simulators, to be delivered to the center in the next 12 to 18 months, will be used for training pilots from the Middle East, Europe, Africa and Asia.

### TWO P&WC ENGINES RECEIVE CERTIFICATION

Last month, Pratt & Whitney Canada earned Transport Canada approval of its PW306D1 turbofan and EASA certification of its PW210A turboshaft. The 5,907-pound-thrust PW306D1 will power the Citation Latitude, which is expected to enter service in the second quarter. FAA approval for this engine is pending, the company said. Meanwhile, AgustaWestland's AW169 took a step closer to entering service, with EASA approval of the helicopter's PW210A turboshafts. Transport Canada approved the PW210A in July.

### 2014 'A GOOD YEAR' FOR DASSAULT FALCON

Dassault Falcon CEO John Rosanvallon deemed 2014 "a good year." The first three quarters, with sales of 67 Falcons logged, outperformed the whole of 2013. "And we are having a good fourth quarter in 2014," he told *AIN*. However, not all regions contributed to the increase. Brazil, Russia, India and China will account for only approximately 15 percent of last year's sales. China, for example, has been a disappointment for all business jet manufacturers, according to Rosanvallon. In contrast, the U.S. "has woken up at last" and sales in Northern Europe were "satisfactory."

### LEGACY 500 PILOTS CLEARED FOR FLIGHT

The first class of pilots for the new Embraer Legacy 500 recently graduated from FlightSafety International's St. Louis training center. The facility is equipped with an FAA level C-qualified Legacy 500 simulator. Embraer obtained Brazilian ANAC certification for the fly-by-wire midsize jet in August and handed over the first copy to a customer in Brazil on October 10. FAA approval followed in October and Embraer received EASA validation for the twinjet on December 16.

### AIA: GA SHIPMENTS TO GROW IN 2015

The Aerospace Industries Association forecasts U.S. general aviation shipments will have grown 4.7 percent in 2014, to 1,691 aircraft valued at \$11.9

billion. The AIA believes U.S. deliveries will climb higher, to 1,742 units worth \$12.7 billion, this year. The GA market also is contributing to the more than \$50 billion civil aviation trade surplus. AIA president and CEO Marion Blakey said that while Congress extended the Export Import Bank authorization for nine months, "We've not yet won the war," and the fight will continue this year.

### KCM PROGRAM COVERS 12-5 CHARTER PILOTS

The TSA has agreed to adopt changes to its Known Crewmember Program (KCM) that will expand participation of pilots and flight attendants of Part 135 and 125 operations. KCM, developed for the airline industry in 2011, allows quick identification of authorized crewmembers and verification of their employment status. The National Air Transportation Association (NATA) had lobbied for the inclusion of more charter pilots in the program. The change will take effect starting on January 13 and involves only those pilots whose employers have been approved through the NATA compliance services website.

### NTSB INVESTIGATING PHENOM CRASH IN MD.

Stall warnings sounded and large changes in pitch and roll were recorded on a Phenom 100 before it crashed December 8 near Montgomery County (Md.) Airport while on approach to Runway 14. NTSB member Robert Sumwalt said initial flight data recorder findings showed that with the landing gear and flaps down, "automated stall warnings began about 20 seconds before the end of the flight" and continued to the end of the recording. Initial investigation does not indicate pre-impact engine fire or failure, according to the Board. The accident claimed the lives of all three people aboard and three more in one of three houses struck by the jet.

### LEARJET 70/75 GET MEXICAN NOD

The Learjet 70 and 75 received type certification from Mexico's Direccion General de Aeronautica Civil aviation authority, Bombardier Aerospace announced on December 16. Bombardier Business Aircraft president Eric Martel said the light jets "are ideally suited to respond to the needs of our customers in Mexico." The Learjet 70 and 75 were certified by the FAA and Transport Canada in late 2013 and by the EASA in September.

### NEW UNION LEADERS AT FLIGHT OPTIONS

The union that represents Flight Options pilots, International Brotherhood of Teamsters Local 1108, elected new leadership last month. The new president is Efram Vojta, who replaces Mat Slinghoff. The new vice president is Scott Denison, replacing Erick Maluda.

## PLANESENSE DELIVERS PRECIOUS HOLIDAY CARGO

New Hampshire-based fractional aircraft operator PlaneSense helped spread some holiday cheer last month when it landed one of its Pilatus PC-12s at Manchester Boston Regional Airport, packed with non-perishable food destined for the state's food bank. The single-engine turboprop was piloted by company president and CEO George Antoniadis (right). New Hampshire Governor Maggie Hassan (D) and Manchester Mayor Ted Gatsas (R) greeted the aircraft and helped unload the cargo, which



was provided by PlaneSense employees along with a donation from Nextant Aerospace.

"I'm told between seven and eight hundred pounds of food [was collected] which is almost seven or eight hundred

meals for children and families around the State of New Hampshire," Hassan said, while congratulating Antoniadis and PlaneSense for their contribution. "At the holidays we like to remind each other what we can do when we come together to make life better for our friends and neighbors."

—C.E.



## NEWS BRIEFS Compiled by Chad Trautvetter

### ■ Airbus Selling Stake in Dassault Aviation

In an off-market block trade on November 28, Dassault Aviation bought back 810,072 shares held by Airbus Group, reducing the European conglomerate's minority stake in the French aircraft manufacturer. The shares were sold back to Dassault at €980 each, making the total transaction worth nearly €794 million. After this transaction, Airbus Group held about 42 percent of Dassault Aviation, down from 46 percent. Airbus also pledged a "best efforts" commitment to sell up to 10 percent of Dassault Aviation's share capital, subject to market conditions, by June 30. "This additional transaction should take place in the form of an accelerated book-building through either one or several placements," Airbus said. It could also increase the size of the placements beyond this 10 percent of Dassault's share capital, according to Airbus.

### ■ CAE, Lider Add S-92 Sim Training

CAE and Brazilian helicopter operator Lider Aviação are offering Sikorsky S-92 training at CAE's São Paulo facility near Congonhas Airport. The program is an extension of the joint venture between CAE and Lider for S-76 pilot training. Training will also be provided to other helicopter operators.

### ■ Second Cirrus Jet Joins Test Fleet

Cirrus Aircraft's second Vision SF50 flight-test aircraft, dubbed "C-One" (C1), made a 45-minute first flight on November 25 from Duluth International Airport. The all-composite, single-engine jet joins the first certification flight-test aircraft SF50, "C-Zero" (C0), which has logged 153 flights and 225 hours since it began flying on March 24. Cirrus plans to deploy three SF50s for certification flight-test. C1 will be used for an "array of certification efforts," including flight into known icing testing. C0 has been used primarily for aerodynamic performance and handling testing. The third flight-test aircraft, which was expected to join the fleet by the end of last month—will be used for reliability and optional equipment testing. The Vision SF50 is expected to receive FAA certification later this year.

### ■ Quet Taps Rhineland for Europe

Quest Aircraft signed an agreement with Rhineland Air Service (RAS) at Mönchengladbach Airport near Düsseldorf, Germany, to be the exclusive dealer for the Quest Kodiak in Europe. RAS will also be an authorized service center for the turboprop single, joining RAS subsidiary Aviation Centre in Windhoek, Namibia, which already has the same designation. The German company's territory covers 35 countries in Europe, stretching from Iceland and the UK in the west to Scandinavia in the north and as far south as Greece, Cyprus and Malta.

### ■ JPM: Light Bizjets Gaining Momentum

Light business jets are "gaining momentum," according to J.P. Morgan Investment Research's latest business jet monthly report. "The U.S. accounts for about 60 percent of the global business jet fleet, and after more than five difficult years, demand is improving." The firm said that light jets in particular should benefit since North America accounts for two-thirds of deliveries in this segment. J.P. Morgan aerospace analyst Joseph Nadol III noted that steady growth of about 4 percent in U.S. flight operations underlies the recovery, and pricing of pre-owned light jets is nearly flat year-over-year and is thus faring better than other categories. However, demand for larger aircraft is facing "cross currents" even as demand at the low end improves. Demand for large-cabin jets "looks flattish overall" since about two-thirds of demand is from outside North America, where demand is softer as a result of weaker economic conditions.

*Business aviation has been slow to move to Dubai World Central Airport.*



## DWC moving forward with multi-FBO facility

by Peter Shaw-Smith

Dubai World Central has broken ground on the land allocated for the new airport's executive terminal. The common-user facility is due for completion in time for Dubai Airshow 2015 in November. Jet Aviation, XJet and Jetex Flight Support have all agreed to share the building. ExecuJet Aviation has continued to express a preference for establishing a stand-alone facility, although this appears not to be an option that the DWC management will

sanction. DC Aviation Al-Futtaim, having committed early to the move to DWC, will operate from a stand-alone FBO facility.

"DWC is partnering with industry leaders to build a complete ecosystem for a world-class aerotropolis. The executive terminal is a step in the right direction," said Rashed bu Qara'a, chief operating officer, Dubai Aviation City Corporation.

The DWC aviation district is a

6.7-sq-km (2.6-sq-mi) zone situated adjacent to Al Maktoum International Airport. DWC itself covers 145 sq km (56 sq mi). It will eventually host World Expo 2020, as well as cater to logistics, aviation, commercial, exhibition, humanitarian, residential and leisure-related activities.

"Providing integrated access to both land side and air side, DWC's Aviation District enables the seamless functioning of fixed-based operations and is ideally placed to host a project of this magnitude," bu Qara'a said.

Jet Aviation's local FBO partner, Al Mulla Investment Group, expressed clear support for the announcement. "DWC has the ideal infrastructure, competitive pricing and the flexibility that we need to do business, especially with regards to technical stops, where flights from Europe land for technical checkups or for refueling purposes," said Khaled Al Mulla, the group's chairman.

"The executive terminal will complement the rapid growth of business aviation in the Middle East in general and Dubai in particular," said Jetex CEO Adel Mardini. "Considering the geographical advantage that Dubai enjoys, I am confident that DWC will exceed all expectations for success and Jetex will play a significant role in the success."

### DWC OFFICIAL DEFENDS BIZAV COSTS

A senior official with Dubai World Central (DWC) has countered accusations that business aviation companies moving to the new airport are being asked to pay excessive fees. Tahnoon Saif, DWC's vice president for aviation, told *AIN* the Dubai government has invested "billions" of dollars in business aviation facilities at DWC, and that if it were concerned solely with return on investment, tenant prices would be 20 times higher.

Dubai Airports is coordinating plans for the move from Dubai International (DXB) to DWC. "They are reducing the slots for general aviation [at DXB], and by default offering [space] in DWC," said Saif. "Forecasts are that 90 percent of operations will have moved to DWC by 2017. The remaining 10 percent at DXB will be for MRO [maintenance repair and overhaul] purposes."

Forecasts estimate that the total number of general aviation movements in Dubai will rise to between 16,000 and 17,000 movements in 2017, Saif said. "The forecast for 2020 is for 21,000 movements," he added. He predicted that the

transfer of bizav operations to DWC will take five more years to complete.

According to information provided by Dubai Airports, general aviation is expected to account for approximately 16,400 movements this year, 75 percent of them at DWC. According to Saif, the two Dubai airports will eventually have combined capacity for some 60,000 bizav movements.



Tahnoon Saif,  
DWC v-p for aviation

"We have one common-user facility and we also have DC Aviation Al-Futtaim," explained Saif. "There is no plan for [more] standalone operators. This plan was developed with the operators themselves. The preference is always to have your [own facility], but looking at value for money for operators, to attract them, we are offering something common, with full privacy for VIPs, direct access to the apron and ramp, and reducing the [need for office space] on the operators' side, in terms of customs, police and immigration." He added that decisions about further investments to provide maintenance, repair and overhaul facilities at DWC will likely be taken in the first half of this year. —P.S.-S.

### Concern Over Cost

Negotiations for the transfer of business aviation traffic from Dubai International Airport (DXB) to Dubai World Central (DWC) have intensified over the past 12 months. Several FBOs have expressed concern to *AIN* that the next phase of growth at DWC will lead to sharp cost increases, especially land-lease costs for maintenance, repair and overhaul (MRO) facilities. DWC officials have disputed the conjecture (see box at left).

The May-to-July closure of DXB runways for resurfacing helped accelerate business aviation's move away from the downtown airport, where slots are dwindling and congestion is growing as airline activity accelerates.

However, the FBO industry group has concerns about the common-user concept, given the privacy VIP clients demand, Ali Al Naqbi, Middle East & North Africa Business Aviation Association (MEBAA) founding chairman, told *AIN*.

Jetex Flight Support, Jet Aviation and ExecuJet Aviation, are currently operating out of a shared temporary FBO at DWC's main passenger terminal. XJet is poised to enter as the planned common-user terminal's fourth occupant

*Continues on page 40 ►*



# G500

5,000 nm at Mach 0.85\* • Max Speed Mach 0.925

# G600

6,200 nm at Mach 0.85\* • Max Speed Mach 0.925



## OPTIMIZED UNRIVALED

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### ■ Brazil Crash Investigation Eyes Training

Pilot training appears to be a focus of the investigation into the August 13 crash of a Brazilian-registered Cessna Citation XLS (560XL). The accident, which occurred during an instrument approach to the Guarujá military air base near Santos, Brazil, claimed the life of Brazilian presidential contender Eduardo Campos and six others. Brazilian accident investigation agency Cenipa published a preliminary recommendation that would require both cockpit crewmembers to receive the same aircraft training. The captain of the airplane received a 560XL type rating, while the first officer had a Cessna 560 rating. Operation of a Citation 560 is covered under the Cessna C500 type rating and requires only differences training. The Citation 560XL requires a different type rating.

### ■ Jet Aviation Expands in Saudi Arabia

Jet Aviation is expanding its support services network in Saudi Arabia to six more airports. With the approval of the Kingdom's General Authority of Civil Aviation, Jet Aviation personnel from its Jeddah and Riyadh facilities will serve as handling agents at Abha, Taif, Al-Baha, Najran, Gizan and Rafha Airports. The Switzerland-based group already operates FBOs in Riyadh and Medina.

### ■ India Relaxes Some Bizav Regulations

India's Directorate General of Civil Aviation (DGCA) released a trio of positive guidelines for the business aviation industry, including an abrupt about-face on a proposal issued in October that would have prohibited operators with fewer than three aircraft from offering charter flights. The DGCA also revised its policy that limits seating capacity for charter operators using turbine singles, raising the limit to 12 passenger seats from nine. An order requiring flight data recorders (FDR) on multi-engine turbine aircraft with an mtow of 12,566 pounds/5,700 kg or less also was rescinded.

### ■ FAA OKs Robinson R66 Optional Floats

Robinson Helicopter received FAA STC approval for a float option for its R66 five-seat light turbine. The \$875,000 float option adds 65 pounds to the helicopter's empty weight. When not in use, the float tubes stow in low-profile protective covers along the landing gear skids to minimize drag. Primarily for use in emergencies, the floats activate by a lever on the pilot's collective and inflate within three seconds.

### ■ Textron To Set Up Mx Training

Textron's TRU Simulation + Training plans to open a maintenance technician training facility at Textron Aviation's Wichita Mid-Continent Airport campus. The facility will start with maintenance training for in-production Beechcraft airplanes next January, followed by training for current-production Cessna models a year later. Courses will range from avionics initial theory to engine run and taxi, and training will be conducted on Beechcraft and Cessna airplanes and sims built by TRU.

### ■ Local Avfuel Taxes for Aviation Use Only

A new FAA policy confirms that revenue from aviation fuel taxes must be dedicated to aviation use. The policy formally adopts a 1987 interpretation calling for airport operators or state governments seeking Airport Improvement Program grants to ensure that state and local aviation fuel taxes would be used for either aviation programs, airport capital projects and/or airport operating costs. Most airport operators and governments have followed the interpretation, but periodically some challenge it, citing ambiguity in the language. The updated policy protects against hidden taxes as state governments look for potential revenue sources, NBAA said.

# Texas tax rule proposal sparks industry concerns

by Kerry Lynch

Business aviation groups are urging the state of Texas to hold off on a proposed new tax rule, warning that the changes conflict with existing law and would harm the industry within the state.

NBAA, saying the draft rule would "drastically change the normal course of general aviation ownership" in the state, is weighing filing a lawsuit to ensure the proposed changes do not take effect.

The state first previewed the proposal to members of the Texas Comptroller's Taxpayer Advisory Group in July but formally published a draft rule on October 31, saying it clarifies and codifies existing regulations and guidance. The proposal is intended to pull related tax provisions and guidance under single rule, a state spokesman told AIN. "To the extent rule provisions did not already exist, we wanted to outline the agency's interpretation of the law and allow the public to review it and provide comments," he said.

The state's interpretation had already caused problems for aircraft owners and operators, leading to audits that threw into question certain aircraft ownership arrangements, said Scott O'Brien, senior manager of finance and tax policy for NBAA.

### Narrow Definition

At issue for the bizav groups is a narrow definition that recognizes "only the most basic form of aircraft leasing." This involves a finance lease from a bank or other entity that establishes a fixed monthly rental payment program.

William Deere, NATA senior vice president for government and external communication, notes this approach disregards "other accepted leasing regimes, including those allowing for the use of aircraft in charter operations."

O'Brien agrees. "This completely ignores the actual, logical and well established normal course of business in this industry," he

says, citing dry leases as an example that is a "matter of law" but would not be recognized under the Texas approach. A dry lease involves the lease of an aircraft from the registered owner to a separate entity, such as a commercial operator.

Such an interpretation would disqualify other forms of leasing from the "sale for resale" exemption and raise the tax burden for alternative lease deals.

The state definition, the groups say, conflicts with federal tax law and aviation law and likely would not withstand court challenge.

Dan Brown, vice president of state government relations for the Equipment Leasing and Finance Association, notes that the Federal Aviation Regulations require leasing when an owner makes the aircraft available even to related parties. "More considerations come in operations administered under Part 135—as well as citizenship requirements and liability considerations between the company that owns the aircraft versus operational liability of the company providing pilots and flight operations," Brown said.

The "entrepreneurial culture" of lease financing would be another casualty of a regulatory approach that recognizes only traditional fixed monthly rental payments, he added.

Also concerning the groups are changes in the applicability of the use tax to capture time an aircraft is spent on the ground, as well as in the aircraft to determine whether it has spent more than 50 percent of the time in the state, a threshold for the use tax.

"The comptroller's proposal would impose use taxes on director owners who are taxpayers in other states but whose aircraft spend time in Texas for the purposes of services performed by our member companies, including maintenance and refurbishment," Deere said.

The result of the proposal, O'Brien said, is the application of "arbitrary, vague and subjective standards, rules and definitions to the general aviation industry." NBAA and NATA both told the comptroller that the proposal reflects a lack of understanding of common aviation business practices.

The comment period for the proposal ended on November 30. The state will sift through the comments before finalizing the draft rule. But the timing is unclear, especially since state Comptroller Susan Combs is retiring.

As for the NBAA lawsuit, O'Brien said the association is evaluating whether to file a pre-emptive lawsuit or to wait until the final rule is released to take action. □

## FUEL COMPANIES SETTLE LEADED AVGAS DISPUTE

Sellers and distributors of avgas in California agreed last month to settle a dispute with the Center for Environmental Health (CEH), a non-profit group opposed to toxic chemicals that earns a portion of penalties assessed under California's Proposition 65, "The Safe Drinking Water and Toxic Enforcement Act of 1986."

The assessed penalties and legal costs total \$550,000 and will be paid by 30 companies that sell/distribute avgas at 23 California airports. The CEH will receive \$106,000, \$374,000 will go to Lexington Law Group and the state of California will get the remaining \$70,000.

The agreement between the 30 companies and the CEH requires the fuel distributors to "warn residents living within one kilometer of the airports where they operate of the lead risk and to post warning signs at the airports." They also must "offer for sale the lowest-lead fuel that is commercially available in sufficient quantity" and make lead- and ethanol-free autogas (Mogas) available to FBOs that request it, provided there are no issues with liability insurance, Mogas availability or local restrictions.

Affected companies include Chevron, Shell, Air Petro, Eastern Aviation Fuels, Avfuel and many

Californian FBOs. The consent judgment that settles this dispute is not an admission of violation of any laws.

Other FBOs operating in the state of California that were not party to the lawsuit have the option of joining the settlement to preempt future legal action, according to the National Air Transportation Association.

"We are pleased the matter is concluded and that California general aviation and its related businesses are no longer threatened," said NATA president and CEO Tom Hendricks.

The CEH announced its intention to file the Proposition 65 lawsuit in the spring of 2011, originally seeking civil penalties and an agreement that the affected parties would warn people near airports about the lead in avgas and stop using leaded avgas altogether. The lawsuit raised concerns that the penalties could cost the industry millions and spell the end of leaded avgas in California.

"With this settlement...we expect the aviation industry to move more quickly toward safer, lead-free fuels," said Caroline Cox, CEH research director. "No one living near an airport should be exposed to a stunningly toxic chemical like lead when safer fuels are available." —M.T., K.L.



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### ■ Silvercrest To Feature OEI Rating

Sneema's in-development Silvercrest turboprop, which will power the Dassault Falcon 5X twinjet, will feature a one-engine-inoperative (OEI) rating for extreme hot days. To accommodate the rating, the FAA has issued a special condition called "rated 10-minute OEI takeoff thrust at high ambient temperature" (rated 10-minute OEI TOTHAT). The rating raises the exhaust gas temperature limit to augment OEI takeoff thrust in hot conditions for a maximum of 10 minutes. Thus, the maximum takeoff thrust of 11,450 pounds at sea level will be available up to ISA+20, five degrees C higher than the usual ISA+15 reference temperature. The feature is being incorporated into the Falcon 5X's automatic takeoff thrust control system.

### ■ Air BP Bolsters Scottish Presence

Aviation fuel supplier Air BP is ramping up its Scottish presence at Glasgow Airport through a partnership with Gama Aviation. Under the new agreement, Air BP will supply fuel to Gama clients and Air BP Sterling cardholders at Gama Aviation's executive aviation terminal, which opened in November 2013.

### ■ Mi-171A2 Makes First Flight

The first prototype of Russian Helicopters' Mi-171A2 medium twin logged its maiden flight on November 25, one month after hover testing started. This followed ground runs of the prototype and flight-testing of the rotor system and engine on an Mi-171LL "flying laboratory." The Mi-171A2's maximum speed of 150 knots was confirmed during the first flight. The A2's main rotor has composite blades and improved aerodynamics, according to the Russian helicopter manufacturer. It is powered by "more powerful and more economic" Klimov VK2500PS-03 turboshafts, it said, while the avionics suite is based on the open-architecture Radioelectronic Technologies KBO-17. The second prototype is being assembled with new main and tail rotors, smoother vertical and horizontal fins, an external sling, air conditioning, energy-absorbing seats for 24 passengers and dust-elimination equipment. Russian Helicopters expects the Mi-171A2 to be certified by Russian authorities later this year.

### ■ Tsinghua Holdings Acquiring Sino Jet

Private equity firm Tsinghua Holdings Capital is acquiring Hong Kong-based business jet acquisition, charter and management firm Sino Jet Commercial Aviation Management, which was founded in 2011 by Jenny Lau, who will remain chairman and CEO of Sino Jet. The company manages 15 jets, including large-cabin Gulfstreams and Challenger 605s. This is Tsinghua's second acquisition in the business aviation segment after its majority acquisition in 2013 of Beijing Bear Jet Aviation, which manages several large-cabin Gulfstreams and Globals.

### ■ Chicago ARTCC Fire Prompts FAA Action

FAA contingency plans to restore major ATC functions in the event of an emergency maintain safety but do not include target levels of efficiency in the response, the agency found after a 30-day review of the Chicago Center fire. It also revealed that the FAA must improve its security against insider threats as a result of the September 26 fire, which was started by a disgruntled contractor and destroyed the telecommunications system that processes flight-plan data and enables communications between controllers and aircraft, disrupting thousands of flights. The review lays out a three-stage action plan: reduce agency response time to major facility outages "from days to hours"; recreate specific sectors and services of an affected center "at surrounding facilities"; and use NextGen technologies to harden the system's "resiliency."

# Triumph takes on more Gulfstream wing work

by Kerry Lynch

Triumph is expanding its Gulfstream portfolio and strengthening its position as a tier-one supplier with an agreement to take over the Gulfstream G650 and G280 wing programs from Spirit AeroSystems.

Spirit, which has long sought a buyer for much of its work in Tulsa, Okla., will pay Triumph \$160 million plus assets to assume the G650 and G280 wing programs. Under the agreement, expected to conclude by the end of last year, Triumph would keep the programs in Tulsa and offer employment to Spirit workers assigned to the programs.

Triumph plans to supplement the operation with its own manufacturing experience, resources and wing design engineering capabilities, Triumph said, adding, "The company will focus on optimizing the build process and cost structure of the programs."

### Focus on Core Competencies

The programs had been costly for Spirit. J.P. Morgan analyst Joseph Nadol estimated that Spirit had burned \$100 million on the wing programs in the first three quarters of last year and \$190 million in 2013. "The positive attributes of the transaction for Spirit are clear-cut," Nadol said.

Spirit, which is continuing to evaluate the future of its remaining programs in Tulsa, says the divestiture will enable it to focus on its core markets of commercial aviation and defense.

"Spirit can now focus on its legacy Boeing platforms, which are nicely profitable, as well as the 787 and A350, which while currently profit-challenged still have strong potential for future profitability and high volume," Nadol noted.

For Triumph, the benefits depend on its ability to improve the profitability of the programs, Nadol said. The \$160 million is expected to cover the immediate costs of the programs over the next three years, including labor costs and transfer of other work.

The work also comes with new agreements from both Gulfstream and Israel Aerospace Industries that Nadol says focus on "risk mitigation in the short-term but should improve cash flow long term." Triumph executives note that the deals were structured to ensure the company "is not walking into a default" situation.

The agreement also involves pulling back some finishing work on the wing assemblies, along with some wing-box production, from Gulfstream's factory in Savannah, Ga., to Triumph's plant in Nashville, Tenn.

Triumph estimates that the deal will add \$250 million in annual revenue and be

Triumph president and CEO Jeffrey Frisby called the G650 and G280 programs "an excellent strategic fit" and a logical extension of Triumph's core capability. Frisby said Triumph has reviewed the programs for "quite some time."

The programs will further the company's goal of building its aerostructures business and becoming a major tier-one supplier of integrated wing assemblies and related technologies. Both the G650 and G280 programs involve the complete integrated wing assembly.

Also, Frisby noted, both programs "have significant runway



Triumph has taken over the wing programs for the Gulfstream G650 and G280 from Spirit AeroSystems. Triumph already supplies the wings for the G450 and G550 and expects that its newest project will generate \$250 million in revenue annually.



immediately accretive to earnings. It also notes that both programs are past the high-risk critical design and early production phases and the upfront investments in their development are already completed.

"As a result, the company believes it is assuming the G650 and G280 programs at an advantageous point," Triumph said.

The transfer will make Triumph the supplier for four of Gulfstream's five in-production aircraft; Triumph also provides the wings for the G450 and G550. Gulfstream brought the wing work in-house for its new G500 and G600.

in front of them," a key factor as Triumph strives to build a stable of work as other programs conclude.

Gulfstream president Larry Flynn said he is pleased by the move: "We know Triumph well based on our experience with it on the G450 and G550 and have confidence that its knowledge and capabilities make it the right partner."

Frisby notes that Triumph built up its G450/G550 business with the \$1.4 billion acquisition of Vought in 2010. Triumph executives say the company has more "management breadth" to continue to pursue strategic opportunities. □





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### ■ Bizav Flying Ascends for 12th Consecutive Month

TraqPak data from aviation services company Argus shows that business aircraft flying in the U.S. rose for the 12th month in a row in November, climbing 3.7 percent year-over-year. All operating segments recorded gains, with Part 135 charter activity leading the way with an 8.6-percent rise. This was followed by a 3.3-percent lift in fractional flying and a 0.8-percent advance at Part 91 operations. By aircraft category, large-cabin jets posted the largest expansion, rising 6.7 percent year-over-year. Light and midsize jet flying jumped 2.8 percent and 5.4 percent, respectively, while turboprop activity was up by 1.5 percent. In individual segments, Part 135 large-cabin jet flying logged the biggest uptick at 19.8 percent.

### ■ Avanti Evo Receives EASA Certification

Piaggio Aerospace received EASA approval for the Avanti Evo twin turboprop on December 8; certification by the FAA and Indian authorities will follow. The first two of the new turboprop twins were slated for delivery to separate Indian customers by the end of last month. Italy-based Piaggio currently has orders for 16 Evos. The Evo is the third generation of the Italian twin turboprop and introduces features that not only improve performance and comfort but also hush its noise footprint. The aircraft has revised aerodynamics with main-wing winglets and redesigned front wingtips. Internal and external noise levels are also reduced, thanks to new exhaust stacks and Hartzell low-rpm five-blade scimitar propellers. A low-maintenance undercarriage with anti-skid braking and digital steering is in the works.

### ■ Thor To Handle Viking Air Sales in Africa

Viking Air, manufacturer of the Twin Otter 400, announced that Thor Aviation is to be the company's regional sales representative for sub-Saharan Africa. The region presents many opportunities for the Twin Otter turboprop, which is equally at home on wheels or floats.

### ■ NetJets Pilots Sue Company, Alleging Interference

The NetJets Association of Shared Aircraft Pilots (NJASAP) filed a lawsuit against NetJets Aviation, accusing the fractional provider of interfering with "union and union members' protected activity in violation of the [Railway Labor Act, RLA]." NJASAP, which represents the approximately 3,000 NetJets pilots, is in protracted contract negotiations with NetJets, as are the unions for the company's maintenance technicians and flight attendants. NetJets has not responded to AIN's repeated requests for comment. The complaint, filed in the U.S. District Court of Ohio, alleges "NetJets Aviation used Twitter to impersonate union members and unlawfully accessed and obtained confidential communications from the password-protected union Internet message board to weaken and ultimately destroy the union." NJASAP's lawsuit calls for the destruction of the confidential information and an injunction barring "further coercion," as well as monetary damages.

### ■ FAS Breaks Ground on First Middle East Completions Shop

Abu Dhabi-based business-jet and helicopter charter operator Falcon Aviation Services (FAS) broke ground at its new completions center at Dubai World Central (DWC) on December 8. The facility—the first of its kind in the Middle East—will offer green aircraft completions, modifications and refurbishments for bizliners. It is slated to begin operations in the fourth quarter. Falcon expects to take delivery of a green Bombardier CSeries CS300 in the first quarter of next year. The company will outfit the airplane and offer it for charter by private individuals and businesses.

