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EVOLUTION EXPANDED: UAS INTERNATIONAL TRIP SUPPORT

OMAR HOSARI AND MOHAMMED HUSARY

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Before this year is out, the first owner of the world's longest-ranged business jet, the Bombardier Global 7500, will have taken delivery of the new aircraft. And while the 7500 epitomises the extreme performance and technological achievement of the business, executive and VIP aviation industry, in this issue we show just a little of its expansive diversity.

AirX proudly operates a luxurious 100-seat A340, while Oriens Aviation took the opportunity to showcase the PC-12NG, aircraft very much at opposite ends of the business. Meanwhile, On Air Dining and Web Manuals demonstrate the broad spectrum of companies supporting the industry's multiple and far-ranging needs.

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The UAS founders and executive management celebrate the partnership between UAS and Deer Jet (HNA Group)



EVOLUTION EXPANDED

UAS International Trip Support

Never content standing still, the past few months have been exceptionally busy – and rewarding – for the UAS International Trip Support team, led by Co-Owner/Founder and Executive President Mohammed Husary and Co-Owner/ Founder and CEO Omar Hosari.

In 2016, UAS embarked upon delivering the UAS Evolution tech suite. What does the app offering look like two years on? Does UAS consider itself a leader in flight planning apps?

Mohammed Husary: Our aviation technology suite, UAS Evolution is steadily gaining more users with the popularity of UAS FlightEvolution – our flight planning and weather technology – and UAS LinkEvolution, the cost-saving communications technology. Our flight planning and weather app, UAS FlightEvolution increases efficiency with its powerful capabilities and offers a better user experience through speed and accuracy. It effortlessly optimises flight plans, and makes the best use of route constraints, ETPs/ETOPS and drift down analysis.

We continue to be incredibly focused on refining and further promoting the products. This year our implementation ►►



The UAS team celebrates winning two Sapphire Pegasus Business Aviation Awards and 18 years of providing leading global trip support, at the UAS Middle East headquarters in Dubai

► team has travelled extensively, visiting operators and dispatchers in flight departments all over the world, demonstrating how they can extract the most from UAS FlightEvolution in terms of usability, efficiency and cost effectiveness.

When we began researching and developing our technology, we set out to transform the way pilots and dispatchers plan their missions. We wanted to design tools that would make their lives easier and more time and cost effective. And we are succeeding. UAS FlightEvolution has brought a new level of inflight situational awareness to flight planning.

In addition, operators seeking solutions for common pain points, like inconsistent coverage in flight and spiralling data costs, eradicate both issues with UAS LinkEvolution. It provides unrivalled global connectivity with unlimited data and no hidden datalink charges, helping operators radically reduce their datalink costs. We'll continue to refine the capabilities of the suite for as long as demand remains and we forecast that will be for the foreseeable future.

How is the partnership with Deer Jet progressing?

Mohammed Husary: Our partnership has been a tremendous success. The alliance was designed to significantly enhance both our capabilities and accelerate our strategic goals to revolutionise international business flight and user experience. Since then, UAS has become the flight support partner for Deer Jet and the

has delivered on our objectives and continues to do so.

UAS offers exclusive charter management of the Dream Jet. Has the aircraft helped generate even greater awareness of the UAS brand?

Mohammed Husary: UAS air charter has exclusive rights to the Dream Jet – the world's only VVIP-configured 787. We also have access to Deer Jet's fleet, which includes the Gulfstream G450, G550, and Boeing 737 BBJ, so we can take care of a range of charter needs.

The Dream Jet is in high demand, particularly from ultra-high net worth customers in the Middle East, Africa and Europe, and royal and presidential entourages. I would definitely say that a huge amount of brand familiarity has been generated by our association with the Dream Jet, particularly for our air charter offering, which is growing exponentially.

Has UAS added to its global offering in recent months?

Omar Hosari: UAS has four continental headquarters, in Houston, Hong Kong, Dubai, and Johannesburg, as well as regional offices covering China, the Indian subcontinent, East Africa,



UAS FlightEvolution has brought a new level of inflight situational awareness to flight planning

HNA Group, gained access to the impressive fleet of 90 aircraft that Deer Jet operates and manages, and become the official charter agent for the world's only VVIP-configured Boeing 787 – the Dream Jet – thereby strengthening our air charter offering immeasurably. And, most recently, UAS clients can enjoy priority treatment at Deer Jet's magnificent FBOs – 11 world-class facilities located at key commercial and travel hubs, comprising China's largest FBO network. From a strategic viewpoint, this partnership

and West and Central Africa. All in all, we have UAS employees at 23 global locations, with the option to move our VIP supervision resources anywhere.

Meanwhile, our partnership with Deer Jet has enhanced our ground presence and customer care capabilities in China. In May 2018, we gained priority access and pricing within the country's best and largest FBO network, thanks to the partnership with Deer Jet. The expanded UAS China network also guarantees the UAS standard of quality at each of the FBOs, some of which are the only fixed-base operators available at their destinations. On-the-ground supervision by UAS station managers is also available at these eleven FBOs as well as across 180 Chinese airports, thanks to Deer Jet's extensive ground presence.

From a connectivity point of view, this offers massive benefits to our clients, since they now have access to the highest levels of service and cost-efficiency throughout China. This is integral to our commitment to exceeding expectations and enhancing the user experience.

With regard to the Asia-Pacific region, our China ops team has had a year of great success, expanding as a result of the growing demand for UAS solutions in the market. Our focus is to continuously strive to build a seamless customer experience for China-based operators wherever they fly globally, and we recently relocated our offices to Beijing International Airport to be even closer to all stakeholders.

Can you tell us more about the FBO network in China?

Omar Hosari: It has massively extended our influence in the country. Our clients receive special privileges across Deer Jet's FBO network in terms of preferred pricing and priority of service provision. In terms of customer service and the UAS standard of quality, these facilities are five-star and offer a wide complement

of aviation services, including ground handling and fuel, VIP airport services, executive lounges, passenger and crew services, and maintenance services. Our station managers in China also ensure the standard remains uncompromised. UAS is the only international trip support provider with such an extensive presence in China.

Judging by the UAS website, it seems you consider Africa a very promising area for business aviation growth? Is UAS committed to the continent for the long term?

Omar Hosari: We have huge hopes for, and belief in, the future of the industry in Africa, as we have always had. Our commitment can best be seen in our investment on the continent, in terms of our African headquarters in

their crew and ensuring the smoothest operations possible, often in very rural stations. Our UAS station manager network satisfies these requirements. Our clients can expect to deal with one point of contact at the station and this means easier and faster exchanges and no miscommunication. Having a station manager on the ground is the difference between a lot of uncertainty and mishaps, and a seamless mission.

Mohammed Husary was recently listed in NBAA's Top 40 Under 40 globally, for his leadership of UAS and accomplishments in business management. What does the award mean at the personal and company levels?

Mohammed Husary: I'm delighted to have received this accolade from NBAA, along with so many other



Mohammed Husary, UAS Co-Owner/Founder and Executive President, and Omar Hosari, UAS Co-Owner/Founder and CEO, on board the Dream Jet – the world's only VVIP-configured Boeing 787

Johannesburg, West and Central Africa office in Lagos, and East African office in Nairobi.

Africa is still developing, so operators really want people working on their behalf on the ground, supporting

great contributors to our magnificent industry. I'm thankful for this great honour and I'm certain that I'll continue my commitment to business aviation for many years to come. I was also honoured for Lifetime Achievement

in Business Aviation at the Sapphire Pegasus Business Aviation Awards at the EBACE show in Geneva.

Also, earlier this year, Omar Hosari received an award for his outstanding leadership and was named as one of the best 100 Arab CEOs at the Arab Best Awards 2018. We are both tremendously proud and moved to be recognised with these honours.

Can you summarise the company's achievements over the past 12 months or so? What can we expect from UAS over the next 18 months?

Mohammed Husary: Our purpose going forward is to

consistently enhance the customer experience in every aspect of UAS – our global network, air charter, trip support and aviation technology. We've once again had a productive and successful year that saw us receive many industry accolades, including Service Provider of the Year at the Sapphire Pegasus Business Aviation Awards; we were also shortlisted in four categories for the AsBAA Icons of Aviation Awards. I think this recognition from fellow industry stakeholders and influencers reinforces the fact that UAS is a dynamic and innovative company, continuously evolving within a highly competitive, ever changing industry. ■

UAS Executive Vice-President Jay Ammar Husary at the unveiling of UAS FlightEvolution, the flagship flight planning and weather technology from the UAS Evolution suite





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AirX Goes BIG!



Malta-based AirX describes itself as ‘The most diversified airline in the world’, and with a fleet based on the Airbus A340-300, Boeing 737-500, Bombardier Challenger 850, Cessna Citation X and Embraer Lineage 1000 and Legacy 600, it may well be correct. The company specialises in executive charters, operating globally and supporting music tours, sports teams, discrete royal party and head of state travel, and the needs of private individuals and groups.

AirX’s clever aircraft acquisition policies enable it to deliver cost-effective, high-end luxury travel, epitomised by the 100-seat A340-300,

registered 9H-BIG and making a brief stopover at its London Stansted base when *EVA* caught up with it late in November. Up close, the A340 is evidently a very large jet, but thanks to its spacious interior layout, 9H-BIG somehow appears even more expansive on the inside. Six-abreast seating combines with huge living space to create an airy, comfortable environment optimised for long-haul travel.

Depending on customer requirements, fine dining is available, presented by AirX’s experienced flight attendants, while the cabin can be equipped to suit a variety of functions, including a German DJ party... For sports teams or individuals travelling with extensive luggage or cargo, the aircraft’s underfloor holds are also more than ample – motorsports teams have used the aircraft to move cars and equipment below deck, while personnel travel in the cabin.

AirX A340-300 9H-BIG, employing reverse thrust on landing



From left to right:

Every one of 9H-BIG’s seats is convertible into a flat berth

Brown and cream upholstery features throughout the cabin, with provision for branding to suit customer needs

The rear cabin features a pair of couches.

All Helmut Harringer

Flying 9H-BIG

Bernhard 'Bernie' Wallner, AirX Group Chief Commercial Officer and one of the company's A340 pilots, manages 9H-BIG. He says: "The aircraft flies between 700 and 800 hours per year," a reasonably high usage rate for a business jet, but very low for an airliner. Since the A340 is an airliner by design, how does AirX manage its maintenance? "We're on Airbus' low-utilisation plan, actually designed for ACJs. And we chose this particular aircraft because at our rate of use it has sufficient cycles remaining for another five or six years, while for an airline, with its higher usage rates, its career was effectively over."

There's no typical mission for 9H-BIG, but Wallner says sports teams usually take round-trip charters of between three and five sectors during pre-season training or tours. "We took an NBA basketball team to China, for example, and we were very busy during the FIFA World Cup in Russia." Business jets rarely operate with full passenger loads and no soccer team has 100 players; does 9H-BIG therefore ever have all its 100 seats filled? Surprisingly, "Our last four trips were full, and our average load is around 80 passengers," Wallner reports.

