

AUTUMN 2021

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PRIMUS AERO

Stephan Krainer, CEO

Beyond CAMO

Fuelling a Sustainable Future – Avfuel

Inside the Industry – Exclusive Interviews with ACJ's Benoit Defforge, Bombardier's Éric Martel & Gulfstream's Mark Burns
More Life to Give – MRO for older aircraft with Duncan Aviation, Flying Colours Corp, Gama Aviation, Gulfstream, StandardAero
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Editor's NOTES



Paul E Eden

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You may be reading these words at the NBAA-BACE show in wonderful Las Vegas. If you are, I hope the halls are thronged with visitors. But even if they aren't, the event will have demonstrated one of business aviation's greatest values – the ability to get the mission done.

The complexity of airline schedules, border controls and moving international travel goalposts will have kept many of us away. But with professional trip planning, flight support and access to a business jet, these global travel challenges may become no more than a minor inconvenience, rather than a show stopper.

Our cover star this time around, PRIMUS AERO has serious ambitions to match that global reach. It is typical of CEO Stephan Krainer that for the cover he chose a photograph showing the whole team. He aims to make PRIMUS AERO the world's largest CAMO and he's assembled a group of extremely capable, mostly young people – he describes them as 'overachievers' – to help him do so.

Meanwhile, as each week passes the aviation industry moves closer to achieving viable commercial operations with electrically-propelled aircraft. The vision is becoming reality, but as the aircraft mature it is increasingly obvious that the relative limitations electrical power places upon their performance means fuel-burning jet and turboprop aircraft are going to be with us for decades to come.

That being so, sustainable aviation fuel (SAF) is a key ingredient in aviation's future,

a fact recognised by Avfuel, which continues to roll SAF out at pace. The company provided a panel of executives to field EVA's questions, among them President & CEO Craig Sincoc. It's clear from their wisdom that SAF is critically important to the industry, yet at the same time, Avfuel has a careful eye on electric and hydrogen propulsion, recognising the fact that today's fuel companies are likely to be tomorrow's energy providers.

We were delighted that Craig Sincoc found time in his busy pre-NBAA-BACE scheduled to answer questions, and similarly honoured that Airbus Corporate Jets President Benoit Defforge, Bombardier President and CEO Éric Martel, and Gulfstream President Mark Burns also took the trouble, providing three exclusive interviews.

I began by mentioning the challenges that even the usually simple trip to Las Vegas from the UK poses in the current climate, challenges far more easily negotiated with the help of trip planning experts and aviation services providers. We take a look at two in this Autumn edition, Empire Aviation and HADID, both of which found their services in demand throughout the worst of the pandemic and continue to expand in the COVID-compliant era.

And there I'd normally finish, except to say that Bombardier has an announcement, on 14 September. If I wait to include the news, then you definitely won't be reading these words at the show, because the magazine won't make it in time. But that's definitely a jet peeking through the hangar doors...

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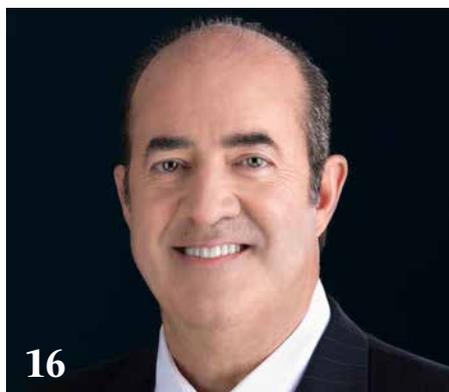
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Dubai-based Empire Aviation Group takes a personal approach to its private aviation services, including aircraft management, charter and CAMO, as Managing Director Paras P. Dhamecha reveals



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Beyond CAMO

Stephan Krainer, CEO at PRIMUS AERO, has big ambitions for the Austrian company. “Our target,” he says, “is to be the largest CAMO in the world”

When the CEO is tied up in a late-running call, it's not unusual for a media or marketing manager to start a Zoom interview with a brief introduction and apologies. Stephan Krainer, CEO

of PRIMUS AERO was, indeed, caught on a previous call, but Marketing Manager Anna Gletthofer was ready for a frank conversation covering company ethos, the office, the airport, how she wasn't a plane geek – yet – and how much she enjoyed her work.

There was nothing guarded about her opinions and she clearly spoke from the heart, calling out to colleagues who came to wave and say hello as she described their roles. To your correspondent's eyes, they were all disarmingly young; thoroughly professional, but definitely young. Five minutes in, a smiling, bearded youngster bounced into view... “Here's Stephan,” Anna announced, shooing him away into his office to take the call.

As we wait for him to sign in, Anna explains: “Lots of our people are aged around 30, but then many are younger and some under 20. I think it's remarkable. Also, I started here at the end of 2019 and by the beginning of 2020, just before the pandemic, we were up to 14 staff. Now, from September, we are 24.”

An independent continuous airworthiness management organisation (CAMO), PRIMUS AERO is a decade old, yet clearly remains a young and rapidly expanding company. It seems too, that the team is simply having a good time,



PRIMUS AERO offers a comprehensive CAMO product, alongside a variety of aviation services



Stephan Krainer,
CEO, PRIMUS AERO

Going Far Together

The new PRIMUS AERO offices in Lisbon, Portugal and Almaty, Kazakhstan, are the beginning of

Stephan Krainer’s vision to make the company the world’s largest CAMO. These offices, like those set to follow, will carry PRIMUS AERO branding and have access to the company’s systems, experience, marketing and spare parts.

For start-ups with technical expertise but little business know-how, becoming a PRIMUS AERO partner makes real sense. Their situation mirrors Stephan’s; he admits that neither accounting nor marketing are among his strengths and says he wasted a good deal of money finding his way in business. PRIMUS AERO start-up partners will skip his decade of trial, error and hard work.

For an established CAMO, a PRIMUS AERO partnership provides access to the company and the strength of a global network. The Lisbon office, for example, is a helicopter CAMO. Now, should a customer approach with a Gulfstream, Lisbon can take it on thanks to the expertise contained in the network. Conversely, if a customer approaches Austria with an AW139, PRIMUS AERO can take it on with support from Lisbon.

There are no upfront or subscription fees, partners instead paying a percentage of their income, which means when they do well, the entire ecosystem does well. Meanwhile, the brand ensures a level of service and expert care wherever in the world a customer is, thanks to the careful selection process and regular internal auditing.



an impression Anna confirms: “We really enjoy ourselves. We’re all around the same age, we get on well with one another, we laugh a lot and Stephan is generally really relaxed around the office. It’s a very special company.”

At which point, Stephan appears on screen with an immediate challenge. “Guess how old I am?” “36?” “Just turned 42!” His demeanour, an usual combination of calm professionalism and fun, manages to transmit through the slightly wobbly connection between the UK and Austria. How has he managed to create a like-minded team?

“It’s taken a while to get the right mix. We’ve had some people join and then leave us because they didn’t fit in. Now I think we have a team of over-achievers. They all want to get things done, everyone is driven and behind the vision.”

Stephan has spent his entire career in aviation; he claims an inability to do anything else. “I was always interested in aviation as a child. I wanted to be near aircraft, although I never wanted to be a pilot. I love planes because no machine is more complicated. There are so many systems and structures, all needing to work

together, under extreme conditions. It’s unique. Every time I walk out to an aircraft I think: ‘Wow, that’s so cool!’”

Aviation fascination

His fascination with aviation began around age 11, when a friend introduced him to the German Flug Revue magazine. “It had the YF-22 on the cover and he told me about it. I’ve read Flug Revue ever since. Later, I studied aero-engineering at a military school, before serving my conscription with the Austrian Air Force. We were working with the Pilatus PC-6 and sometimes I got to go flying.

“Then Austria got its first Hercules and began flying internationally, including into Kosovo; we worked as many as 100 hours per week to generate eight weekly missions. It was just sleeping and working, but it involved aircraft so it was fine. Now, our office is close to the airport, and every plane I hear, every helicopter, I look out of the window to see what it is.”

Passion and deep aviation understanding are therefore driving factors behind Stephan’s drive to see PRIMUS AERO successfully expand. By year end he expects the staff to number around 30, even as

working practices evolve. Among the company’s services, aircraft inspection traditionally involves team members going to the aircraft and its records, but the latter part of the work has increasingly become possible online. “Most operators still use quite a lot of paper,” Stephan admits, “but then the digital records will include photos of the paper.”