# Addressing foreign object debris: FOD system makers seek solutions

by John Sheridan

The impacts of foreign object debris (FOD) events and what manufacturers of detection products can do to prevent or ameliorate such events was the focus of this year's Global FOD Prevention Conference, held at Washington Reagan National Airport on December 2. "We manufacturers already know FOD's dangers and the capabilities of today's detection and removal systems," said Grant Bishop, COO of Singapore-based FOD detection equipment manufacturer Stratech Systems and the architect of the event. "We want to hear more about the wider impacts of FOD events and what more we can do about them." However, he added, while FOD hazards are readily acknowledged, corrective actions are not the responsibility of a single entity. "Everyone agrees, but no one leads."

The event included input from stakeholders in several fields: academia, government, insurance and finance.

Professor Edwin Herricks, of Illinois University's Center of Excellence for Airport Technology, reported that since the Concorde crash at Le Bourget in 2000 (in which the aircraft encountered

debris on the runway), just six airports (Vancouver, Heathrow, Singapore, Dubai, Bangkok and Boston) have begun operating FOD detection systems, while a further five (Miami, Hong Kong, Seattle, Doha and Taipei) have systems under way or planned.

Despite numerous official U.S. and overseas documents recommending equipage, procurements are slow, technical advances aren't always incorporated in later requirements, ICAO response times are lengthy and, perhaps of most concern, FOD remains an overhead item in operators' balance sheets. Critically, there is little information exchange among FOD system operators, little coordination of operational concepts or well defined equipment certification and inspection processes.

### Operators Outline Costs

As the FAA moves toward reauthorization in the new Congress, staff member Holly Woodruff Lyons made a key observation for the FOD industry. "Funding," she said, "is never a problem for NextGen," implying that Congress could be a valuable source of support.

Former Congressman Todd Tiahrt (R-Kan.) agreed, stating that while safety costs money, FOD legislation must be recognized as a financial benefit. However, it needs a "groundswell of support, and a concerted effort to move stakeholders." Tiahrt strongly endorsed Iain McCreary's 2010 report Runway Safety: FOD, Birds and the Case for Automated Scanning.

Mark Dombroff of law firm McKenna Long noted that for accounting purposes, United Airlines currently allocates a direct average per-flight cost of \$210 for FOD across its entire fleet, to cover actual damage incurred in daily operations. But he pointed out that indirect costs are estimated to be at least 10 times the direct cost, stemming from such factors as maintenance delays, aircraft replacements, weather, de-icing, passenger and crew hotels and so on. An outlier here was Concorde's unique record of suffering 57 tire failures before its retirement.

There were no average numbers for a comparison with business aviation because of the diversity of its operations, aircraft types, routes and destinations, and operator history. Recognizing that the capital cost of purchasing and installing new technology equipment and its long-term maintenance adds yet another challenge to airport capital budgets and cash flows, Sandy Garrett of The Garrett Group proposed an off-capital budget, public/private investment partnership to cover an airport's requirements. While enhancing safety, acquisition of a proven FOD system over a seven-year period would also provide an excellent return for investors, Garrett stated.

NTSB acting chairman Christopher Hart weighed in on the FOD issue as well. The loss off the Concorde in 2000 has played a large part in permanently underscoring the NTSB's philosophy of "maintaining vigilance" in aviation and all other aspects of transportation. He continued, "Unquestionably, the remote monitoring ability of FOD detection systems and similar hazard alerting equipment has brought enhanced safety to all transportation modes, along with the need to continuously revisit the overall economics of earlier, non-automated systems." □

### ATLANTIC BUYS ORLANDO NBAA HOST FBO

December marked the end of an era for Orlando-bound business aviation travelers, as Atlantic Aviation announced it has agreed to acquire Showalter Aviation, one of two service providers at Orlando (Fla.) Executive Airport. The family-owned Showalter FBO recently celebrated its 70th anniversary, and the facility had hosted the static display at every NBAA Convention in Orlando since it was first held in the central-Florida city in 1996.

"The clock runs on everybody and my social security card has worked for a couple of years now," said chairman Bob Showalter, son of company founder Howard Showalter, adding that age was only one of the factors that influenced the decision to sell. "The chains have grown to a critical mass that really works in their favor and they buy things a lot better than we can; they're just very hard to compete with." Discussion about selling had been under way for several years among family members, Showalter noted, crediting his wife and company president Kim Showalter for much of the success the FBO has seen over the past 18 years.

Though none of the family will remain with the business after the deal concludes, Bob Showalter said that the contract with NBAA to host the static display (which has options through 2024) will transfer to Atlantic, and that he's had talks with the chain about helping with the next Orlando show, slated for next year. "One of the more exciting things about acquiring us, I think, is the opportunity to host the NBAA Convention," Showalter told AIN. "It's a great opportunity for a chain."

The deal is expected to close in the first quarter of the year, subject to approval by the Greater Orlando Airport Authority. For Atlantic, which until last year had no FBOs in Florida, the Orlando facility will mark its sixth in the state and its 69th facility in the U.S.

—C.E.

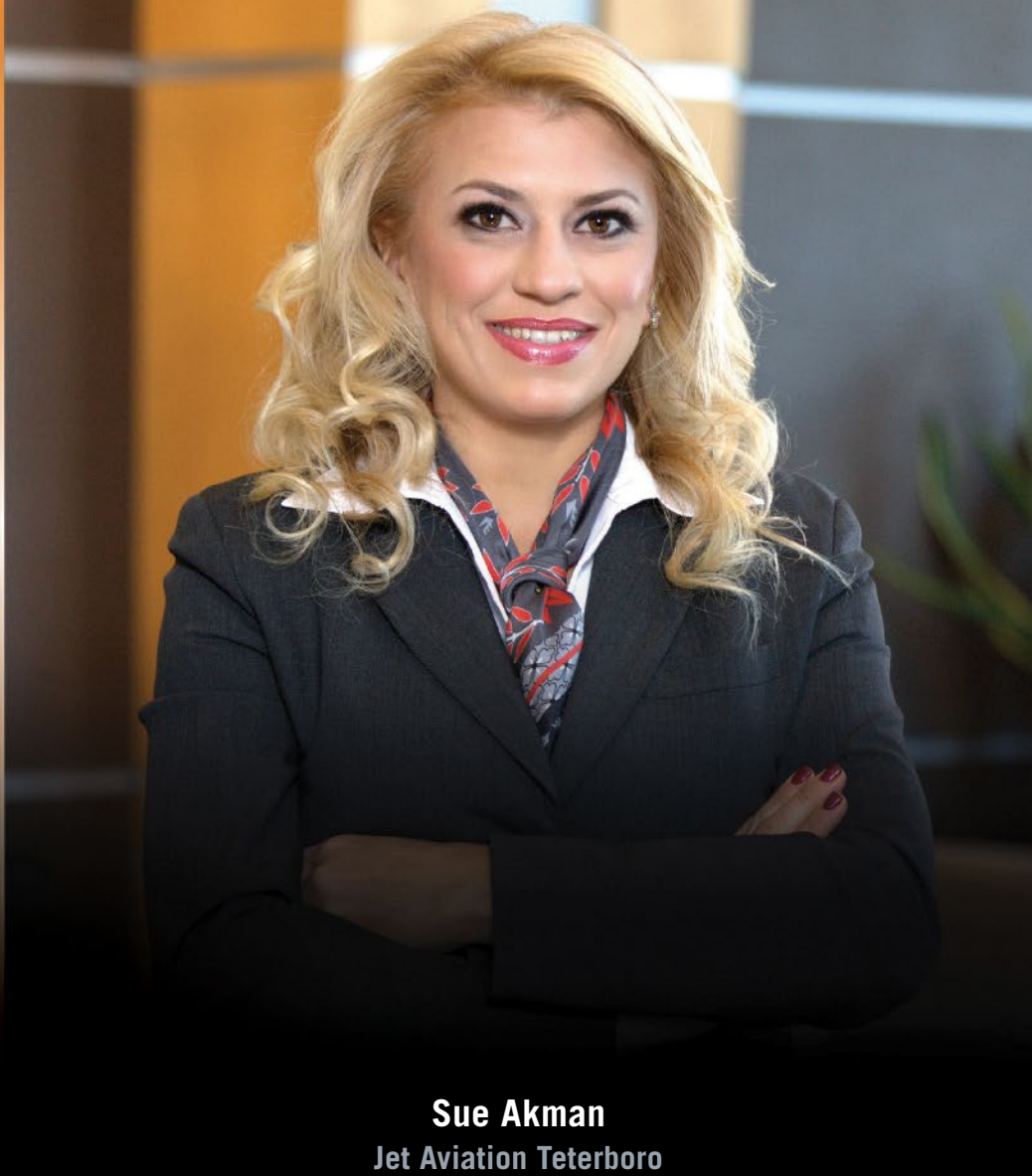


Showalter at Orlando Executive





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# Comlux inks deal for BBJ Max 8s

by R. Randall Padfield & Charles Alcock

Long-standing Airbus operator Comlux ordered a pair of Boeing's new BBJ Max 8s last month at the MEBA convention. The aircraft will be the first BBJs in the company's charter

fleet and represent Boeing's first BBJ Max order from a Europe-based operator. The two BBJ Max 8s are scheduled for delivery in 2019 and will be registered on Comlux's Maltese air

operator certificate, with one likely to be based in the Middle East and the other in Europe.

The two main factors driving Comlux's choice of the 737 Max 8 are the additional range it will



Comlux president and CEO Richard Gaona (left) signs a contract for BBJ Max 8 jets with outgoing Boeing Business Jets president Steve Taylor.



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offer compared with the Airbus ACJ series. The re-engined BBJs will fly up to 6,550 nm (with eight passengers). With the same payload, an ACJ319 offers just under 6,000 nm range, while an ACJ320 offers 4,300 nm.

The operator said it is attracted by the prospect of reduced operating costs, mainly driven by the reduced fuel consumption of the Max's CFM Leap engines. It is also impressed by the new BBJ's cabin comfort, attributable partly to a cabin altitude of just 6,500 feet at 41,000 feet.

### No Re-engining Project Confirmed at Airbus

Comlux president and CEO Richard Gaona told AIN that his team opted for the BBJ Max because Airbus has still not resolved whether or not it will offer a re-engined version of its Airbus Corporate Jet series based on the A320neo airliner. "I am sure Airbus will react [to the commercial threat posed by the BBJ Max] and it can certainly match this with the Neo," said Gaona, a former Airbus executive.

Before last month's MEBA show, Airbus Corporate Jets president Benoit Defforge told reporters that the European airframer is working on a possible ACJneo program. The A320neo is expected to complete certification this year and, like the Boeing 737 Max, is already supported by a backlog of airline orders.

The BBJ Max 8 order is part of a fleet renewal process that Comlux started two years ago when it invested in new Bombardier Global 7000s. □

### Boeing Introduces New BBJ Boss

Boeing has appointed David Longridge as the next president of Boeing Business Jets, succeeding Steve Taylor, who has been appointed chief pilot of Boeing Flight Services. Longridge is relocating to Seattle from the UK, where he has been serving as Boeing's sales director. ■





“Proficiency can  
be maintained only  
by working at it.”

– Wernher von Braun,  
from a letter to FlightSafety  
founder Al Ueltschi, 1968

## A Legacy of Trust



**WERNHER VON BRAUN** *Director, NASA Marshall Space Flight Center*

When the United States dreamed of being the first to put a man on the moon, it turned to rocket scientist Wernher von Braun. He became the chief architect of the Saturn V launch vehicle, the superbooster that propelled the Apollo spacecraft to the moon in 1969.

When von Braun was preparing to fly NASA's Gulfstream aircraft in 1968, the agency turned to the trusted leader in training – FlightSafety International. He praised his instructors and the training, writing, “I learned more about flying the ‘Gulfstream’ in six hours [of FlightSafety simulator training] than in 400 previous hours as a cross-country copilot.” Von Braun was so impressed with the quality and effectiveness of his training and potential of the company, he agreed to join FlightSafety's board of directors in 1969 and helped to make the company the leader it is today.



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# Demonstrators now under way for Clean Sky 2

by Thierry Dubois

Europe's Clean Sky aerospace research program is moving to the demonstration phase, with several projects targeted at rotorcraft, regional aircraft and business aircraft.

For rotorcraft the goal is a 30-percent cut in fuel burn, and Airbus Helicopters expects this year to fly an EC120 powered by a diesel engine in place of the usual

single Turbomeca Arrius 2F turboshaft. In 2013, Turbomeca kicked off Clean Sky's demonstrations with the Tech800 turboshaft core, aimed at the 1,000-shp class.

Wind-tunnel testing of a load-alleviation system for regional aircraft will also begin this year, using control surfaces to prevent loads from exceeding limits in gust encounters

or high-speed maneuvers. As a result, wing design can be better optimized and weight might be shed, according to the promoters of the Green Regional Aircraft project. The project also seeks to expand the electric architecture of regional aircraft, and this year electric systems—such as an environmental control system—will enter the flight-test phase. The trials will involve advanced composite materials incorporating structural health monitoring.

The Clean Sky project uses "concept aircraft," design studies to integrate technologies into a viable conceptual configuration. For business jets, the "low sweep" aircraft features a low-drag wing and a U-shaped empennage for quieter operations. The changes are expected to hush the noise footprint by 68 percent and cut CO<sub>2</sub> emissions by 30 percent. The "high-speed business jet" is a concept with a highly swept wing using natural and active laminar flow.

In next year's first quarter, Dassault expects to fly a Falcon 7X with active flow control technology for improved high-lift performance, both on the flaps and as a slat replacement.

## Increased Investment

According to Eric Dautriat, executive director of the Clean Sky joint undertaking, the program bridges the gap between laboratory research and actual product development. "Technology readiness levels between 4 and 6 used to be a death valley," he said at a briefing organized by the AJPAE, the French association of aerospace journalists. For a company, the daunting cost of bringing a project from the laboratory to the sky shelved a lot of promising ideas, he explained.

The follow-on Clean Sky 2 program has broader objectives. In addition to protecting the environment, it targets increased competitiveness and improved mobility within Europe, Dautriat said. The total budget of €4 billion (\$5 billion) far exceeds Clean Sky's €1.6 billion (\$2 billion). Clean Sky 2 is a public-private partnership. It spooled up last year and will run until 2024, thus overlapping with the 2008-2017 Clean Sky. □

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# Ukrainian light twin bows at MEBA

by David Donald

Softex Aero arrived at the MEBA show last month with its eye-catching V24L, a four-seat light twin from Ukraine that received Ukrainian certification on October 23. Small

turboprops are one of the powerplant choices.

Designed to fulfil a wide spectrum of roles, from training to light business transport to aerial survey, the V24

has an innovative layout, with twin pusher engines mounted over the wings. Low cabin-door sills and upward-opening doors facilitate easy access to the cabin.



Softex Aero showed off its V24L light twin at last month's MEBA Convention.

DAVID MCINTOSH

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The airframe is composite, including the single-piece wing with drag-reducing winglets. The cockpit is fitted with three Explorer touchscreens from South African company MGL Avionics, and if all is otherwise lost the aircraft can hit the silk with a Galaxy GRS 1200 parachute recovery system.

The prototype flew in 2012 on the power of a pair of 100-hp Rotax 912s, but the V24L version on display in Dubai featured 160-hp Lycoming IO-320s driving auto-feathering MT constant-speed propellers. Softex Aero also plans a V24TP version powered by a pair of 245-shp TP100 turboprops from Czech company PBS Velka Bites.

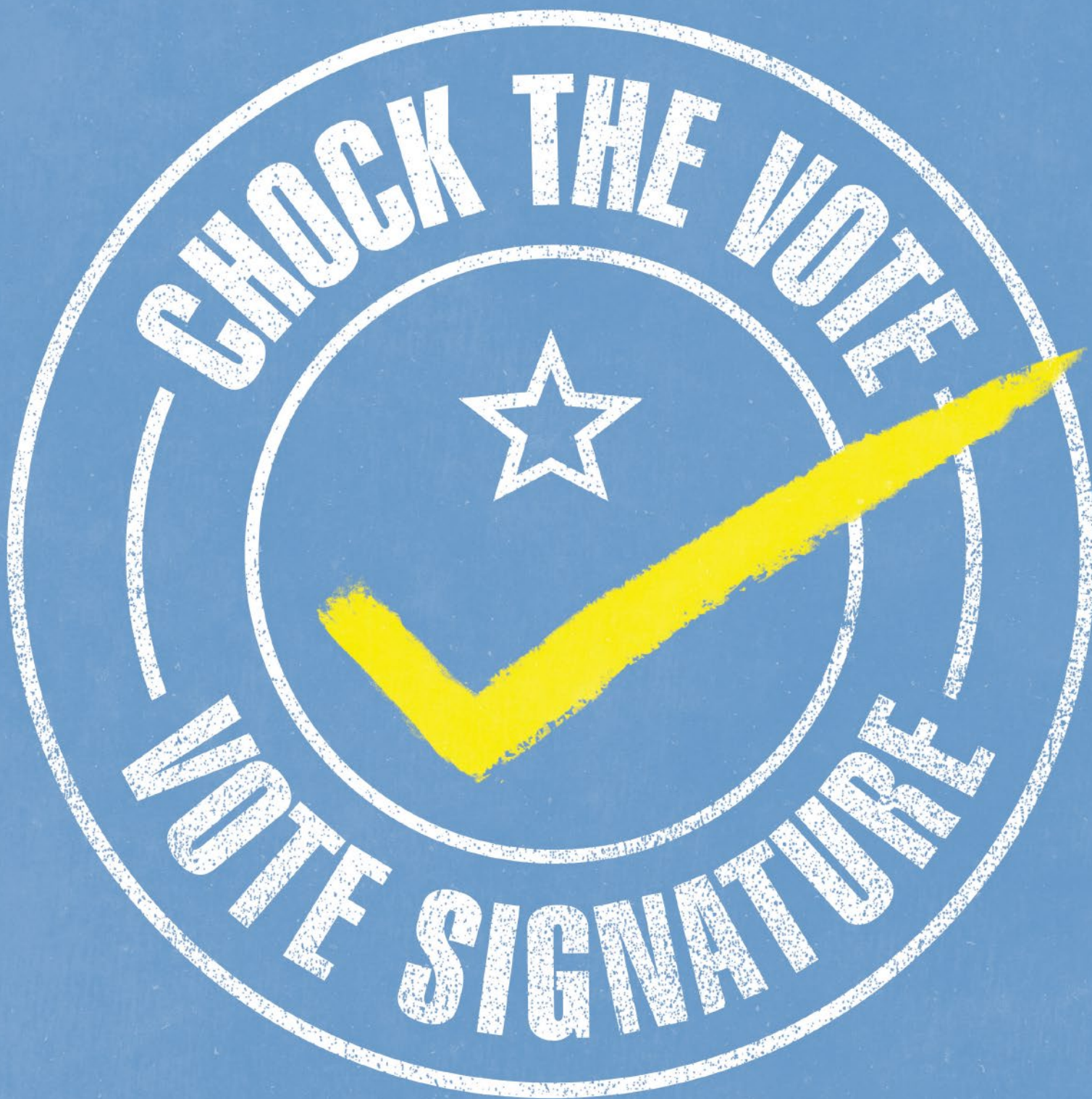
With the Lycoming engines the V24L offers a maximum speed of 174 knots; Softex predicts the V24TP will be capable of 221 knots. Takeoff run without flap is published as 656 feet for the V24L and around 525 feet for the V24TP. MtoW for both the Lycoming and turboprop models is 3,086 pounds/1,400 kg. MtoW with the Rotax 912s is 2,866 pounds/1,300 kg, and empty weight 1,587 pounds/720 kg. ■

## Corrections

An article about B/E Aerospace cabin lighting in the December Aviation International News (*Emteq expands horizons as part of B/E Aerospace group, page 38*) included a photograph of the interior of a private Boeing 787. We omitted to identify the interior as a project completed by Greenpoint Technologies. Also, we wrongly identified the lighting used in the cabin as B/E Aerospace's Quasar system. **AIN** apologizes for this incomplete and incorrect information.

In the same issue, an article titled "iIS-BAO app simplifies SMS" (*page 46*) stated that the International Business Aviation Council (IBAC) is developing an application that will accept information directly from the iIS-BAO application offered by Fountain and Associates. In fact, this is not the case. **AIN** apologizes for the misunderstanding and is glad to clarify this point. ■





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# UK charter firms consolidate as Gama Aviation plc

by David Donald

Aircraft charter and management companies Gama Aviation and Hangar8 are to merge. When the deal is complete—expected January 6,

following approval by Hangar8's shareholders—the new UK-based entity will be known as Gama Aviation plc. Current Gama CEO Marwan Khalek

will be the new CEO, while Hangar8 CEO Dustin Dryden will become executive director. The combined fleet consists of 144 aircraft under

management at 44 operating locations in 15 countries.

Scale is one of the factors that drove the merger. Khalek told AIN last month at the MEBA

convention that the industry is fragmented and “even the larger operators don't have much market share. We have a growing market again, but meeting regulations can be expensive. I don't see this business being sustainable with fewer than 15 to 20 aircraft.”

In Europe approximately 80 percent of AOC holders operate fewer than five aircraft. To make the jump beyond that requires investment, said Khalek. “This business needs to mature. For the small operator it's difficult to cross the boundary. To make the jump [requires] access to funds, and there's a lot of risk.”

Gama Aviation plc will be a publicly traded company (as Hangar8 has been for several years). According to Khalek, the transparent finances will make it easier to attract investment. Also, it will make the new company more attractive to other companies in terms of mergers and acquisitions.

## Company in Growth Mode

Growth through further mergers and acquisitions is one avenue that the new company will explore, although organic growth remains central to the company's plans. “New owners are favoring scale operators,” noted Khalek. “With our size we hope to take on a larger chunk of that business, as well as compete for re-tendered contracts.”

Although aircraft management and charter are the most visible and glamorous elements of the business, Khalek stressed that the new company will also concentrate on “bread and butter” activities. These include contract work for clients such as the UK MoD and clients in Africa, which already contribute significant revenue, along with its MRO, ground support and FBO activities. Further mergers and acquisitions could well be made in those sectors, Khalek indicated.

Hangar8 and Gama Aviation began exploring a merger at EBACE in May. Although both are based in the UK, the two companies make a good fit geographically, with Gama active in the U.S. and Middle East, and Hangar8 in Africa. Where the two overlap, principally in Europe, there are some opportunities to streamline operations. While Africa is certainly seen as an important region of opportunity for the new company, Khalek warned, “We shouldn't lose sight of the core markets.” □





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### SANTA MONICA AIRPORT UNDER SIEGE

An important date looms in the future of Santa Monica Airport (SMO), the embattled facility in the heart of the West Side of Los Angeles, an airport that is surrounded by housing and anti-airport local residents. The pertinent date is July 1, 2015, and that is when all the leases held by airport businesses end and also the date when the city, which owns the 227-acre property, believes it is no longer burdened by government grant assurances or agreements that require it to keep the airport open.

SMO's history on the path to its status as the poster child of endangered airports is full of contentious issues, from an earlier ban on jet aircraft operations, which was overturned, to anti-airport residents' claims of excessive pollution (lead from piston aircraft and fumes—especially ultrafine particles—from jets) and too much noise. Despite the airport's history as the birthplace of Douglas Aircraft, its contributions to the local economy and its importance as part of the National Airspace System, the city is determined to see it closed and has taken steps that have already led to a significant reduction in traffic in advance of what might happen on July 1, 2015.



In August 2013 the city of Santa Monica expanded the applicability of landing fees to based aircraft, not just transient traffic. This has reduced operations at the airport, but mostly of smaller aircraft. In April 2013, before the new fees were in place, 8,798 aircraft operations were recorded. A year later, that number had dropped to 7,191. Although costs zoomed higher, business jet operators still seem to use SMO at a fairly steady rate.

Last November, two competing ballot measures sought to clarify who has the right to decide on the fate of the airport property and whether it should be closed. The pro-airport Measure D, which would have shifted the decision to the city's residents, was defeated by the anti-airport crowd's Measure LC, keeping the decision in the hands of the city council. The issue may be moot, however, as agreements between the city and the federal government require the city to operate the airport in perpetuity, although the city doesn't believe these are applicable. Come July 1 the city, asserting its belief that some of the land at SMO isn't subject to any of these agreements, might try to take more actions to curtail operations, such as shortening the 4,973-foot runway by almost 2,000 feet. —M.T.



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### Auction raises nearly \$1.5m for bankrupt Avantair

A no-reserve auction held on January 10 in a warehouse just a mile from Avantair's former Clearwater (Fla.) Airport headquarters netted nearly \$1.5 million for the estate of the bankrupt fractional aircraft company, according to documents filed by auctioneer Starman Bros. Auctions. The auction, which lasted 12.5 hours, offered almost 900 lots comprising more than 10,000 individual bits and pieces, from office furniture to avionics to aircraft parts/components to shop tools to aircraft tugs. Notable items included a custom motorcycle (complete with an Avantair logo stitched into the leather seat) that sold for \$5,000, a Piaggio Avanti fuselage that went for \$6,000, a Cirrus II flight simulator that sold for \$800 and a new Aircell ATG 5000 datacom system that fetched \$45,000. Overall, these items netted \$1.02 million in the auction. N162SL, an unairworthy Piaggio Avanti parts airplane, generated another \$493,559 for bankrupt Avantair.

Meanwhile, the Avantair bankruptcy case continues to grind through the Florida Middle District U.S. Bankruptcy Court in Tampa, Fla. —C.T.

### Chattanooga Airport FBO dispute reaches conclusion

### TSA, at last, issues final repair-station security rules

### EC175 gets EASA approval, starts cold-weather tests

### CSeries delay blamed on lack of systems maturity

On January 16 Bombardier attributed the latest delay of the CSeries CS100 airliner to a lack of "overall systems maturity." Originally expected to gain certification by the end of 2013, the CSeries experienced several delays to first flight before finally taking to the air in September 2013. Despite an extended fleet grounding following an engine failure during ground testing of the first CSeries on May 29, the company continues to cite a second-half 2015 entry into service.

By September 7 the second CSeries flight-test vehicle (FTV2) had returned to the air, followed by FTV4 later that month, while composites experts from Bombardier's Short Brothers plant in Northern Ireland conducted repairs on FTV1's left wing, damaged by the uncontained failure. That airplane resumed flying on November 6, followed by FTV3 on November 21. Bombardier's flight-test program calls for five CS100s to fly a total of 2,400 hours. —G.P.



### AgustaWestland AW189 earns nod from EASA







## It's the Jet Ranger X

On February 25 at Heli-Expo in Anaheim, Calif., Bell Helicopter unveiled three refined mock-ups of its "short light single" (SLS) helicopter and christened the new five-seat aircraft the 505 Jet Ranger X. Bell previewed the SLS concept with an announcement and renderings at the 2013 Paris Air Show. The mock-ups closely resembled a prototype aircraft and one was fitted with a Turbomeca Arrius 2R (457 shp continuous, dual-channel Fadec) and Garmin G1000H flight deck. The 505 mockups displayed in Anaheim featured an unusual level of detail and were presented in utility, executive/passenger and law-enforcement configurations complete with searchlight and Flir (forward-looking infrared) camera.

Preliminary data calls for the 505 to have a 61-cu-ft (1.7 cubic meter) flat-floor cabin, a cruising speed of 125 knots, a maximum range of 360 nm (666 km) and a useful load of 1,500 pounds (680 kg). Bell plans to test and certify the 505 in Canada initially and to start production this year at an assembly facility being built in Lafayette, La. *—M.H.*



Citation Latitude enters fast-track flight-test program

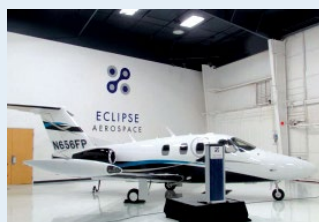
## User Fees: DOA

The White House surprised no one on March 4 when it once again rolled out a proposal for a \$100-per-flight ATC user fee. The White House knew the proposal was dead on arrival, announcing it with no plans to formally ask Congress to act on it. Leading up to the budget's release, lawmakers had urged the administration to drop the push for user fees. NBAA panned the proposal, saying it "ignores the message sent from Congress, mayors, governors and industry stakeholders that user fees are not the right approach."

The White House defended the proposal as necessary to "to more equitably share the cost of air traffic services across the aviation user community." The user fees would raise \$8.5 billion through 2024, the administration estimated. Similar to its past user-fee proposals, last year's recommendation would have exempted military, public and piston aircraft, as well as air ambulances, aircraft operating outside controlled airspace and Canada-to-Canada flights. *—K.L.*

March

Continues on next page



## The Eclipse 550 (re-)enters production

After purchasing the assets of bankrupt Eclipse Aviation (with liabilities approaching \$1 billion) for \$40 million (half of it in cash) and building a business on supporting the 260 Eclipse 500 very light jets the original company had built, the owners of the reborn entity, Eclipse Aerospace, proved last year that there is still a market for VLJs by beginning deliveries of new Eclipse 550s. The first example of the improved aircraft was delivered to its owner on March 12, following FAA certification on February 28.

The 550 isn't just a renamed 500 but is a fully realized version of the VLJ as it was originally conceived by creator Vern Raburn, with a capable glass-panel Avio 2.7 integrated flight deck supplied by Innovative Solutions & Support; the first Part 23 implementation of autothrottles, developed in partnership with IS&S; and anti-skid brakes manufactured by Advent Aerospace. *—M.T.*



## Daher-Socata unveils TBM900

At its headquarters in Tarbes, France, Daher-Socata rolled out the TBM900, the latest iteration of its popular turboprop single, which dates back to 1988 and the TBM700. Developed from the preceding TBM850 over the past three years, the TBM900 offers better efficiency and performance than its predecessor with no increase in fuel consumption or engine power. The new model features winglets, a new tailcone and a composite five-blade propeller with redesigned spinner. While the aircraft retains the same Pratt & Whitney Canada PT6A-6D as the TBM 850, its profile from the nose to the firewall was redesigned with a new air intake, carbon-fiber cowlings and new exhaust stacks, to improve engine airflow circulation. The aircraft, which has a top speed of 330 knots at FL280, underwent a 200-hour flight-test program. Deliveries of the already-certified TBM900 began shortly after its unveiling. *—C.E.*

AgustaWestland unveils AW109 Trekker, with skids

Rolls-Royce signs contract for Scott's-Bell 47 RR300s



ACSF and Argus combine safety audits



Daher-Socata delivers first TBM900, plans U.S. expansion

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FAA taps Bristol to run U.S. Air Traffic Organization



Cirrus flies first conforming SF50 Vision Jet



City council votes to continue planning for SMO closure

Textron completes Beechcraft acquisition

With the completion of its \$1.4 billion purchase of Beechcraft, Textron merged the Wichita-based manufacturer with its own Cessna Aircraft to form Textron Aviation, and named Cessna president and CEO Scott Ernest to lead the new division; Beechcraft chairman and CEO Bill Boisture was reported by a company spokesman to have moved “on to new opportunities.” Textron Aviation quickly sorted out its executive leadership, naming 12 senior vice presidents: Russ Bartlett, defense; Ron Draper, integrated supply chain; Cindy Halsey, interior design engineering (she has since moved to Gulfstream); Chris Hearne, jets; Joe Hepburn, piston aircraft; Bill Schultz, China business development; Kriya Shortt, sales and marketing; Christi Tannahill, turboprop aircraft; Michael Thacker, engineering; Brad Thress, customer service; Eric Salander, senior vice president and CFO; and Jim Waters, human resources and communications. Textron subsidiary Bell Helicopter is not a part of Textron Aviation, and the company added that its inclusion in the division “is not envisioned for the future.” —C.E.

