

# EVA

WINTER 19/20

EXECUTIVE &  
VIP AVIATION  
INTERNATIONAL



## FAI AVIATION GROUP

CHAIRMAN SIEGFRIED AXTMANN & BRAND AMBASSADOR MIKA HÄKKINEN

30 YEARS AND STILL FLYING

The Story From the Chair: Next-generation Evolution Seat and LuxStream Connectivity  
Driving Excellence – ACH130 Aston Martin Edition  
The Story From the Air: GojiBox Geotainment – Peter Nissen, President & Executive  
Producer, Gotham Studios

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# FAI Aviation Group

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**FAI** rent-a-jet



**FAI** Air Ambulance



**FAI** Maintenance

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# Editor's Comments

## Still Misunderstood?

In its ill-fated election campaign, the UK's Labour Party identified business aviation as a target for attention should it be elected into government. The shadow Secretary for Transport, Andy McDonald promised that labour would 'consult with industry' over plans to ban all business jets from UK airports from 2025. At current flying rates, such aircraft were judged to produce yearly carbon emissions equivalent to 450,000 cars on British roads.

The ban was judged not only as a carbon-saving measure, but also a means for encouraging the industry to develop electric aircraft more quickly, the perception being that too little was being done.

Characterising business aircraft as playthings for the wealthy, McDonald tweeted: "The multi-millionaires & billionaires who travel by private jet are doing profound damage to the climate, and it's the rest of us who'll suffer the consequences. A phase-out date for the use of fossil fuel private jets is a sensible proposal."

The Labour Party's campaigning proved humiliatingly unsuccessful, but its proposals for business aviation ought still to cause the industry to look carefully at itself.

There's no doubt that carbon emissions ought to be at the top of this introspective list. Efforts to create more efficient engines, powering aerodynamically advanced airframes are laudable, but let's not fool ourselves that the current low availability of sustainable alternative fuels is sufficient or, indeed, that sustainable fuel is a long-term solution. Let's also acknowledge the reality of electric propulsion technology.

Labour identified the fact that only 15% of carbon emitted by the aviation industry in the UK might be eliminated by electric propulsion

by 2050 at current rates of progress. Given the technological challenge and regulatory hurdles, that seems entirely reasonable. The industry will not replace fossil-fuel propulsion on a decade timescale. Let's also consider how the electricity powering these new aircraft will be generated.

McDonald's tweet provides strong evidence that the business aviation industry is failing to communicate its role clearly, if at all. The perception remains that business jets are only for the super-rich, zipping between holiday homes in search of sun or snow. Yes, HNWIs are vital to the industry, but a rare few use their aircraft only for holiday flying. They, in common with the corporate business jet fleet, generally employ their aircraft as business facilitators and that's a message that just isn't out there.

Turning to this, your winter edition of *EVA*, we recognise the great heritage upon which today's industry is based, with a look at historic Teterboro and its FBOs, and the unique operations of Germany's FAI. We also meet the pioneers pushing forward with technology that will improve safety and the flying experience, examining the Saab-Vũ EFVS and GojiBox, both of them unique boxes of magic in their own high-tech way.



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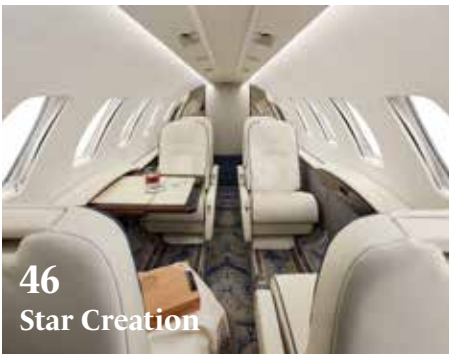
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## 34 Supporting Excellence

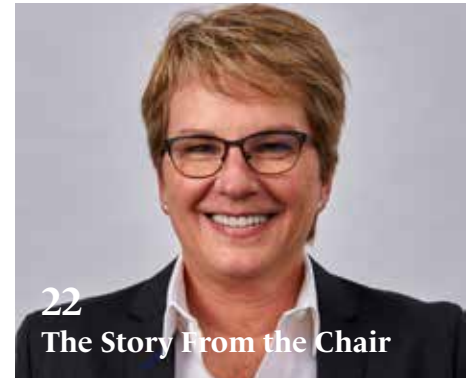
Dassault has expanded its customer support offering through an expansive MRO acquisition programme, an effort that's already winning awards. Vadim Feldzer, Head of Global Communications for Dassault Aviation Civil Aircraft and Ivan Lim, VP MRO Services Asia at ExecuJet MRO Services Malaysia, detail the changes

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# 30 Years and still Flying

In 1989, German entrepreneur Siegfried Axtmann bought a small ambulance helicopter operator – 30 years on, the FAI Aviation Group is a major player in business aviation and air ambulance operations. Now it's entering its next three decades, with former Formula 1 world champion Mika Häkkinen on board as brand ambassador

Mika Häkkinen at the British Grand Prix in July 2001

Nuremberg-based FAI Aviation Group enjoyed a busy 2019, celebrating its 30th anniversary and continuing expansion by adding a Global Express and Learjet 60 to its growing fleet. Founder and Chairman Siegfried Axtmann established FAI Aviation Group on the strength of a single Citation 500 and two ambulance helicopters, subsequently expanding it to become Germany's largest Bombardier business jet operator, with 25 jets 'on the books' at the beginning of the year and more arriving regularly.

He explains: "It had been a small helicopter operator, with just the two helicopters, since 1987 and I took it over in 1989. We worked through several challenges, with a mixed fleet during the 1990s, before focusing on special missions work in the 2000s. But from 2005 onwards, the last half of the company's history, we've really concentrated on our successful core businesses."

Those core businesses, Axtmann says, "...are operating and maintaining aircraft for customers, and operating our owned fleet of ambulance jets." The latter are perhaps the most obvious element of FAI's business, not least through the bright livery of its dedicated aircraft. The demands of repatriating critically ill patients from anywhere in the world using a fleet of specially equipped business jets seem a very long way from maintaining and operating them on regular transport missions and Axtmann explains how he entered the air ambulance market.

"We originally placed at least one foot into the air ambulance business with the original helicopters, which flew passenger transfers between hospitals. It was an open market in Germany then, although today it's regulated and fulfilled only by non-profit organisations. We then began flying for a members' club. It was an understanding of insurance provision at the time that those who travelled abroad could afford their own repatriation by air if they fell ill or had an accident." Repatriation clubs were established to solve the problem, members paying premiums to the club, which then assured them air travel home

in time of need. “These clubs needed service providers,” Axtmann says.

“We started out operating between maybe 20 and 25 ambulance flights per year and today we fly about 1,000 each year, or three every day. It generates 11,000 hours of flying time, sufficient to fly almost 120 times around the globe.”

Indeed, FAI’s air ambulance business has grown to the point where it is a recognised global market leader, having logged more than 200,000 flying hours on patient transport missions during its 30 years of operations. Always ready to launch a dedicated Global Express, Challenger 604 or Learjet 60 air ambulance and medical crew, FAI has gained a reputation for quickly and safely repatriating patients from regions where security may be an additional concern. Indeed, on 24 October 2019, FAI’s excellence in air ambulance operations was recognised with a nomination as finalist in the Air Ambulance Company of the Year Award.

Helicopters are no longer part of the operation, however. “We moved away from helicopters in the early 2000s. I believe flying and maintaining helicopters is a different world to fixed wing and you really do one or the other.” Ironically, Axtmann held a private helicopter pilot’s licence for 25 years, only giving it up in the past four or five. He says flying safely requires a level of practice he was unable to achieve and he found himself only ever flying with a safety pilot. He also reckons: “If you’re an aviation entrepreneur you’d better not like flying, otherwise you’ll have a conflict of interests.”

#### Bombardier Bias

Bombardier types are very much in evidence among FAI’s owned and operated fleet, although not exclusively so. The company recently dabbled in larger equipment, looking to become an ACJ operator, but the venture was short-lived. Axtmann explains why. “We’d had the aircraft in our hangar only two months when we got a tremendous offer for it. So, we re-sold it and decided that for the time being we won’t go back into that class because it requires an additional rating and adds an additional type to the company.

“That costs lots of money and, at the same time, we’ve been retiring certain types, including the Learjet 35 and 55, as we tried



**Above:** FAI’s expert crews offer critical medical care from bedside to bedside;

**Top:** Siegfried Axtmann, Founder and Chairman FAI Aviation Group

#### SIEGFRIED AXTMANN

We started out operating between maybe 20 and 25 ambulance flights per year and today we fly about 1,000 each year, or three every day.



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**Right:** Mika Häkkinen, second from right, with an FAI Learjet 60 and crew. Via Mika Häkkinen

to shrink the number of models we're operating to a minimum. It brings savings in pilot training, spare parts holdings and administration."

FAI's pristine HQ facility at Albrecht Dürer Airport also manages FAI Technik, an important MRO business that added to its capabilities in April 2019 with the award of FAA approval for its EASA Part 145 licence. This important certificate means the company is now fully authorised to perform MRO on US-registered business aircraft. Its focus is on Bombardier types, to the extent that Axtmann says the King Air 350 and Premier that FAI operates on behalf of a customer are maintained by a third party.

Axtmann has seen considerable change in his three-decade aviation career. He acknowledges that safety has improved, but considers that to be true of all industry. More specifically, he points at regulation. "It's got tougher, which is good, because it improves safety. Another major change I've seen is aircraft getting larger. Thirty years ago I bought a Citation 500, from Niki Lauda. The same type of people who flew a Citation during the 1990s fly a Challenger or even a Global today. When the Global Express came out, ten years after I bought the Citation 500, it seemed such a distant prospect. I never imagined having seven in the fleet!"

Thinking about the challenges FAI has overcome so far, Axtmann first identifies the need to remain profitable. "We've put together a business fulfilling several niches, none of which would be profitable on their own. We share the massive overhead costs, which are especially high in aviation because of the need for regulatory compliance, between departments, maximising savings and profits without compromising quality or safety."

#### Flying Future

Having established a diverse, successful business, what does Siegfried Axtmann expect of FAI's next 30 years? He laughs. "Well, I'm 60 now, so I'm not sure I'll still be on board, even in 25 years... But I'm not the type of entrepreneur who predicts new developments. I might say we're going to add



SIEGFRIED AXTMANN

**I still run into new things at least once every month. It's challenging and exciting, constantly learning how to deal with something new."**

three management clients next year, but it could easily not happen. Then again, we might add five and that would be amazing, but none of it is anything you can put in a business plan. You have to maintain a workforce capable of coping with the new business, but at the same time present a business plan that remains positive if there is no new business."

