SPRING 2024

EVA

EXECUTIVE & VIP AVIATION INTERNATIONAL

Consistency and Capability

Chris Moore, President, Satcom Direct

Powering on: Engine MRO – Duncan Aviation, Pratt & Whitney Canada and Rolls-Royce
People First – Don Campion, co-founder, President and Head Coach, Banyan Air Service
People to People – Phil Stearns, Director, Sales & Marketing, Stevens Aerospace and Defense Systems
A New Reality: Flight Simulation – AXIS Flight Simulation, CAE, FlightSafety International & Loft Dynamics

evaint.com

Request your private consultation

'NBAA IFR theoretical maximum range at Mach 0.85 with 8 passengers, 4 crew and NBAA IFR reserves. Actual range will be affected by ATC routing, operating speed, weather, outfitting options and other factors. ²Maximum Operating Mach Number.


YOU'RE AN INNOVATOR.
TIME TO FLY LIKE IT.
G600™
Farther: 6,600 nm/12,223 km[1]
Faster: Mach 0.925[2]
Gulfstream™

Contents

SPRING 2024

Issue 65 2024
www.evaint.com

Join the conversation
X: @exvipmagazine
Linkedin:/eva-magazine

Advertising opportunities
Contact Mo Banks on:
Tel: + 44 (0) 208 253 4017
E: mo@evaint.com

Address changes and subscriptions:
charlotte@evaint.com

ISSN 1754-1166

EVA INTERNATIONAL MEDIA LTD
EVA INTERNATIONAL MEDIA LTD
PUBLISHERS & EVENTS SPECIALISTS

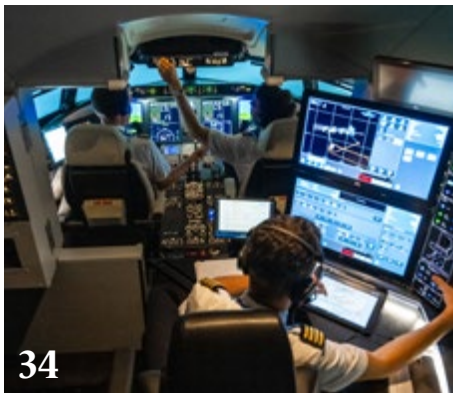
Published by:
EVA International Media Ltd
Boswell Cottage
19 South End, Croydon
London, CR0 1BE, UK

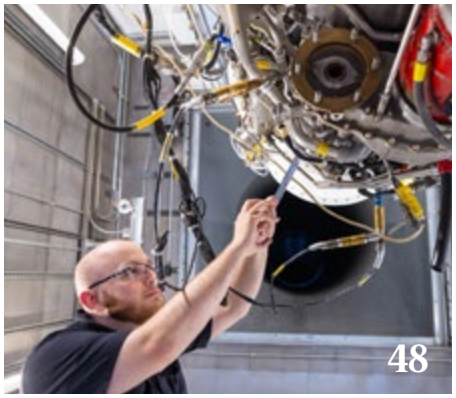
Tel: +44 (0) 20 8253 4000
Fax: +44 (0) 20 8603 7369

www.evaintmedia.com

Printed by:
The Manson Group Limited
St Albans, Hertfordshire
AL3 6PZ, United Kingdom

Distributed By:
Asendia UK LTD
Heathrow Estate
Silver Jubilee Way
Hounslow, TW4 6NF





Editor's NOTES

Paul E Eden
paul@evaint.com

We could justifiably have billed this spring 2024 edition of *EVA* as the *People & Passion Special*. People feature strongly as the cornerstone of every article, while their passion for the aviation industry, and business aviation in particular, shines through.

Don Campion, co-founder of Florida's Banyan Air Service, is about as passionate an aviation person as you could hope to find. His story begins with flying to school in bushplanes as a child in Africa, progresses through road trips between Toronto and Miami in a Honda Civic, and includes creating one of America's busiest non-airline airports.

Gulfstream president Mark Burns will need no introduction to many readers. He received the Lifetime Aviation Industry Leader Award at the 21st Annual Living Legends of Aviation Awards ceremony in January. Afterwards, he reflected: "This recognition is very humbling for me, but I think it's really a testament to the more than 20,000 Gulfstream employees who are some of the best in our industry." Passion and humility make for a powerful combination in his case.

Over the previous 18 months or so we have explored aspects of crew training, from emergency evacuation, through medical emergency to maintenance. In this edition we conclude the series with an examination of pilot training, from the viewpoints of AXIS Flight Simulation, CAE, FlightSafety International and Loft Dynamics. Thanks to Doug May, EVP Operations at FlightSafety, we learn that OEM test pilots 'fly' new aircraft simulators to ensure they represent the airplane accurately, while Loft Dynamics founder and CEO Fabi Riesen enthuses over the power of virtual reality in helicopter pilot training.

Satcom Direct's expanding portfolio of connectivity solutions, hardware, now including Plane Simple antennas, and close industry relationships are the subject of our cover story. Company president Chris Moore is always a delight to interview. Like your editor, Chris is an unashamed avgeek and our conversations typically need nudging back on track as we follow aviation tangents in no way related to what we're supposed to be talking about.

This time around we managed to explore the burgeoning success of SD's Plane Simple antennas, including its forthcoming electronically scanned antenna (ESA) technology, the potential offered by low earth orbit satellite constellations, and the combination of LEO service with existing but evolving GEO satellites. Then we digressed into a conversation about the Royal Air Force's retired fleet of Tornado attack aircraft, nothing of which you'll find in these pages.

Truth be told, aviation inspires too much passion and enthusiasm to be contained in any one article or interview, and that's why we're launching the EVA Media podcast. Featuring myself and EVA Sales Manager Mo Banks as regular presenters, the show will give plenty of time to guests. Loosely themed around business aviation, the conversation is likely to follow any number of unexpected avenues and is sure to provide even the most passionate enthusiast with a thought-provoking aviation fix.

Parveen Raja
Publisher
parveen@evaint.com

Shobhana Patel
Head of Finance
finance@evaint.com

Mo Banks
Sales Manager
mo@evaint.com

Charlotte Willis
Office Manager
charlotte@evaint.com

Gemma Keen
Events Coordinator
gemma@evaint.com

Alpha Diallo
Digital Creative Director
alpha@evaint.com

Salam Raja
Producer
salam@evaint.com

Grace Garcia
Events Coordinator
grace@evaint.com

Ayo Ogunyoye
Graphic Designer
ayo@evaint.com

The company operates this G550 as a testbed and demonstrator

Consistency and Capability

Founded on the determination to provide its customers with the best possible solution to their needs, Satcom Direct has become the leader in business aviation connectivity. *EVA* spoke with Chris Moore, SD's president, to understand more about its expanding offer

There was a time when Satcom Direct (SD) simply packaged connectivity solutions, adding value with a portfolio of apps and providing a single point for billing, service and support. Always based on delivering the experience the customer required rather than on any notion of which provider was 'best' or delivered the 'fastest' service, SD's offer has expanded in recent years to include hardware, exemplified by the SD router family and now, antennas.

The company's Plane Simple (PS) Ku-band antenna is in its second year of service with Intelsat's FlexExec product. It was the founding member of a portfolio that will soon include an electronically steered antenna (ESA), further enhancing the broadband portfolio and extending solutions to light jets and turboprops. Much is happening in SD's world and a great deal is also happening in space, where the rise of the 'LEOs', low earth orbit satellites, and multi-orbit solutions are promising improved connectivity options.

SD has worked with Inmarsat's Ka-band constellation for many years. Now a Viasat product (after the latter's acquisition of Inmarsat) and known as GX, it will offer a second terminal (antenna and associated LRU) option, from SD.

The PS Ka-band antenna recently gained DO-160 approval (a standard avionics assessment), placing it on track for certification. Chris Moore, SD's president, explains: "We passed DO-160 in December 2023. That means it can legally be installed and now we're working with Bombardier, Dassault and Gulfstream on STCs. I expect we'll have most of those done by this summer. Meanwhile, it's flying on our Gulfstream and working well.

"As we did with the PS Ku, we've gone for a harmonious, simple design of antenna, wiring and modem. Traditional systems are designed from an airliner-like thought process, but our antennas are designed and built with a compact footprint suitable even for smaller jets. Later this year we'll have an STC for the G280, for example.

"Our PS Ka variant will also be the first terminal able to support Viasat's new HEO [highly elliptical orbit] service that's launching at the end of the year – it's a polar Ka capability. The antenna will also support more GX capacity; we expect it to go up to 100Mbps in a pretty short time frame."

Moore says customers are excited by the new terminal, not least because equipment cost is reduced while capability is expanding. "We're also replacing the tried and tested parabolic dish technology of the current offer with a truly global system optimised for the next generation of Viasat satellites. The legacy systems are kind of stuck now, they aren't going to move forward at the same pace as the new capacity comes online."

Inmarsat and Viasat operated separate Ka-band networks pre-merger, a situation that remains under the single Viasat brand. "It's likely to take a while longer before Viasat harmonises that modem architecture," Moore says, "but customers can install our PS Ka terminal to access GX and we'll be able to adapt our modem to access other Viasat assets too."

The PS Ka-band antenna could be compatible with any Ka GEO network when combined with the correct modem configuration, although Moore stresses the premium relationship between SD and Viasat. A less obvious potential PS benefit arises if a customer operates through a region where connectivity is only available from a specific regulated provider. In this case, the PS terminals will work with that satellite without the need for an antenna upgrade.

Customers opting for the Plane Simple Ka terminal will also have access to SD-exclusive service deals. Moore reveals: "We've designed these packages around the efficiency of the antenna. It means we can split the plan differently and even offer power-by-the-hour, as we do with FlexExec."

Ku in service

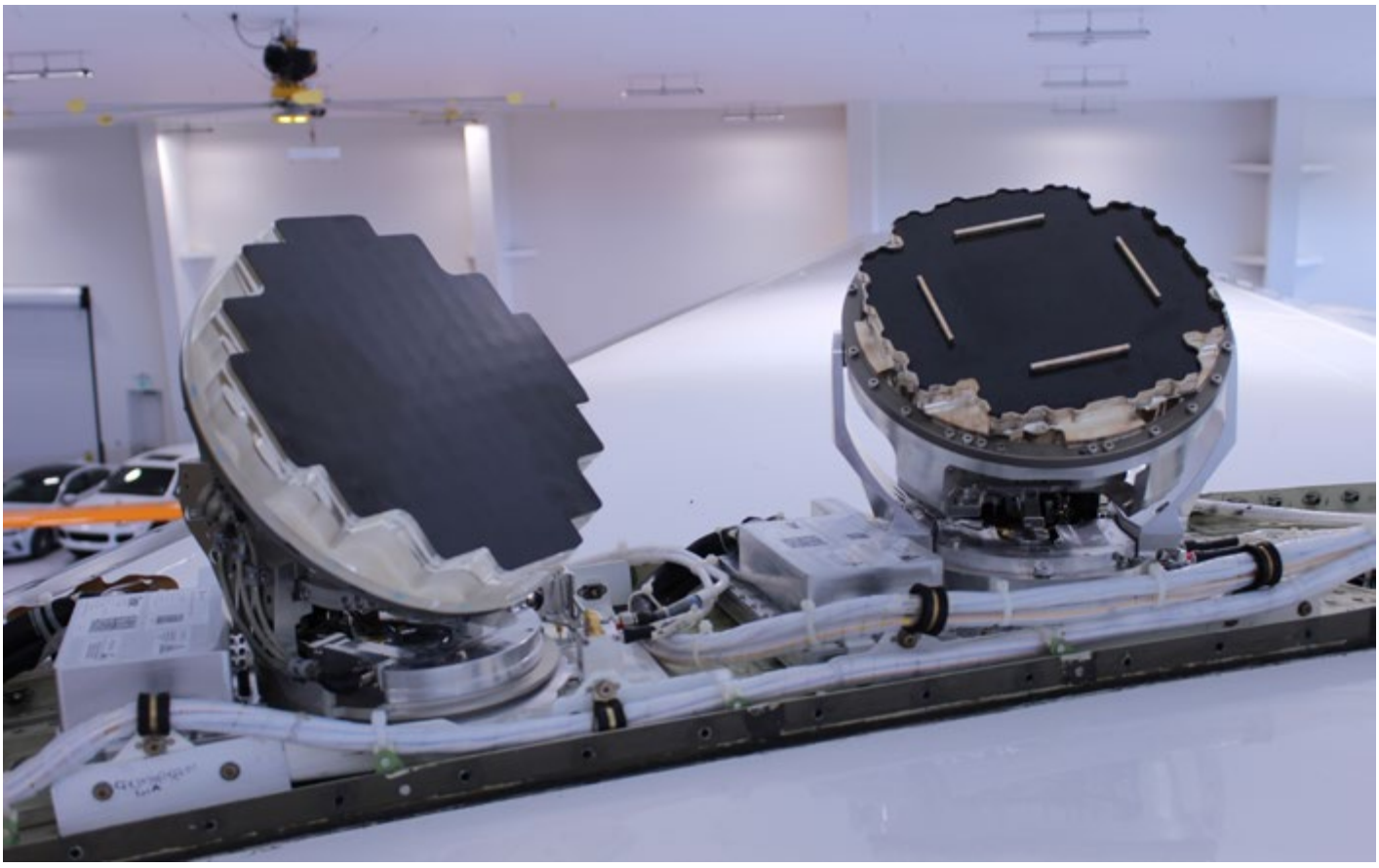
Meanwhile, the PS Ku-band antenna is in its second year of service and proving every bit as popular with customers as SD had hoped. "We expect to have 200 aircraft flying with it by the end of 2024, which means we're a little ahead of where we thought we would be," Moore enthuses. "The OEMs have embraced it and we're already talking about it becoming a line fit option. I think that's partly down to the network flexibility, that ability to 'stitch' in additional Ku assets without modem upgrades, plus the speed. We have nearly doubled the plan performance since launch, and will increase this a further four fold within the next 18 months. By the end of 2025 it'll be 100x5, providing more capacity than any business jet requires into the future.