EAA agrees to pay FAA for airshow ATC services

What many considered to be an unsupportable proposition, that the Experimental Aircraft Association pay the FAA for the costs of providing ATC at the annual EAA AirVenture Oshkosh show, is now formally cast in stone. In March the FAA and EAA settled their dispute over paying for ATC services—estimated at about \$450,000—and agreed that EAA will pay these expenses through 2022. It turns out that other organizations, including Nascar, the Masters, NBAA and AOPA, have been paying the FAA for added ATC costs related to large events, so this is not a new arrangement.

“Our ultimate goal was to bring certainty and stability for AirVenture, for EAA and our fellow members,” said EAA chairman Jack Pelton. He added that other options were considered, including contract and volunteer controllers and even canceling the airshow. “No alternative solution was found that would permit AirVenture to continue in its present form. The stability of the organization on behalf of its membership mandated this difficult decision.” —M.T.

Malaysians announce MH370 crashed into Indian Ocean

Malaysian authorities concluded that Malaysia Airlines Flight 370, a 777-200ER carrying 12 Malaysian crew and 227 passengers from 15 nations, crashed in the southern Indian Ocean, far from any land mass that could have presented the crew with a chance to land, according to a statement issued on March 24 by Malaysian Prime Minister Najib Razak. New satellite data confirmed the conclusion, said Razak during a media briefing in Kuala Lumpur, referring to new guidance given to the Malaysian government by the UK’s Air Accidents Investigation Branch and satellite group Inmarsat.

Some two weeks later, the International Civil Aviation Organization (ICAO) called a special meeting to convene industry experts to agree on a protocol to track commercial flights via satellite. While several industry “stakeholders” discussed an “action plan,” search teams had continued to scour the vast expanse of the southern Indian Ocean in vain. By December they had still not found any sign of the wreckage, and one of the most vexing mysteries in the history of civil aviation remained unsolved. —G.P.





## ◀ Learjet 85 makes maiden flight

The Bombardier Learjet 85 logged its first flight on April 9, some six months after rollout at the company's Wichita facility. Flight-test vehicle one (FTV1) lifted off from Wichita Mid-Continent International Airport that day at 8:19 a.m. CST. At the controls of the all-composite midsize jet were Bombardier Flight Test Center chief flight-test pilot Ed Grabman and copilot Jim Dwyer, with flight-test engineer Nick Weyers in the cabin monitoring data. They took the Learjet 85 to 30,000 feet and 250 knots during the flight, reporting that all flight controls were exercised and performance was as anticipated.

The maiden flight was four months behind a revised schedule announced in 2013, and certification—originally pegged for the middle of 2014—is still an unknown, as Bombardier has yet to issue a revised schedule. Though FTV1 has logged more than 100 hours over 60 flights since April, Bombardier acknowledged in late October that the new Learjet is the lowest priority at its flight-test department, behind the CSeries airliner and Global 7000 and 8000 ultra-long-range business jets. Industry analysts don't expect the Learjet 85 to receive FAA certification until at least mid-2017. —C.T.



## Airbus EC145T2 gets EASA nod

## Flight Options, Flexjet owner aims for single operation



## ◀ Minsheng's order for 60 Gulfstreams adds to 2011 MoU

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## FAA issues sleep apnea guidance

Federal Air Surgeon Fred Tilton poked a hornet's nest when, at the end of 2013, he proposed mandatory OSA (obstructive sleep apnea) testing for, initially, pilots with a body mass index (BMI) of 40 or a neck circumference of 17 inches or more. Aviation medical examiners countered that it's not the FAA's task to provide long-term prognoses but to assess the likelihood of incapacitation for the duration of the medical certificate. Pilots responded that the plan was excessively intrusive. A key unanswered question was where OSA sufferers banished from cockpits would join the line of 55,000 grounded aviators already awaiting special issuance of a medical certificate.

On April 2 the FAA announced that it had drafted new guidelines for dealing with pilots at risk of OSA. Pilots would no longer be disqualified on the basis of BMI alone and they would be issued medical certificates even if they were referred for additional evaluation. Under the draft guidelines, aviation medical examiners will continue to ask questions related to sleep apnea. If a pilot is referred for OSA evaluation, the examiner will issue a regular medical certificate and the pilot will have 90 days to get an assessment. Untreated OSA has been, and will continue to be, a disqualifying condition, the FAA noted.

—N.M.



## European Commission begins crafting rules on drones

## FAA completes ADS-B ground network

The FAA announced in April that its contractor, McLean, Va.-based Exelis, had completed installing the nationwide ground-radio infrastructure for automatic dependent surveillance-broadcast (ADS-B). The FAA awarded Exelis, then known as ITT, the contract to install ADS-B ground radio stations in August 2007. ADS-B is the surveillance component of the FAA's NextGen ATC modernization effort. The ground stations receive ADS-B position broadcasts from transponder-equipped aircraft and pipe the data to ATC facilities, where it is fused with primary and secondary surveillance radar tracks and presented on controller screens. Controllers use the information to maintain safe separation of air traffic. Of 230 ATC facilities nationwide, 100 already track aircraft by ADS-B, the agency said. The FAA said it expects the system will be "connected and operating" at all ATC facilities by 2019. "This upgrade is an important step in laying the foundation for the NextGen system, which provides controllers a much more precise view of the airspace, gives pilots much more awareness and information, and as a result strengthens the safety and efficiency of our system," Transportation Secretary Anthony Foxx declared.

—B.C.



## AW609 tiltrotor completes autorotation tests ▶

The AgustaWestland AW609 civil tiltrotor passed another milestone on the road to certification by completing autorotation testing at AgustaWestland's Arlington, Texas facility on April 29. Over the course of 10 flight hours in March and early April 2014, test aircraft number 1 made more than 70 power-off conversions from airplane to helicopter mode. The Italian manufacturer said the tests covered the full windmilling and autorotation envelope and that "the performance of the aircraft exceeded expected characteristics seen during [flight] preparation in the engineering simulator." The company characterized aircraft handling during autorotation as "benign."

AgustaWestland completed flight envelope expansion trials for the 609 in December 2013 and is currently assembling its supply chain for the aircraft in preparation for serial production. The manufacturer is in the process of adding two more aircraft to the flight-test program for a total of four. The AW609 is being developed under the FAA's new criteria for "powered lift" aircraft, which incorporate portions of the Part 29 helicopter rules. AgustaWestland expects to receive certification in 2017. —M.H.



EASA OKs redesigned Airbus Helicopters EC225 shaft

Alaska Fairbanks claims first UAS test range flight

Industry agrees to introduce mandatory aircraft tracking

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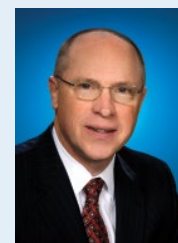
FAA authorizes flights at North Dakota UAV test range



French Hems debate heats up around second crewmember



Aviation groups mourn loss of Congressman Jim Oberstar



Jim Christiansen flies west

Jim Christiansen, a giant in the business aviation industry, passed away on May 12 at the age of 67. He led several large aircraft management/air charter firms, as well as NetJets, over his nearly 50-year career. After leaving the U.S. Army as a helicopter pilot and managing helicopter operations at Decair Helicopters and then BR Firestone, he joined Executive Air Fleet/Jet Aviation in Teterboro, N.J. as a helicopter captain in March 1974 and rose to president before his departure in January 1990. He then went to work for Richard Santulli as president of Executive Jet International, integrating the company's seven operating units and trimming more than \$10 million in annual overhead. He also led K-C Transportation Services and then Wayfarer Aviation, before landing at TAG Aviation in 1999 as COO. Christiansen rejoined the NetJets group in October 2001 and was named president in 2007. In March 2010 he joined Hawker as vice president of sales for the Eastern U.S., a position he held until landing at FlightSafety in January 2013. —C.T.



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## Dassault Falcon reveals new top-of-the-line trijet

Dassault selected the stage of the European Business Aviation Convention & Exhibition in Geneva to unveil its new flagship, the Falcon 8X. The 8X cabin is 42.6 feet long, 3.6 feet longer than the 7X's. The increased range of 6,450 nm—500 nm more than the 7X—will enable it to link Los Angeles with Beijing and Shanghai, and New York with Dubai, nonstop. It is powered by upgraded Pratt & Whitney Canada PW307Ds, and an improved wing design will make it up to 35 percent more fuel efficient than any other aircraft in the ultra-long-range segment, according to the French airframer. Dassault expects to fly the approximately \$58 million 8X in this year's first quarter. —C.E.

Cessna Citation Latitude receives TIA, first production aircraft joins test fleet

Dr. Lewis "Bernie" Gratzner, inventor of blended winglets, flies west



Cessna rolls out first production CJ3+

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May

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Aviation world loses legendary designer Ed Swearingen

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Aerion revises supersonic bizjet design

Aerion unveiled a redesign of its proposed supersonic business jet at EBACE, showing off a larger, longer-legged aircraft powered by three as yet unspecified engines in place of the original two. Projected range for the \$100 million-plus jet has stretched to a minimum of 4,750 nm from the original 4,000 nm. While the changes were driven by feedback from a survey of prospective operators, the current proposed design retains a target cruise speed of Mach 1.6 and a supersonic natural laminar-flow wing. Later in the year, the project received a boost when Airbus Group and Aerion announced a partnership to collaborate on "technologies associated with the future of high-performance flight." The companies will exchange knowledge and capabilities in aircraft design, manufacturing and certification. Aerion expects to have a prototype flying by early 2019 and certification by 2021. —C.E.

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New safety rules impact North Sea helo ops

On February 20 the UK CAA issued a wide-ranging safety review of North Sea helicopter operations, and with it strict requirements. Under a rule that was initially to take effect on June 1, operators can carry passengers only in seats immediately adjacent to emergency exit windows unless they install extra flotation devices or improved emergency breathing systems (EBS). The UK's helicopter safety steering group estimated the new rule could reduce North Sea fleet seating capacity by as much as 40 percent.

The seating restrictions were postponed to September 1. The new EBS was approved in July and entered service on August 18 on a flight from Scatsta to a platform in the Northern North Sea. As of September 2, more than 51,000 people had completed their EBS training. The system is now being used on every helicopter flight that supports the UK oil-and-gas industry.

Developing and retrofitting the required extra floats, to be located on the upper fuselage, will take years, however. —T.D.

Gulfstream goes the extra mile with new G650ER





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First production HondaJet takes to the skies



Charles Edelstenne is Serge Dassault's designated successor

Clay Jones announces retirement from Rockwell Collins board

Cessna M2 earns EASA OK



Cessna's Citation X+ earns FAA approval

Landmark completes acquisition of Ross Aviation FBOs

June

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Bombardier Challenger 350 gets OK from Transport Canada



FAA extends Long Island helicopter rule

Donald Lowe, Bombardier exec behind successful CRJ series, passes away

NetJets takes delivery of first Bombardier Challenger 350



Pilatus joins the jet set

With Swiss precision and timing worthy of Breitling, Pilatus rolled out its first jet bang on time on August 1. Grob was onto something with the SPn program but went out of business before it could bring the airplane to market. Pilatus looked at buying the project but decided to roll its own. The result, the PC-24, occupies its own niche as a back-country business/utility jet, an SUV of sorts (sprint utility vehicle?). Pilatus calls it a "Super Versatile" jet, alluding to its short-field performance and ability to operate from unpaved runways. Like the PC-12 turboprop single, the PC-24 has a large door for loading outside cargo. The Williams FJ44-4A-powered aircraft is sold out for its first three years of production. All orders were announced (84 aircraft) at EBACE in May. Pilatus made it clear at the rollout that the order book for the \$8.9 million twinjet is closed, at least until after first flight, expected early this year. Certification is scheduled for 2017. —N.M.





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## CitationAir shutdown thins fractional competition

The ranks of major fractional-share operations shrank last year with the shutdown of CitationAir, the company launched by Cessna as CitationShares in 2000. Flight operations ended on October 31, but the company had already begun winding down, having stopped selling fractional shares and halting all contract renewals in 2012.

In its heyday, CitationAir flew about 80 jets—all Cessna Citations, naturally—and in addition to fractional shares it offered aircraft management and jet cards. CitationAir was known for pioneering an efficient flight schedule built on in-house-developed software and it was responsible for introducing many non-owners to the Citation product line. But aircraft manufacturers seem to have soured on the idea of owning flight operations; in late 2013 Bombardier sold its Flexjet fractional-share operation to Directional Aviation Capital, which owns Flight Options, itself a company that was in part founded by Beechcraft.

Reports put the number of employees left at CitationAir when it closed at 100, which included 38 non-management pilots. —M.T.



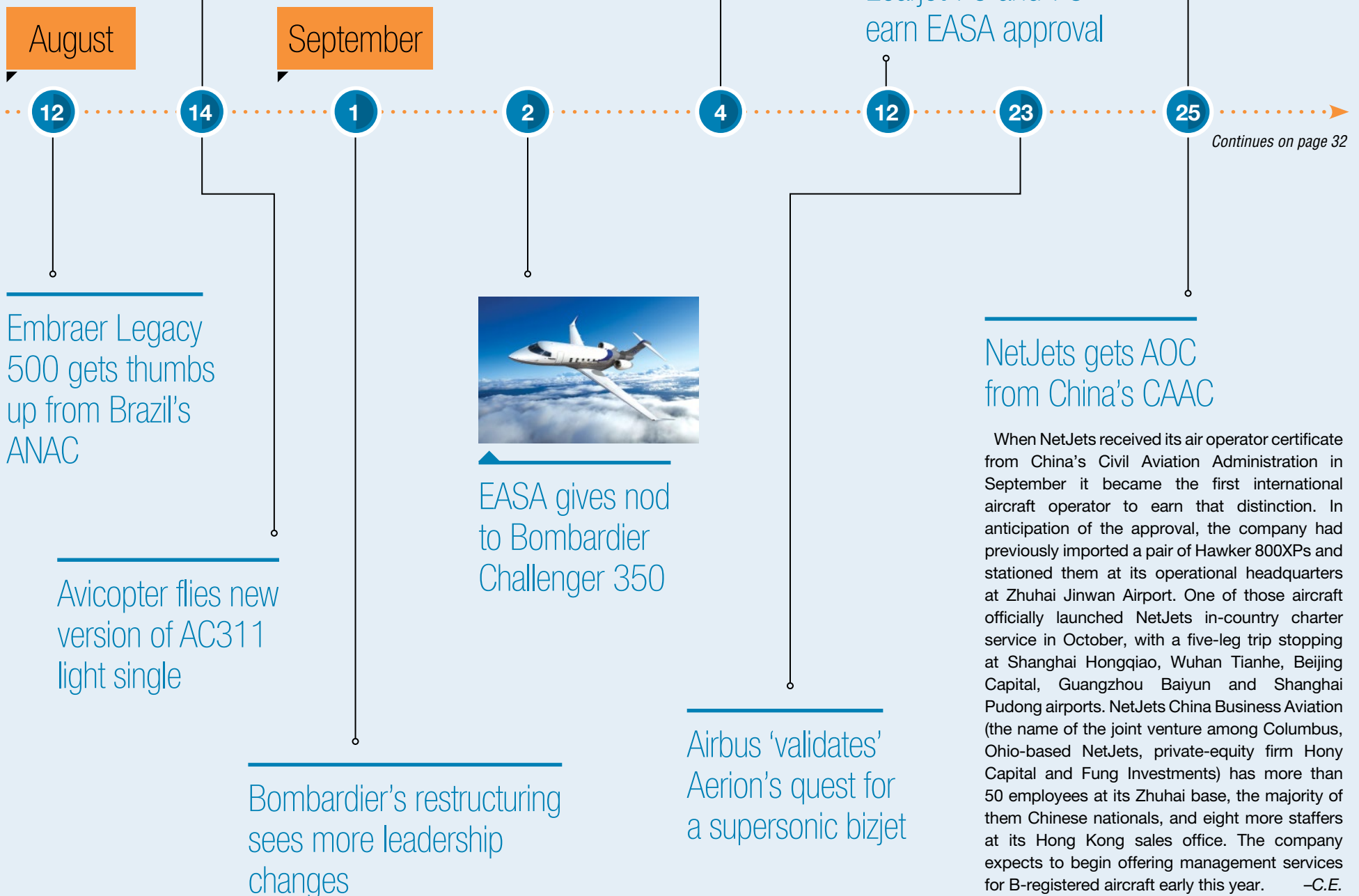
FAA approves Garmin G3000-equipped Citation CJ3+



Airbus A320neo takes flight



Learjet 70 and 75 earn EASA approval





# Insights of Experience

from Pentastar Aviation

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**Bob Sarazin,**  
Vice President,  
FBO Services

31 years at  
Pentastar Aviation







Start-up Marengo flies SKYe helicopter for first time

Embraer delivers first Legacy 500

Chicago Center set to reopen fully after arson attack

Gulfstream launches fly-by-wire large-cabin jets

During a ceremony on October 14 at its headquarters in Savannah, Ga., Gulfstream Aerospace took the wraps off the G500 and G600, slated to enter service in 2018 and 2019, respectively. The G500 stole the show when it rolled out under its own power. Both models have a wider cabin cross-section than the G450 and G550, but narrower than that of the G650. The new jets—positioned between the G450, G550 and G650—will also have more composite content than existing Gulfstreams. At a normal cruise speed of Mach 0.90, the G500 and G600 will fly 3,800 nm and 4,800 nm, respectively. Each will be powered by a pair of Pratt & Whitney Canada PW800 turbofans: PW814GA for the G500 and PW815GA for the G600.

The new aircraft also feature fly-by-wire flight control and they will be the first Gulfstreams to feature active sidestick controls. The G500/G600 flight deck, branded as Gulfstream Symmetry, is based on Honeywell's Primus Epic suite. The G500 is slated to fly early this year, followed by the G600 in 2017. Pricing for the first 50 serial numbers was set at \$43.5 million for the G500 and \$54.5 million for the G600. —C.T.



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Cessna boosts range of Citation Latitude

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Leesburg Executive Airport to test Saab remote tower



Sikorsky unveils Raider at rollout ceremony

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Gecas to acquire Milestone Aviation



Globe-girdling Gulfstream G650ER gets its wings

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Gulfstream names Cindy Halsey v-p of completion planning and design

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TSA Administrator John Pistole to retire at year-end



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Embraer's Legacy 500 earns FAA nod

Ebola: U.S. Customs mandates extra screening for passengers flying from West Africa

Airbus begins Dassault divestiture

Following through on its earlier announcement that it intends to reduce its 46-percent minority stake in Dassault Aviation, worth an estimated €5 billion, on November 26 Airbus sold back more than 800,000 shares to the French airframer at €980 each, in a deal worth nearly €794 million. Post transaction, Airbus Group's interest in Dassault—a legacy of the share formerly owned by the French state—was effectively reduced to 42.11 percent of Dassault Aviation's share capital and associated voting rights, once the company that manufactures Falcon business jets as well as the Rafale fighter cancelled 9 percent of its treasury shares. Airbus has further pledged a "best efforts" commitment to sell up to 10 percent of Dassault's share capital, subject to market conditions, by the end of June. —C.E.

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END



Bombardier launches Challenger 650

On the eve of NBAA '14, Bombardier announced the Challenger 650, a refresh of the current large-cabin 605 featuring the Rockwell Collins Pro Line Fusion-based Bombardier Vision flight deck and a new interior in line with that of the airframer's recently launched Challenger 350, itself an evolution of the Challenger 300. Upgraded GE CF34-3B MTO engines will provide 5 percent more takeoff thrust than those on the 605. With a firm order for 25 aircraft and options for 50 more, NetJets is the launch customer for the \$33.25 million Challenger 650 as it was for the Challenger 350, also outfitted in a NetJets-specific "Signature Series" configuration. Deliveries of the 650 are expected to start in the second quarter of this year. —C.E.

NetJets China flies first charter customer



Jet Ranger X makes first flight

NTSB's Mark Rosekind nominated to lead the National Highway Traffic Safety Administration

Airbus A350-900 receives FAA type certification



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## Reaching Excellence for Cessna Citation Service Facilities

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### The Challenge

As a globally recognized Cessna/Citation Service Center, FLYINGGROUP provides Cessna parts and complementary technical maintenance services for its international customers as well as its own fleet. As a growing international service provider, FLYINGGROUP operated with disparate systems and manual processes which resulted in inefficiencies and a complicated workflow. FLYINGGROUP needed a fully integrated operations software that would optimize its maintenance processes to reduce overhead and also maintain a high level of customer service.

### The Solution

FLYINGGROUP selected Quantum Control MRO & Logistics software as the foundation for managing its maintenance and distribution practices. Quantum's CESSNA/Citation module provides FLYING GROUP with an automated process for receiving Cessna/Citation parts data. The

Cessna/Citation module is integrated with all Quantum modules for sharing part and price data across departments to further expedite quotations. As soon as a quoted job card is approved in the quotation module, the linked job card in the work pack will have its status updated by Event Manager automatically eliminating the need for Customer Service to notify Maintenance to start work. Working with Job Card Templates, access panels and billing groups within Quantum, quotations on major checks now take a fraction of the time to create, and at a reduced overhead cost.

"The use of Quantum and its Cessna/Citation module has created efficiencies in both our work and communication processes to optimize our operations and minimize errors across departments saving us overhead and allowing us to focus on our customer service," said Jerry Beeckman, Maintenance Manager, FLYINGGROUP.

### FLYINGGROUP

Since 1995, FLYINGGROUP is the reference for private and business flights in the Benelux and France. Based in Antwerp, Belgium, FLYINGGROUP is one of only 39 authorized Cessna Citation Service Facilities in the world. As an EASA Part 145 organization, FLYINGGROUP offers maintenance, aircraft management, charter services, and ground handling and maintains and operates its own charter fleet of Cessna Citation jets.

FLYINGGROUP'S experienced, highly trained specialists provide complete line, base and AOG maintenance for Citation business jets, as well as line, base and AOG maintenance for Dassault Falcons, and line maintenance on Embraer Lineage 1000. For more information, please go to [www.flyinggroup.aero](http://www.flyinggroup.aero).



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The VIP-configured Superjet 100 offers room for 19 passengers.

## Sukhoi sees strong potential in India's growing civil market

by Neelam Mathews

Sukhoi Civil Aircraft (SCAC) showcased its 19-seat VIP-configured Sukhoi Superjet 100 in India last month, making use of the opportunity presented when the aircraft transported Russian Minister of Industry and Trade Denis Manturov and United Aircraft (UAC) president Mikhail Pogosyan to the Russia-India Summit in Delhi.

The Russian interstate aviation committee aviation register issued approval, equivalent to certification, for the aircraft in November. The Russian government is the first customer for the airplane.

The company recently announced the sale of three VIP versions to the King of Thailand and plans to roll out five VIP versions annually starting late this year.

### Partnerships with India

According to the OEM's internal research, India could absorb 50 aircraft (VIP, corporate and regional) through 2030. "We believe the program has immense potential," said a Sukhoi spokesman. "We also see opportunities for the corporate version, in particular for companies in mining and construction," he said.

However, some in the industry see a less rosy outlook. "With dedicated business aircraft in that market that have built global acceptability on the basis of thousands of flying hours and established authorized service centers," it might be a long wait for the Sukhoi Superjet, said Rohit Kapur, president of India's Business Aircraft Operators Association. The Superjet will be up against the Embraer Lineage 1000, ACJ and BBJ in the bizliner market.

Nonetheless, "We are looking at possibilities to deliver the Sukhoi Superjet for both regional service and as business jets since there are requirements for such aircraft in India," Pogosyan told AIN, pointing out that his company already has "military aircraft programs in India such as the fifth-generation fighter and medium transport."

Sukhoi sees "good opportunity for cooperation with India" on the MC-21 and Sukhoi Superjet. Sukhoi plans to begin flight-testing the former next

year, with deliveries to follow in 2017 and 2018. Moving away from tapping only traditional government partners such as government-owned Hindustan Aeronautics, the company is "looking at possibilities in the private sector." It is likely an agreement will be signed with an Indian company for manufacture of components. Beta Aviation is one of the companies with which Sukhoi Superjet has signed sales representation, the spokesman said. Others are to follow, he added. □



### BIZAV RESULTS MIXED IN MIDDLE EAST, AFRICA

The Middle East and North Africa region enjoyed a mixed year for bizav last year, according to WingX research commissioned by the Middle East Business Aviation Association (MEBAA). While flight activity was up 6.6 percent in North Africa year to date, WingX found that movements had fallen 1.9 percent in the Middle East during 2014, a decline it attributed to "regional instability" in the second half of the year.

More than 9,000 flights took off from the region in 2014, making it the second most popular region for business aviation behind Russia, a press release issued by the International Business Aviation Council (IBAC) said.

The WingX study found that airports in the UAE are the busiest in the region, recording a total of 41,000 business aviation movements in 2014. Saudi Arabia is the largest bizav market in the region, claiming a 35-percent share of the fleet. The average age of the Saudi fleet is 14.9 years, compared with 10 years for the UAE fleet, which enjoys a 26-percent share.

The top five business aviation airports in the region were Al Maktoum International, Dubai International, Beirut, Jeddah and Riyadh, WingX said. —P.S.-S.





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# Europe clarifies VAT exemption

by Chad Trautvetter

The European Commission published a working paper last month that clarifies terms related to the temporary admission of aircraft into the European Union (EU), making plain that

many business aviation flights are indeed eligible for temporary admission when flying within the EU. Before this clarification, many business aircraft operators had been uncertain whether

they were eligible for temporary admission or could be subject to value-added taxes (VAT) and other duties when flying within the EU. The International Business Aviation Council (IBAC)

The European Commission clarified terms related to the temporary admission of aircraft into the EU, making clear that many business aviation flights—such as this U.S.-registered Gulfstream G650 arriving at Geneva—are eligible for temporary admission when flying within the EU.



DAVID MCINTOSH

had requested clarification from the EU.

“This paper issued by the European Commission resolves the confusion,” said IBAC director general Kurt Edwards. “As long as the operator meets the conditions for temporary admission, it can use the process to receive conditional relief from value-added tax and customs duty obligations and operate to, from and within the EU.”

In many EU countries, foreign-registered aircraft are subject to VAT and other duties when imported. However, when a foreign-registered aircraft flies from a non-EU country and then conducts flights within the EU, that activity can be eligible for temporary admission and conditional relief from taxes and duties. The aircraft must be flown for private, not commercial, use.

## ‘Private Use’ Defined

However, operators had been confused by different interpretations of “private use” and “commercial use” by the international aviation community and as applied by customs authorities in the EU. “This matter has always been the subject of interpretation across the EU,” said Terry Yeomans, program director of the International Standard for Business Aircraft Handling (IS-BAH) at IBAC. “This paper clearly defines typical business aviation activities as ‘private use’ for the purposes of temporary admission and conditional relief from taxes and duties.”

It not only defines flights by company-owned aircraft as private use but also further notes that a chartered flight is private use for the purposes of temporary admission since fees paid are for the lease of the aircraft and not for passenger tickets. Charter flights, however, still need appropriate traffic rights and economic authority to operate within the EU.

Yeomans emphasized that the EC working paper addresses the interpretation of private use and commercial use only for customs officials in EU member states and only for the purposes of temporary admission. □

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## DWC moving forward with multi-FBO facility

► Continued from page 4

when it opens in November. Only ExecuJet has yet to sign up for the shared use of the permanent executive terminal.

More players could join the market, once certain DWC-imposed traffic milestones are reached, which could make the business even more competitive. The movements market is "not that big," said an insider; DXB recorded 5,500 of the 12,000 total movements in Dubai last year.

Jetex Flight Support CEO Mardini is happy to take up the subject of DWC. "We will have the biggest lounge in the general aviation terminal, of around 1,000 sq m [10,764 sq ft]," he said. "After the runways reopened [at DXB] following the closures there, some customers preferred to stay at DWC because they could land and fly any time. Emirates is adding almost two aircraft per month, or 20 per year, at DXB. Getting slots is becoming more and more difficult. We believe DWC will be the major destination for private jets in the future." In his view, the transfer of most business jet operations to

DWC will be complete by 2017.

At press time, ExecuJet had yet to sign up for either the common-user FBO terminal or any kind of permanent MRO facilities, and Mike Berry, vice president Middle East, continues to express disappointment that the company's preference for a standalone FBO facility seems to be falling on deaf ears. He is also saying that costs are an issue that cannot be ignored.

### Different Models

"We understand that the DWC or the Dubai Aviation City model is different from what existed at DXB. What we

do see is that the rates are different from the rates available on DXB, and we foresee that general-service pricing is going to have to go up to cover the cost increases that [FBOs] will be paying," said Berry.

"Generally you will find that DWC is going to be a more costly solution longer term than what DXB is at the moment. That's understandable because the business models are different. The ground rents are higher than we are now paying. Automatically, the financial impact of everything is going to increase our costs," he said.

"We've been negotiating for this move for a long time. We are happy to move. We would be happy to be there already if we could have unlocked what we think is a viable commercial deal on the land. We are still negotiating. We are still in discussion on the land."