Of key importance to Axtmann, he still enjoys his FAI work and sees no reason to stop just yet. "I still run into new things at least once every month. It's challenging and exciting, constantly learning how to deal with

something new."

In keeping with Axtmann's philosophy of embracing new challenges, and also looking towards FAI's next few years, in July 2019 the company named former two-times World Champion Formula 1 driver Mika Häkkinen as its brand ambassador. Known as 'The Flying Finn' during his racing career, for speed on the track rather than skill in the air, Häkkinen won both his world championships with McLaren Mercedes, subsequently working as a Mercedes brand ambassador and, when FAI signed him, as an ambassador for McLaren. Contracting a famous face to associate with





**Left:** FAI Aviation Group operates a fleet of Challenger, Global Express and Learjet (illustrated) air ambulances

your brand is an obvious means of gaining attention and making positive associations, but Häkkinen's involvement means rather more.

Speaking to *EVA* in September 2019, he recalled: "Earlier this year I was visiting Mumtalakat Holdings in Bahrain, in my role with McLaren, and FAI Aviation was presented to me. We enjoyed a very insightful discussion about the industry, which I found fascinating from the start. But it was the quality of their service and the processes they have in place that convinced me we could work together." As an FAI customer, he says the company has most impressed him with its, "...end-to-end service, from the time my office contacts them to the point I land to my destination."

Since then, Häkkinen has worked closely with Axtmann and the FAI team. "It is still the beginning of the journey with FAI, but I've already learned a whole lot about the industry from true experts. Business aviation is a fascinating segment with its own characteristics and challenges. I believe it is not just here to stay but that it will continue to grow globally, and I want to help FAI win as the industry grows. As in any successful partnership though, my work with FAI is a two-way street – I'm learning a lot about business jets and air ambulance operations."

Of Axtmann himself, Häkkinen says: "He is a true expert. I've learned so much from him about the industry and how it will evolve into the future. We share the same values, so it's a sheer pleasure to be in his team. I'm

impressed with his network and vision for the company.

"It offers a surprisingly wide range of services, which has impressed me a lot. It means our message reaches a much larger audience since the company's services touch more people. In short, FAI is very strong player in all its segments."

With a particular focus on aircraft charter and management at FAI, Häkkinen expects: "...to meet industry experts and fleet owners to hear and understand their view of the company and the wider industry. Even though I'm not an expert, I have quite some experience in aircraft charter, so I can explain my views and bring people together."

#### Life Facilitator

He may not be an industry expert, but the rigours of Formula 1 scheduling through the 1990s mean Häkkinen has experienced the full time-saving, facilitating benefits of business aviation. In an exclusive summer 2018 interview, the late, great Niki Lauda told *EVA* that his career would not have been possible without private aviation, and 'The Flying Finn' wholeheartedly agrees.

"If we go back a bit in time, some of us remember Formula 1 when testing before the season and between races was not limited. The work took place all over Europe and testing periods were normally long and intense. I think it would have been impossible to maintain a racing, testing, promotional work and family life balance without private flying. I recall once testing all the way until 5pm on 23 December. At 6pm I was in my private plane, heading home to see my family for Christmas."

And although his racing days are behind him, Häkkinen's busy lifestyle means he still appreciates the time private flying buys him. "I have five children and the private jet allows me to maximise the time I spend with them. There is no substitute for that. I've come to really appreciate the flexibility, privacy and convenience it offers." Disappointed that his calendar did not

"I have five children  
and the private  
jet allows me to  
maximise the time I  
spend with them."

MIKA HÄKKINEN



allow him to visit EBACE 2019 in Geneva, Häkkinen says he already has plans to attend some business aviation shows in 2020. In the meantime: “I’ve been surprised at how much business aviation and racing – which are fundamentally different – have in common. Their development is so rapid that you have to run fast to maintain a winning position. During my racing career I wanted to understand everything, every detail in the car, engine and aerodynamics. I believe there is no substitute for knowledge and I really wanted to help my engineers and mechanics build a winning car. Now when I’m sitting in a business jet I very often find myself paying attention to the details in the cabin. Business jets have become a fascination, not just as products, but more as an end-to-end service.”

Might this fascination lead him into pilot training? “Me? As a pilot? I can tell you that I would at the least be very fast!”



Late in 2019, FAI Aviation Group Holding discontinued the AOC of one of its charter businesses, Fly Alpha, transferring its Premier IA and King Air 350 onto the FAI AOC.

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# Teterboro New York & New Jersey

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*The primary business airport for New York, Teterboro supports four FBO operators – Atlantic Aviation, Jet Aviation, Meridian and Signature Flight Support – and sees a high proportion of large-cabin, long-range traffic*

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As Pasquale Raguseo, Area Director at Signature Flight Support notes, “Teterboro Airport has always been a synonymous with aviation and New York City, since opening in the 1910s.” Walter C Teter bought the real estate on which the airport stands during 1917, developing it into an airport for New York and New Jersey, ready to open in 1919.

Now owned and operated by the Port Authority for New York and New Jersey, Teterboro is considered a ‘reliever’ airport, taking general aviation traffic, including business aircraft, away from the region’s congested commercial airports. The Port Authority acquired the facility in 1949, but leased it out from 1970 on a 30-year term, taking control, including operational control, again in 2000.

The airport is surrounded by residential areas and proximal to an area of protected wetlands, and therefore works hard to minimise noise

pollution. In 2003, Congressman Steve Rothman helped authorise a bill restricting aircraft take-off weight from Teterboro to 100,000lb, in a move designed to prevent larger jets of the ACJ and BBJ type, perceived as creating larger noise signatures, from using the facility.

Such is the importance of its location adjacent to New York that four FBO operators maintain terminals at Teterboro: Atlantic Aviation, Jet Aviation, Meridian and Signature Flight Support.

#### **Jet Aviation**

John Langevin, Jet Aviation’s VP FBO Operations North America has worked at Teterboro for the best part of 40 years, during which time he’s seen considerable change. Jet Aviation established its presence at the airport in 1988, by which time Langevin had already been in residence some years.

**Previous spread:** Signature South FBO;  
**Right:** Jet Aviation's Teterboro reception area

In late 2019 the company expanded its facilities with a new hangar, as Langevin explains: "We just opened a 40,000sqft state-of-the art hangar with 30ft doors to accommodate the newer generation, large-body aircraft. The overall Jet Aviation campus has a five-storey terminal and executive building at its centre, plus nine hangars, including the new one, for 270,000sqft of space. We also have roughly one million square feet of ramp and taxiway or, as the Port Authority calls it, taxi lane, which passes through the facility in a 'U' shape."

Teterboro often features as a destination or take-off point for OEM flights designed to showcase the capability of the latest long-range, high-performance jets. Such aircraft are particularly important for the airport, as Langevin confirms: "Jet Aviation is known for serving large-cabin jets. Of course, we'll handle any aircraft, but we mainly see long-range, large aircraft, of which the Global 7500 is the largest because of the 100,000lb weight limit on arrivals."

Many of Jet Aviation's Teterboro customers are therefore flying considerable distances, and Langevin notes coast-to-coast flights, and journeys to and from global destinations, as well as South America and Canada as particularly common; "And for that, we have an advantage in our 30 or so FBO facilities worldwide."

Jet Aviation offers a full range of ramp services, and works closely with onsite OEM facilities for maintenance. "We have Gulfstream, Bombardier and Dassault, serving the bulk of the aircraft we see." We have our own refuellers and tow tractors, including electric vehicles as we work to keep our carbon footprint down."

Jet Aviation is a World Fuel/Phillips 66 dealer and Langevin says Jet Aviation Teterboro, in common with all the company's US FBOs, is among 84 World Fuels Air Elite FBOs. Meanwhile, the fuel and bowzers at the airport are branded Phillips 66.

It goes without saying that the Teterboro FBO offers all the amenities passengers



JOHN LANGEVIN

**We just opened a 40,000sqft state-of-the art hangar with 30ft doors to accommodate the newer generation, large-body aircraft.**

and crew expect from a top-flight facility, but Langevin explains an unusual feature. "Because the Port Authority owns the airport, we're not allowed to bring cars out to the aircraft. So, we have executive buses that transport them between the aircraft and our main terminal. The terminal was designed in 2001 with that challenge in mind and to best serve our customers we created a hotel-like experience. There's a doorman and baggage

handlers at the front door, with the buses waiting at the ramp. We also have three levels of security check as well as adhering to the standard FAA rules.

"We just completed extensive renovations to the main lobby area, including new executive bathrooms and lounge, pilot lounge and flight planning room and other amenities. There are also executive coffee stations, and



a concierge in the lobby whose only focus is the customer.”

#### Meridian

Matthew Barclay from Meridian’s marketing office notes that J. Kenneth Forester founded the company’s Teterboro business in 1946 as Mallard Air Service. At that time the airport was privately owned, having been used by the US Army Air Force during World War II. Today’s owner, Kenneth C Forester, is the son of the FBO’s founder.

Meridian is the last privately owned FBO at Teterboro and Barclay says: “Our owners are on site every day, while our senior management has more than 30 years of experience at Meridian; many of our managers and supervisors have ten to 20 years’ experience at the company.” That longevity has helped Meridian develop long-standing customer relationships, while Barclay reckons

the company’s independence makes it nimbler when it comes to accommodating special requests.

“We’ve been the top ranked facility at Teterboro Airport and the Northeast in both *Professional Pilot* Prase and AIN surveys more than 15 times in the past 23 years, our VP of Customer Service has been ranked number one Customer Service Representative in the US in the *Professional Pilot* Prase survey for 18 years and our customer service manager, Victor Seda, has placed in the top five for the last 12 years,” Barclay concludes.

Meridian operates on 18 acres, with facilities including offices and 100,000sqft of hangar space. As well as FBO services, Meridian offers aircraft charter and management, and aircraft maintenance, its family ownership making it unique at Teterboro as the airport’s only company providing such an extensive

range of services through one owner. Capable of handling any aircraft permitted to fly into Teterboro, Meridian provides fuelling, towing, storage, de-icing, lavatory service, maintenance, potable water and GPU services. Crews have access to a training room, gym, cinema, showers, locker room, and crew cars or courtesy van. “We will arrange overnight accommodations and rental cars,” Barclay confirms.

