Supersonic bizjets pick up speed

by Mark Phelps

Seventy-one years ago last Sunday, Chuck Yeager strapped on a hand-modified leather football helmet and strapped into his Bell X1, which he flew faster than sound for the first time. While honoring the past, this year’s NBAA-BACE has been abuzz with talk about the future of a supersonic business jet (SSBJ).

While there are a few contenders working to bring an SSBJ to market, Aerion with its AS2 has the floor to itself here in Orlando, and has taken advantage of the biggest stage in business aviation to tell its story.

The big news is the engine. Aerion partner GE Aviation has stepped up with a program to design and build its Affinity line—the first purpose-built civil supersonic engine platform in 55 years. Built around the same GE core found on the CFM56 (GE designed it as part of a consortium with Safran), the Affinity will be optimized for efficiency in both subsonic and supersonic flight.

It will be the highest-bypass supersonic engine ever, according to GE. Though that will penalize supersonic range, the new engine will meet Stage 5 noise limits and comply with international emissions standards. “The AS2 will be welcome around the world,” said Aerion v-p of marketing and communications Jeff Miller.

Arguably even bigger news is that Aerion envisions larger and faster follow-on aircraft, though those plans are in very early stages, starting with assessing market needs. The AS2 is a two-zone cabin, and he said that’s as far as Aerion can go with the power it has available. Larger, faster versions would have to wait for further engine development, said Miller. Aerion envisions a future AS3 with a three-zone cabin, with ultimate plans for a possible airliner-size version. The middle-tier

continues on page 45
EVOLUTION LEADS TO A REVOLUTION.
VNY plans to be first to offer retail jet biofuel

by Curt Epstein

In the wake of the multi-organizational release of the Business Aviation Guide to the Use of Sustainable Alternative Jet Fuel at EBACE in May, the industry has announced the next step in the effort to educate general aviation about the fuel this week at NBAA 2018. As part of this, Los Angeles-area Van Nuys Airport (VNY) is hosting an event—“Business Jets Fuel Green: A Step Toward Sustainability”—on January 17 to demonstrate that sustainable alternative jet-fuel (SAJF) can become a mainstream, drop-in alternative for today’s turbine-powered private aircraft.

On that day, jet A blended with SAJF will be available for use by operators from all four of the airport’s FBOs, which have collaborated in this effort. While SAJF has been used by commercial aviation in limited instances, this marks the first time the “green” fuel will be offered retail to general aviation.

“Our industry is ready to fly with SAJF today,” said David Coleal, president of Bombardier Business Aircraft, and chair of GAMA’s environment committee, adding that the fuel is a certified alternative to regular jet-A. “It does not impact aircraft performance either in the air or on the ground, and importantly, it does not require any modifications to aircraft.”

The event is made possible by a consortium of organizations including the Van Nuys Airport Association, EBAA, GAMA, IBAC, NATA, and NBAA in coordination with Avfuel, Bombardier, Phillips 66, and World Fuel Services. One of the world’s busiest general aviation airports and a hub for business aviation, VNY recorded a record 231,323 movements in 2017.

“The global business aviation industry has committed to mitigating and ultimately reducing its carbon emissions through a number of measures, including operational improvements and new technologies,” explained IBAC director general Kurt Edwards. “Sustainable aviation fuel is a central technology that will propel us to meet our goals. IBAC comments the initiative at Van Nuys Airport as a solid first step with many more to come as business aviation, always on the cutting edge of technology, takes up such fuels.”

Correction
The UTC Aerospace Systems story on page 38 incorrectly states that UTAS’s zinc-nickel formulation strengthens steel landing gear components, but the formulation is actually designed as a surface coating to protect the steel from corrosion. It also misstates UTAS’s involvement in the landing gear and carbon brakes for the Cessna Citation Longitude. UTAS does not provide the landing gear for this platform, but does manufacture the gear legs.

Mexico’s Privair FBO has plans to expand into chain

Mexican airport manager Grupo Aeroportuario del Pacifico has operated its Privair FBO at Los Cabos International Airport since 1998, and it now plans to expand that operation to four of the other airports it operates in the country. At La Paz, Puerto Vallarta, Tijuana, and Guanajuato’s Aeropuerto Del Bajio, where there are currently no existing FBOs, the company says it will replicate its existing San Jose Del Cabo facility, which handles approximately 7,000 private aviation flights a year, most coming from the U.S. to the Pacific coast vacation area.

At that flagship location, the first-time NBAA-BACE exhibitor (Booth 3422) will break ground in January on a $1.5 million, 43,000-sq-ft hangar that can accommodate the latest ultra-long-range business jets, according to Miguel Angel Mariscal Angulo, the company’s commercial director. It will also begin a renovation of its 10,700-sq-ft terminal at Los Cabos, which offers on-site customs and immigration service, conference rooms, catering, concierge, Wi-Fi, aircraft cleaning, and full ground service, as well as a bar and restaurant. The facility is open from 8 a.m. to 8 p.m. daily, with 24-hour security and after-hours callout available.

Offering nearly 17 acres of ramp space, the facility has plenty of room for aircraft parking. The airport can easily accommodate business jets with its 9,855-foot-long runway. Grupo Aeroportuario del Pacifico administers 12 airports in Mexico, in addition to Montego Bay and Kingston, Jamaica. C.E.
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Global Jet Capital sees worldwide shift to big jets

by Curt Epstein

Since 2016, more than 8,600 new and used business jets have been sold worldwide, with approximately $23 billion in financing used to support those transactions, according to industry financing provider Global Jet Capital (Booth 2253). Of that amount, more than 60 percent was applied to the purchase of new and used business jets, which the company noted has helped increase the proportion of larger aircraft within the global fleet.

In that span, the total number of midsize business jets has declined by 31 percent, or 415 units. That shortfall has been replaced by 419 heavy/jumbo aircraft, representing a 6 percent increase for that segment, according to the company.

“The figures provide a clear focus of where we are seeing expansion in the sector, and the importance of financing in supporting industry growth,” said Global Jet Capital COO David Labrozzi, adding there are significant long-term advantages in increasing the number of larger business jets in the global fleet. “These obviously provide greater capacity per aircraft and therefore offer the benefits of business aviation to a wider population, something which can be particularly important for corporate owners. In addition, the increasing importance of developing new international trade links is resulting in growing demand for aircraft able to undertake longer distances to destinations that might not currently be well served by commercial airlines.”

New aircraft in the large-cabin category had an average purchase value of more than $48.2 million between 2016 and 2018, compared with an average of $12.5 million for the remainder of the market. That translates to delivery values during this period of $26.4 billion for the large-cabin segment, versus $14.3 billion for the rest of the business jet market.

Global Jet Capital, which specializes in operating leases, estimates that more than $5 billion in that product are currently in effect for new and used aircraft transacted since 2016, and the company has seen a significant increase in inquiries for them, with clients attracted by the reduction in aircraft residual risk and by their flexibility.

“The flexibility afforded by operating leases is especially beneficial in helping clients move on to higher value new model aircraft without having to re-market their existing aircraft,” explained Labrozzi. With North America home to more than 60 percent of the world’s business jet fleet, and with the region seeing the world’s largest increase in its large and heavy fleet over the past two years through the addition of 317 aircraft, the company expects to see growth in operating leases over the next five years.

Pentastar installs first SmartSky 4G LTE system

by Matt Thurber

The first customer installation of a SmartSky Networks 4G LTE air-to-ground connectivity system was completed by Pentastar Aviation. The installation is in a Gulfstream G550, and it was certified under an approved model list (AML) supplemental type certificate (STC) covering the GIV through G550.

Although SmartSky is building towers for its 4G LTE network near dealer locations to allow testing of the system after installation, Pentastar technicians tested the G550 system with a portable test rig that simulates the operation of the tower. The SmartSky tower network is 90 percent complete for coverage of the New York-Chicago and New York-Florida routes. These routes will be ready for further flight testing by year-end. In spring 2019, SmartSky expects to have tower coverage built out to accommodate areas where 90 percent of business aviation flight hours are flown in the U.S. By the end of next year, the entire continental U.S. is expected to be covered.

At the 90 percent coverage level, SmartSky will launch service with Pentastar Aviation. Service prices for its 4G LTE system range from $2,500 for 5 GB per month to $4,500 for 100 GB per month.

Work on other STCs for equipment installation is under way, and many should be ready about the time that the SmartSky network launches next year. Bombardier and Pentastar service centers are developing STCs for many of their aircraft, and other companies working on STCs for a variety of business jet types include Delta Engineering, StandardAero, Clay Lacy Aviation, Ventura Air, and Duncan Aviation. A key feature of SmartSky’s service is low latency because it runs on a network of towers on the ground, not on a satellite network. “That is as important as speed for user experience,” said Walker.
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Bolen urges bizav industry
to vote during mid-terms

by Alexa Rexroth

Amid competing ideas and philosophies voiced between political titans Paul Begala and Matt Schlapp during Wednesday’s keynote session at NBAA 2018, one striking point of agreement ultimately emerged. NBAA president and CEO Ed Bolen extracted from the debate the need for the business aviation industry to get to the ballot box during the mid-term elections, irrespective of their political preferences.

“We’ve heard a case effectively made from the left and from the right, but I think the thing they both agreed on was that your vote matters,” said Bolen. “Politics matter. We all have a voice. During the FAA reauthorization debate, we all exercised our voice, we connected with our members of Congress, we asked them how to represent us, and that’s the one thing I think we can all agree on. Whatever the outcome of the mid-term elections, I hope it will be because all of us go out and vote.”

Also during Wednesday’s keynote, past and future generations of the industry were honored with recognition of NBAA’s Top 40 Under 40 awardees and presentation of the Meritorious Service Award to the Women Airforce Service Pilots (WASP).

Bertrand Piccard, copilot of the Solar Impulse 2, engaged the audience with a presentation that championed innovation and embracing the unknown to propel advancement in the industry. “Innovation does not come when you have a new idea, it comes when you throw away an old belief,” said Piccard.

VistaJet tantalizes with
‘Chairman’s Menu’ catering

by Jennifer Leach English

Before Thomas Flohr created global business aviation company VistaJet (Booth 4144, Static SD92), he was a regular business aviation customer himself, and he was dismayed by the inconsistent level of service, particularly at mealtimes. From the start, Flohr was adamant that his own aircraft services company provide an exceptional flight experience specifically designed to delight each individual passenger.

As a lifelong foodie, wine connoisseur, and adventurous diner himself, Flohr placed special attention and resources on the catering services provided to VistaJet customers—introducing programs that would allow passengers to choose their meals ahead of time and request catering from top restaurants all over the world.

VistaJet’s latest offering, The Chairman’s Menu, consists of Flohr’s favorite dishes and is available for pre-order on all VistaJet flights. Paolo Gorini, Flohr’s personal chef, worked closely with Diego Sabino, VistaJet’s head of private dining, to create the intricate nine-course menu. Each bite was personally tasted and approved in-flight by Flohr himself.

“I created the Chairman’s Menu with [Flohr] as he wanted to offer our best customers the opportunity to experience VistaJet the way he does, with his favorite dishes and the ones he requests from his personal chef to create every day,” Sabino told AIN.

Samples from the menu include quail eggs served with Oscietra caviar, king crab salad served with sriracha sauce and lemon dressing, lamb chops coated in rosemary crust, and Gorini’s special tiramisu infused with Italian espresso and served with shaved chocolate.

The meals are prepared and delivered to customers by a dedicated culinary team established in six cities: New York, London, Paris, Nice, Los Angeles, and Milan. Sabino personally selected and trained these individuals to recreate the Chairman’s Menu. Though special attention must be paid to the way flavors change and evolve in air, Sabino has managed to create a menu that naturally translates to 40,000 feet.

“The Chairman’s Menu features only the finest ingredients that are carefully selected and thoughtfully sourced. We do not add extra sauces or extravagant seasonings to flavor the dishes. The simple ingredients are bended with complex cooking techniques to highlight their intrinsic quality, flavors, and textures,” Sabino said.
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Broker Mente Group sees a shift in market concerns

by Kerry Lynch

Aircraft brokerage and consulting services provider Mente Group (Static Display 11) is seeing a significant bump in its preowned business this year, but Brian Proctor, president and CEO of the firm, cautions that a few headwinds could slow the activity over the next year.

He estimated that the Dallas-based firm will have 40 pre-owned transactions this year, which is as much as a 50 percent increase. “The number of transactions has definitely increased,” said Proctor, who also chairs the recently renamed International Aircraft Dealers Association, adding this is an industry-wide trend. “The market has been good for everyone.”

However, even as demand should stay strong, he sees a cooling of preowned sales beginning this quarter and extending through next year for a couple of “structural” reasons.

First, he noted that with the looming 2020 ADS-B deadline, maintenance, repair, and overhaul shops will be flooded with upgrade work. This will pinch the availability for pre-purchase evaluations for preowned aircraft sales, backing up timing of transactions.

Aircraft Pool Getting Shallower

The second issue is availability. “We’ve seen an incredible contraction in availability in late-model airplanes. So it’s going to be harder and harder to find good equipment to buy,” Proctor said, pointing to the Gulfstream G280 as an example. Recently, he said, there were only two available in the world.

On the upside, he added, the aircraft manufacturers will benefit. Mente already has had two cases recently where customers ultimately opted for new aircraft because they could not find a suitable preowned model on a timely basis.

But for now, Mente is enjoying a solid boost in business. “It’s been a good year. We are pleased,” he added, “Rising tide raises all boats, and we’re part of that.” But he also believes part of the success is the company’s approach to business with transparency, expertise, experience, and full services that range from asset advisory, completion management, and aircraft valuation.

Weston to add another UK FBO

UK-based Weston Aviation, which already operates three FBOs in England and Ireland, has reached an agreement to open a new business aviation center at Gloucestershire Airport. The FBO will be located within the main terminal at the airport, which is adjacent to the main aircraft ramp area. The facility will provide a newly refurbished passenger and crew reception area, crew rest area, and passenger lounges, full security screening with the FBO and direct ramp access.