And aside from regular luggage, what goes in the hold? "We've put cars in on pallets and lots of sports equipment – ten to 15 tonnes of cargo

in total. Musicians tend to send their equipment by freighter but, for example, Lady Gaga's stage wardrobe was between three and four tonnes."

Where 9H-BIG makes an impression though, is with its cabin and the AirX team that operates it. A crew of three pilots, a flight engineer and between nine and 11 flight attendants, depending



We've put cars in on pallets and lots of sports equipment – ten to 15 tonnes of cargo in total... Lady Gaga's stage wardrobe was between three and four tonnes

on passenger load, is standard. Should VVIP service be required, 12 flight attendants are carried. The attendants tend to have Emirates, Qatar Airways and Etihad first-class backgrounds, while some have experience on large VVIP aircraft in the Middle East.

There's also a dedicated operations team back in Malta, managing the A340 as it makes its global journeys, coordinating airports, crew, maintenance requirements and flight planning. AirX is making a profit with its A340 and the possibilities of cross qualification between Airbus types is not lost on Wallner, who says the company is open to further Airbus acquisitions in future. ■

9H-BIG offers spacious passenger accommodation and huge underfloor cargo capacity

Helmut Harringer

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Ringling the Changes

Sameer Rehman talks Bell in the Middle East

It would be flippant to suggest that Bell is back in the commercial, executive and VIP helicopter business, because it never left. But Bell's military business has been particularly strong, with descendants of its famous Huey selling well in their modern and upgraded forms, while the latest UH-1Y and AH-1Z are cornerstones of US Marine Corps' airpower and export successes in their own right. Then there's the Bell Boeing V-22 Osprey tiltrotor, a revolutionary aircraft in service with the US Marine Corps and US Air Force, and in which Bell plays a major part.

Looking back and deftly crossing over between its civilian and military product lines, the Model 206 JetRanger might still be regarded

as the classic Bell commercial helicopter. The company built in excess of 7,000 JetRangers and derivatives, including the TexasRanger and LongRanger, the latter remaining in production as the Model 206L4 until 2017.

Today, Bell's offering of new-build commercial helicopters includes the 407GX_i, a thoroughly modern single-turbine machine with obvious Model 206 ancestry, and the 412, derived from the original Huey through a long evolutionary process to produce a rugged do-pretty-much-anything/go-almost-anywhere utility helicopter.

Then there's the 429, a sleek light twin, and the single-engined 505, designed to take up the market exactly where the JetRanger left off, a fact Bell acknowledges by naming the type Jet Ranger X. The 505 rounds off a comprehensive range of capable, effective

This is the second Bell 525 flight test vehicle (FTV2), under test from Bell's Amarillo, Texas production facility



helicopters, but there's no escaping the fact that Bell's commercial products just don't boast the public awareness that once they did...

Go back a couple of decades, and when Christian Gray decided to take Anastasia Steele flying, he'd more than likely have led her to his JetRanger. But he didn't. Now it's time for Bell to win back that product and brand awareness, and Sameer Rehman, Bell Managing Director Middle East and Africa, is confident it will, through the revolutionary new 525 Relentless.

525 Described

Seating a maximum of 18 passengers, the Relentless offers ample cabin space for more comfortable, bespoke executive and VIP layouts. Added to that, Bell's LIVE rotor hub technology provides noise and vibration levels so low the manufacturer claims they're best in class. Up front, the pilots enjoy outstanding situational awareness through the Garmin G5000H ARC Horizon integrated flight deck, which combines with Helicopter Synthetic Vision Technology and fly-by-wire to provide exceptional safety levels.

Power comes from a pair of 1,800shp General Electric CT7-2F1 turboshafts, driving a five-bladed main rotor and sufficient for a 165kt maximum cruising speed and 20,500lb maximum take-off weight. In terms of its lifting capability, the 525 therefore takes-off at a slightly heavier maximum weight than the Leonardo AW189 and just a little less than Sikorsky's S-92. Bell's helicopter has suffered development delays, not least through a well understood accident, but test flying has resumed and the aircraft is performing very well.

Middle East Market

Helicopter transport is important throughout the Middle East, whether moving executive or VIP passengers from ship to shore, rig workers to their platforms or connecting travellers in difficult locations. And yet the region is naturally harsh for rotorcraft, with high ambient temperatures, frequently high operating altitudes and dusty, sandy environments working together to degrade performance and create maintenance challenges. Combine all this with the corrosion



Sameer Rehman,
Bell Managing
Director Middle
East and Africa

risk from operating in the maritime domain, as many helicopters serving the region's plentiful yachts do, and the Middle East ought to generate plenty of work for the helicopter MRO providers.

Like those of its competitors, Bell's aircraft operate across this spectrum of challenges, so just how well do they fair? Sameer Rehman explains: "Our helicopters have been operating in the region for decades and in fact they're designed from the ground up to perform in hot-and-high temperatures, dusty, sandy conditions and maritime environments. They typically have inlet barrier filters that separate dust and sand before it reaches the engine, for example.

"And for operators flying over water, we offer emergency flotation gear for all our models, as well as life rafts. The systems are independent of one another and usually chosen by all customers, civilian and military, operating at longer ranges

over water. Good corrosion resistance is another necessity for overwater flying, as exemplified by the Bell 525.

“It’s a fully marinised helicopter, with corrosion-resistant coatings applied at the sub-component level, rather than the more common sub-assembly stage. This is a technique Bell has been using on its purpose-built military aircraft and will now be applying to the 525.”

However well-equipped the helicopter, there is always a requirement for comprehensive maintenance back-up and customer support. What does Bell offer in the region? “Bell is well known for its aftermarket service and support across the Middle East and Africa, and around the world. Maintainability is also an important helicopter feature though, and that includes designing for accessibility to engines, landing gear systems and underfloor areas, to enable inspections for corrosion, as well as making regular maintenance easier.”

Bell’s customer support even extends to potential clients looking to purchase a helicopter for their yacht. “It’s not uncommon for a yacht builder to contact us asking for specifications to suit the vessel to the helicopter their client wants to buy. They need the aircraft’s size and weight, and details of the moorings it requires, for instance. We have single-engined, twin-engined and even medium-twin Bell helicopters based on yachts – there are some large vessels in the region.”

Bell also remains with the customer when they take their helicopter away aboard the yacht, through its global aftersales support network. “We have 100 Bell-authorized support facilities around the world, including locations around the Mediterranean and in the Asia-Pacific region, with easy access for shipborne platforms. Meanwhile, our global parts network can be reached at any time should a replacement component be required.”



Pilots who have flown the aircraft say it flies like a business jet. In testing we took it to around 200kt true airspeed, which is incredibly fast for a helicopter

Humbled by the Huey

Bell flew the aircraft that became the UH-1 Huey for the first time in 1956. The latest UH-1Y is a world apart from that original aircraft, in capability, performance, powerplant and avionics, yet still looks every bit a Huey. The UH-1 remains perhaps the most distinctive military helicopter ever, recognised by people who don’t even know it as a Bell product, but realise it’s the Huey of Vietnam War fame. For the modern Bell company, looking to sell new-generation helicopters into a discerning

Bell 525 FTV3 on its 22 April 2016 first flight



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A handful of the US Marine Corps V-22 Osprey fleet serves VMX-1, a specialist presidential transport unit



market place, that Huey heritage could be both advantage and hindrance.

On the one hand, Bell built the legendary Huey, what better demonstration of the quality of its products could there be? Yet on the other, Bell builds rugged, utilitarian military helicopters doesn't it? Just how good can its executive aircraft be?

Rehman reckons: "We're very proud of the Huey legend, but today Bell is all about innovation. We're at the cutting edge of vertical lift technology and innovation; Bell recently changed its name from 'Bell Helicopter' to simply 'Bell', better reflecting the fact that we do a lot more than build helicopters. We've been in the tiltrotor business for decades and we're also active in the unmanned air vehicle third-party logistics and air taxi innovation business. Wearing our new hat as an innovation company rather than simply a helicopter manufacturer, I think people will be very surprised at what we have coming down the line.

"Consider the Bell 505. Bell created the single-turbine helicopter market with the Model 206 JetRanger and continues that legacy with the 505 Jet Ranger X. But the new aircraft comes with all the modern bells and whistles, including a Garmin 1000 glass cockpit and dual-channel FADEC. It also has a flat floor and it's very easy to learn to fly, factors which are helping Bell kick-start the market segment once again.

"Most of our 505 customers are what I would term non-organic, they're people who've come from the yachting, sports car or equestrian industries. They're people who've previously leased helicopters, but now they're looking at the 505 for its technology and affordability. And that's just at the smaller end of our range.

"Moving to the larger end, we have the Bell 525. The type returned to flight test in July 2017 and by now has accumulated more than 1,000 flying hours. Ships number 2, 3 and 4 are actively flight testing on a daily basis, with the fifth aircraft due to come on line in first quarter 2019. We're looking good for FAA type certification in December 2019 and I fully expect the aircraft will become the company flagship for many years to come."

Rehman refuses to be drawn into a discussion of the 525's merits compared to its competitors, but notes: "The technology on the 525 is at least a decade ahead. Its fly-by-wire system doesn't exist in the commercial world today – we're applying technology developed from the Bell fly-by-wire system on the V-22 and it will be the first such system certified on a commercial helicopter. It will be a formidable aircraft in a space that hasn't seen much real development in the past decade or so."

Fly-by-wire has obvious benefits to fixed-wing aircraft in terms of smooth flight, safety and performance, but how will it be expressed in the 525? "It combines with the aircraft's full-time

The Bell 429 features skid landing gear, while the 429WLG has a retractable wheeled undercarriage. On display at the Monaco Yacht Show, this 429 features emergency flotation gear, for extended overwater flying





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auto-stabilisation system to provide exceptionally smooth flight. Pilots who have flown the aircraft say it flies like a business jet. In testing we took it to around 200kt true airspeed, which is incredibly fast for a helicopter. The never exceed speed has been reduced for certification, but we expect a 145kt long-range cruise speed and 165kt maximum cruise.”

On the outside, the 525 is distinctly jet like and with its superior performance, VIP customers will expect a cabin matching the quality of their jet’s. Rehman says Bell has the capability in place to achieve superior interior finishing. “We work very closely with high-net worth individuals and their appointed representatives at the detail design level to create carefully crafted work. But we recognise that some individuals may have requirements we can’t meet, in which case we have vendors ready to satisfy those demands.



The technology on the 525 is at least a decade ahead

“We’ve drawn on many segments of the industry, benchmarking to identify suppliers who will be able to create a cabin that takes an individual from their home to the airfield and on to their business jet in a seamless transition of style.”