Passengers enjoy two conference rooms in the main Meridian terminal, plus a training room, business centre, gym, cinema and showers. The executive lobby is available to all passengers and crews flying through the facility. Rental cars or chauffeured limousine services and catering may also be arranged.

#### Signature Flight Support

Pasquale Raguseo explains Signature Flight Support’s presence at Teterboro. “Signature



Inside Jet Aviation’s Teterboro terminal

can trace its lineage at the airport back to the 1960s, to a company called Teterboro Aircraft Services. That original FBO was supplemented by an additional facility to establish a West and East FBO on the airport, both of which Signature acquired in 1996, with the purchase of International Aviation.

“Signature’s current holdings include a third facility, Teterboro South, which was added during the Landmark Aviation acquisition in 2016, making us the largest service provider on the field. Teterboro East and South have adjacent ramp space, while Teterboro West has a portion of the ramp on the northwest side of the airport.”

Signature provides all the services expected of an FBO provider to a major business aviation hub, to single-engined pistons, through corporate helicopters to the Gulfstream G650 and Bombardier Global 7500 at the larger end of Teterboro’s scale. “Any of Signature’s three ramps can cater to most contemporary business aircraft types,” Raguseo confirms.

“As would be expected from the airport’s proximity to New York City, Signature Teterboro’s clientele consists of business leaders and renowned personalities with exacting expectations. Through our on-staff concierges, we provide a bespoke reception for arriving or departing guests, assisting with their personal needs from our catered amenities.”

In common with every Signature location, Teterboro offers a comprehensive selection of amenities for flight crews, including ‘snooze rooms’ and courtesy crew cars, but something unusual is coming soon for passengers. “A unique experience only available at Signature Teterboro South will be the Nexus Sky Lounge, opening in January 2020,” Raguseo enthuses. Envisaged for ultra-high net worth individuals looking to lounge before a trip, the Nexus Sky Lounge will feature an assortment of food and beverages, meeting facilities and a Full Swing golf simulator.”

As far as its extent at the airport is concerned, Teterboro joins Dallas Love Field in the unique distinction of having three Signature FBO facilities at the one airport.

Between them, the Teterboro FBOs boast 160 employees, under two general managers. Hemmed in as it is by wetlands and the urban development that has grown up around it, Teterboro Airport is short of space for expansion. Yet, Raguseo confirms: “Of the airport’s FBOs, Signature has the only remaining parcel of land suitable for construction. We aim to build three 40,000sqft hangars capable of handling large-cabin business jets.”

#### Why Teterboro?

Add Atlantic Aviation’s executive terminal

and heated hangar space to the mix of FBO provision and it’s clear Teterboro is a popular, thriving destination for business and VIP travellers. But what is its big attraction? Signature’s Pasquale Raguseo explains: “Teterboro is considered by many to be the most prolific airport for business aviation in the New York City area. With the simplest access to major thoroughfares across the Hudson River, including the George Washington Bridge and Lincoln Tunnel, Teterboro’s short commute times mean that travellers are usually only 30 to 45 minutes away from the city.”

#### PASQUALE RAGUSEO

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**Peter Nissen**

President & Executive Producer at Gotham Studios

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**PETER NISSEN**

**I believe we have a chance to redefine what a moving map is. I'd love to change the standard of what people expect from a map.**

## The Story In the Air

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*Gotham Studios has created Goji Geotainment, a unique storytelling moving map that becomes available in 2020 in the GojiBox, a small, blue, box of magic*

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Peter Nissen, President & Executive Producer at Gotham Studios, is an Emmy Award-winning professional storyteller. His medium may be video, television and audio, but he's a storyteller nonetheless. After many years looking out of aircraft windows wondering about the stories of the people and places below, he decided to create a moving map-based inflight storytelling system. In essence inflight entertainment, in reality it's so much more.

"Working as a TV producer and living in Los Angeles a couple of decades ago," Nissen recalls, "I found myself doing a lot of flying around the country. When I'm sitting at the airplane window I always wonder what it is that we're passing by. What's that city? That mountain? Who lives there? What history has been made there?"

"I realised there are a million stories to be told right under our noses and I wanted to know what those stories were. I didn't want to just tune out on a flight, I wanted to see and know about all the places in between. I thought there must be a way to provide a guided tour of the flight, just as you might in a museum. But it had to be smart, and flexible enough to go wherever an airplane goes.

"I run a media production company, so I got down to business with some programmers and writers to think about how we might make it happen. We came up with the idea of Geotainment, which tells the story of wherever you are, but changes the show on the fly."



The Gotham Studios team at NBAA-BACE in Las Vegas



Geotainment is delivered through GojiBox. As such, even though much of its content is licenced, the award-winning studio's experience is a guarantee of its quality. And where content isn't available, Gotham Studios is equipped to create it.

Yet customers already have a wide variety of IFE options and it's tempting to ask if another is really necessary. But GojiBox has to be seen, better still experienced, to understand why it is different.

#### Quality Content

Nissen explains: "It mixes general interest knowledge with entertainment. It tells you about history, geography, pop culture, but it also includes radio drama relevant to the places you're flying over. That's version one. In version two, which we'll rollout a year from now, we'll have specific channels, starting with sports and children."

"I'm a parent of teenagers and I've been flying them back and forth their whole lives. I know children can become bored on airplanes, but also how interested they can be and how curious they are when they look out the window. They naturally want to know about the world and so the channel will cater to that and tell them stories the way children love to be told stories."

Creating quality content sufficient to provide interesting stories wherever an aircraft flies is a serious challenge. Doing the same for a business aircraft that doesn't follow schedules or regularly prescribed routes between the same airports, even more so. As a result, Goji Geotainment carefully sources the highest quality material.

When Goji reaches out more specifically to children, it will potentially reach folk who will remain customers for decades. But



right now, the focus is on establishing and explaining the Goji brand. "We want to have the Goji Geotainment brand recognisable for many years but, wherever it might take us, we're still in its first incarnation. We want to entertain everyone, but right now our focus is on the curious adults who comprise the majority of business aircraft passengers.

"We want people to understand what this new kind of entertainment is. Honestly, I

believe we have a chance to redefine what a moving map is. I'd love to change the standard of what people expect from a map."

#### Multifunction Geotainment

EVA witnessed the GojiBox at NBAA-BACE 2019, albeit at the Goji Geotainment booth. The unit's compact size and low weight belie the fact that it contains maps and stories for the whole of the US and Europe – with extensions to come – 1TB of storage capacity

and an LTE modem. But what really stands out is that this small box of big stories is bright blue. GojiBox makes a statement even before it's plugged in.

"We had a very good show and we have orders. We'll have our first installations in first or second quarter 2020. The GojiBox is just over one pound of electronics and from that comes a Wi-Fi signal, via an ethernet link and the aircraft's WAP [wireless access point]. The Geotainment begins with a homepage that takes you into a beautiful, Google Earth-type 3D interactive map that you can move around with your fingers. Then, there are buttons for 'Points of Interest'. These display 4K images of interesting places as you pass them by, along with facts.

"And there's a button called 'Georadio'. That provides a continuous audio programme that sounds like a radio programme; there are no gaps, you don't hear about something and then have to wait 20 minutes before you hear about something else. We have thousands of visual and audio points of interest over the US and Europe. We're now expanding to the Middle East and then into the Far East in a couple of years."

Thanks to its small size and light weight, GojiBox also has the potential to bring moving map and IFE options to lighter jets and turboprops. "These aircraft often don't have maps or inflight entertainment because until now the servers required have just been too large and heavy. We can fix that. We didn't put a Wi-Fi transmitter in the box because it's redundant on so many airplanes, but if an aircraft isn't equipped, it's an easy fix, we can recommend an inexpensive Wi-Fi system."

Another key message is that the full GojiBox experience is achieved without inflight connectivity. A world of maps, facts, stories, entertainment and even movies, is available wirelessly without an air-to-ground or satcom connection. The GojiBox's large storage space enables users to load their own movie choices, which become available for streaming to personal devices or monitors.



"The box also has an LTE modem and every time the airplane lands and the modem gets a signal it 'phones home'. It checks to see what content needs to be updated, looks for new material and could be used to download large media, like movies."

The modem also enables firmware updates: "We want owners to install the box and forget about it. We'll take care of all the maintenance virtually." And if there's an issue remote intervention can't fix? "We have a warranty and 24-hour customer support."

#### Customisation Options

GojiBox has all the utility of a top-quality moving map, plus extensive storytelling and entertainment possibilities, meaning it has

something to offer even the best equipped aircraft. But there's more, the content can be customised to suit customer requirements. "And not only that," Nissen enthuses. "The customer has the ability, through a dedicated portal, to do their own customisation. They can log into their GojiBox, then add their logo and change the aircraft on the map. The colours can be changed to match corporate colours and, if you give us a call, because we're a television production company we can produce custom content as well. If you're a restaurant chain, for example, we can produce points of interest to do with your restaurants as you pass over cities."

Goji Geotainment is already talking to Hollywood to secure licencing for early-



release movies in a future GojiBox iteration, and it's intriguing to consider what other possibilities licencing could realise. GojiBox might be customisable to become as individual as a ringtone – how about having your jet appear on the map as the Millennium Falcon, for example? Or perhaps a Fortnite glider?

“Anything might be possible,” Nissen agrees. “We already use a Snoopy biplane for demos. He’s there in his Sopwith Camel, flying over the map and it’s the cutest thing. When we produce the children’s map we’ll definitely have a fun airplane that can be changed out if required.”

Early in December 2019, Goji Geotainment was in the process of obtaining parts manufacturer approval (PMA). GojiBox requires an STC, but with PMA in place it will be a more or less off-the-shelf product. Customers pay an upfront fee, plus a subscription, as Nissen explains. “There’s an affordable fee that’s at the middle to low end of other possibilities on the market. After the first year, an annual charge of a few thousand dollars keeps the subscription up to date.

“The subscription keeps the LTE modem going, since that’s on a contract we hold, and covers fees for content we licence from third parties. Customers who want the map but no content will pay less.”