"It has so much capability internationally and that's really spoken to customers. They can install the PS antenna and get better service for the same cost wherever they fly. Even with the performance improvements and upcoming growth, we have not increased the pricing and nor do we plan to. All our plans give access to the full network and terminal capabilities. Plus, we give the customer complete access to that connectivity pipe. The FlexExec service is aptly named; it has proven very flexible."

ESA excitement

The industry is excited about ESA technology. An ESA has no mechanical components, removing weight and further reducing the minimal maintenance requirements of other PS terminals. Traditional antennas 'look' towards the satellite they are 'connecting' with by gimballing, while the direction of an ESA's 'view' is managed electronically by controlling where along its flat panel energy is emitted or received.

Side-by-side installation of Plane Simple Ku and Ka antennas enables dual-dissimilar technology



"When the aircraft is the device, we see customers effectively roaming as they would with their phone. The wireless environment in the cabin is unchanged, but the aircraft switches to the best available network"

Chris Moore, President, SD

Flat panel antennas or, more correctly, phased arrays, are already widely used in defence and airline applications, where they can be larger and their power and cooling requirements better managed than on a smaller business aircraft. Now, thanks to the emergence of LEOs (which, orbiting closer to the earth, require less energy to 'reach'), they are finding business aviation applications.

Moore explains: "People have been talking about ESAs for a long time and getting them sized for business aircraft including smaller Textron and Pilatus platforms is very exciting. At SD our focus has been on airframes capable of 3,000nm range and above, but now the ESA means we can serve smaller aircraft.

"I believe LEO and GEO co-exist quite happily and even complement one another. We've been talking a lot about dual-dissimilar technology. With our minimised Plane Simple equipment design, larger aircraft can already accommodate two GEO antennas in the tail for Ku and Ka, and soon we can add a LEO antenna on the fuselage too. Everyone has heard stories of customers 'AOG-ing' their aircraft because the internet isn't working, and with an ESA we extend the level of redundancy offered."

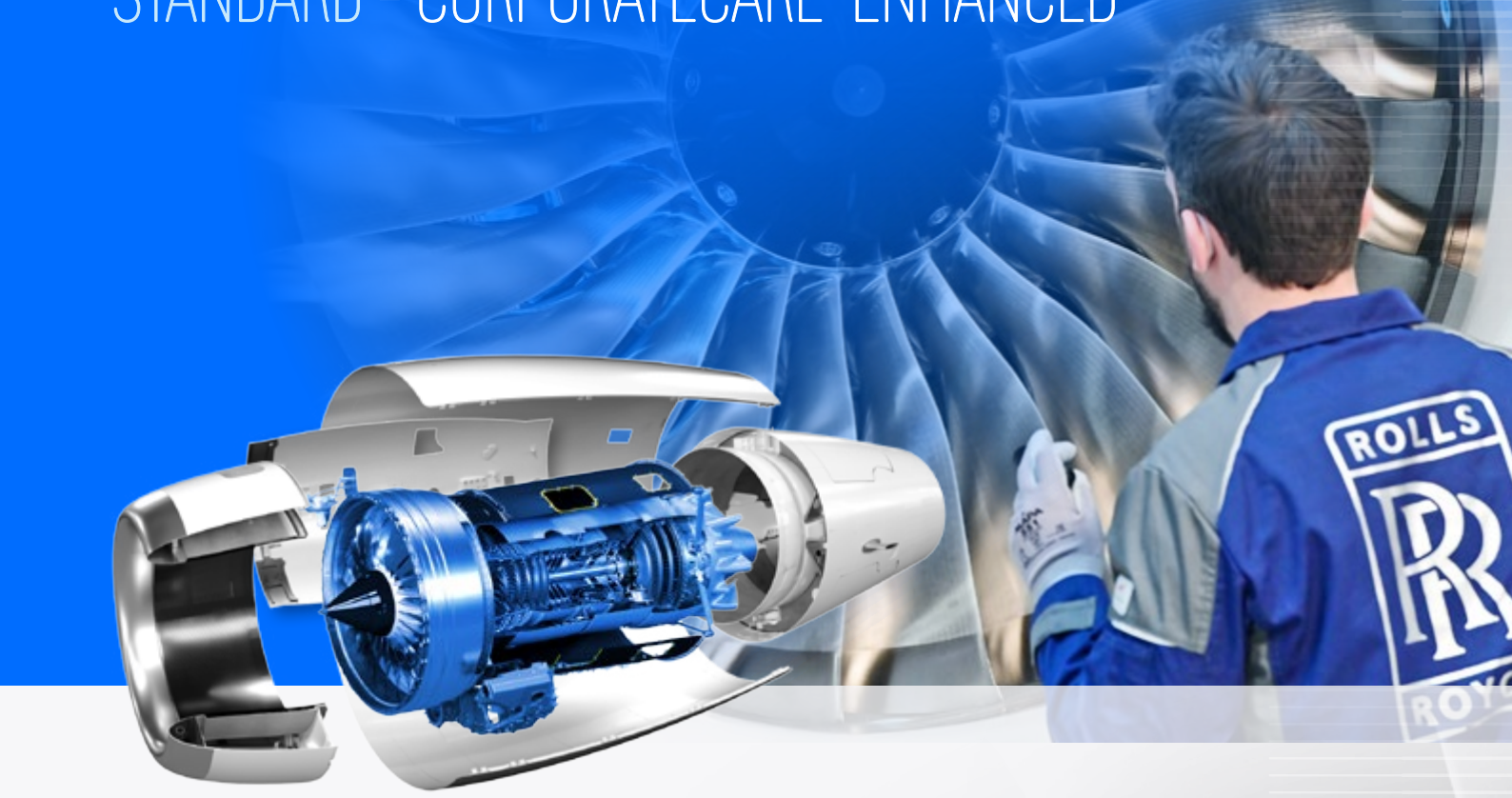
The SD Grand Caravan testbed/demonstration aircraft will fly with a PS ESA in summer 2024, and first customer delivery is likely not too far behind. "We expect to demonstrate the system inflight in that time frame," Moore insists.

Given the connection speeds Moore already predicted for SD's evolving Ku-band terminal, it comes as no surprise to hear his thoughts on bandwidth and how customers will perceive service quality in future. "I don't think we'll still be talking about bandwidth to the airframe over the next couple of years. The discussion will be more about consistency and capability, and looking at other technologies, including AI, automation and machine learning, with products, including our SD Pro operating system, bringing more automation to flight operations in an industry that is still catching up in that regard."

Interestingly, even as development of its ESA terminal continues, SD has been working with Stellar Blu on next-generation antenna technology. Stellar Blu already has an airliner-scaled phased array working with both LEO and GEO constellations and Moore sees further miniaturisation eventually bringing similar capability to business aircraft. "It might seem a way off now, but we've already seen incredible progress. Think about how today we talk about download speeds of 100 or even 200Mbps, but ten or 12 years ago it was 432kbps.

YOUR NEEDS HAVE EVOLVED

ENHANCE YOUR COVERAGE TO THE NEW STANDARD – CORPORATECARE® ENHANCED



With CorporateCare® Enhanced, your coverage goes further to include not only the engine itself, but the nacelle, as well as additional items such as troubleshooting and mobile repair travel costs associated with aircraft on the ground (AOG).

That's over 170 additional high value parts covered, and 35% more value than before.

rolls-royce.com/enhanced

"In the meantime, we've created building blocks, taking an open architecture approach and pushing the technology. The ESA we're working on, for the Eutelsat OneWeb LEO service, is going to be very robust and modular. I see it as the start of our phased array programme. It's the same with our GEO terminals, which means that once the customer has those building blocks installed, updating with new technology doesn't mean drilling holes in the pressure vessel, ripping up the interior or changing the antenna every few months."

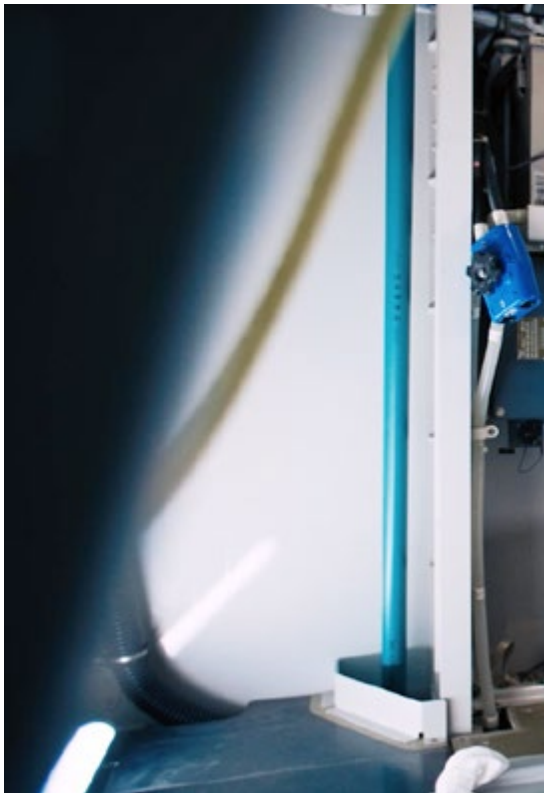
Moore says SD is preparing for the next ten years of phased array and gimbal evolution, noting that the arrays on its Ku and Ka dish antennas are effectively small, phased arrays mounted on moving platforms. While it is impossible to predict every market change, Moore is confident that SD's Plane Simple terminals will place its customers in the best possible place to exploit whatever happens next.

The more immediate future includes the possibility for larger aircraft, Gulfstream 650 or Global 7500, for example, to be equipped with PS Ku and Ka on the tail and ESA on the fuselage. Where data movement and consistency of service are essential – for live trading or critical video calls perhaps – it offers attractive redundancy. It also opens the door for cabin devices and other services to use the most suitable pipe or have a pipe dedicated to one set of functions.

Market complexity

With air-to-ground, GEO, LEO, HEO and, soon, MEO (medium earth orbit) connectivity options, SD has more scope than ever for its agnostic approach to delivering customer experience. Or perhaps the market is becoming so complex that finding the right solution ha becomes more difficult? "I think it means we can give [customers] more great options," Moore says.

On the other hand, SD now manufactures routers, terminals and other hardware, as well as creating proprietary apps. The latter were always a useful value-



Below: The phased array of an ESA is strikingly different in configuration to a more traditional gimballed antenna. Above: SD designs its equipment for minimal intrusion into aircraft structure during installation

add for the customer, but just how agnostic can a provider be with so much equipment in the game? “Our antennas could ‘talk’ to almost any network, so we maintain that integrity towards the customer, that we want to sell them the right solutions to satisfy their requirements. Now we’re able to better do that because we’ve invested in the base-level technology. But if the right solution for them doesn’t include a PS antenna, then we won’t sell them one.

“What clients really appreciate is the value-add services we offer, 24/7/365 support that combines human contact with technical expertise, our second-to-none cybersecurity offering and the fact we invest heavily in training so our customers can maximise their connectivity system.”

“Right now we have several companies out there adding complexity to the market, but I believe we’ll see consolidation, like we have in the mobile phone market. Also, LEO, GEO and so on are currently working as independent systems, but we’re seeing another transition like the mobile phone

Satcom Direct operates a state-of-the-art network operations centre at its Florida headquarters

market. You take your phone or device and expect it to connect to the available network wherever you are, without consciously choosing the network or caring what it is so long as it works. When the aircraft is the device, we see customers effectively roaming as they would with their phone. The wireless environment in the cabin is unchanged, but the aircraft switches to the best available network."