Recruiting technicians with the necessary experience and diligence required for inspection work is not easy, but PRIMUS AERO typically takes people from the hangar floor. “Most have a Part 66 licence on the aircraft types they work with,” Stephan says. “It’s a big advantage for the customer, because if they have a technical problem and call us, the person they speak to knows the plane, not just the paperwork.” PRIMUS AERO is set up to deliver this type of service to a high standard, yet few of the possibilities it offers are unique, or even rare. There are plenty of CAMOs to choose from in Europe alone, some of them also cheaper. What makes PRIMUS AERO special?

Stephan is clear. “We have our own spare parts and logistics department. A CAMO is often no more than three people, maybe

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Stephan Krainer and Matthias Kortschak, PRIMUS AERO chief operating officer

CAMO Explained

Alongside its essential CAMO offering, PRIMUS AERO offers several services. Stephan describes them in detail. “If you consider the entirety of aircraft maintenance and technical compliance as a human, then the CAMO is the head, it tells everything else what to do. The CAMO sees everything, identifies problems and tells the body how to solve them.” Conscious that by offering too much an organisation may end up doing nothing well, Stephan keeps a laser focus on the technical aspects of CAMO.

“We know where we can get the best value spares, we know the best MRO facilities to send our planes to, and who to contact when a plane is AOG. In Europe we usually know the MRO personally; sometimes we even know the technician working on the aircraft.”

Sitting neatly alongside its CAMO, PRIMUS AERO offers aircraft management, a service enhanced by its unique spare parts inventory and team of dedicated experts. “It means we aren’t the cheapest, but it’s not our goal to be cheap. We chose the company name to indicate the best. It’s our driver. We don’t have the cheapest annual charge, but if you look at the entirety of the service, including spare parts, we are very competitive.”

To demonstrate the point, he describes the case of a spare wheel for a well-known older model jet. List price is around \$65,000 but PRIMUS AERO could supply the same part for approximately \$40,000. That’s a saving that goes a long way towards covering the annual charge.

Stephan himself still becomes involved in the aircraft inspection side of the business and, when he spoke to EVA, was looking forward to visiting Malta the following week to inspect an aircraft as it came out of maintenance, and another for an AOC recertification. PRIMUS AERO also performs inspections for asset management and appraisal, and for banks when there is a repossession.

“Again, we aren’t the cheapest, but we go into more detail than standard inspections. We check that maintenance bills have been paid on time, if maintenance programmes are up to date and no issues

working from home. They usually don’t have the resources to monitor an AOG 24/7, for example. We can do that. And when they have a request to the MRO for spares, even if it’s an AOG, it ends up on the AOG pile. We take it personally. If we can’t find a courier or if the costs are too high, we jump on a plane, collect the part and deliver it to the customer. I think that’s unique.”

The company has dedicated logistics experts working alongside its technical team to ensure parts are moved quickly and efficiently. They apply the same level of personal responsibility to customers as their colleagues, to the point where, Stephan reveals, a part was showing in a leading international courier’s tracking system as being in the US when the team had in fact already had it installed on the AOG. Meanwhile, PRIMUS AERO’s own parts stock is literally in the office, or at least in the adjacent warehouse.

The PRIMUS AERO team is not only young, but also diverse. Stephan believes the structure is a result of the company ethos. “We’re so dynamic, so fast growing, that younger people seem more able to keep up. You generate a certain gravity, a way of presenting your company, you’ll see it in our social media for example, and we use that to help us find staff, but it tends to be less attractive to older people.

“We had someone apply for a partnership programme, for example. He said he wanted to retire in five years and that was no use to us because in five years we plan to still be in the middle of that programme. For our technicians, the aviation experience is essential, but for marketing and other positions, we really need people who understand Instagram and other media and are ready to learn about aviation.”

remain open, because those are usually the first things neglected when an owner is short of money.”

Considering once again PRIMUS AERO’s parts holding, in some cases the company helps owners make money from their spares. “Some of the parts are pooled and we loan them out as required, for a small percentage of their value per day. Afterwards, they are inspected, refurbished if necessary, and come back into the warehouse. It means parts aren’t left on the shelf collecting dust, they generate revenue. The most common parts in the scheme are wheels, which are always in high demand.”

For the time being, PRIMUS AERO is EASA certified and working on obtaining Turkish approval. “Based on our EASA approval we could add any approval we needed to suit customer requirements. Brexit hasn’t caused us problems because the organisations we work with were well

prepared, but we are now seeking UK approval too. It would mean we could do UK AOC work on the continent.”

PRIMUS AERO has continued to grow through the pandemic and as a forward-looking company has big plans for the future. Stephan enthuses: “We were looking at growing the brand internationally even before COVID. Austria is well positioned to serve Europe, but it’s difficult to reach customers farther away. Just this week we had a request from Mongolia. The time difference makes serving Mongolia from Austria a second-best option.

“So we’re building a partnership network of PRIMUS offices, with the first coming online in Lisbon and the second in Almaty, in September. Next will be the UAE, and the plan is to have at least 50 PRIMUS offices under our umbrella with access to our system, knowledge base, marketing and spare parts. Our target is to be the largest CAMO in the world.” ■

“We really enjoy ourselves. We’re all around the same age, we get on well with one another, we laugh a lot and Stephan is generally really relaxed around the office. It’s a very special company.”

*Anna Gletthofer,
Marketing Manager,
PRIMUS AERO*

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Truckee Tahoe Airport District is among several new SAF locations added to Avfuel's roster in 2021

Fuelling a Sustainable Future

Avfuel is striding with confidence into a sustainable future, with expanded SAF distribution and a company-wide sustainability mindset, as it continues to meet its traditional promise of providing: 'Fuel... and so much more'

It seems Avfuel can always be relied upon for good news, however dark the day. A steady stream of SAF (sustainable aviation fuel), branded FBO and other announcements from the Michigan-headquartered fuel supplier has kept editors happy and exemplified the industry's determination to push on through troubled times.

Avfuel's evolving, holistic approach to aviation fuel supply is evident through its website. 'Sustainability' is writ large across the homepage and only a few clicks are needed to reveal that, for a fuel company, Avfuel offers a surprisingly diverse range of services. Executive Vice President C.R. Sincock enthuses: "We like to say we provide 'Fuel... and so much more'. That 'so much more' aspect is ever evolving and adapting to suit the needs of our customers. Our web presence is indicative of that and feels far different than even a year ago. We've added a slew of sustainability programmes – SAF, carbon offsetting, book and claim, and unleaded avgas – as well as a new price risk management programme and a greater concentration on the government and commercial customer segments."

Before providing details on the company's ambitious sustainability offer, Keith Sawyer, Avfuel's Manager of Alternative Fuels, states: "We take our role in expanding SAF and sustainable

solutions incredibly seriously. We have a responsibility to our industry and our communities to help make sustainable solutions attainable for the health and well-being of our world, promoting a cleaner, brighter future.”

He continues with an explanation of Avfuel’s book and claim programme. “It is the single-most effective way to make sustainable aviation fuel attainable for customers, no matter where they fly. At present, SAF production in the US is largely isolated in the west. Trucking fuel across the country is not only less efficient and more-costly due to the truck driver shortage, but it also affects the lifecycle emissions reductions benefit of SAF. Rather than moving the molecules, it makes more sense to move the accreditation.

“With book and claim, an operator can purchase SAF, the ‘claim’, wherever they’re flying, by paying the premium for SAF over jet fuel and, in return, receiving the credit

for its use and applying it to their ESG [environmental, social and governance] scores, even though they can only uplift jet fuel. This SAF is taken off the book at an airport where the physical SAF molecules are held and being uplifted by an operator who’s simply paying for jet fuel and does not get to claim credit toward using SAF in their ESG scores. The entire system is conducted in a compliant manner so that the benefit of the SAF molecules can’t be double-counted. Only the SAF purchaser, no matter where they are based, receives credit for that SAF uplift’s emissions reductions.”

It is imperative that Avfuel, as a leading fuel supplier, takes the initiative on sustainability, but improving SAF availability is only a piece in the larger puzzle of driving aviation toward net zero. Avfuel is therefore helping its customers do more to reduce their net greenhouse gas emissions, through what C.R. Sincock

describes as an ‘effective and efficient carbon offset programme’.

“Our customers can purchase carbon credits that invest in green projects, all meeting the strict requirements of either the UN or the Gold Standard. The programme is voluntary, but for a small additional per-gallon fee, we can help customers reach net zero and we are seeing growing interest in such sustainable solutions.”

Looking to extend its sustainability initiatives, Avfuel recently partnered with Jet Support Services, Inc (JSSI), providing its clients with direct access to sustainability tools. Sincock continues, “JSSI will provide online resources within its customer portal to facilitate the purchase of SAF through Avfuel. Furthermore, when reporting flight activity each month, JSSI’s maintenance programme clients can now choose to offset the carbon emissions associated with their flight hours through Avfuel’s Carbon Offset Program.”