Jet Aviation's stance regarding MRO is still unclear, and a company official would confirm only that negotiations between it and DWC continue. "We are in discussions with both airports to prepare our transit and define our future footprint," she said. □

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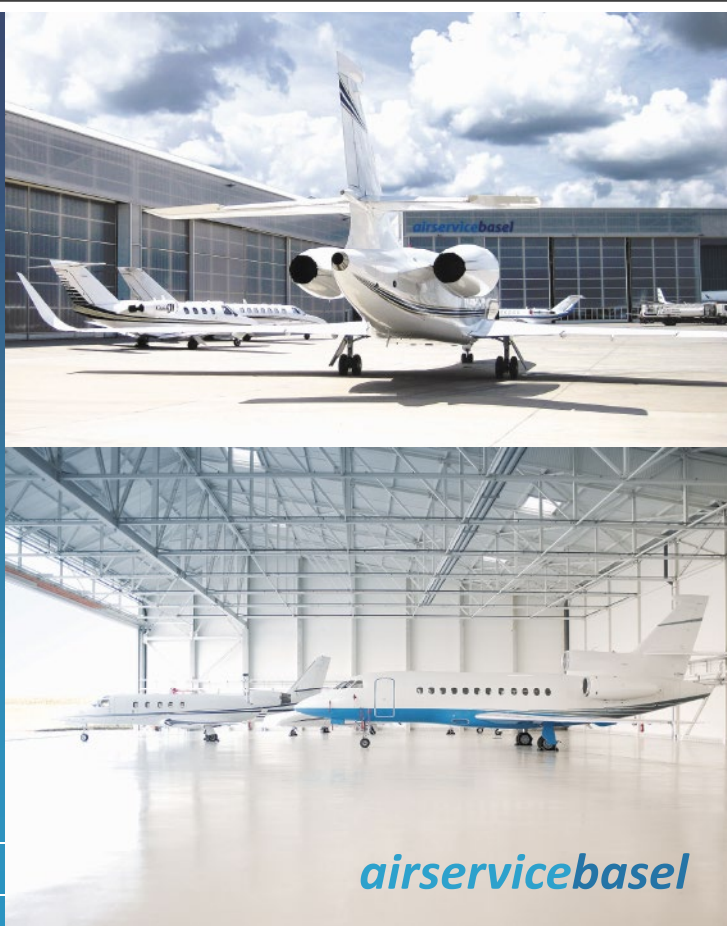
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### MEBAA TO HOST BIZAV SHOW IN MOROCCO

The Middle East & North Africa Business Aviation Association (MEBAA), which represents more than 230 companies in the MENA region, will host its first business aviation show outside Dubai on September 1 and 2 in Morocco. The two-day MEBAA Morocco Show will be held at Casablanca Mohammed V International Airport under the patronage of HE Abdelaziz Rabbah, the Moroccan minister of equipment and transport. Ali Al Naqbi, founding chairman of MEBAA, announced the new event at MEBA 2014.

"We realize that Morocco is an important market and good location, actually the center, for business aircraft coming from Europe and North Africa," Al Naqbi said. A WingX study commissioned by MEBAA found that Morocco accounts for 50 percent of all North African business aircraft movements.

"Business aviation has been growing in Morocco and my meeting with the government there has resulted in an airport being dedicated to business aviation," he added. This airport, Ben Slimane (GMMD), lies about halfway between Casablanca and Rabat and was planned to be the new commercial airport for Casablanca, but the airlines apparently balked at the move, so it is now being used only for MRO operations.

"We thought this would be the right place to have a presence there," Al Naqbi said, "because the market is... moving in the right direction. Morocco is considered to be one of the top five countries in the region where business aviation is doing very well."

MEBAA expects the event to attract at least 25 aircraft on static display, 50 exhibitors and 2,000 visitors. A MEBAA conference is also being organized to take place during the event. —R.R.P.

## AINonline

### ONLINE NOW

#### NEWSMAKERS 2014

AIN's annual feature looks back at who and what made headlines in the last year.

#### COCKPIT AVIONICS

NextGen is gradually moving toward 'NowGen' as the deadline to equip for ADS-B—the system's backbone—approaches. The process of implementation is approaching and pilots need to train now to prepare for what the future holds.

#### THE BIZAV LANDSCAPE IN D.C.

As Congress struggles once again with FAA reauthorization and how to fund the NAS—user fees will surely be on the table—one immediate challenge for bizav-friendly legislators will be rebuilding the General Aviation Caucus.

#### Next Month Aviation Apps

Business aircraft operators have embraced smartphones and tablets, and app makers have been quick to support this market. AIN looks at some of the apps to make life easier for pilots.

#### New Rotorcraft

AIN's annual look at the new rotorcraft in the pipeline.


#### Charter scammers

There are rules in place to protect consumers from unscrupulous charter operators. How do operators protect themselves from unscrupulous 'clients'?

#### Safety Stats

How did bizav fare in 2014?

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# Big jets dominated unveilings last year

by Matt Thurber

Bombardier, Dassault and Gulfstream stepped up with new aircraft programs last year, but it was slim pickings for other credible projects making their debut on our In The Works log in 2014. The moves by the three OEMs show that large-cabin aircraft remain the dominant category. In Dassault's case, it has added the 8X to the Falcon line. The \$58 million 8X is a longer version of the 7X with about 500 nm added range. Gulfstream is


replacing the G450/550 with the G500 and G600, both of which have a smaller cabin width than the G650 but share its enormous passenger windows. While Bombardier hasn't indicated its plans for the Learjet 85, which made its maiden flight last April, it has realigned resources to focus on keeping the larger Global 7000 and 8000 programs on schedule. The company has released little new information on the Learjet 85,

which is the first all-composite Part 25 business jet, but the program appears to be in some kind of holding pattern. The Learjet 85 did make a public debut at last year's NBAA show, but since then, Bombardier has not indicated that there is much recent activity on that project. Bombardier also took the wraps off the Challenger 650, a revamp of the 605. Other manufacturers are focusing on bringing their new projects to the market, including Embraer, on the home stretch with the Legacy 450 (the 500 has entered service). Cessna is on track with its newest programs, the Latitude and Longitude. The Latitude made its public debut at the NBAA

show, equipped with a production interior. **Turboprops Stall** With Cessna parent Textron buying Beechcraft earlier this year and combining Cessna and Beechcraft under the new Textron Aviation brand, the question now is whether this means fewer new products or new life for both brands. Beechcraft dominates the twin-turboprop sector, but one nut that this company hasn't cracked yet is the single-engine turboprop. The company's leadership broached the idea of a single-engine turboprop before going bankrupt, so it will be up to Textron Aviation's leadership to pursue this market. Stiff competition from Daher-Socata's improved

TBM900 and the popular Pilatus PC-12 means that Textron Aviation has a high bar to hurdle. But it also means that there is a clear pathway to a successful product: an airplane that outperforms the TBM900 and PC-12. For the most part, the turboprop market has seen little development during the past year, other than upgrades to existing models. Caiga is still developing the Primus 150 single-engine turboprop, which is powered by a GE H85 engine. Meanwhile, Epic Aircraft is planning to certify its speedy E1000 single-engine turboprop this year. Kestrel's K-350 competes in a similar performance regime as the E1000, but while engineering work is mostly complete, the company is seeking additional funding to bring the K-350 to market. At either end of the jet spectrum sit the single-engine jets and supersonic business jets. Cirrus is one of the last companies standing in the single-engine personal jet category, and the company's Chinese owners seem intent on providing the funding to see the product through to certification. A second conforming Cirrus Vision jet joined the flight test program in November, and one more is planned before deliveries begin in the fourth quarter this year. Flaris is still intent on fielding its small LAR-01 single-engine jet, although that program has run into delays. On the supersonic business jet front, there is a new development, a commitment by Airbus to the Aerion AS2 program. The companies have formed an alliance, and plans call for the AS2 to fly in the third quarter of 2019, receive FAA certification in the third quarter of 2021 and enter service in the second quarter of 2022. Airbus's Defense and Space division is supporting Aerion in the task of specifying and sourcing airframe structures, avionics and other equipment during the design phase. The light jet market has life. Cessna's M2 received FAA certification in December 2013. For Honda Aircraft all the stars are aligned, and the first airplane to achieve FAA certification this year should be the HondaJet. The Aeronimbus NMX joins the On The Shelf group this year; there is no response to requests for information from the Singapore-based company. Two turboprops from Mahindra Aerospace's GippsAero division in Australia are expected to enter service this year, the single-engine Airvan 10 and the twin-engine Airvan 18. □

Airplanes On The Shelf		
Company	Airplane	Year shelved by AIN
AeroNimbus	NMX	2014
Daher-Socata	NTX	2013
Piaggio Aero	P-1XX	2013
Sky Aircraft	SK-105 Skylander	2013
Grob	SPn	2012
Hawker Beechcraft	Hawker 200	2012
NAL	Saras PT-12	2012
Freight Feeder Aircraft	FF5000	2011
Hawker Beechcraft	Hawker 450XP	2011
Piper	Altaire	2011
Spectrum	Independence S.33	2011
Spectrum	Freedom S.40	2011
Comp Air	Model 9	2010
Comp Air	Model 11	2010
Comp Air	Model 12	2010
AAI Acquisition	A700	2009
Aviation Technology	Javelin	2009
Cessna	Citation Columbus	2009
Eclipse	Model 400	2009
Epic	all models	2009
Eviation	EV-20 Vantage	2009
Excel-Jet	Sport-Jet	2009
Farnborough	F1	2009
Grob	G140TP	2009
Grob	G160 Ranger	2009
Grob	G180 SPn	2009
Ibis	Ae270B	2009
Maverick Jets	SmartJet	2009
Millennium Aerospace	Foxjet	2009
Intracom	GM-17 Viper	2008
Sukhoi	S-21 SSBJ	2008
Avocet	ProJet	2007
Explorer	500T/750T	2006
Gippsland	Turbine Airvan	2006
Safire	Safire Jet	2006
Aerocourier	Aerocourier	2004
Archedyne	NauticAir 450	2004
Chichester-Miles	Leopard Six	2004
Maverick Jets	Leader	2004

<div>  <div> An Unbiased Guesstimate of the Probabilities of Success of Current Business Jet, SSBJ and Turboprop Business/Utility Airplane Programs </div> </div>				
Milestones				
Company	Airplane	First Flight	Certification & production	Long-term prospects <sup>1</sup>
Aerion	AS2	● ↑	● ↑	● ↑
Avic	CNGBJ	●	●	●
Bombardier	Challenger 650	●●	●●	●●
Bombardier	Learjet 85	4/14	● ↓	● ↓
Bombardier	Global 7000	●●	●●	●●
Bombardier	Global 8000	●●	●●	●●
Cessna	Citation Latitude	2/14	●●	●●
Cessna	Citation Longitude	●●	●●	●●
Caiga	Primus 150	●	●	●
Cirrus Aircraft	Vision SF50	7/08	●	●
Dassault	Falcon 5X	●●	●●	●●
Dassault	Falcon 8X	●●	●●	●●
Diamond	D-Jet	4/04	●●	●●
Dornier Seaplane	Seastar	8/84	●●	●●
Embraer	Legacy 450	12/13	●●	●●
Epic Aircraft	E1000	●	●	●
Evektor	EV-55	6/11	● ↓	● ↓
Flaris	LAR-01	●	●	●
Gulfstream	G500	●●	●●	●●
Gulfstream	G600	●●	●●	●●
Honda	HondaJet	12/03	●●	●●
HyperMach Aerospace	SonicStar	●●	●●	●●
Kestrel Aircraft	Kestrel	●	●	●
Mahindra	Airvan 10	●●	●●	●●
Mahindra	Airvan 18	●●	●●	●●
Pilatus Aircraft	PC-24	●●	●●	●●
Privateer Industries	Privateer	●	●	●
SonicStar	S-512	●●	●●	●●
Stratos Aircraft	714	●	●	●
Supersonic Aerospace	QSST	●●	●●	●●

●● = Less than 25-percent chance of success; ● = 50-percent or less chance of success; ● = Even, or too soon to tell; ● = greater than 50-percent chance of success; ●● = greater than 75-percent chance of success; ↑ = rating upgraded from last year; ↓ = rating downgraded from last year.

1. Long-term prospects of at least 100 aircraft being produced and the airplane model still in production, or the design sold and still in production, in 10 years.



## GA caucus building

► Continued from page 1

allies on Capitol Hill, has steered the House GA Caucus since 2011 and was a founding member when it formed in 2009. He is the only returning co-chair of the General Aviation Caucuses. The midterm elections cost the seats of the Democratic co-chairs in both the House and Senate, while the Senate Republican co-chair didn't run for re-election. Graves immediately began to reach across the aisle to seek a successor to his Democrat colleague, Rep. John Barrow (Ga.), another staunch aviation advocate and early member of the caucus. Like Graves, Barrow had stepped into the co-chair position in 2011.

Graves says he has been discussing the role with Texas Democrat Marc Veasey. Veasey is just entering his second term in Congress, but immediately joined the general aviation caucus and has signed on to some key GA initiatives, such as the third-class medical exemption. He also represents the Fort Worth area, home to numerous aviation and aerospace companies, and has a strong understanding of the value of the industry to his home state. Joining in the General Aviation Manufacturers Association's jobs rally in Texas last April, Veasey proclaimed that as a member of the caucus, he was "proud

to be a part of this event to celebrate, promote and protect general aviation and its economic impact to the state of Texas." He added that general aviation was responsible for billions in economic impact and some 50,000 jobs.

In the Senate, the new leadership will take shape as the caucuses reform in the new Congress. Senate Republican co-chair Mike Johanns (Neb.) began fielding possibilities for a successor to his caucus seat shortly after announcing his retirement. The search broadened in recent weeks to include a successor for Senate Democrat co-chair Mark Begich (Alaska), after Begich lost a hard-fought battle for his seat.

While Graves and Barrow were second-generation caucus co-chairs, Johanns and Begich were the founding co-chairs, establishing the Senate caucus in September 2009.

### Industry-lawmaker Partnerships

Although the base for the caucuses is down after the elections, they are starting with a strong foundation. After the 2012 midterms, the House lost 32 caucus members from what was then 190 members. In the subsequent two years, the caucus not only replenished but grew into one of the largest on Capitol Hill.

As the House caucus has experienced steady growth since its founding, the Senate caucus has remained stable over the



Sam Graves



Marc Veasey

last several years. At the end of 2012, the Senate caucus was poised to lose three of its 39 members. The Senate regained the numbers and added two more.

The number of Senate caucus members lost in the most recent election was greater than in 2012, but a number of the incoming senators have ties to general aviation, including former South Dakota Gov. Mike Rounds (R), who is an AOPA member, and Rep. Tom Cotton (D-Ark.), who although not a caucus member has supported general aviation initiatives. Others moving to the Senate include House GA caucus members Shelley Moore Capito (R-W. Va.), Cory Gardner (R-Colo.) and Steve Daines (R-Mont.).

General and business aviation groups are encouraged by the stage set for the caucuses in the new Congress. "Sen. Johanns has talked to several senators," said Dick Doubrava, vice president of government affairs for NBAA. "They

have a pretty good list to start out with in the new Congress."

The co-chairmen have worked closely with the aviation associations to drive up the numbers, making the caucuses stronger forces in controversial issues and active advocates.

For Graves, reaching new members is a matter of education. "We go out and explain why general aviation is important to every member of Congress," Graves said, adding that while the lawmakers might not be involved in aviation they are educated about the contribution the industry provides to their state.

This concerted education effort is taking root. Lawmakers are better informed about the industry than they were even a few years ago, Graves said. But, he cautioned, "We can never let our guard down."

The caucuses formed as the industry was in the throes of a public-relations nightmare. The visit of the flailing Detroit automakers to Washington aboard their business jets in November 2008 had put a bulls-eye squarely on business aviation. Politicians, both in the administration and on Capitol Hill, used that as an opportunity to malign the use of corporate aircraft—all while the industry was in a steep economic dive.

GAMA president and CEO Pete Bunce told the annual media kickoff

Continues on next page ►

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## Falcon 8X unveiled

► Continued from page 1

Even with these validations, Dassault's flight-test team has to sign off on each system before the first flight, Petit said. For the fly-by-wire control system (digital flight control system, in Dassault parlance) a new software standard is to be installed on January 5. Petit expected all these projects to be completed in late January.

First flight could take place soon after, he said. At the controls will be Falcon 8X

program chief test pilot Eric Gérard and test pilot Hervé Lavergne. Three development aircraft will participate in the program. The first one will remain in the manufacturer's fleet. The other two will become demonstrators and will be sold to customers after 10 to 12 months, Petit explained.

The third Falcon 8X will be the first one fitted, in the development program, with a cabin interior. It will serve as a test bench for the 8X's improved acoustic control, and Dassault predicts it will beat the 7X's 52 dB. Design engineers have worked on more effective placement



The trio of PW307D engines, combined with a redesigned wing, will make the Falcon 8X 35 percent more fuel efficient than any other ultra-long-range aircraft, according to Dassault.

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of soundproofing materials and also on the way cabin components are attached to the airframe.

Another feature of the 8X will be its EASy 3 flight deck. A Falcon 7X is currently flying with the new generation of the human-machine interface, which is based on a Honeywell avionics suite. The flight management system, for example, is new, Petit noted.

The Falcon 8X is sold out until the end of 2017, with the first delivery

planned for the second half of 2016. AIN understands this equates to firm orders for about 50 Falcon 8Xs. "About 75 to 80 percent of 8X customers are upgrading from a 7X or a Falcon 900; this pattern is similar to what we saw when we launched the 7X," Dassault Falcon Jet president and CEO John Rosanvallon said. Most of the remaining customers already own a long-range business jet. For a small percentage of buyers, the 8X will be their first aircraft. □

## GA caucus building

► Continued from preceding page

breakfast during the most recent NBAA Convention that "People just assumed there must be no good reason for using business aviation."

This led business aviation advocates to redouble their efforts, including the relaunch of the "No Plane, No Gain" initiative, and to work with Congress on the founding of the caucuses. The results have been tangible, underscored by the numbers in the caucuses. "The real measure is not how hard you're working, but the results you're getting," said NBAA president and CEO Ed Bolen during the kickoff breakfast. "We've made great strides to date."

Graves stressed the need to continue a close collaboration with industry. "We have a good core group of industry groups. That's important," he said.

### 2015 Legislative Agenda

Paul Feldman, vice president of government affairs for GAMA, said Graves will "provide both great leadership and continuity to the caucus in the 114th Congress." That leadership will be necessary, Feldman notes, because 2015 is "shaping up to be a busy" year for the caucus. The aviation community in Washington has already turned its attention to FAA reauthorization with the agency's current authorization set to expire September 30. "This will no doubt be a focus for much of 2015," Feldman said.

With reauthorization comes talk of FAA reform and privatization. Lawmakers and some industry groups are pushing for "transformational" change, which general aviation advocates fear can open the door to fresh user-fee proposals.

"We're always going to be concerned about user-fee proposals," Graves said, adding that "It's a constant battle."

Elevating that concern is the possibility that the FAA reauthorization debate could become ensnared in a larger federal debate surrounding the budget, taxes and sequestration, which is set to ramp up again beginning in 2016. Many groups already point to the threat of sequestration as justification to rethink FAA funding.

The caucus in the past has remained vocal about issues such as user fees, coordinating letter-writing campaigns in opposition, as well as working with other members of Congress on the issue. But aside from the funding, Graves expects the caucus to tackle several other issues, such as Sen. James Inhofe's (R-Okla.) Pilots Bill of Rights II and the accompanying third-class medical exemption.

Certification issues also are at the top of the list, with the FAA facing a December 2015 deadline to implement Part 23 reform. "We look forward to working with caucus members to ensure that the FAA is able to make progress on meeting that deadline," Feldman noted.

The caucuses played an important role in backing the Small Airplane Revitalization Act, helping get that passed in a year when few stand-alone bills were adopted in Congress.

"There are a lot of different issues outstanding that are important to general aviation," Graves said. "It's important we stay active." □

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<sup>2</sup>TAWS-A terrain system is optionally available.



## NEWS UPDATE

### ■ Satcom Direct Router Supports Speedier Streaming

Satcom Direct has partnered with France's Eclipse to allow the Satcom Direct Router (SDR) to bond and aggregate multiple Inmarsat SwiftBroadband channels to deliver streaming speeds of up to 1.6 Mbps. "With the new enhancements, higher data rate applications such as video conferences and streaming video are available globally for our customers using SwiftBroadband," said Satcom Direct chief commercial officer Chris Moore.

Satcom Direct also announced its GlobalVT (formerly AeroV+) service, which enables passengers to do voice and text messaging using their own smartphone numbers. GlobalVT is available worldwide and will be offered by monthly subscription. The SDR is also required for GlobalVT. "The in-flight messaging and calls are all managed through the GlobalVT mobile app," said Satcom Direct founder and CEO Jim Jensen, "and recipients on the ground view incoming calls and texts as coming from the user's personal number."

### ■ Satcom1 Testing Channel Bonding

Satcom1's research and development team is testing bonding of three and four Inmarsat SwiftBroadband channels at its Paris Le Bourget lab. The bonding tests are running on a single Cobham SB-800 with two channels and two single-channel Cobham Aviation 350s, for a total of four channels. So far, testing has reached a stable output of 1.4 Mbps "over a significant period of time," according to Francois Goudal, head of R&D at Satcom1. "However, it is important to note that the results are depending on many factors, [such as] the network load, especially in the Paris location, which is one of the busiest spot beams in the world."

Satcom1 is also beta testing an AvioPhone app update that will allow use of passengers' own GSM phone numbers in flight, and this update will be released in the first quarter this year.

### ■ Satcom/ATG Network Planned

Alcatel-Lucent and Inmarsat are partnering in development of a high-speed "hybrid" satcom/air-to-ground (ATG) telecom network for airlines and business aviation. The system promises speeds of up to 75 Mbps, about 50 percent faster than Inmarsat's upcoming GX satcom system and "far in excess of the limited capabilities of North American ATG systems," according to Inmarsat. The new system combines Alcatel-Lucent's 4G LTE S-band technology with Inmarsat's S-band Europasat and it will offer service "Europe-wide."

The companies are working together on the ground network to enable the new broadband network and they have applied for licenses in all EU member states and received authorization in 23 states so far, according to Inmarsat. The company didn't identify any equipment partners or early customers. No information on pricing of the service was available. Commercial service is scheduled to begin by the end of next year.

"These enhanced capabilities across Europe will be offered alongside Inmarsat's GX aviation services, extending Inmarsat's broadband service coverage for aviation passengers seamlessly, wherever airlines fly," said Leo Mondale, president of Inmarsat Aviation. —Matt Thurber



*Gulfstream's G500/G600 Symmetry cockpit eliminates bulky yokes and introduces touchscreen avionics controls.*

## Touchscreens clean up Symmetry flight deck

by Matt Thurber

Five years ago in an office with limited access to just a handful of Gulfstream employees, project pilots Scott Evans and Scott Martin began outlining the design of an advanced flight deck for their company's new G500 and G600. The resulting design—the Symmetry flight deck—not only expands the envelope of avionics interface and infrastructure design but also shows how manufacturers are taking advantage of new engineering options to make flying safer and more efficient.

In this new Gulfstream flight deck it is clear that there is no effort to edge pilots out of the cockpit and replace them with technology. "We do not want to replace the pilot," said Evans. "We have a philosophy of supporting the pilot." What the new design does is simplify the pilot interfaces, including replacing many knobs and switches with touchscreen controls and eliminating the massive control yoke in favor of a new type of sidestick control that makes the cockpit look much less cluttered, improves the view of the instrument panel displays and helps keep pilots in the control loop.

The new sticks are the electronically linked active control sidesticks (ACSS) from BAE Systems. The sticks not only move in concert but also enable each pilot to see stick displacement and feel what the other pilot is doing with the controls and to feel force feedback programmed to match the flight condition. The yokes in Gulfstream's fly-by-wire G650 are mechanically interconnected and act just like yokes in older non-fly-by-wire designs, and this is a design philosophy that Boeing has built into its fly-by-wire airplanes, too, so pilots can see and feel the controls. BAE has been developing its ACSSs for many years and they are installed on some military aircraft, but the G500/G600 application is a first for commercial aircraft.

Elimination of the yokes also means no need for a slot in the center of the pilots' seats, so seats will be much more comfortable.

Behind the scenes of the Symmetry flight deck is a new data concentration network (DCN), which consists of 14 routers connected via Ethernet, also a first for business aviation, according to Evans. "Think of the DCN as an Internet on the aircraft," he said. "[This setup] allows systems to be tied into the routers, which then publish systems data on the network, and that data can be used anywhere, for synoptics [displays], systems controls and health and trend monitoring. We're monitoring more than 15,000 parameters on the aircraft." The advantage is that critical systems data can be published to multiple routers, providing a redundant source of that data in case of a failure somewhere in the DCN.

### Touchscreen Controls for the Pilots

Much of the work that Evans and Miller did involved research into pilot interfaces, which resulted in the current touchscreen controls. "We were charged with how to design the flight deck and its interface to be more capable and add more functionality and at the same time be more intuitive to the crew," Evans explained. The result is 11 touchscreens in the cockpit (10 primary and one for the security system interface). None of the four display units in the panel is a touchscreen; these are the same 13- by 10-inch Honeywell displays that Gulfstream uses in its current fleet. Five touchscreens are by Honeywell, including two in the center pedestal and one on each side of the cockpit. The fifth is mounted behind the jumpseat and is for maintenance access and for the jumpseat occupant's communications needs. What the

four touchscreens do is replace the functionality that used to reside in the multifunction control and display unit (MCDU) and audio controls and many buttons and knobs that no longer exist on the pedestal. The only physical control on the pedestal is a flight control reset switch. The cursor control devices and palm rests were moved to the pedestal area to make room for the sidesticks. "It makes for a very clean interface," Evans said.

The two L-3 Aviation standby units in the glareshield are touchscreens designed to replicate symbology on the PFDs. The remaining three touchscreens are mounted in the overhead panel, and these are made by Esterline CMC and take over the functions of approximately 70 percent of the knobs and switches that used to reside there.

All the touchscreens use resistive technology, which means the user must press on the screen to elicit a reaction, as opposed to the capacitive-type screen found on popular consumer tablets or the infrared grid type that Garmin employs for its touchscreen controllers. Evans and Miller spent a lot of time bouncing around in the back of vans driving over bumpy roads then flying in the worst turbulence. "We were making sure the error rate was not greater than what we now have on flight decks," Evans said. One of the lessons learned from the bumps was the need for a plinth or handgrip around the touchscreens for finger stabilization.

The advantage of touchscreens is tremendous flexibility in, for example, designing rules for the selection of a button or placing electronic guards over a switch control. "It's a flexibility for design that physical controls constrain you from [being able] to do," he said. □

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# AVIONICS FOR NEXTGEN

by Matt Thurber

## Is business aviation ready for NextGen?

Lucky pilots who get to fly the company's new business jet home will find that their introduction to the aircraft includes some new avionics, something to do with that oft-heard term "NextGen" (Next Generation Air Transportation System). These products carry a confusing set of acronyms such as ADS-B, Fans, CPDLC, RNP and others, and some of what this stuff does is completely invisible to the pilot, while other uses require active pilot participation as well as training.

The rest of the fleet of older business jets will need upgrades

to meet upcoming NextGen mandates, and while these are steadily becoming more available there are certification and availability issues that might affect operators of some business aircraft. Not all NextGen features are mandatory, but equipping the aircraft to certain NextGen standards can improve the services available from ATC organizations.

Meanwhile, some NextGen services have already found their way into thousands of cockpits via ADS-B IN, either delivered by installed avionics or displayed on electronic flight bags

(EFBs) or more likely using an inexpensive ADS-B IN receiver connected to a tablet computer. Some pilots have even begun flying RNP approaches, another NextGen capability that is becoming more ordinary.

Despite continuing criticism of the FAA's NextGen rollout and delays in adding NextGen capabilities in Europe, implementation of future ATC systems and products is accelerating, and today's pilots need to continue training and be prepared for what the future holds.

## Overview

For pilots and aircraft owners and operators, the impetus to participate in NextGen takes the form of equipage mandates, and there are four broad areas that need to be considered, helpfully explained in Ric Peri's "The View from Washington" column in the April 2014 issue of the Aircraft Electronics Association magazine, *Avionics News*.

**Surveillance**—The heart of NextGen is a modern GPS-based system that equips aircraft to transmit an accurate position to other aircraft and ground stations. Named automatic dependent surveillance-broadcast (ADS-B) OUT, this system automatically broadcasts the aircraft's position, barometric altitude, identity and other information once per second. The word "dependent" describes the system's reliance on the aircraft's own GPS-derived position to broadcast the surveillance information to any capable receiver. (There is also ADS-C for "contract," where an aircraft and ATC share information exclusively via satcom over the ocean where there are no ground stations.)

ADS-B OUT equipment essentially consists of an accurate position source wired to an ADS-B-qualified transponder. The sensor is a global navigation satellite system (GNSS) such as the U.S. Navstar GPS, Russia's Glonass and eventually others (Europe's Galileo will likely be next). The GNSS must meet certain accuracy

standards, and many aircraft with older GPS sensors installed will need to upgrade to something more modern to meet the ADS-B OUT mandate. A Waas-compatible GPS, incidentally, meets the ADS-B OUT requirements, but older GPS receivers could be qualified to the new standard if someone were willing to pay for testing. In most cases it will likely be less expensive to upgrade to a Waas GPS, which also offers the benefit of being able to fly Waas LPV approaches. Generally speaking, the GPS also needs to be capable of using satellite-based augmentation system (SBAS) signals, which improve GPS accuracy.

ADS-B above 18,000 feet in the U.S. and elsewhere in the world at all altitudes works on a single frequency, 1090 MHz (known as 1090ES or "Extended Squitter"). In the U.S., aircraft that will never fly above 18,000 feet can opt to broadcast ADS-B OUT on 978 MHz (known as 978UAT or "Universal Access Transceiver"), which is less expensive to install and when coupled with an ADS-B IN receiver offers other benefits such as traffic and weather information. Frequencies in the U.S. are split because there was concern that the large number of aircraft in the region would overwhelm the 1090 MHz frequency, and the weather message structures sent via ADS-B IN are too large to transmit on 1090 MHz.

**Communication**—The communications element of NextGen revolves around datalink. This means that instead

of keying a microphone and talking via a VHF, HF or satcom radio to air traffic controllers, pilots instead can send and receive text-like messages, known as controller-pilot datalink communications (CPDLC), and communicate via exclusive ADS-C messaging (contracts). The messages are either structured messaging, which means exchanging information by choosing from a set of pre-defined messages, such as a request for an altitude change, deviation and so on, or free texting, which allows exchange of non-structured messages.

Future Air Navigation System (Fans) is part of NextGen communications, used for airborne CPDLC and ADS-C messaging over remote and oceanic areas. Airlines have been using Fans for decades, and now Fans is finally becoming more available for business jets using lower-cost satcoms such as Iridium-based systems, just in time for upcoming Fans mandates over the North Atlantic. Iridium systems that meet Fans requirements are available from Gogo Business Aviation, International Communications Group and TrueNorth Avionics.