Uniquely Bell

So, should Christian and Anastasia reappear several shades darker still, is he likely to have chosen from Bell’s portfolio for his rotorcraft requirements? Will the 525 raise Bell’s profile and public awareness of the brand in the commercial, executive and VIP helicopter markets?

“We’ll certainly have technology that no one else has,” Rehman states. “No one else will be selling a fully fly-by-wire helicopter and no one else will know so much about the technology. Being back in that market space is going to do wonders from the brand appreciation perspective as well.

“Yes, 20 years ago the JetRanger was prominent in popular culture, although I believe around 4,000 actually still remain in service. Bell has been extremely successful in the military market, and has always continued innovating in its commercial business, but over the past five or six years we’ve been reinvigorating the commercial space, starting with the 505 announcement.

“We just delivered the 100th example and the fleet achieved 10,000 hours early in November. The accolades are coming in, but it takes a while for the market to adjust. I fully expect to see Bell gain much greater success in the commercial market and in the Middle East region I consider the 525 the perfect aircraft for the corporate/VIP sector.

“I believe it’s ideal for many of the local royal flights as they engage in fleet renewal, especially since the aircraft offers the comfort they’ve come to expect and enjoy from their jets. But Bell will also take a share of the air taxi market and recently signed an agreement with Uber to make personal air taxis a reality sometime in the next decade.

“And we have an Indonesian customer already operating 505s on demand, passengers arranging their flights via smartphone app. We’ve looked at autonomous air taxis too and believe they are the future of urban transport.” It’s innovation typical of Bell, which is determined to embrace the future through technologically advanced, progressive products. “The Huey legacy is a big part of who we are. But the helicopters we’re building today are not old technology, they are cutting-edge aircraft. Look at us again. Our future is bright.” ■

Perched atop Bell’s Fort Worth, Texas HQ, the Jet Ranger X demonstrates the type’s urban utility

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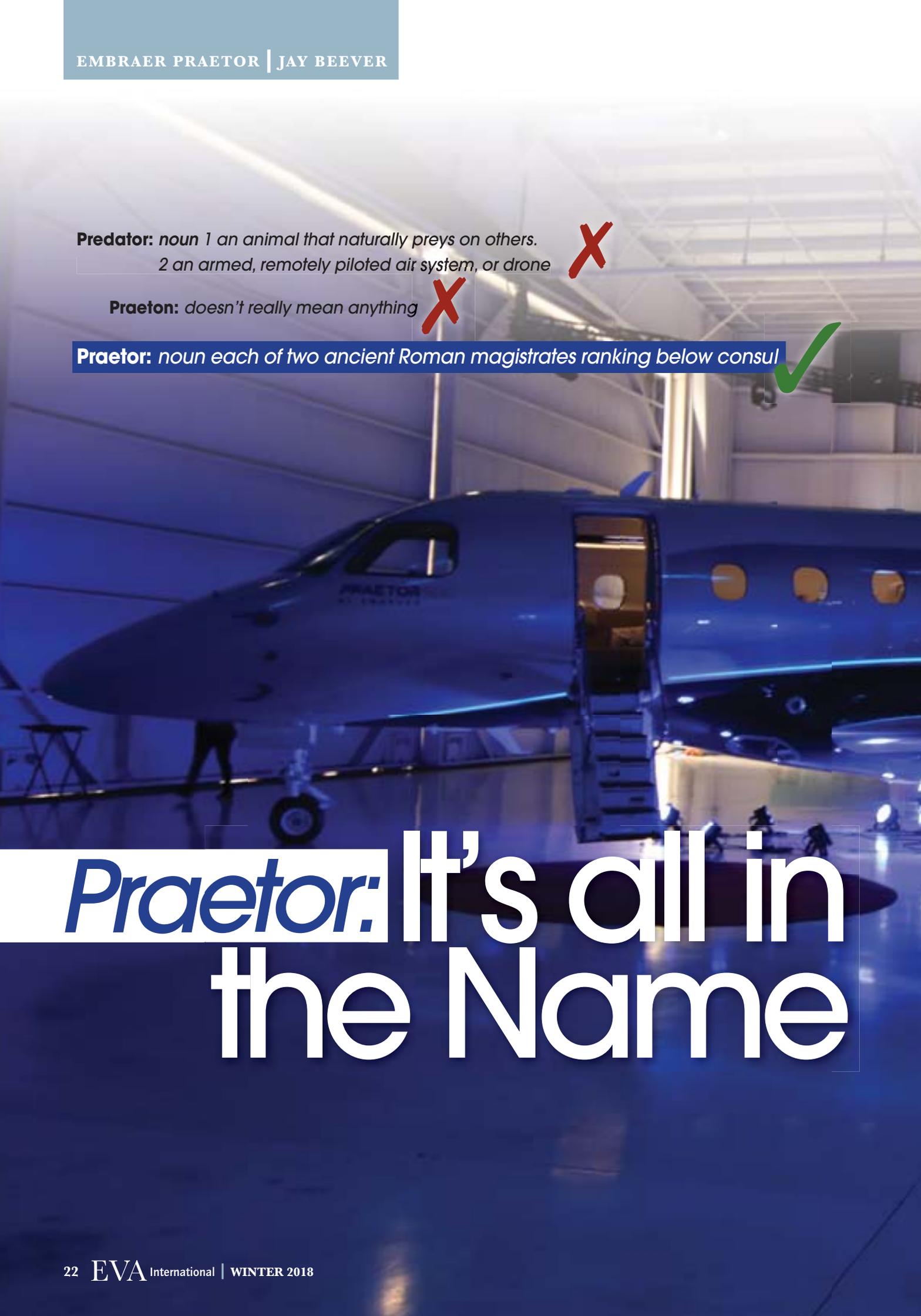
Predator: noun 1 an animal that naturally preys on others.
2 an armed, remotely piloted air system, or drone



Praeton: doesn't really mean anything



Praetor: noun each of two ancient Roman magistrates ranking below consul



Praetor: It's all in the Name

Embraer finished the Praetor prototypes in a spectacular special effect paint for their NBAA debut

My excitement on learning that Embraer was debuting two new jets at NBAA's Orlando show in October was tempered only by a niggling doubt at the name it had chosen for them – Praetor. Even knowing the word's meaning, I was convinced it was a rare misjudgement.

The Praetors – 500 and 600 – were duly unveiled on Sunday, before the show's press conferences on Monday. The invited audience was reportedly as impressed by the range figures Embraer was promising as it was by the event's effects. By Monday, the new Embraer jets were still worthy news and remained a popular topic of conversation throughout the show.

Except... people were talking about the Praeton. The Predator. And variations in

between. Few seemed to have latched on to Praetor. I was clearly correct about the name and determined to tell Jay Beever, Vice President, Industrial Design, Embraer Executive Jets, exactly that.

Name Story

Sitting with Beever in Embraer's static display chalet, he began the interview with: "You're wondering about the name." It wasn't the opening gambit I'd expected... "It tells a story," he says, "but a story that we perhaps need to tell a little better". Storytelling is essential to Beever's extraordinary cabin design. His work leads the passenger on visual and tactile tales, colours and materials, textures and elegant design touches leading the senses to explore every facet of the cabin.

"We already had the Phenom," he explains, "indicating something of



The Praetor 600 features underfuselage belly tanks. *Embraer/Claudio Capucho*

outstanding talent, and we wanted a name in keeping with that. I believe the aircraft and its technology are there to serve the principal, the person at the centre of the mission, and I realised Praetor suited that role perfectly. In Roman times a praetor worked to support an important leader – Embraer’s Praetor will support a modern generation of leaders.”

Praetor. A well-judged name then...

Praetor Evolution

The Praetor pair immediately impresses with class-leading range capabilities. Based on the Legacy 450 but with the fuel capacity of the larger Legacy 500, the midsize Praetor 500 boasts a four-passenger maximum range of 3,250nm, easily sufficient for a coast-to-coast run from Los Angeles to New York. The Praetor 600 adds additional fuel capacity to the Legacy 500, extending its



In Roman times a praetor worked to support an important leader – Embraer’s Praetor will support a modern generation of leaders

four-passenger reach out to 3,900nm, a super-midsize best in class.

Power for the Praetor 500 comes from the same 6,548lb thrust Honeywell HTF7500E employed on the Legacy 450, while an uprated version of the same engine delivers 7,528lb thrust for the Praetor 600. Airframe modifications compared to the Legacy include the Praetor 500’s increased capacity wing fuel tanks, while the 600 adds new underfuselage fuel in what Embraer terms belly tanks. More obviously, the Praetor features larger winglets than its predecessor, increasing aerodynamic efficiency for no change in primary wing structure.

Jay Beever has created a new Bossa Nova cabin for the Praetors, defining a comfortable, welcoming space that combines with a 5,800ft cabin altitude at 45,000ft to ensure passengers arrive refreshed, even after the longer legs the aircraft is capable of flying. Various cabin layouts and options are available, but the club seats – typically four on the Praetor 500 and eight on the 600 – convert into fully flat berths.

Embraer has continued its expanding relationship with Viasat, offering its global Ka-band service via a fin tip leading-edge antenna installation. Gogo’s AVANCE L5 system is also available,

The lighter of the Bossa Nova cabins unveiled at NBAA-BACE in October



for air-to-ground connectivity and a host of services over the US. Cabin management and inflight entertainment is via Honeywell's Ovation Select suite, compatible with the majority of mobile devices and enabling cabin control through an iPad. Powered USB ports avoid flat batteries, while voice communications and audio and video on demand are also available through AVANCE L5.

Praetor Presence

But facts alone fail to tell the Praetor's story. The Legacy already looked good, even parked alongside the best of its peers, or perhaps especially when parked alongside the best of its peers. The Praetor is more impressive still, the dramatically revised winglets, admittedly enhanced by the spectacular colours Embraer chose

for its launch aircraft, emphasising the aircraft's advanced design and enhanced aerodynamics. At a basic, first impression level, they also look incredibly cool.

And that same comment is true of the Bossa Nova cabin. It takes the Brazilian music and dance style of the same name as its inspiration, and Beever explains that the Portuguese 'bossa nova' translates into 'new trend', exactly what he has created with the Praetor cabin. For NBAA, the Praetor 600 was completed with a spectacular dark colour palette, the 500 in a rather less dramatic, almost neutral colourway, both telling the inevitable story that Beever began relating from the comfort of the Praetor 500.

"This lighter cabin would be great for a fractional aircraft, where multiple

people are using it and a less personal feel is appropriate. This palette also suits someone who feels claustrophobic in planes, especially with the Ultraleather wrap on the valences, which makes the cabin feel continuous, while the ceiling arch and sidewall arch produce a 'widow's peak' effect, making everything feel like it's been pushed up and out. It's the same on both airplanes, but it's really emphasised with a colour palette like this."

The effect is to make the Praetor's stand-up cabin feel larger still and Beever reinforces the fact that this is a midsize jet. Predictably, he has a story to emphasise his large cabin/midsize jet point. Not a short man by any means, he says: "I turned two seats inwards for a photoshoot and laid on them across the cabin, that's how big it is – 6ft tall and 6ft 10in wide."