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Craig Sincock, President and CEO, Avfuel



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Marci Ammerman, Vice President Marketing, Avfuel



Keith Sawyer, Manager of Alternative Fuels, Avfuel

SAF Story

Delving deeper into the SAF story, Sawyer explains: “It’s a common misconception that the benefit of SAF is at the point of fuel burn when, in actuality, the emissions reductions in the engine are minimal in comparison to jet fuel. The true benefit is along its entire lifecycle, from feedstock sourcing to wingtip. Depending on the feedstock, concentrated SAF has an emissions reduction of 70-80% compared to petroleum-based jet fuel across its lifecycle. When we look at the lifecycle, we’re starting with sustainable feedstock sourcing and refining, to blending the concentrated SAF with petroleum-based jet fuel and the mode of transportation, with some truck carriers now opting to run on renewable diesel fuel.”

Avfuel has what Sawyer calls ‘supply relationships’ with both Gevo, Inc and Neste, although it currently sources SAF from Neste’s Selby, California, facility and, occasionally, Houston, Texas. “These loads are typically an approximate 30:70 or 35:65 ratio of neat SAF to petroleum-based fuel,” he confirms, which seems at odds with the oft-

quoted 50:50 blend certified for general use in the literature.

“The maximum blend ratio approved for manufacturing SAF is 50:50,” Sawyer explains, “but the maximum ratio we typically see out in the market is between 30:70 and 35:65, due to product availability and cost. As the supply situation stands, SAF continues to have a premium price compared to traditional jet fuel, but as supply and demand come in line, we anticipate the price difference to narrow. “Avfuel’s supply of Neste MY Sustainable Aviation Fuel has one of the highest blend ratios consistently provided in the industry at approximately 30 to 35% neat SAF, which is an important delineation. There is no minimum ratio required; any jet fuel mixed with any level of SAF can be called SAF. So, for instance, when you’re comparing a 5:95 blend ratio with a 30:70 blend ratio, you’re not comparing apples to apples in terms of emissions reductions. It’s all SAF, but it’s not all equal. It’s important for customers to ask their fuel suppliers about the specifics of their SAF, including the emissions reductions

benefits that come from the feedstock type and the final blend ratio, to have the full picture of emissions reductions.”

Through book and claim, Avfuel is delivering the benefits of SAF beyond the confines of production location. And, when it comes to actually filling aircraft fuel tanks with it, recent months have seen no shortage in Avfuel locations announcing SAF availability. “It’s certainly been an exciting year!” Sawyer agrees. “By late August we’d announced consistent SAF supply at six branded FBOs so far this year, including Million Air Burbank (KBUR), Monterey Jet Center (KMRY), Sonoma Jet Center (KSTS), Telluride Regional Airport (KTEX), Truckee Tahoe Airport District (KTRK) and Atlantic Aviation in Aspen (KASE). This is in addition to limited inventory at Koury Aviation (KGSO), which became the first FBO on the Eastern Seaboard to provide SAF for resale to the general aviation consumer.”

Avfuel is also proud to provide a consistent supply to OEMs, Textron, Bell and Embraer, among them, as well as deliveries to Bombardier. Sawyer also reveals: “We are



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in discussions with Neste on expanding SAF reach in Europe and the UK.”

Future Energy

There is every likelihood that aircraft will be burning SAF for decades to come, but new energy sources are on the horizon, including electricity and hydrogen. Since Avfuel’s success to date is founded on supplying fuel, then its continuing success could be founded on supplying energy, whether from SAF, electricity or hydrogen. It’s a fact long recognised through the formation of Avfuel Technology Initiatives Corporation. “We’re committed to investing in new technologies that move our industry forward,” C.R. Sincock states. “That’s why we created Avfuel Technology Initiatives Corporation in January 2012. Its mission is to further industry advancements, including bio and renewable fuels on several fronts, and no-lead avgas replacements, domestically and internationally. Avfuel Technology Initiatives Corporation also thinks through the logistics of market introduction, helping ensure any new product is sustainable, reliable, competitively priced and fairly accessible. “We don’t have a crystal ball, but we do have a dedicated team working with researchers on the latest technologies; just as we support and lead initiatives on SAF and unleaded avgas, you can be sure we’re keeping our pulse on further technological advancements to better support the needs of our customers, our industry, our communities and our world.” While C.R. Sincock mentions no-lead avgas, his father, Craig Sincock, President & CEO of Avfuel, enthuses: “The announcement during EAA AirVenture 2021 of GAMI’s G100UL receiving FAA approval via Supplemental Type Certificates (STC) with an Approved Model List (AML) of specific aircraft and engines was incredibly exciting! It has a far-reaching impact on the environment, and the vitality of aviation’s spark-ignition piston-powered aircraft and engine fleet.” He comments on how unleaded avgas has been an ‘enigma’ for decades, while noting the exceptional achievement of the General Aviation Modifications, Inc (GAMI) team.



Craig Sincock is proud to work with GAMI on bringing its G100UL avgas to market. “We’ll ensure it’s available to all legitimate distributors and vendors on an equitable basis in terms of access and economics,” he says

“They committed to identifying a solution, flew under the radar and then shocked the industry with a viable unleaded option. We’re proud to collaborate with GAMI by providing our distribution expertise for G100UL. “The new STCs represent the initial major milestone for bringing G100UL to market across North America. While GAMI focuses on expanding the AML, Avfuel will support the initiative by handling the logistics of product distribution, helping to establish a supply chain for responsibly bringing G100UL avgas to market on a commercial scale.” Fuel and now sustainability remain the heart of Avfuel’s business, but it has always incentivised its customers through robust loyalty schemes. The Avfuel Contract Fuel and AVTRIP programmes continue to thrive but, at the same time, is it possible to incentivise sustainability? How can sustainability be incorporated into these time-tested programmes? Marci Ammerman, Avfuel’s Vice President Marketing, explains: “The physical cards have always been optional. Customers don’t need to present a card to process transactions at the FBO because authorisations are sent electronically and member numbers can be looked up online. As we continue to look inward at opportunities to grow our company’s sustainability initiatives,

everything is on the table for consideration. There’s been a mental shift to, ‘how can we execute this in a way that’s more sustainable?’ Sustainability has become a top-of-mind initiative, permeating throughout our business.” To its credit, that mindset is permeating through Avfuel and back to helping its staff. “Over the years, we’ve provided employees with information regarding sustainability practices in the office and at home, including recycling materials, migrating documents to digital files to reduce waste, and avoiding plastic and paper usage in our dining and kitchen areas,” Ammerman says. “Furthermore, we reviewed our scope 1–3 emissions as an organisation with sustainability consultants. “Toward this end, Avfuel is committed to offsetting its annual carbon emissions generated from scope 1 and 2 activities with carbon credits. This encompasses everything from the energy used on Avfuel’s campuses to the fuel we use for air travel. We’ll continue to analyse how we can reduce our direct emissions and we’re excited to promote a cleaner, brighter future by offsetting the emissions we generate through the use of carbon credits funding green initiatives that wouldn’t otherwise take place.” ■

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Inside the Industry: Mark Burns, Gulfstream

Mark Burns, President at Gulfstream, explains how the company is adapting to the COVID-compliant world and how it is heading for one of its best years in quite a while



Mark Burns, President, Gulfstream

Many of us are emerging into a COVID-compliant world. How is Gulfstream adapting?

Now that the world is slowly and cautiously

emerging from pandemic-related travel restrictions, we are finding increasing opportunities to connect in person by taking our aircraft directly to customers and potential customers. While we do this, our top priority is to continue to protect the health and safety of our employees

and customers. Fortunately, just one of the many benefits of business aviation is that it helps us make these in-person connections – we did this not too long ago by taking the G700 directly to our launch customer, Qatar Executive, in Doha, then followed that with a visit to Paris, for customers to



On its first international mission, the G700 set city-pair speed records for Savannah to Doha and Doha to Paris

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“We have strong customer interest, increasing order activity and a growing pipeline. We are well positioned to have one of our best years in some time”

.....



*Mark Burns says he'll always
have a soft spot for the GIV*

see the G700 there, in a very safe, controlled environment. We have been doing these kinds of intimate events for more than a year now, as COVID-19 protocols have allowed. We have received a high level of interest and very good feedback on both the events and our aircraft.

Your latest product, the G700 is moving toward service entry. Where are you in the certification and flight trials process and when do you anticipate first customer delivery?