On the ground, Moore says SD has invested in 'massive levels of upgrade' as it works to keep its infrastructure in step with the service it provides. "We've invested into our global points of presence to ensure the internet experience is always snappy, while the large bandwidth available has increased demand within the network. Once, systems handling 2Mbps were sufficient but now they need to handle as much as 200Mbps.

"Investment in our network operations centre has included diagnostic tools, AI and machine learning capability, network monitoring and cybersecurity. All these things evolve constantly and so we invest constantly to ensure we remain cutting edge and enable the network capability."

Head-of-state

Through SD Government, Moore says the company provides connectivity to around 1,000 aircraft and it is not unusual for government customers to want a primary system, alternative and backup, a requirement well suited to SD's dual-dissimilar-plus-ESA offer. Among those customer aircraft, head-of-state platforms offer fascinating possibilities, but how does the process of equipping a government BBJ compare to connecting a private Challenger?

Moore responds: "We draw heavily on our reputation for reliability and honesty. When a BBJ or other large aircraft client comes along we partner with Stellar Blu to provide one of their phased arrays. We have a few active projects installing a Ku GEO/Ku LEO multi-orbit antenna system; we expect to have around five head-of-state airframes flying with that type of capability by year end. We have PS Ku on a head-of-state BBJ too. Because these projects often require multi-orbit capability and redundancy, they enable us to be creative as we define what's possible, albeit the airframes tend to be larger."

It could be said that the entirety of SD's capability sits outside the traditional expectation of an aviation workplace. It does have pilots, engineers and cabin crew, but none in the accepted sense, while most of its staff do very different work. As the industry struggles to find people, how is SD creating its future workforce?

"We've always invested in young people, working with colleges in the US and Europe. We do some interesting technology programmes with US universities and an annual graduate intern programme. Over the past five years we've recruited as many as 40% of those interns," Moore says.

"We also employ lots of people from the military. They aren't all veterans with 25 years' service. Often they have maybe six years and they're looking for a career change. With the rebranding of Comsat to SD Government we made a huge investment in upgrading our skill set. The average age of our staff is in the low 30s. I'm starting to feel quite old..."

Confident that SD is equipped for the future, Moore is willing to predict how the connectivity market might evolve. "I think the capacity debate will get less because we've already seen a step change. MEO offers an interesting network opportunity that might lend itself better to mobility and I think with less focus on capacity there will be more focus on mobility and the most suitable solutions for aviation.

"Then I see the interface into the airframe changing, making it an asset completely synchronised with the ground. Beyond that, interoperability between networks will come as a natural progression, because customers want capability, they want to be able to do what they want to do when they want to do it and they don't care what network they're on." ■

Crafted in Switzerland

PC-12 NGX

PILATUS

MORE PLACES WITHIN REACH, MORE TIME TO ENJOY THEM

The PC-12 NGX can land effortlessly on grass and short runways, as well as at major airports, bringing you as close to your destination as possible. Save your most precious commodity – time – and enjoy all the comfort, style and dependability of Swiss engineering. Whether it is the large luxurious cabin, low operating costs or short-field landing capability, the “World’s Greatest Single” will exceed your expectations.

pilatus-aircraft.com

Call Oriens Aviation, your nearest Authorised Pilatus PC-12 Sales Centre for further information on +44 (0) 7780 811691. www.oriensaviation.com

ORIENS AVIATION

People First

Don Campion, co-founder, President and Head Coach at Banyan Air Service, has a personal story as fascinating as that of the company he built

Just a few seconds listening to Banyan Air Service's pitch while holding to speak with President and Head Coach Don Campion was sufficient to learn the extraordinary scope of the company's offering. Established in 1979, Banyan Air Service has developed a massive private aviation presence at its Fort Lauderdale home in South Florida and, in January 2024, opened a facility at St Augustine. Its first expansion away from Fort Lauderdale in more than 40 years of operations, the new site is dedicated to HondaJet maintenance.

"We're the HondaJet reseller for the south east," Campion begins. "And we work very closely with them when it comes to maintenance. We maintain 50 HondaJets." On the face of it an impressive number alongside Banyan's other maintenance commitments, 50 is also a significant portion of the HondaJet fleet, which totals just over 250 aircraft.

The real story here, though, is that of Banyan and Campion himself. His life and career have progressed from Nigeria, through Toronto to Florida, an unusual geographical journey. Chuckling at the observation, Campion explains: "My American mother and Canadian father went to medical school together, where she became a midwife and nurse, he a doctor, at the University of Toronto. They'd heard about a Canadian missionary who'd visited the village of Egbe in Nigeria and on graduation they decided they wanted to become missionaries too."

The couple travelled to Nigeria to continue pioneering work in the safe delivery of babies in a very rural area. ECWA Hospital Egbe credits Dr and Mrs Campion with its foundation in 1952. "I and my three sisters were born in Nigeria," Campion continues. "They built a grass airstrip and from Grade 1 a bushplane, a Cessna 185 or Piper Comanche, flew us to the mission boarding school about 500 miles away." Campion was either on a path to medicine or aviation. The latter won out.

Toronto was an obvious place for his university studies, while his family remained in Nigeria. "I had a friend two or three classes ahead of me at missionary school and he'd moved to Miami, where he was a flight instructor. He suggested I visit during breaks, so with a couple of other friends we'd jump in my Honda Civic and drive down. He took me to the airports he was working, and I saw more airplanes in South Florida than I'd ever seen in Canada."

Florida and aviation were inevitable destinations, but business aviation looked very different in 1979. “The Miami/Fort Lauderdale region is kind of a crossroads for Latin America, the Caribbean and Bahamas, and a destination for the US. It was mostly a tourist location for private aviation, with lots of traffic just passing though, whereas now, much of our clientele has settled in Florida. They tend to be owners of hotels or light industry, or they’ve come here to start businesses.”

An airplane and a hangar

Banyan started out as a small hangar and one aircraft. Today it occupies a sprawling complex. Was that expansion carefully planned? An amused Campion responds: “When you set up a business as a young person you don’t really have a strategic plan. I was drawn to the technical side of aviation, making aircraft ownership a pleasurable experience. Now, we have 1.2 million sqft of hangars and offices over 110 acres.

“By 1984 I’d outgrown my original shop. There was a facility on the airport, a ‘mini FBO’ with a fuel tank, and I approached the owner, a builder called Jerry Holland, as its lease came to an end. By the grace of God he rented it to me, a young kid who’d never been in the FBO business. The shop’s success was based on teamwork and customer service, and the FBO became really busy because we did things for the customers that they never asked for. If they were going to be away for a few days we’d ask if we could wash their car, for example. Through offering little perks like that, our customers became our best advertisement, telling their friends about this bunch of young people who were crazy with service and hard work.”

Impressed with Campion’s success, Holland opted to work alongside him. “The main reason we haven’t expanded to other airports until now is because I managed to acquire four of our competitors. I purchased the assets and then worked with Jerry to extend the lease with the promise of new building and investment. Here we are now, with more than 600 based airplanes and a complex supporting about 1,000 airplanes at what’s turned out to be one of the busiest non-airline airports in America.”

“Our company is built on trust and teamwork, people before profit. We invest in our people. We want them to have an aviation career”

Don Campion, co-founder, President and Head Coach at Banyan Air Service

HondaJet maintenance at Fort Lauderdale

Banyan service

Living up to such a legacy might be challenging, especially considering there are other FBOs on the field, but Campion says the customised service specific to aircraft owners and crews that Banyan offers is key to its continuing success. "We know the principal's family. We even know if they like a white car, if they prefer a Toyota or Mercedes. Our company is built on trust and teamwork, people before profit. We invest in our people. We want them to have an aviation career. They are a very special group of teammates."

That is a fact borne out by Banyan's presence on social media, where almost every post seems to be about an employee social, charity event or community outreach. "Our place in the community is close to my heart," Campion states. "I view our business as a front door to the city of Fort Lauderdale. When people fly in to decide if they want to build a hotel on the beach, their very first and last impressions of the city are the professionals at our FBO. We have city officials who come out for a tour because they've heard our vision is more than a money-making enterprise."

Looking ahead, Campion sees technological advance pushing the industry forward, especially in connectivity. A pilot himself, he points to the 'return to home' button that will feature in the HondaJet Encore as a tremendous safety feature. "I see aviation progressing and service needs to keep up. We have five people on staff working on our own operations software. There are iPads on our golf carts, so we know about the aircraft, its crew, catering requirements and all that as we drive up."

The spectacular lobby of Banyan's FBO

Campion is as enthused by aviation today as he was when he began flying to school so many years ago. Does he have a favourite aeroplane? After careful consideration he declares: "I like the Pilatus PC-24 and I love the HondaJet. They both started from a clean sheet. The HondaJet has digital 3D manuals where you can rotate parts, and the airplane diagnoses itself. And I like the PC-24 because it's easy to work on. It's a smart mechanics airplane with a lot of common sense built into it. And you can land it on an unimproved strip. Both airplanes are very innovative and learn from the best traits of other airplanes to build something new." A similar observation on innovation and best traits could easily be applied to Don Campion and the business aviation phenomenon he has built. ■

Banyan Air Service is careful to look after crew

gogo BUSINESS AVIATION

Your success is driven by staying connected.

Why accept less at 40,000 feet?

Gogo Galileo.
Affordable high-speed connectivity for every business aircraft, everywhere.
gogo.to/3bz

LEARN MORE

People to People

Stevens Aerospace and Defense Systems has been serving business aviation customers since the late 1940s. Director, Sales & Marketing Phil Stearns explains how it grew from a textile business and continues to expand

So often an aviation story is more than it appears. Such is the case with that of Stevens Aerospace and Defense Systems, well known to the business aviation community as an MRO provider with fixed locations in Greenville, South Carolina; Nashville/Smyrna, Tennessee; and Atlanta, Georgia. The company also boasts a large and growing fleet of AOG trucks and response teams serving the entire US and with international AOG dispatch capability.

That, combined with the company's reputation for quality and service, might be enough, but there is more to Stevens Aerospace. Its story began in 1899, when John Peters Stevens founded J.P. Stevens Textile Corporation. By the late 1940s, J.P. Stevens was among the world's largest textile manufacturers, with a fleet of corporate aircraft operating out of South Carolina.

Phil Stearns, Director, Sales & Marketing at Stevens Aerospace and Defense Systems, takes up the tale: "Several technicians were recruited to maintain the fleet and Stevens Aviation soon branched out to service other aircraft on its own field and in the surrounding area. Stevens grew to several repair station locations and became one of the country's largest Beechcraft dealers. Today, Stevens continues with multiple locations working private and corporate aircraft, from turboprops to large cabin jets."

An early Beechcraft specialist, Stevens Aerospace remained with the brand as it evolved to become part of Textron Aviation. Today, Stevens specialises in Textron products, including King Air, Citation and Hawker aircraft. The story is slightly different in Greenville where, Stearns

Stevens Aerospace and Defense Systems has a long association with Textron products, exemplified here by a King Air turboprop and Hawker jet at the Nashville/Smyrna facility

explains: "The offer is furthered, mainly due to facility size, to include large cabin aircraft from Bombardier and Gulfstream. Greenville also carries authorised service centre ratings from Embraer and Piaggio."

Stevens is part of several authorised service centre networks. "As a service centre, the OEM not only trusts us to do the work, but also allows our customers to exercise the privileges of their warranty," Stearns continues. The company also holds multiple STCs for avionics, connectivity, engine and airframe upgrades, Stearns noting: "We focus on STCs and PMA [parts manufacturer approval] parts that make sense for our customers. We maintain our service centre status by submitting to the required training and securing the proper resources, like tools and equipment."

Speaking late in January 2024, Stearns was happy to report Stevens AOG teams at 15 locations across the US, within a network that is growing every month. "Our highly skilled AOG team technicians are strategically located with mobile support units. And we aren't simply 'adding' locations. We also 'relocate' regularly as the seasons affect different regions. The bottom line is that we are located where people fly and shift our locations to meet those needs.

"I believe that what truly sets us apart is the collaborative culture within our AOG organisation as we bring experienced self-driven technicians and managers from the aviation maintenance industry together with one over-arching purpose – get customers back in the air safely as fast as possible. It all starts with the initial call to AOG service. Our 24/7 dispatchers are A&P [Airframe & Powerplant] technicians who start diagnosing the issue immediately while simultaneously arranging for service technicians and parts, if needed, to arrive on site in the most efficient manner."

Design and more

Seasoning its engineering with just a sprinkling of art, Stevens also offers full paint and interior refurbishment services for turboprop up to large cabin jets. Paint is worked at Greenville, while both Greenville and Nashville/Smyrna have cabin refit capabilities. From soft goods to complete cabinetry refurbishments, Stearns declares: "Our experienced teams offer expert-level craftsmanship and take pride in delivering the most intriguing designs. Our in-house design services can create 3D renderings for paint and interior projects, which are delivered and reviewed during the customer specification design session. It means they get to see and experience their project before we ever touch the plane."