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A believer in technology, but technology that waits discretely to be required, he next points out what he refers to as ‘the butler’ – it’s Embraer’s unique upper tech panel to the rest of the industry. He reaches for the dark panel set into the valence and it illuminates, ready to serve. “The butler gives me the ability to turn on the reading lights and gives me flight information. I can glance at it to see how long we have left to fly and if I’ve just clinched a deal, I can order a gin and tonic knowing I’ve sufficient time to enjoy it. But then when I don’t need it anymore, it goes away.”

Once upon a time, when it first



The Praetor 600 features a wet galley as standard

began creating executive jets, Embraer’s cabin finishing was a little hit and miss. Since then, the company has gone to great lengths to bring high-end traditional craftsmanship and cutting-edge technological know-how in house. Today’s beautiful cabins reflect that commitment, but it’s typical of the manufacturer, and Beever, that he always sees room for improvement. “We’ve improved the sewing in all our seats.” Noting the detail of the Praetor 500 seat he’s sitting in, he says: “We call this the Milano, with horizontal stitching in the insert. The style is reminiscent of Italian sports cars from the 1960s and today’s Maseratis have returned to a similar style.”

The Praetor 600’s darkly upholstered seats featured a form of linked, rectangular stitching Beever calls Ipanema and he explains: “We also have London and Sao Paulo. London is a diamond stitch and Sao Paulo a zigzag pattern. It provides us with global, city-inspired themes.”

Setting themes and butlers aside for a moment, it’s fair to describe the Praetor 500 cabin, in the pale palette chosen for NBAA, as pretty much typical for a business jet, and yet the understanding gained from speaking with Beever reveals something extra. If all midsize cabins were likened to really good coffee, then the Praetor 500’s is just that bit

creamier. “Exactly, smoother and easier to digest! It’s a great place to relax and get comfortable over a long flight. And if you remove ‘point in time’ technology on a long flight, what do you focus on? It’s the craftsmanship. We’ve incorporated automotive-like execution and simple assembly/disassembly.”

To prove the point, he reaches above his head and rips the emergency oxygen mask cover out of the valence. “It’s quick and easy to check the mask ready to go flying and it goes back in like that...” as the panel seemingly pulls itself back into perfect alignment with a soft click. It’s an astonishing piece of engineering that Beever almost dismisses: “The magnets holding it are

concave, so they centre themselves as soon as they come into contact.”

The Praetor’s side ledges comprise a mix of materials pleasing both to the eye and to touch, proving how carefully Embraer makes its choices. “If it looks like plated metal it has to be cold to the touch, because if it’s warm, it’s plated plastic. If it’s glass it should be cold and if it’s plastic, it should be warm. The body picks up authenticity in materials haptically, it tells you what’s real. And you can feel the difference between leather and Ultraleather, so the seats are leather but the side panels, which are rarely touched, are finished in Ultraleather.”

Stepping quickly through Orlando’s searing October heat to the Praetor 600, we entered a seemingly different world of dark leather, Ipanema stitching and polished carbon fibre. This aircraft was equipped with a fully berthing, leather divan featuring, Beever noted, a 105° back angle for perfect comfort in the sitting position. A vertical back apparently simplifies the transition to flat berth, but it’s less comfortable and therefore unacceptable to his philosophy. “We use curved rails, so you can have the correct back angle and a flat berth. And should technology be exposed on your divan? Absolutely not!”

A large panel in the armrest slides back to reveal a screen and cupholder. But it slides without any obvious mechanical means. There are no runners or hinges evident and it’s the perfect cover for what Beever calls ‘point in time technology’, or the butler. “You just slide it over and you have the perfect place to rest your arm, without having it hang in the cupholder. The butler goes away when you don’t need him. The technology’s hidden, leaving just the craftsmanship to entertain you.”

There will be more to the Praetor story and there’s an evolving legend to tell of Jay Beever’s inspiring cabin design but, for now, he offers his apologies. “I have to go talk to a customer...” ■

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New Lines In Store

Our mission is to make editing manuals very simple, while enabling organisations to maintain full control. We're like a Microsoft Word, but calibrating documents in real time across all users. We've automated the control of revisions and added a little compliance 'magic'," says Web Manuals CEO and Founder Martin Lidgard.

"We've accumulated a mass of regulations from the FAA, EASA and other authorities and incorporated them into the Web Manuals compliance library. It allows our clients to subscribe to changes coming out and see word-by-word any changes that will impact their business. It also simplifies audits by eliminating the risk of nonconformity.

"Once a document is published, it's available through web portals, iPad and mobile apps, personalised notifications to individual recipients are available to track who has received notification of changes and interactive web documents highlight changes, drawing attention to the differences in the latest revision.

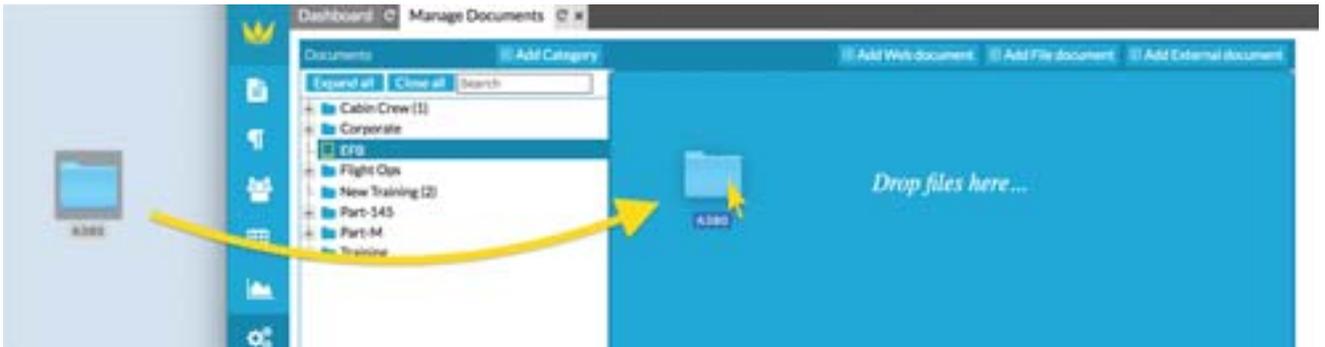
"In short, we help our clients improve control of documentation, simplify regulatory compliance and introduce a new level of operational agility. We offer customers the opportunity to become more efficient as they evolve their operation through commercial and regulatory changes. Ours is a very simple, web-based tool and our team is always ready to help new clients become established. The feedback we're getting suggests customers make between a 70 and 90% time saving on writing, publishing and editing manuals."

Lidgard was speaking at NBAA-BACE in October, where Web Manuals announced the opening of a New York office and a doubling of its US client base to 45 customers, since NBAA 2017. Most significant though, is a collaboration with PRISM, a wholly owned subsidiary of ARGUS International, launching an online store offering products that enable digitalisation.

PRISM's ARMOR software suite enables customers to develop, implement and maintain compliant safety management systems, making it an ideal partner for Web Manuals' compliance-friendly products. The first product on offer when the Web Manuals Store goes live in December 2018 will be a PRISM-managed Part 91 operations manual,

Joe Moeggenberg, CEO and founder ARGUS International (at left) and Martin Lidgard, after their NBAA announcement in October





packaging the expertise of PRISM’s team into a best-of-breed operations manual where regulation updates will be pushed out to operators. The document will be pre-linked to IS-BAO standards and other requirements, and based on Web Manual’s templates, so that users will be able to make their own, unique alterations, while continuously receiving and incorporating PRISM updates.

Web Manuals Philosophy

Speaking to *EVA* after the announcement, Lidgard said Web Manuals’ rapid growth has been in line with its projections, the company

investing and working hard to expand its product penetration and making particular progress with business aircraft operators and flight departments. He notes: “When an operator begins working with us, we often see them spread digitalisation across their whole organisation, across flight operations, maintenance, safety, finance and even HR.”

At the same time, Web Manuals is always ready to listen to its customers and Lidgard recalls: “We had two or three existing clients asking how they could manage all their OEM manuals, which came to them in the form of

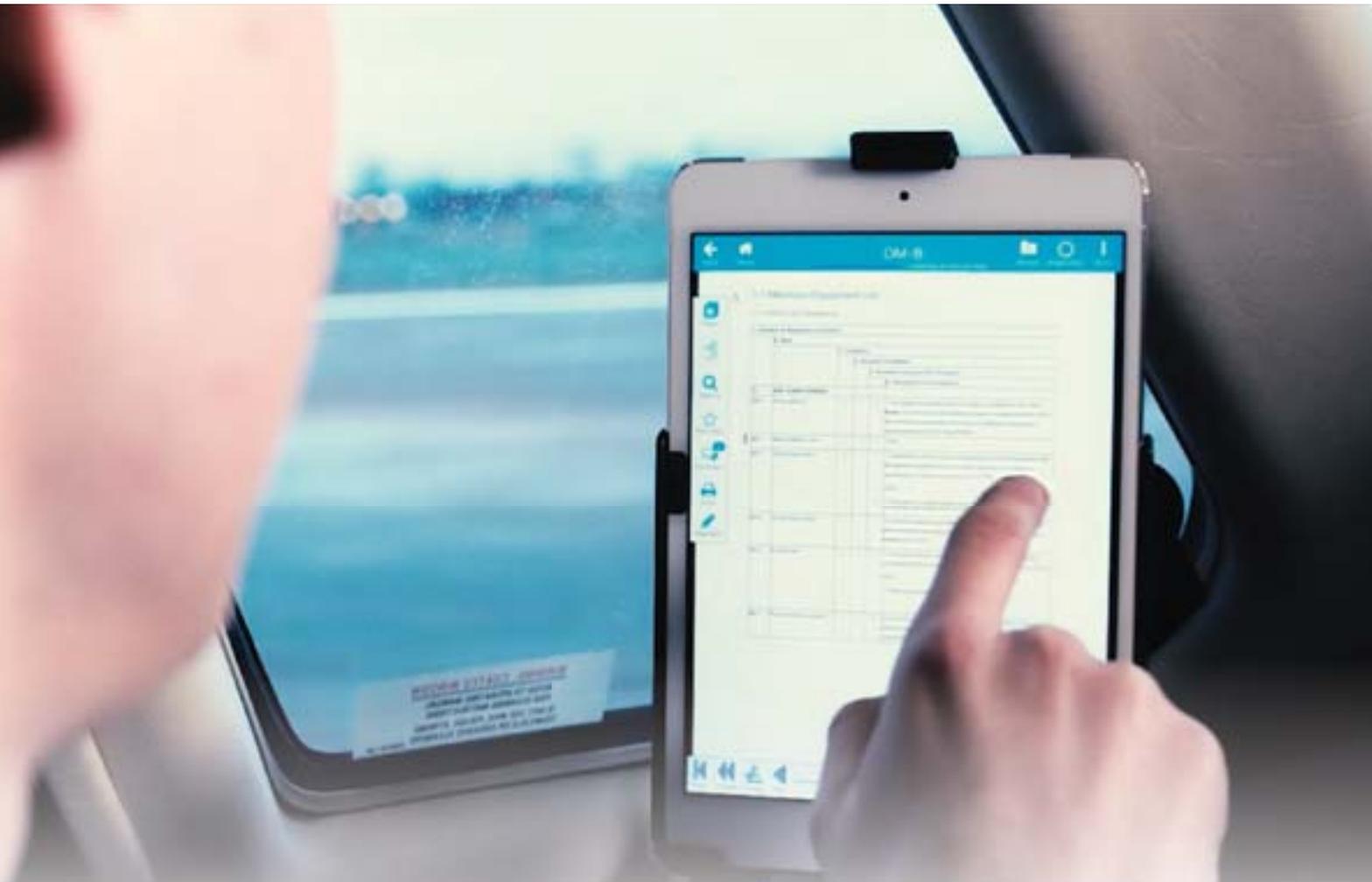
Dragging and dropping files into Web Manuals

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thousands of pdfs on disks and which were often changed. They needed to share the documents and changes across their organisation and there previously hadn't been a good solution.