The G700 flight test programme is progressing very well, as it has since first flight on 14 February 2020. The aircraft is performing even better than expected, both in terms of performance and the interior. We took the fully outfitted G700 to

customers in Qatar and Paris – these were the aircraft’s first international flights, and we set two city-pair speed records, from Savannah to Doha and Doha to Paris. This is the aircraft we are using to test every aspect of the interior and, inside the cabin, the environment is flawless. The G700 cabin is Gulfstream’s largest yet, and on those international flights it proved immensely comfortable and reliable. To date, the flight test programme is practically ‘squawk’ free. We are also finding improvements in the G700’s performance during the flight test programme. This summer, we announced a lower cabin altitude and this commitment to continuous improvement is a hallmark of everything we do at Gulfstream.

We anticipate customer deliveries beginning in the fourth quarter of 2022.

Four of the eleven people listed on the ‘Leadership Bios’ page on the Gulfstream website are women. You personally are unusual in leading the company at which you started out in the industry, so how has inclusivity and opportunity changed at Gulfstream in that time?

Fostering a respectful and inclusive culture at Gulfstream is incredibly important to us and helps ensure we are able to recruit, hire and retain the very best talent in the industry. Our customer base and marketplace have become increasingly more diverse since I started my career at Gulfstream, almost 40 years ago, and we have evolved as well. I am immensely proud of the diversity in our leadership team and our employee base around the world.

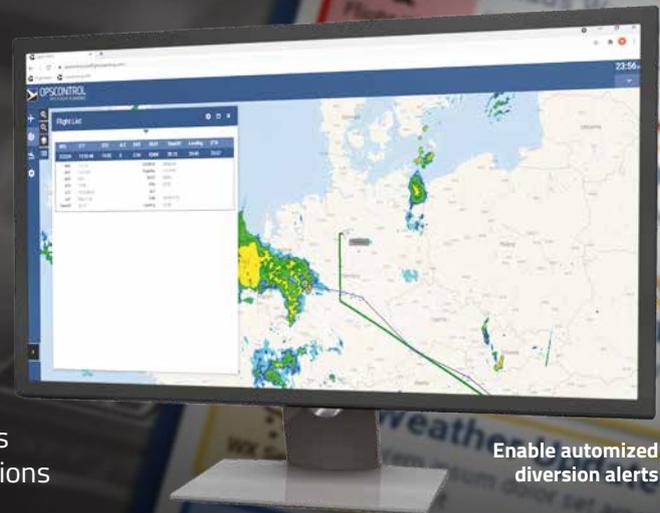


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We spoke in Orlando a couple of years ago, when you explained that the GIV was your favourite Gulfstream. Is it still special to you?

I will always have a soft spot for the GIV because I started on that programme's development as an engineer, saw it through entry into service and was closely involved with customers around the world as the GIV fleet grew. I have been a part of ten product launches in my career at Gulfstream, and what really stands out for me is that every new product has raised the bar for safety, technology and innovation. Every new generation, the Gulfstream team develops aircraft that don't just build on the performance and innovation of their predecessors but introduce advancements that create new possibilities.

What's your favourite airplane that's not a Gulfstream? Why?

I'm obviously biased, but there's nothing better than a Gulfstream.

Gulfstream and its competitors now offer aircraft with half-world range, so is the next step to go faster? Can we expect Gulfstream to go supersonic, and sustainable, anytime in the near future?

It's important to remember that in our large-cabin aircraft, the G500, G600, G650, G650ER and G700, our customers can already fly at nine-tenths the speed of sound, and they do that on a regular basis. As for supersonic, we have looked at the business case and have not defined one that is attached to either our customers or our company at this time. Sustainability presents a lot of opportunities, and, as you've heard me say before, we were vanguards in our industry with our commitment to sustainable aviation fuel – the G700 city-speed record from Savannah to Doha was made on SAF, and we've applied carbon offsets for both the Savannah to Doha and Doha to Paris flights. Approaching decreased fuel emissions through advanced aerodynamics and highly efficient engines is another major area of focus. Take the G500 and G600, for example. They both fly faster than the G450 and G550 and feature larger cabins, but at the same time, they offer as much as 32% improvement in fuel efficiency.

Regardless of international ambitions for aviation to become carbon neutral by 2050, reducing emissions is an imperative. Gulfstream

is an important advocate of SAF, but what more can be done?

It is important to take a holistic approach to sustainability, and we are doing just that. Our sustainability vision encompasses three pillars – energy and emissions; operations and culture; and learning. Our focus on improvements in energy and emissions centre largely around using and promoting SAF and increasing the fuel efficiency of our aircraft.

We're also focused on improving the efficiencies of our operations – our newly built facilities are designed with environmentally friendly features and, when we can, we are renovating existing facilities to improve operations. This can be seen in the UK with our new Farnborough Customer Support facility, which was built to BREEAM standards. Last February, we expanded and renovated our Appleton, Wisconsin, completions facility and took the opportunity to identify areas of the older facility we could upgrade for more sustainable operations.

Our focus on culture and learning is something that I am especially excited about. We have re-envisioned the Gulfstream Green Teams, employee-led organisations that provide a forum to connect around a shared interest and passion for the environment, create and engage in sustainability initiatives, and share best practices in support of Gulfstream's sustainability efforts. I have long found that when we empower Gulfstream employees to continuously improve and create solutions, the results are truly innovative.

Has COVID fundamentally changed the business aviation industry? What changes have you seen? And can we expect a full Gulfstream presence at the NBAA show?

What I have seen since the onset of the pandemic is a confirmation of the well-known benefits of business aviation, and the confidence our customers have in the safety of travelling in Gulfstream aircraft. We have strong customer interest, increasing order activity and a growing pipeline. We are well positioned to have one of our best years in some time. With continued precautions over the COVID-19 pandemic, our customers have shared that their preference is for smaller events right now, and we are hosting those accordingly. We anticipate returning to larger events in the future. ■

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Inside the Industry: Éric Martel, Bombardier



Éric Martel, President and CEO at Bombardier, took the company reins in the midst of the COVID pandemic, at a time when it was transitioning to become an all-business aircraft OEM

Éric Martel, President and CEO, Bombardier

Bombardier in its present form emerged just as pandemic hit the world. You were newly installed at the helm – how did you navigate your way through?

I'm proud of Bombardier's transition to a pureplay business jet company – the first half of 2021 was amazing and we're leading the industry in deliveries. And we accomplished this while navigating through the pandemic.

Our number one priority, of course, has always been the health and safety of our employees and the communities in which we operate. Since the beginning of the pandemic, our teams worked tirelessly to establish and implement procedures and safeguards to protect the well-being of our employees around the world.

At the same time, we needed Bombardier to be a more profitable and predictable company. After a thorough deep dive of every aspect of the business, we put in place a series of priorities to help manage the company short and long term, and

defined a clear vision for the organisation. These included managing the business through the pandemic, aligning business jet production with demand, continuing to grow the aftermarket business, and resetting the company culture to be more accountable and focused on operational excellence.

It wasn't easy. We had to make some difficult decisions along the way, including rightsizing the business to reduce costs. But looking at where we are now, we made the right decisions – Bombardier is a much stronger company and well on its way towards accomplishing the goals we set out in our five-year plan. We have a healthier balance sheet, a steadfast commitment to operational excellence, and we're leading the industry in performance and in the value we bring to our customers.

Between 2002 and 2015 you worked at Bombardier in various roles, including President of Bombardier Business Aircraft, President Bombardier Aerospace Services and Vice-President

and General Manager of the Global and Challenger programmes. You returned to the company in April 2020. While you were away, the Global 5500, 6500 and 7500 appeared, while the iconic Learjet has now gone. How would you characterise today's portfolio?

We have the best portfolio in the industry, with products that are exceptional and ideally suited to the needs of our customers.

The large- and medium-category aircraft are where we are seeing the trends now. These categories will generate approximately 90% of total industry revenues from new aircraft deliveries and they've also shown greater resilience through economic cycles. The Challenger and Global aircraft are highly competitive and it's clear from their success that this trend will continue well into the future.

Bombardier is extremely well positioned for success in the large and medium categories. From our Challenger 350 up to the flagship Global 7500, we have a diverse portfolio of competitive business jets. We have a large installed base of loyal customers around the

world; they know that our aircraft are reliable, and they also know that we are there to support them.

Bombardier has taken significant fleet orders in recent months. Such deals are rare in business aviation. What’s your secret?

We’re thrilled with the success of our aircraft among fleet operators. For many years, we’ve had solid relationships with large-fleet operators and we’re happy to see more charter businesses expanding. More than ever, the pandemic has underlined the value and safety of private aviation.

I wish I could say there was some secret, but the bottom line is that we make great business jets and our portfolio is the best in the industry. Our family of aircraft has all the attributes fleet operators are looking for in

a business aircraft – performance, reliability and comfort.