Other NextGen datalink-related terms include Data Comm and Link 2000+. Data Comm is the FAA's overarching term for the switch from analog communications (pilots and controllers talking on radios) to a datalinked future. Link 2000+ is Europe's version of Data Comm, and this form of CPDLC is required above FL285 in European

airspace (new aircraft since 2011, retrofit installations after February 2015). The FAA has yet to publish any Data Comm mandates. Generally, Fans-equipped business jets already meet Link 2000+ requirements, so no additional equipage will be needed to fly in European airspace. Aircraft equipped for Fans/CPDLC should eventually get better service from ATC in the U.S. when Data Comm goes live.

One of the early implementations of Data Comm in the U.S. will be pre-departure clearances (PDC). Instead of calling clearance delivery for a clearance and then reading it back, the pilot will obtain the clearance via onboard avionics. With the right equipment the clearance will be available to the FMS automatically, and the pilot simply has to accept the clearance and verify that the FMS has correctly added it to the flight plan. Trials of this new PDC capability have been done at Memphis, Tenn., and Newark, N.J., and rollout is expected at 51 metropolitan airports next year.

**Navigation**—New business jets and those getting upgraded with modern avionics have high levels of required navigation performance (RNP) capability built in. "RNP is Rnav [area navigation] with onboard navigation monitoring and alerting," according to the FAA. Instead of routing aircraft on pre-defined airways, Rnav allows for more direct flights,

*Continues on next page ►*





## PART 25

### Accord Technology

Accord Technology, which manufactures high-precision, lightweight and low-cost NexNav GPS sensors, plans to offer its GPS SBAS circuit-card assembly “GPS engines” to help multi-mode receiver (MMR) manufacturers and airlines meet ADS-B mandates. MMRs combine various navigation sensors for delivery to FMSs. Accord also plans to serve military operators, which field about 20,000 aircraft that will need upgrading if they are to continue flying in the National Airspace System.

### ACSS/L-3

ACSS has been at the forefront of preparing for NextGen mandates with its NXT series of transponders, which are FAA TSO approved. The NXT-600 was selected as standard equipment for Bombardier’s Q400 and ATR’s 42/72-600 and will begin flying on these aircraft in this year’s first quarter.

The company’s SafeRoute applications are hosted on ACSS’s 3000SP Tcas or its T3CAS, which combines Tcas, Taws, transponder and ADS-B into one LRU.

SafeRoute ADS-B IN features can be delivered on a variety of cockpit displays. The U.S. Navy selected the Tcas 3000SP coupled to the P-3 cockpit’s primary flight displays, as part of a P-3C, EP-3E and P-3 SPA upgrade program that is the first application of SafeRoute in a military aircraft. The P-3 application is also the first installation for SafeRoute displayed in the pilot’s forward field of view. All previous SafeRoute implementations were displayed on electronic flight bags, according to ACSS.

SafeRoute applications include interval management, in-trail procedures (ITP), cockpit display of traffic information assisted visual separation (CAVS) and surface area movement management (SAMM). Airlines have already certified and have been flying with these SafeRoute applications on A330s, 757s and 767s. Delta Air Lines uses ITP on three 767s, while the former US Airways is flying CAVS into Philadelphia International Airport on 20 A330s. The P-3s are using another SafeRoute application, enhanced visual acquisition (EVAQ), which “provides the crew traffic passive surveillance ranges beyond 100 nm,” according to ACSS.

ACSS sister company L-3 Aviation Products is also addressing the general aviation market with its Lynx MultiLink Surveillance System, a one-box ADS-B OUT solution. Lynx has an ADS-B rule-compliant GPS position source and it uses existing wiring and antennas to make installation simpler.

### Esterline CMC

One of the missing links in meeting NextGen avionics requirements is the rule-compliant GPS receiver, and this is especially a problem in the airline industry, where GPS was slow to take hold. Most airliners are equipped with MMRs, but airlines have been slow to upgrade MMRs with SBAS-quality GPS sensors, and this could complicate compliance with ADS-B OUT mandates.

Esterline CMC has a solution for this problem, an SBAS/Waas-capable precision GPS receiver, the IntegriFlight CMA-5024, which can be installed with an optional CMA-5025 control panel. The control panel allows pilots to select LPV or SBAS approaches, if the FMS doesn’t have that capability. Ground-based augmentation system (GBAS) capability will be added soon. The CMA-5024 and -5025 thus offers older aircraft an upgrade path to NextGen GPS requirements with the benefit of advanced approach capability.

“Our [solution] is designed for easy retrofit,” said John Studenny, Esterline CMC aviation GPS product manager, “whether it has an MMR or not. With one receiver it can feed RNP, ADS-B and GPS approaches.”

Studenny cited an example where airline Canadian North installed the CMA-5024 in one of its Boeing 737s. Absence of ILS approaches in the far north meant frequent flight cancellations during bad weather, but once the 737 was able to fly LPV approaches with the CMA-5024, he said, “that airline’s

► Continued from preceding page

saving time and fuel. RNP capability can make it possible for aircraft to fly off airways, and the aircraft’s RNP “level” specifies the accuracy of the aircraft’s RNP system, the FAA explained, “as a distance in nautical miles from the intended centerline of a procedure, route or path.” In the U.S., for example, RNP approaches typically require RNP levels of 0.1 to 1.0, depending on the type of approach. Many RNP approaches are “authorization required” (AR) and thus require special approval and training.

### Situational Awareness—ADS-B

IN enhances situational awareness in two ways. The first is by enabling reception of traffic information—from other aircraft broadcasting their position via ADS-B OUT—for aircraft equipped with either a 1090ES or 978UAT receiver or both.

(The 978UAT receivers can also receive traffic broadcast from ADS-B ground stations.) The second is by delivery of free weather information to aircraft equipped with 978UAT receivers. The 978UAT traffic element is called Traffic Information Services (TIS-B) and weather is Flight Information Services (FIS-B); both are “broadcast” features, hence the “B” designation.

The availability of ADS-B IN has led avionics manufacturers to offer additional products that take advantage of that information. For traffic, this is called Cockpit Display of Traffic Information. Gulfstream’s new G500/G600 will offer CDTI in the company’s Symmetry flight deck. ACSS, the L-3 Communications/Thales joint venture, has developed a suite of SafeRoute applications using so-called Universal-CDTI, which it developed in partnership with Astronautics. In addition to CDTI SafeRoute apps include merging and spacing, in-trail procedures, CDTI-assisted visual separation and surface area movement management. The latter enables pilots to view other aircraft and ground vehicles while taxiing on the airport. The others enable tighter spacing of properly equipped aircraft where non-equipped aircraft are typically kept far apart because controllers don’t know their exact position. These apps also allow for maneuvering while maintaining the tighter spacing.

ADS-B IN CDTI can be displayed on cockpit multifunction displays or on dedicated EFBs, such the Astronautics Nexis and Esterline CMC units. System wide information management (Swim) is part of the NextGen infrastructure, which “will enable cost-effective, real-time data exchange and sharing among users of the [NAS],” according to the FAA. One of Swim’s features will offer dissemination of aviation weather products to ATC and aircraft operators.

Nav Canada and NATS Control Centre (Prestwick, Scotland) have implemented a precursor to Swim, the Gander Automated Air Traffic System (GAATS+), which allows Canadian controllers in Gander to exchange messages “with advanced automation, allowing improved coordination between the centers,” including conflict prediction and alerts. Eventually, Gander and Prestwick will share information about ADS-B-equipped aircraft. The Aireon satellite-based ADS-B service network is expected to be operational in 2018, thus making it easier to track ADS-B targets over the ocean and remote regions, which are out of reception from ground-based ADS-B stations.

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### Equipment Mandates

**ADS-B**—The mandate that affects most aircraft operators in the U.S., Europe and parts of the Asia-Pacific region is for ADS-B OUT equipment.

There are two key items that operators need to know about when considering ADS-B installations. First, two different RTCA standards apply to ADS-B transponders: DO-260A and DO-260B. In some parts of the world authorities want compliance with DO-260A, but U.S. and European mandates require compliance with the more stringent DO-260B standard. U.S. business aircraft operators should plan to meet the DO-260B standard. If the aircraft has a DO-260A transponder, it will need to be upgraded for operation in U.S. and European airspace after the mandates kick in. (DO-260A/B applies to the 1090ES datalink, while DO-282B applies to the 978UAT datalink.)

The other key item is the need for a Letter of Authorization (LOA) from the relevant regulatory authority. An LOA is not required in the U.S.; the LOA requirement stems from the International Civil Aviation Organization, and countries that have or are implementing ADS-B are hewing to ICAO requirements that specify the need for an LOA. Incidentally, no one understands why an LOA would be necessary for ADS-B operations, as the basic control pilots have over the system is the on-off switch, similar to a transponder. FAA regulations do require that ADS-B OUT be switched on at all times during flight.

ADS-B OUT is currently required in parts of Australia, Hong Kong, Singapore, Vietnam and Taiwan. ADS-B is available in the Hudson Bay region of Canada, but is not mandatory, although equipped aircraft will receive better services in that area.

In Australia, all aircraft flying IFR at or above 29,000 feet were required to be ADS-B OUT equipped beginning Dec. 12, 2013. Beginning Feb. 6, 2014,

all new aircraft were required to have ADS-B OUT capability. All aircraft will need ADS-B OUT for Class A, B, C or E airspace in a 500-nm circle around Perth beginning Feb. 4, 2016. Then from Feb. 2, 2017 all IFR aircraft flying in Australian airspace must be ADS-B OUT equipped.

Canada is already using ADS-B for surveillance of aircraft flying in 4 million sq km of airspace over the Hudson Bay and northeast Canada/oceanic areas. Canada does not currently have an ADS-B mandate but is encouraging operators to equip to receive better services in ADS-B coverage areas.

In Hong Kong, Singapore, Vietnam and Taiwan certain routes above 29,000 feet require ADS-B.

In Europe, the ADS-B mandate will apply to Eurocontrol airspace. Equipment meeting the DO-260B standard will be required for new aircraft beginning June 8, 2016, and for aircraft being retrofitted for ADS-B OUT operations the date is June 7, 2020. This applies only to aircraft weighing more than 5,700 kg/12,566 pounds or with a cruise speed of more than 250 knots.

In the U.S., aircraft without ADS-B OUT will not be able to fly in airspace that currently requires a transponder after midnight on Dec. 31, 2019. Airspace where ADS-B OUT will be required is as follows:

Class B and Class C airspace; within 30 nm of major airports from the surface upward to 10,000 feet msl; above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport upward to 10,000 feet msl; Class E airspace within the 48 contiguous states and the District of Columbia at and above 10,000 feet msl, excluding the airspace at and below 2,500 feet above the surface; Class E airspace at and above 3,000 feet msl over the Gulf of Mexico from the coastline of the U.S. to 12 nm. The rule doesn’t apply to aircraft lacking an electrical system and balloons and gliders, but they are restricted to remaining outside Class B and C airspace and below the altitude of the ceiling of a Class B or C airspace area designated for an airport or 10,000 feet msl, whichever is lower.

**Future Air Navigation System**—Fans was developed in the 1980s as a way to improve air traffic management using digital communications, navigation and surveillance techniques. Boeing developed its own solution, known as Fans I, and Airbus’s solution is known as Fans A, thus the current term Fans I/A.

The lucky pilots mentioned at the beginning of this report are those who are flying newer aircraft coming out of the factory already Fans I/A equipped—not only because these pilots can fly in areas where Fans is required but also because Fans equipment easily accommodates or includes other NextGen technologies such as the highly



ACSS SafeRoute application



CMA-5025



accurate GPS source and ADS-B OUT capability.

Starting in 2013, Fans was required for aircraft flying the two center North Atlantic Track Organized Track System (NAT-OTS) routes between FL360 and FL390. Come next month that expands to FL350 to FL390 for the entire OTS, then in 2017 to the entire NAT region. In 2020 this expands even further, down to FL290.

Fans equipage must include an approved means of communication, generally Inmarsat or Iridium satcom, for remote and oceanic operations. The FMS needs an accurate position source—a GPS with satellite-based augmentation system (SBAS) capability. Also required are a communications management unit, annunciator capability (either external or on flight displays), aural alerting and a cockpit voice recorder capable of storing data (Fans messaging).

There is one wrinkle in Fans equipage, and that is an FAA requirement for operators of Fans-equipped aircraft to obtain an LOA. There are plenty of Fans training opportunities for pilots, such as Kober International (co-founded by Chicago Jet), Rockwell Collins's ArincDirect and training organizations such as FlightSafety. But once the Fans equipment is installed and pilots complete training, there could be major delays in obtaining the LOA from the FAA.

According to Carey Miller, manager of business development for Universal Avionics Systems, in 2013 the FAA processed seven LOA requests for Fans. That number jumped to 107 between January and March 2014. Currently, the FAA is taking between six and nine

months to process Fans LOAs.

Miller has compiled a list of business jets that are candidates for Fans upgrades—those that operators will likely want to fly across the North Atlantic. The list of candidate jets is about 3,000 strong, he said, and with more Fans STCs being approved, the pace of installations is going to accelerate quickly. “There’s no way the FAA can keep up with the number of LOA requests coming in,” he warned.

While Miller would like to see the FAA change tactics and allow simple operations such as Fans to be addressed as part of practical test standards during a check ride, this is not likely to happen soon, and operators will have to get the LOA. For those planning a Fans upgrade, he suggested getting the installation done and then applying right away for the LOA. “Otherwise you could be waiting a long, long time before getting operational approval. If you can’t use the North Atlantic tracks you’re going to have to make another tech stop.”

AIN asked the FAA to outline its strategy for handling the influx of Fans LOA applications, but as of Mid-December the agency had not provided a response.

## Roadblocks and Delays

Much discussion within the aviation industry recently has focused on ADS-B mandates and on whether the FAA will delay the 2020 deadline. While there is some speculation that multi-mode receiver-equipped airliners will be allowed to push past the deadline

in certain cases (for example, with GPS receivers that do not comply), the FAA has clearly stated that there will be no relief for general aviation.

The FAA’s network of more than 650 ADS-B ground stations is complete and the agency is busy bringing ATC equipment up to speed so controllers can view and manage ADS-B traffic on their displays. The network is clearly necessary for air traffic controllers to see ADS-B traffic, but a side benefit is that the ground stations also broadcast the free FIS-B weather and TIS-B traffic for 978UAT ADS-B IN-equipped aircraft.

One of the issues most often heard is the absence of benefit to aircraft equipped for ADS-B OUT. The real benefit, the wider common good, is that ADS-B makes aircraft visible to controllers where there is no radar coverage; also, the data is updated every second instead of every 12 seconds—the time it takes for a radar antenna to make one sweep of the sky. This benefit often allows an airplane to fly an instrument approach in an area where radar isn’t available.

On October 28 the FAA held a “call to action” meeting with the aviation industry to discuss issues that are preventing more widespread adoption of ADS-B OUT equipment. Last September the Department of Transportation inspector general released an audit of the program that found the initial benefits of ADS-B OUT will be limited and that only a fragment of the

*Continues on next page ►*

## PART 25 continued

business tripled. They had been slaves to the weather.” By adding LPV capability, the airline was able to stick to schedules and customers soon took advantage and began traveling more frequently. “That’s a tremendous success story,” he said.

## FreeFlight Systems

In the Part 25 business jet market, owners and operators of older jets are facing a serious problem: with some business jet ADS-B upgrades costing well into six figures, enthusiasm for upgrading a jet worth \$1 million or less is dim.

FreeFlight Systems has been at the forefront of offering reasonably priced ADS-B upgrades for Part 23 aircraft and is now developing low-cost ADS-B equipment for the Part 25 market, specifically targeting lower-value business jets. The FreeFlight FTX-200 is a combined ADS-B rule-compliant transponder and GPS in one box that will sell for \$30,000 to \$40,000, including the installation kit and antennas.

“A lot of avionics manufacturers are tying FMS upgrades with glass cockpits. And owners are facing \$100,000 to \$700,000 to upgrade the entire cockpit,” said Jessica Power, FreeFlight director of sales and marketing. “We were able to stop the bleeding for some folks facing six-plus figure [upgrades] and made it more digestible for a \$1 million airplane.”

FreeFlight is working with partners to certify an FTX-200 STC for the Hawker 400, 30-series Learjets and 500-series Citations. The installation will use either an existing control head in the cockpit or add a FreeFlight control head.

FreeFlight also offers the FRX-250, which includes a 978UAT ADS-B IN receiver, so these aircraft can benefit from free FIS-B weather services.

FreeFlight is also working with airlines in Europe for 737 and 757 ADS-B OUT upgrades. “They don’t need to upgrade the FMS; they just need the transponder and GPS,” she said.

## Garmin

Aircraft equipped with Garmin G5000 Part 25 cockpits are already being delivered with Fans/CPDLC and ADS-B capability, and the G1000, G2000 and G3000 flight decks are easily upgradeable for ADS-B OUT. Garmin’s ADS-B IN solutions, including TargetTrend traffic and Surface Situation Awareness, are available on its ADS-B-capable systems. TargetTrend shows relative motion of other traffic, while Surface Situation Awareness displays traffic on the airport surface.

Garmin also offers a simple ADS-B solution for older business jets, its GTX 3000 Mode 3 transponder combined with the GDL 88 datalink and Flight Stream wireless gateway. The GDL 88 has a Waas/SBAS GPS receiver, thus eliminating the need to upgrade existing FMSs and



FreeFlight  
FRX-250



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# AVIONICS FOR NEXTGEN

► Continued from preceding page

industry—3 percent of major air carriers and 10 percent of general aviation users—have thus far equipped. A result of that meeting was formation of the Equip 2020 group, designed to allow the FAA and industry to work together to resolve issues that are delaying ADS-B equipage.

NBAA vice president of regulatory and international affairs Doug Carr, who attended the call to action, raised the issue of low-cost loans to help owners and operators equip for NextGen. The congressionally authorized NextGen GA Fund is designed to provide loans with low interest rates to help pay for NextGen upgrades. Paula Derks, president of the Aircraft Electronics Association, pointed out that AEA members are ready to install ADS-B OUT avionics, but “the FAA is dragging its feet on the incentive program by not approving the loan guarantee certificates for the NextGen GA Fund.”

According to an FAA spokesman, however, any progress on these loans remains Congress’s purview: “While the 2012 FAA Reauthorization included a provision intended to allow the FAA to enter into public-private partnerships including loan guarantees, the FAA requires specific language in an appropriation act before it can issue such guarantees.”

AOPA is more concerned about the price of ADS-B installations, especially for owners of older general aviation aircraft. “The minimum investment of \$5,000 to \$6,000 to install ADS-B-OUT equipment is ‘far too high’ for many GA operators,” AOPA president Mark Baker wrote in a letter to the FAA, “especially given that the general aviation fleet includes at least 81,564 certified, piston-powered, fixed-wing aircraft that are valued at \$40,000 or less, and that GA owners have no way

to recoup their costs.

“We strongly believe there are alternative means to ensuring that plans for a satellite-based air traffic management system can be implemented with the widespread participation of the general aviation community,” Baker wrote.

Not all agree with Baker. It has been pointed out that the FAA-mandated installation of mode-C transponders, which then cost about \$1,000, faced a similar argument about lack of benefits to aircraft owners. The current cost of basic ADS-B OUT equipment is roughly the same as that transponder when inflation is taken into account.

The pressing problem now is getting the fleet equipped in time for the 2020 mandate. In testimony before the House of Representatives Committee on Small Business last June, Tim Taylor, president and CEO of FreeFlight Systems, outlined this issue. “With approximately 2,000 days between now and January 1, 2020, we need to equip 60 to 70 aircraft per day—including weekends and holidays—or 85 to 100 aircraft per work day.”

Commenting on this issue, Hal Adams, co-founder and COO of Accord Technology, told AIN, “Waiting on lower-cost avionics is a myth. Avionics have a minimum threshold of costs (non-recurring engineering) to accommodate [and] meet all the FAA requirements. As an industry, there may be one or two entries that will be somewhat marginally less in cost, but new solutions are not likely. This is not consumer electronics wherein AOPA thinks the price will just keep going down. If we had a market consisting of billions of potential buyers, we would still be unable to make drastic price drops

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Garmin G5000

## PART 25 continued

making the installation much less complicated. The Flight Stream wireless gateway facilitates display of ADS-B IN weather and traffic on the Garmin Pilot mobile app.

Garmin is working with dealers on STCs for this upgrade, including Executive Aircraft Maintenance (Citation V), Elliott Aviation (Hawker 750, 800A/XP, 850XP, 900XP, Beechjet 400A/Hawker 400XP) and Butler National (Learjet 35A, 60).

## Honeywell

Most ADS-B equipage for aircraft with Honeywell-based avionics is in newer aircraft, including the Gulfstream G450/550/650, Dassault Falcons, Pilatus PC-12 and AgustaWestland AW139, according to Scott Miller, director of marketing and product management for safety and information management. “Honeywell now has more than 700 aircraft certified with ADS-B that meets the mandate for Europe and the FAA,” he said. “Where we see the lag is with legacy fleets.” These include Cessna Citations, Hawker 800s and Learjets.

Certification of Honeywell’s transponder for ADS-B OUT for Airbus and Boeing aircraft is late, Miller admitted. While certification had been planned for last year, it has been pushed to 2016. “That’s close to the European forward-fit mandate in June 2016, but plenty of time for the retrofit market.” For business aviation, equipment on Primus Epic and Primus 1000 and 2000 cockpits is certified and available via manufacturer service bulletins. Some aircraft may need GPS upgrades, and Honeywell is working on options to help owners of older business jets keep costs down, he explained.

On the Fans side, said Darshan Ghadi, director of marketing and product management, “We see a lot of interest from business and general aviation operators, both with Epic as well as some older Primus 1000/2000 systems.” Fans equipment has already been certified and is flying on modern Epic cockpits such as in newer Gulfstreams and Falcons and is available for retrofit via manufacturer service bulletins. “Then we’ve been focused, as we approach the 2017 [Fans] mandates, on the retrofit market,” he said. “We’re working with Gulfstream on the GIV and GV, then with Dassault on the Falcon C and EX [models].” Honeywell is also exploring Fans STCs for earlier Falcons and Bombardier’s Challenger 601 series. Fans upgrades are available from Dassault for the 7X, 900 EX EASy and 2000 EASy II models, and Western Aircraft is one MRO that has completed several Falcon Fans upgrades.

Operators that buy the new Gulfstream G500/G600 and Falcon 5X will have cockpit display of traffic information, including display of surface traffic, built in.

A useful poster showing the status and availability of NextGen upgrades for business aircraft with Honeywell avionics is available on the company’s mandates web page: <http://aerospace.honeywell.com/news/understanding-the-mandates-landscape>.

## Rockwell Collins

“NextGen readiness is a huge focus [for Rockwell Collins] for all markets,” said Adam Evanschwartz, director of marketing for business and regional aviation. “We have solutions for [ADS-B, Fans, CPDLC], either available today or soon, well ahead of when they’re needed.” Global 5000s and 6000s and Gulfstream G280s—all with Pro Line Fusion-based avionics—are flying now with factory-installed Fans equipment.

On the retrofit side, Evanschwartz encourages business jet operators to look beyond the upcoming mandates for equipage needs, which could mean upgrading a flight deck from cathode-ray tube-based displays to LCDs, not just upgrading to the necessary new transponder for ADS-B OUT capability. The Rockwell Collins TDR-94D ADS-B out-compliant transponder is certified and available today, he said. The company has fielded



Honeywell’s implementation of the ADS-B IN cockpit display of traffic information.



## PART 23

The key NextGen mandate for Part 23 aircraft is for ADS-B, and there are plenty of avionics manufacturers serving this need with transmitters, receivers and transponders—among them Aspen Avionics, Avidyne, BendixKing, FreeFlight Systems, Garmin, L-3 Aviation, NavWorx and Trig Avionics. Their solutions range from the simplest—ADS-B OUT on 978UAT—to the more complex such as ADS-B IN on 978UAT and in and out on 1090ES. The latter allows the pilot to receive traffic information not only via TIS-B but also directly from ADS-B out-equipped aircraft broadcasting either on 978 or 1090 MHz.

Most of these systems are certified and available today. A typical installation of a Part 23 ADS-B IN and OUT system takes about 20 hours, according to FreeFlight director of sales and marketing Jessica Power, and that would include configuring the system to the transponder and control head and installing a Waas/GPS antenna on the top of the fuselage and an antenna on the bottom to receive the “in” signals from ground stations.

—M.T.



Rockwell Collins NextGen-equipped Vision flight deck in the new Bombardier Challenger 650.





NTSB materials engineer Matt Fox examines the casing of the battery involved in the JAL Boeing 787 fire incident.

## NTSB cites missteps by Boeing, FAA in 787 fire

by Gregory Polek

Boeing's incorrect assumptions about the effects of a short circuit in the main ship battery of the 787 and insufficient guidance for manufacturers to use in determining and justifying such "key" assumptions in safety assessments contributed to the Jan. 7, 2013, battery fire aboard a parked Japan Airlines Dreamliner at Boston Logan Airport, according to an aircraft incident report issued by the U.S. National Transportation Safety Board last month.

Specifically, the report said Boeing's safety assessment for the airplane's main and APU batteries incorrectly assumed that a short circuit within a cell would result in

venting of only that cell and not cause a fire. Furthermore, Boeing did not provide engineering rationale and justification to support the assumption. Finally, the assessment did not consider the consequences of an incorrect assumption or incorporate mitigations in the design to limit their effects, said the NTSB report.

Investigators found that the fire began after one of the battery's eight cells experienced an internal short circuit, leading to thermal runaway of the cell. Propagation to the remaining cells led to full battery thermal runaway, which resulted in a small fire and caused

smoke and flammable materials to exit the battery case.

"The investigation identified deficiencies in the design and certification processes that should have prevented an outcome like this," said NTSB acting chairman Christopher Hart. "Fortunately, this incident occurred while the airplane was on the ground and with firefighters immediately available."

Because the APU and main lithium-ion batteries installed on the 787 represented new technology not adequately addressed by existing regulations, the FAA required that Boeing demonstrate compliance with special conditions to ensure the safety of the battery on a transport-category aircraft. Investigators said that Boeing's safety assessment of the battery proved insufficient because it had considered, but ruled out, cell-to-cell propagation of thermal runaway but did not provide the corresponding analysis and justification in the safety assessment. As a result, Boeing and FAA engineers did not fully scrutinize the potential for cell-to-cell propagation of thermal runaway, ultimately allowing this safety hazard to go undetected by the certification process.

As a result of its findings, the NTSB made 15 safety recommendations to the FAA, two to Boeing and one to the battery maker, GS Yuasa of Japan. In the case of the FAA, it recommended that the agency improve the guidance and training provided to industry and certification engineers on safety assessments and methods of compliance for designs involving new technology.

"The aviation industry is continually benefitting from technological advances, and we are hopeful that the lessons learned in this investigation will further enhance the industry's ability to bring those innovative technologies to market safely," concluded Hart. □

## ICAO recommends war zone database for airlines

An International Civil Aviation Organization (ICAO) task force recommended last month that nations establish a centralized information-sharing system to warn airplanes of risks to civil aviation arising from war zones. Created in reaction to the July 17 downing of Malaysia Airlines Flight MH17 over eastern Ukraine, the task force said it expected preliminary trials of a European version of the system to largely inform related recommendations. All 298 passengers and crew died as a result of the presumed missile strike.

Upon concluding its third and final meeting, the task force expressed "clear satisfaction" with the progress it achieved in devising a work program packaged for assessment by a wider cross-section of

ICAO's 191 Member States during the UN agency's High-level Safety Conference scheduled for February 2 to 5. It also expressed satisfaction with the work performed by its team of international experts on categorizing the risks to civil aviation over conflict zones to provide guidance to both airlines and states in the future.

"We had a considerable set of challenges put to us when this task force was established, and I am pleased with the excellent results we've been able to determine in the short period of time available," said task force chairman David McMillan. "Those of us in the room understood that flying is still the safest way to travel, but we also recognized the public's unease where conflict zone risk is concerned." —G.P.

## NEWS UPDATE

### ■ Charleston's First 787-9 Under Way

Workers at Boeing's plant in North Charleston, S.C., have started final assembly of that location's first 787-9 Dreamliner, the company announced in late November. The team began joining large fuselage sections of the newest 787 on schedule, on November 22.

Start of final assembly of North Charleston's first 787-9 comes roughly a year-and-a-half after production of the first 787-9 got under way at Boeing's factory in Everett, Wash. Schedules call for United Airlines to take delivery of the first South Carolina-built 787-9. Twenty feet longer than the 787-8, the 787-9 generally carries some 40 more passengers, depending on seating configurations, and operates to a range of 8,500 nm—some 450 nm farther than its smaller sibling.

Boeing delivered the first 787-9 to All Nippon Airways on July 29. As of the end of October, four airlines—Air New Zealand, ANA, United and Virgin Atlantic—had taken delivery of seven Everett-built 787-9s.

### ■ Ryanair, Boeing Seal Max Deal

Ryanair has closed on an order for 100 Boeing 737 Max 200s, valued at \$11 billion at current list prices, the parties announced last month. The order, originally announced as a commitment in September, includes options for 100 additional 737 Max 200s and makes Ryanair the launch customer for the newest member of the 737 Max series. The Irish low-fare airline expects to take delivery of its first 100 Max 200s from 2019 through 2023.

Plans call for Ryanair's airplanes to come in a single-class, 197-seat interior configuration, meaning they will hold eight more passengers than Boeing designed the standard Max 8 to carry. Boeing's new design allows for as many as 200 seats by incorporating a mid-exit door to meet evacuation requirements, giving the airplane the potential to beat by 20 percent the operating cost of the current 737-800NG.

### ■ Niki E190s Out, Airbuses In

Etihad Airways equity partner Air Berlin will replace all seven of the 112-seat Embraer E190s flying for Austrian subsidiary Niki with an equal number of Airbus narrowbodies by the middle of this year, the German airline announced last month. Plans call for the transition to be complete by June and involve the addition of five 150-seat Airbus A319s and two 180-seat A320s.

The company said the move will allow Niki to become more efficient "in terms of its network and cost structure."

"The standardization of our fleet is a bonus for Niki," said Niki managing director Christian Lesjak. "It will allow us to operate more economically on the whole. And the increased overall capacity will also enable us to support an important trend. Vienna Airport has established itself as a hub for Air Berlin passengers for flights to Greece and Cyprus, for example."

The Air Berlin group announced a fleet "harmonization" last September as one element of a restructuring program, part of which involved the cancellation of orders for 18 Boeing 737s and 15 Boeing 787s. It plans to replace all 45 of its existing Boeing 737s with Airbus narrowbodies by the end of next year. —Gregory Polek



# Malaysian regional to re-launch as LCC

by William Dennis

Malaysian regional airline MASWings will re-launch as a low-cost carrier this year with the addition of Boeing 737-800s under Malaysia Airlines' restructuring exercise, according to a senior official at the government's strategic investment arm, Khazanah Nasional Berhad (KNB). To be based at Kota Kinabalu International Airport in the East Malaysian state of Sabah, MASWings' jet fleet will initially consist of four aircraft leased from the open market.