“We created a strong offering where the content of the whole disk can be dragged and dropped into Web Manuals, where the structure of those documents is replicated. When updates are released, operators do the same thing, dropping the whole disk into Web Manuals again and the system recalculates what's new, what's changed and how to present that online, via iPad and so on.”

Access to Web Manuals editing and updating features is restricted to a prescribed group of individuals in any one organisation, but Lidgard says it's also important to restrict which manuals an individual has access too. An operator might have thousands, even tens of thousands of manual pages in the system and for any individual with access to everything, the task of digesting



The feedback we're getting suggests customers make between a 70 and 90% time saving on writing, publishing and editing manuals

updates would quickly become unnecessarily time consuming – Lidgard reckons a business aircraft operator might generate between 5,000 and 15,000 company-produced manual pages, plus many thousands more generated externally.

“Our system ensures those pages remain updated and compliant, and alerts the organisation's responsible person to changes. They can track and trace the word-by-word changes in the rules and see where in the documents these have implications. It ensures operators have a means of staying compliant. When there's an audit, there's a client checklist function that generates a list showing

Web Manuals in-cockpit functionality via iPad

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regulation-by-regulation how the operator is fulfilling requirements.”

Web Manuals Store

Web Manuals is not a company to stand still. With its essential offering established and working well, Lidgard pushed to develop the Web Manuals Store. Why that product in particular? “Several partners had come to us looking to offer their services in different ways to our client base. We also had clients asking us to provide services and we’d explain we were software providers, not subject matter experts, but we were happy to link them to one of our partners.

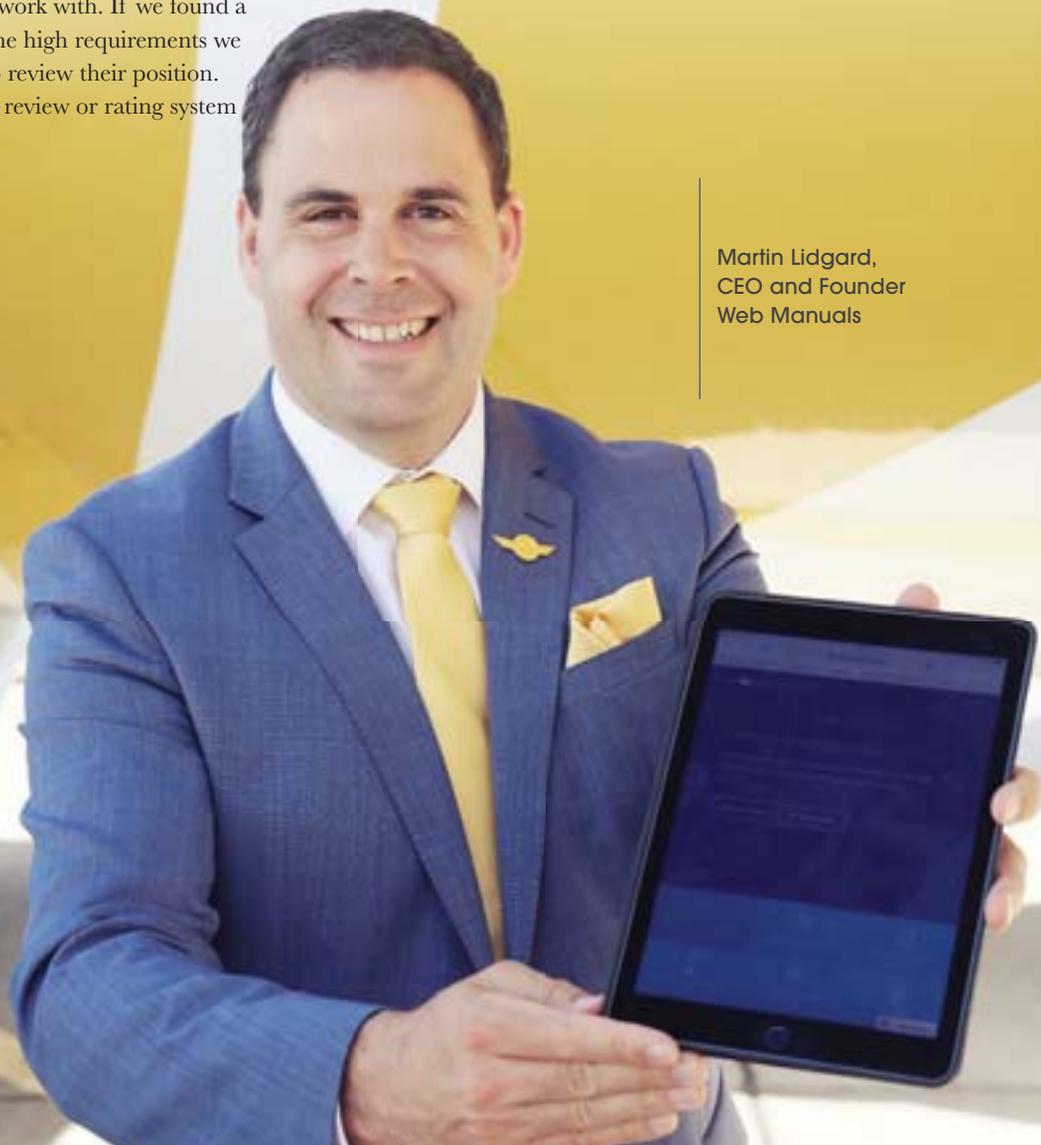
“We’re delighted to empower the community by creating these connections, but what better way than to visualise it in our customer portal, where partners and customers can ‘meet’ directly and we just act as the facilitator.” Should a customer take the inclusion of a partner in the Store as a Web Manuals endorsement? “I’d say we’re mindful of who we work with. If we found a partner didn’t live up to the high requirements we set ourselves, we’d have to review their position. We might consider a peer review or rating system

further down the line. But we’ve started out with the industry leader as our first partner, which demonstrates our ambition.”

Looking ahead to the next NBAA show, in Las Vegas during October 2019, will Web Manuals have doubled its US client base again? “High fuel prices, the pilot shortage and the fact that we’re probably past the peak of the past ten years of industrial growth means we can’t be sure what’s coming next year. Then there are regional factors, including Brexit, where it’s very difficult to see what impact they’ll have. There’s also an escalating pace of consolidation within the European regional airline segment, so there are lots of factors that could affect us.

“But we’re doing everything we can to achieve that same growth. From a technical and team-building perspective, having the processes and organisation to support that, then yes, we have that ambition.” ■

Martin Lidgard,
CEO and Founder
Web Manuals



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Fuelling a Neutral Future

While the basic principles of flight remain unchanged, the modern flying machine is technologically very far removed from the frail aeroplanes that took the first tentative flights at the beginning of the 20th century. And yet, for all that advance, the world's only truly practical, load-carrying aircraft still rely on fossil fuel.

Modern engines burn fuel more efficiently, extracting greater energy from it and in the process generating fewer emissions. They increasingly burn other carbon-based fuels too, including alternative fuels produced by recycling or through biological process, but the chemistry of generating energy from fuel in a modern turbofan remains similar to that which governed the generation of energy from burning petroleum in the Wright Flyer engine of 1903.

It seems only sensible that over the next 115 years of powered flight, new technologies will all but oust fossil fuel, but replace it with what? Carbon-neutral, manufactured fuels? Electrical power? Those technologies, as they apply to regular, daily passenger operations are still decades away so, in the meantime, what's to be done?



Carbon offset, working to neutralise carbon emissions generated when operators burn fossil fuel, is already working. Meanwhile, fuel suppliers are developing and offering alternative fuel sources and perhaps realise that, ultimately, they may become energy rather than fuel suppliers.

For now though, carbon and other emissions are an inevitable result of burning fossil fuel, not only in aircraft engines, but our cars, when we heat our homes, in industry, and on, and on. Looking to discover just how important environmental concerns really are to

the fuel companies, *EVA* set Irene Lores, Global Marketing Director, General Aviation, Air BP and her colleague, Alisdair Clark, Air BP's Research and Development Manager, a few questions.

Air BP has an extensive carbon offset programme – what is its aim? How does it work and does Air BP take into account all the carbon released during the production of fuel, from energy consumed during extraction, through the movement of crude, cracking, storage, delivery, refuelling and so on?

Lores: A carbon offset is a reduction in emissions of greenhouse gases made in order to compensate for, or 'offset', an emission made elsewhere. It works using a tradeable instrument called a 'carbon credit'. One carbon credit equals one tonne of carbon emitted. So, if an individual or business emitting 10 tonnes of carbon a year wants to offset their emissions, they would need to buy ten carbon credits from a project or programme that has reduced carbon emissions by that amount. After the carbon credits are purchased, they are retired so they cannot be used again.

Carbon offset programmes can help our customers reduce their carbon emissions, achieve their carbon goals and meet important industry targets to reduce the environmental impact of global aviation. The carbon reduction projects from which Air BP sources credits are selected by the BP Target Neutral team. Every project in the Target Neutral portfolio complies with either the Verified Carbon Standard (VCS), Gold Standard or Clean Development Mechanism (CDM), all of which are approved under the International Carbon Reduction and Offset Alliance (ICROA) Code of Best Practice. These standards provide a methodology framework, an independent verification process and a registry to ensure emissions reductions are real, additional (that is, they would not have happened without the project), permanent and unique.

To calculate the emissions associated with jet fuel we use UK government Department for Environment, Food & Rural Affairs (DEFRA) emissions factors. They takes into account all emission sources from well to wheel/wing, or from extraction to end use.