Gotham Studios has created the concept of Geotainment and is bringing it to market with its unique GojiBox. Among the team there’s an evident sense of intense creativity, expertise and enthusiasm, but also fun, which leads one to question the unusual product name. “We called the original product Georadio, but radio was only part of it. We wanted it to be a map and visual too.

“We needed a much bigger, more flexible name, something abstract. My wife and I were thinking the problem through over a glass of wine and I looked at our dog, who accompanies us everywhere, and said: ‘What do you think, Goji?’ We did our due diligence and it works well, except perhaps in Japanese, but we’ll figure that out when we come to it.”

PETER NISSEN

We want owners to install the box and forget about it. We’ll take care of all the maintenance virtually



# The Story From the Chair

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*Collins Aerospace is entering a new era of integrated cabin solutions, most recently epitomised by its next-generation Evolution seat and LuxStream connectivity product*

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Collins Aerospace finds itself in the unusual but enviable position of being involved in virtually the whole of the business aircraft manufacturing, support and overhaul supply chain. Its combination of legacy businesses means that Collins has pretty much everything, from avionics and cockpit systems, through undercarriage units and air data sensors, to IFEC and seating; perhaps the only thing it doesn't do is build aircraft.

The company's seating expertise derives largely from its B/E Aerospace heritage, but the wider product and knowledge base of the Collins Aerospace enterprise means its seating products are beginning to incorporate technologies its experts hadn't realised were available to them as recently as 18 months ago.

At EBACE in May, the company launched its next-generation Evolution seat, leveraging the best of commercial first-class seating design and technology, and adapting it to the needs of business and VIP jet travellers. The seat's cleverly engineered articulation enables recline through a single motion – recline is usually through two separate motions – providing cabin designers more flexibility by enabling seat installation closer to cabin bulkheads. It also provides a dramatically comfortable one-touch recline option to the passenger.

Adding further to its uniqueness of design, Evolution sits on Collins' new mini-base pedestal, which mounts into standard seat tracks,

but assumes a far lower profile over a smaller area than traditional mounting systems. These require a 'pallet' between seat and track, which the mini base does away with. The result is a much reduced sub-seat structure that isn't immediately obvious and gives the impression that the seat is floating over the cabin floor; it also saves weight compared to traditional designs.

## **Floating? Perhaps Gliding**

In your correspondent's experience, a degree of familiarity certainly helps in the quest to arrange a business aircraft seat to exactly the position required for comfort in any of its many positions. But even here, Evolution delivers a feeling of floating, or perhaps gliding, as it moves easily between positions, cradling and supporting as it goes. For those of us on the short side of average and/or lighter passengers, moving a conventional seat can be rather more of a challenge than expected, an issue Evolution avoids thanks to what Collins describes as a '...proprietary triple roller system for a smooth transition between seat positions with minimal effort'.

According to Collins' literature, "Evolution cradles a passenger's body in a suspended lounge or 'zero gravity' position for maximum relaxation, while at the same time providing a new articulating pivoting backrest that provides additional thoracic and vertebral support when the individual is in dine or work mode. This is the first time an Adjustable Thoracic Support





Backrest has been incorporated in business jet seating. In addition, Evolution's unique, patent-pending kinematic seat motion provides its lounge position via 'one-touch comfort' articulation."

Additionally, Collins Aerospace has recognised the increasingly important role seating plays for passengers exploiting the half-world reach of the highest-performing jets from Bombardier and Gulfstream, as well as the airliner-based ACJ and BBJ platforms. Longer ranges mean more time on board and while the principal might enjoy a dedicated bedroom, others require proper fully-flat sleeping surfaces. Evolution converts into a full-flat bed, easily, of course, and features: "...new 'comfort max' cushions that provide a special energy-absorbing mattress while in sleep mode".

It all sounds wonderful, or possibly

too good to be true. So, getting comfortable in the next-generation Evolution seat at the company's NBAA booth, I prepared for a conversation and demonstration with Moises Perez, Director, Sustaining & Development Engineering Interior Systems.

First, did the seat appear to be floating? In all honesty, I'm not convinced it did, but in photos and video from the booth it certainly appears not to be touching the floor, so perhaps I wasn't paying attention. Initial impression on sitting down? Evolution is considerably firmer than I expected...

Perez produces a cross-section of the seat structure and highlights the layer immediately below the upholstery. "It's energy attenuating foam," he explains. "Through your body heat, you accommodate into the layer. The top layer works somewhat like a Tempur-pedic mattress." As he was

#### MOISES PEREZ

**We're illustrating that you don't have to have a touchscreen or hard buttons. We do that all the time, so why not do something different?**

Ridgeway sees LuxStream offering customers real opportunities in the connectivity market.

talking I could genuinely feel the seat become more accommodating, transforming from the comfortable side of firm to the hug side of comfortable. “The longer you sit, the more comfortable it becomes,” Perez confirms.

The worth of such a design, even over just a couple of hours, is obvious, but over a double-digit journey it becomes invaluable for sleeping and sitting. And there are other benefits. “When you get up, the foam begins returning to its original shape. The product is manufactured with nice, tight pull lines,” Perez says, indicating the seams where the leather upholstery is stitched and pulled tight, “and even after considerable use these remain tight because the foam returns to shape. It means the product looks beautiful for longer. Previously you could only do that with rigid foam.” It also means the sagging typical of well-used leather upholstery isn’t going to become evident for a considerably long time.

#### Lounge Position

Collins Aerospace most likely called its latest seat Evolution because it represents a step beyond traditional business jet seat design, but it might also have named it Evolution for how it evolves with you every time you sit down to rest, eat or work, or recline to sleep. In an industry where subtle individuality is always desirable, a seat that moulds itself to every body is as ingenious as it is comfortable.

Comparing Evolution to established seat designs, Perez activates a button on the Evolution armrest. Already there’s a significant difference. The next-generation Evolution seat on the booth apparently







MOISES PEREZ

**As the seat reclines, the back rest moves down, as on a traditional seat, but we're also translating the movement forward, so the body is cradled as the seat moves.**

had no buttons at all. Instead, pressure applied to stitched symbols activated the various seat functions. The conventional buttons were obviously underneath the stitching, but no functionality was lost and they proved impossible to feel.

Then, as the seat begins to move, he notes: "As the seat reclines, the back rest moves down, as on a traditional seat, but we're also translating the movement forward, so the body is cradled as the seat moves." At the same time, the arms move down – 'pancake down' as Perez puts it – and the leg rest becomes available to complete an especially comfortable, natural lounge position.

At the same time, the headrest articulates forwards, effortlessly supporting the head. "We found a lot of occupants don't like to rest their head on the surface, they prefer to rest the back of their neck. So the headrest moves forward to provide that support and provide the perfect position for looking at a monitor, especially if it's bulkhead mounted."

The seat continues through the lounge position to create a flat sleeping surface 80 inches long that can actually be made fully flat via further articulation of the split backrest. The width between the arm supports is 22 inches, making for a comfortable sleeping space. Thanks to clever design and the energy attenuating foam, there's no requirement for additional

cushions or mattresses, reducing bulk and weight in the cabin. The seat back articulation also has utility in the sitting position, since it provides additional upper back support for reading or working.

The fact that the display seat is 'assisted' makes for an even smoother experience. Small electric motors between the control buttons and mechanical functions actuate the movements, meaning no requirement for large handles or 'leg swinging' to persuade the seat into action. Lateral, forward and aft movement are characteristically smooth thanks to what Collins Aerospace calls the Black Ice track and swivel system.

#### Evolution Experience

Perez described the 'stitched controls' as a conversation piece for the show, with the intention of saying to customers and designers: "Hey, is this interesting?" We're illustrating that you don't have to have a touchscreen or hard buttons. We do that all the time, so why not do something different?"

The overall Evolution experience is quite extraordinary. The next-generation seat looks exceptional, with deceptively clean lines as shown at NBAA BACE. Supremely smooth and simple in operation, it cossets and supports, optimising comfort whether the occupant is eating, working, sleeping or at leisure. And it adapts to each individual user's body. Every time.



## LeAnn Ridgeway

VP and General Manager, Information Management Services

LeAnn Ridgeway joined Rockwell Collins in 1988, following in the footsteps of her parents, who both worked with Collins Radio. Embracing a philosophy of constant learning, Ridgeway has always been ready to embrace challenge and had been promoted to executive level within ten years.

Ridgeway found herself leading simulation and training at Rockwell Collins, before playing a key role in combining the distinct businesses that today comprise Collins Aerospace. She managed the acquisition of B/E Aerospace, Rockwell Collins' largest purchase, then became VP & General Manager of Information Management Services at Collins Aerospace after it was created through the merger of Rockwell Collins and United Technologies in 2018.

Although the focus of my visit had been on the next-generation Evolution seat – or Evolution 2 – Perez glanced around the booth at the dramatic lighting, Venue display and other Collins Aerospace products on display and emphasised the advantages of its new-found breadth of capability. He chose a three-place divan, integrated into the cabin management system, as an example. “We worked with the Venue CMS guys in order to be able to control elements of the lighting and displays from integrated controls in the divan,” he said. It’s an indication of a new era in which Collins Aerospace is able to provide a fully integrated solution for the cabin and cockpit, but may also be installing the connectivity, undercarriage and key propulsion and mechanical components, and wrapping a complete service and support package around it too.

### LuxStream

All of this was evident on the booth, where there was also a frisson of excitement over connectivity, thanks to LuxStream, Collins' new Ku-band product delivered in partnership with SES. Delivering 25Mbps in the US and 15Mbps elsewhere,

LuxStream is fast, but LeAnn Ridgeway, VP and General Manager, Information Management Services, was perhaps more excited over the flexibility of LuxStream pricing, which even includes a pay-as-you-go option.

LuxStream works with whatever router a customer chooses, but provides optimal service through Collins' equipment, effectively combining the former ARINC's connectivity expertise with the avionics and cabin management skills of Rockwell Collins to create an integrated Collins Aerospace passenger experience. Where once one might have talked about buying connectivity simply as a pipe to the aircraft's router, having the router 'talk' to the IFE and CMS, then deciding on interfaces for control, now the entire package can be assembled seamlessly from one supplier, down to CMS controls integrated into seats, which are designed for optimal comfort.