Plans call for MASWings to operate as an entity separate from MAS and reincorporate as a new company at a later date. According to the KNB official, MASWings' network will include destinations to China, within four hours of flying time from Kuching and

Kota Kinabalu. KNB holds a 69.4-percent stake in MAS.

"In the current scenario, it will be tough for MASWings to survive in the market as a community airline with the growing competition," he said. The carrier currently competes with AirAsia and Malindo on several routes within Sabah and Sarawak.

Contacted for comment, a Malaysia Airlines spokeswoman declined to offer any details. "Planning is still under way; as such it is still too early to comment on anything that is not concrete," she said in a written statement to AIN.

MASWings will continue operating its ATR 72-500s and -600s and Viking Twin Otters for domestic and rural services, respectively, after its re-launch



MASWings now flies ATR 72-600s throughout the Malaysian states of Sabah and Sarawak.

as an LCC. The Malaysian government grants subsidies for flights to the interior of the two states where air travel is the only mode of transport.

MASWings currently operates 10 ATR 72-500s, four ATR 72-600s and five Viking Twin Otters. It expects to take

another eight new ATR 72-600s through next year. MASWings started operations in October 2007 and now maintains a network of 22 domestic destinations. It also offers flights to Tarakan and Pontianak in Indonesia and Puetro Princessa in the Philippines.

Separately, the architects of MAS's reorganization, slated to take effect in July, expect it to result in the independence of fellow regional subsidiary Firefly. Based at Sultan Abdul Aziz Shah Airport in Subang, 15 miles outside Kuala Lumpur, it too will operate as a separate company. □

## Active financing market to boost airliner deliveries

Boeing predicts that the world's airlines and lessors will continue to benefit from greater competition among lenders and historically low interest rates as manufacturers deliver \$124 billion in new airplanes this year. In a new aircraft finance market outlook issued last month, Boeing added that decades of predictable, attractive returns have led to "unprecedented" diversity, efficiency and volume of financing for commercial airplanes. According to Boeing,

this year's financing will come mainly from capital markets, cash and commercial bank debt, while export credit agency exposure continues to wane.

"The strength we're seeing in aircraft finance is largely the result of a healthy and balanced global demand for new aircraft, which is being driven by anticipated growth in passenger traffic, record airline profitability and the continuation of a replacement cycle to improve the fuel and performance efficiency of the global

fleet," said Boeing Capital Corporation vice president of aircraft financial services Tim Myers.

"The stable performance of aircraft finance and investment over the past few years—particularly through the global financial crisis—is attracting new participants and is driving diversification both geographically and in terms of funding sources. That's good news for airlines and lessors, who will continue to have access to highly efficient financing," according to the report.

If Boeing's delivery projection for this year proves accurate, the value of the airplanes in need of financing would amount to double that of 2010. Although Boeing sees growth moderating over the next five years, by 2019 the financing requirement will amount to about \$156 billion, it said.

According to the report, lessors will continue to drive innovation in aircraft finance and fund approximately 40 percent of all deliveries. Meanwhile, capital markets will support nearly a third of the delivery value, bank loans some 29 percent and cash roughly a quarter, while export credit usage continues at historically low levels, accounting for some 13 percent of all financial backing. Finally, investor demand and lessor portfolio "sell-down initiatives" should support continued interest and investment in the used aircraft

### BOEING'S 787 ECODEMONSTRATOR TAKES FLIGHT

Boeing's 787 "ecoDemonstrator" flew its first test mission out of Boeing Field in Seattle on November 17, marking the start of a new round of environmental trials expected to last until the middle of last month. Boeing said the latest tests will assess more than 25 new technologies designed to improve efficiency and reduce noise.

Using 787 Dreamliner flight-test article ZA004, Boeing plans to evaluate software and connectivity technologies related to operational efficiency; remote sensors to reduce wiring; aerodynamic and flight control improvements for greater fuel efficiency; and "ice-phobic" wing coatings to reduce ice accumulation.

Plans call for ZA004 to test the NASA Airborne Spacing for Terminal Arrival Routes (Astar) to improve landing efficiency; new greenhouse-gas sensors evaluated in collaboration with Japan Airlines and others; real-time turbulence reports generated in partnership with Delta Air Lines to mitigate moderate or greater turbulence events; instrument landing systems for new and older aircraft to

optimize landings and reduce fuel use; onboard wireless sensor network and micro electro mechanical systems microphones to reduce wiring and weight; and outer wing access doors made from recycled 787 carbon fiber to reduce material costs and factory waste. Supplier partners for ecoDemonstrator 787 technologies and flight-tests also include Rolls-Royce, Honeywell, Rockwell Collins, General Electric and Panasonic.

The 787 ecoDemonstrator completed flight tests in July for an acoustic ceramic matrix composite nozzle designed by Boeing to reduce weight and noise as part of the FAA Continuous Lower Energy, Emissions and Noise (Clean) Program.

In 2011, the ecoDemonstrator Program tested 15 technologies with an American Airlines 737, including aspects of a new winglet expected to improve fuel efficiency by up to 1.8 percent on the new 737 Max. Plans for this year call for the ecoDemonstrator program to test more technologies on a 757 in collaboration with TUI Travel Group and NASA. —G.P.



market, it concluded.

In addition to the forecast for the coming year and projections for five years worth of financing requirements, the 2015 report made adjustments

for two notable trends over the past three years: bank debt liquidity proved higher than expected, and export credit usage declined more quickly than previously forecast. —G.P.



# Airline traffic could squeeze Middle East bizav

by Peter Shaw-Smith

The headlong growth of scheduled air transport in the Middle East is intensifying the challenges facing the region's air traffic controllers and the priorities they must set themselves as business aviation goes in search of the recognition it needs to expand and prosper.

The UAE's airspace is split equally between military operations and a growing raft of civil operations, Ahmed Al Jallaf, assistant director general of the UAE's Sheikh Zayed Air Navigation Centre, told the MEBA conference. The Middle East has various large portions of military airspace and, in his view, there is a strong need to implement flexible use of airspace.

In May 2013, the UAE's General Civil Aviation Authority (GCAA) submitted its Middle East ATM Enhancement Program (MAEP) proposal to ICAO calling for a cooperative effort to solve hardships related to the region's fragmented airspace structures, high levels of tactical intervention by ATC, choke points, traffic bunching and queuing, and reliance on conventional technologies. It cited ICAO statistics showing that Middle East annual traffic growth rates, led by the Gulf at 5.2 percent, lag only Asia-Pacific (6.3 percent) and Latin America (5.8 percent) in terms of growth.

## Infrastructure Developments

"Airspace in the region is extremely busy and congested. Continued investments in airspace and airport systems and technologies will allow the operators to have much more effective operations," said Al Jallaf. "We have realized that to accommodate the growth and the continued expansion we need to work together with our partners to ensure safe and efficient air traffic operations."

In the presentation submitted by GCAA, traffic forecasts for the UAE showed a steady rise. "The total number of flights within the UAE flight information region will jump to 1,859,000 in 2030 from 740,585 in 2012, according to the UAE studies. The current Middle East airspace structure will be unable to handle the sustained forecasted traffic growth within the UAE," the GCAA presentation to ICAO concluded.

"Business aviation is and will always remain a main

component of air traffic operations in general. It is up to the business aviation operators how they fit themselves into the system. From an air traffic control point of view, priority is given

specifically to certain criteria: aircraft in emergency, aircraft in hijack and so on, as per ICAO standards," said Al Jallaf.

"With regard to business aviation within normal status

operations, the current issue is sometimes the varied performance of the aircraft and how to create capacity," he continued. "The performance of super jets like the Airbus A380

varies significantly from specific light or medium category [business] aircraft."

Looking ahead to the implementation of MAEP, Al Jallaf concluded, "The importance is that it will encourage harmonization and collaboration to ensure safe and efficient operations and enhance ATM capacity." □



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## NEWS UPDATE

### ■ New Houston-area Heliport Opens

A public-use heliport opened in the Houston area. The FAA-approved Galaxy Aviation Woodlands Heliport (1TE2) has an 80-feet by 80-feet concrete pad and 5,625 sq ft of hangar space for helicopter storage. The facility is located near to The Woodlands Town Center in Oak Ridge North. All users must contact Galaxy at (936) 494-4252 in advance for landing authorization.

### ■ Speed Record Breaker Dies

Trevor Egginton, 81, passed away at his home in Yeovil, UK on November 23. Egginton and copilot Derek Clews broke the speed record for conventional helicopters on a closed course on Aug. 11, 1986, flying a specially modified Westland Lynx at an average speed of 216.38 knots/249.17 mph. The record still stood at his death.

### ■ Airbus Helicopters Surpass 10M Hours in Oil Sector

Since its helicopters began operating in oil-and-gas in the 1960s, Airbus Helicopters has logged 10 million flight hours in the sector. The first two regions are the Americas (4.1 million) and Europe (3.3 million), followed by Asia (1.82 million), Africa (557,000) and Oceania (216,000). Of the estimated 2,300 rotorcraft used in oil-and-gas missions today, approximately 25 percent are produced by Airbus Helicopters, the manufacturer estimates. The Super Puma series is the frontrunner, accounting for approximately one third of the 10 million flight hours.

### ■ Management Changes at Bell

Bell Helicopter announced several management changes on December 1. Among them: Matthew Hasik is promoted to executive vice president of commercial business; Barry Kohler assumes the position of executive vice president for customer service and support; and industry veteran Larry Roberts is appointed vice president for sales and marketing for the Bell 525 program.

### ■ Wallan Aviation Orders Three Bells

At last month's MEBA show Bell Helicopter announced the purchase of a Bell 429 seven-passenger light twin and a letter of intent for two four-passenger Bell 505 Jet Ranger Xs by Saudi Arabian operator Wallan Aviation.

### ■ Helitech 2014 Turnout Confirmed

The organizers of the Helitech 2014 show in October in Amsterdam confirmed the final attendance count as 2,877. That number is sharply lower than the previous year's 5,600, but organizers insist it should be seen as a new beginning for a show that has traditionally been held in the UK. Helitech will return to London this year and alternate between the two cities henceforth.

### ■ Vector Gets HTaws Upgrade Nod

Canada-based maintenance, repair and overhaul specialist Vector Aerospace has received FAA and EASA certification for the installation of helicopter terrain awareness systems (HTaws) on Airbus Helicopters AS332C, L and L1 Super Pumas. Vector will include the HTaws upgrade, along with its other modifications and upgrades, in its own fleet of AS332Ls available for lease through Vector Aerospace Leasing Solutions. Those currently leased are serving in the Middle East and Southeast Asia and will soon deploy to Africa. —T.D., M.H.



NHV CEO Eric Van Hal, left, and Dominique Maudet, Airbus Helicopters executive v-p for global business and services, celebrate the first EC175 delivery.

## Airbus Helicopters delivers first two EC175s

by Frédéric Lert

Airbus Helicopters handed over the first two EC175s last month, to Belgian operator NHV (Noordzee Helicopters Vlaanderen), one of three launch customers for the type. Commercial operations in the North Sea were set to begin shortly thereafter. One helicopter would fly while the second stood by as a backup for at least the first few days.

"We have to make [the helicopter] a success...there is no other [option,]" said Guillaume Faury, CEO of Airbus Helicopters, during the December 11 handover ceremony in Marignane, France. Dedicated to the oil-and-gas market, the seven-ton EC175 fills the gap between the Dolphin and the Super Puma. According to Airbus Helicopters, 90 percent of the North Sea's offshore installations are within reach of its new helicopter with 16 passengers on board and a crew of two.

### Back on Track

NHV is a Belgian-registered company active in the oil and gas market, primarily in the North Sea and western Africa. NHV also offers

maritime services and has been flying a variety of Airbus Helicopters rotorcraft since 1997. NHV sees its newest model as "a cost killer."

The company ordered 16 aircraft and will receive six in 2015, two



The first EC175 will be in operation in the North Sea this month.

more in 2016 and the remainder the following year. The operator plans to base half of its fleet in the North Sea and some others in western Africa. Because the de-icing system is not yet certified, there is no plan to base helicopters in Norway. As a result of the two-year delivery delay,

1,000 items already placed in NHV's inventories, according to Dominique Maudet, executive vice president for global business and services for Airbus Helicopters.

The EC175 backlog stands at 64 aircraft, nearly two thirds of which are on firm order; the remainder are options. Eighteen aircraft are on the final assembly line and the Chinese parts (fuselage, tailboom, intermediate gearbox and tail box) are now said to be up to spec and delivered on time.

Airbus Helicopters said last month that it is committed to delivering the first three aircraft to launch customers by the end of the year. NHV took the first two and the Russian company UT Air will receive the third. Heli Union, the third launch customer, will get its aircraft early this year. UT Air has ordered 15 EC175s, but delivery dates for 2015 have not been disclosed yet. "We are in contact to find relevant delivery dates," said Faury. "The uncertainties are linked to the fast evolving economic situation in Russia." □



Delays in the certification of the Helionix avionics slowed delivery, but pilots used the time to familiarize themselves with the aircraft in a procedures trainer and full flight sim.





Italian operator Aiut Alpin Dolomites is transitioning from its EC135T2 to the upgraded T3 model, shown.

## First EC135T3 enters service in search-and-rescue role

by Thierry Dubois

Italy-based Aiut Alpin Dolomites was set to begin operating the Airbus Helicopters EC135T3, the latest version of the ubiquitous light twin, on mountain search-and-rescue (SAR) missions last month. What might appear to be a minor upgrade yields a major boost in performance, especially in critical hot-and-high conditions, and organizations such as Aiut expect they will have a valuable reserve of power when operating at altitude with a full team of rescuers.

The T3 differs only slightly from its predecessor. The Turbomeca Arrius 2B2 Plus turboshaft features new Fadc that allows higher turbine outlet temperature and thus more power. The new air intakes, lateral as opposed to frontal, reduce so-called installation losses from compromised airflow. The four main rotor blades have been lengthened, increasing the disc diameter by eight inches. The vertical end

plates on the horizontal stabilizer have been eliminated, and the ventral fin below the fenestron has been reduced to nothing more than a bumper.

The modifications to the tail were demanded by the greater thrust from the main rotor, which has significantly changed the airflow around the airframe, chief test pilot Volker Bau told AIN. The development program involved 900 flight hours, including some training, by five aircraft, Bau said. For pilots already type-rated on earlier EC135s, the training consists of classroom familiarization and one hour of flying.

### Greater Margins

The EC135T3 was designed to satisfy operators' requirement for more power. "When hovering at between 10,000 and 13,000 feet with a full crew to winch up a victim and a rescuer, we'll still have

some safety margin in case of a down-draft," Aiut co-founder Raffel Kostner told AIN, emphasizing this is not the case with the T2. The category A certification means that the T3 will not lose height in the event of an engine failure while hovering. In hover out of ground effect using takeoff power at 7,000 feet and ISA+20, the T3 can carry 500 pounds more payload than the T2.

Aiut's crews consist of one pilot, one winch operator, one physician and one mountain rescuer. Kostner believes the EC135 is the right size for his operation, since 98 percent of the missions involve one stretcher, but there is room for two. His philosophy is to use the smallest helicopter he can—to limit downwash—and to get the patient to the hospital as quickly as possible. It is therefore critical that the helicopter allow the operator to winch a victim and accompanying rescuer directly into the cabin, close the door and fly away without delay.

Aiut's crews can take off on two minutes' notice. So far, operations have taken place only in daylight but Kostner is considering adding night-vision goggle capability (NVG) in the near term to provide more flexibility in the late afternoon in winter. The cockpit of Aiut's T3 is compatible with NVGs, and the base's helipad is equipped for night takeoffs and landings.

Operator Star Work Sky holds the AOC and acts as a service provider for the company's T2, which the T3 will replace. The current helicopter is on SAR duty eight months per year, in winter and summer, and it logs 700 missions annually. "Approximately 50 percent of the heavily injured we rescue survive," said Lydia Rauch, medical director.

Because Aiut operates in an area where three languages are spoken—Ladin, Italian and German—it requires a crew to

consist of one speaker of each; the pilot must also speak English.

Still ahead for the EC135 is certification of the Pratt & Whitney Canada PW206B3-powered P3 version, slated for the first quarter of this year, and a four-axis autopilot, according to chief engineer Johannes Plaum. Later, possibly next year, Airbus's Helionix suite will replace the current avionics.

An EC135T3 typically equipped for HEMS sells for approximately €5 million (\$6.25 million). Retrofits are offered for in-service EC135P2/T2s, ranging in price from €300,000 to €700,000 (\$375,000 to \$875,000) depending on options. □



### RELENTLESS POWERS ON

Bell Helicopter recently powered up the electrical system of the first 525 Relentless flight-test vehicle, including its Garmin G5000H touchscreen displays. The super-medium twin continues to progress toward a first flight early this year.

—M.H.

## Evolux seeks new markets for helicopter booking business

by Thierry Dubois

Evolux Transportation is gearing up to fully open its per-seat helicopter booking platform. So far it has found partner operators in the greater New York City and south Florida areas. Further plans target Los Angeles, San Francisco, Chicago and Atlanta and, later, the UK and São Paulo, Brazil.

In August and early September, Evolux logged six SkyShare and two SkyLimo reservations. SkyShare helps a customer find other passengers for a given trip, at a per-seat price goal. SkyLimo is a more conventional way of chartering an entire helicopter. These early reservations took place during a "closed beta" phase. Evolux sought to achieve five bookings per week in each geographic area by the end of last year.

Founder and CEO Ray Leavitt sees event-based travel (sporting events, concerts and so on) as a prime market for potential passengers, so his team is targeting customers with the destination channel partners, since those customers are already planning to attend

and would like to avoid the highways and arrive in style.

Evolux has found six partner operators. There are another five in New York, where Evolux also has two fixed-wing partners. The helicopter models available range from the Robinson R44 to the Sikorsky S-76C++.

The business model calls for revenues from a margin generated between the wholesale aircraft hourly rate and the retail hourly rate charged to consumers. The company also intends to generate revenue by providing flight logistic planning for large events and selling operational data to helicopter manufacturers, aircraft finance companies and insurers. Evolux's launch team comprises five people, three contractors and four developers.

Sikorsky, which awarded Evolux the top prize in its Entrepreneurial Challenge Competition last year, continues to support the company with free office space in Stamford, Conn., and introductions. □

### BELL TILTROTOR "GODFATHER" JAMES ATKINS DIES

Former Bell Helicopter chairman James Atkins died on November 17 at the age of 95. Atkins spent his entire professional career at Bell beginning in 1940, was instrumental in its move from Buffalo, N.Y., to Fort Worth and oversaw the development and growth of Bell's commercial helicopter division. He retired in 1984.

Richard Whittle, author of *The Dream Machine: The Untold History of the Notorious V-22 Osprey* told AIN that it was Atkins who successfully laid the groundwork for the tiltrotor.

"Jim Atkins wasn't the father of the tiltrotor, but in a sense he was its godfather, and a shrewd marketer for Bell Helicopter. His decision—against the advice of Bell test pilots—to take the experimental XV-15 tiltrotor to the Paris Air Show in 1981 was the key that opened the door to the V-22 Osprey program. When Navy Secretary John Lehman saw the XV-15 fly at Paris, he was smitten by the technology, exactly the reaction Atkins was hoping to achieve," Whittle said.

Bell's current CEO, John Garrison, issued

the following statement after Atkins's death: "We are deeply saddened to hear of Jim's passing. With skilled leadership, he guided Bell Helicopter through some of the company's most challenging times during its post-war diversification."

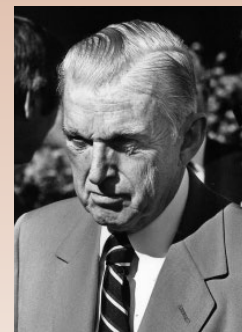
Atkins was born Dec. 4, 1918, in Buffalo, N.Y., and graduated from Canisius

College while working in the treasury department for Bell. Atkins left Bell to serve in the Army Air Corps in WWII from 1942 to 1945. He rejoined the company after the war and in 1952 he was promoted to chief accountant of Bell's new helicopter division.

Over the next 30 years he held a succession of titles, among them controller, secretary-treasurer and executive

vice president, until his appointment as president of Bell and executive vice president of Textron in 1972. Atkins is credited with establishing major international sales and co-production programs at Bell that helped it transition into the commercial helicopter market.

—M.H.



James Atkins



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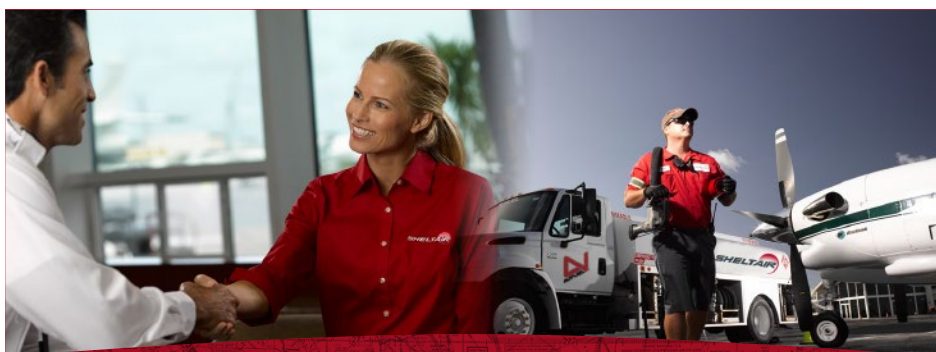


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## Hot Section by David A. Lombardo

### Maintenance News

#### POINT INNOVATION LAUNCHES ALLUREAERO VIP INTERIORS DIVISION

Dallas-based Point Innovation has launched a VIP interiors division, AllureAero. The company recently relocated to an expanded facility to support its growing client base. The new facility provides communication equipment, secured server vault, diesel and battery backup systems, fiber-optic connections, expanded R&D space and presentation floor space. The company says its designers have a combined 50 years' experience in aviation interiors.

Jim Murphy has been named to head AllureAero. Murphy has 17 years of design experience with a focus in VIP aircraft completions.

#### LUFTHANSA TECHNIK EXPANDS SERVICES TEAM IN DUBAI

MRO and VIP cabin completion specialist Lufthansa Technik is expanding its regional sales team by catering specifically to VIP customers and commercial services. Based in the Lufthansa Technik Middle East Services (LTMES) offices in Dubai, the new team is being established to handle key accounts with VIP customers to optimize services, support and contact possibilities.

"Lufthansa Technik Middle East Services bundles all the contact partners for sales, logistics, technical training and the component business and makes them available in Dubai," said Ziad al Hazmi, LTMES managing director. The company plans to position product specialists for line maintenance, airframe-related components (ARC) and overhaul on-site "soon." As part of the latter, LTMES is improving existing services for nacelle and ARC repair, and is evaluating the addition of more local repair capabilities. The company already offers the Cyclean engine ash removal system to regional customers.

#### ARABASCO AUTHORIZED TO SERVICE CHALLENGER 605s

Bombardier Business Aircraft added Arabasco as an authorized service facility (ASF) for Challenger 605 customers based in or flying to Saudi Arabia. Under the ASF agreement, Arabasco will offer Bombardier Business Aircraft customers maintenance services from its 31,446-sq-ft facility at the Private Aviation Terminal of King Abdul-Aziz International Airport in Jeddah, Saudi Arabia.

"This agreement will provide our Challenger 605 customers across Saudi Arabia and the surrounding countries with greater access to quality and first-class customer support in their own backyards," said Eric Martel, president of Bombardier Business Aircraft.

The facility has been providing maintenance on business aircraft for 32 years and is certified by the General Civil Aviation Authority (GCAA),

Federal Aviation Administration (FAA), Bermuda Department of Civil Aviation and the Civil Aviation Authority of the Cayman Islands.

#### DUNCAN AVIATION OFFERING AVIONICS SUPPORT IN VAIL

Duncan Aviation and Vail Valley Jet Center have teamed to provide avionics services to operators requiring assistance and services at Eagle County Regional Airport in Vail, Colo. Beau Hawkins, an avionics technician with the Duncan Aviation satellite avionics location in Denver, will provide avionics services to operators at Eagle County Airport.

#### JET AVIATION BASEL EARNS SAFETY APPROVALS

Jet Aviation Basel was recently recognized for its continuous improvement programs and the quality of its management systems regarding health and safety risks.

The first certification, ISO 14001, approves the main criteria for an effective Environmental Management System (EMS). The second, the internationally accepted Occupational Health and Safety Assessment Series (OHSAS) 18001 certification, confirms organizational commitment to controlling and reducing accidents in the workplace.



*Jet Aviation Basel received recognition of its continuous improvement programs and initiatives to minimize health and safety risks.*

"Our ultimate objective is to get our clients to their destinations safely," said Johannes Turzer, vice president and general manager of the maintenance center at Jet Aviation Basel. "In doing so, we also have a fundamental responsibility to protect the environment and provide a healthy and safe working environment for our employees and visitors."

#### AFBAA AND JSSI PROMOTE AIRCRAFT MX PROGRAMS

The African Business Aviation Association (AfBAA) has signed a memorandum of understanding with Jet Support Services (JSSI) to raise awareness about the importance of adopting best practices in aircraft maintenance. The five-year agreement will see the parties cooperating to promote awareness of program options that enable best practices across the aviation maintenance sector.

Under the terms of the agreement





(L-R) Bryan Moss, vice chairman JSSI, and Tarek Ragheb, founding chairman AfBAA, sign the five-year agreement.

AfBAA members will receive financial, educational and business benefits when enrolling aircraft onto JSSI programs. In addition JSSI will provide tools and incentives to promote the adoption of certain industry best practices, including hourly-cost maintenance programs for executive aircraft, engines and APUs.

#### BIZJET INT'L, GULFSTREAM SIGN SUPPLIER ACCORD

BizJet International Sales & Support has signed a supplier agreement for engine maintenance services with Gulfstream. The three-year agreement will provide Gulfstream with options for engine maintenance and customer support for the Gulfstream II, GIII, GIV, G350 and G450. BizJet has serviced more than 375 Rolls-Royce Speys and Tays since 2004.

#### NATA ACCEPTING 2015 AMT AWARD NOMINATIONS

The National Air Transportation Association is accepting applications for the 2015 Aviation Maintenance Technician Employer Award Program. The program, designed to recognize companies that employ aviation maintenance technicians and encourage and support AMT training, is based on the percentage of AMTs employed by a maintenance organization who participate in qualified training events.

An AMT must complete at least 12 hours of training each year to be counted toward the organization's award percentage.

The 2015 award is for training conducted in calendar year 2014. Training can include company policies and procedures, company safety program, OSHA or DOT courses relevant

to the aircraft environment, foreign repair station training and vendor-conducted equipment or component training. Training must include at least one hour of aircraft-related training and at least one hour of Federal Aviation Regulation-related training.

Applications are due by January 30.

#### EASA PROPOSES TIGHTENING MAINTENANCE REGS

The European Aviation Safety Agency last month issued a notice of proposed amendment (NPA) intended to "mitigate the risks linked to a faulty assessment of the responsibilities of continuing airworthiness management

organizations [Camos] and maintenance companies," especially in relation to the coordination needed in "complex" maintenance and operational arrangements.

According to the NPA, this coordination effort addresses the following matters: the responsibilities linked to the determination of the

airworthiness of the aircraft, including the procedures and documentation needed to ensure its notification to the flight crew; the responsibilities linked to the performance, coordination and release of maintenance; and the process followed for the release of maintenance.

Comments are due no later than February 3. □

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## Hot Section Opinion

**TORQUED** by John Goglia

### Accountability: personal and organizational

The ideas for articles frequently come from reader comments. While most of you don't post comments online, a number email me, some call me and quite a few talk to me when you bump into me at an aviation event, at an airport or even on airplanes. I can't count the number of times crewmembers have stopped to say something about a recent *AIN* article or even just that they read my articles. And I appreciate all of you who take the time to talk to me, but the ones I find most flattering, I admit, are the ones who say they turn to *Torqued* first when their copy of *AIN* arrives.

This article grew out of a number of comments that were made in response to my November *Torqued* about personal accountability for time management. That article stemmed from the NTSB's report on the Aug. 14, 2013 UPS A300 that crashed just short of the runway in Birmingham, Ala. The report determined that a contributing factor was "the first officer's fatigue due to acute sleep loss resulting from her ineffective off-duty time management." It also found that although the first officer knew she was tired, she didn't call and report her fatigue under UPS's fatigue policy.

I thought the NTSB's focus on personal accountability for time management was important. In the end, we all have choices we need to make. And while many of you agreed with the critical importance of personal safety choices, those who spoke with me privately felt that the NTSB had stopped short of getting to the bottom of organizational factors that might have affected the copilot's failure to report her fatigue.

#### Fatigue Management Review

Although the NTSB's report recommends that UPS and the pilots' union conduct an independent review of the "fatigue event reporting system to determine its effectiveness as a nonpunitive mechanism to identify" and address fatigue, most of the commenters I spoke with felt that the Board should have probed that issue and not left it to third parties. On reflection, I think these commenters have a point: an NTSB review would be for the public benefit and could arguably come from an airing of whether the corporate culture at the airline encouraged a pilot to report fatigue or whether directly or indirectly, however subtly, it discouraged pilots from reporting fatigue. I have no personal knowledge of UPS's culture

and I don't know whether UPS's fatigue policy is normally effective. With fatigue such an important issue across modes of transportation the effectiveness of corporate policies to report fatigue should have been investigated by the NTSB.

The results of an NTSB investigation of UPS's corporate culture could have led to specific recommendations for improving or supporting pilot decision-making regarding fatigue instead of the more general recommendation that the company and union study the effectiveness of current policies and procedures. While this is certainly a great effort for UPS and its pilot union to undertake, it's unlikely to result in a report that will benefit other carriers and the public in general. I am well aware of budgetary constraints at the NTSB, but I think the issue of fatigue and calling out the decisions of a copilot on her time-management warranted a review of the culture at UPS to see whether there would have been any cultural obstacles to reporting fatigue.

In retrospect, I agree with the commenters who suggested that the NTSB should have looked at whether organizational factors at UPS could have affected the copilot's decision not

to report her fatigue. In the absence of an NTSB review of that issue, it would be helpful if UPS not only followed the NTSB's recommendation to perform an independent review of the effectiveness of its fatigue reporting policy with its pilots union but also at least shared with the NTSB, other airlines and unions any recommendations that come out of that review. It's likely that other airlines could benefit from a UPS review.