Moreover, we’re laser-focused on providing an outstanding customer experience, which is why we are growing our services and support footprint by 50%. We have the expertise and the best trained people to provide an unparalleled level of service and experience.

What’s your favourite Bombardier aircraft and why?

That’s a tough question to answer – it’s like asking a parent to choose a favourite child! Each of the business jets in our portfolio has the unique Bombardier DNA that our customers are looking for – performance, reliability and comfort. Our long-range, large-cabin Global aircraft are the industry’s leading business jet family, renowned for their ability to fly long

distances, exceptional passenger experience and smooth ride.

The Global 7500 is the industry flagship. It’s unique; no other business jet on the market today compares. It’s been in service for almost three years now and we couldn’t be happier with how it’s exceeding our expectations.

The latest additions, the Global 5500/Global 6500, have all the outstanding features of the Global 5000/Global 6000 plus performance enhancements, including a new engine and wing, bringing these aircraft to a whole new level in their class.

Challenger aircraft are the industry’s best-sellers for many reasons: they are highly reliable, high-performing business jets, considered to be the workhorses of the industry and very efficient to operate from a cost perspective. The highly dependable Challenger 650 is a popular choice among



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operators for demanding missions including medevac and maritime surveillance because of its consistent performance and reliability. And the best-selling Challenger 350 business jet is the most successful in the super mid-size segment year after year. Its reliability, speed, performance, cabin experience and operating costs make it popular among fleet operators.

What's your favourite aircraft that's not a Bombardier product? Why?

One aircraft that resonates with me, especially in our current environment, is Viking's CL-415. It's probably one of the most recognisable aircraft in the world, and it's versatile for aerial firefighting but also for maritime and rescue purposes. With many wildfires raging around the world today, it's an aircraft that is highly effective in containing large fires.

Bombardier and its competitors now offer aircraft with half-world range, so is the next step to go faster? Can we expect Bombardier to go supersonic, and sustainable, anytime soon?

Flying further and faster have always been

important trends in business aviation. There's a great deal of discussion in the industry regarding the development of next-generation supersonic aircraft, and we're watching these developments very closely but, right now, we have the products the market is demanding. But with speed and range, customers are also looking for business jets that provide a comfortable passenger experience as well as sustainable solutions. The Global 7500, for example, has an impressive record when it comes to speed and can easily fly at M0.925. It's also at the forefront of sustainability: it's the first business jet to have an Environmental Product Declaration (EPD), which declares the aircraft's environmental impact throughout its lifecycle, and its wing and engine design contribute to lower emissions and fuel burn.

Regardless of international ambitions for aviation to become carbon neutral by 2050, reducing emissions is an imperative. Bombardier has done amazing things with the Global 7500, but what more can be done?

I'm proud of what we've accomplished at

Bombardier. The Global 7500 set the bar for business jets going forward, not only in terms of performance, range and passenger experience, but also from an environmental perspective. And we're going to continue to set the benchmark. Reducing the carbon footprint of our products and processes is a priority, and we'll be spending a majority of our R&D money on technologies that will reduce emissions.

Moreover, we all need to work collaboratively as an industry. Bombardier has been at the forefront of the industry's commitment to the environment, and we all need to continue to increase the awareness and adoption of sustainable aviation fuel (SAF). Our industry can make a significant difference in the fight against climate change, not in shifting the number of hours we fly or how fast, but through regular use of SAF, which is one of the most important initiatives we have to make a difference.

Has COVID fundamentally changed the business aviation industry? What changes have you seen? And can we expect a full Bombardier presence at the NBAA show?

The pandemic has reinforced just how much of a global community we really are, and it highlighted the safety and security of private air travel. While commercial air traffic remained stalled at the height of the pandemic, business jet utilisation recovered much faster, with new customers entering the business jet market, especially from a fleet and charter perspective. The pandemic introduced business aviation to a new segment of market and broadened its business base, essentially untapping demand for private air travel. We're seeing great momentum from the market and the level of activity is solid. Moreover, we're in a strong position with a great portfolio of products and a healthy backlog.

In early September, our intention is that Bombardier will participate in the National Business Aviation Association Convention and Exhibition. We are looking forward to an exciting event and showcasing our world-class products and services. ■

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Benoit Defforge, left, at the 17 May 2021 debut of the ACJ Smart LiFi Monitor. JV Reymondon/Airbus

Inside the Industry: Benoit Defforge, President, ACJ

Benoit Defforge, President at ACJ, shares the company's exceptional 2020 results, his great optimism for 2021 and an invitation

Some industry insiders have suggested that although the pandemic has led more people to choose business/private aviation, the benefits of that to the industry have really been seen among the smaller jets, while the market for airliner-sized business jets is struggling. What's your take?

The corporate jet market was more resilient versus the commercial aircraft market during the COVID-19 pandemic. Business people will and have to travel despite the crisis, which has also attracted new clients who realise the benefits of private aviation. I believe there is a strong possibility that some of the industry's new clients will become our customers.

In terms of orders and deliveries, 2020 was one of our strongest years at ACJ. We delivered 100% of our ACJ production plan and sold 12 ACJs, a record for us. That's a book-to-bill of 2:1!

We also launched the ACJ TwoTwenty, a new large bizjet, with six orders at launch. For Airbus, it was our first fully digital product launch. With this digital event we managed to share this great news with the bizjet aviation community and many other interested followers. So, 2021 has been a good year so far, in sales and deliveries for our single aisle and widebody products too, confirming the market appeal of our exceptional aircraft.

We plan to deliver more ACJs from our strong backlog in the coming months – details will be shared at our NBAA-BACE press conference.

Conversely, specialists in refurbishing used jets are telling me they are seeing increasing interest from customers looking for an ACJ or BBJ to refurbish. Is this positive news for you? What can you offer customers who are looking for an OEM-refurbished/approved ACJ?

Airbus aircraft are designed for 20 years or more in service, flying several thousand hours a year. Our ACJ aircraft have

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potentially much longer lives than traditional commercial jets since they typically only fly a few hundred hours a year. This ensures excellent residual value. On top of that, with Easystart we provide sellers and buyers all the support they need. The Easystart initiative offers tailored support to buyers of ACJs that are already in service. It helps them understand how an Airbus Corporate Jet can perform on their key missions, how upgrading it can be an attractively affordable and how services – including training, support and upgrades – are available to ensure a smooth entry-into-service.

Pre-owned Airbus Corporate Jets thus have much to offer and as they are the most modern aircraft family in their class, longevity is in their genes, bringing significant potential for new operators.

Airbus Corporate Jets received an order for ACJ350 aircraft from the German government. Such deals are rare in business/VIP aviation but ACJ has jets placed with governments and the military around the world. What's your secret?

We are very proud to have received an order for three ACJ350s from the German government; it is a great milestone. This modern VIP widebody is also attracting other customers and we have another order from an undisclosed client.

The ACJ350 is the latest addition to ACJ's family of VIP widebodies. It offers 270m² of cabin space and lower cabin altitude for better comfort, as well as

innovative technology, including a fuselage made from next-generation carbon composite materials.

We can now fly non-stop around the world in either direction, enjoying the space offered by an ACJ330neo or the rather different experience of a Global 7500 or G650. So, is the next challenge to do it faster? Can we expect Airbus and ACJ to go supersonic anytime soon?

The Airbus Corporate Jet family is the most modern and comprehensive in the world, offering companies, individuals and governments an unmatched choice of the world's widest and most spacious cabins. The A330neo combines new-generation Rolls-Royce Trent 7000 engines, aerodynamic and other improvements to deliver even more comfort, efficiency and true nonstop-to-the-world range. Designed for highly-demanding VIP and private markets, the aircraft delivers top-end luxury, comfort and range.

For government customers needing to fly heads of state and delegations around the world, the ACJ330neo offers an unbeatable combination of modern design, proven capability and productivity. It can fly 25 passengers 9,400nm (17,400km) or 20 hours, sufficient to fly non-stop from Europe to Australia.

Airbus continually researches technology to meet current and future customer requirements, but supersonic aviation is not one of its current priorities. All our R&D (on average more than



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The first ACJ TwoTwenty fuselage section on the Mirabel, Canada final assembly line

€2-billion per annum) is focused on improving aircraft efficiency and reducing aircraft emissions. It is pressing ahead into a new generation of cleaner technologies, including hybrid-electric propulsion, sustainable fuels and hydrogen technologies to decarbonise our industry and contribute to our decarbonisation objectives.

Regardless of international ambitions for aviation to become carbon neutral by 2050, reducing emissions is an imperative. What more can ACJ do?