Ridgeway notes that LuxStream, combined with the recommended Collins Aerospace router, has the flexibility to serve cabin and cockpit. That helps

### MOISES PEREZ

**We worked with the Venue CMS guys in order to be able to control elements of the lighting and displays from integrated controls in the divan**



transform and disrupt at the front as well as in the back, driving new possibilities including the ARINCDirect iPad app, which Collins Aerospace has enhanced with an oceanic plotting chart. It is just one example of what Ridgeway calls a 'fusion of connectivity and technology', where the previous focus on streaming to the aircraft has switched to include data uploaded from the aircraft and how it can be used to generate operating efficiencies and enhance safety.

Opening the world of ARINCDirect content and integrating seamlessly into the Venue cabin management system, LuxStream epitomises the traditional values and long-established companies Collins Aerospace represents, all combined under one brand, with a single-source support and service organisation and a clear vision for the future.



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**Stedman Stevens**  
CEO VŪ Systems

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# Visibility Unlimited

*North Carolina's Vū Systems and Sweden's Saab are joining forces to bring a revolutionary new Enhanced Flight Vision System to market, for the first time enabling pilots to 'see' in zero visibility*

Saab flew its J 21R prototype for the first time in 1947. It was among the first jet fighters and, by extension therefore, also among the first successful jet aircraft of any kind. The Swedish company has maintained its ascendancy in aerospace production through a series of world-class combat aircraft, culminating in today's superlative Gripen E/F. It is also partnering Boeing on the T-7A Red Hawk, the US Air Force's new advanced jet trainer.

Along the way, Saab has developed deep expertise in avionics, sensors, flight control systems and communications, delivering high-end capability into civilian and military markets in the air, on land and at sea. In recent years, Saab has also been notable for the expansion of its remote air traffic control tower business, linking unmanned ATC at austere airfields to manned centres at major airports.

## Visibility Unlimited

Vū Systems was founded in North Carolina in 2013, with 'Vū' meaning Visibility Unlimited. In 2015, it flight tested an initial prototype passive millimetre wave (PMMW) camera, proving its ability to 'see through' weather. Work continued to create the so-called Vū Cube sensor and after forging a strategic partnership with Saab, Vū Systems CEO Stedman Stevens was ready to reveal the PMMW technology as part of an Enhanced Flight Vision System (EFVS) at NBAA-BACE 2019.

The technology came as a surprise to many show visitors. Stevens says: "Vū Systems has been a quiet development, meaning complete secrecy. Keeping the programme and the product secret was done to help us stay focused on the product, while avoiding a premature product announcement."

Presented as a major part of Saab's showcase booth, the technology was immediately impressive, but the Swedish company's

is not the first name that springs to mind as a typical NBAA avionics exhibitor, so what brought the two organisations together? "Saab is unique as the only aircraft manufacturer that also owns an avionics company," Stevens says. "Saab manufactures fighter jets today, and still supports the commercial aircraft it produced, the Saab 340 and Saab 2000 regional commuter aircraft.

"And it provides key avionics components for Airbus, Boeing and others, including flight controls and other systems. We were also naturally attracted to Saab as a key global partner because of its mastery of head-up displays, synthetic vision and aircraft flight deck avionics. As it turned out, Saab was also looking for a disruptive enhanced flight vision sensor that could do something no other device could – see through fog and clouds."

The combination of Saab's industrial might and aerospace expertise with Vū Systems' unique technology is opening a new market to both companies, since no existing synthetic vision system (SVS) employs PMMW. Put simply, where visibility is reduced to zero because of dense fog, heavy precipitation, blown sand or dust, or even smoke, the PMMW sensor enables safe flight to touchdown without the requirement for

extensive airport landing aids. It means aircraft equipped for RNAV and RNP will be able to continue for zero-visibility landings at smaller airports, avoiding diversions and missed schedules, and increasing safety.

But aren't modern aircraft landing at modern, well-equipped airports already served by instrument landing system (ILS) and other navigation aids? In some cases yes, but much less so than one might expect, as Stevens explains.

"The problem of blind flying is as old as aviation itself. Most air travellers and operators have experienced weather-related delays at the airport, cancelled flights, lost days and costs to business, all of them an unfortunate part of air travel. Aviation technology has not advanced or improved to address this issue. Why?

"One answer is that the consumer is not demanding it or aware of the situation. Most consumers think every aircraft has radar and tracks the location of all other aircraft; it's a far cry from reality and also from the 1947 ILS technology we still fly with today. Another myth is that most consumers think all planes can land automatically in bad weather and that is just not true.

## STEDMAN STEVENS

**We expect to see the system in service in the 2021 time frame.**

The Saab-Vū EFVS is optimised for Saab's next-generation head-up display



“In fact, aircraft can only autoland at about 110 runway ends in the US. This very limited use of autoland technology, where the pilot relies completely on the technology to land the airplane, compares with our solution, which puts the pilot back in the technology loop. It enhances their performance in the same way that reading glasses help us see; it’s a proper use of technology to solve the problem of seeing through the clouds.

“Running into the myth vs reality of aviation over and over again led to our idea of developing a camera that could see through fog rather than have the pilot continuing to fly blind. When a pilot can see, the level of automation and equipment on the ground at the airport can be greatly reduced, creating access to many more airports.”

#### Changed Vision

Current synthetic vision systems typically employ first-generation sensors detecting natural infrared (IR) radiation invisible to the naked eye, using it to generate a video image for viewing on a head-down display and/or for projection into a head-up display

(HUD). Infrared is easily understood as heat, or thermal energy, and differences in temperatures between materials produces a contrast between them. There will always be a difference between one surface and another, even in cold temperatures, and IR cameras use this difference, or contrast in IR emissions, to produce images.

Regular optical cameras produce photographic images or video by detecting reflected light from any object within the spectrum visible to the human eye. An IR-equipped EFVS is able to generate detailed images when there is insufficient ambient light for pilots to see, producing an image of the outside world that enables safe navigation and landing, but without the colours of visible light. IR is therefore extremely useful in darkness and when visibility is reduced, but it is unable to penetrate dense fog and heavy clouds. Landing under such conditions therefore requires an airfield equipped with Category II/III landing aids and, even then, operating procedures might prevent pilots ever reaching an acceptable decision height at which they can see the runway.

Vū Cube changes that. Just as objects naturally emit thermal IR energy, so they also emit or reflect millimetre wave radiation. It occurs at wavelengths longer than those of IR, typically between 1 and 10mm, and lower frequencies in the extremely high frequency (30 to 300GHz) band. Infrared radiation is typically blocked by fog, cloud and raindrops, for example, which are of a similar size to its shorter wavelengths. However, at longer wavelengths, millimetre wave sensors penetrate precipitation. It is this quality that Vū Systems is exploiting. Significantly, there is also a distinct contrast between the levels of MMW emitted from the sky and, for example, a runway surface, regardless of ambient conditions.

#### Combined Visuals

Its lower frequency compared to IR means that MMW produces a less detailed image. Nonetheless, with computer enhancement the resolution is sufficient to define landscape features, buildings and other structures and, crucially, the runway threshold and associated detail. Vū Systems is confident in specifying a range of





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**Above:** The Vū Cube sensor

two nautical miles, but trials have shown its ability over twice that distance.

MMW really comes into play in combination with other sensors, which is where Saab comes in, combining Vū Cube with infrared video to create an integrated EFVS. But that's not all. The Saab-Vū EFVS combines visuals from PMMW and infrared with its new Vricon synthetic vision database to generate what is called Combined Vision imagery on Saab's high-performance HUD, itself based on technologies well proven in a variety of applications, including military transport aircraft.

The result is quite startling, especially since the Saab-Vū EFVS fully complies with the US FAR 91-176 FAA regulations introduced in March 2018 to enable airliners equipped with qualified sensors to be granted permission to take-off and land in zero-visibility conditions. Currently the only system providing pilots with an integrated millimetre wave IR EFVS, the Saab-Vū equipment is almost ready for market. "Our schedule for product introduction and certification is mainly driven by our customers' schedule," Stevens confirms, "but we expect to see the system in service in the 2021 time frame."

### Global Terrain: Database

Ironically, while the Saab-Vū EFVS is all about seeing safely across the two nautical miles or so ahead of the aircraft during landing and take-off, Saab also chose NBAA-BACE to announce a new aeronautical 3D terrain database solution, produced in partnership with Vricon, that expands to cover the entire globe. Providing 3D terrain and elevation data to a resolution previously unavailable commercially, it has application to the latest advanced avionics systems and flight decks, including synthetic vision systems, terrain awareness warning systems (TAWS) and digital moving maps. Saab is pursuing EASA DAT Type 1 certification (equivalent to FAA LOA Type 1) and aims to have approval for the solution in 2020.

Vricon employs high quality commercial satellite imagery and its own software to generate 3D geodata, or terrain models. Imagery from multiple sources is combined, ensuring 0.5m resolution across a surface model of the entire Earth that forms the basis of Vricon's product range.

Saab says: "The high-resolution 3D database provides superior global coverage, accuracy, integrity and continuity – including denied areas – compared to any digital terrain data solution on the market." Aeronautical terrain databases have generally been based on decades-old Shuttle Radar

Topography Mission (SRTM) data collected by NASA. Compared to the Vricon product, the SRTM data is obviously dated, but also lacks detail and resolution. And it is incomplete for many locations. Meeting minimum regulatory requirements today, it is inadequate for the increasingly robust requirements of the future.

Magnus Brege, Vricon's CEO, says: "Vricon is very pleased to support Saab and help create the new aeronautical database solution. Through this partnership to support the business jet industry, Vricon's products will reach a new set of clients, who will benefit from our world-class 3D data and greater assurance for flight operations worldwide."

Saab has combined Vricon satellite data with multi-view stereo algorithms to produce 3D elevation data sets with accuracy better than 3m and 0.5m resolution. The system layers photo-realistic imagery onto the 3D elevation, greatly enhancing situational awareness. Combined with next-generation SVS, in particular the Saab-Vū EFVS, Saab's 3D terrain data will enhance flight operations, especially in the landing and take-off phases, to new levels of safety in weather conditions that would previously have grounded flights or forced diversions.





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An overhead view of two men in a large, bright hangar. They are standing on a light-colored floor, looking at a white aircraft. One man is wearing a blue jacket and the other a grey jacket. The aircraft's fuselage and wing are visible on the left side of the frame.