Apart from this particular accident—where the NTSB report states that the difference in FAR crew rest requirements for cargo flights was not an issue—the NTSB should consider an independent review of the FAA's decision to allow different rest requirements for passenger and cargo flight crews. As many of you may recall, Part 121 operators were initially going to be held to the same rest requirements and the FAA's notice of proposed rulemaking did not differentiate between the two types of operation. At some point that changed and it's never been clear to me why, other than intense lobbying from cargo airlines.

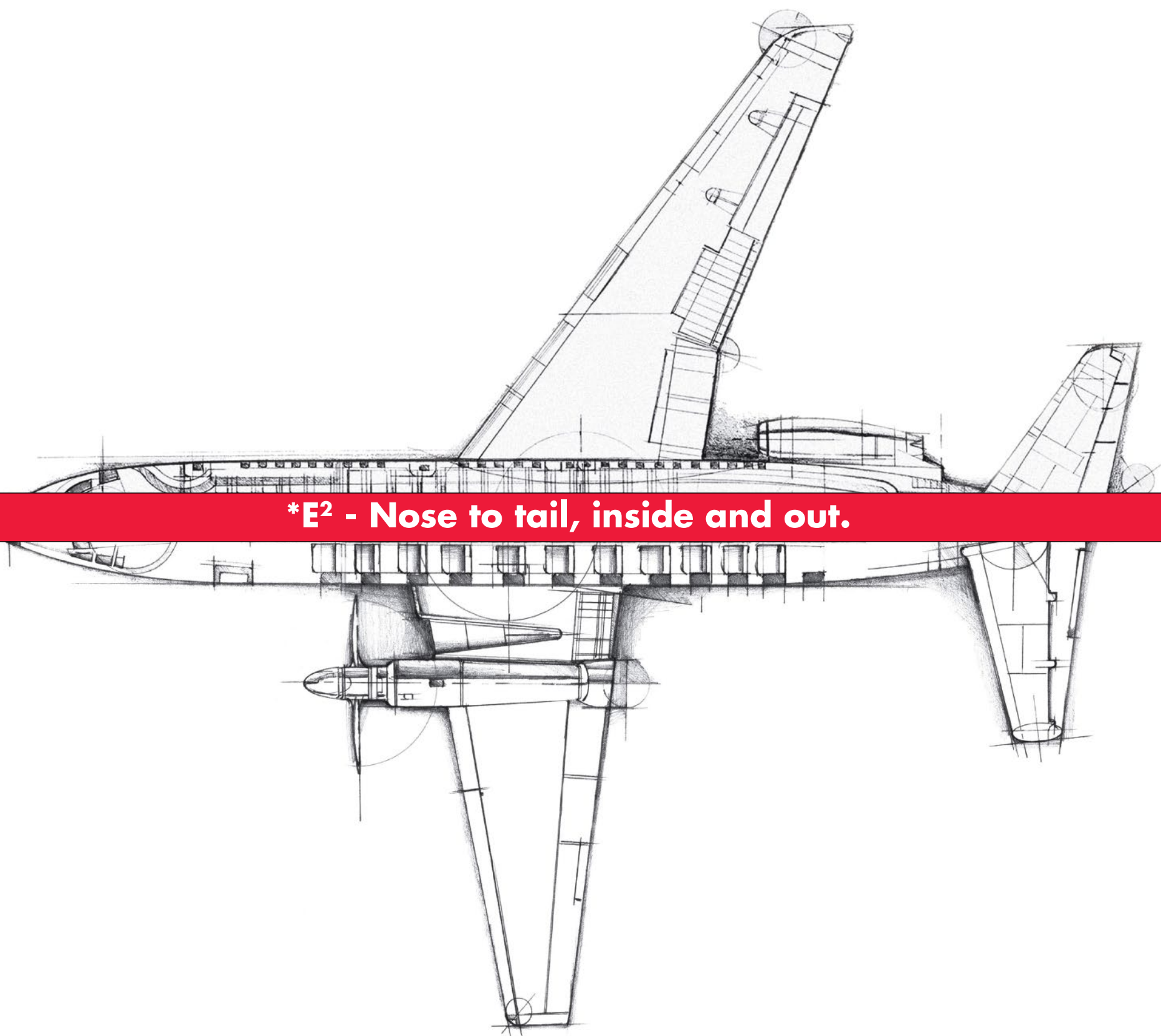
What the UPS accident makes clear is that fatigue affects the safety of not only those in the air but also those on the ground. Fortunately in this accident, the airplane crashed away from populated areas and no one on the ground was killed. That might not always be the case, and the public deserves an independent analysis of whether a distinction between passenger and cargo operations is warranted in the interests of safety. ■

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



John Goglia is a former member of the NTSB and currently a safety consultant. He welcomes your e-mails at [gogliaj@yahoo.com](mailto:gogliaj@yahoo.com).





**\*E<sup>2</sup> - Nose to tail, inside and out.**

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## FBO and Airport News

### SIGNATURE ADDS SPAIN TO NETWORK

Signature Flight Support continued to expand its service network with the announcement that the Menzies Aviation FBO at Barcelona El Prat Airport has signed on to the Signature Select program. Member FBOs maintain control of their independent brand and operations, while receiving support from Signature's sales and marketing team as part of the network.

"This is the first Signature Select location in EMEA and Signature's first foothold in Spain," noted Mark Johnstone, managing director for parent BBA Aviation's EMEA region. The FBO features VIP passenger lounges, passenger shower facilities, conference and office space, two crew rooms, a discrete onsite customs, immigration and security facility, "abundant" car parking and ramp space to

accommodate up to 75 aircraft of varying sizes.

### JET AVIATION SPREADS ITS MIDDLE EAST REACH

Jet Aviation is expanding its support services network in Saudi Arabia to six more airports. With the approval of the Kingdom's General Authority of Civil Aviation, Jet Aviation personnel from its Jeddah and Riyadh facilities will serve as handling agents at Abha, Taif, Al-Baha, Najran, Gizan and Rafha airports. The Switzerland-based group lays claim to being the first company to establish an FBO in Saudi Arabia, in 1979, and has since opened FBOs in Riyadh and Medina.

### PHOENIX-AREA FBO GETS NEW RAMP FOR BIG GAME

Just in time for the Phoenix area to host next month's Super Bowl XLIX, Cutter Aviation has completed a resurfacing project on the ramp at its facility

at Phoenix Deer Valley Airport. The six-week project saw the FBO's seven-acre ramp refinished at a cost of \$750,000. Cutter, which operates seven locations primarily in the Southwest, also expects a full house on game day at its Phoenix Sky Harbor Airport facility.



**Business aircraft arriving at Cutter for the Super Bowl will find a resurfaced ramp.**

### XJET GOES GLOBAL

Ever since 2007 when aviation service provider XJet opened the doors of its facility at Centennial Airport in Denver, company founder Josh Stewart saw it someday growing into a worldwide network. That process began

in November when XJet took over the 250,000-sq-ft former SR Technics facility at London Stansted Airport, which recently housed the Diamond Hangar, one of five service providers on the field.

The 17,000-sq-ft terminal, currently undergoing a \$1.6 million upgrade slated for completion in the second quarter of this year, will provide separate areas for XJet club members, itinerant passengers and crewmembers along with a lounge for Middle Eastern VIPs, and a dedicated space and check in for traveling sports teams. The facility's 90,000-sq-ft hangar can hold aircraft up to the size of a 747.

In July, XJet will bring its business model to the Middle East with the opening of the private aviation terminal at Dubai World Central (DWC), construction of which started last month. The building will serve as the company's relocated global headquarters, and the 8,600-sq-ft club facility

will offer private entrances on both the air and land sides.

At last month's Middle East Business Aviation show in Dubai, XJet announced that it will open a second Gulf-based FBO, at King Fahd International Airport in Dammam, Saudi Arabia. The new-build facility, expected to open by the end of next year, will provide more than 320,000 sq ft of terminal and hangars. The company has negotiated to be the sole FBO at the airport for five years once the facility opens. A facility at Paris Le Bourget is also in the works.

### SIGNATURE EXTENDS STAY AT ST. MAARTEN

Signature Flight Support has signed on to lease part of the new general aviation terminal at Princess Juliana International Airport (SXM), which is expected to be completed next year. Signature and TLC Aviation currently provide aviation services

## FBO PROFILE: Western Aircraft

### RECENT EXPANSION MAKES ROOM FOR MORE MX AND PARTS INVENTORY

Western Aircraft, owned by Greenwich AeroGroup and one of three FBOs on Boise Airport (KBOI) in southwestern Idaho, celebrated the completion of a \$4.7 million expansion this summer that included construction of two new buildings and more than \$2.4 million in facility improvements and specialized tooling. The two buildings added 26,000 sq ft of hangar and parts storage space to the 18-acre campus, taking the total company-wide hangar space past 125,000 sq ft and significantly expanding Western Aircraft's maintenance capabilities and parts inventory.

Along with constructing a new 14,000-sq-ft parts warehouse—one of the two buildings opened this past July—Western expanded its service capabilities and sales force to bring additional maintenance work to its Idaho facility, adding 50 jobs across all segments of its business starting in the second half of 2013. In October, the company learned the hard way that staffing to meet projected demands is a delicate business, when it was forced to lay off a dozen of its newly added workers, as its 2014 numbers didn't meet growth expectations set in 2013.

"It's always a tough decision to let people go just because you don't have work for them," president Jeff Mihalic told *AIN*. "We hung on to those people for three or four more months waiting to see how the market developed, and we believe that our actual workload for 2014 is going to end up really close to where it was in 2013." For the near term, Mihalic expects a 5-percent increase in work hours to be covered with overtime, though the late-year spike in business could make Western rethink its staffing quotas for this year's first quarter.

Western Aircraft is an authorized service center for Textron Aircraft (Beechcraft, Cessna and Hawker), Dassault Falcon and Pilatus, and it employs more than 70 maintenance technicians and 23 aircraft services support personnel working in shifts between 7:30 a.m. and 2:30 a.m. According to Tracy Kalbfleisch, director of aircraft services at Western, the facility expansion brought some relief to an operation that was "bursting at the seams."

"This construction is part of a long-term plan with three phases," said Kalbfleisch. "Phase one included 12,000 square feet of



**Business is booming at Western Aircraft, in part because the company has benefitted from the sales tax exemption on installed parts instituted in 2012.**

hangar space for aircraft services, which we are using mostly for avionics and engineering, tooling and aircraft interiors storage. Phase two will expand the paint facility as well as create additional areas for aircraft sales, and [phase three] will include a new building for our interiors recompletion shop."

The phase-one expansion also brought some relief to the line services department. In addition to opening up more hangar space for transient aircraft, the expansion introduced new equipment, including fuel trucks. According to Western Aircraft FBO and line service manager Dan Milender, the FBO services approximately

6,000 business and general aviation flights per year; 1,500 airline flights per month; and an unspecified number of flights by transient military aircraft not handled by the Gowen Field Air National Guard base located on the southwest side of the airport. As part of phase one, Western purchased three new 5,000-gallon jet-A trucks with lift decks last year, in addition to maintaining a 10,000-gallon airline refueling truck and other service vehicles.

### PC-12 Specialty Boosts Completions Business

While Western Aircraft services many types of aircraft, it might be best known as the largest Pilatus PC-12 dealer in the world, tracing its relationship with Pilatus back to the launch of the big turboprop single in 1994.

Western's active role in the Pilatus community keeps its interior recompletion center busy as PC-12s change hands, often requiring interior configuration changes from executive to air medical or commuter. Currently Western's recompletion center and its cabinetry shop, paint booths, upholstery center and wood finishing area take up valuable hangar space, while the design center and sales staff are located in another building about a five-minute walk away.

"A big part of our business is taking care of the Pilatus fleet in our area," said Rick Van Thiel, manager of interior sales. "The plan is to construct a purpose-built facility for the interior recompletion center that would include the individual paint booths and a separate upholstery area, with enough room to move the design center in along with the sales and design staff so everybody would be in one area."

Van Thiel said the recompletion center maintains a steady backlog, with four major projects per quarter.

—Kim Rosenlof

## CHARTER NEWS NOTES

- > Orlando-based charter broker **Stratos Jet Charters** and **Transplant Transportation Services** of Petaluma, Calif., have earned the **Argus certified charter broker rating**.
- > **ExecuJet Aviation** added **10 aircraft to its managed fleet**.
- > A second **Challenger 604** is available for charter at **TEB-based Meridian Air Charter**.
- > **Solairus Aviation** is sharing its monthly cleared list with **industry contacts**. The list shows aircraft that are available with no maintenance-due items, clear flight crew assignments and owner commitments to keep the aircraft available.
- > **Executive AirShare** has opened a base in **San Antonio, Texas**.
- > **PlaneSmart Aviation** added another **PC-12NG** to its fleet of managed aircraft, which are available for pilots and non-pilots.
- > Van Nuys-based **TWC Aviation** added a **G550** to its charter fleet.
- > The **50th Signature Series jet**—a **Challenger 350**—joined the **NetJets fractional-share fleet**. Signature Series aircraft are built with custom features specified by NetJets.
- > **Jet Aviation's managed fleet in the Middle East** has grown to **24 aircraft** with the addition of a **G450** and **G550**. ■



from an airport-owned facility, which authorities deemed inadequate for the island's rising private aviation traffic. According to Regina LaBega, SXM's managing director, the agreement makes Signature the first general aviation company to sign on as a tenant and concessionaire at the future \$5.5 million 10,000-sq-ft facility, which will have customs, immigration and security services.

## NEW FUEL HANDLING GUIDE AVAILABLE

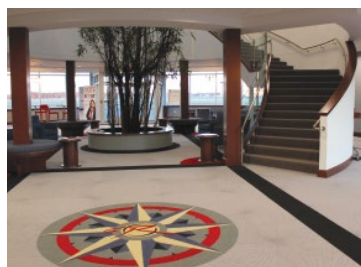
The Energy Institute has released an updated version of its *EL 1550 Handbook on Equipment Used for the Maintenance and Delivery of Clean Aviation Fuel*. The revised volume takes into account industry developments since 2007's first edition. In addition to an overview of good practices in the implementation and operation of fuel filtration systems, the handbook now contains five more chapters covering key topics such as the measurement and monitoring of differential pressure across a filter vessel, one of the primary means for detecting fuel contamination or the failure of a filtration system.

## RAMP PROJECT WRAPS AT MASSACHUSETTS FBO

North Atlantic Air, the sole aviation services provider at Boston-area Beverly Municipal Airport in Massachusetts, has completed a four-month, \$2.6 million renovation of its 60-year-old ramp. FAA grants covered 90 percent of the project cost, with the state and the FBO picking up the remainder. North Atlantic Air was able to remain operational during the four-phase construction project, which also saw the installation of high-intensity lighting to illuminate the 136,000-sq-ft ramp.

## BOSTON-AREA RECTRIX OPENS FACILITY, HQ

Rectrix Aviation opened its new FBO complex at Hanscom



The Rectrix FBO facility at Hanscom doubles as the company's headquarters.

Field Airport in Bedford, Mass. The facility doubles as Rectrix's headquarters, and it offers 60,000 sq ft of hangar space and 20,000 sq ft of guest and office space. The new FBO provides a passenger lobby, conference and meeting rooms, concierge service, pilots' lounge, snooze room and a weather and

flight-planning center.

Rectrix is building 27,000 sq ft more hangar and office space at its nearby Worcester (Mass.) Regional Airport FBO.

## TEXAS FBO CHANGES HANDS, BUT NOT NAME

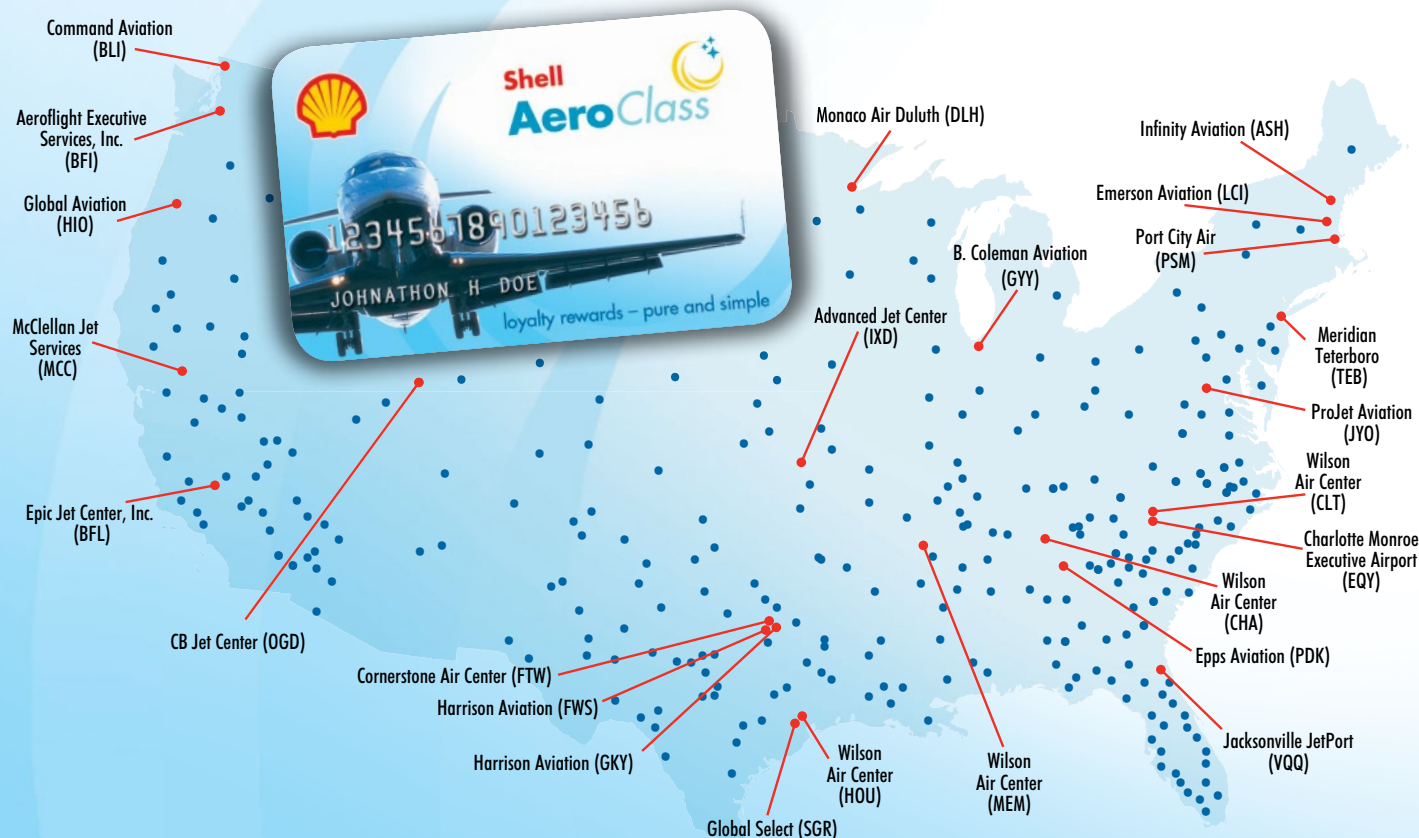
Oregon-based investment firm High Plateau Ventures

has acquired Business Air, one of two FBOs at Denton Enterprise Airport in Denton, Texas. The FBO, which will retain both its name and its leadership, occupies more than 20 acres at the Dallas/Fort Worth-area airport and has an 8,000-sq-ft terminal with 150,000 sq ft of hangar space. The FBO's new owners

expect the latter number to grow with the construction of a 24,000-sq-ft hangar capable of housing the latest ultra-long-range Gulfstream and Bombardier jets.

The acquisition includes Business Air's charter division, which operates five aircraft ranging from a King Air B200 to a Learjet 45. □

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## PRELIMINARY REPORTS

### GIII DAMAGED IN RUNWAY EXCURSION

**Gulfstream III, London, England, Nov. 24, 2014**—The Gulfstream was damaged in a runway excursion accident during take-off from London Biggin Hill Airport's Runway 03. The nose gear collapsed as the Gulfstream came to rest in the grass perpendicular to the runway. None of the eight people aboard the aircraft was injured. The reason for the excursion had not been determined at press time.

### KING AIR DAMAGED IN LANDING ACCIDENT

**Beechcraft Super King Air 350, Samara-Kurumoch, Russia, Nov. 25, 2014**—Neither of the two people on board the aircraft was injured when the turboprop landed with all three landing gear still retracted.

The aircraft was substantially damaged. Weather at the time of the accident was not reported.

### RUNWAY EXCURSION DAMAGES PHENOM NEAR HOUSTON

**Embraer Phenom 100, Sugarland, Texas, Nov. 21, 2014**—The jet was substantially damaged during a runway excursion that took the aircraft off the surface of Sugarland's Runway 35, down an embankment and into a ditch, where the fuselage was partially submerged in water. The Part 91 aircraft, operated by Superior Air Charter, had just completed an instrument arrival after a short repositioning flight from nearby Houston Hobby Airport.

The first officer did not recall seeing any standing water on the runway as the

tower cleared the flight to land, although that pilot did notice a 15-knot tailwind that dropped to nine knots at touchdown. The captain, the pilot flying, said she initially applied the brakes but found them unresponsive. She then pulled the emergency brakes but the aircraft continued off the end of the runway.

### CARAVAN DAMAGED IN FORCED LANDING

**Cessna 208B Grand Caravan, west of Yellowknife, Canada, Nov. 20, 2014**—The pilot of the Air Tindi turboprop single was flying a scheduled passenger trip from Yellowknife to Fort Simpson when he encountered severe icing and decided to return to Yellowknife. The severe icing conditions continued and the pilot sent a Mayday call before putting the aircraft

down on the frozen surface of Great Slave Lake approximately 25 miles west of Yellowknife. None of the six people on board was injured; the left main landing gear and the left wing of the aircraft suffered damage.

### OLD TURBOPROP DESTROYED IN SOUTH SUDAN

**British Aerospace BAe-748, Panyagor Airstrip, South Sudan, Nov. 14, 2014**—The large turboprop twin crashed just short of the airstrip located southeast of the Ez Zeraf game reserve. Two of the three crewmembers on board were killed and the aircraft was destroyed. The cause of the accident had not been determined at press time. The aircraft was operated by Global Airlift on behalf of the Lutheran World Federation.

## FINAL REPORTS

### PILOT LOST CONTROL OF PC-12

**Pilatus PC-12, Lake Wales, Fla., June 7, 2012**—The NTSB determined the probable cause of the in-flight breakup of the PC-12 to be the pilot's failure to maintain control of the airplane in instrument conditions following disconnection of the autopilot. Contributing to the accident was the pilot's lack of experience in high-performance turboprops and in instrument conditions. The pilot and his five passengers were killed.

The pilot of the accident aircraft held a private pilot certificate with an instrument rating. The NTSB's examination of the pilot's logbook showed 800 hours total flight time at the time of the accident. The pilot had attended initial Pilatus training between May 7 and May 16, 2012, and received his instrument proficiency check, flight review and high-altitude endorsements. Following the training, he logged approximately 14 hours as PIC of the accident airplane as well as five ILS approaches. Before purchasing the PC-12 about five weeks earlier, the pilot had logged zero time as PIC in a turboprop and had not logged any actual instrument flight time in more than seven years. Additionally, he had last logged simulated instrument time four years and seven months earlier.

The airplane, registered to and operated under Part 91 by Roadside Ventures, departed St. Lucie County International Airport (FPR), Fort Pierce, at 12:05 p.m. on an IFR flight plan. Data recordings showed the pilot engaged the autopilot shortly after takeoff while climbing west-northwesterly to FL260. Light to moderate icing conditions were forecast for the area, but were considered well within the airplane's capability. The pilot of a nearby airplane reported encountering light rime ice at the top of the cloud layer. At 26 minutes 35 seconds after takeoff, the airplane's central advisory and warning system (CAWS) recorded activation of the PC-12's pusher ice mode at FL247, consistent with activation of the propeller de-ice and inertial separator. However, the de-ice boots were not activated.

A minute later, ATC cleared the flight to deviate right of course for adverse weather ahead. The airplane, on autopilot and in IMC, began a right bank of less than 25 degrees while flying at 109 kias when the autopilot disconnected for undetermined reasons. The pilot allowed the bank to increase. Thirteen seconds

after autopilot disconnection, with the airplane descending in a right 50-degree bank, the pilot began testing the autopilot system.

Recovered data indicates the pilot had allowed the bank angle to increase to at least 75 degrees while descending and also allowed the aircraft to reach an airspeed of 338 knots, approximately 175 knots above maximum maneuvering speed. The NTSB determined that during the right descending turn, while at 15,511 feet, the pilot likely applied either abrupt or full aft elevator control, resulting in overstress fracture of both wings. The separated section of right wing struck and breached the fuselage, causing one passenger to be ejected from the airplane. The aircraft crashed into an open field.

Examination revealed no evidence of pre-existing cracks in any of the fractured surfaces, and the primary flight controls and engine revealed no evidence of pre-impact failure or malfunction. The flaps were found in the retracted position but the landing gear was extended.

For undetermined reasons, the horizontal stabilizer trim actuator was found positioned in the green arc takeoff range, while the impact-damaged aileron trim actuator was in the left-wing-nearly-full-down position. The rudder trim actuator was full nose right. No pre-impact failures were identified.

Impact damage to the autopilot flight computer precluded functional testing. The trim adapter passed all acceptance tests with the exception of the aural alert output, which would not have affected its proper operation. The CAWS log entries indicated no airframe or engine systems warnings or cautions before the airplane departed from controlled flight. A radar performance study indicated that the airplane did not enter an aerodynamic stall, and the CAWS log entries showed no evidence that the stick pusher had activated before the departure from controlled flight.

The NTSB pointed to the fact that the pilot did not maintain control of the airplane after the autopilot disengaged as evidence of his lack of experience in the PC-12. The Board concluded that the pilot should have been able to control the airplane after the autopilot disengaged in weather conditions that included only light rime ice. Further, his lack of experience was evident in his testing of the autopilot system immediately following the airplane's

departure from controlled flight rather than rolling the airplane to a wings-level position and regaining altitude, said the Board.

### KING AIR LOST AILERON IN FLIGHT

**Beechcraft King Air E90, Des Moines, Iowa, Feb. 15, 2011**—The King Air had undergone

maintenance in Des Moines, including an inspection of the ailerons that required removal, reinstallation and a functional check of those control surfaces. The airplane was registered to and operated by D-W Corp., Des Moines, Iowa. Before the Part 91 test flight, the pilot performed a pre-flight inspection of the aircraft, including a check that the flight controls were free and correct, with no anomalies noted.

The aircraft took off in VMC from Runway 13L at Des Moines International (DSM) at approximately 9 a.m. and the ATP-certified pilot departed the terminal area on a heading of 160 degrees. Shortly thereafter, the pilot made another right turn to the west and was cleared to FL180. While level at FL180 and with the autopilot engaged, the pilot and maintenance crewmember aboard performed various checks on the engines and flight instruments. After completing the checks, the pilot requested a left 180-degree turn back to DSM. ATC approved the turn and the pilot selected the autopilot heading mode for the left turn. As the aircraft neared completion of the turn, the autopilot jerked the aircraft, then stabilized and then jerked again during the level-off. The pilot looked outside and noticed the right aileron had vanished. The airplane landed at DSM without further incident and neither the pilot nor the mechanic was injured.

Examination of the airplane revealed substantial damage to the inboard and middle airframe aileron hinge brackets attached to the aft spar, which was intact with no visible damage. The outboard airframe aileron hinge bracket, however, had separated from the aft spar. The aileron was never located. Based on the condition of the hinge brackets, investigators concluded the aileron bolts were not properly engaged in the aileron nut plates. This caused the bolts to fall out, releasing the aileron.

The NTSB determined the probable cause to be the improper installation of the right aileron by maintenance personnel. ■

### LEARJET HITS CRANE IN BAHAMAS

**Bombardier Learjet 35A, near Freeport, Bahamas, Nov. 9, 2014**—During an instrument approach to Runway 06 at Grand Bahamas International Airport, the aircraft clipped a crane and struck the ground. All nine people aboard the airplane died and the aircraft was destroyed.

The aircraft, registered to Diplomat Aviation (Bahamas), was operating as a charter flight for Bahamas Faith Ministries International. In its report, the Air Accident Investigation & Prevention Unit of the Bahamas said the airplane had departed Nassau-Lynden Pindling International Airport (NAS) on an IFR flight plan for the 24-minute flight to Freeport. The crew received the current weather and was cleared for the ILS Z 06 approach. The charts depict two cranes extending to 368 and 369 feet agl just past the outer marker inbound at 4 DME.

The crew missed the first approach in heavy rain and reduced visibility. The aircraft then proceeded to and entered a published hold at 2,000 feet. Once ATC reported an improvement in the weather, the crew flew a second ILS Z 06 approach. Rain began again during the second approach and during the crew's second attempt to find the runway visually, the aircraft descended and struck two support beams on a shipyard crane at approximately 115 feet agl. The impact tore through the outboard portion of the right wing and fuel tank, and the aircraft crashed inverted into a garbage and metal recycling plant adjacent to the shipyard.

### BELL 407 DITCHES IN THE GULF OF MEXICO

**Bell 407, offshore oil rig VR 189, Nov. 11, 2014**—The turbine single lost power at about 1:55 p.m. local time in VFR conditions and ditched in the Gulf of Mexico. None of the four people aboard was injured. At the time of the accident, the nearest weather station reported southerly wind at seven knots with visibility of seven miles beneath a scattered deck of clouds at 4,200 feet. The Part 135 helicopter was registered to and operated by Rotorcraft Leasing as a passenger flight. □

The material on this page is based on the NTSB's report (preliminary, factual or final) of each accident or, in the case of recent accidents, on information obtained from the FAA or local authorities. It is not intended to judge or evaluate the ability of any person, living or dead, and is presented here for informational purposes.



# Bizjet market feels effects of Ebola threat, Ukraine crisis

by Peter Shaw-Smith

The twin challenges of the Russia-Ukraine crisis and the Ebola outbreak in West Africa are adversely affecting the global business aviation market, according to the head of a flight support company.

"Many Russian clients stopped flying in their jets. IATA sees a 25-percent drop in aviation to Africa attributable to Ebola," Jetex Flight Support CEO Adel Mardini told AIN. "A lot of our customers cancelled their trips to Africa because of Ebola. Dubai is a hub between Russia and the rest of the world, and a hub between the Far East and Africa. We feel there is a drop in business in these two areas. I hope the world can quickly find a solution to the Russia-Ukraine crisis."