Weston Aviation founder and CEO Nick Weston said, “Gloucestershire Airport is based in a location that offers significant potential for the development of business aviation growth and activity as well as encouraging new users of private air travel to and from the region.”

Located in the Southwest corner of England, the airport is one of the country’s busiest general and business aviation gateways. Weston, which will begin operations in November, will be Gloucestershire’s preferred FBO service provider, according to its managing director Mark Ryan.

In addition to ground handling, Weston also provides aircraft charter, leasing, and fuel services. Its other locations include Cornwall Airport Newquay, Humberside International Airport and Ireland’s Cork Airport.
Air Capital doubles footprint as customers ask for more

by James Wynbrandt

Wichita’s Air Capital Interiors (ACI), celebrating its fifth anniversary this month, is showcasing at NBAA 2018 its enhanced upholstery, cabinetry, and sheet metal capabilities, and expansion of production capacity for its interiors refurbishment, repair, and modification work.

The in-progress 10,000-sq-ft facility expansion will double ACI’s production footprint to support growing demand for the upholstery, cabinetry, and sheet metal work, providing “more space for more folks to put more hands on things,” said ACI president Rod Wilson. These are craft specialties the company “didn’t offer much of several years ago, [but] customers kept asking for more and more,” said Wilson. Operations in the new space are expected to commence in the fourth quarter.

Over its five years—the company launched at NBAA 2013—ACI has “worked on more than 60 model types, everything from small [Cessna] 172/182-size airplanes all the way up to GIVs, Challenger 650s, and Global Expresses,” said Wilson.

In addition to refurbishment, repair, and modification work, ACI’s more than 30 full-time technicians, also fabricate new cabinetry, either to company-developed or customer-supplied engineering, and can also support interior reconfigurations in either manner.

At the company’s display (Booth 2842) ACI is exhibiting examples of its work, including cabinetry, upholstery, sheet metal, and stainless steel items. But don’t expect to find a fifth anniversary celebration under way. “We are so focused on existing projects and customers that we just don’t have a lot of time” for party planning, Wilson said.

ACI is eager to meet with “anybody with an in-service aircraft or a special-mission conversion need,” said Wilson. “We do everything interior-related, so it can be somebody who’s got a broken door or drawer, to someone with a fleet they want to completely refurbish.”

Though ACI can work directly with owners and operators, core customers are “maintenance facilities that don’t have the capabilities or don’t have enough capacity” to offer interiors services, Wilson said. Partnering with ACI enables them to offer their customers a turnkey service. Wilson invites “MROs that don’t have refurbishment availability and maintenance shops that don’t do refurbishment” to come to the booth to discuss working together.

ACI is sharing the display with sister company the Appearance Group, an aircraft interior and exterior detailing specialist. Along with Wilson, Matthew Henry, president and CEO of ACI, and the Appearance Group, are on hand.

Business is so strong at Air Capital Interiors, the Wichita company is expanding its facility and its menu of services. It specializes in sheet metal work, cabinetry, and upholstery.

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Product Support Survey – Aircraft

by Matt Thurber

A bit of a shakeup took place in this year’s AIN Product Support Survey for the aircraft manufacturers, with Gulfstream back on top in the combined overall average for newer and older aircraft. Gulfstream’s 8.4 average (out of a possible 10) for its large-cabin models was 0.1 points higher than last year and vaulted it back into first place. Last year, Gulfstream’s large-cabins came in second place.

Dassault Falcon and Embraer tied for second place at 8.3, representing a 0.2 jump for Dassault and a 0.1 drop for Embraer. Dassault has been making steady progress and moved up from third place last year to second place this year. Gulfstream’s mid-size jets scored an 8.2 overall average rating this year, up 0.2 from last year, putting them into third place.

Also moving up in the scores this year are Bombardier’s Challengers, up 0.1 to 8.0 but in fourth place like last year, and tied with the Global jets. The company’s Learjets remain at 7.7, but these moved up to fifth place from last year’s seventh. Textron Aviation’s Citations, while dropping 0.1 this year, tied for fifth place with Learjet, up from last year’s sixth place.

There were many ties this year, and in sixth place this year for the overall average of newer and older aircraft are Textron Aviation’s Hawker and Premier/Beechjet/Hawker 400.

Maintaining their steady lead across the years, Mitsubishi’s MU-2 series topped the turboprops’ overall averages with a 9.1, down 0.1 from last year. Pilatus came in second with the same ranking as last year, at 8.2. Textron Aviation’s King Airs managed a 0.2 climb to 7.4 this year. Daher’s TBMs did not receive the minimum number of ratings to be included in the final turboprop results.

The helicopter manufacturers are also in the same order as last year, with Bell in the lead but down 0.1 to 7.1, followed by Airbus Helicopters (also down 0.1, to 7.0) in second place. Leonardo remains in third place at 6.9 (down 0.1), but Sikorsky is closing the gap with a large jump from last year, up 0.5 to 6.8.

Newer Jets

For jets that that were delivered in the past 10 years, Dassault and Gulfstream large-cabins tied for first place, ranked at 8.5. This number is a slight drop from Gulfstream’s 8.6 last year, but a larger 0.2 move up for Dassault, which was in third place last year.

In second place, Embraer scored a rating of 8.4, exactly matching last year’s number and ranking. Gulfstream’s mid-size jets came in third place at 8.2, up 0.2 from last year.

Bombardier’s Challengers moved up significantly in this year’s rankings, to fourth place and 8.1, up 0.3 from last year’s sixth place. The company’s Globals ranked in fifth place, down 0.2 to 8.0 from fourth place last year.

Older Jets

Older jets garnered the same 8.0 and second place as last year.

Newer Turboprops

Pilatus remains the leader in this category, bumping up its overall ranking from last year’s 8.1 to 8.2. Textron Aviation’s King Airs garnered the same 8.0 and second place as last year.

Older Turboprops

In the older turboprops category, there were no surprises this year, with perennial favorite Mitsubishi’s MU-2s holding their big lead at 9.1 (down 0.1 from last year), followed by Textron Aviation’s King Airs (7.4, up 0.4 from last year).

Highlights of product support news from aircraft OEMs during the past year

Airbus Helicopters

Airbus Helicopters has added new digitalized options in its HCare service. These include Digitize, which includes new applications and data-as-a-service packages focused on safety management, maintenance, and operations; Optimize, “includes data analytics services such as helicopter flight data monitoring to identify the exposure to risks in flight, or a parts and stocks forecast for optimizing costs”; and Achieve, where Airbus’s data-analysis experts help identify product improvements or develop solutions according to customer-set targets.

Airbus Helicopters and Astronautics have developed the Astronautics Air Ground Communications System (AGCS), which provides cybersecurity protection of critical avionics from non-authorized access.

All new Airbus rotocraft delivered in the U.S. and Canada will include Traxxall’s aircraft maintenance-tracking and inventory-management system. Twenty-five Airbus Helicopters customer centers worldwide are now authorized to sell and install BLR Aerospace’s FastPin, which is also available as an option on factory-new Airbus H125s.

Safran has extended the TBO on its Arriel 2D engines that power Airbus H125 and H130 models by 25 percent to 5,000 hours. For H125s and H130s delivered in 2018, engine warranty is now three years and 3,000 hours, up from two years and 1,000 hours.

Bell

Bell is continuing to develop a more streamlined product support experience for customers after reorganization of the company’s commercial business began

continues on page 14
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Dassault Aviation

Dassault Falcon Services celebrated its 50-year anniversary in 2017. Maintenance intervals have been extended on most models. On the Falcon 7X, the A inspection is now 12 months/800 flight hours (matching the 8X intervals). The 50/50EX A inspection interval is now 12 months/500 flight hours. Both the 900 and 2000 series A inspections are now 12 months/800 flight hours.

In late 2018, Dassault’s new spares warehouse will open. The facility is located between Le Bourget and Charles de Gaulle airports and will replace the existing Le Bourget facility.

Dassault added Aero-Dienst in Vienna, Austria, as an authorized service center. Aero-Dienst can thus provide line maintenance, AOG support, and other services for the Falcon 900 and 2000 series as well as the 7X and 8X. Also joining the Dassault authorized service center network was Skyserve Toronto, which is authorized for line service on the 900EX EASy and 2000EX EASy series.

Technicians learning to service Falcon jets have been able to use its 3D immersive practical training technology at the Dassault Training Academy in Bordeaux-Mérignac, and now technical representatives at the St. Cloud Command Center can also put this technology to work.

Embraer

Last December, Embraer merged its service and support activities into a single business unit. Embraer Service & Support is a unified organization that now looks after all Embraer aircraft, bringing together support operations for the commercial, defense, and executive jet segments.

Embraer based a team of technicians from its Singapore Hawker Pacific authorized service center at Subang Airport in Malaysia to support business jet growth there. The Australian company is Embraer’s longest-running authorized center in the Asia-Pacific region. Its facility at Singapore Seletar Aerospace Park is certified to service the whole range of Embraer’s business jets.

Embraer selected Aero Baires as its first authorized service center in Argentina, based at Aeródromo de San Fernando in Buenos Aires. Argentina’s local aeronautical authority, ANAC, certified the service center for scheduled and unscheduled maintenance for the Embraer Phenom 100 and 300.

Embraer selected West Star Aviation for full landing gear support to include warranty repair, overhauls, and AOG and engineering services at its Grand Junction, Colorado, and Chattanooga, Tennessee facilities.

Gulfstream

Gulfstream has rebranded its product support organization to Customer Support, a Dassault Aviation

Bombardier Business Aircraft

New Smart Services allows operators of Bombardier jets to customize a cost-per-flight-hour program to fit their needs. Smart Services is available for new jets and those up to 20 years old and bundles Smart Parts with optional landing gear overhaul, cabin systems components, scheduled labor, and unscheduled labor due to part removals from normal operation, according to Bombardier.

New parts depots opened in Miami and Tianjin, China. Bombardier has added a Challenger 300 to its mobile response team, and the jet will be headquartered in Frankfurt, Germany. This jet joins a mobile response Learjet 45 based in Chicago. Bombardier’s total mobile response truck fleet now numbers 23, and it has added six new line maintenance stations in Europe, along with opening maintenance control centers in Wichita, Kansas, and Linz, Austria.

Bombardier service centers now offer new engine service capabilities for Challenger 300 and 350 operators, through an agreement with Turbine Engine Specialists.

Daher

Daher’s new Me & My TBM Android and iOS app, available for owners and operators of 2018 and later TBM 910 and 930 single-engine turboprops, simplifies downloading flight data and updating Camp Systems maintenance-tracking and facilitates sending information to Daher’s TBM Care support team. The app automatically sends aircraft counter updates, as well as trend and report data files, to Camp. The ability for TBM Care to view and analyze flight parameters less than an hour after conclusion of a flight further Daher’s support capabilities, the French aircraft manufacturer said.

Combined Overall Average Ratings of Newer and Older Aircraft

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Overall Average 2018</th>
<th>Overall Average 2017</th>
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<td>Dassault (Falcon)</td>
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<td>7.9</td>
<td>0.1</td>
</tr>
<tr>
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<td>8.1</td>
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<tr>
<td>Embraer (Learjet)</td>
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<td>7.7</td>
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<tr>
<td>Textron Aviation (Citation)</td>
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<td>7.8</td>
<td>-0.1</td>
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<td>Textron Aviation (Hawker)</td>
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<td>6.9</td>
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<tr>
<td>Textron Aviation (Premier, Beechjet) 400/400A, Hawker 400XP)</td>
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<td>7.5</td>
<td>-0.8</td>
</tr>
</tbody>
</table>

**Ratings of Newer and Older Aircraft**

- Bold indicates highest number in each category.
- Listed in order of the 2018 overall average. Ties are listed alphabetically.

*continued from page 12 earlier this year, Bell intends for the reorganization to result in higher levels of integration, network partnership, and customer satisfaction. One method for improving communication will be to consolidate customer feedback data through features such as chat rooms where customers will be able to log in and share their input.

Bell’s factory-owned service centers in Miami and Piney Flats, Tennessee, received FAA Part 145 certification for Bell’s newest helicopter, the 505 Jet Ranger X.

To expand service options, Bell is helping international MROs become authorized maintenance centers (AMC). Launch customers for the new AMC network were Rocky Mountain Rotors of Belgrade, Montana, and China’s Beignwood Investments.

Customer Advantage Plan members now enjoy extended warranty coverage for CAP products, to three years and 2,000 hours and up to three years for labor.

**Technicians learning to service Falcon jets have been able to use its 3D immersive practical training technology at the Dassault Training Academy in Bordeaux-Mérignac, and now technical representatives at the St. Cloud Command Center can also put this technology to work.**
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PUSH TO LOAD (FAA REQUIREMENT)
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RockwellCollins aims to illuminate bizjet cabins

by Kerry Lynch

Rockwell Collins is bringing a new concept in cabin lighting to business aviation based on micro LED technology. Already introduced to the commercial aviation market, the electronics and interiors specialist will highlight its Secant Luminous panel for business jets at its booth (228) during this year’s NBAA-BACE.

Recognized as a Crystal Cabin Award finalist, the Secant Luminous technology will enable a variety of general or specific lighting displays to the cabin, with options such as showing environmental scenery or possibly even brand or other messaging on standard panels. It can also adjust lighting to improve sleep.

The Secant panel uses uLEDs (or Ultra LED) as pixels and general lighting. Desired displays are created through the use of white, RGB, or RGB+W uLED clusters. If the display is disabled or the lighting is placed in a general illumination mode, the panels return to their standard appearance.

“Business jet owners can customize the Secant panel to create virtually any lighting environment they desire, whether it’s imagery to help passengers sleep or a source of general lighting,” said Steve Scover, vice president and general manager of Lighting and Integrated Systems at Rockwell Collins. “The Secant panel sets the tone for the passenger’s visual expedition.”