At Airbus we have always been committed to leading the decarbonisation of our industry. Our ambition is to be the first to bring a zero-emission aircraft to the market, by 2035. ACJ, of course, is part of this strategy and will benefit from the Airbus technology breakthroughs. We have the most modern aircraft family that we are continuously enhancing to limit its environmental impact.

We also believe that SAF has the potential to become a major driver for CO₂ reductions. All our aircraft are already certified to fly

with up to 50% SAF and our ambition is to reach a certified 100% capacity.

We are taking a step towards greater transparency concerning our own emissions by disclosing to the public all of the emissions across our own value chain. This shows our willingness to lead the change. But to achieve our ambitious targets, we cannot move forward alone. We can all contribute, and we must all play a part in making aviation sustainable.

Business was good in 2020 and you are optimistic for your 2021 results. Can we expect a full ACJ presence at the NBAA show?

We will be present at the NBAA exhibition, with an ACJneo for the first time; Airbus Corporate Helicopters will be present too. Guests will also be able to explore the ACJ TwoTwenty cabin virtually and see a demonstration of our innovative ACJ Smart LiFi Monitor. Come and see us at the static!

We do expect 2021 to be a great year. We'll deliver our first ACJ TwoTwenty this winter, only a little more than a year since its launch. ■



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Fuelling Alternatives

Polestar 2

Victoria Macmillan Bell drives the Polestar 2 and Hyundai Nexo, technological leaders representing real choice among the alternatives to petrol and diesel fuel

This year has seen a mix of cars arriving for assessment and, bar the odd exception, most of them have been electric, including the glider-like Polestar 2. While the jury is most certainly out on the car's aesthetics, me included until I lived with it for a week, the Polestar brand is packed full of Swedish cool via its sibling Volvo's DNA. Established in 1996, Polestar came about as the performance arm of Volvo and then became a brand in its own right, with ownership shared between Volvo

and parent company Geely Holding Group in China, which is also behind the transformation of Lotus. Now, in 2021 they have two cars under their belt, the beautiful Polestar 1 hybrid coupé and the four-door Polestar 2 fastback. The Polestar 3 is due to arrive in 2022, in the form of an all-electric SUV to go up against Audi's e-tron, VW's ID.4 and Jaguar's I-Pace. By 2030, the company will have its fourth product on the market – Polestar 0, its first fully carbon neutral car and potentially a world first too. I had a Polestar 2 on test, its arrival coinciding with a need for several

journeys to the West Country. Route set, charging points identified and battery fully charged at my local 50kW unit, which took around 1 hour 10 minutes for 277 miles of range, I started out. The distance between points A and B was 153 miles. Let's see, I thought. Just 82 miles into the journey I was searching for a rapid charging point with only 20% battery life left. It's important to add that this was a chilly, spring evening drive and mostly on motorway and dual carriageway, with little chance of regenerative braking helping charge longevity. But there I was,



sitting alone in the dark after 10pm while I juiced-up for another 1 hour 10 minutes on a 50kW charger; there were no rapid chargers safely within the remaining range.

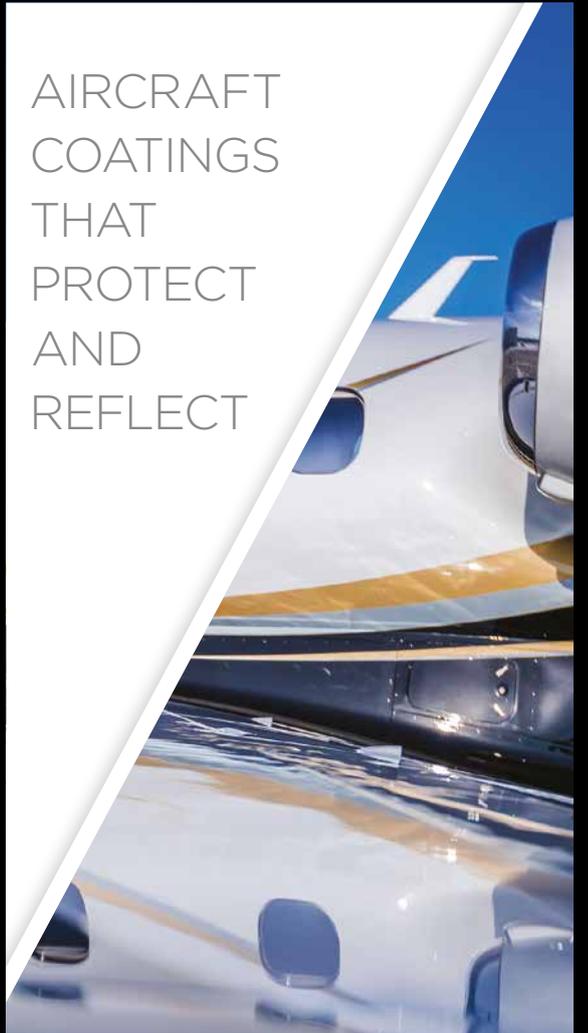
This is still the reality and as much about the infrastructure as it is battery life.

The Car

My Polestar 2 was the dual-battery version, delivering 408hp via the two 300kW electric motors, a 0-62mph time of 4.7 seconds and a top speed of 127mph. It also came with the Performance Pack, including gold Öhlins dampers and matching gold seat belts (it works), Brembo brakes and 20in forged alloy wheels.

As seen at the 2021 IAA Mobility show in Munich recently, Polestar’s expanded range features three powertrains and a starting price of £39,900 for the single-battery model. Starting price for my test car is £45,900.

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Hyundai Nexo

So, range reality-checked, let me tell you why I love the Polestar 2 so much. It's bullet-from-a-gun quick, the on-road behaviour is sublime, smooth, assured and deeply comfortable and, on the quietest of tarmac, the only whisper of noise stemmed from the tyres and those gorgeous rimless wing mirrors.

It's just such an easy thing to be in and it made me feel special, it really did. Also, the build quality is superb and I love the way it looks; now, at least. It's different, unique; it really does look and drive like nothing else on the road. All hail individuality.

Nexo

Among 2021's exceptions, one review slot went to the Hyundai Nexo, a capacious front-wheel-drive SUV significant for its hydrogen fuel cell power and which served its purpose in spade-loads.

Airy and light, it was such a relaxing place to be, from headroom to legroom, and equipped with just about every multimedia infotainment option you could wish for, alongside a bevy of other driving aids and features. It's such an easy car to drive and to be in.

The Nexo was my first ever hydrogen drive, running from fuel cells, and the

first thing on my mind was range and the refuelling process.

My closest hydrogen pump is in Cobham, Surrey, a 30.4-mile journey from home to Shell Cobham Services on the M25. At last count there were just 17 hydrogen-fuelling stations in the UK, most of them centred around London. This number will increase as more manufacturers roll out Fuel Cell Vehicles (FCVs).

Filling up with hydrogen is like filling up with regular fuel but without the grease and associated smells. The whole refuelling process took about 10 minutes, making it much more time-efficient than EV charging.

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Fuel Cell Magic

How does it work? Hydrogen is sent to the fuel cells where it mixes with oxygen to create electricity that powers the drive system and charges the 1.56kWh lithium-ion battery, which also stores the energy from regenerative braking, boosting performance and range.

As for range, the Nexo comes much closer to covering the miles promised from an EV. Whereas EV range is affected by many things, not least driving conditions and ambient temperature, the Nexo had a predicted range of 266 miles and that's what I got. With a top speed of 111mph and 0-62mph time of 9.2 seconds, the Nexo

costs not far short of £70,000 and a tank full of hydrogen came to roughly £70.00. So yes, the purchase price of an electric or hydrogen car is higher than that of an equivalent petrol or diesel car but play this off against running costs and it starts to make sense. As more cars come to market, including the second-hand market, prices will inevitably drop. As for safety, Euro NCAP gave the Nexo a full 5 stars for occupant safety and safety assistance systems, and here's a flavour of why. Part of the active safety system is the Blindspot View Monitor, which pops up on the digital dash display when you indicate to change lanes, along with

lane-keep assist and adaptive cruise control. The Nexo will also park itself with you outside the car and it apply the brakes if it senses you're not on the ball. The semi-autonomous Nexo, with wireless charging, Apple CarPlay, really good satnav and a plethora of other gadgets on board, really ticks the boxes. It may not be at the sharp end of Hyundai's most stylish design language compared to the stunning IONIQ 5 for example, but as a first-out-of-the-gate FCV, I loved it. I'm really looking forward to what Hyundai does next with FCVs and how quickly the infrastructure can support progress. ■

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Analar's highly skilled technicians can complete any helicopter maintenance task, right up to full overhaul. Here a JetRanger receives attention