Setting aside Stevens' comprehensive corporate and private aviation capability, the 'Defense Systems' component of the company name relates to its work for the US Army and US Navy, performing major aircraft condition inspections (ACI), heavy structural repairs, strip and paint, interior refurbishments and avionics modifications on C-12, C-26, T-34, T-44 and UC-35 aircraft.

"Stevens has been the US Army Fixed Wing aircraft depot since 1995 and a US Navy depot since 2014," says Stearns. The arrangements make sense when one realises the Army C-12 fleet comprises King Air B200 and Beech 1900 models, while the C-26 is a militarised Metroliner and the UC-35 a Citation 560. The US Navy's T-44, meanwhile, is a King Air C90 derivative, leaving the T-34 Turbo-Mentor as the only non-civilian-derived aircraft on the roster.

Lastly, Stevens is also a factory paint facility for the Embraer A-29 Super Tucano and provides paint services for Sierra Nevada Corporation's Pilatus PC-12 operation.

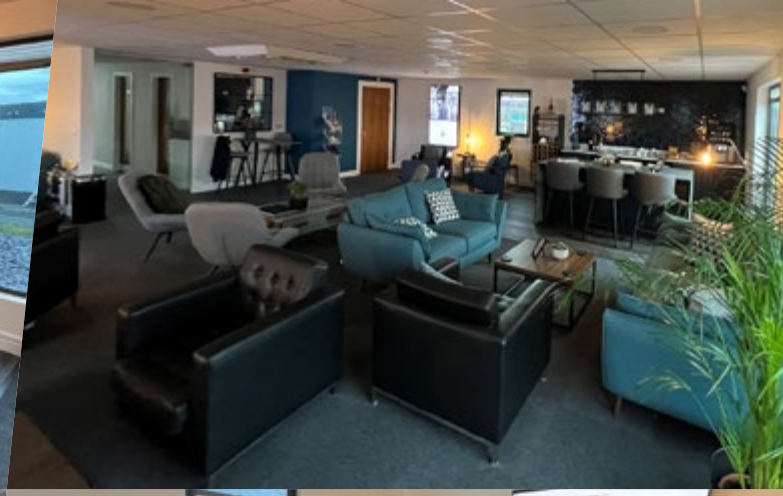
Positive people

The story of Jim Williams and his 50 years with Stevens Aerospace and Defense Systems is writ large on the company website. It is not unusual for aviation people to find themselves hooked into the industry, but few remain with the same company for five decades. What's the secret to keeping staff so long?

Stearns explains: "An outstanding individual, Jim runs part of our government programme. He's had a great impact on company culture and one of the reasons why is that Stevens' principles and his go hand in hand. We start by making employees part of the company. We treat them with respect and appreciation as part of the Stevens family.

"Our 24/7 dispatchers are A&P technicians who start diagnosing the issue immediately while simultaneously arranging for service technicians and parts, if needed, to arrive on site in the most efficient manner"

Stevens' Mobile Support Unit teams operate across the US



XLR
EXECUTIVE JET CENTRES

Executive.Luxurious.Reliable

Travel like no other

Step inside the new, spacious and luxurious lounge at XLR Liverpool.

With a stunning bar for watching the football with a beer, enjoying Liverpool Gin with friends or sipping a flute of fine champagne with the girls before you fly; XLR Liverpool really does look after your passengers and takes luxury to another level.

With the largest private security facility at Liverpool Airport, XLR Liverpool really is the only choice for those wanting to give their passengers the best start to their trip.

www.xlrjetcentres.com

Liverpool
jetcentre@xlrliverpool.com
0151 317 9325

Exeter
jetcentre@xlrexeter.com
01392 354 995

Birmingham
jetcentre@xlrbirmingham.com
0121 663 1450

Bournemouth
jetcentre@xlrbournemouth.com
01202 364 401

Private security and pet travel scheme facilities are available at:

- Liverpool
- Birmingham
- Bournemouth

Then we give each team full ownership of its part of the operation.

"On the government side we are dealing with the warfighters' aircraft, giving real purpose to the product that's being delivered. On the corporate side we understand that the plane helps keep the economy running and that it might carry someone's family. We never forget these things. We respect our staff's opinion and make them part of the team with defined objectives, a felt purpose, and clear standards in a quality and respectful workplace and through that we serve our customers better."

Conversely, the global aviation industry is struggling to recruit young people. How is Stevens Aerospace securing its future workforce and, by extension, the future of its business? "It starts with giving young people the knowledge that corporate aviation is a great career path and offers a wonderful lifestyle," enthuses Stearns.

"Stevens works with students at high school, trade school and college level, introducing them to private aviation and the many career paths available. But it's more than that. Stevens also educates them on the value of business aviation to the local and global economy, giving them the opportunity to hear and experience first-hand the good the industry produces. We also educate on how business aviation has been driving efforts for cleaner sustainable flying for many decades."

Signalling the future, Stevens' Nashville/Smyrna location opened in 2022 as a purpose-built facility that Stearns says was designed to deliver the highest customer and employee experience all the way through the MRO process. "Modelled after our Greenville facility, Nashville/Smyrna stands as a world-class, working example of how customer interaction and high-level aircraft service should be achieved," he states. "It was set up to 'duplicate itself', with an identical second hangar on the same lot as the new facility reached capacity. It has also added a full interior shop and bottle testing capability, growing to meet customer needs while simultaneously reducing costs."

Stearns advises keeping an eye on the news for details of more expansion plans, noting: "We are actively looking for and pursuing opportunities to grow our footprint in the corporate and military/government divisions – and not always by acquiring or starting a new MRO."

Beyond that cryptic comment, he further addresses the future: "I see the MRO market evolving and improving in several ways. One would be the ongoing quest for efficiency through a continued focus on processes and options. This will ultimately decrease the total event downtime and effective costs for both the customer and the shop.

"Another would be further development into predictive maintenance whereby

The largest of Stevens' facilities, Greenville adds large cabin jet capability, here exemplified by a Global

through years of data gathering we can see when things 'might' fail and get ahead of that future event, helping decrease unscheduled maintenance and increase dispatchability. Through these and other changes and improvements, we still need to improve our focus and look through the eyes of our customer, literally asking: 'If we changed this, would it matter to you, would it make a difference?'

"In the end, we are still a people-to-people business, so everything must be done in the light of safety first, then of its positive effect for the customer and our family of employees." ■

Although parts of the Constellation's airframe are highly polished, Sherwin-Williams provided coatings for the upper surfaces, national markings, stripes and titles. Sherwin-Williams' Julie Voisin confirms that the scheme used Threshold Bianco White, Threshold Midnight Blue and Black from the company's Jet Glo Express range, SKYscapes General Aviation Diamond Silver Metallic and SKYscapes General Aviation Clearcoat.
Scott Slocum/Air Legends Foundation

Bringing Back *BATAAN*

Warbird collector and pilot Rod Lewis has returned the VIP aircraft General Douglas MacArthur used during the Korean War to airworthiness, and Sherwin-Williams provided the paint

“Did you know we provided the coatings for a Constellation restoration project?” asked Julie Voisin, Sherwin-Williams Market Segment Manager – Aerospace, Automotive OEM Interiors & Commercial Fleet, at the 2023 NBAA show in Las Vegas. We didn’t, but we wanted to know more.

The aeroplane in question was Lockheed VC-121A Constellation 48-613. Built as a regular C-121 transport, it flew during the Berlin Airlift and was then modified as a VC-121A. The ‘V’ prefix means ‘VIP’, more than sufficient justification to feature it in *EVA*!

Named *BATAAN*, in its VIP role 48-613 became the personal transport of General

BATAAN *in Korea, in 1950.*
National Museum of the US Air Force

Threshold Aviation Group in Chino, California, applied the aircraft's paint. *John Parker/Air Legends Foundation*

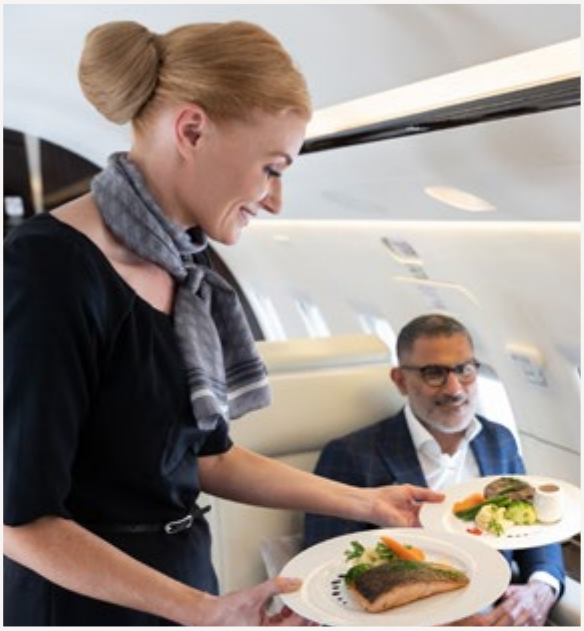
Douglas MacArthur during the Korean War. It continued in US Air Force service until 1966, then worked on NASA's Apollo programme, before settling at the US Army Aviation Museum. Moved to the Planes of Fame Air Museum, *BATAAN* flew again in 1993, but proved too costly to operate.

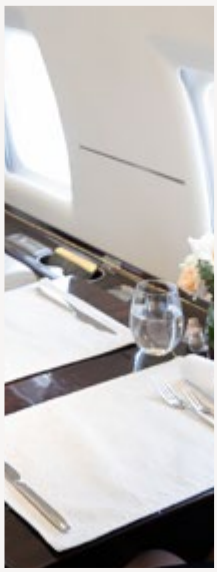
In 2015, warbird collector Rod Lewis, founder of the Lewis Energy Group, Lewis Air Legends and the Air Legends Foundation, acquired the Constellation. He commissioned famed warbird restorer Steve Hinton and his Fighter Rebuilders company to restore the aircraft for flight, and 48-613 returned to the air on 20 June 2023.

At this point, Lisa Snow, PR & Special Projects Consultant for the Lewis Energy Group, picks up the story.

DC AVIATION

PASSION FOR EXCELLENCE





When German Quality Meets Arabian Hospitality...

You get DC Aviation Al-Futtaim

For you, only the best will do. That's why our unmatched FBO and VVIP hangar facilities at Dubai South guarantee the highest levels of luxury, comfort and privacy every time you fly. As a joint venture between DC Aviation, a leading German business jet operator, and Al-Futtaim, a UAE business conglomerate, we know how to bring you the best services business aviation can offer.

Get in touch with our team today to experience our passion for excellence.

www.dc-aviation.ae

DC Aviation Al-Futtaim LLC, Al Maktoum International Airport,
Aviation District, Dubai South, P.O. Box 644314, Dubai, U.A.E.

T: +971 (0)4 870 1800 E: ops@dc-aviation.ae

Stuttgart | Dubai | Malta | Munich

Julie Voisin says a sound partnership between Threshold Aviation and Sherwin-Williams resulted in the latter's coatings being chosen. "Our Global Technical Services Manager, Richard Giles was completely engaged on the project from the beginning, providing guidance through product selection and colour matching to application," she says. John Parker/Air Legends Foundation

Air Legends and *BATAAN*

"Rod Lewis began collecting warbirds in the early 1990s, but only decided to put a name and brand to the collection in 2009. That's when he created Lewis Air Legends. Then, in 2020, he realised he wanted a long-term plan for the collection. He wanted to be sure the aircraft continued to be maintained, flown and accessible after he'd gone. The Air Legends Foundation is therefore a legacy to support them long-term as a collection. Aircraft are gradually moving into the Foundation and that transition already includes the Constellation."

Externally immaculate after eight years of restoration that began with reducing it to components, *BATAAN* currently lacks a cabin interior. This is being rectified during 2024, with a 24-seat layout planned. Effectively a modernised version of the aircraft's 1950s' VIP fit, it will feature a bar, just like the original, plus monitors. "The aircraft has a camera system, and the screens will allow passengers to see what's going on outside. We're including some historic items and photographs in the design as well," Snow says.

Once its cabin is complete, *BATAAN* will return to the airshow circuit as a dedicated warbird, the Lewis Energy Group relying upon a flight department equipped with modern fixed-wing aircraft and helicopters for its corporate needs. The company operates throughout southern Texas, in Colombia and Mexico, and Snow says its aviation use is diverse.

Including Bell 407 and 429 helicopters, two Cessna Grand Caravan turboprops and a Citation Latitude jet, and a Gulfstream G600, the fleet provides for the rapid deployment of specialist personnel and equipment into the company's more remote operating locations, plus its transcontinental and international requirements.