However, Air BP believes that decarbonisation in aviation can be driven through more efficient operations, better infrastructure, new technologies and low-carbon fuels, plus carbon offsetting where necessary.

Air BP supplies biojet fuel to Scandinavian airports, here at Oslo



A cynic might suggest Air BP's offset programme is simply a means of encouraging environmentally concerned operators to purchase your fuel, while those who aren't concerned will buy it anyway. How important is it to Air BP that its customers fly carbon neutral?

Lores: Air BP is committed to the aviation industry's efforts to reduce its carbon emissions and wants to play a leading role in supporting customers' ability to reduce their emissions and achieve the industry's ambitious targets.

Air BP also offers carbon neutral flying to business aviation customers in Brazil, in collaboration with Avantto. It has teamed up with Signature Flight Support to enable all Air BP Sterling Card holders to purchase carbon neutral fuel at more than 100 of Signature's US FBOs. In all instances, the offsetting is undertaken by BP Target Neutral.

Air BP is also reducing emissions in its own operations. For example, Air BP's into-plane fuelling operations were independently certified carbon neutral in 2016. We've made a 10-year

as possible? Have technologies been introduced to ensure fuel is burned more efficiently now than ever before?

Lores: Minimising processes, including tankering, is one area where we are working with aircraft operators to reduce carbon emissions. A reduction in tankering leads to greater aircraft fuel efficiency and therefore lower carbon emissions.

Clark: In relation to technology changes, Air BP plays a leading role in fuel technology through research and external technical groups, including the Co-ordinating Research Council, ASTM International and the Aviation Fuels Committee. These groups work on improving fuel quality for the current and future aircraft fleets. The aviation industry is working to ensure that modern passenger aircraft are more efficient than before.

This focus on aircraft efficiency relies upon an integrated aviation industry approach to jet fuel, jet engines and aircraft development, ensuring that specifications are well aligned and that jet fuel is available in any region of the world. A recent (2018) example of Air BP's involvement is the approval of refinery technology to co-process waste vegetable oils to jet fuel and reduce carbon emissions. While Air BP technical work was necessary to achieve approval, the process is open to all industry members for the benefit of the aviation industry as a whole.



Families gather around a newly planted tree in Zambezi, part of an Air BP carbon offset project

Through our carbon offset programmes, we are supporting our customers in meeting their lower carbon goals, and those of their clients.

For example, as part of our strategic collaboration with Victor, one of the world's leading on-demand marketplaces for private jet charters, we launched a carbon offset programme for private flying in April 2018. It allows participating aircraft operators to offer their customers carbon neutral flying when using Air BP fuel.

commitment to retaining our carbon neutral accreditation for into-plane operation. This requires Air BP to adhere to a carbon reduction plan, including the introduction of start/stop technology on refuelling vehicles and maximising the options for supplying biofuel. Any residual emissions following these reductions will be offset through BP Target Neutral.

Does Air BP work to help its customers use fuel as efficiently

What about other combustion products? Are these at their lowest levels ever? To what extent does Air BP's fuel rely on the latest engine technologies for clean consumption? How closely do the fuel suppliers work with the engine OEMs to achieve optimum fuel burn?

Clark: With respect to other combustion products, these are influenced by both engine and fuel technologies. The International Civil



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Aviation Organization (ICAO) sets standards for aviation turbine engine exhaust emissions and international fuel specifications, the ASTM and Defence Standards for example, set limits on potential pollution precursors, including aromatics. Air BP has published work examining some aspects of this area, for example through the International Conference on Stability, Handling and Use of Liquid Fuels.

How does Air BP manage the popular image that goes with fuel production? As a society we're led by media and government to see fossil fuel providers as environmental enemies, yet we're all happy to drive cars, heat our homes and use electronic devices

Lores: There is a growing population hungry for access to heat, light and mobility, yet demanding that our industry deliver this access in new ways and with fewer emissions. At BP, we call this the dual challenge – providing the energy essential to human prosperity, while also reducing greenhouse gas emissions to meet society's goals. In terms of aviation, Air BP is committed to providing the energy this growing industry needs, but we are looking for ways to reduce emissions for ourselves and our customers. Some of Air BP's achievements to date include:

- Supplying BP Biojet in the Nordics since 2014 at around ten airports, including Oslo, where we were the first to supply sustainable aviation fuel through the hydrant
- In November 2016, BP announced an investment of \$30 million in biojet producer Fulcrum BioEnergy. Fulcrum has developed and demonstrated a reliable and efficient process for producing low-cost, sustainable biojet from municipal solid waste. The first plant is under construction in Reno, Nevada. Compared to the production of traditional petroleum transportation

fuel, Fulcrum's process will reduce greenhouse gas emissions by more than 80%

- In October 2016, Air BP became the first aviation fuel supplier to achieve carbon neutrality for its into-plane fuelling services at in excess of 250 of its operated locations, and made a 10-year commitment to retaining the accreditation through adhering to a carbon reduction plan

It's also worth noting that Air BP has been innovating, leading and

Lores: We believe it's unlikely that electric or other alternative engine types will be playing a significant role in commercial aviation by 2050, so the use of sustainable alternative fuels within conventional aircraft will likely make the biggest impact on carbon emissions in the immediate future. We will continue to work with the aviation industry to provide our customers with the energy they require to keep the world moving.

We believe that the ability to capture data and create insight for



Air BP's April 2018 collaboration with Victor adds carbon credits to the latter's digital flight log

investing in the aviation industry for more than 90 years and will continue doing just that. Additionally, our team of aviation fuel and services experts, with the capability of BP, a global energy business, will continue to support customers to be successful and meet their goals.

It's possible to identify a handful of key milestones or technological step changes in aerospace design – will the next be fuel? What's Air BP's vision of the future?

customers is likely to play a significant role in helping drive better aviation fuel management. As technology advances, we see digitalisation continuing to drive customer convenience, both at the airport and prior to arrival at the airport.

As the aviation industry continues to grow, we will need to work together to reduce its carbon impact and meet the emerging fuel demand from China, the US, India, Indonesia and Vietnam, as the top five growing aviation markets to 2035. ■

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Bombardier's Global Vision



When we expand our product line, people remember that we look after the whole market, from the smaller Learjet, through the medium size Challengers to ultra-long range

Bombardier will deliver the first customer Global 7500 this year

Bombardier's mould-breaking Global 7500 reached a significant milestone on 28 September 2018, receiving its Transport Canada Type Certification after more than 2,700 hours of flight test. Perhaps more significantly, on 7 November the OEM was able to announce Federal Aviation Administration approval, simultaneously reinforcing its intention to make first customer delivery before year end.

The trials programme employed five flight test vehicles and Bombardier has not only proven its performance promises for the Global 7500, but exceeded them, extending maximum range out to 7,700nm and providing access to some of the world's more challenging airports, including London City, from delivery.

At the same time, both the Global 5500 and 6500 have progressed well since their surprise launch at Geneva's EBACE show in May. At NBAA in Orlando during October, Bombardier declared their flight test programme 70% complete and confirmed its intention to fulfil first customer deliveries in 2019. Featuring an optimised wing and new Rolls-Royce Pearl engines, the 5500 and 6500 offer 5,700nm and 6,600nm of range, respectively.

All three new Globals represent a definitive blend of aerodynamics, powerplant efficiency and performance, speed, range and craftsmanship, but without a fast reacting, easily accessible global support network in place, ownership might quickly become a chore. It's a fact Bombardier recognises, and its worldwide maintenance and support system is not only acknowledged as superior by its customers, but expanding.

Most recently the manufacturer added five Mobile Response Team trucks to its US support effort and opened its seventh new line maintenance station in 18 months. The Paris facility, located at Le Bourget Airport, supports line and unscheduled maintenance, and offers AOG support. Its engineers are certified across the Bombardier range, including the Learjet 60, Challenger 300 and 600 series, and all Globals. The latter includes the Global 7500 – it's coming soon, and Bombardier is ready.

Expansive Line

While the company's developmental emphasis is on the Globals, it shouldn't be forgotten that Bombardier's is among the more expansive product lines in the market, extending from the seven-passenger, 2,060nm Learjet 70, through the ten-place, 3,200nm Challenger 350 to the 19-passenger Global 7500. The current production Learjet 70 and 75 trace their origins back to the original Learjet 23, among the very first, pioneering bizjet designs.

The Challenger 650, meanwhile, has its roots in the CL-600, which first emerged in the late 1970s and effectively introduced Bombardier to the executive and VIP market. Its fuselage section and airframe configuration also informed the highly successful CRJ series of regional airliners, both the Challenger and CRJ then contributing to the Global Express, which entered service in 1999 and led directly to today's Globals.

Bombardier delivered a Challenger 350, a machine developed in the spirit of the very first Challengers, to Latitude 33 Aviation late in October, continuing the good news revealed at NBAA,



where NetJets confirmed it was converting previous options for five Challenger 350s and a Global 6000, for delivery in 2019. Also at the show, Bombardier announced delivery of 96 business jets for the year to date, with 31 delivered in Q3, and an order backlog of US\$14.3 billion at 30 September.

Speaking in Orlando, David Coleal, President, Bombardier Business Aircraft, noted: “This quarter’s delivery and backlog performance is a true reflection of the breadth and quality of Bombardier’s second-to-none aircraft portfolio.

“We are seeing strong demand for our Global aircraft family rivalled only by the continued strong performance of our Challenger franchise, which we estimate outperformed each competitors’ medium-category deliveries by a ratio of 5 to 1 or higher in the third quarter.”

Successfully Selling

Looking for a deeper understanding of the Global 5500 and 6500, the rebranding of the Global 7000 to 7500, and how Bombardier works to satisfy customer requirements, *EVA* tracked down Khader Mattar, VP Sales Middle East & Africa, Asia Pacific, China, at the EBACE event in Geneva. A man with a



busy schedule, he first addressed the question of the Global 7500 rebranding and exciting Global 5500 and 6500 launch.

“Introducing a new product to market is no small feat, but introducing the 7000 as the longest-ranged, first true four-zone aircraft went very well with immense interest still going strong. Now it’s rebranded as the Global 7500 and to enhance the offering between Global 6000 and 7500, Bombardier decided to introduce the Global 6500.

The Nuage seat is a key feature of Bombardier’s new aircraft cabins

Dining arrangements in the Global 7500



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“For individuals flying from Asia to Europe, for example, we believe the greater range of the 6500 complements the product line nicely. The new aircraft have been really well received and although we kept the news back until the last minute, customers are showing keen interest.”

A product launch as significant and dramatic as that for the Global 5500 and 6500, combined with the newsworthiness of imminent Global 7500 entry into service, has ensured Bombardier remained in the spotlight for the remainder of 2018, a situation in which Mattar sees real benefit. “When we expand our product line, people remember that we look after the whole market, from the smaller Learjet, through the medium size Challengers to ultra-long range. We’re happy to service every sector and satisfy every need. We meet individual customer requirements with the Learjet just as we do with the Global 7500; I’m delighted to see new aircraft in the product line and delighted to sell them too!”