While originally unveiled to the commercial aviation market, the technology could be an “easy rollover” for the VIP market, believes Ed Kinnier, vice president of strategy and marketing, interiors. The introduction to business aviation will provide an opportunity to see how the technology would look on aircraft such as Globals, Gulfstreams, or Falcons.

Noting an “inflection point” for micro LED technology coming within the next 24 months, Kinnier added, this will give them the time to gather the proper feedback, work on “form, fit, and function,” as well as certification.

Initially, the panel will be available in white or monochromatic color, but Rockwell Collins expects that it will have a software update ready by 2020 for full-color displays.

The ability to display messaging “is one of the things that is most exciting about the potential for the platform,” Kinnier said, adding this capability is “on the stove” as a future offering.
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MHIA launched its Aircraft Product

The AW139 fleet of more than 900

MU-2 angle-of-attack indicator, MHIA

MU-2 support from Beechcraft/Raytheon.

London-area Luton and Stansted airports.

Farnborough Airport to operations at

Service maintenance and operations pro-

Mitsubishi located within the Gulfstream Savannah

Leonardo

The AW139 fleet of more than 900 helicopters has logged more than two million flight hours. The helicopter is built both in the U.S. and Italy, serving a customer base that includes offshore transportation, EMS, search and rescue, government agencies, and VIP operators.

Mitsubishi

Mitsubishi Heavy Industries America (MHIA) launched its Aircraft Product Support Division 20 years ago, taking over MU-2 support from Beechcraft/Raytheon. The Japanese manufacturer continues strong support of the 260 MU-2s that are still operating, even though production ended more than 30 years ago.

More than 40 MU-2s and 249 attendees came to MHIA’s free Pilot’s Review of Proficiency seminar in April. The next PROP is scheduled for 2020.

The support division established a safety committee to address “current demands of the aircraft and flight training.”

In addition to upgrades such as an

MHIA is enhancing spare parts availability “by optimizing the supply chain.”

Piaggio Aerospace

Improvements to the P.180 Avanti airframe that led to the new EVO model are being offered for older Avantis, including a new Magnaghi landing gear with a 15-year, 15,000-landing TBO.

Avanti operators can now trial the new customer web portal in Piaggio’s customer relationship management software. This will allow users to access Piaggio’s support team and monitor status of requests.

Piaggio has renewed its service center agreement with Banyan Air in Fort Lauderdale, Florida. Banyan is host to the Piaggio America South Florida customer support division, which also houses a warehouse with more than 16,500 parts.

EVO buyers have the option of signing up for a new per-flight-hour airframe maintenance program, Forward Wing Care.

Pilatus Aircraft

Pilatus has extended scheduled main-

ance intervals on its PC-12 turboprop to

300 hours from 100 to 150 hours. The exten-
sion is expected to lower scheduled main-

ence labor time by about 20 percent for operators that fly 300 hours per year. This could reach 40 percent for PC-12s that log more than 800 hours per year.

Pilatus appointed Cutter Aviation’s Denver base as a Pilatus sales and service center for the Southwest U.S.

Sikorsky

Sikorsky has focused on improving helicopter availability by reducing AOG turn times. In 2016, AOG turnaround time dropped 66 percent and total AOG volume dropped 72 percent. Since then, turnaround time has dropped a further 20 percent thanks to improved parts forecasting and stocking.

Last year, Sikorsky added Thai Aviation Services to its authorized service center ranks, bringing the total worldwide to 23.

S-92 major inspection intervals have grown to 1,000 hours, up from 1,250, thanks to customer input to the maintenance steering group and HUMS data.

Sikorsky has relocated and expanded its Brazilian forward stocking facility, from Multiterminais to Barra da Tijuca, near Jacarepaguá Airport, which puts the facility closer to Brazilian operators and is expected to reduce the parts receiving turnaround time from 24 hours to less than two. Also in Brazil, Sikorsky is adding rotor blade repair capability for the S-92, which will be done by Composite Technology do Brasil, a joint-venture between Sikorsky-owned CTI and Lider Aviação.

 Textron Aviation

Textron has launched an upgraded warranty claims processing website, designed to provide a simple experience for customers. Upgrades include improved claims processing and post-purchase support.

Textron Aviation has removed charges on rotatable parts for overhaul, which reduces unexpected charges for the customer.

The support organization has hired 50 engineers to support mobile service unit (MSU) teams that are part of Textron Aviation’s iCall support center. When two MSU technicians drive to the location where an aircraft is grounded, the engineers assigned to that particular team dig into the problem and help troubleshoot. By the time the technicians arrive at the aircraft, they should know enough about the problem to implement an immediate repair without having to spend more time troubleshooting.

This year marks Textron Aviation’s fifth year in its investment strategy for Europe product support efforts, which ramped up in 2012 with the opening of facilities in Doncaster, UK; Dusseldorf, Zurich; and Valencia, Spain. The company has opened a new line-maintenance station at London Biggin Hill Airport, putting its services closer to operators of Cessna Citations, Beechcraft King Air, and Hawkers based at, or visiting, the fast-growing business aviation airport.

A team of four mechanics has been delivering drop-in, AOG, and minor scheduled maintenance support since earlier this year.
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Booth #1600
A HUD for the rest of us

by Matt Thurber

MyGoFlight’s SkyDisplay HUD is the brainchild of company founder and CEO Charles Schneider, who was curious why he could have a HUD in his BMW automobile but not in his Cirrus SR22. The typical platitude that aviation is different, lower volume means higher prices, avionics certification is expensive, etc., did not faze Schneider, and he continued researching HUDs for light airplanes.

He quickly figured out that to be useful, an airplane HUD must replicate most of the features of larger HUDs on business jets and airliners, but to achieve a lower price, the HUD couldn’t be conformal. That means it must show primary flight display symbology (airspeed, altitude, rate-of-climb, navigation information, and the flight path marker [FPM]-based flight director) on a combiner display positioned in the pilot’s field of view when looking through the airplane windshield. The pilot must be able to focus on infinity (to see the outside view) and also see the HUD symbology at the same time. And the HUD symbology had to be driven by rock-solid air data, attitude and heading reference systems (ADAHRS), which are available from modern avionics.

There are advantages and disadvantages to a non-conformal HUD. Obviously, the low price is a big plus, but another bonus is that it’s not necessary for the pilot’s head to be positioned at a specific point (in the eyebox) to ensure proper viewing and conformality. For this reason, the SkyDisplay HUD combiner can easily be adjusted for wherever the pilot sits, instead of adjusting the pilot to match a fixed-position combiner.

The MyGoFlight SR22T is equipped with Avidyne displays, dual Garmin 430 navigators, and an Avidyne R9 autopilot. The SkyDisplay HUD is permanently installed on the ceiling above the pilot’s seat and weighs less than two pounds. This includes the projector and combiner, plus an aircraft interface device mounted remotely to deliver ADAHRS data to the HUD graphics computer from the avionics.

The SkyDisplay HUD employs magenta for the flight director cue and other targets, armed modes, and alerts. Targets include airspeed, altitude, and heading bugs, and a tracking “T” as well as lateral and vertical deviations and the course deviation indicator (CDI). Armed modes are primarily “altitude selected but not yet captured” or “glideslope armed and not captured.”

Alerts can include messages, for example, vertical speed direction or messages about engine parameters that are out-of-range (although this feature wasn’t available in the SR22).

Putting these items in magenta is doubly effective: it calls attention to the item and it makes it easier for the pilot to understand that the flight director cue is a target that the pilot must capture with the FPM in order to follow the flight director commands. Some pilots call this “putting the thing inside the thing,” but it is just another way of depicting the flight director command bars as a smaller circular cue (magenta in this case) and the airplane as the FPM that the pilot or autopilot can manipulate by placing the larger FPM circle directly over the smaller flight director cue circle. It’s easy to verify that this is accurate by looking down at the PFD and seeing that the flight director command bars are lined up with the aircraft symbol.

MyGoFlight (Booth 3259) expects the SkyDisplay HUD to retail for $25,000 (not including installation) for a Cirrus system.

Certification, via an approved model list supplemental type certificate (STC), is expected before the end of this year. The first STC will be for Avidyne-equipped Cirrus, followed by Cessna Caravans equipped with Garmin G600 displays, then later-model Cirrus Perspective (Garmin avionics) models. The Pilatus PC-12 is also a likely candidate.

Most pilots don’t learn about HUD until later in their careers, but a low-cost system like the SkyDisplay could be a boon for training providers teaching future commercial pilots. The sooner pilots get used to a HUD, the better use they will make of this safety device later in their careers.

And in China, where airlines are required to install HUDs, the SkyDisplay might be a logical choice for the training fleet.
Something very special happens when talented people have a passion for what they do. That's why every refurbishment at Stevens is designed in meticulous detail to excite the senses unlike anything you've ever experienced. Come and let us show you.
As Gulfstream Aerospace celebrated the first delivery of its G500 ultra-long-range jet in late September, the event marked a major milestone for Pratt & Whitney Canada (P&WC) as well: the entry into service of the first of a new engine family that has been in the works for most of the past two decades.

“This year is a very big year for us,” said Scott McElvaine, vice president of the PW800 series for P&WC (Booth 3328). “We are now officially in service with the PW800.”

Pratt & Whitney’s 15,144-pound-thrust PW814GA is the first to enter service, powering the G500. That milestone was the culmination of a test program that stretches back to the early 2000s.

Using the PurePower core developed for the PW1000, the PW800 family is designed to span a thrust class of 10,000 to 20,000 pounds, provide new levels of maintainability, and dramatically reduce emissions with the Talon X combustor.

Early on, the family was selected for a few airframe programs that did not come to fruition, including the Cessna Citation Columbus. But in 2014, Gulfstream selected the 814GA for its new G500 and the 15,680-pound-thrust 815GA for the G600. And this year, P&WC captured its next major program, the Dassault Falcon 6X. Dassault is opting for a 13,000- to 14,000-pounds-thrust variant, designated the 812D.

McElvaine stressed the extensive testing that went into bringing the first engine into service with a program that amassed 23,000 hours. Many new engine programs accrue 7,000 to 8,000 hours before entering service, “so 23,000 is a massive number,” he said. “We prefer it that way. We want to make sure we’ve got this right.”

Even before Gulfstream selected the engine, P&WC had conducted the initial runs and flight tests. That work helped lead to Transport Canada type certification for the 814GA and 815GA in February 2015 and the first flight of the G500 in February of that year. FAA and EASA approvals for the engines followed in 2017.

The test program, however, has been only one piece of the preparations. “It’s not just engine technology, but also manufacturing and production,” he said. “We’re actively ramping up to get engines to our customers.”

P&WC began laying the groundwork for production in 2011 with the opening of a facility that McElvaine described as “the Disneyland of production,” incorporating a mixed model moving line that works on a just-in-time process. “Parts come in with the tools that are needed for that specific model at that specific moment at that specific station on the line,” he explained. “It’s very dynamic.”

In tandem with production, the support elements have been put in place. “We’ve taken a lot of pains on this program to make sure that this entry-into-service is as smooth as we can make it,” he said. The “front line” is ready with more than 150 representatives trained for support. Backing them are a team of experts in areas such as logistics, engineering, and operations at the PurePower customer center that provides layered support. Furthering this is an enhanced digital engine service platform. In addition, P&WC has built a stockpile of spares and has rental engines in place.

One of the most significant initiatives, he added, is the ESP PurePower program that was developed and evolved with considerable input from potential customers. The result is a “white glove-type service” tailored to the owner and offering comprehensive coverage and a range of services.

However, he also stressed the emphasis is on availability, dispatch reliability, and keeping the engines out of the shops. The engines come “out of the box” with on-condition maintenance requirements, rather than fixed times between overhauls. Engines will average 10,000 hours between shop visits, he said, adding, “It is no longer about putting engines through the shop. It’s the availability of the aircraft.”
Pilatus expects two dozen PC-24s in service by 2019

by Ian Sheppard

The worldwide, in-service Pilatus PC-24 fleet has now reached 12 aircraft, with an expected total of 23 by year-end, the Swiss aircraft manufacturer (Booth 4295) said on Tuesday at NBAA 2018. These aircraft are located in the U.S., Switzerland, Luxembourg, and South Africa.

The 12 Pilatus jets have accumulated 1,200 flight hours, with the fleet leader, a PlaneSense-operated PC-24, at 620 hours. George Antoniadis, the U.S. fractional ownership operator’s president and CEO, said, “Our clients absolutely love the PC-24 and it is a wonderful complement to our PC-12s. The jet has allowed us to expand our offering with a larger cabin and higher speeds.” He noted the ability to reach airfields that other jets cannot reach, “significantly reducing point-to-point travel time.”

Meanwhile, Western Aircraft, operator of PC-24 S/N 102 and authorized Pilatus dealer for the Northwest U.S., described the aircraft as a “true pilot’s airplane.” Chief pilot Scott Marshall continued, “The ergonomic cockpit layout paired with the ACE integrated avionics suite shows that Pilatus developed this aircraft with the pilot in mind. Whether hand flying in cruise or on approach, the aircraft is one of the most stable and forgiving that I have ever flown.”

Pilatus continues with post-certification activities to expand the operating envelope of the type, including steep approaches, air ambulance interiors and operation on unpaved runways, one of the key selling points that led to the initial flurry of more than 80 orders at EBACE 2014 in Geneva.

More than 150 takeoffs and landings have been conducted to date on dirt, grass, and gravel surfaces in Switzerland, Canada, Italy, and the UK, Pilatus said. Certification for operation from rough surfaces is expected before year-end, added Pilatus.

The company also said most PC-24 clients are opting for its “CrystalCare” maintenance support program. “We are very pleased with how well the PC-24’s entry-into-service program has progressed over the past nine months,” said Pilatus CEO Markus Bucher.