Meanwhile, *BATAAN* represents perhaps the ultimate VIP aeroplane and through the Air Legends Foundation, the 76-year old aircraft should remain flying for decades to come. ■

Ireland's Executive Airport

Billed as Ireland's only dedicated executive airport, Dublin Weston Airport is well positioned to serve the capital's business and VIP aviation needs. Operations Director and Security Manager Stephen Donnelly spoke with *EVA*

Dublin Weston Airport was founded in 1931 and has since variously housed airline operations and business aviation, with flight training a constant theme. Is this heritage important to today's airport community?

Since the change of ownership of Weston Airport in November 2021, there has been constant work undertaken to improve and upgrade the terminal building and airfield. In the main reception area there is a 6ft x 6ft backlit picture of Weston in the early 1950s, immediately underlining the long history of aviation at this location. There is rarely a day that goes by without conversations involving aviation stories from Weston's past. There are plans to further highlight Weston's history as the terminal building construction work nears completion this year.

The airport has undergone several rounds of refurbishment, gaining a hard runway in the 1980s, then new/upgraded buildings throughout the 2000s, while work on the FBO continues. What facilities does the airport offer business/VIP flyers and what is the largest aircraft you regularly handle?

We are in the process of developing our FBO to meet all our current and future customer needs, but right now we offer full executive and dedicated crew rest lounges. We expect to have a full FBO, airfield lights, runway grooving and instrument procedures in place by early summer 2024. We regularly see King Air, PC-12, PC-24 and Phenom 300 turboprops and jets, and plan to extend the runway in late 2024 or early 2025.

The terminal has a new restaurant. What experience does it offer?

Hook and Ladder opened in summer 2023. Already award winning, it has been a huge success. It offers stunning views across the airfield, all the way to the Dublin/Wicklow mountains. Our VIP passengers may order a meal from the restaurant to enjoy in the lounge.

What transfer services do you offer?

Weston offers secure, discreet and swift transfers for VIP/business customers. We have a full private transfer partnership with Devine's Chauffeur Services, and we have many golf enthusiasts who land at Dublin Airport, private transfer to Weston, and then helicopter onwards to golf courses including Hogs Head and the Old Head Kinsale.

How are ground services handled?

The airport operates its own handling equipment with trained, experienced in-house staff. We have supplies of Jet A-1 and Avgas and we're working on supplying

unleaded mogas fuel for several Tecnam aircraft based here.

Weston has extensive hangarage. Do you have resident business aircraft? Any MRO providers on site?
Pilatus PC-12, King Air and Cessna Citation aircraft are based at Weston. There is a Part 145 maintenance facility on site with our partners in the National Flight Centre.

How is the airport working to meet sustainability goals? Is SAF available?
We are very mindful of being as sustainable as possible, which is why we are looking to stock unleaded fuel that will enable the Tecnams to switch from Avgas. Our main aircraft towing machine is battery powered, reducing the need to use a petrol tug. SAF is currently not available, but we remain committed to reducing emissions where possible.

The first Bristow S-92 helicopter recently landed at Weston ahead of a new Irish Government search and rescue contract. The airport will be a new SAR base. What does that mean in terms of infrastructure and operations going forward?

We are very excited about the Bristow announcement and a request for planning permission has been submitted to South Dublin County Council for a SAR facility at Weston Airport. More news will follow.

Weston Airport is an Irish Business and General Aviation Association (IBGAA) member. What's the significance of that membership and how do you see business aviation developing in Ireland over the next couple of years?

Weston Airport is committed to offering Ireland's first dedicated executive airport, along with a friendly, professional and timely service to business executives and crews. We are proud to be closely linked to the IBGAA, and looking forward to the next few years as we expand and improve the airport to become a recognised centre of excellence for business aviation in Ireland. ■


• Flight Planning
• Overflight and Landing permits
• Ground Handling
• Fuel
• Weather and Notam services
• Hotel Accommodation
Flight Assist
YOUR FLIGHT OPS PARTNER
Telephone: +44 (0)7748 635421
Fax: +44 (0)8452 800159
Email: occ@flight-assist.com
ARINC: HDQFA8X
AFTN: KLGWFJEO
www.flight-assist.com

***Mark Burns** after receiving the Lifetime Aviation Industry Leader Award during the 21st Annual Living Legends of Aviation Awards ceremony on 19 February. Jim Koepnick*

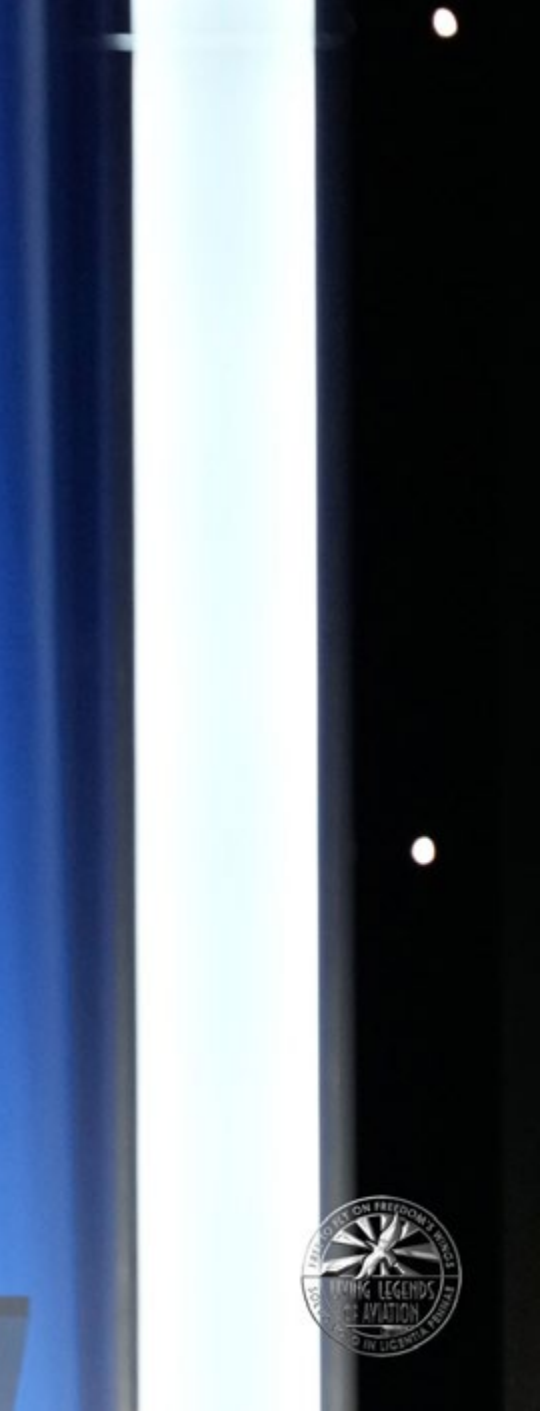
Aviation Legend

Gulfstream President Mark Burns has received a Lifetime Aviation Industry Leader Award. He reflected on the honour for *EVA*

There is often much to learn from a well-organised LinkedIn profile. On 22 January, Gulfstream announced that its president, Mark Burns, had received the Lifetime Aviation Industry Leader Award during the 21st Annual Living Legends of Aviation Awards ceremony. The press release noted: "Burns joined Gulfstream in 1983 as a computer-aided design operator and worked in numerous areas across the company, including Engineering and Customer Support, before being named president in July 2015."

Could it really be that a Savannah-born engineering graduate of Georgia Southern University joined a Savannah company straight out of college and never left? Indeed it is, and Burns' LinkedIn profile is testament to that fact. At the time of writing, under 'Experience', his profile stated 'Gulfstream Aerospace. 41 yrs 2 mos'. Three roles since 2008 are listed, then 'Show all 15 experiences'. Those 15 document an astounding career progression, all of them at Gulfstream and beginning with 'Draftsman/Illustrator. Full-time. 1983 – 1984 • 1 yr'.

Highlights in more than four decades of service include a spell in flight test engineering, plus an evolving focus on customer support, culminating in four



"Over the years, I've been fortunate to witness how the innovations in our next-generation fleet have transformed the business aviation industry"

years as President, Customer Support, before Burns stepped up to his current role.

Looking back, he said: "I've been fortunate enough to serve Gulfstream in various roles throughout my 40-year career and that has helped shape my evolution as a leader and my appreciation for the value of our amazing team."

Asked about the Lifetime Aviation Industry Leader Award, his response came as no surprise: "This recognition is very humbling for me, but I think it's really a testament to the more than 20,000 Gulfstream employees who are some of the best in our industry. Receiving this award is a tribute to their success in designing, developing and supporting the most advanced business aircraft in the world. And they do so with the utmost integrity – that's our company value, and it drives everything we do."

Some industry leaders head companies with which they had a past association, others come in to lead, but few have worked through the ranks to their current position. What has been Burns' motivation to do exactly that? He says it is simple: "Gulfstream's tradition of exceeding customer expectations and delivering on promises has been a guiding force for me."

Burns has steered Gulfstream through major investment, overseen customer support expansion and the rollout of a series of advanced aircraft.

"Over the years, I've been fortunate to witness how the innovations in our next-generation fleet have transformed the business aviation industry," he enthuses. "When you see how our aircraft continue to advance, alongside our overall production process and expansion of the customer support network, the big picture of what Gulfstream has achieved is astounding. It is also the result of incredible teamwork."

While Burns declines to nominate a favourite Gulfstream model, he admits: "I do have a fondness for the GIV because it was the first Gulfstream aircraft I was fully immersed in."

As the recipient of a lifetime award, does he feel the job is done? Not at all. "I look forward to continuing to work together with the Gulfstream team to accomplish our shared goals as we continue to innovate and shape the path forward for our industry," he says. ■

On 31 October 2023, Burns opened an expansion to Gulfstream's Savannah manufacturing facility specifically for the Gulfstream G400, G500 and G600. Gulfstream

CAE's London Burgess Hill training centre. CAE

A New Reality

Flight simulation is taking pilot training to new levels, as *EVA* found out from four of the industry's leading players

Many business and VIP aviation pilots are ex-military or high-hour commercial flyers, but plenty of others progress directly from flight school into the left-hand seat of a light jet or turboprop. Depending on their origin, their training journey to that seat is quite different, yet flight simulation will have played a significant role for all of them. Recurrent and type conversion training subsequently takes pilots back to the simulator at regular intervals to practise emergency procedures and perhaps learn upgrades or new capabilities.

There are some very well-known names in the flight training and simulation business, CAE and FlightSafety International prominent among them, while companies at the smaller end of the spectrum include AXIS Flight Simulation and Loft Dynamics. All have a significant role to play in business aviation simulation.

A preferred training provider for Bombardier, CAE also operates a joint venture with Embraer (Embraer CAE Training Services – ECTS) for Phenom 300 training, and a global network of 19 business aviation and helicopter pilot training centres, with two more coming in 2024. Business aviation simulation is delivered exclusively through its training centres and a CAE spokesperson notes: "We have simulators in operation for Beechcraft, BBJ, Bombardier, Cessna, Dassault, Embraer, Gulfstream, Hawker and Nextant aircraft. For helicopter training, we operate simulators for Airbus Helicopters, Bell, Leonardo and Sikorsky models."

Just 20 years ago, CAE was primarily a product manufacturer, with only 15% of its output service delivery. Today, it delivers approximately one-third products and two-thirds services. "CAE manufactures equipment for every step of a pilot's training, from the Simfinity desktop virtual simulator for ground school, to fixed-base flight training devices and high-fidelity full flight simulators (FFS). CAE also offers a full host of aftermarket and support services for its devices," explains the spokesperson. The fixed-base devices are typically accurate 'cockpits' with a connected instructor's station and visuals provided either on screens at the cockpit windows, or outside the cockpit glazing.

The CAE spokesperson continues: "Our full flight simulators are Level D compliant, the highest qualification level for flight simulators. They include enhanced vision displays, heads-up displays, radar data, datalinks and more to perfectly

Experience the future of pilot training

Garmin G500H TXi and GTN650 avionics suite

Fly Virtual. Train Real.

Loft Dynamics

loftdynamics.com

AXIS Flight Simulation recently delivered this Challenger 650 FFS to Rega. AXIS Flight Simulation

replicate real aircraft. We employ advanced modelling and simulation techniques to recreate the complex details of aircraft systems, ensuring an immersive and true-to-life training experience. Each simulator includes an instructor station or 'control centre', equipped with screens and software allowing the instructor comprehensive control over the simulation. From this central hub, instructors manipulate various parameters, including weather conditions, scenarios and more."