Does he see the potential for selling customers a pair of Bombardier aircraft, perhaps a Challenger for shorter-range work, alongside a Global 7500? “We’ve seen people buy a Global 6000 and a Challenger 350, but it depends on the region. In Europe I can imagine customers buying a Learjet and a Global 7500, but if you go into Asia customers tend to fly further than the range of the Learjet 75 and will opt for the Challenger 350 instead.

“I’m excited about the launch of the Global 6500, because it really meets the demand to fly from Asia to Europe, while the Global 7500 provides the range to fly from Asia to the US West Coast. We saw great interest in the Global 7500 mock-up tour in China, Singapore and Dubai, where the reception was tremendous. To see an airplane with a true four-zone cabin dedicated to the owner’s needs with, for example, a state room, an entertainment room, a dining room and a meeting room all at the same time, plus a full-size kitchen, means people can fly with the same amenities as the office and home. The aircraft will fly 17 hours or more and satisfies every need over such a trip.”

Bombardier’s major competitor in the long-range and ultra-long range segments is obviously Gulfstream. Asked during the Geneva show for his thoughts on the latest Globals, Mark Burns, President Gulfstream Aerospace, commented that he appreciated having a competitor with such great products. He reckoned the competition made Gulfstream work harder, to the benefit of its customers. What’s Mattar’s view from the other side of the fence?

“It’s always good to have healthy competition in any market. We strive to serve the needs of our customers, we always focus on the customer. If we can serve that demand, I’m happy to compete with anyone. We respect Gulfstream just as they respect us. They have a duty to serve



their customers and we have a duty to serve ours and our market. We strive to get the best product and support out there, based on our customers' demands, but also demands from the regulatory authorities, the demand for technology and the demand for comfort – we have to satisfy multiple requirements.”

Diverse Cultures

Mattar's area of responsibility is geographically vast and encompasses a spectrum of cultures, mounting a series of challenges that would be difficult to overcome without a dedicated team of salespeople. “It's a very multicultural region, quite complex in terms of satisfying customer requirements. But we have talented and dedicated teams of regional sales directors in place who understand the market they represent. It helps that Bombardier itself is a diverse global company in touch with the different regions that it serves.

“And although it's global, the company still retains a family atmosphere, which means that as an organisation we understand and respect every culture, and work with that culture according to their needs. We're happy and comfortable doing that and our results in these regions show how successful we are.”

With this team of regional sales managers doing so good a job, Mattar's role is presumably

restricted to flying in at the last minute and signing the contract? “My wife would be very happy if that's all I had to do! I work very closely with my team and I'm very satisfied with how we all collaborate so well together. Moreover, Bombardier is always willing to listen to us and to our customers, and provides a great deal of support. It's hard work, but if you are open to understanding different cultures, different regions and how each of our business aircraft are suited to the needs of these regions, I think it's a really successful formula.

“I still learn something with every sale we complete. Our customers are very successful, extremely bright. They've become successful through a combination of drive and intelligence, and they look for value when purchasing an aircraft. They understand our business and expect a product that is up to their standards and that offers value for every dollar they spend.

“And it's not all about the product either. It's also about providing support throughout the ownership and operation of their aircraft. Bombardier is expanding on that promise too, we're extending our support network – because we built their business jet and know it best, we're ideally suited to provide our customers with the support they need throughout the lifetime of their aircraft ownership. In addition to developing new products, we're also investing heavily in support.” ■



It's also about providing support throughout the ownership and operation of their aircraft. Bombardier is expanding on that promise too, we're extending our support network



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Fine Food for Flying



On Air employs a fleet of refrigerated vans and three high-loaders



During October, On Air Dining announced a new cooperation with Moët Hennessy and Victor. The inflight food specialist has created a series of dishes optimised to accompany a special, hand-picked selection of Moët Hennessy Dom Pérignon Champagne and wines. Launched on 10 October, the fine dining experience is available on flights departing airports in the London area and arranged through charter specialist Victor.

Hulme is excited about the opportunity, but reckons exceptional food done exceptionally well remains the solid foundation of On Air's wider business. But providing great food aboard a business or VIP aircraft is about much more than fresh, premium ingredients and beautiful presentation.

"The dry, relatively low pressure environment typical of an aircraft cabin effectively neutralises 50% of a passenger's ability to taste, mostly through reducing the taste of salt. We design dishes to compensate, carefully selecting ingredients that introduce umami [savoury] flavour – it's found in soy sauce, seaweed, shiitake mushrooms



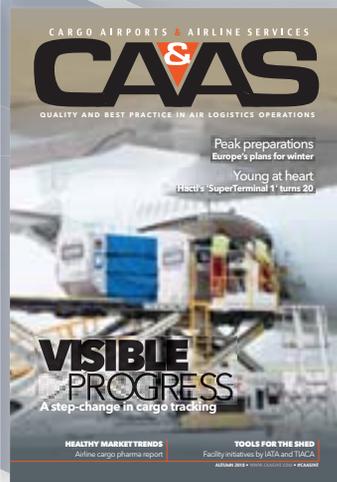
We do a culinary course where we teach flight attendants modern presentation skills and how to use the product

It's an arrangement that demonstrates On Air's willingness and ability to optimise dishes while also extending its reach to a new customer base. CEO Daniel Hulme explains: "We created a dish to suit each Champagne or wine. It's the first time it's been done, and we obviously worked with aviation in mind. In effect, we've produced a unique, bespoke menu to suit Dom Pérignon."

and tomatoes, for example. It causes saliva generation at the back of the mouth, enhancing taste – soy sauce tastes salty, but in fact it's umami having the same effect as salt on the mouth.

"It can also be quite noisy in the cabin and noise has its own effect on how we taste food. We perceive a great deal of taste through smell and the lack of water in the atmosphere has a significant effect

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Flight attendants learn dish presentation and reheating techniques alongside On Air chefs.

Rupa Photography/On Air

on how well the nose works; the dryness and pressure in the cabin make it a harsh environment for eating. So we add umami into the food and incorporate ingredients that introduce water, using a number of modern techniques.”

Chef Team

The essence of On Air Dining’s capability is found in its chefs, described by Hulme as a ‘large team’. “They work 24 hours, cooking our food and assembling it – we can make almost anything. We send a photo guide to the aircraft showing the flight attendant how to recreate

the dish to the same standard. Many of our clients have ovens on their aircraft, but some only have a microwave, so we’ve had to produce something of a generic product for a bespoke market.”

The very idea of employing a microwave to produce a fine dining experience seems contradictory, but Hulme says it’s all about the cooking process. “We use gentle techniques so that when food goes into the microwave it hasn’t already been ‘through the wringer’ and its integrity is retained. We also employ a number of other ‘tricks’...”. He wouldn’t be drawn on the details.

Freezing is an obvious option for food storage, perhaps enabling clients with a freezer on the aircraft to cater for multiple meals on a longer flight or a multi-leg trip, but although the taste may be retained, the appearance might be less than perfect. “We occasionally send food out to meet an aircraft on multi-leg trips too.”

Flight attendant training is key to in-air quality and Hulme says: “We do a culinary course where we teach flight attendants modern presentation skills and how to use the product. It’s really important. We’ve also adopted all kinds of equipment over the years, including

simple items like fine tweezers and delicate paintbrushes. They're just little tricks of the trade really, and we teach them on the course so they can take the techniques away with them. Working with the flight attendants also helps our chefs understand the challenges they face on the aircraft."

With a well-developed aversion to seafood, your correspondent perhaps notices more than most how often it features in images of fine dining aboard executive aircraft. It may exemplify freshness and showcase culinary technique, but one could be forgiven for thinking it's the staple of the business and VIP aviation world. What of the humble burger, for example, a simple dish easily overcomplicated and one that presents a particular challenge to do well on an aeroplane?

Quality Real Food

"We're launching a new menu very soon and it includes a burger. We actually do them all the time, but the new menu takes us back to chef roots. It's all about 'real food'. We still have our fine dining menu, which is what we're known for, and we already offer a quality sandwich and a great burger. So, we're re-engineering our menus to offer more 'real food' with On Air quality, using great produce, where it's all about the story of UK-sourced ingredients rather than creating complex dishes.

"It includes an amazing burger and we've developed techniques to ensure it is amazing. That means the home-cooked chips that some with it are still crispy after they've been in the microwave – you wouldn't believe how much work we've done to make sure our triple-cooked chips don't come out soggy!

"We've also worked hard on getting the burger meat right, carefully deciding how much umami flavour to put into it, how we cook it and how it's reheated on the aircraft. We've developed a

Daniel Hulme,
On Air Dining CEO



technique where it retains its integrity and the caramelisation on the top and bottom surfaces. Of course, you don't want to put the bun in the microwave, but we've chosen a bread roll that warms and toasts nicely, even in a poor quality oven. The rest of it – the salad and garnish – is easy.”

Interestingly, although On Air offers extensive menu options, Hulme reckons around half the food it creates is not from the menu. That variation is down to individual customer requirements, food allergies and other drivers – the company is the only inflight food producer with two fully halal kitchens. “For this flexibility I describe us as a food concierge company rather than a caterer.”

Thanks to the expertise of its chefs and an extensive support network that includes refrigerated vans and high loaders, On Air Dining is successfully delivering exceptional food. Hulme says the company is an active adopter of new technology and systems and: “We're constantly innovating in how we develop and use food. We have our fine dining menu and our new menu is all about real food done well, with On Air quality. It's all about the story of the produce, which UK producer made the cheese,



Flight attendant training courses are an essential element in the On Air offering.

Rupa Photography/On Air



where is the fish sourced? Our fine dining has been perceived by some as expensive – although I believe you pay for quality – but the new menu offers food at an extremely competitive price. I think it'll see us get into the more price-conscious areas of the market – people have loved our initial pitches with it.”

Daniel Hulme is enthused by good food in an industry justly enthused by technology and aircraft performance. For the regular flyer, used to the convenience and comfort of long-range executive travel, the aircraft, connectivity and cabin quality become exceptional expectations, but the food? Well, that can easily become the defining difference. ■

ProFlight Aviation Headset

A New Era in
Cockpit Communications?

Known among aviators for its quality headsets, exemplified by the classic A20, and among audiophiles for its high-end audio systems, headphones and speakers, including the remarkable SoundWear Companion wearable speaker, Bose released its new-technology ProFlight aviation headset in April 2018.