With 300 employees worldwide, 200 of them in Dubai, Jetex provides flight support in several locations, and made a groundbreaking FBO entry to Paris Le Bourget in 2009. "In the Middle East, the business is growing, and you can see a lot of good demand, especially in the UAE and Saudi Arabia, which are leading the regional market," said Mardini. "There is minor growth

in North Africa, especially Morocco. The Turkish market is big and growing."

Mardini said Jetex's customers are mainly in the government and corporate sectors, entailing use of larger aircraft. "In the Middle East, we see good growth for the Gulfstream G650," he added. "In this region, they are also using BBJs and ACJs, able to carry more passengers. We see ACJs and BBJs going from Dubai to Jeddah or Dubai to Doha. None of our customers wants to make tech stops when they are flying to the Far East or Europe. All of them prefer long-range aircraft."

"For flights in the GCC [Gulf Cooperation Council], the preferences for locals are the Falcon 7X, Challenger 605 or G450. I don't see anything smaller than these types for [these clients]."

## Global Expansion

Since its formation in 2005, Jetex has added FBOs at Shannon and DWC, and in October it set up a facility at Miami. "We are looking forward to building a bigger network in the FBO business. We already applied for a couple of locations



*Flight support provider Jetex has seen traffic to Africa and Russia slow significantly in response to health and security crises in those regions. At the same time it reports strong growth in the Middle East.*

in the Far East. Hopefully we will make an announcement at ABACE in Shanghai," said Mardini.

A key strategy for Jetex is to avoid, as far as possible, situations in which it has anything less than a direct working relationship with its clients. This approach has driven its willingness to invest in establishing operations at key locations, such as Paris Le Bourget Airport, even if this proves to be expensive and challenging.

In Dubai as a whole, Mardini cited a figure of 10,000 business aviation movements a year as being a realistic target. "We expect growth in Dubai of 20 percent a year for general aviation, depending on

growth in the whole area," he said.

Jetex has tried to help operators by setting up credit lines all over the world. It also handles fuel VAT. "We are in a position to handle any AOC holder fuel uplift in Europe. We will bill them on the actual fuel rate without the VAT," Mardini explained. "The customer pays for only the fuel without the VAT."

Mardini said business aviation is growing in Africa. "Nigeria, Angola and South Africa are the main hubs. Gabon is doing well. ExecuJet built a new facility in Lagos which is doing well," he reported. In his view, the increased focus of the MEBA industry association on North Africa would be a boon. □

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For the rest of the story visit  
[www.DuncanAviation.aero/experience/jeannine.php](http://www.DuncanAviation.aero/experience/jeannine.php).

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## Compliance Countdown by Gordon Gilbert

### Within 6 Months

► Jan. 20, 2015

NEW

#### Expanded Use of Aviation Training Devices

Pilots will welcome a direct final rule that allows them to log more time in aviation training devices (ATDs) as a way of acquiring VFR and IFR aeronautical experience and visual and instrument training toward certification. The FAA said these devices have proved to be an "effective, safe and affordable means of obtaining pilot experience" and is adopting this direct final rule without prior notice and without an opportunity for prior public comment. In view of "the relieving nature of the provisions," the agency says it does not anticipate any adverse comments. Additionally, despite the limitations on the use of ATDs contained in a 2009 final rule, the agency has issued hundreds of letters of authorization permitting ATDs to be used more widely than set forth in current regulations.

► Feb. 4, 2015

NEW

#### EASA Proposes Changes to Relief-pilot Requirements

The European Aviation Safety Agency has proposed training and certification requirements for relief pilots and copilots on long-haul operations of commercial aircraft. One specific objective is to ensure that a relief copilot is adequately qualified to operate an aircraft during the cruise segment of flight. Another is to be certain that appropriate operating procedures are established for the transfer of authority from the captain to the copilot and that the regulations are consistent across the European Union. The rule would also address handover procedures and command delegation between pilots; task sharing; seat positions during various phases of flight; and minimum altitudes for transferring aircraft control to another crewmember. Comments are due by February 14.

► Feb. 5, 2015

#### North Atlantic Datalink Equipment Mandated

In December 2013 the FAA published a notam detailing plans for the rollout of Phase 2 of the North Atlantic datalink mandate. Implementation is scheduled to begin with Phase 2A on Feb. 5, 2015, at which time flights within the North Atlantic Tracks (NAT) between FL350 and FL390 must be equipped with Fans 1/A controller-pilot datalink communications and ADS-C systems. The program expands to these altitudes in the entire ICAO NAT region on Dec. 7, 2017 with Phase 2B, and to all flights in this region above FL290 on Jan. 30, 2020 with Phase 2C. During these stages, any aircraft not equipped with Fans 1/A (or equivalent) systems may request to climb or descend through NAT DataLink Mandate (DLM) airspace.

► Feb. 6, 2015

#### Lithium Battery Transportation Requirements Stiffened

To prevent lithium battery fires and explosions, the FAA is modifying the requirements governing their carriage as cargo. This final rule revises hazard communication and packaging procedures and harmonizes Hazardous Materials Regulations with applicable provisions of the United Nations, ICAO and the International Maritime Dangerous Goods organization.

► April 22, 2015

#### Corrections to New Helicopter Operating Rules

On February 21, 2014, the FAA published a final rule titled "Helicopter Air Ambulance, Commercial Helicopter, and Part 91 Helicopter Operations." In that final rule, the agency addressed helicopter ambulance operations and all commercial helicopter operations conducted under Part 135. The FAA also established new weather minimums for helicopters operating under Part 91 in Class G airspace. It has corrected Part 91.155 and removed duplicative flight visibility requirements for operations in Class G airspace. Also, the FAA fixed Part 135.609 to delineate VFR and IFR operations. Finally, the agency corrected Part 135.621(b) by clarifying the intended list of topics that must be included in the certificate holder's FAA-approved medical personnel training program.

► Apr. 23, 2015

NEW

#### New Approvals Required for Extended Ops in WATRS Airspace

The FAA recently revised OpSpec/MSPec/LOA B045, Extended Overwater Operations Using a Single Long-Range Communication System. The changes affect Part 91K, 121, 125 and 135 operators using a single long-range com system in the West Atlantic Route System, Caribbean or Gulf of Mexico. Operators must obtain the mandatory new approval by April 23, 2015. The current template for B045 is combined for Parts 121, 125 and 135, "which causes confusion with respect to operational control organizations," the agency said. "The new templates are tailored to the operational control organization and communication requirements of each part."

### Within 12 Months

► Dec. 31, 2015

REMINDER

#### Deadline to Meet Stage 3 Noise Levels

Less than a year remains to the Dec. 31, 2015 deadline after which jets with an mtow of 75,000 pounds or less may no longer operate in the contiguous U.S. unless they meet Stage 3 noise levels. When the rule was published on July 2, 2013, the FAA said the mandate affects 457 registered owners of 599 principally Stage 2 business jets, though several models can now be hush kitted or re-engined to meet Stage 3 standards or will be able to be outfitted appropriately before the deadline. Of the 17 airplane models affected by this ban, hush kits are currently available for at least seven: the Dassault Falcon 20; Learjet 23, 24 and 25; Sabreliner 80; and Gulfstream II and III.

### Beyond 12 Months

► June 8, 2016

and June 7, 2020

REVISED

#### Europe Delays ADS-B OUT Mandate

The earliest ADS-B OUT requirement in Europe was Jan. 8, 2015, for new aircraft, with retrofit installations due Dec. 7, 2017. The new dates are June 8, 2016, for new aircraft and June 7, 2020, for retrofit. The revised date for retrofits is more closely aligned with the U.S. ADS-B OUT mandate, which requires the equipment to be operational in aircraft that fly under IFR and where transponders are currently required starting Jan. 1, 2020. □



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## Comlux Gets First Widebody Project

Comlux America has won its first widebody completion project, an Airbus A330 slated to arrive at the company's completions, refurbishment and maintenance facility in Indianapolis in September. The work will likely take up to two years.

"This [first] widebody aircraft is the start of a new era in the development of Comlux America," said CEO Jim Soleo. "We are now capable of offering completion and service work on the whole range of VIP aircraft. Our team is fully committed to delivering our first widebody

with the best quality and on time."

To accommodate the A330 and future widebodies, Comlux America has begun expansion of its current hangar to 157,000 sq ft from 128,000 sq ft. When the construction project is finished, expected by the middle of this year, the facility will be able to hold one widebody the size of a Boeing 747-8 and up to six single-aisle airliners simultaneously.

## Ruag Freshens Falcon 2000 with Pro Line 21

Switzerland-based Ruag Aviation recently completed the first Rockwell Collins Pro

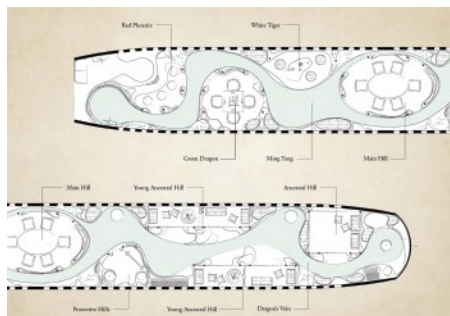


**Ruag Aviation recently outfitted a Pro Line 4-equipped Falcon 2000 with the Pro Line 21.**

Line 4 to Pro Line 21 upgrade in Europe on a Falcon 2000, the company announced last month at MEBA. The retrofit replaces existing CRT displays with active matrix liquid crystal displays and now has EASA and FAA approval for installation in all Pro Line 4-equipped Falcon 2000s and 2000EXs. Ruag technicians also installed a Rockwell flight management system FMS-6000 and GPS400S sensors with Waas for LP/LPV capability and a Fans 1/A-capable Aircell Iridium satcom. Now the Falcon "complies with incoming mandates," said Michael Sattler, Ruag's senior v-p for business aviation.

## Taeco Cabin Completions Takes a New Name

Hong Kong-based Haeco Private Jet Solutions (HPJS), formerly Taeco Cabin Completion Center, introduced an interior concept based on feng shui and launched a new corporate identity at MEBA. The Xiao Yao interior brings the feng shui principles used in traditional Chinese architecture to the executive-configured airliner cabin, expressed in the curving lines of the interior, the relative positioning of living and sleeping areas, and the balance of the "five elements" of fire, earth, metal, water and wood. "We've seen good, respectable designs from Europe or the States, but these are really modern Western designs," said Henry Chan, HPJS's v-p, commercial, as he introduced the concept. "We have not seen designs that are of genuine heritage and based on the respected philosophy of ancient Chinese philosophers."



**Haeco's Xiao Yao interior draws inspiration from ancient Chinese philosophers and architecture.**

The company's name change aims to underscore that HPJS's services cover the entire lifecycle of an aircraft. HPJS's Haeco Xiamen facility has six hangar bays, each capable of accommodating two widebody and one single-aisle aircraft simultaneously, and the hangars are currently 80 percent occupied by aircraft undergoing maintenance and refurbishment as well as green completions.

## Amac Lands Two More Contracts

Amac Aerospace has received two more cabin interior contracts for its Basel-based MRO and completion center, both for Middle

East customers. One is the conversion of an Airbus A320 airliner into a private jet, and the other is a cabin reconfiguration of a Boeing Business Jet (BBJ).

Included in the A320-200 refurbishment are a master bedroom, lavatory and shower. The in-flight entertainment system to be installed will provide video on demand and wireless streaming.

Amac is converting the main cabin compartment of the BBJ into a VIP lounge, with a separate club seating area. Each side of the cabin is getting new side ledges and electric high-low tables. Berthable divans will add more sleeping locations, while the rear of the cabin gains coffee tables. Amac is providing the design.

## Jet Aviation Basel Set for Falcon 7X C-check

Jet Aviation Basel will perform the world's first C-check on a customer-owned Dassault Falcon 7X. This follows the company's completion of a demonstration C-check performed on a Dassault Falcon Service-operated Falcon 7X last year. The most comprehensive maintenance event on the aircraft, the C-check comes



**Jet Aviation has taken in a Falcon 7X for its C-check. Redelivery is planned for next month.**

due on the 7X every eight years or 4,000 cycles, whichever occurs first. Inspectors found no corrosion issues during the demo C-check, and if subsequent checks have similar results, some inspection intervals may be lengthened. For now the C-check requires 8,500 man-hours of labor, and Fabien Fuster, director of Dassault Falcon maintenance at Jet Aviation Basel, said he has assigned "more than 40" technicians to the task.

## GDC Technics Providing JetWave for Retrofit

San Antonio's GDC Technics will provide Honeywell's new JetWave satellite communications system, set for introduction in this year's second half, as a retrofit solution for Boeing and Airbus executive and commercial aircraft, under an agreement signed at MEBA. JetWave, a connectivity hardware platform, supports Inmarsat's Jet Connex Wi-Fi service. GDC Technics will develop STCs for aftermarket installations for ACJs and BBJs, and the Airbus A319, A330 and A340 in addition to Boeing's 737, 747, 777 and 787, and will offer the STCs to other completions centers as well. (GDC Technics launched a partnership with Satcom 1 to develop faster satellite communications systems for the ACJ and BBJ last year.)

Mohammed Alzeer, general partner of GDC Technics, called onboard high-speed connectivity "an important differentiator for operators."

The company also announced its acquisition of engineering design specialist PFW Engineering Group of Germany. ■

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Citation X

## Inventory still shrinking

As we embark on the new year, we have to look closely at last year to see how difficult it is to predict how active—or inactive—aircraft sales will be. Last year held some real standouts such as the Citation Sovereign and Challenger 604, but even some that tripled in inventory (the G550) didn't look as soft when you learned that the choices were spread fairly evenly around the globe. Europe still has an abundance of aircraft for sale, and if Mario Draghi is successful in pulling the Eurozone off the finance precipice you might see a recovery there. However, the recent slide in oil prices could act as an offset, keeping the Continent in the doldrums in the year ahead.

While the slide might be a detriment to the European market, it could be an elixir to aviation in general as the price of jet fuel has tanked in the past year, lowering the cost of

now. In the same period only 16 Citation Xs sold, leaving 37 for sale now. It might take some counterintuitive thinking, but right now if I were in the market to buy a super-mid I would be taking a close look at the Citation X. With so many choices, prices have softened and with some others in this segment firming in price, an oversold condition could make the right X ripe for the picking. Also factor in that only five of the Sovereigns are based in North America compared to 28 of the Citation Xs, perhaps emboldening the Sovereign seller on asking price and making the Citation X seller more accommodating.

Interestingly, the Challenger 300 and G200 ran neck and neck over all of 2013, but a big shift favoring 300 sales has come in the last six months, with 15 of the Canadian-built model selling compared with just eight G200s. The 33 G200s for sale worldwide

represent more than 13 percent of that model's fleet, while the 32 Challenger 300s on the market equate to just 7 percent. Two thirds of the G200 choices are based in North America, while slightly fewer than half of the 300s for sale call that region home.

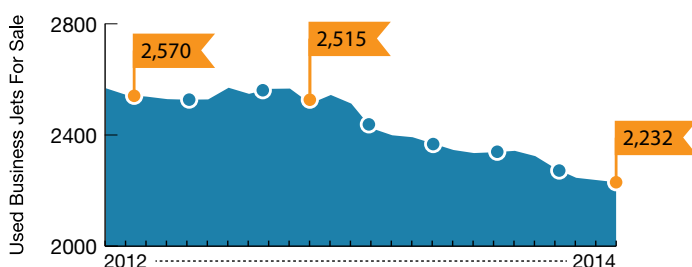
As the inventory

has crept lower, we're noticing a greater number of buyers engaging the services of acquisition agents, which has always been a seemingly underused arrow in the quiver of every broker, but in 2014 our acquisitions tripled from a year ago. Observationally, it's interesting that with more information at the buyers' fingertips than ever before they are increasingly seeking professionals to digest and decipher the market intel to zero in on a target aircraft before an opportunity is missed.

Based on all the year-end activity and buyers teeing up for transactions this month, the market clearly has a full head of steam and looks to stay on the same track it has been on for the past year. Despite the inventory reduction, pricing remains attractive and, helped by lower fuel prices, will likely only build on the positive performance of the past 12 months. ■

*Bryan Comstock is a cofounder and managing director of aircraft broker Jeteffect.*

## Two-year Inventory Trend



operation and essentially making it cheaper to fly. This unexpected bonus could help the momentum generated last year spill into this year. Month over month, year over year, the used supply has been shrinking, despite a growing worldwide fleet that added more than 525 new aircraft last year. At the end of 2013 there were 2,460 used aircraft for sale; that number stood at 2,241 at the end of last year, a net reduction of more than 200 in a 12-month period.

### 'Good' Listings in Short Supply

Despite the steady reduction of supply, there's still plenty of product for buyers, though last year was the first time in several years my industry counterparts and I commiserated about not having enough "good" listings. Good can be defined as a marketable piece, generally an actively traded, late-model U.S.-based aircraft that's market priced.

Consider that 30 Sovereigns have sold in the past six months, leaving 13 for sale right



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Honeywell promoted **Justin Ryan** to president of BendixKing.

United Technologies promoted **Gregory Hayes** to president and CEO. He replaces **Louis Chenevert**, who retired. Hayes was most recently senior v-p and CFO.

**Jim Rankin** was named president and CEO of *Columbia Helicopters*. He was most recently president and CEO of Air Wisconsin.

Executive Jet Management named **Norah Lenardic** v-p of management sales and client services, overseeing the U.S. Midwest. **Patti Sullivan** and **Dave Richter** were named v-p of management sales and client services, focusing on the northeastern U.S.

Bell Helicopter named **Matthew Hasik** executive v-p of commercial business. He succeeds **Danny Mal-**

**donado**, who has been appointed president and CEO of Textron Financial. **Barry Kohler** was named executive v-p of customer service and support, replacing **Eric Cardinali**, who now leads global operations for Textron's Kautex division. **Raymond Leduc** succeeds Kohler as president of Bell Helicopter Textron Canada. **John Klopfer** will return to Bell as v-p of commercial

business finance. **Patrick Moulay** was promoted to v-p of global sales and marketing. **Larry Roberts** was named v-p of sales and marketing for the Bell 525 Relentless program.

Gulfstream promoted **Mark Kohler** to v-p of advanced aircraft programs, with responsibilities for the development, certification and entry into service of the G500 and G600.



Norah Lenardic



Robin Southwell

FlightSafety International promoted **Brian Goodsite** to manager of its Cessna maintenance learning center in Wichita.

The General Aviation Manufacturers Association elected **Joe Brown**, president of Hartzell Propeller, as chairman. **Aaron Hilkemann**, president and CEO of Duncan Aviation, was named vice chairman. He will continue to serve as chairman of the airworthiness and maintenance policy committee.

The Helicopter Association International named **Charles Visconage** manager of marketing. **Rick Townsend** was named v-p of business development, aircraft maintenance and refurbishment for Bizjet International.

On Air Dining named **Robin Southwell** chairman.

**Greg Kinsella** was named v-p of business development at Priester Aviation. □

## Final Flights

**Jean-Paul Bechat**, former CEO of French engine manufacturer Snecma and later of parent company Safran, died on November 24. Bechat, who graduated from France's Ecole Polytechnique, started his career with the group as a production engineer in 1965. He led Snecma from 1996 to 2005, at which time Snecma merged with Sagem to create Safran, a new group Bechat led until 2007.

**Tyler Francis**, president of Francis Aviation, was killed in the crash of a single-engine airplane at Las Cruces International Airport, N.M. on November 24. He was 29. ■



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► Continued from page 50

because of the overhead of development and ongoing overhead that comes with certified avionics.”

What Adams would like to see as a result of the Equip 2020 group is the FAA reaching out to the aviation industry “with a concise, cogent message that would energize the buying community: ADS-B/NextGen is a real benefit to participate [in].”

The ADS-B IN benefit of free weather information is exclusively a U.S. feature, and in a recent study conducted by the Massachusetts Institute of Technology International Center for Air Transportation, pilots showed appreciation for ADS-B IN traffic and weather.

The study drew responses from 1,407 pilots, 56 percent of whom reported having used ADS-B IN. Of those, 85 percent used portable systems, such as an ADS-B IN receiver providing data to a tablet computer.

It should be noted that not all traffic information will be received by an aircraft equipped with 978UAT ADS-B IN (whether portable or installed) unless that aircraft also broadcasts an ADS-B OUT signal to “wake up” the ground station, which then sends the TIS-B traffic information. The study found that pilots with

ADS-B OUT benefitted more than pilots of ADS-B IN traffic. “A full 51 percent of respondents with both ADS-B IN and ADS-B OUT reported that ADS-B traffic had helped them avoid a midair collision, while only 19 percent of respondents without ADS-B OUT agreed. This, along with other responses, suggested a safety benefit from improved traffic avoidance for respondents who also fly with ADS-B OUT installed in their aircraft. While this issue is anticipated

to dissipate as a greater percentage of the general aviation fleet equips with ADS-B OUT, the coverage limitations clearly limit the usefulness of ADS-B traffic information as currently implemented.”

For pilots who have used ADS-B IN, weather services ranked highest in factors influencing their choice of equipment, followed closely by traffic services. Regarding the value of available FIS-B services, weather radar ranked highest, followed by Metars and TFRs. □

The following are some of the NextGen retrofits that are available or currently under development using Universal Avionics equipment. Each one is for DO-260B-compliant ADS-B out, Fans 1/A and Link 2000+.

#### Boeing

727, Duncan Aviation  
737 (BBJ), Chicago Jet

#### Bombardier

Challenger 600 through 604, Comlux America  
Challenger 600/601, Chicago Jet

#### Dassault Falcon

900B, Duncan Aviation, Chicago Jet  
50, 50EX, 2000, Chicago Jet

#### Gulfstream

G100, G200, Chicago Jet  
GII through GIII, Chicago Jet  
GIV through GV, Chicago Jet, Clay Lacy Aviation, Kaiser Air



Universal Avionics  
UNS-1Fw FMS

## PART 25 continued

more than 34,000 TDR-94D transponders, and these are upgradeable to the latest ADS-B configuration, although older units will require more work.

While older Pro Line 4 cockpits can be upgraded to provide ADS-B out, this might not be the optimum solution. Upgrading to Pro Line 21 can incorporate not only ADS-B but also Fans, LPV approaches and radius-to-fix legs for RNP approaches, as well as synthetic vision. That doesn't mean, however, that Pro Line 4 can't be upgraded for most of those capabilities. Rockwell Collins and Jet Aviation are developing a Pro Line 4 Fans, ADS-B, LPV solution for the Challenger 604 that will be available this year. Older Falcons will have a Fans solution available this year, according to Evanschwartz.

For ADS-B out, Safran Engineering Services and Duncan Aviation are developing an approved model list STC using the TDR-94D for the Challenger 601-3A/3R, Learjet 60, Gulfstream G100, G200 and the Hawker 800 series.

## Universal Avionics

“Operators need to think about more than just ADS-B compliance,” said Carey Miller, manager of business development for Universal Avionics. Along with its avionics dealer partners such as Chicago Jet, Universal has been at the forefront of the Fans retrofit market, offering both equipment and expertise that makes Fans possible for a variety of business jets. Universal manufactures not only the Fans-capable SBAS FMS with ADS-B out-compliant GPS receiver but also the UniLink CL-800/-801 communications management unit (datalink) and data-capable cockpit voice recorder.

Universal is modifying its FMS data-loading system to facilitate automatic loading of pre-departure clearances, according to Miller. “A lot of FMSs don't do that today,” he said. “We're working on it.”

Operators considering an upgrade to meet ADS-B out mandates and who travel to Europe can realize other benefits from a Fans upgrade, including the ability to fly Waas LPV approaches and meeting the European Link 2000+ requirements. “With a datalink, in general,” said Miller, “you get traditional Acars functionality as well. You can send messages back and forth to the airplane, track on-off times and get graphical weather to the cockpit. There is quite a bit of additional capability and easier ADS-B compliance.” ■

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**AVIATION ISSUES CONFERENCE...**Jan. 11-15, Fairmont Orchid Hotel, Kohala Coast, Hawaii. Info: (703) 797-9018; [www.aaae.org](http://www.aaae.org).

**UNMANNED ROTORCRAFT SYSTEMS CONFERENCE...**Jan. 20-22, Scottsdale, Ariz. Info: (480) 891-6057; [www.vtol.org](http://www.vtol.org).

**GLOBAL AIRFINANCE CONFERENCE...**  
Jan. 21-22, Convention Centre Dublin, Dublin, Ireland. Info: +44 20 779 7222; [www.airfinancejournal.com](http://www.airfinancejournal.com).

## FEBRUARY 2015

**AIRCRAFT INTERIORS MIDDLE EAST...**Feb. 2-3, Dubai World Trade Center, Dubai, United Arab Emirates; Info: (971) 0 4 603 3300; [www.aime.aero](http://www.aime.aero).

◆ **SCHEDULERS & DISPATCHERS CONFERENCE...**Feb. 3-6, San Jose McEnery Convention Center, San Jose, Calif. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

**AVIATION SYMPOSIUM ON AIRCRAFT FINANCING AND LEASING IN ASIA...**Feb. 5, Singapore. (305) 767-4707; [www.aeropodium.com](http://www.aeropodium.com).

**INTRODUCTION TO MACHINERY AND EQUIPMENT VALUATION TRAINING COURSE...**Feb. 5-8, Farnborough, England. Info: (800) 272-8258; [www.appraisers.org](http://www.appraisers.org).

**ABU DHABI AIR EXPO...**Feb. 8-10, Abu Dhabi Air Expo, Al Bateen Executive Airport, Abu Dhabi, United Arab Emirates. Info: (971) 0 2419 2714; [www.abudhabiairexpo.com](http://www.abudhabiairexpo.com).

**PACIFIC NORTHWEST AEROSPACE ALLIANCE CONFERENCE...**Feb. 10-12, Lynwood, Wash.

(425) 885-0290; [www.pnaa.net](http://www.pnaa.net).

**REGIONAL FORUM...**Feb. 19, Palm Beach International Airport, West Palm Beach, Fla. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

**LEADERSHIP CONFERENCE...**Feb. 24-26, Loews Ventana Canyon Resort, Tucson, Ariz. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

## MARCH 2015

**BUSINESS AIRCRAFT FINANCE, REGISTRATION AND LEGAL CONFERENCE...**March 1-3, Hyatt Regency Coconut Point Resort, Bonita Springs, Fla. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

◆ **HELICOPTER ASSOCIATION INTERNATIONAL HELI-EXPO...**March 3-5, Orange County Convention Center, Orlando, Fla. Info: (703) 683-4646; [www.rotor.com](http://www.rotor.com).

**WOMEN IN AVIATION INTERNATIONAL CONFERENCE...**March 5-7, Hilton Anatole, Dallas. Info: (937) 839-4647; [www.wai.org](http://www.wai.org).

**AIR CHARTER SAFETY SYMPOSIUM...**March 10-11, NTSB Training Center, Dulles, Va. Info: (888) 723-3135; [www.acsf.aero](http://www.acsf.aero).

**INTERNATIONAL OPERATORS CONFERENCE...**March 23-27, Grand Hyatt, San Antonio. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

**CORPORATE AVIATION SUMMIT...**March 25, Hill Dickinson law firm, London. Info: (305) 767-4707; [www.aeropodium.com](http://www.aeropodium.com).

## APRIL 2015

**AIRCRAFT ELECTRONICS ASSOCIATION CONVENTION...**April 8-11, Dallas. Info: (816) 347-8400; [www.aea.net](http://www.aea.net).

**AIRCRAFT INTERIORS EXPO...**April 14-16, Hamburg Messe, Germany. Info: +44 (0) 20 8271 2174; [www.aircraftinteriorexpo.com](http://www.aircraftinteriorexpo.com).

◆ **ASIAN BUSINESS AVIATION CONFERENCE & EXHIBITION...**April 14-16, Shanghai, China. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

**AERO FRIEDRICHSHAFEN...**April 15-18, Friedrichshafen, Germany. Info: +49 7541 708-367; [www.aero-expo.com](http://www.aero-expo.com).

**INTERNATIONAL AIRCRAFT REPOSSESSION CONFERENCE...**April 21, Dublin, Ireland. Info: (305) 767-4707; [www.aeropodium.com](http://www.aeropodium.com).

**SUN 'N' FUN FLY-IN & EXPO...**April 21-26, Lakeland, Fla. Info: (863) 644-2431; [www.sun-n-fun.org](http://www.sun-n-fun.org).

## MAY 2015

**AHS INTERNATIONAL FORUM AND TECHNOLOGY DISPLAY...**May 5-7, Virginia Beach Convention Center, Virginia Beach, Va. Info: (703) 684-4646; [www.vtol.org](http://www.vtol.org).

**MAINTENANCE MANAGEMENT CONFERENCE...**May 5-7, Oregon Convention Center, Portland, Ore. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

**BUSINESS AVIATION TAXES SEMINAR...**May 8, Hotel Adolphus, Dallas. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

◆ **REGIONAL AIRLINE ASSOCIATION CONVENTION...**May 11-14, Cleveland. Info: (202) 367-1170; [www.raa.org](http://www.raa.org).

◆ **EUROPEAN BUSINESS AVIATION CONVENTION & EXHIBITION...**May 19-21, Palexpo Convention Center, Geneva. Info: (202) 783-9000; [www.ebace.com](http://www.ebace.com).

**AIRCRAFT FINANCING AND LEASING CONFERENCE...**May 28, Broward College Aviation Institute, Fort Lauderdale, Fla. Info: (305) 767-4707; [www.aeropodium.com](http://www.aeropodium.com).

## JUNE 2015

**AMERICAN ASSOCIATION OF AIRPORT EXECUTIVES ANNUAL CONFERENCE AND EXPOSITION...**June 7-10, Philadelphia, Pa. Info: (703) 824-0500; [www.aaae.org](http://www.aaae.org).

◆ **PARIS AIR SHOW...**June 15-21, Le Bourget Airport, Paris. Info: [www.siae.fr](http://www.siae.fr).

**PAN AMERICAN SAFETY SUMMIT...**June 22-26, Medellin, Colombia. Info: (786) 388-0222; [www.alta.aero](http://www.alta.aero).

**INTERNATIONAL CONFERENCE ON ICING OF AIRCRAFT, ENGINES AND STRUCTURES...**June 22-25, Prague, Czech Republic. Info: (703) 684-4646; [www.vtol.org](http://www.vtol.org).

**REGIONAL FORUM...**June 25, Teterboro Airport, N.J. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

**FLIGHT ATTENDANTS/FLIGHT TECHNICIAN CONFERENCE...**June 30-July 2, Loews Ventana Canyon Resort, Tucson, Ariz. Info: (202) 783-9000; [www.nbaa.org](http://www.nbaa.org).

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