FlightSafety International (FSI) similarly manufactures a gamut of simulation systems and delivers training through a global network of strategically located centres. First considering how the equipment is built, Michael Vercio, EVP Simulation Systems at FSI, explains: "There are effectively two major components to a simulator. First, the aircraft shell, with the instrumentation and everything that defines the aircraft, then the rest of the simulator, including the motion system, base, visual systems, image generators and databases. We recently rolled out a more energy efficient, lighter and more modular simulator technology. It's helped us improve customer turn times because we can build standard items in advance."

Regarding aircraft specifics, Vercio says: "We get a lot of IP and aircraft components from the OEMs. We fabricate the shell, install the cockpit and instruments and then integrate the avionics package with the simulator operating system."

Vercio says the process for building helicopter simulators is very similar, but employs a different platform and, typically, revised visual systems. "We use telescopic glass mirror technology for better optics in the unique rotary-wing operating domains and combine it with a secondary motion system. We can include chin and eyebrow windows that coordinate with the image generation system to simulate the helicopter outside views. In terms of visuals we have modelled oil rigs, hospitals, rooftops and even vessels. We can customise the simulator to virtually any location the customer requires."

Based in Austria, AXIS Flight Simulation also develops advanced Level D simulators, flight training devices including flat panel trainers, web-based FMS/GNSS (flight management system/global navigation satellite system) trainers and avionics simulation devices, but specifically for business jets and commercial regional aircraft.

In November 2023, the company announced successful qualification of the first Level D Challenger 650 simulator in Europe, ahead of its delivery to Swiss Air Rescue Rega. Christian Theuermann, CEO of AXIS Aviation Austria and a member of AXIS Flight Simulation's executive board, reveals: "Lufthansa Aviation Training operates the simulator on Rega's behalf. It has a rehosted Collins Aerospace Pro Line 21 avionics solution and Honeywell Mark VA EGPWS [enhanced

An AXIS Flight Simulation FFS, complete with instructor's station at the rear. AXIS Flight Simulation

ground proximity warning system]. It uses a 200x40° FOV [field of view] Collins Aerospace EP8100 visual system and an E2M motion system. Windshear warning, synthetic vision, LPV [localiser performance with vertical guidance] approach, autothrottle and other advanced options are included, and it simulates 87 airports from around the world."

AXIS Flight Simulation has so far delivered FFS to third-party training providers across Europe, Asia and the US, for bizjets including the Citation XLS/XLS+/CJ1/CJ1+ and Challenger 650; it expects to supply a Challenger 350 simulator by the end of 2024. It comes as no surprise that AXIS Aviation aims to train its own pilots on AXIS Flight Simulation devices, albeit those flying the Falcon currently use another manufacturer's simulator. Theuermann says the eventual goal is for all AXIS Aviation pilots to train in AXIS Flight Simulation equipment.

With its EASA qualified flight simulation training devices, Switzerland's Loft Dynamics is the only manufacturer of VR flight simulation training devices whose users receive credits towards flight training and checks. "Our simulators include a 360°, 3D visual system providing a high-resolution panoramic view, a six-degrees-of-freedom motion platform and a full-scale replica cockpit, with our unique pose tracking system," says Fabi Riesen, CEO and founder of Loft Dynamics.

"An important advantage is that the perspective changes when the pilot moves. This enables precise manoeuvres close to the ground using any outside reference, as a pilot would in a real helicopter. Our simulator even represents sun effects, including shadow inside and outside the cockpit," he adds.
Loft Dynamics customers also benefit from comprehensive support, covering installation, maintenance, training and regulatory approvals.

Test pilots

Upset prevention and recovery training (UPRT) has gained prominence in recent years after a handful of infamous incidents in which experienced pilots found themselves outside the normal parameters of flight and ill equipped to recover. Such events typically involve unusual, unpredicted aircraft attitudes or behaviour and the simulator may not, at first glance, seem the ideal place for UPRT.

Indeed, there is no substitute for experiencing unusual attitudes in flight. Rolling inverted is something many pilots rarely if ever experience, while the sudden onset of a deviation from normal flight can lead to 'startle' effects that cloud thought process and slow response times. Inflight experience and training in counter-intuitive recovery techniques are therefore essential, but advanced simulation has a role to play too.

The CAE spokesperson explains: "Once a foundation of UPRT aerodynamics and recovery procedures has been taught

FlightSafety International Falcon 2000LXS FFS. FlightSafety International

FlightSafety International G550 FFS. FlightSafety International

and understood, building upon those experiences in type-specific aircraft simulator training can address aircraft-unique behaviours and pre-upset indicators crew should be familiar with to avoid an upset – the 'P' for prevention in UPRT.

"CAE has business aviation simulators certified in accordance with EASA FCL.745 advanced UPRT course requirements at locations in the Americas and EMEA. The data-packages addressing behaviour outside the normal flight envelope were carefully implemented, and each simulator trialled by a test pilot who conducted on-aircraft flight testing to ensure fidelity in the simulator."

Stepping back in the simulator journey, it is important to remember that pilots must also train on type-specific Level D simulators before a new aircraft model enters service. That means companies like CAE and FSI need early access to pre-production aircraft, OEM data and test pilots. Doug May, EVP Operations at FSI,

Castle & Cooke AVIATION

Nonstop excellence.
Nonstop elegance.

KVNY - Van Nuys, CA
818-988-8385

PHNL - Honolulu, HI
808-548-2948

LEARN MORE

Fuel ▪ Ground Handling ▪ Catering ▪ Hangar Storage ▪ Customs

CastleCookeAviation.com

AVFUEL

explains the process: "We typically work hand in hand with the OEM, ensuring developments in the airplane are reflected in the simulator. We also work with the OEM's test pilots to make sure the simulator represents the airplane not only quantitatively, but also qualitatively."

VR, MR & AR

Flight simulator technology has kept pace with aircraft development but new technologies, including extended reality (XR), which refers to virtual reality (VR), mixed reality (MR) and augmented reality (AR), are taking simulation itself to new levels. CAE says: "We are using VR with the CAE 700MXR aimed at the advanced air mobility space. It integrates virtual reality and mixed reality using high-precision head and hand tracking to provide an immersive experience with accurate tactile feedback of flight controls. It also employs the Prodigy image generator and Unreal Engine for 360° field-of-view high-fidelity visuals."

At FSI, Vercio says a wide variety of mixed reality (MR) and augmented reality (AR) products is available. "At our manufacturing facility we have a full set of MR products using state-of-the-art VR glasses and what we call 'small motion systems'. Ultimately though, we build what our customers are looking for, according to our belief that we must deliver the highest standard in Level D training. The other thing to consider is that while we have the products and integration, the authorities are still working to decide how much training credit they'll give for MR and AR – we're working with EASA on MR technology for the eVTOL market."

There is perhaps no greater exponent of VR in flight simulation than Loft Dynamics. With the advent of VR headsets, Loft Dynamics CEO and founder Fabi Riesen saw potential in combining VR with motion, to create a new-generation flight simulation device. EASA saw its development work in 2018 and although there was still much to do, realised its potential under the regulator's Rotorcraft Safety Roadmap. In 2021 Riesen's company, then known as VRM Switzerland, received EASA qualification for its VR helicopter flight simulator, the first such approval ever. EASA Level 3 flight simulation training device (FSTD) approval for VRM Switzerland's H125 VR FSTD followed in 2022.

Rebranded as Loft Dynamics for 2023, the company began selling its FSTDs, for H125 and R22 helicopters. The high-fidelity VR technology makes the devices more compact and lighter than traditional equipment, allowing smaller helicopter operators to install them in the loft space above hangars, and many have. It is also possible to install an H125 FSTD in a trailer and tow it behind a car.

Loft Dynamics recently opened a Flight Simulation Hub in Santa Monica, California and Riesen reports: "We've integrated simulators with flight schools, helicopter operators and regulatory organisations, from Airbus Helicopters to the FAA. We also just announced that the

Loft Dynamics' VR FSTD is small enough to fit in a loft or an office space. Loft Dynamics

FIRST EUROPEAN PREMIUM NETWORK

FRANCE
SPAIN
PORTUGAL
ITALY
BULGARIA
CYPRUS
GREECE

SKY VALET
SUR MESURE. RELIANCE

EBAA European Business Aviation Association
member of NBAA
IS-BAH Certified
SAFETY 1st Gold

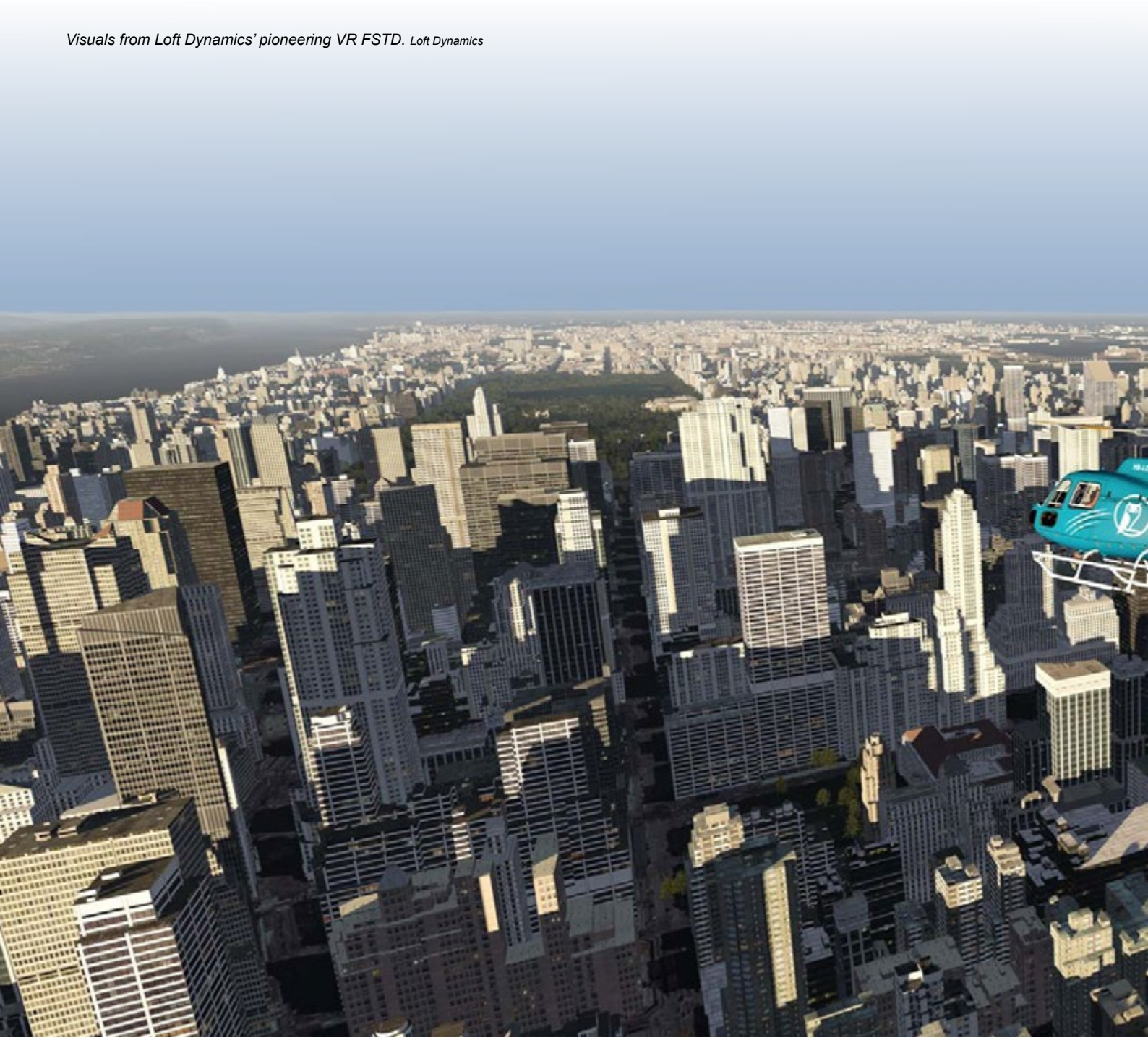
www.skyvalet.com
LinkedIn

LAPD Air Support Division, the largest municipal airborne law enforcement operation in the world, is purchasing our H125 VR FTSD."

Virtual reality is especially effective for helicopter training, since rotary-wing pilots spend considerable time close to the ground, flying precise manoeuvres at slow speeds. Loft Dynamics' training scenarios and visuals expand with every customer, while Riesen confirms that the system is adaptable to other aircraft models. Could an ACH145 pilot train for yacht landings on a Loft Dynamics VR FSTD? "Absolutely," says Riesen, "and simulation is possible without restrictions, so we could include seagulls, deck furniture blown by downwash and other hazards to suit customer requirements." He also claims: "Our FSTDs are 20 times less expensive and ten times smaller than traditional flight simulators."