Pilatus (Booth 4295, Static SD23) has both a PC-24 and PC-12 on static display at Orlando Executive Airport this week at NBAA 2018.

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Thanks to its short- and soft-field capabilities, the new Pilatus PC-24 is becoming popular with operators and passengers alike.

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Bye pitches electric aircraft for charter
by Mark Huber

Bye Aerospace has been in discussions with on-demand charter companies to use its Sun Flyer 4—a four-passenger, 165-knot electric aircraft—for air taxi service, the company said. It is currently developing the all-electric Sun Flyer Models 2 and 4 that are priced at $289,000 and $389,000, respectively.

“We are being contacted by proactive, forward-thinking companies,” said Bye CEO George Bye. “They understand the low-cost operating benefits and much lower price point than competing solutions,” according to Avidyne (Booth 218). “We are seeing significant interest from these aircraft operators who are looking for more affordable avionics modernization options, and we are giving them the most capability and value,” said Schwinn.

Features of the IFD FMSs include synthetic vision, Jeppesen chart integration, hybrid-touch user interface (pilots can choose touchscreen, knobs and buttons, or any combination of the two), integrated Wi-Fi/Bluetooth, the IFD100 iPad app, GeoFill (suggests the most likely entry after the first few keystrokes), and TAWS-like forward-looking terrain alerting. With the optional HS-170 video input, the IFD can display onboard weather radar.

Avidyne’s GLAS can revive your older light jet’s panel
by Mark Phelps

Avidyne founder and CEO Dan Schwinn has been innovating avionics since 1993. To the business aviation audience, his most profound work could well be his GPS Legacy Aviation System (GLAS), dedicated to upgrading lighter jets such as older Citations to not only comply with the ADS-B mandate as inexpensively as possible, but also to update their capabilities to include modern FMS capability and features found in newer models’ integrated flight decks. Rotorcraft are another market for the GLAS protocol.

Avidyne’s IFD550/545 FMS navigators are an approved ADS-B and Waas GPS source, so operators of Cessna CitationJets, CJ1s, CJ2s, and CJ3s can add LPV approach capability, electronic charts, wireless connectivity to their ADS-B upgrade “at a much lower price point than competing solutions,” according to Avidyne (Booth 218). “We are seeing significant interest from these aircraft operators who are looking for more affordable avionics modernization options, and we are giving them the most capability and value,” said Schwinn.

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Avidyne received a supplemental type certificate (STC) for the program on the Citation CJ family with NASCAR’s Bill Elliott’s 2001 CJ1. “We are working on several other retrofit programs,” said John Talmadge, Avidyne director of worldwide sales, “including certification of our IFD Series FMS in a CJ3 belonging to the highly accomplished aviation executive and retired Space Shuttle astronaut Charlie Precourt. Avidyne’s IFD FMS systems, which feature our innovative new GLAS protocol, provide direct interface to legacy avionics systems in these CitationJets without the exorbitant costs of external adapter boxes or EFIS factory upgrades.”

The GLAS program is “the lowest-cost way to get LPV capability for coupled approaches,” said Schwinn. “And we’re getting great support from turbine MROs because it’s quick, easy, and inexpensive. It just takes a few days.” At NBAA 2018, he said, Stevens Aviation is showing a GLAS panel at its booth (656). Upgrades can cost from $60,000 to around $95,000, depending on how many components are involved, according to Avidyne.

No, Bombardier is not going to the dogs

Bombardier is giving away plush toy dogs as a souvenir thank you for stopping by their exhibit this week at the show. The bizjet maker named the toy “Smoothie” to highlight the “smooth ride” of its Global family. Smoothie won’t ruin your carpets or need an expensive veterinarian, but isn’t likely to remain on the wing for very long.
Inside the world’s greenest winglet.

Aviation Partners’ Blended Winglet™ technology is the perfect composite of carbon graphite and carbon reduction. Now flying on over 8,700 Boeing, Falcon, Gulfstream and Hawker aircraft worldwide, Blended Winglets have saved more than 8.8 billion gallons of jet fuel and kept 94 million tons of CO₂ out of the air. To do your part in a changing world, fly to aviationpartners.com/NBAA.
New Globals on schedule

by Kerry Lynch

Following last spring’s surprise unveiling, Bombardier’s newest additions to the growing Global family—the 5500 and 6500—are steadily moving toward certification in the first half of 2019 and market entry in the latter part of that year.

Bombardier (Booth 1200, Stand SD45) took the wraps off the pair of new Globals last May during EBACE in Geneva, showcasing aircraft that will build on the Global 5000 and 6000 with a redefined wing, new flight deck that will be the first to incorporate overlaid combined vision, a redesigned interior that borrows elements from the flagship 7500 and introduces its own unique features, and the first of a new Rolls-Royce engine family: the 15,125-pound-thrust Pearl 15.

The new Globals have a top speed of Mach 0.90 and 13 percent lower fuel burn than the preceding models. At the same time, range of the Global 5500 extends to 5,700 nm (500 nm more than the 5000), and the Global 6500 to 6,600 nm (600 nm more than the 6000). The performance gains are particularly notable in conditions such as hot and high: the 5500 and 6500 can fly up to 1,300 nm farther from Toluca, Mexico, than their predecessors.

In introducing the pair, Bombardier Business Aircraft president David Coleal said the Globals combine improved performance with the Global DNA, resulting in the “longest range, the clearest vision, the largest cabin, the sharpest entertainment, and the smoothest ride” in their class.

Perhaps most surprising during the May reveal is the program was already well along. The aircraft, said Bombardier Business Aircraft COO Paul Sislian, “took the market by storm. People didn’t realize we were putting this together. We are really happy with the progress.”

The Pearl 15 had been certified earlier in the year and the first test vehicle—a 6500—also had begun flying earlier this year. In fact, the Canadian manufacturer brought that aircraft to EBACE to provide a glimpse during the unveiling.

The manufacturer has since added a 5500 to the test program. That aircraft was used to test the refined wing, and Sislian said the necessary trials for aerodynamic validation have been completed. The 5500, meanwhile, was headed toward retirement of its participation in the flight-test program, he added. By this month, the two flight-test aircraft had completed roughly 70 percent of the anticipated program.

As modified Global 5000s and 6000s, the new aircraft will not need new type certificates. But they will need sign-offs on the engine, wings, and upgraded avionics. The bulk of the testing on the 6500 now is involved with engine approval, Sislian added.

While the Pearl 15 incorporates a new core, Rolls-Royce designed the engine to ensure it fits within the same nacelle package that is already on the Global 5000 and 6000. The advanced core improves fuel efficiency, reduces the environmental footprint and offers advanced engine-health monitoring. The engine has a 7 percent improvement in specific fuel consumption and is two decibels quieter, even further exceeding Stage 4 noise standards.

As for the wing, Bombardier re-profiled the trailing edge of the wing for better aerodynamics and high-speed operation. The wing, however, maintains the same leading-edge slats, flaps, and spoilers that contribute to the Globals’ “smooth ride.”

Flight Deck and Cabin Improvements

Bombardier paid equal attention to improvements on the inside of the aircraft, bringing the first true combined vision—in which enhanced vision is overlaid with synthetic vision in a single view on the head-up display—to the flight deck.

The HUD will involve a separate certification. Bombardier has not yet specified the timing of that, but Sislian noted that HUD certification will not be necessary to bring the aircraft to market.

Craig Peterson, senior director of marketing, commercial solutions for the HUD manufacturer Rockwell Collins, noted that the primary components of the combined vision system are already certified independently for the Globals and that it was a matter of “fusing software” to ensure the proper algorithms were in place to provide the proper weight to enhanced vision and synthetic vision in different environments.

Also, the Rockwell Collins Fusion-powered flight deck will have new features such as airport moving maps, real-time traffic, and advanced weather detection.

In the back of the aircraft, Bombardier is bringing its patented Nuage seat design to the Global 5500 and 6500 that was introduced on the 7500. Unique to the 5500 and 6500, however, will be the option for the Nuage chaise that can replace a credenza. The chaise can be used as a standard divan or reshape to a lounge configuration, where a person can recline and lie back. “Reaction was really positive,” to the introduction of the chaise, said Sislian, noting customers have been looking for an alternative to the standard credenza.

The interior also has a number of other changes, such as re-profiled side ledges and enhanced environmental systems.

Market entry remains on track for both models by the end of 2019 with full ramp up in 2020, Sislian said. Initial plans call for the Global 5500 and 6500 to be built on the same line as 5000s and 6000s. “Right now the four will live in harmony,” he added. But Bombardier executives have maintained that the market will determine the future of the 5000s and 6000s. Right now they are filling a need with a market tightened up for preowned aircraft, said Bombardier spokesman Mark Masluch. “With no young new aircraft right now, we are in a good place in terms of flexibly responding to our customers.”

The market already has appeared receptive to the newer siblings. Bombardier left EBACE with its first announced letter of intent in hand from HK Bellawings Jet that involved a mix of up to 18 Global 6500s and 7500s. Since then, Bombardier has lined up orders with a contract for four Global 6500s and two 7500s, along with options for 12 more that’s valued at $370 million and possibly growing to $1.142 billion, including options.

All shapes and sizes

It’s not always about the bizjets. Sikorsky’s booth on Tuesday saw a sizable crowd clustered around one of the company’s S-76 twin-engine helicopters, while Quest Aircraft’s adjacent exhibit attracted attendees interested in learning more about the company’s Kodiak utility airplane.

Just a few months after their unveiling, Bombardier’s new Global 5500 and 6500 have completed 70 percent of their flight-testing program, the company said.
Rolls-Royce Pearl hits 10,000 test cycles

by James Wynbrandt

Rolls-Royce has successfully achieved the 10,000 test cycle mark in the Pearl 15 engine test program, and the turbofan has now surpassed 2,600 testing hours, the company reported on Tuesday at NBAA 2018. Thus far, six individual Pearl 15 development engines with 14 builds have been used in 27 test campaigns.

“This is an important milestone that underpins an on-track delivery,” said Dirk Geisinger, director of business aviation at Rolls-Royce (Booth 3800). “Our comprehensive testing program guarantees sophisticated maturity and reliability levels from the outset.”

The development program includes tests under extreme icing conditions, massive water ingestions, lightning strikes, and long-lasting maturity runs, designed to put the engine “under enormous stress,” according to Rolls-Royce. For cold start tests, the entire engine is cooled to below -40 degrees C, a temperature where the viscosity of fuel is comparable to honey, and the engine must start and run up to takeoff thrust without disruption. For water ingestion tests, aimed at proving the engine won’t fail “even when flying directly through the worst thunderstorms,” water flowing at 6,000 gph is sprayed at the fan for three minutes, much greater than expected to be encountered when in service.

Unveiled at EBACE in May in parallel with the new Bombardier Global 5500 and Global 6500 jets it will power, the Pearl 15 received EASA certification in February. Rolls-Royce’s facility in Dahlewitz, Germany, is now building the first production standard engines and preparing for production ramp up, with entry into service expected at the end of next year.

The Pearl engine combines technologies derived from Rolls-Royce’s Advance2 technology demonstrator programs and incorporates proven features from the BR700 business aviation engine family. The Pearl 15 also “exemplifies” the UK company’s IntelligentEngine vision of a future where product and service “become indistinguishable thanks to advancements in digital capability,” it said.

This includes a new-generation Engine Health Monitoring System that introduces advanced vibration detection and incorporates advanced remote diagnostics and bi-directional communications that allow easy remote reconfiguration of engine-monitoring features from the ground.

More powerful than the company’s successful BR710, the Pearl 15 has a maximum certified thrust of 15,250 pounds and up to 7 percent better specific fuel consumption. It’s also 2 dB cumulative quieter and shows a 20 percent improvement in NOx emissions margin.
Cobham’s safety services satcom meets bizjet needs

by Matt Thurber

Cobham Aerospace Communications is highlighting its SwiftBroadband-Safety (SB-S) satcoms this week at NBAA-BACE 2018 as “the first and only Inmarsat SB-S-approved system available for business jets,” according to the company.

On display at the company’s NBAA booth (1260), Cobham’s Aviator 300D and 350D satcoms offer a lower-cost yet efficient means of providing airborne connectivity and datalink communications. Cobham already provides SB-S for commercial airlines, including FANS 1/A compliance, which includes ADS-C and controller-pilot datalink communications (CPDLC).

“SB-S’s always-on/always-ready datalink permits constant satellite communication between pilots and air traffic control,” according to Cobham, “facilitating the real-time sharing of crucial flight data and thus palpably improving operational efficiency and safety.”

For business jets, the Cobham satcom paired with an aircraft interface device (AID) allows passengers to access high-speed satcom services. This is done with a single channel of SB-S, allowing passengers to access websites, send and receive emails, and make voice calls. The AID segregates data so passenger communications are secure, and there is no compromise of safety-critical flight deck data.

“The ability to support cockpit and cabin connectivity via SwiftBroadband makes the Aviator 300D the first system of its type that will support FANS/CPDLC, in addition to providing an IP connection to passengers,” said Scott Beutel, Cobham regional director for satcom aero.

Web Manuals inks deal with Solairus

Digital documentation provider Web Manuals (Booth 225) has signed Solairus Aviation as its newest customer. “Seeking a digital solution to our paper manuals has long been on our radar,” said Tom Benvenuto, senior v-p of flight operations for Solairus. “The benefits are significant, chiefly the amount of time and money that will be saved and better utilized in other areas of the business.”

Solairus has a managed fleet of 145 aircraft and 55 based locations across North America, making it Web Manuals’ largest business aviation customer to date. Solairus will use Hurricane V7, the latest version of Web Manuals software. The suite will review and distribute documents to Solairus’s staff. The software comes with more than 200 guides, including step-by-step walkthroughs, and 35 video demonstrations.

“We will work with [Solairus] to support their operations, meaning they can remain agile and competitive and focus on other areas of the business,” said Web Manuals founder and CEO Martin Lidgard.