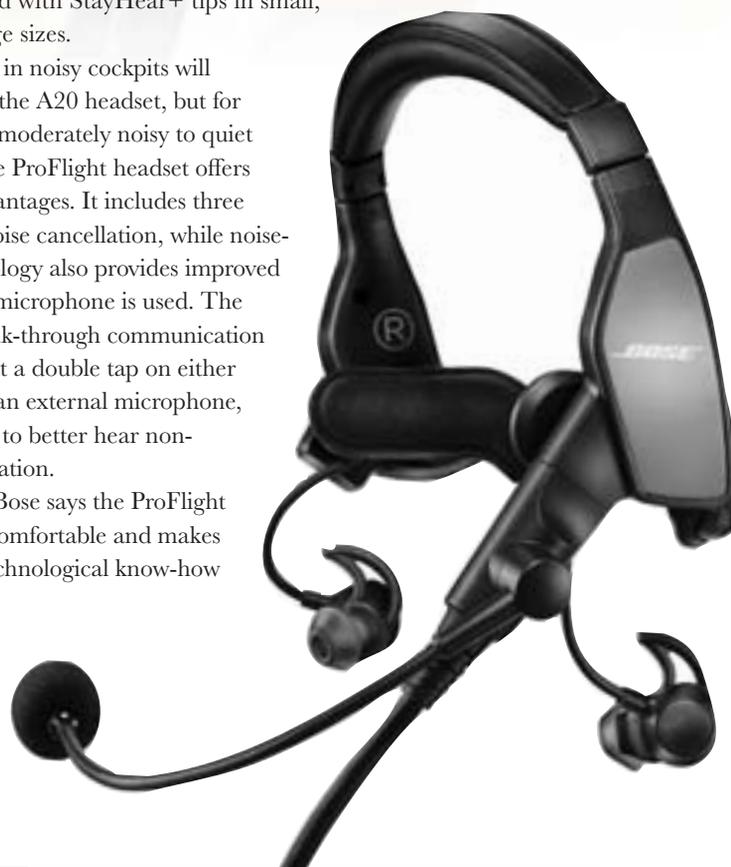
A headset designed for professional pilots, Bose confirms ProFlight as: "...the industry's smallest, quietest and most comfortable active noise cancelling communication headset," pitching it at operators working in the quieter cockpit environments typified by business jets.

That the ProFlight headset represents advanced technology is evident in the more than 30 US design and utility patents it attracted, while Bose notes that it features: "...a lightweight and comfortable in-ear configuration, user-selectable levels of active noise cancellation and a Tap Control for Talk-Through communication function." The ProFlight Aviation Headset is also FAA TSO-C139a and EASA E/TSO-C139a certified.

With an on-head weight of just 139g, the ProFlight headset offers proven comfort over long missions, while its in-ear configuration employs the company's soft StayHear+ tips, which sit in the ear's outer 'bowl' rather than needing to be pushed deeper inside, where they might quickly become uncomfortable; the headset is shipped with StayHear+ tips in small, medium and large sizes.

Pilots working in noisy cockpits will want to consider the A20 headset, but for those working in moderately noisy to quiet environments, the ProFlight headset offers considerable advantages. It includes three levels of active noise cancellation, while noise-cancelling technology also provides improved clarity when the microphone is used. The tap control for talk-through communication is designed so that a double tap on either earbud activates an external microphone, allowing the user to better hear non-intercom conversation.

In a nutshell, Bose says the ProFlight headset is light, comfortable and makes the most of its technological know-how



A traditional headset is considerably heavier and the ProFlight is designed so there are no pressure points – you forget you're wearing it

to deliver a ground-breaking product; but then the manufacturer would say that.

ProFlight in the Cockpit

Looking for a user opinion, *EVA* spoke to Petter Hörnfeldt, an experienced Boeing 737 training captain whose regular aircraft is, of course, the basis of the majority of BBJs. First off, the ProFlight headset looks very different and, quite frankly, decidedly uncomfortable. So, what's it really like to wear?

"It looks very different, but it's actually really comfortable! A traditional headset is considerably heavier and the ProFlight is designed so there are no pressure points – you forget you're wearing it. I wear spectacles and the ProFlight's lack of traditional ear cups and, therefore, clamping pressure, was a primary reason why I wanted to try it.

"At the beginning I was a little sceptical, because I'm not used to having things in my ears – that's why I've never tried consumer in-ear headphones. It took me a few weeks to become properly used to it, but the earpieces are really well designed and after a while I came to realise it's the most comfortable headset I've ever used.

"I've needed to use the A20 on occasions since then – I think I left my ProFlight headset at home – and it's only when you go back to what you had before that you realise the difference with the ProFlight."

So, the headset is comfortable, but it's also high-tech. How well does the noise cancellation work in the real world? "It works really well on the high level, at least sufficient for the 737, which is quite noisy. I only use the high level because of that; the middle level is too low for me – I think it would be fine for a quieter cockpit though. I don't find the low level useful in the 737."

And the tap control for talk-through communication? "I don't feel it works particularly well at the moment – I think Bose is working on improving the sensitivity. I don't use it right now, but the ProFlight design means you can remove one earpiece without pulling the whole headset to one side, an action which would create additional pressure points with a traditional headset."

Bose has equipped the ProFlight headset with its Electret noise-cancelling microphone technology and although Hörnfeldt has no direct evidence of the quality of its transmissions, he



says: "No one has complained, so it must be good. The intercom system on the 737 isn't fantastic, so I judge it on my own and my co-pilot's volume, which is usually set to mid-levels, indicating that the microphone works well."

A handheld controller, mounted along the unit's cable between the headset and aircraft interface, enables access to the ProFlight headset's functions. "We don't have an electrical source in the jacks of our 737s, so we have to put the two AA batteries in the controller. I hang it up so that the cable won't get in the way. In fact, the only thing I'd say is less than ideal with the ProFlight headset for me is that the cable is slightly thick and a little heavy, so that it can get in the way. But I think that's always been the case with headset cables, it's just more noticeable with the ProFlight because it's so much lighter."

The hand controller also allows access to the headset's Bluetooth connectivity, which Bose suggests is ideal for mobile devices and electronic flight bags. It's not something Hörnfeldt has tried in the cockpit since his company doesn't allow Bluetooth on the flight deck, but: "I flew as a passenger recently and wanted to listen to a podcast. I didn't have my regular headphones with me, so I used the ProFlight headset and it worked really well."

Petter Hörnfeldt's real-world experience with the ProFlight headset speaks volumes. He doesn't claim it to be perfect, but the combination of fine qualities it does offer easily outweighs the minor niggles. He's happily certain that it's the most comfortable headset he's used in a long career. ■

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Demonstrating Dylan

Early in October, Biggin Hill, UK-based Pilatus distributor Oriens Aviation staged a spectacular demonstration of the PC-12NG's capabilities. The object was to move seven people, including pilot and Oriens CEO Edwin Brenninkmeyer, and their overnight luggage, from Biggin Hill to the small Swiss airport named for Gstaad, the primary town it serves, but located at Saanen. Depending on type, Gstaad Airport's short runway and unusual approach poses a challenge even to some smaller business jets and especially in difficult weather, but easily falls within the PC-12NG's capability.

Thanks to its impressive cruising speed, the turboprop PC-12NG also makes good time over what at first appears a fairly lengthy sector, and although the outward journey included a stunning sightseeing detour through the mountains, the homeward leg was little more than two hours and therefore easily comparable to a jet.

Flying in Oriens' PC-12NG G-DYLN (known affectionately as 'Dylan'), your correspondent and fellow travellers were treated to a demonstration that surprised and delighted. First among the surprises is the PC-12NG's cabin. Adults won't be able to stand upright, but neither is an uncomfortable stoop required – at least for me. The seats are remarkably comfortable, the cabin beautifully finished and my iPhone connected to the onboard Wi-Fi effortlessly.

Le Grand Bellevue hotel sent this glorious Bentley to collect us from the airport at Saanen, its elegance easily matched by that of the PC-12NG.

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Clockwise from left:

Pilatus packages an unbeatable combination of technology and rugged engineering into the PC-12NG, producing a versatile, cost-effective platform suitable even for operations from smaller airfields, and even grass strips

Oriens Aviation offers Pilatus sales, MRO and training support from its Biggin Hill facility

Comprehensive avionics are installed as standard



There's ample space for bags in the rear luggage compartment, but the aircraft offers operators the flexibility of very quickly removing seats from the aft cabin to extend cargo space forwards. Multiple golf bags, camera and filming equipment, even motorcycles are not uncommon items to find in the back of a PC-12NG, easily loaded via a large, upward-hinged cargo door set into the port rear fuselage.

There's a Propeller?

Pilots will appreciate the aircraft's extensive avionics suite but from the back, the PC-12NG impressed with its sprightly take-off from a grey Biggin Hill and subsequent, surprisingly swift climb to cruising altitude. The cruise isn't quite up there with the jets, but the aircraft flies smoothly and once it's out of the climb phase, the PT6 turboprop's note and propeller noise fades to generate no higher sound level in the cabin than one might expect in the majority of light jets. In fact, the propeller is invisible once it's turning at flight speeds and noticing the aircraft even has one once you're back on the ground is another of the surprises the PC-12NG has in store for the uninitiated.

When Edwin suggested we go sightseeing

on the way, I wasn't alone in expecting a stop somewhere scenic, but he actually had some exhilarating alpine flying in mind. Its large cabin windows make the PC-12NG an excellent viewing platform and how often does one have the opportunity to fly through the mountains, rather than over them? A quick turn around the Matterhorn demonstrated yet another PC-12NG surprise – it's really quite an agile machine.

But the mountains' naturally turbulent air affects even the smoothest-flying of aeroplanes and with one or two passengers feeling the effects of just a little too much mountain flying,



Looking aft, with tables extended. The area to the back of the cabin offers ample luggage space

Edwin turned for Gstaad Airport, employing a surprisingly steep approach to get us onto the airfield's short runway as soon as possible.

Gstaad's Le Grand Bellevue hotel, our destination for the night, sent a stunning Bentley, previously owned by 007 himself, movie star Sir Roger Moore, to collect us. Hopefully its driver was impressed by our approach and landing – since the airfield's only other occupants appeared to be storybook cows, it was difficult to judge their enthusiasm.

In fact, the quiet airport runs with equally quiet efficiency and after relaxed customs formalities, the Bentley gently wafted us to Le Grand Bellevue. Grand it certainly was and set in beautiful surroundings too, Gstaad in early October finding itself between a summer season that includes beach volleyball and a winter of skiing.

Next morning's departure was equally impressive, Edwin managing to skirt much of the cloud over Switzerland, across France and over the Channel, only for squally showers to greet us on the run-in to Biggin. Again though, the PC-12NG handled itself with aplomb. Nothing about the approach to land suggested we were flying anything less than a light jet and, indeed,



around the airfield there's little difference in performance between the PC-12NG and a pure turbine-engined aircraft.

Le Grand Bellevue in Gstaad, our Swiss destination

Biggin was grey when we left and slightly greyer on our return, but the PC-12NG remained a shining star throughout. It truly exemplified the unique opportunity presented by a small private aeroplane, with the capability to move a group of adults across the continent and land them into a small airfield, quickly, discretely and in comfort. ■



The Swiss Alps by PC-12NG. Is there any other way to see them?

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