The twin-engined AS355 is no stranger to Analar's operation



Analar offers this AS365N3 for charter, equipped with a comfortable six-passenger cabin and capable of covering as much as 460 miles

New Jersey's Rotary Choice

Helicopter specialist Analar Corp has been operating safely in the New York area for almost four decades. Through its wide variety of services, Analar offers complete solutions for helicopter charter, management, maintenance and sales

An Argus Gold Rated Charter Operator since 2011, Analar Corp began operations in September 1995, with Mike Renz as president. Today, Renz remains as president and CEO, and the company operates under an FAA Part 135 charter certificate, delivering helicopter services out of its Princeton, New Jersey headquarters. Analar's regular helicopter charter options include the six-passenger AS365N3 and four/five-passenger AS355F twins, and three/four-passenger, single-engined JetRanger, although



other types, including the AW109, Bell 430 and S-76 are easily available. The company also offers charter on a variety of Citation, Challenger, Gulfstream, Hawker and Learjet business jets. Helicopters are regularly chartered for executive transport between Manhattan heliports and a variety of popular destinations, airport transfers and by the hour. Alongside its charter product, Analar performs all helicopter maintenance, right up to overhaul, in-house, its experienced technicians working on its owned and managed fleet. Owners have the option of adding their managed aircraft to the Analar charter fleet, generating revenue to help offset operating costs and opening the

door to lower prices on essentials, including fuel and insurance. Analar manages every aspect of owners' helicopter operation, from refitting and avionics upgrade, through crewing and training, to flight operations. Managed aircraft are guaranteed to be available when owners need them. Alternatively, Analar offers a shared ownership programme, through which owners pay a pro rata rate for ownership and operating costs based on usage. Alongside its passenger work, Analar retains an unusual capacity for performing film and television work. Its available aircraft, including an AS355N, are compatible with a variety of externally-mounted equipment, including gyro-stabilised camera platforms.

President and CEO Mike Renz is an experienced commercial helicopter and single- and multi-engine fixed-wing pilot, and long-qualified aircraft technician. He is also a licensed appraiser and therefore takes a key role in advising on aircraft values and facilitating client transactions. Operating to and from airfields and heliports around New York and, in particular, Manhattan, Analar provides a convenient, safe transport option of passengers looking to maximise their productive time by minimising the time spent in transit. Its Princeton base is just two minutes flight time from Manhattan, adding convenience of operation to New York's long-standing, time-saving alternative to surface transport. ■

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This image and left: The Mehran Lounge, HADID's Executive Aviation Terminal at Jinnah International Airport

International Excellence

Through its global presence, local knowledge and experienced team, HADID delivers smooth trips and service excellence however challenging the customer's requirement

Headquartered in Dubai though it may be, Hadid International Services – HADID – delivers global service through its instantly familiar brand. The company takes particular pride from its ability to offer customers 24/7 availability through its Operations Control Centres (OCC), combined with local on-the-ground knowledge in multiple locations. Founded in 1981 as a regional flight support enterprise, HADID has grown not only its OCCs, with their dedicated teams for international flight planning (IFP), dispatch and so on, but also a proprietary software system. While the OCCs also act as a central contact point between suppliers, agents, station managers and operators, the COMPASS flight management system/CRM software (known as MASTER before it was updated in 2018) has the capacity to handle thousands of international flights. Technology is also essential for the cohesiveness of the HADID team, wherever individuals are based. Even before the COVID pandemic, the team communicated regularly through video links and other media. With HADID's traditional annual conference and dinner impossible in recent times, and reduced or no presence at aviation trade



shows, however, Zoom, Teams and the like have gained added importance.

Offices and FBOS

HADID has regional offices in China, India, Italy Niger, Pakistan, the UK and the US, with representatives on the ground expanding coverage to many more

countries. It also has FBO facilities, or Executive Aviation Terminals in HADID parlance, in Italy and Pakistan. At its Riviera Airport, Italy, facility, the HADID presence includes branded ground support equipment and vehicles, while the Mehran Lounge at Pakistan's Jinnah International Airport (KHI) has HADID

staff on the ground and uses carefully selected, audited suppliers. HADID's charter offer is comprehensive, its teams searching for the best available flights and comparing aircraft and prices to suit the needs of the customer. And, because the company's service and expertise are wide-ranging, that customer may be looking for an executive flight, or to move anything from a sports team, through cargo, to livestock. Depending on the type of flight and region, customers may benefit from HADID's partnerships with operators selected for their comprehensive and reliable service. Where this is the case, HADID may also be able to offer even more competitive rates.

The company markets itself as being able to offer consistent services worldwide, at short-notice and in the most difficult locations. Indeed, while European and US business aviation typically involves a jet or turboprop to fly between airports,

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occasionally with a helicopter transfer at one or both ends of the journey, that's not always the case elsewhere.

In many regions, business aviation means taking whatever aircraft type is required to get the job done. With an office in Niger and in recognition of the challenging weather, terrain, infrastructural differences and unique requirements in certain parts of the African continent, the HADID team has experience in arranging charters on a wide variety of aircraft, from the Cessna Caravan, through helicopters, to the latest Global 7500. Again, the combination of local knowledge and global network affords the company an unusual level of flexibility. Flexibility easily breeds complexity, however, and HADID strives to ensure

its customers experience smooth trips regardless of their requirements. Head of Operations, Akram Abbas, explains: "Our standard operating procedure dictates professional standards for customer service and rules for communication with clients. We also ensure our worldwide vendors and on-ground personnel are chosen carefully and trained perfectly. We coordinate between our departments and business development teams, suppliers, station managers and other personnel on the ground, using processes perfected over more than 40 years of providing flight support. We work hard in the background to ensure seamless and safe trips, updating and briefing our clients as needed, always with a commitment to service excellence."

Within that commitment, HADID's flight operations teams secure landing and overflight permits; generate optimised flight plans; follow flights, weather and pertinent NOTAM updates; perform airport analyses, and more, while its concierge department handles passenger and crew arrangements including airport meet and greet, transportation, hotel accommodation, visa assistance and much more.

This same level of focus and commitment also applies to HADID's defence and humanitarian customers. Government flights require different flight permits and plans, may call for revised levels of discretion and involve consideration of the risk factors associated with the transportation of dangerous goods. Time-critical missions and medical evacuation (medevac) flights, where mistakes are not an option and short-notice requests common, present another set of challenges again. All are within a day's work for the HADID team, which enjoys the satisfaction of a challenging mission accomplished smoothly and, on occasion, helping save lives.

Thanks to its flexibility, international presence and extensive skill set, HADID has pulled strongly through the past 18 months or so. It has supported cargo flights throughout the pandemic, including those moving COVID vaccines, and arranged charters for repatriations, medevacs, and humanitarian and government operations.

Looking to the future, the executive team is very optimistic, having seen the pandemic catalyse modernisation and digitisation within the aviation industry. It sees the new, greater emphasis on health and safety at airports, plus the rising number of first-time business aviation users as fuelling the expansion of its FBO network. Traffic through the Riviera and KHI Executive Aviation Terminals has been encouraging and network expansion to other 'promising locations' is expected in the near future. ■

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Expanded Connections

Options for sharing data between operations and maintenance departments in the modern cockpit are expanding. Satcom Direct has long been a leader in cockpit connectivity and now Bombardier has brought its Smart Link Plus product to market

When iPad and other tablet-based electronic flight bag (EFB) apps began appearing in cockpits, pilots realised the benefits of lighter flight bags and, more significantly, real-time updates on safety critical data, including weather, as well as operational information. Leaving aside connectivity options for passengers, the revolution in cockpit situational awareness (SA) had begun. Now that high-speed broadband connection is commonplace, the opportunities for expanding pilot SA are

SD Pro, in use on the flight deck. sd

growing to include not only enhanced real-time and operational data, but also information derived from the aircraft itself, generally shared with colleagues on the ground.

Satcom Direct (SD) is unusual in supplying agnostic connectivity solutions and a range of in-house functionality. Nick Cook, VP Flight Deck Services, says: "Most business jet aircraft today have adequate bandwidth to support cockpit apps. Connectivity in the cabin is supported by a completely separate system to the flight deck and while the pilots do not have control over the division, depending on the aircraft and how it is crewed, they may have a role to play in troubleshooting connectivity issues." Exemplifying SD's holistic approach to delivering experience rather than simply a broadband 'pipe', he continues: "We encourage flight crews using SD services to be familiar with our

systems through our comprehensive Entry into Service training programmes."

FlightDeck Freedom

Central to SD's cockpit provision, the FlightDeck Freedom (FDF) datalink service offers unique configuration options, including the ability to integrate third-party flight planning services, evolving compliance support, and the streamlining of flight crew and ground operations workflow.