Lidgard is setting up shop at Web Manuals’ newest office in New York. It’s the first East Coast office for the Sweden-based company, which also has an office in San Diego and a fourth in Melbourne, Australia. Lidgard said the company not only launched its seventh version of Hurricane software this year, but also opened a customer portal and online store. He said its U.S. business has more than doubled since appearing at last year’s NBAA-BACE.

Chicago Jet Group selects Latitude’s DL150 datalink

by Ian Sheppard

Victoria, British Columbia-based Chicago Jet Group (CJG, Booth 5378) has selected the Latitude DL150 Satellite Data Unit (SDU) as part of its new upgrade package, known as “NextGen ProLink,” for aircraft equipped with Pro Line 4 avionics that need to meet the upcoming FANS 1/A+ and ATN B1 European Link 2000+ mandates.

The direct upgrade, replacing the legacy FMS and GPS, meets compliance requirements for worldwide operation of the Gulfstream G200, Dassault Falcon 50/50EX, and Falcon 2000/2000EX. CJG described it as “the most effective upgrade path for classic Dassault Falcon aircraft models, as well as the Gulfstream G200.”

Boeing updates Jeppesen FliteDeck

Boeing Global Services (Booth 3000) has upgraded its Jeppesen Mobile FliteDeck electronic flight bag application to version 3.01, adding new real-time data capabilities that speed up decision-making and data processing. To make searching for information in Jeppesen’s Airway Manuals easier, these are now published in HTML format so they are easily searchable and fully indexed.

Standard instrument departure/standard terminal arrival route (SID/STAR) charts not only show own-ship position, but pilots can also “select specific SID/STAR routing data to fit their unique flight plans and operation,” according to Boeing Global Services.

Mobile FliteDeck also has been upgraded with Smart Notes, which is “information elevated in the context of your route,” eliminating the need for manual interaction to present key data points. For overseas travelers, Mobile FliteDeck now inserts route information for oceanic tracks automatically, based on the selected arrival and departure airports.
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Fuelerlinx and EVO partner on automated pay interface

by Curt Epstein

Aviation fuel pricing software provider Fuelerlinx, which is celebrating its 10th anniversary at NBAA-BACE 2018, has partnered with EVO Payments International to integrate the companies’ respective technologies. As a result of the agreement, Fuelerlinx’s fuel management software customers will now have direct access to optimized flight operations and automated fuel purchasing processes in one interface.

Since its inception in 2008, Fuelerlinx (Booth 2633) has helped hundreds of flight departments automate many manual fuel pricing tasks, and it continually adds new services such as multi-leg tankering calculations and alternate fuel proximity mapping. But before this announcement, its customers were unable to pay through the Fuelerlinx platform.

“To accomplish this, we developed an analytics and invoicing interface called VendoLinx that linked FuelerLinx flight departments’ fuel transactions with participating vendors back-end accounting systems,” said company CEO Kevin Moller. “This allowed vendors to push digital invoicing into FuelerLinx, which meant flight departments no longer have to manually enter invoice data anymore and can now easily select their preferred payment medium [ACH or credit card] from a dropdown in our digital wallet to send payment.”

Through the new deal, Fuelerlinx’s customers can leverage EVO’s array of secure electronic payment solutions. With business activities in 50 markets and more than 150 currencies around the world, EVO is among the largest fully integrated merchant acquirers and payment processors in the world.

“We are enthusiastic about partnering with EVO and working as a team to help transform the way flight departments fulfill their fuel payment transactions,” said Moller, adding that he believes the integration will reshape the way flight departments fulfill transactions. “Fuelerlinx has always sought to align itself with innovative companies to tackle the complex problems and rather outdated solutions that currently exist in our industry.”

Wilson Air adds improvements

Wilson Air Center—which operates FBOs at Memphis International Airport, Houston’s William P. Hobby Airport, Chattanooga’s Lovell Field in Tennessee, and North Carolina’s Charlotte/Douglas International Airport—is appearing at NBAA as part of the contingent of Shell Aviation-branded FBOs at the fuel provider’s booth (2038).

At its Chattanooga facility, the company reported that it has completed and fully rented a 3,000-sq-ft office suite that is attached to its newest 25,000-sq-ft hangar, which was built in 2016. With that hangar filled to capacity as part of the FBO’s 58,000 sq ft of hangar space, the company is working on plans for an additional hangar at the Tennessee airport.

At Charlotte, the airport authority is completing the planning process for a new 30,000-sq-ft general aviation terminal, which will enhance the current FBO facility, providing additional space to support commercial charter activity and more tenant offices. The two-story facility, which will also be managed by Wilson Air, will include a 4,500-sq-ft U.S. Customs and Border Protection facility and conference rooms on both levels, as well as 9,000 sq ft of office space on the second floor. The airport expects the first phase of the project to be completed by the summer of 2020, when the city will host the Republican National Convention.

Finally, Wilson announced that Mary Kay, previously a customer service rep at the Houston location, has been promoted to regional CSR manager. She will be based at the Hobby facility.
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ACI Jet turns its attention to expanding MRO business

by Chris Kjelgaard

San Luis Obispo-headquartered business aviation services company ACI Jet (Booth 630, 2219) is expecting its airframe and engine MRO business to grow by 25 to 30 percent in the next 12 months, well before a $59 million expansion of the company’s MRO and FBO facility at the California city’s McChesney Field (SBP) is due to open. In addition to its growing MRO business, ACI Jet operates FBOs at four Southern California airports, operates a charter fleet of 12 business jets, manages business aircraft for owners, and provides flight operations services.

Fuelled in part by ACI Jet’s new status as an authorized dealer of and MRO provider for Honeywell avionics and other Honeywell equipment, the anticipated rapid growth of its MRO business in the short term is driving a need for ACI Jet to hire 10 new employees in the next 12 months for that part of its operation, according to Dave Jensen, the company’s v-p maintenance. Of the 10 new MRO jobs ACI Jet is creating in the next 12 months, four will be required for its fledgling Honeywell avionics installation and servicing business and most of the new MRO jobs will be “head of household”-level positions, Jensen told AIN.

In addition to making another 10 new jobs available within the next 12 months in the other three areas of its business, ACI Jet expects to hire another four to six employees 12 to 24 months from now to continue growing its Honeywell avionics-MRO operation, Jensen said. Beyond that, the company expects its employee count to continue growing following the planned completion in March 2020 of its sizable new facility at SBP, construction which began on September 19. For one thing, at present “we’re probably only at 60 percent capacity” in terms of the employees ACI Jet has available to meet the physical capacity its facilities offer for aircraft MRO work—not including the new SBP facility expansion.

Not only will the new facility give ACI Jet another 30,000 square feet of MRO hangar space, but it will also provide 36,000 sq ft of office space that the company will use to expand its SBP FBO and to house its flight-operations services business. “Putting them all in one facility is pretty unique on the MRO side,” said Jensen. He said one of ACI Jet’s main motivations for doing so is that while business-aircraft owners have long been used to high standards of service at FBOs and flight-ops facilities, a similar standard of personal “service in MRO facilities seems to get neglected.”

For ACI Jet’s customers, that will change when its new all-in-one facility at SBP opens: “This is going to be one of the nicest facilities in the Western United States,” said Jensen. He said SBP’s location in a major wine-making region in scenic Southern California hill country and the fact the airport has expanded its network of airline-served destinations to include several major hubs mean ACI Jet’s customers not only love coming to San Luis Obispo, but they are finding the company’s MRO facility very convenient to use. “The MRO business is expanding and that feeds the FBO business too,” Jensen remarked.

ACI Jet’s charter fleet consists of three Bombardier Global Express XRSs, three Challenger 604s, five Cessna Citation ExceLS/XLSs, and one Gulfstream GV-SP. While ACI Jet isn’t contemplating expanding its charter fleet much beyond its existing size, “the motivation for the expansion of the repair station [at SBP] is to support the types we specialize in,” said Jensen. This is particularly true for the Bombardier types, he said, because there is a perceived “lack of support for Bombardier on the West Coast.” Additionally, the company’s “Honeywell [deal- ership and service-center authorization] is a key part of that growth plan.” ACI Jet will have the ability to conduct “very large projects” involving Honeywell avionics equipment in its SBP repair station, such as performing Primus Elite and JetWave satcom installations.
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Scheme Designers showcases the latest in custom liveries and ‘edgy’ design trends

by James Wynbrandt

Paint shops and completion and refurbishment specialists report growing numbers of customers want to make a bold statement on the ramp with their aircraft livery, and paint scheme specialist Craig Barnett agrees: “The latest design trends are more edgy and dramatic, and more clients are exploring exciting designs,” said Barnett, chief designer and CEO of Scheme Designers (Booth 4763), on the eve of NBAA 2018. “New paints have brought more vibrant and saturated colors to the industry, and more projects are employing mixed media, such as a mix of paint and vinyl, to make up the designs.”

At the convention center, the Scheme Designers team is providing expertise on a vast range of possible paint patterns for any airplane. Barnett launched his company 21 years ago and with it the professional paint scheme design business. An engineer by training and artist, pilot, and serial aircraft owner, Barnett combines his talents and passions to create unique designs representing the vision of each client, while celebrating the beauty of each aircraft. The company currently has 13,500 unique aircraft paint schemes flying worldwide, Barnett said, created for customers in more than 150 countries who “range from kit builders to royalty.”

New Tech Enables Dramatic Schemes

Meanwhile, as Barnett noted, improved vinyl masking technology and materials, like precut vinyl paint masks, allow dramatic and complex schemes to be laid out as simply as basic stripe designs, without significant cost penalties.

Scheme Designers is showcasing in Orlando its photorealistic paint scheme design approach, which gives clients “a much better understanding of how a scheme will look on their aircraft,” Barnett said. For some customers, the standard side, top, and bottom view drawings are not enough, he said. “They need to see their aircraft from different angles to fully understand and appreciate how their paint scheme design is truly going to look. We’ve developed new approaches and technologies to create renderings that give owners and operators the best possible view of how their design will look, both on the ground and in flight.”

Visitors can browse through an extensive library of 3D sample designs and past projects spanning practically every type of corporate and GA aircraft flying, fixed-wing and rotorcraft, and discuss their specific design goals and needs with the Scheme team.

Detailed renderings, application diagrams, and instructions ensure paint shops can perform the exterior makeover correctly and efficiently. The company can also provide complete paint mask kits to the customers’ paint shops to simplify layout and ensure accurate replication of the design.

Illustrating its design capabilities, this year Scheme Designers completed a new vinyl project for AOPA’s Piper Cub sweepstakes aircraft; and at EAA AirVenture Oshkosh this year, reprised its role as paint scheme provider for the second One Week Wonder, a Vans RV-12iS built by visitors during the event; and also provided the livery design for Van historic 10,000th RV flying, showcased at the gathering. In addition, 11 Oshkosh Lindy Award winners wore the company’s designs. Barnett said, “the most ever.”

In addition to work on schemes for individual owners and operators, the company has provided livery for a number of business and GA OEMs and airlines worldwide. Barnett said he’s eager to discuss “details, ideas, and design concepts for any type of paint scheme design project” with visitors at his booth, and the company is offering discounts on new projects ordered at the NBAA show.

Additionally, Casey Horgan, director of sales, is celebrating her one-year anniversary with the company.

Satcom Direct expanding secure data center for business aviation

Business aviation connectivity solutions provider Satcom Direct (Booth 260, SD40) has broken ground to expand its data center to 10,000 sq ft. Upon completion in December, the project will add capacity for more than 120 server cabinets at the company’s Melbourne, Florida headquarters, which will double its footprint and provide additional secure data storage for aviation and terrestrial clients.

The $3 million expansion will match the category-five hurricane-proof construction and data-compliance standards already in place at Satcom Direct’s existing center. This expansion is in response to business aviation’s growing need to mitigate the risk of cyber attacks during flight, Satcom Direct said.

More than 400 business aviation customers have already subscribed to Satcom Direct’s cybersecurity services, which deliver tailored solutions built on years of experience working with military and government sectors. The SD Data Center enables the creation of private networks for clients when connected to SD hardware, software, and satellite connectivity, allowing in-flight data security protocols identical to those available at corporate locations. “Business aviation customers expect robust, reliable, secure connectivity to be available throughout flight. As cyber attacks on business aviation increase, we are responding by enhancing our ability to monitor and manage these threats by keeping data transfer safe through the SD Data Center,” said Satcom Direct chief commercial operator Chris Moore.

A third, future phase will support further customized solutions for aviation clients, the company said.

C.T.
Central Florida airport to build new genav terminal

by Curt Epstein

Florida’s Ocala International Airport (Booth 2960 and 2219) will break ground this month on a general aviation terminal that will replace the 56-year-old structure at the gateway. The $6.1 million project will be paid for with state and federal grants and airport funds. Sheltair, which operates the lone FBO at the airport, will contribute $2 million toward the construction. That amount will be reimbursed at a later date, according to Matthew Grow, the airport’s director.

The 17,500-sq-ft terminal will include a 3,000-sq-ft FBO, the airport administration offices, a restaurant with meeting rooms, three car rental service areas, and available office space.

“The general aviation terminal is the central hub of activity at the Ocala International Airport,” said Grow. “The current general aviation terminal, constructed in 1962, has served its purpose well; however, the new terminal will make a great impression for aviators and guests arriving for business or pleasure.”

The facility is expected to open by the end of next year.

Constant Aviation’s footprint grows with added hangar space

Constant Aviation (Booth 2676) has expanded its footprint at Florida’s Orlando Sanford International Airport (SFB) with the addition of upgraded hangar space to support its increasing MRO activities. The company acquired the facility from StarPort 18 months ago to develop Constant’s total space to around 100,000 sq ft. Constant expects to move small and mid-cabin jet maintenance operations to the new hangar.

“We have been diligent in enhancing and expanding the capabilities offered in our Florida facility,” said Constant Aviation president and CEO Stephen Maiden. “The breadth and depth of the services available now have attracted customers throughout the region who value a one-stop MRO solution for their aircraft maintenance needs.”