# Supporting Excellence

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*Dassault has expanded its customer support offering through an expansive MRO acquisition programme, an effort that's already winning awards*

---

VADIM FELDZER

**We have more than 2,500 customer service personnel stationed across the globe and have developed a very strong reputation in the marketplace for customer support.**

A casual conversation, perhaps two years ago, with a small group of Falcon operators and owners, revealed a unanimous opinion that Dassault built beautiful, high-performance aircraft that were delightful to fly and fly in. But there was also a consensus that when issues arose – and from time to time they do with any complex machine, regardless of who builds it – customer service wasn't always as smooth or efficient as they would have liked.

A similar conversation today might reveal the same story of adoration and passion for the jet, but with similar high appreciation of the service package behind it. Helped by a series of dramatic, rapid acquisitions, Dassault has transformed its service offering.



ExecuJet MRO Services Malaysia is typical of Dassault's MRO acquisitions in continuing its work on non-Dassault types

During the first half of 2019, the company bought ExecuJet's global maintenance business, TAG Aviation's European maintenance network and RUAG's MRO operations in Geneva and Lugano. At the same time, its spares inventory was expanded with the opening of a new warehouse, and delivery times reduced as technical staff were positioned closer to customers and their destinations.

#### Gulf Support

The effect has been especially profound in the Middle East and Asia, although Dassault acknowledges that the acquisition of ExecuJet in particular enabled it to expand its company-owned MRO network not only in the Middle East and Asia Pacific, but also Africa and Europe. ExecuJet's Dubai facility is expected to become a major hub for Falcon aftersales service in the Gulf and, in addition to these new factory-owned MRO facilities, Dassault continues to operate its existing Authorized Service Centers.

The Middle East MRO network is complemented by a spares distribution centre in Dubai and a technical office in Cairo. Meanwhile, a new spare parts distribution centre close to Charles de Gaulle Airport, Paris is ensuring spares are quickly and reliably shipped to Falcon customers in the Middle East, Europe, Africa and the Far East.

Customers can also call on Falcon Response, where a dedicated Falcon 900 airborne support aircraft is held ready 24/7 to

respond to an aircraft-on-ground (AOG) situation, carrying spare parts, tools and 'Go Team' specialists; Dassault was the first OEM to offer its support aircraft as alternative lift if required.

Dassault's customer service excellence has been recognised in recent *Pro Pilot Magazine* and AIN operator surveys in which it emerged as top service provider for business jets. Operators cited spares availability, parts cost, speed of AOG service and overall aircraft reliability as the major motivating factors in their decision. Interestingly, all of these, aside from aircraft reliability, had been the bugbears expressed in the conversation two years ago.

#### Service Excellence

Vadim Feldzer, Head of Global Communications for Dassault Aviation Civil Aircraft, is not surprised by these exceptional results. "Dassault Aviation has been investing heavily in customer service for decades. We have more than 2,500 customer service personnel stationed across the globe and have developed a very strong reputation in the marketplace for customer support."

Those MRO acquisitions have been key and Feldzer explained the policy: "We chose ExecuJet, TAG MRO and RUAG because they had been partners of Dassault Aviation for a long time. They all have an excellent reputation and strong relationships with business jet operators and aircraft manufacturers, plus highly motivated and skilled personnel."



All three MROs offered services across a range of aircraft from different OEMs and while Dassault has added to their Falcon capabilities, it has not reduced their involvement with other manufacturer's aircraft. Neither has it enforced any change in identity, so these essentially remain independent facilities, but offering increased levels of Falcon support.

"Dassault business jet owners and operators expect a certain level of service from a Dassault-owned maintenance facility," Feldzer says. "We have been helping the MRO companies we acquired to expand their MRO capability on Dassault business jets, but we kept true to the original branding because these are very strong brands in the business aviation industry. We felt it was important for them to maintain their own distinct identity."

"We maintained the management and personnel at newly branded ExecuJet MRO Services and TAG Maintenance Services; the strength of their management teams and personnel were key reasons we acquired these MRO companies. That said, one of the benefits of having a network of MRO facilities is that each can learn from the others in the network, share the same Dassault elevated standard and expand its capability on Dassault aircraft."

He acknowledges that ExecuJet MRO Services and TAG Maintenance Services have independent expansion plans and will continue to maintain aircraft from other manufacturers, noting: "Non-Falcon customers who rely on these MROs continue to experience a world-class level of service."







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The organisation is slightly different in Europe. “The international RUAG MRO maintenance business we acquired in Geneva and Lugano has been merged with TAG Maintenance Services,” Feldzer says. “It made no sense to maintain two separate MRO brands in Switzerland, especially since both have their main base in Geneva.”

Dassault has always produced dramatic business jets, but it is easy to focus on its more recent ‘X’ products. An important ‘legacy’ fleet remains in service, however, including aircraft right back to the original Falcon 10. Feldzer is keen to reassure customers that those platforms have not been forgotten. “Dassault Aviation actively continues to support Falcon 10, Falcon 20 and Falcon 50 operators around the globe. We maintain spare parts pools for these aircraft and encourage MRO companies and our supply chain to support them. Meanwhile, dedicated Maintenance and Operations seminars provide regular opportunities for operators of legacy Falcons to meet face-to-face with representatives from Dassault, its partners and suppliers.

#### Asian Advances

Feldzer says among the primary reasons for Dassault acquiring ExecuJet’s MRO business was the strength of its network in Asia Pacific, Africa and the Middle East. “The number of business jets operated in these developing regions has been steadily growing. Some regional business jet owners previously sent their aircraft to Europe or North America for heavy maintenance, but they are now more willing to have the work done closer to their home base.”

And if proof of the availability and quality of MRO service were required, then on 11 December 2019, ExecuJet MRO Services Malaysia announced that it had received US Federal Aviation Administration certification to perform line and heavy maintenance on Dassault Aviation business jets.

Covering the Falcon 2000LX, LXS and EX; Falcon 7X; and Falcon 8X, it recognises that the company’s Subang Airport, Kuala Lumpur MRO facility is audited and certified by the FAA as an approved foreign repair station to carry out maintenance work on US-registered examples of these Falcons.

Ivan Lim, VP MRO Services Asia at ExecuJet MRO Services Malaysia, explained: “Many



US-registered business jets fly in the region and we’ve been receiving requests to support them. In the past we’ve relied on our engineers’ personal FAA airframe and powerplant licenses to support them, but it wasn’t ideal because there were certain restrictions. Now we can fully expand our capabilities on N-registered Falcons to cover all line and heavy maintenance checks without those restrictions.”

Lim revealed a few details of the certification: “ExecuJet MRO Services Malaysia has to comply with all FAA regulations in order to be certified as having met its foreign repair station requirements. Audits are carried out by the FAA at least annually and any findings or observations have to be addressed satisfactorily within stipulated time frames.” He notes that the extension into heavy maintenance will typically involve more complicated work requiring special equipment, including avionics upgrades and airframe repairs.

The facility’s wider offering includes cabin repairs, non-destructive test, and aircraft cleaning services – brightwork, polishing and washing. “We’ve carried out various cabin projects, including carpet replacement and veneer repair, among others,” Lim says. “And we regularly upgrade avionics, including ADSB-Out and TCAS, through OEM bulletins and FAA-approved STCs.”

Looking to ExecuJet MRO Services Malaysia’s wider customer base, Lim notes: “We have a solid customer base from across

South East Asia, Australia and Greater China, with product coverage for Bombardier, Gulfstream and now Dassault.” As before, we’ll continue serving all our customers, regardless of product.

“We will also continue expanding our market share throughout Asia, focusing on all the aircraft types traditionally maintained, and adding new ones as opportunities arise. Our new ownership provides us with a shareholder that promotes expansion in a controlled manner, which aligns with our previous strategy, so the transition was welcomed and positive. The addition of Falcon aircraft to our capabilities has triggered the next level of growth, which we intend to complement with other aircraft types.

“Dassault ownership provides us with technical and resource advantages when dealing with Dassault products, while the fact that ExecuJet MRO Services Malaysia recently won the Line Maintenance Facility excellence award from Bombardier shows that we are committed to providing the highest level of service excellence to all our customers.”

Dassault’s customer support expansion is clearly delivering. But reaching the top is one challenge, remaining there another. What are its ambitions for the future? Feldzer has no doubt: “Retaining industry leadership in product support is a continuous effort and we will do our utmost to maintain and elevate the standard of customer service we have achieved by offering new innovative services, including more app and training solutions.”

# Driving Perfection

*Airbus Corporate Helicopters and Aston Martin have created the ACH130 Aston Martin Edition, an exceptional seven-seat, single-engined helicopter built with the sports car-loving owner/pilot in mind*



Airbus Corporate Helicopters (ACH) and Aston Martin revealed the ACH130 Aston Martin Edition at Courchevel in the French Alps, on 3 January. But the first aircraft, G-XAML, Edition Number .001, had already ventured out for selected members of the aviation and motoring press, during a preview event at London Heliport on 18 December 2019.

Frédéric Lemos, Head of Airbus Corporate Helicopters and Marek Reichmann, VP and Chief Creative Officer at Aston Martin, were keen to extol the virtues of the helicopter and the relationship between their companies, promising something that would impress and surprise. “At Airbus Corporate Helicopters we address the needs of private and business aviation. We’re dedicated to delivering amazing customer experience and beautiful products,” Lemos said. “These are common

values we share with Aston Martin, which beyond building some of the finest machines you’ll find on the road – and off it now, with the DBX – has an outstanding heritage. About two years ago, this led us to engage in discussions with Aston Martin Creative Design, to see how we could put what makes Aston Martin so special, into a helicopter. We are very proud of the result.

“Although we make very different products, we share customer profiles. We serve those discerning individuals who love sports cars and are passionate about aviation. They’re typically hands on, they enjoy the thrill of piloting or driving.

“There’s no better helicopter to encapsulate that experience than the single-engined ACH130.”





Marek Reichmann placed considerable emphasis on the exclusivity of the Aston Martin brand. “We’re 106 years old and in that time we’ve manufactured between 90,000 and 95,000 cars, equivalent to about two days’ production for Toyota. Our cars are hand built and the helicopters assembled in much the same way, by highly skilled technicians building with passion and love. The inside of this helicopter takes on lots of our experience in comfort and materials.

“The DBX and our second production facility, in Wales, are taking us into what we call our second-century business plan. The DBX has taken us away from sports cars for the first time and our partnerships are also important in that respect. We only partner with the best and Airbus Helicopters is arguably the best at what it does. We’re dealing in limited production, using our skill base in hand-built, hand-crafted cars, helicopters, bikes and so on.