AXIS Flight Simulation more than keeps up with the larger players in its exploitation of new and emerging technologies. Theuermann explains: "We've created Smart Training to ensure best simulator practice. It includes on-demand, customised training services; cloud-/web-hosted and VR, AR [augmented reality] and XR [extended reality] training services; virtual instructor options, including self-instruction and training sessions management with features including data-driven solutions; a cloud-hosted library of lessons, scenarios, graphics and customer loads (including 'bring your own aircraft specification'); infrastructure to support autonomous and independent training; personalised training,

Visuals from Loft Dynamics' pioneering VR FSTD. Loft Dynamics



including mobile iOS with AI instructor; and briefing/debriefing."

Theuermann also notes AXIS Flight Simulation's Intelligent Re-hosting Integrated Solution (IRIS). "It's unique to the market. Our own rehosted avionics platform, IRIS tremendously simplifies flight simulation software management."

Referencing the oft-used military mantra, 'fly like you train, train like you fly', FSI's May concludes: "The experience, the tactile feel and sensory perception are such that our simulators allow pilots to act in the same manner they would if they were flying the aircraft. FSI's SimVu records pilot responses and actions in real time and can be used post-training as a training aid to review performance."

Vercio explains: "Our simulator operating system captures a variety of visual profiles within the cockpit and how the aircraft is flying. Cameras show which switches the student used, coordinated with a representation of how the aircraft was flying, and sessions may be paused for analysis, or played back to see what went wrong, or what might have been better. We've also just completed new eye-scanning technology that will sense where pilots are looking."

Representing the pinnacle of flight simulation and the peak of pilot training outside the aircraft, Level D simulators replicate aircraft operation in extraordinary detail. Flight simulation has gone well beyond regulatory requirement for type training and currency checks to providing a piloting experience in almost every way matching that in the air. ■

Chris Beer says consistently excellent customer service is key to XLR's success

Pizza, Planes & Personal Service

Having weathered the pandemic, the UK's XLR Jet Centres are thriving, as Director Chris Beer explains

When *EVA* last caught up with Chris Beer, Director of XLR Jet Centres, he spoke with a sense of relief that all four of the company's UK FBOs – Birmingham, Bournemouth, Exeter and Liverpool – had survived the Covid pandemic. Two years on, he's delighted to report that not only did the company emerge successfully, but also that it is thriving.

Perhaps surprisingly, there is no Jet Centre at a London airport, but Beer rightly notes that London is already well served with FBOs. "We're in Birmingham, the UK's second-largest city though, and although we're not in Manchester we are in Liverpool, which is faster and easier to get to in the northwest than travelling through Manchester."

Birmingham and Liverpool are standalone jet centres, but XLR is part of Regional & City Airports (RCA), a subsidiary of Rigby Group, which owns Bournemouth and Exeter airports.

"Exeter, in the southwest, is where XLR started, 11 years ago. It was previously Exeter Handling then Exeter Corporate Aviation, before becoming XLR – I'm in my 19th year with the company. We bought the Birmingham operation from Marshall, built the Jet Centre at Liverpool, then took over at Bournemouth too," Beer continues.

Sporting connections

International travellers will be familiar with the reasons why people fly into London's airports, but the attraction of XLR's locations is perhaps less immediately obvious. Beer is keen to explain: "At Liverpool most of our traffic is football related. We're the official handlers for Liverpool Football Club, looking after all its inbound and outbound flights, while almost all the players use us too. We're also very proud to look after Everton Football Club, and the teams that come in to play both, and people who fly in to watch the games.

"In Birmingham we look after Wolverhampton Wanderers, Aston Villa and, when they're doing well, Birmingham City. We also see a lot of RAF [Royal Air Force] flights because Brize Norton, the RAF's big transport base, is just down the road and we're a diversion for it. We handle their A400M and C-17 medevac flights too, because there's a specialist hospital nearby.

"Our only hangar, a 27,000sqft facility, is also at Birmingham. Twelve clients, including an aerial mapping company,

operate from it. The smallest of the based aircraft is a Cirrus SR22, the largest a Global 5000, although the jet flies a lot and is seldom 'at home'."

During the winter, Bournemouth and Exeter are popular with European and US customers flying in for field sports, while the area is also home to several HNWIs. Both venues host regular visits from UK military aircraft, primarily RAF machines operating away from Ministry of Defence airfields. An aviation enthusiast at heart, Beer explains: "They come in with the A400M and C-17 for essential training in the southwest and around Poole. Exeter is also a quieter regional airport post-pandemic, which means we have lots of space for aircraft parking – and that means we hosted aircraft supporting the US president's visit to the G7 summit in Newquay in 2021... we had four Ospreys and two KC-130 tankers."

Military training flights attract landing fees, an income stream that was especially important during Covid. The RAF crews could go anywhere within reason to complete their training, but it is typical of XLR that the team goes out of its way to make them welcome. "They have to eat lunch somewhere," Beer enthuses, "so in Exeter we started offering pizza. We cook it in the Jet Centre and welcome crews in for lunch. We don't charge for it, because it's nice to give something back to say, 'Thank you for what you do for the country and we're proud to support you.' We offer it at all four locations now." During Covid, hot food was taken out to visiting aircraft and collected from XLR vehicles, avoiding the need for personal contact.

***Chris Beer**, Director, XLR Jet Centres*

Corporate passion

Beer hesitates to assign his level of aviation enthusiasm to all XLR's staff but says: "I think most people in corporate aviation develop a passion for it. They might not when they start, but I've seen people enthused after they've got up close with their first Global or Gulfstream, or met a C-17 and been invited into the cockpit. And at Birmingham, for example, we look after a lot of large commercial aircraft, so our team might work with an SR22, move on to a Learjet and then find themselves on board an A350. They are working with impressive planes, meeting interesting people and no two days are the same."

"We're the official handlers for Liverpool Football Club, looking after all its inbound and outbound flights, while almost all the players use us too"

Beer notes some slowing of business in the autumn but says that was reflected across the industry. December 2023 and January 2024 were busy, however, bolstering a profitable summer 2023. XLR is therefore succeeding in the face of stiff competition, so what's the secret? Beer responds: "I think it's my staff. We have a fantastic team. Every location offers unique, fantastic customer service. Clients

The newly extended lounge at XLR Jet Centre Liverpool (above) and XLR Jet Centre Birmingham (top)

return because of our staff and like to see particular individuals, whom they greet by name, when they get off their plane. And some of these people are the most senior in their industry. It's wonderful."

Having described the consistent quality of the Jet Centres, Beer notes significant differences in culture. At Birmingham he says the executive lounge is rarely used because passengers tend to arrive just before their flight and go directly to the aircraft. At Liverpool it's quite different. "We put in an extension to make a bigger lounge last year, including a complimentary bar. Our regulars love it and now they turn up early for a drink."

With the XLR Jet Centres thriving, the obvious final question for Beer is, will we see a fifth? "Quite possibly. It's fair to say there won't be an XLR in London, where we already have a close relationship with Harrods Aviation. But XLR remains an important adjunct to RCA and the Rigby Group and we're always looking for opportunities." ■

OSHKOSH AEROTECH

STRONG BRANDS EVOLVE. JBT LEKTRO IS NOW OSHKOSH AEROTECH.

From touchdown to takeoff, the team at Oshkosh AeroTech, LLC is focused on serving the aviation industry. With decades of experience and a worldwide presence, we proudly provide leading technology solutions, a diverse portfolio of products, and 24-hour global support service for our equipment. Formerly JBT LEKTRO, Oshkosh AeroTech remains steadfast in relentless innovation to move the aviation industry forward.

oshkoshaerotech.com

An Oshkosh Corporation (NYSE:OSK) Business

Rolls-Royce operates a 24/7/365 Business Aviation Aircraft Availability Centre. Rolls-Royce

Powering On

Engine maintenance is a complex, critical and increasingly data-driven requirement. EVA spoke with experts at Duncan Aviation, Pratt & Whitney Canada and Rolls-Royce to learn more

Timely, professional engine maintenance is essential to flight safety and efficient aircraft operation. Considering that its engines represent a considerable chunk of an aircraft's purchase price, they are also expensive assets and, maintained through an OEM care programme, their service record typically helps boost an aircraft's resale value.

While the basic concept of turbine engine operation is simple, modern turbofans, turboprops and turboshafts are complex, precisely engineered pieces of machinery, finely tuned to deliver optimised performance in exchange for minimum fuel burn. Like any other machine, they have regular, prescribed servicing requirements and occasional unscheduled needs through wear, failure or external influence; in an era where OEMs gather and monitor data from the full spectrum of engine operations, it is still impossible to predict a birdstrike, for example.

Industry veteran Andy Robinson, SVP Services – Business Aviation at Rolls-Royce, takes considerable pride in the fact that the OEM launched its CorporateCare programme more than 20 years ago. "I believe it set the benchmark in business aviation. Around 2017/18, our customers fed back to us that they perceived inconsistency in coverage between engine models. It also became clear that no one covered the engine nacelle. It's an important part of the powerplant system and has its own associated exposure and costs."

Acting on those observations, Rolls-Royce launched CorporateCare Enhanced in 2019, setting a new baseline. "It means if we provide it, we cover it, including the nacelle, unlimited depth of corrosion, erosion, labour, travel costs, literally everything," Robinson explains.

Another of business aviation's major engine OEMs, Pratt & Whitney Canada (P&WC) offers its Customer First Centre (CFirst) to all customers. Operating around the clock, 365 days a year, it is staffed by aviation professionals with extensive experience and training in functions including event management and return to service after an AOG. "Because CFirst operates 24 hours a day," P&WC says, "files never 'rest'; each shift

Inside Duncan Aviation's engine and APU test cell. Duncan Aviation

change assumes responsibility for active files/cases which ensures the resolution process is a continuous effort until the situation is resolved."

The company also offers a portfolio of engine maintenance programmes, with the Eagle Service Plan (or ESP Program) the most popular among business aviation customers. P&WC explains: "It's a pay-per-hour programme that delivers enhanced asset value, availability and performance, along with the peace of mind that scheduled and unscheduled maintenance is covered. ESP has no annual minimum and is transferable at aircraft sale – it adds significant value to the aircraft and is recognised as 'standard' by Aircraft Bluebook for most P&WC-powered business jets built in the last 20 years."

In 2020, P&WC simplified ESP for most engine models, creating gold-type and/or platinum-type offerings. "This has made it easier for banks, appraisers and brokers to value aircraft whose engines are enrolled in ESP. It also provides our customers with the increased service levels and coverage they had been asking for," the company states.

Fleet coverage

Around half the Rolls-Royce covered fleet, approximately 1,300 aircraft, is on CorporateCare Enhanced, and all new deliveries are automatically eligible – in 2023, 76% of them signed up immediately. Robinson confirms that the programme delivers enhanced residual aircraft value and liquidity but says the CorporateCare Enhanced focus is on aircraft availability. Of the 4,000 or so Rolls-Royce engined business aircraft extant, some are not eligible for CorporateCare or CorporateCare Enhanced but of the remainder, at least 2,500 are on a programme.

"We're targeting 100% averted missed trips and to accomplish that we need to be able to clear an AOG within 24 hours," he says. "To achieve that, we've invested in a massive network including 85 authorised service centres; a dedicated team of 78 on-wing service technicians capable of

"In 2023 we achieved 99% averted missed trips and averaged just under 23 hours' AOG response time"

Andy Robinson, SVP Services, Rolls-Royce

A Duncan Aviation rapid response team in action, rectifying an HTF7000 fault. Duncan Aviation

the high-complexity tasks service centres are unable to tackle; ten component stores globally with another coming, at JFK, late in February; a dedicated team of customer managers; and a 24/7 Business Aviation Aircraft Availability Centre."

The latter uses data monitoring and digital tools to observe the fleet and deploy appropriate resources should an issue be detected. Rolls-Royce also has around 165 lease engines and close to 100 nacelle lease assets.

The power of those combined assets is delivering impressive results. "In 2023 we achieved 99% averted missed trips and averaged just under 23 hours' AOG response time," Robinson says.

Rolls-Royce operators outside the CorporateCare programme still have access to Rolls-Royce assets, including lease engines, but the process of delivery is complicated by the need to reach agreements, collect payments, arrange shipping and more, so the OEM is unable to guarantee the AOG and averted missed trip promises it makes to programme customers.

When a CorporateCare Enhanced member visits a Rolls-Royce authorised service centre, like Duncan Aviation, for example, they are not charged for troubleshooting, labour or parts. When a non-member visits a shop, they are charged directly by the MRO, but Rolls-Royce is still available to offer advice and provide parts.