By moving small and mid-cabin work to the new facility, Constant will allow more room for larger-cabin needs in its current hangar. In addition to providing space for MRO services, the new facility will support Constant’s paint services with added prep and detail space. “We have been bursting at the seams with aircraft, and this additional hangar space gives us the ability to serve even more customers in the region,” said Constant Aviation regional v-p Kevin Dillon.

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After quietly launching its bizav oil-analysis maintenance prognostic service for Pratt & Whitney Canada engines earlier this year, the Canadian OEM has now has some 800 operators using the service for more than 8,000 engines powering four aircraft types.

Operator acceptance of the engine OEM’s new oil-analysis service has been “quite good,” Bjorn Stickling, P&WC’s director of digital engine services, told AIN. He said that to date P&WC has made the service available commercially for the PW206A engine powering the Gulfstream G200; the PW617F1-E powering the Embraer Phenom 100; the PT6A-67B and PT6A-67P powering the Pilatus PC-12 family; and the PT6A-62 powering the South Korea-made KAI KT-1 Woongbi basic military trainer.

Stickling said that P&WC is continuing to build its maintenance-prognostics database by analyzing thousands of oil samples provided by customers beta-testing the service. The OEM is “not far away” from offering the service commercially for the PT6A-114A powering the Cessna Caravan and the PT6A-140 powering the Grand Caravan; and the PT6A-64, PT6A-66, and PT6A-66D powering the Daher TBM family, he added.

P&WC (Booth 328) is trying to make its oil-analysis service available “across the board” to every member of an aircraft family for which it offers the service commercially. “We have a lot of samples and we are growing the baseline” of data for prognostics purposes, “but there is no specific target date” by which P&WC is planning to make the service available for any particular additional aircraft models, said Stickling. That said, “We still have the trial available for customers for engine models we haven’t commercialized.”

While no specific target dates have been set for commercializing further engine models, Stickling said the oil-analysis is available immediately for the PW800 turbofan family as it goes into service on the Gulfstream G500 and G600 and the Dassault Falcon 6X. He said P&WC will be making the service available for further engine models “over the next six to 12 months” and confirmed that ultimately P&WC is planning to make it available for every business-aviation engine model it manufactures.

Stickling said P&WC’s new oil-analysis technology is about 100 times more sensitive “than other technologies out there” in detecting metal debris in engine oil samples, and “we can determine with more precision the alloys” contained in any metal debris from wetted parts. The technology is so sensitive that P&WC can determine from which particular area of a component any metal debris has come.

P&WC’s oil-analysis service works by observing component-wear trends and making the operator aware of any failure trend “before it gets close to the acceleration curve,” said Stickling. “It is a trend-service, not a tool for analyzing and repairing an AOG-causing failure after the fact, he stressed.

The service enables earlier detection of engine-component wear and “allows us to trend it and work with the operator” to manage maintenance of its engines proactively, said Stickling. “Knowing the modes of failure and the histories of components allows us to work with operators to manage the situation and continue flying. We can manage the spacing of the sampling and can time it with the maintenance intervals.”

To use the service, operators go to P&WC’s online customer portal and purchase a sampling kit, which P&WC ships to them with return shipping pre-paid. Upon receiving a sample from an operator, P&W typically analyzes it and makes the results available to the customer via the online portal within 24 hours.

While some component-failure modes propagate more rapidly than others, P&W usually can advise a customer of a potential part failure 200 to 300 hours before it happens, “and in some cases much more,” said Stickling. This lets P&W advise the operator to remove an engine or replace a particular module, depending on the nature of the forthcoming failure, to prevent it happening at all. “As we get into commercialization, the feedback [from customers] has been very good, particularly on the Phenom 100 and PC-12,” he said. P&W has been able to advise Phenom 100 operators of failure trends well in advance of them causing AOG situations, “particularly on situations that used to catch them off guard,” for instance with engine bearings. “We can give operators a heads-up; we see the progression of the component wear and we keep the operator updated, so the operator can plan a maintenance intervention” long before any AOG event occurs.

Lab workers for Pratt & Whitney Canada’s oil analysis service can advise operators of a potential part failure 300 hours or more before it could become an AOG issue.

C&L touts three new ADS-B install options

C&L Aviation Group is highlighting at NBAA 2018 its new “One Problem: Three great solutions” ADS-B installation program, giving customers three options for meeting the upcoming Jan. 1, 2020 equipage mandate. Customers can order an ADS-B Out Equipment Compliance Kit; have C&L perform a turnkey installation at its facility, or have a C&L road team perform the installation at the aircraft’s base or another location of customer choice.

C&L’s in-development Garmin ADS-B Solution will replace existing Collins TDR-94D transponders with dual remote-mount Garmin GTX 3000 smart transponders, and cover corporate and regional aircraft C&L currently services, including the Beechjet 400A, Hawker 800 Series, Challenger series, Learjet Caravan 208, Saab 340, ATR Classic, Dash-8, Beech 1900D, EMB-120, and Metro. The solution includes a Garmin GDL 88, GA 35, and Flightstream 110 wireless Bluetooth-compatible device that enables GPS position, ADS-B In and traffic, and SiriuxXM weather and radio that can be displayed on personal electronic devices.

STC approval is expected “very soon—in the next few months for sure,” said Tom Chapman, v-p of corporate aircraft, and with installations expected to be scheduled through the end of next year, C&L is offering the programs now.

The compliance-kit ADS-B offering provides “everything you will need for a streamlined ADS-B solution,” according to C&L, including hardware, loose wiring kit, engineering support, and installation instructions.

C&L (Booth 2230) will perform installations at its 140,000-sq-ft facility in Bangor, Maine. The certified repair station, which has some 200 employees, holds approvals from the FAA, EASA, and several other agencies, and it also ISO 9001/2008, AS 9100 and AS 9110 certified.

For installation service delivered to the customer’s hangar, a road team will perform the ADS-B upgrade wherever the customer requests, eliminating the need to ferry the aircraft and minimizing downtime.

Water system supplier receives kudos

For the third consecutive year, Canadian airborne potable water system manufacturer International Water-Guard Industries (IWG, Booth 867) has been named a Supplier of the Year by Gulfstream Aerospace. The award recognizes Vancouver area-based IWG as a supplier of water treatment units for Gulfstream’s line of business jets.

“Winning this award from one of our major customers, and a leader in the industry, is an honor for our company,” said WG president Steven Bis, adding his company has earned the distinction eight times overall. “It shows the value our staff places on exceeding expectations through a culture of exceptional customer service, continuous improvement, dedication to quality, and doing what we say we’re going to do.”

The Transport Canada-approved organization holds numerous U.S. and Canadian STCs and designs, certifies, and delivers aviation solutions including water disinfection, filtration, on-demand heating, lightweight valves, and pumps, as well as its own line of hand-crafted aircraft water faucets.
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UTAS aims to maximize landing gear commonality

by Chris Kjelgaard

As focused on bizav as it is on commercial aviation, UTC Aerospace Systems’ (Booth 633) Landing Systems unit has made considerable progress in achieving greater landing-gear parts commonality on different business-aircraft models from the same OEM.

At the same time, UTAS Landing Systems is progressing toward achieving full compliance with the European Union’s strict Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) environmental-compliance regulations as they apply to business-aircraft parts and systems. Mark Eckert, UTAS’s v-p and general manager of regional and business programs—Landing Systems, told AIN the business unit’s achievements in those two areas are among its most significant technological achievements of recent times and it continues to make progress with them.

UTAS Landing Systems comprises a Goodrich-legacy wheels and brakes facility located in Troy, Ohio, and a landing gear facility in Oakville, Ontario, that were combined into one UTAS business unit in 2014. The unit has achieved particularly strong parts commonality for the landing-gear actuation systems it provides for the Gulfstream G600 and G500, according to Richard Zita, UTAS’s director of business aircraft and helicopter programs—Landing Systems. Of the three gear-uplock actuation systems, two side-brace actuation systems, and the nosewheel-retraction system it provides for each of the two aircraft, four are common. “That’s a really great thing, because [each uplock-actuation system] is a line replaceable unit,” said Zita.

Also common to both the G600 and the G500 are several other UTAS-provided landing-gear components such as smaller drag brakes and tie-down rings, and the two types share a common nosewheel steering system. Similarly, the wheel-and-brake assemblies UTAS Landing Systems provided for the Bombardier Global 5000 and Global 6000 are common to both types, according to Zita.

In both the Gulfstream and the Bombardier multiple-aircraft-platform cases, UTAS Landing Systems’ parts-commonality efforts benefited from its close cooperation with the OEM. For the Gulfstream G500 and G600, “We were working both agreements at the same time...[and] Gulfstream was looking at having as much commonality between the gears as possible,” said Zita.

Accordingly, UTAS Landing Systems developed a similar geometry for the two types’ landing gears, producing a trailing arm-style design that was “optimized where possible for both the G500 and the G600.” The G600 is a larger aircraft than the G500, “but it was an engineering challenge we were able to overcome,” said Zita. The design work resulted in the two aircraft having “as many parts in common as possible,” including similar nose landing gears, but of necessity some major load-bearing parts of the two aircraft types’ landing gears—such as their main landing gear shock struts—had to be different.

Zita said UTAS Landing Systems also worked in lockstep with Bombardier to obtain type certification for the Global 5000 and the Global 6000, and the two companies’ close cooperation allowed UTAS to design the same wheel-and-brake assemblies for both aircraft.

Commercial Experience Applied to Bizav

The considerable progress UTAS Landing Systems has achieved in meeting REACH-compliant business aviation manufacturing standards that don’t use what the European Chemicals Agency calls “substances of very high concern for Authorization” comes from the company’s work on landing gears for commercial widebody aircraft, according to Eckert.

For instance, UTAS Landing Systems does not chrome-plate any landing-gear components in the G600 and G600: instead, it uses high-velocity oxygen fuel (HVOF) spraying to provide the necessary protective coating. The company developed its HVOF-spraying technique for the landing gears it makes for the Airbus A380. Similarly, the G500 landing gear is UTAS Landing Systems’ first business-jet program that doesn’t use cadmium to strengthen the high-strength steel on the gears’ load-bearing components. Instead, UTAS strengthens G500 landing-gear components with a zinc-nickel formulation, which the company first certified for its landing gear for the Airbus A350 XWB. Using the zinc-nickel formulation in landing gear components “assists with corrosion protection also,” Zita noted.

UTAS Landing Systems is progressively introducing throughout its entire business-aviation portfolio the REACH-compliant manufacturing techniques and materials it first developed for its commercial-aviation contracts. While the process is already well under way in its landing gear business, UTAS Landing Systems’ Wheels & Brakes unit is also working to ensure its manufacturing techniques and materials for business aircraft are fully REACH-compliant, said Eckert.

In one example of commercial-to-bizav technology sharing, the company is now deploying its commercial-aircraft carbon-brake design and manufacturing expertise for business aviation applications. The new Cessna Citation Longitude, for which UTAS Landing Systems provides the landing gear, is fitted with carbon brakes. As a result of its often-pioneering work in the design of commercial-aircraft landing-gear systems, the company holds considerable further intellectual-property resources that—when the business case is right—it can offer business-aircraft manufacturers. For instance, said Eckert, “One of my roles was as the program manager for the Boeing 787, which had the first commercially available electric [ally actuated] brakes, so we have years of experience in fielding electric systems replacing hydraulic systems. We continue with development in that area and [for any OEM that decides its new business-aircraft design needs such a system] we have a technological road-map to the future for a complete, electrically actuated ATA 32 system.”

Eckert concedes that, for any business-aircraft manufacturer, switching from using a traditional, hydraulically actuated landing gear design to an electrically actuated gear “is a very complex system approach to designing an aircraft and it is a risk.” However, some business-aircraft OEMs are technologically capable of taking such a step, said Eckert, though he acknowledged, “I don’t know if we have talked to an OEM yet that has considered that.”

UTAS Landing Systems’ approach to such potentially disruptive aircraft-project discussions is dictated by its business philosophy, which Eckert said is highly customer-focused and calls for it to always offer whatever project-participation level the OEM customer wants his company to provide. For instance, said Eckert, should the OEM want to work with UTAS Landing Systems on a joint-development basis, as Gulfstream Aerospace did with the G500 and G600, it is happy to do so. Often, “with newer OEMs, we’re able to work on a joint-development basis,” he added.

For any customer, UTAS Landing Systems is willing to provide everything from an aircraft’s entire landing-gear package to individual landing gear components or systems, such as proximity sensing systems, steering systems, or actuation systems. Because of the company’s depth of experience and industry presence, “we have the ability to support OEMs in how they package their systems and make sure they are reliable and successful,” said Eckert.

Apart from its extensive commercial-aviation presence, in the business aviation sector UTAS Landing Systems provides landing gear systems or components for Gulfstream’s G450, G500, G650, G500 and G600; Bombardier’s Global 5000 and Global 6000; the Piaggio P180; the Embraer Legacy 650; the business-jet version of the ERJ-145 regional jet; the Pilatus PC-9 and (as an option) PC-12; the new Cessna Citation Longitude; and numerous smaller Textron Aviation business-aircraft models, including the Beechcraft King Air family and some Cessnas.
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JetBed induces ‘giving berth’ onboard

JetBed is showcasing at NBAA 2018 its lightweight, portable beds that can transform a business aircraft club seating area into an expansive, completely flat bed.

“My wife hates to fly and loves to sleep,” said longtime Citation pilot and JetBed CEO and president Gerald “Gary” Bosstick, explaining the genesis of the product. “Most light jets don’t have berthing seats, so I decided I’d invent something to make my wife more comfortable, and make my own life more comfortable.”

When he finished perfecting and patented the first JetBed in 2006, Bosstick took the invention to Cessna. “I think they gave me an appointment just because I was a customer,” he said. A few hours later, Cessna was Bosstick’s customer.