“It’s important to who we are, and our customers are the same. The pilot owners buying the ACH130 are the people driving the Valkyrie, buying the Zagato twin set and the DBS Superleggera. Two unbelievable brands have worked together to create a magnificent project, a very beautiful helicopter that’s appointed in an incredibly beautiful way.

“We began talking about this more than two years ago and the ACH130 project has taken a year. We have three years to run on our agreement – we only work with long-term partners – and we want to learn more and continue working together.”

All that said and even reinforced by the stunning DBS Superleggera parked outside, ACH already has a Mercedes-Benz

Style ACH145 in its range; could a product styled by another luxury car manufacturer really be so different?

#### Fundamental Change

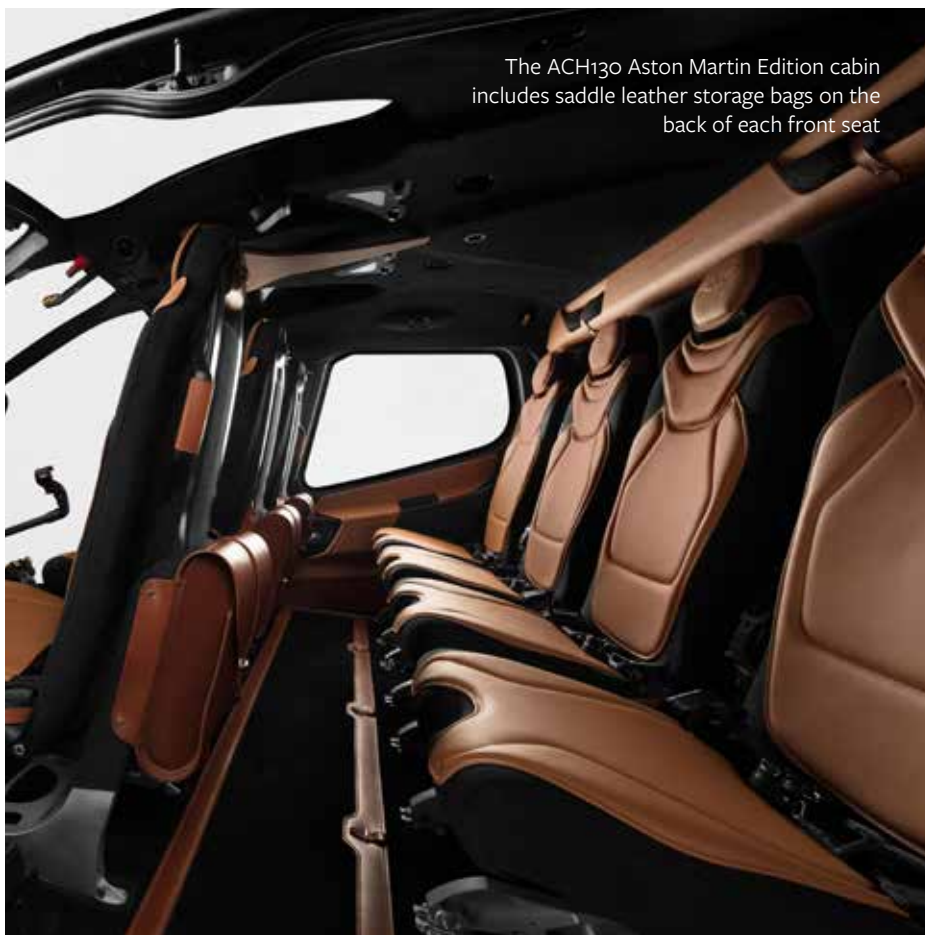
The ACH130 Aston Martin Edition approached the Battersea heliport flying along the Thames from the City, in company with an H125, lending an even greater sense of occasion to its arrival. The H125 continued on up-river, while the ACH130 approached to land. Even on a dull winter's morning, the aircraft's colour scheme was immediately noticeable, seeming to change subtly as it manoeuvred onto its landing spot.

Clearly thrilled at its arrival, a beaming Lemos spoke to *EVA*, first explaining exactly what an Aston Martin Edition helicopter offers that a Mercedes-Benz Style machine does not. "We have ACH Line, ACH Exclusive and ACH Editions in our range and felt we needed to raise the bar in the single-engined category. That's where we found commonality with Aston Martin.

"Our ACH145 Mercedes-Benz Style customers are flown, just as they might be driven in an S-Class. The ACH130 Aston Martin Edition is more hands-on; a customer who drives an Aston Martin will also pilot the aircraft. That's why we looked for a sports car manufacturer for this single-engined Edition."

With accommodation for six plus the pilot, the Aston Martin Edition is not unlike a flying GT car, capable of transporting a family group, for example, swiftly and in comfort, complete with luggage, for an overnight stay or weekend away. "We see many customers who fly this way in our single-engined aircraft," Lemos confirms. "They love piloting and often also drive Aston Martins. They like the single engine because the pilot really flies it, there is far less automation than with a twin.

"Customers looking at a twin check the cabin first, but with a single-engined helicopter they're usually pilots and the first place they look is in the front. Likewise, if you own an Aston Martin, you don't sit in the back. The ACH130 is already positioned at the high end of the single-engine market, but we've emphasised the detail and focused on enhancing its sleek lines with this Aston Martin Edition."



The ACH130 Aston Martin Edition cabin includes saddle leather storage bags on the back of each front seat

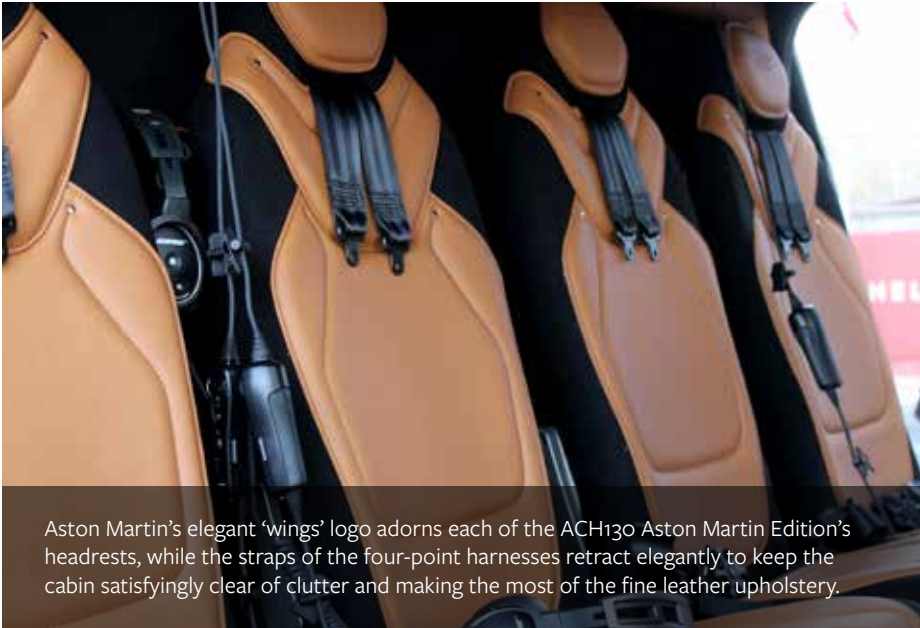
Aston Martin has fundamentally changed the cabin, as Lemos explains: "The seats are particularly important. Everything that makes Aston Martin seats so special has been brought into the helicopter. We also modified the ceiling and doors for a completely different look and feel. We have a saddle-leather storage bag on the back of each front seat, tripling the ACH130's usual storage capacity. The cargo compartment has also been given special treatment.

"And there's a plate in the cockpit carrying the aircraft registration, edition number and Aston Martin 'wings'. Depending on customer preference, the owner's name can also be included. Like the cars, the cabin is made in the UK, and installed at our Oxford centre, just 50km from Aston Martin's Gaydon headquarters. We're using the best of what's available in the UK to create a product 100% assembled in the UK for the global market. It goes with the soul of Aston Martin."

Since the Aston Martin Edition owner is also likely to be the pilot, the cockpit is every

bit as special as the cabin. Alcantara ultra-suede provides a luxurious feel to virtually every surface that isn't leather-clad, there's Ultraleather, perforated on the headrests in a manner for which only Aston Martin has the tools, the cockpit plaque and door panels. With its mix of Ultraleather, 'classic' leather and thick saddle leather, the cockpit has the traditional Aston Martin look and, Lemos reckons, even smells like the car.

While Lemos was talking, to his delight a pair of H155s landed. Soon an AW169 was also parked outside, dwarfing the diminutive ACH130, which nonetheless managed to stand out, in part thanks to that special scheme, much as a sports car parked in a row of limousines might. Edition .001 is finished in a stunning combination of Aston Martin's Stirling Green, with Skyfall Silver and Jet Black. Inside, the trim is Pure Black ultra-suede with Oxford Tan leather, but since this is specialist product geared to customer preference, further Editions are available, featuring Xenon Grey, Arizona or Ultramarine Black on the outside and choices of Pure Black, Cormorant or Ivory leather.



Aston Martin's elegant 'wings' logo adorns each of the ACH130 Aston Martin Edition's headrests, while the straps of the four-point harnesses retract elegantly to keep the cabin satisfyingly clear of clutter and making the most of the fine leather upholstery.

### The Experience

Stepping out to the helicopter, the ACH130's extensive glazing is obvious. The cockpit is more or less surrounded by a transparent 'bubble' – imagine sitting in the toe of a giant see-through shoe – providing an excellent view out and filling the cabin with natural light. A large window in each of the rearward-sliding cabin doors further adds to the spacious, airy feeling, while each forward-hinged cockpit door is also generously glazed.

This is not a large helicopter and the prospect of seating four adults side-by-side in the cabin seemed ambitious. And yet there is space between the beautifully crafted seats and width enough to seat the passengers in comfort. Upfront there is easily space for the pilot and two passengers, seated side-by-side to his or her right.

The impressively complete instrument panel is subtly enhanced by the Aston Martin Edition plaque, and the seats are divine. Each is equipped with a four-point harness and supplied with a headset socket. They are firm and supportive, yet extremely comfortable, not unlike those of a sports car...