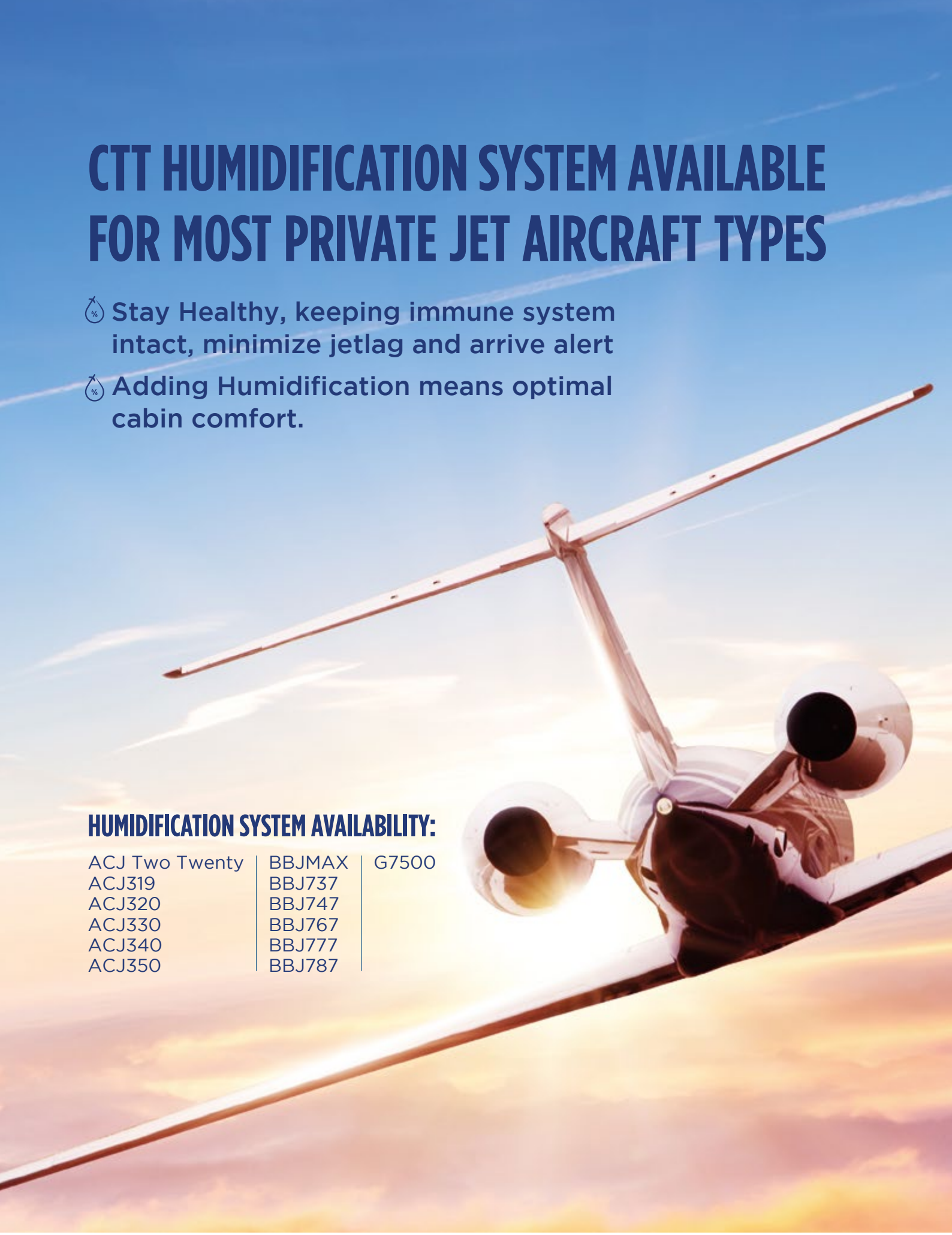
"We don't authorise everybody," Robinson notes. "First we assess whether the centre is a good fit, looking at their reputation to ensure it won't be negative to the Rolls-Royce brand. Then we audit their capabilities, and we have minimum requirements in terms of their training and spare parts holding. Subsequently, we perform regular audits and do customer surveys after a service delivery to make sure what the customer has received meets our standards. We also have account managers who manage service centre accounts and ensure requirements are set."

More than 17,000 P&WC business aviation engines – JT15D, PW300, PW500, PW600 and PW800 – are in service, supported by more than 50 owned and designated service facilities globally, providing line maintenance, repair, overhaul and mobile repair team service. On top of these turbofans, the company also supports its PT6A turboprop and, like Rolls-Royce, is active in the helicopter turbine market too. The service centre network continues to grow with the recent induction of overhaul capability for PT6A and PW200 engines, for example, at the P&WC facility in Belo Horizonte, Brazil.

Explaining how the service centre construct works, P&WC stated: "If a Pratt &Whitney Canada customer deals with an FBO that is not part of our service network for routine repairs or line maintenance, CFirst is available to assist as required. It can also help in the dispatch of parts, specialised assistance from one of our field support managers,

CTT HUMIDIFICATION SYSTEM AVAILABLE FOR MOST PRIVATE JET AIRCRAFT TYPES

- Stay Healthy, keeping immune system intact, minimize jetlag and arrive alert
- Adding Humidification means optimal cabin comfort.



HUMIDIFICATION SYSTEM AVAILABILITY:

ACJ Two Twenty	BBJMAX	G7500
ACJ319	BBJ737	
ACJ320	BBJ747	
ACJ330	BBJ767	
ACJ340	BBJ777	
ACJ350	BBJ787	

HUMIDIFIER ONBOARD TRANSFORMS THE EXPERIENCE.

CTT SYSTEMS

"We also invest heavily in tooling, slings and other equipment for engine support, because of unique tool requirements; each of our main locations has tool cribs designated by OEM and engine model"

Kasey Harwick, VP Aircraft Services, Duncan Aviation

Rolls-Royce has a dedicated team of almost 80 on-wing service technicians. Rolls-Royce

and in requesting the services of a mobile repair team technician.

"The situation with overhauling engines and, for the most part, hot section inspections, is different. We believe the integrity of our customers' P&WC engines is best preserved when an overhaul is conducted by a P&WC-owned or designated shop. An OEM-approved overhaul can only be conducted by such a shop, using our proprietary technical documentation and instructions."

Authorised service

Well regarded as an all-round service provider, Duncan Aviation is an authorised Rolls-Royce and P&WC service centre, but also works hard to maintain engine and APU service authorisations from GE, Honeywell and Williams International. Its capability includes a 20,000sqft engine facility in Lincoln, Nebraska, complete with a certified engine test cell. The company also offers comprehensive AOG and mobile support team services.

Some of Duncan's highly trained technicians might work across different OEMs' engines, but the majority comprise dedicated teams, by engine model. From the perspective of a non-technical person, however, aren't all turbine engines essentially similar? Is there really so much difference between a Honeywell and a Williams engine that knowing one means a technician is not immediately equipped to maintain the other?

Doug Alleman, VP Customer Service and AOG/Rapid Response Team at Duncan Aviation, says engines from different OEMs are 'not similar at all' and even cites considerable differences in maintenance requirements between engine models from the same manufacturer. "Each model needs training, it needs the experience, and that's why we've become specialised by OEM and even model."

Kasey Harwick, VP Aircraft Services at Duncan Aviation, says: "There are lots of nuances between OEMs, differences in nomenclature, where the technician knows what the component does, but must also know the correct term for it in that engine model. We also invest heavily in tooling, slings and other equipment for engine support, because of unique tool requirements; each of our main locations has tool cribs designated by OEM and engine model."

"Engine support is a high-capital part of the business," Alleman reflects.

Helping manage that capital outlay, rotable parts – components repaired or refurbished to their original airworthiness – save service centres and their customers money, while also reducing material waste. "The OEMs have rotable pools, and we have our own pools of parts we send in for rework," confirms Alleman. "If it's not a life-limited part it's likely to be a rotable. And yes, rotables do save money and reduce waste, but they also mean shorter downtimes, because I can keep a stock of repaired parts on the shelf.

"We also have separate authorisations with some OEMs under which we can tear engines down for parts. Those parts remain in our system for use in-house, or with another OEM authorised service centre, but we aren't permitted to distribute them through the market."

On the other hand, Harwick adds: "Customers are very particular about the asset, the engine itself and having their engine back on the aircraft. So the rotables tend to be components like engine-driven pumps, rather than true serial-numbered items."

Looking ahead to future MRO requirements, Harwick also has thoughts on electric aviation. He envisages business aviation operators introducing small electric aircraft, perhaps including eVTOLs, and expects some of Duncan Aviation's satellite locations, especially those in denser urban areas, to manage their maintenance. He notes, however, that in terms of powerplant, they may not require maintenance in the traditional sense: "They're LRU based, so it might be a case of simply changing motors out, a quick and easy 15-minute exchange of parts while the vehicle is down for charging."

Engine health monitoring

Data is key to today's engine maintenance and Rolls-Royce employs advanced engine health monitoring (EHM) techniques. "We're already collecting terabytes of data and there will be even more from the Pearl engines," says Robinson. The Pearl Engine Vibration Health Monitoring Unit (EVHMU) captures data on more than 10,000 parameters and transmits them; Robinson expects a fleet of perhaps 3,000 Pearls in the not too distant future. "It even gives us the capability to reconfigure the monitoring parameters remotely, to better assess an emerging issue, and the ability to monitor LRU health. It's an incredible advantage from an availability perspective. When you're monitoring so many data points you can predict failures well ahead of time and address them before they become a problem. When you can do that, you have real potential for 100% averted missed trips because there's never an AOG, unless it's a birdstrike or something else unpredictable."

P&WC reports that it has been installing engine diagnostic systems since the introduction of electronic engine control systems. "We released the first automated cellular data offload systems in the early 2000s, and we've provided retrofit systems for analogue aircraft for more than 24 years. Today, ESP coverage includes a cellular SIM card for the P&WC data transmission system, cellular network data plan including international roaming charges, and data processing and transfer fees.

The nacelle of a P&WC PW800 engine. Pratt & Whitney Canada

EBACE®

28-30 MAY 2024 | GENEVA

The 2024 European Business Aviation Convention & Exhibition (EBACE2024), Europe's premier on-demand aircraft and advanced air mobility event is the place where you will experience, enhance and help shape the future of business aviation. Save the date and make plans to join us in Geneva!

LEARN MORE | ebace.aero

Rolls-Royce aims to have CorporateCare Enhanced customers back in the air within 24 hours of an AOG report. Rolls-Royce

"Through such connectivity, we offer Digital Engine Health Management services for customers flying engines that have built-in digital capabilities – including the PW800 family and PT6 E-Series engines – and for those which use our FAST [Full Flight Data Acquisition, Storage and Transmission] diagnostic and prognostic solution.

"FAST analyses and wirelessly sends full-flight data to the customer within minutes of the engine being shut down. This allows the customer to maximise aircraft availability, optimise maintenance planning, and reduce operating costs. FAST data also looks at hundreds of distinct engine and aircraft parameters that allow for on-condition predictive maintenance, extended time on wing, and maintenance cost guarantees," the OEM says.

As an authorised service provider, says Alleman, Duncan Aviation works with OEM engine data. "When we're troubleshooting we contact the OEM and have access to their data, then we talk through the process with them. All the OEMs are very good. They have smart people on the phone, they know we're hands-on and they listen to our input."

Engine maintenance, even in response to an AOG event, is increasingly data driven. Yes, there is still a need for wrenches and greasy fingers, but remote diagnosis, laptops and tablets are equally important. While the older generation of engine technicians is adapting and the latest recruits are learning their trade, securing a steady supply of smart young people for an industry that Duncan Aviation, Pratt & Whitney Canada and Rolls-Royce all see expanding is a challenge.

They are working hard to find and train those people. Rolls-Royce, for example, is introducing an apprentice scheme at its major engine shop in Canada – and Robinson notes that his own career at Rolls-Royce began with an apprenticeship. He also believes that educating young people about the lifestyle business aviation offers and its sustainability credentials is essential. Duncan Aviation works with local educators, introducing young people to the possibilities of a business aviation career, while P&WC says: "Succession planning, developing the talent of our workforce, and creating new opportunities for our employees in the aerospace sector, are at the heart of our priorities." ■

satcom direct®

Enhance Your Passenger Experience

You expect your inflight internet to be as fast and reliable as it is at home or in the office. Wherever you fly.

SD offers high speed connectivity enabling you to stream your favorite video and audio services, watch live TV, make video calls, transfer large files and access your corporate VPN.

- Connecting You Beyond All Expectations -

satcomdirect.com | +1 321.777.3000

A Fuel Brand Built on 5 Decades of Dedication

Avfuel leverages 50 years of aviation expertise to support a global fueling network of 3,500+ locations and 675+ Avfuel-branded FBOs. This means greater connectivity and service options for FBOs and flight departments alike.

Global Fuel Supply

Sustainability Programs

FBO Branding