Qualcomm was JetBed’s first big corporate client, according to Bosstick, and today, “Virtually all Fortune 500 companies have our product,” with total sales to date “in the thousands,” he said.

The JetBed system has quick-fill inflatable bags that occupy the floor space between opposing club seats—or for a double bed, between the opposing seats and the aisle across from a divan—creating a flat base for an inflatable mattress topped by fabric mattress pads to lie on. JetBeds “offer comfort comparable to five-star hotel beds,” according to the San Diego, California company. A double bed can be made up or stowed in three minutes or less, and the single even more quickly.

At its convention center display (Booth 838), JetBed has large monitors showing videos of the product, including a new animation that demonstrates the double bed set up; and there’s also a conference group mockup on display Bosstick and his team can use to explain JetBed to visitors.

As portable equipment, JetBeds are exempt from FAA regulations, but nonetheless meet or exceed requirements such as FAR-25-853a for flammability, Bosstick said.

JetBeds weigh about 16 to 20 pounds, and the inflator pump and other equipment about 15 pounds.

A JetBed for a CJ1 costs $6,295 and prices “go upwards, way up” from there, Bosstick said. A double bed he’s developing for the G550 will be about $32,500. But having an OEM install a double bed as an option on a large-cabin jet can add hundreds of thousands to the price tag, he noted, making JetBeds a bargain.

Expanding into the accessories market, JetBed is currently in negotiations with French and Italian companies to provide bedding “that will meet our quality expectations,” Bosstick said, adding, “Everybody asks where to get linens.”

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Broad line, one brand for Astronics

by Ian Sheppard

Astronics (Booth 214) has come to NBAA 2018 with a range of announcements, but its main theme is to build the Astronics brand coincident with it reaching its 50th anniversary. Until last year, the $1 billion company marketed itself as 11 different companies.

Its Astronics Luminous Systems (Astronics LSI) unit has been granted FAA PMA approval for its new LED landing and taxi lights, which can replace traditional filament-based lights that have much shorter lives. “Airframe manufacturers, airlines, and private owners can now incorporate these lights onto new and retrofit aircraft to take advantage of the life-cycle cost savings,” said James Kramer, president of Astronics LSI. The lights come in three industry standard sizes: PAR 36, 46, and 64.

The East Aurora, New York-based company’s Astronics Max-Viz subsidiary has meanwhile seen its Max-Viz 2300 enhanced vision system (EVS) installed and certified by Sikorsky on a new S-76D helicopter. According to Tom Geiger, business unit manager, the company has shipped more than 3,000 EVS applications.

Astronics also is showing its FliteStream T-310 satcom connectivity equipment at its NBAA booth, as well as a cabin mockup showing its mood lighting and how lighting, seats, and IFE devices can be controlled through a handheld device. In addition, it is demonstrating its “Li-Fi” (like Wi-Fi but with light) concept, which it believes could increase Wi-Fi data transfer speeds in the cabin.

Matthew Harrah, president of Astronics Aerosas, explained to AIN that the FliteStream T-Series uses its Rexolite Lens technology for high efficiency. “We’ve developed our tail- and fuselage-mounted antenna systems provide maximum performance across the full range of Ku-band satellite technologies.”

He added the company continues to have direct relationships with Satcom Direct and Inmarsat. For Satcom Direct’s new SD Xperience, launched this week at NBAA 2018, Astronics is the tail-mount antenna supplier.

Safe Flight AOA aboard Quest’s Kodiak Series II

The new version of Quest Aircraft’s Kodiak turboprop single, the Kodiak 100 Series II, comes standard with Safe Flight’s angle-of-attack (AOA) system with a digital heads-up indexer. LED lights in the indexer, which is mounted on top of the glareshield in the pilot’s field of view, make it easy to see in different lighting conditions. The pilot can adjust the reference marker to set AOA targets, according to Safe Flight.

The AOA system receives information from the existing Safe Flight Lift transducer and stall protection computer, and it automatically accounts for flaps settings, wind gusts, load factor, and weight distribution. Pilots can use the AOA system to optimize high-lift operations such as normal and short-field takeoff, best angle and best rate of climb, long-range cruise, and normal and short-field landing approach.

“The Kodiak is renowned for its backcountry and STOL operations, we are extremely pleased to provide Quest with an AOA system that will enhance the performance and safety characteristics of this uniquely innovative aircraft,” said Randall Greene, president and CEO of Safe Flight (Booth 4851).

Need a lift? Liftkar has you covered

First-time NBAA-BACE exhibitor Mobility Lifter (Booth 1855) is displaying the Liftkar PT, a portable battery-operated stair climber that can lift an individual up aircraft or any other set of stairs. “It works indoors and outdoors, on carpeted stairs, wood, glass, concrete, curved stairs, and angled stairs,” said Jeanine Carroccio, exclusive dealer for Liftkar, which is manufactured by Sano Transportgeraete. The couple became the distributor six years ago after buying one for Carroccio’s mother. “There was nothing like it in the U.S.,” she said.

The Liftkar (Booth 1855) can support up to 352 pounds, weighs about 65 pounds, and can quickly disassemble into three pieces for easy storage. They’re available in 15-inch and 20-inch models and cost about $8,000. Sano has sold Liftkars to international airlines, but Carroccio never marketed to the aviation field before and is receiving an enthusiastic reception at NBAA 2018.

“I’m finding attendees have family members who need it for home,” she said, but has also had strong interest from FBOs, charter management companies, and individual aircraft owners. Booth traffic at NBAA 2018 has been “way better” than anticipated, she said. A steady stream of attendees have been taking a seat in the Liftkar on display and getting lifted up the short staircase at the company’s booth, some using measuring tape to satisfy themselves the unit can fit into and down the aisles of tight business aircraft cabins.

Sold through a nationwide network of dealers, the Liftkar has a host of safety features, including a sealed chain drive, locking wheels, and rugged construction. A rechargeable sealed lead acid battery can power the machine for 300 to 500 steps between charges.

Japanese aviation authorities are preparing to conclude a five-year study to determine specifically what will be required. Counting domestic flights, that number grew to more than 15,000 operations in 2017, with the Tokyo-area airports handling nearly one-third of that amount.

At Nagoya Airport, Aichi Sky Expo, a large convention center along the lines of Geneva’s Palexpo (which is host to the annual EBACE show), is expected to debut in fall 2019. The airport is also home to Mitsubishi’s MRJ assembly facility.

Japan plans bizav infrastructure upgrades

by Curt Epstein

With Japanese authorities expecting an influx of an additional 13 million tourists in 2020 for the Summer Olympic Games, up from the 27 million visitors the country experienced in 2017, the government is currently examining how it will handle the overflow and general aviation aircraft relocation from primary Tokyo gateways Narita and Haneda International Airports, which are already somewhat constrained in terms of business aviation parking. Nagao told AIN that his department has just begun a study to determine specifically what will be required.

Since 2014, international business aviation movements in Japan have increased by an average of 14 percent each year, with 5,190 movements last year. Of that amount, more than 3,100 involved Haneda and Narita. The Kansai region (Kansai International, Osaka International, Yao, and Kobe Airports) saw another nearly 700, while the Nagoya region, which includes Chubu Centrair International and Nagoya Airports, accounted for another 400.

Counting domestic flights, that number grew to more than 15,000 operations in 2017, with the Tokyo-area airports handling nearly one-third of that amount.

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FlightSafety’s sims now feature FalconEye HUD

by Ian Sheppard

FlightSafety International (FSI, Booth 651) has installed Dassault’s recently certified FalconEye combined vision system head-up display in its Dassault 900LX full-flight simulator in Dallas, as well as the Falcon 8X and 2000LXS simulators at its Paris training center. In addition, in August 2019 the U.S. company will install FalconEye in a new Falcon 2000LXS and in a 900LX interchangeable simulator (the FS1000) at its Teterboro learning center.

Steve Gross, senior vice president-commercial with FSI, said the FalconEye installations demonstrated its support for Dassault and enhance training for operators, who now have access to the required ground school and simulator training for use of the FalconEye, which combines synthetic database-driven terrain mapping and actual thermal and low-light camera inputs into a single view, enhancing situational awareness, including at night.

In synthetic vision system (SVS) mode the camera displays a view that is 40-degree horizontal by 30-degree vertical in coverage, with a 1,280 x 1,024 resolution, “ensuring full coverage of the viewing area with no tunnel-vision effects.” The Dallas-based 900LX device has also been upgraded with the Vital 1100 visual system, which can provide “highly detailed mission-specific imagery.”

As well as having FalconEye, the new level-D interchangeable simulator at Teterboro Airport, near New York City, will have CrewView collimated glass mirror displays and a Vital 1100 visual system, giving distortion-free images. It is in a whole-Earth environment, including the latest terrain information and geospecific satellite images, said FSI.

The Teterboro facility also has a new flight crew emergency training center with a pool for sea survival training, a full-scale “dunker,” a hoist for rescue training, and a full-scale cabin trainer. Also at Teterboro, FSI plans to offer King Air 350 training using an interchangeable simulator that can be configured with Rockwell Collins Pro Line Fusion or Pro Line 21 avionics. Installation is currently under way, with training due to commence in April. Following FAA certification of this sim, FSI is hoping for Transport Canada and Brazilian ANAC approvals later next year.

Deliveries are down slightly, but Bombardier sees strong orders

Bombardier’s 31 bizjet deliveries in the third quarter marked a decline of five units from a year ago, but strengthening orders brought backlog to $14.3 billion as of September 30. This year’s third-quarter deliveries consisted of four Learjets, 20 Challengers and seven Globals. That brings the year-to-date total to 96 business jet deliveries at the Canadian company, down from 109 through the first nine months of 2017.

Backlog slid from the $16.5 billion reported a year ago, but marks an uptick from the $14.1 billion at the end of the second quarter. The aircraft delivered thus far represents 70 percent of the OEM’s planned business aircraft deliveries for the year, said Bombardier (Booth 1200, Static SD45), announcing results Tuesday at NBAA 2018.

“We are seeing strong demand for our Global family,” said Bombardier Business Aircraft president David Coleal, “rivalled only by the continued strong performance of our Challenger franchise, which we estimate outperformed each competitor’s medium-category deliveries by a ratio of five to one or higher in the third quarter.”

At the NBAA 2018 static aircraft display, Bombardier is showing its newly certified (Transport Canada) Global 7500, Global 6000, Challenger 350, Challenger 650, and Learjet 75.

Test pilot society inducts Gulfstream’s Thomas Horne

Gulfstream Aerospace’s Thomas Horne has been inducted as a fellow in the Society of Experimental Test Pilots. Horne, director of flight operations test for Gulfstream (Booth 256, Static SD41), joined the company as an experimental test pilot for the GV program and then became a project pilot for the PlaneView G550 flight deck.

Horne was also a test pilot on the first flights of Gulfstream’s G550 and G650.

Prior to joining Gulfstream, Horne was a flight test engineer and F-16 fighter pilot in the U.S. Air Force. He tested envelope expansion, avionics development, and weapons development for the fighter.

Polaris integrates ‘Fatigue Meter’ risk assessment tool

Aviation safety software company Polaris Aero (Booth 651) has integrated Pulsar Informatic’s Fatigue Meter technology into FlightRisk, Polaris’s automatic risk assessment system. FlightRisk automatically pulls in key pieces from the Pulsar fatigue risk management system and displays it in a user-friendly way, making it easier to use the preflight assessment process by managers and front-line personnel. “By gaining insight into the total risk perspective of the aircrew, the operation has an overall better ability to fly as safe as possible,” said Pulsar CEO Daniel Mollicone.

Polaris is demonstrating the integrated fatigue and flight risk assessment this week at its NBAA 2018 booth.

OJets’s fleet grows by adding four Globals

Singapore-based OJets has added three Bombardier Global 6000s and one Global 5000 to its fleet, which is operated by Elit’Avia Malta under a Maltese AOC. They join the existing Global 6000 and 5000 and one Challenger 650, taking OJets’ fleet to seven business jets. OJets launched in April at the ABACE show in Shanghai.

Phil Mulacek, chairman of OJets, said, “We have a strong financial position, and this will allow us to continue to grow our fleet of aircraft.” OJets said it holds a 30 percent equity stake in Elit’Avia Malta Limited and its affiliates.

Aviation Search Group sees business growth

Aviation Search Group (Booth 4307) is seeing a dramatic jump in searches for professionals and leadership within all sectors of the industry. The company has placed 92 professionals year-to-date and thousands of direct-hires throughout company history. Last year, the company reported a 194 percent increase in search assignments when compared to 2016, with growth experienced in Part 91, Part 135, and MRO businesses.
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ISM: Orlando’s alternative
by James Wynbrandt

While not hosting NBAA 2018’s static display, Orlando’s Kissimmee Gateway Airport (ISM) nonetheless gets a fair share of attention as a port of entry to the NBAA convention. Airport director Terry Lloyd ticked off some of the reasons: “We are actually closer to the [Orange County] Convention Center than Orlando Executive [ORL] is.”

ISM is also “a little more discreet” for attendees seeking to avoid hubbub and crowds when they fly in for the event. And when it’s time to leave on peak days, “We get permission from the FAA to extend the [control] tower hours”— normally 7 a.m. to 10 p.m.—to facilitate late-night departures.

While ORL has display aircraft, aircraft shoppers often pass through ISM during the show, Lloyd noted. Kissimmee typically hosts OEMs’ demo aircraft, “ready to fly for serious potential customers to take a ride in.”

This week, Lloyd and the Kissimmee Gateway Airport team are at the convention center (Booth 2007) highlighting the airport’s attractions, whether for access to NBAA, for business or pleasure year round, or as it turns out this year, for establishing a green field facility by the airport.