Leg room is good front and back, but especially so in the front, while the brogue detailing running down the centre of the front seat backs is taken directly from the DB11 and ought to provide sufficient distraction even for the tallest rear passenger. The seat-back

storage, complete with gold-coloured polished buckles, is sensational.

Many helicopters have glazed panels low down in the cockpit and the ACH130 is no exception. For front-seat passengers the novelty of being able to look down past one's feet is momentarily outdone by the joyous carpet detail. The edges of the ultra-suede are trimmed in beautifully sewn saddle leather, bearing the same 'gold' buckles as the storage bags. It's all the more impressive for the difficulty of working with the thick leather and cries out to be looked at; this is a cabin that entertains the senses through sight, touch and smell.

With six adult passengers and the pilot onboard, G-XAML's sprightly departure from the heliport proves the ACH130 is no slouch either. Acceleration and climb to around 800ft are rapid. There's inevitably some vibration, but it is not intrusive during cruising flight. There's also some noise, which the Bose headsets in this aircraft

did an exceptional job of reducing, but the mild combination of vibration and noise in the background gives the impression of this being a living, breathing animal. It's an impression enhanced by the natural and faux natural materials employed in the cabin and cockpit, the whole creating an ambience not unlike that of... a sports car.

Between them, Airbus Corporate Helicopters and Aston Martin have produced something very special. But it's a machine designed to be appreciated in use, rather than as a collectible show piece. Hand building a product in Oxford for a global market might lead to customers suffering an unfortunate mishap – imagine spilled coffee staining seat leather and carpet – thousands of miles away from the individuals with the skills and materials required to solve the problem.

"As we do with our other helicopters," Lemos explains, "We take the customer request and work out a solution. If we can manufacture a component in Oxford and deliver it to the customer we will. If it's a problem where we have to work on the aircraft, then we'll identify the materials we need and then send our people to the aircraft, because the people who built the cabin will need to restore it. These things are handcrafted and the knowledge and skill resides with these experts. It's the detail they achieve that makes the product so special."

And what is the cost of so exceptional a machine? Neither Lemos nor Reichmann was willing to reveal a price, although Lemos confirmed there would be a premium above the ACH130's starting price of €2.8 million. Reichmann added context with the Valkyrie, which has a base price of £2.5 million. Airbus Corporate Helicopters and Aston Martin appear to have found the perfect match.

### MAREK REICHMANN

Two unbelievable brands have worked together to create a magnificent project, a very beautiful helicopter...





# Star Creation

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*With only 30 days to refurbish a CJ2 cabin, Frank Ponterio turned to Scott Group Studio for a key design element. Meanwhile, the carpet maker has released its latest collection, Boreas, a continuation of its organic geometry theme*

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How much to do in the time available is the dilemma of most cabin refurbishments. If the seats, sideledges, cabin walls and carpet are coming out for rework or replacement, there's also an opportunity for inspection, maintenance and avionics update; it makes good sense to replace the IFE and cabin communications before the furnishings go back in. A proper order of work therefore emerges and close co-operation between designers, avionics technicians, maintainers, upholsterers, carpet makers and more is needed if a project is going to come together in time and on budget.

When an owner came to Frank Ponterio's Chicago design studio HQ with a CJ2 for complete refurbishment, Ponterio and his team faced all those usual challenges. But in this case, time was especially tight. "There was no compromising on timing," he recalls, "since my client is an avid golfer and wanted to take his new plane to the Masters. We knew it would be a challenge,



and mapped out a daily schedule to make sure we stayed organised and on time. The craftsmen worked multiple shifts to complete the work at the very highest level. It was a complete redo – everything from interior finishes to avionics.”

With only 30 days available, the work involved removal of all the headliner and wall materials, and the seats and carpeting. The cabinetry was also refurbished, and the

lighting, and all the accessories changed too. “And we reworked all the communications. Our end took care of the design and finishes, with Elliot Aviation as our partner, working through the avionics and total refit to bring our designs to reality. This was a majorly coordinated effort that couldn’t have worked without both teams being in sync.”

The result is quite stunning and still would be, even had it taken 60 days to complete; the compressed timescale appears to have made no difference at all to the quality of finish. In some cases, the team made exceptional use of existing material, the sideledges, for example, which at first glance appear to be new... “We did not change their functionality but we did completely refinish them, stripping the ‘checked’ (bubbled) finish and

reapplying a new finish for a crisp, fresh feel,” Ponterio confirms.

The aircraft’s original seats were particularly worn, with sagging, creased leather. They’d clearly seen heavy use and when seats are tired, other surfaces, especially tabletops, tend to be tired too. Ponterio says: “In the same manner as the sideledges, we stripped the original finish and leather, then completely refinished the hard surfaces, adding a very durable leather to the top. It’s taken a lot of wear and has held up incredibly well.”

#### Carpet Creation

The carpet in a well-used cabin will pretty much always show signs of use however well maintained. Mechanical wear from moving seats, marks from foot traffic and the occasional stain helped determine the original carpet’s fate in the CJ2, although a new carpet was always going to be required to complete the new owner’s desired look. There’s no shortage of carpet manufacturers, but Ponterio looked to Scott Group Studio, a supplier he knew and trusted, for this particularly demanding project.

“We worked with Scott Group Studio for many reasons. They’re relatively local and we had a great track record working with them in the past, plus they specialise in

FRANK PONTERIO

The craftsmen worked multiple shifts to complete the work at the very highest level.





aviation. While there certainly are other vendors we could work with, for this level of customisation in design we require someone with a proven track record, and who we know we can work closely with to achieve our exact vision for the plane.”

The cabin colours and finish were obviously carefully chosen and created, but the carpet really does stand out in the refurbished cabin, to the point where it could easily have been the central piece around which everything else was designed. But with the customer’s requirements always in mind, the optimum combination of leather, wood and carpet colour is achieved through careful balance and Ponterio says no single element takes the lead.

“This is really where our talents as designers come in. We presented our initial colour

scheme to the client and he loved it off the bat. We either hand selected all of the items or they were designed by my team at Frank Ponterio. There’s typically no single element that ‘leads’ over another in an interior, although the carpet was certainly the super star in this case.”

#### Star Creation

From initial contact between cabin designer and Scott Group, there is a well-defined process of carpet design and definition, often followed by the manufacture of samples that can be shown to customers and even placed inside cabins for appraisal. With colours and pattern agreed, the process moves to production, where the pattern is stamped and checked in detail on the scrim, or backing, before tufting commences. The process of actually threading the carpet,

tufting results in a finish that needs to be completed through shearing and, possibly, carving, to achieve consistent pile height and any special effects, before a latex binding is applied.

Ponterio notes: “We worked through several custom strike offs – samples for approval – of the carpet before we finally approved it.” And all while Scott Group’s skilled craftspeople waited to begin their precise work. In fact, the work didn’t finish in the factory, because: “They also assisted in the custom piece being exactly ‘fitted’ into the cabin plan and helped with express delivery to the Aviation refit group.”

The result of 30 days’ hard work and precision, the refurbished CJ2 is in a configuration that Ponterio says ‘works very



well for the client'. It offers six club seats in a very comfortable layout, while he also confirms the level of personalisation: "The galley was arranged around the client's individual needs and wants, which even included his favourite glassware, playing cards and snacks."

Timescale aside, Ponterio obviously enjoyed the CJ2 project and is pleased with the transformation of a traditional cabin. "I've been fortunate to have several clients and friends with aircraft, and I've always been underwhelmed with the design of the interiors. Most are grey or tan, and

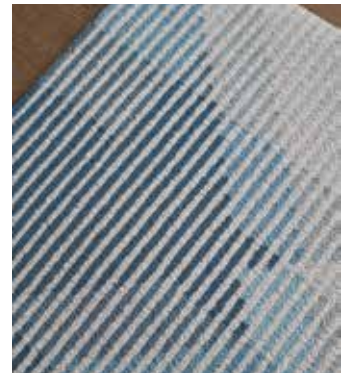
while very well appointed with a high level of craftsmanship, very few had anything other than rather boring design elements and palette." That's something he and his team definitely fixed on the CJ2. And it's something they'll be fixing for other clients too. "We are working on another two planes now. One is a refit, the design inspired by a 1972 Alfa Romeo GTV – a favourite car from my childhood. It's going to be great!"

#### **Boreas Collection**

Meanwhile, Scott Group Studio has been busy completing its new Boreas Collection, which Missy Vandenberg Strear, Design

Director at Scott Group Studio, says, "...continues the theme of organic geometry from our Escala Collection, but focuses more on aisles, to create artful moments that evoke movement, customised to the plan of an aircraft." The focus on aisles is particularly apt given Ponterio's superb use of a Scott Group carpet in the CJ2.

With so much bespoke design on offer from Scott Group, one might question why the company bothers to create collections at all, but they make excellent starting points for customers and designers, enabling them to see a catalogue of possibilities, rather than



starting from the basis of ‘You can have anything you want...’. A collection design is also easily adapted to become unique, as Strear notes: Our collections are thoughtfully designed for ease of specification, however our strength at Scott Group Studio is our ability to customise, working closely with the customer to create a design that celebrates their individuality.

“Adaptability of design is essential when we create new collections. Colour, size and pattern are the most apparent ways to customise, but there are many more components that can be altered, including texture, pile height and yarn type, which our in-house design team takes into

consideration to achieve the desired customer aesthetic.”

Thinking back, the Escala Collection seems too recent to be yesterday’s news, while the recent release of Boreas implies that Scott Group keeps its designers very busy. The reality is that collections don’t date so quickly: “Scott Group Studio designs maintain a timeless appeal through customisation,” Strear emphasises. “Modifying the scale or colour of a design, for example, can instantly transform it from classic to contemporary. But we are continually ideating for future collections, typically looking one to two years ahead.

“Every collection begins with a theme which guides the creative direction. Common avenues for inspiration include nature, art, fashion and collaborative brainstorming, but sometimes inspiration can be derived from a feeling or memory that tells a story. The Boreas collection, for example, is inspired by the ephemeral, organic patterns created by wind, evoking a feeling of movement and propulsion.” With carpet such a vital component in the cabin, Scott Group Studio’s latest collection seems to encapsulate all that is important about flying and deliver it into the cabin. It should come as no surprise since, to borrow unashamedly from Frank Ponterio, “...they specialise in aviation”.





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**“YOU MAY DELAY,  
BUT TIME WILL NOT.”**

Benjamin Franklin

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