Owned by the city of Kissimmee, ISM has two runways: 5,001-foot 6/24 and 6,001-foot main runway 15/33. “We call that the mon- eymaker,” Lloyd said of the 6,000-footer. “That’s the one that keeps the corporate aircraft coming in. Five is okay, but six thousand is better.” The runways can support aircraft as large as BBJs. A major pavement rehabilitation with new sealcoat on 15/33 was completed this year along with a runway lighting upgrade to LEDs.

The airport’s three FBOs—Signature Flight Support, Odyssey Aviation, and Kissimmee Jet Center—provide a range of options for transient operators.

ISM is also noted for the aviation businesses on the field. Warbird Adventures offers flights in a dual-control P-40 Warhawk and T-6 Texans, and its Kissimmee Air Museum has more than a score of aircraft on display and showcases ongoing restoration work. Stallion 51 provides P-51 Mustang orientation and training flights with highly experienced instructors. NBAA exhibitor Unusual Attitude Training (Booth 1809) offers corporate programs using an EFIS-equipped L-39 jet whose handling characteristics are similar to current corporate jets.

This year ISM is also marking the inauguration of a new charter aviation high school on the airport grounds, the Florida Aviation Academy, which just inducted its first freshman class. The 13-acre site will ultimately have 800 students, with maintenance, engineering, UAS, professional pilot track, and Navy ROTC programs. For now the school is using portable buildings and classrooms at Aviator College of Aeronautical Science and Technology, also on the airport, which offers flight training and aviation maintenance technician programs, and a commercial pilot associate’s degree program.

In addition to proximity to the Orange County Convention Center, ISM is also the closest airport to the Disney and Universal theme parks and “some of the large convention hotel properties are even closer than the convention center,” Lloyd said.

Lloyd recalls noticing one year “the FBOs were getting a lot of jets, but there were no major events” occurring. “I started asking questions, and it turned out there were 3,000 orthopedic surgeons at the Gaylord Palms [Resort & Convention Center]. They were driving as much jet traffic as a convention with 30-, 40-, 50,000 attendees,” he said.

During such traffic surges, the airport has closed the secondary runway for overflow parking, but that’s not necessary anymore as aircraft now are typically chartered out rather than left idle on a ramp. “These days, anyone with a corporate jet tries to keep it in motion,” Lloyd said.

Meanwhile, the municipality has just provided road access to an adjacent city-owned parcel suitable for business and industrial development. Lease revenue is earmarked for airport operations, “so we’re doing a full court press marketing that property,” Lloyd said. “We’ve got water and sewer easily available, and people can come in, design what they want, and construct a building for their operations.” And it comes with immediate access to the airport.

Looking ahead, the airport is considering adding hangars, but Lloyd noted municipal authorities are “still gun-shy from the recession” and reluctant to invest in the infrastructure “unless they know they’re leaving a lot of money on the table from not having them.”

Viasat Wi-Fi satisfies your need for speed

For NBAA 2018 attendees disappointed with the expensive and low-bandwidth Wi-Fi service at the convention center, a visit to the Viasat booth (1254) could prove highly satisfying. Viasat is demonstrating its Ka-band satcom network at the show, and visitors can experience access speeds of up to 100 Mbps via the company’s ViaSat-2 satellite.

Viasat has signed an exclusive distributor agreement with StandardAero, under which the maintenance and avionics service company will offer Viasat satcom packages for the Bombardier Global Express, XRS, 5000, and 6000.

StandardAero will offer Viasat’s Global Aero Terminal 5510 for satcom service provided by the ViaSat-1, ViaSat-2, and European Ka-band satellite platforms. The 5510 system is also compatible with the upcoming ViaSat-3 ultra-high-capacity satellite platform, and no hardware upgrades to the 5510 will be needed to connect to the ViaSat-3 network. Two business jet OEMs have selected Viasat for the 5510 Ka-band satcom system.

Gulfstream chose Viasat for the Ka-band system for its G280 super-midsize jet, and Embraer will offer the ViaSat satcom to buyers of its new Praetor 500 and 600 jets and will also provide a retrofit option for Legacy 450 and 500 owners. To expand the number of facilities that can sell and install Viasat satcoms, the company selected two new business aviation dealers, GoAeroMx of San Antonio, Texas, and SoCal Jets of Van Nuys, California. According to Viasat, customers can simultaneously access high-bandwidth applications on aircraft equipped with its Ku- and Ka-band satcom systems. This includes “accessing VPNs, or streaming high-definition video calls, cloud content, or live TV entertainment.” Network speeds are up to 16 Mbps, and the speed should increase as Viasat adds more satellite capacity. M.T.
Bizav order bounce

These orders help position deliveries to climb by an anticipated 7 percent next year, according to Vincent.

However, the book-to-bill ratios also received a boost from another key denominator—weaker delivery performance this year. Twin-engine business jet deliveries were down 8 percent year-over-year in the first half, "largely driven by the fact that most OEMs are in a transition phase from current production to new—and in many cases, not yet certified—models," he said.

JetNet estimates deliveries will be down 2 percent this year. But that will improve next year as manufacturers ramp up on programs such as the Gulfstream G500 and G6000, Bombardier Global 7500, Cesna Citation Longitude, and Pilatus PC-24.

Production rate increases tilt toward newly- and recently-certified models. "We are not yet seeing evidence of a broad-based order recovery," Vincent said. "Order backlogs have only now just stabilized for the big five OEMs as a total, after double-digit percentage declines in 2015, 2016, and 2017." Further, based on company filings, 84 percent of the business jet backlog is with just two companies—Bombardier and Gulfstream.

"We estimate that backlogs at Embraer and Textron represent considerably less than one year’s production. This does not provide management with the confidence they would like to have to reset production rates," he said. "We are still awaiting a clear signal that the very light and light jet market segments have recovered." Order rates for the midsize and light jets still have not returned to levels that would be expected.

Vincent also expresses the view that too many aircraft and OEMs are in the market given the number of existing customers. "There is much work to be done to bring new customers, and new talent, into the industry," he said.

Preowned a Seller’s Market

The preowned market, meanwhile, has turned into a seller’s market, particularly for those offering aircraft aged less than 10 years. "With virtually no young inventory for sale, sellers of these assets are clearly in the driver’s seat in the negotiations," Vincent said.

As younger aircraft become difficult to find, prices are beginning to firm and residual values, which have been experiencing double-digit declines each year and now more in the single-digit range. In turn, business jet manufacturers are reporting firm pricing, even though some still have unsold inventory this year, Vincent added.

The U.S. continues to dominate—74 percent of all full sales transactions of preowned business jets in the first nine months were for aircraft based in the U.S. and about 60 percent of new aircraft deliveries have gone to the U.S., according to JetNet records. Further, Vincent added, JetNet IQ’s third-quarter survey revealed business aircraft owners and operators in North America “are the most optimistic of any region of the world.”

The strength of the U.S. economy—with forecasts for 2.9 percent GDP growth and corporate profits topping $2 trillion on an annual after-tax basis—and new tax laws are helping to bolster this optimism. "U.S. consumer confidence is near an all-time high, and the U.S. unemployment rate has slipped below 4 percent," he added.

However, despite this promise, Vincent sees some clouds on the horizon. Many economists see a slowdown in key economic metrics this year—the U.S., Europe, China, Canada, and Australia, which combine for 80 percent of the business jet fleet.

Trade tensions, weak currencies relative to the U.S. dollar, Brexit uncertainties, and higher U.S. inflation and interests "are already with us or on the near-term horizon," Vincent pointed out.

Specific to the business aviation community, he added, pilot and maintenance technician shortages are already affecting the industry. This is compelling significant increase in labor costs. Commercial airlines have been hiring much of the available labor, as Boeing and Airbus both are on the path to more than 60 narrowbody deliveries a month. "The pressure on the talent pipeline shows no signs of abating," he said.

Supersonic bizjets

Aircraft could fall into an all-first-class airliner configuration. He pointed out that the economics of an airliner are significantly different from those of a business jet: “[Airlines] have to make money.” Together with its development team—which includes Lockheed Martin, GE Aviation, and Honeywell—Aerion’s next steps involve exploring further Tier 1 suppliers. They need to source the contractors who will build the AS2’s fuselage, wings, and control surfaces, as well as major components such as the landing gear. As an indication of how supersonic fever is spreading throughout the industry, UTC’s Aerospace Systems reports it has recently invested more than $100 million in R&D, with a portion dedicated to the areas of noise and high temperatures associated with supersonic flight. The company has a history in supersonics, having been one of the suppliers on the Concorde program. UTAS also has experience with some of the technologies in subsonic applications, such as its titanium liquid interface bonding process on the fan case for the Rolls-Royce Trent 900.

“We firmly believe that the next big step in aerospace is to go into supersonics,” said Gary Reynolds, UTAS v-p of regional and engine systems.

While bar patrons at Pancho Barnes’s Happy Bottom Riding Club didn’t seem bothered by sonic booms over the high desert of California’s Muroc air base in 1947, today’s environmental concerns over noise are formidable hurdles in the path to future supersonic flight. Mach busting is still forbidden over land in the U.S., though the recent five-year FAA reauthorization includes funding for research into the possibility that technology could mitigate booming to acceptable levels.

Strategies for reducing booms include aerodynamic measures that would reshape and disrupt the so-called N-wave generated by the initial shock created by the noise of the jet followed almost immediately by a similar shock wave from the tail. Aerodynamics can reshape the wave to turn the double sharp booms into more of a low rumble, according to Miller.

Up to a certain speed known as Mach cutoff, the N-wave itself does not extend all the way to the ground. Atmospheric conditions also play a role in determining Mach cutoff, and Honeywell is researching “boom mapping” software that could ultimately take the form of a flight deck display similar to weather radar that can show pilots when the boom is getting too low for comfort (5,000 feet above ground level is thought to be a sufficient buffer).

Developing boom-mapping software is dependent on enhancing and refining atmospheric data available to the onboard equipment. That effort involves a combination of increasing the type and amount of data uploaded from external ground- or satellite-based sources, as well as developing more robust onboard sensors.

“Networked and datalinked crowdsourced weather will be ‘required’ for things that go fast,” said Carl Esposito, Honeywell Aerospace president of electronic solutions. “We have a lot of the fundamental building blocks, based on [our] military technology.”

Aerion partner Lockheed Martin is also researching boom effects with its X59 program. That effort was specified in the FAA funding bill, and the research would involve establishing a test range in a remote area where a sample of people would be asked to evaluate sonic booms under varying test conditions—atmospheric and aerodynamic.

Developing the first supersonic business jet is a competitive exercise. “It’s a race,” said one Aerion executive. Spike Aerospace is also developing its program, and Boom has designs on the airline industry. Also, some are intrigued that Gulfstream, which had long ago back-burnered its own supersonic development program, recently reserved trademarks on the model names G1100 and G1200, fueling speculation that it could be reviving plans to get back into the Mach-buster race.
Bongiovi cabin audio suite delivers speakerless sound
by James Wybrandt

Bongiovi Aviation’s Speakerless Audio system for business aircraft cabins uses transducers attached to the back of interior panels, which vibrate the entire cabin into a uniform “immersive” audio experience, without the need for speakers, woofers, or subwoofers to deliver high fidelity sound.

“Speakers are old technology,” said Heath Cohen, v-p of sales and marketing at Bongiovi. “Now there’s a new alternative to outfit your jet with immersive sound throughout your cabin—the same quality you get on your yacht or at home.”

At the cabin mockup at the company’s NBAA 2018 display (Booth 641), 18 transducers, each about 2.5 inches in diameter and less than an inch thick, are mounted behind the interior panels.

Typically used in speaker systems to vibrate the speaker cones, transducers previously hadn’t had the sound quality to support an application of this type. But its patented Bongiovi Digital Power Station (DPS) signal processing technology overcomes the limitations, according to the company. The technology was developed by parent company Bongiovi Acoustics Labs, founded by record producer Tony Bongiovi, who began experimenting with bringing quality audio into aircraft in the 1980s as a pilot and Twin Commanche owner.

The transducers, weighing about three ounces each, are easy to install and require precise placement; once the installation is complete, professional audio producers “tune” each cabin to ensure maximum sound fidelity. The audio can be operated through any cabin management system. As additional benefits, the system can save weight compared with speaker systems with woofers and sub-woofers, and no holes have to be cut into interior paneling to accommodate speakers, creating a cleaner look in the cabin.

Costs are currently a little higher for the Bongiovi system compared with conventional installations, but the company expects the price to decline through economies of scale. The amplifier and other system components are manufactured and certified by MidContinent Controls, which is hosting Bongiovi’s display.

Honda Aircraft was the launch customer for the Bongiovi Speakerless Audio system, selecting it as the sound system for the HondaJet Elite. Bongiovi is currently in discussions with other OEMs and completion centers, and the audio system is available for retrofit installation, with some aftermarket orders in hand, Cohen said.

Bongiovi also makes a headphone module for aircraft cabins, designed to provide superior sound quality and clarity in high-noise environments.

CAE pilot outlook now includes business aviation

CAE’s 2018 report on pilot demand, which this year includes the outlook for business jet pilots, sees a need for 10,000 new business pilots to sustain growth and 40,000 to support retirement attrition through 2028. The 10-year CAE Airline and Business Jet Pilot Demand Outlook offers fleet operators insight needed for assessing hiring needs and challenges by reviewing key market drivers, variables, and trends.

According to CAE (Booth 238), there will be 65,000 active jet pilots by 2028, which is an increase of 18 percent, with a turnover rate of almost 100 percent. “Today’s soaring pilot demand is a reality that we must all face,” said CAE president and CEO Marc Parent.

To help meet the need, CAE has expanded its training footprint at its Dallas training center with a CAE-built Bombardier Challenger 604 full-flight simulator. Challenger 604 training is also available in Amsterdam and Dubai.

“We are excited to expand our training footprint in North America with our first Challenger 604 training program in the U.S.,” said Nick Leonidis, CAE group president of civil aviation training.

Every year, CAE trains more than 120,000 civil and defense crewmembers worldwide.
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