Again typically for SD, FDF employs an open architecture design, enabling support of any avionics and every datalink-capable airframe; and it may be customised to meet individual mission needs. The system supports flight deck and cabin communications so that crew are able to monitor connectivity and troubleshoot issues in real time to better manage passenger expectations.

Explaining the wider FDF offer, Cook says: "It enhances operational safety

through direct delivery of automated notifications including hazardous weather, route and security alerts, and supports real-time aircraft and fleet tracking worldwide, which can be monitored from the ground and in the air. The unique GeoNotification feature details when aircraft are approaching a defined geographic area which may affect connectivity or be defined as sensitive airspace."

Of course, FDF is designed for easy integration with third-party applications and with SD's own products, including the SD Pro digital flight operations management system. "Data shared through FDF synchronises flight crew with ground operations, keeping team members informed about aircraft performance in real time to support improved flight operations, budgeting and maintenance scheduling," Cook continues. "FDF also supports fleet

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compliance with FANS, ADS-C and CPDLC to meet evolving air traffic control safety requirements and the changing landscape of business aviation operations.”

SD Pro itself supports multiple flight department tools, including pre-flight, inflight and post-flight tools that Cook says enables synchronised information sharing with all members of the flight department and crew. “This improves communications, supports better management and, through the configurable dashboard, ensures team members can access information relevant to their roles. The system is built on an open architecture design and is modular, meaning SD proprietary software modules and third party tools can also be accessed.”

Smart Link Plus

While SD is bringing services to cockpits across the industry, Bombardier is enhancing the experience of its customers through Smart Link Plus. The Smart Link Plus box debuted on the Global 7500 as a baseline installation, although a company spokesperson says Bombardier is developing a retrofit solution for in-service aircraft following a phased

approach. “The box is already available for retrofitting on Challenger 300 and Challenger 350 aircraft, at our worldwide service facilities. Availability on other Bombardier aircraft will follow in the next few months, including the Global Express, Global Express XRS, Global 5000, Global 6000, Challenger 604, Challenger 605 and Challenger 650.”

Smart Link Plus enables operators to make real-time inflight data-driven decisions to effectively track, troubleshoot and resolve aircraft service needs. At its heart, the Smart Link Plus box is an advanced health monitoring unit (HMU) allowing the secured transmission of key aircraft performance data automatically and wirelessly to Bombardier’s digital platform. The system is designed to empower flight operations and maintenance teams, but also delivers important SA into the cockpit.

The Smart Link Plus box uses the cabin connectivity system, whether satcom or air-to-ground, to channel information to/from the aircraft, although on the Global 7500 the Aircraft Communication Addressing and Reporting System (ACARS) is used for inflight notifications.

Further connectivity is enabled when the jet lands, as recorded high frequency aircraft parameters are transferred using Wi-Fi/cellular connections. Because the pilots can connect to the cabin Wi-Fi, they can also access the myMaintenance App, just as ground crew do.

The spokesperson explains: “They can access the inflight notifications, which include some flight deck effects they can see directly in the cockpit, but other information as well. For example, they can analyse any CAS [crew alerting system] events that may have occurred in previous flights and access the direct link related to an event in our Smart Fix technical publication.”

The bandwidth available aboard aircraft continues to drive an expansion in the range of value-added functionalities and capabilities available to flight crew. In addition to its recently launched myMaintenance app, Bombardier is continuing to look for new ways to use live data from the aircraft, while Nick Cook at SD sees new connectivity options, including smaller antennas suitable for lighter aircraft, leading to refactored apps better suited to addressing the needs of these particular aircraft operators. ■



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A Falcon 50, stripped back inside one of Duncan Aviation's hangars. Duncan Aviation

Carefully chosen, properly maintained and upgraded for regulatory compliance, an older aircraft can make sense to many owners. EVA asked a few leading MROs for their take on classic aircraft maintenance

More Life to Give

With MRO facilities in Peterborough, Ontario and St Louis, Missouri, Flying Colours Corp concentrates on the Bombardier Challenger and Global family of aircraft, but supports other airframes too, including Dassault and Gulfstream products. The Learjet family has also been a regular over the years, but less so recently. Kevin Kliethermes, Director of Sales, notes: “No two aircraft are the same and the numerous variables affect the potential challenges: for example, the environment where they have been based, if they’ve been

hangared, who has maintained them, and engine cycle times. We are invariably conducting a 96- or 120-month/C check on one or other of these types, so we know what to look for.”

Nate Klenke, Modifications and Design Sales Manager with Duncan Aviation, says: “We see aircraft as much as 40 years old, although our ‘sweet spot’ is providing services to aircraft in the five to 25-year range. Manufacturers are required to support the airframe over the lifespan of the aircraft, but parts availability can become a challenge, potentially causing increases in costs and downtime. From the modification perspective, ageing avionics may not have cost-effective upgrade paths and face

obsolescence for systems that require complex certification programmes to meet operational mandates.”

So there are definite caveats and older airframes may pose maintenance challenges. A Gama Aviation spokesperson reiterates the thinking at Flying Colours Corps and Duncan Aviation, adding concerns over the cost of maintenance in terms of aircraft value, and more frequent inspections around structural integrity/corrosion. Nonetheless, he says: “Well maintained and correctly operated airframes will operate to end of life successfully.”

Debi Cunningham, VP Marketing at West Star Aviation is a big fan of older aircraft. “We love them because in some instances the OEMs don’t support older aircraft as well as they do the newer models. We really enjoy bringing in the classic aircraft and doing their maintenance, but not only maintenance, also a complete

refresh, with new avionics, new interior, new paint.

“We are seeing several of the older model aircraft having a comeback with more customers interested in operating them. Their actual airframe maintenance stays the course of the aircraft, so they have the same requirements for maintenance intervals and due items as the newer aircraft.”

She admits that parts availability is sometimes challenging but explains: “In those cases we work with the manufacturers to get what’s needed. Thanks to our excellent relationships with many of the OEMs, we’ve also done major airframe repairs where aircraft have left us good as new.”

In some cases, of course, the OEMs continue robust support for their older models. Derek Zimmerman, President Gulfstream Customer Support, believes the company maintains and supports between 60 and 70% of the active fleet,

with similar support package offers for purchasers of older models to those available for its new aircraft. “The easier part of that is the routine inspections, the trickier part where a customer may want to add discretionary funding to the package for unscheduled maintenance. The variation in that gets wider with age because you have to make allowance for aircraft history. Essentially though, a package allows customers to budget because they have a good idea what they’ll need to spend over time.”

Upgrades and STCs

West Star is not alone in offering upgrade options, but its historic work on the original Falcon 50 was particularly ambitious. “We worked with Honeywell on a 50-4 programme,” Cunningham recalls. “Honeywell designed an engine upgrade for the Falcon 50 that took the TFE731-3 engines to -4 configuration. We

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Deep cabin maintenance under way with StandardAero. StandardAero

developed the STC for the installation on the airframe, bringing the older Falcon 50 up to the performance level of the Falcon 50EX, with a more reliable engine, reduced fuel burn and faster climb to altitude, which again saved fuel. Then we paired the engines with the Collins Pro Line 21 cockpit upgrade, new interiors, new lighting and new paint. We did ten Falcon 50-4 retrofits.”

Other popular upgrades include winglets, avionics updates, some of them mandatory, and cabin refurbishment, including connectivity and IFE installations. Nate Klenke notes that Duncan Aviation holds several connectivity STCs and since it holds an FAA Organization Design Authorization, it is also able to develop STCs for systems that may not be available in the cabin and/or on the flight deck.

Jeff Hutcherson, Director of Operations at StandardAero Business Aviation, reports that many options exist for high speed data and he believes



Gama Aviation offers a complete aircraft maintenance and modification solution. Gama Aviation

StandardAero has installed them all. “Cabin management systems and high-speed data are in demand but operators shouldn’t forget avionics needs on the flight deck of older aircraft. These can often be the most needed, and most costly.” Surprisingly, he cautions: “Multiple configurations exist, often specific to an aircraft serial number.” Gama Aviation’s extensive approvals and vast experience, especially with the King Air and Challenger, enables it to design cockpit retrofits, manufacture any parts required and install them under Part 145. “We can do everything from non-integrated ADS-B solutions through to full glass cockpit changes,” the spokesman notes. The company is perhaps best known for its long association with the King Air, of which the oldest example it currently sees is a 1979 Model 200, with

13,900 hours total time. The aircraft has received engine, airframe and avionics upgrades, in common with the most aged of Gama Aviation’s Challengers, a 601, manufactured in 1984. Older Hawks, Challengers and Globals are no strangers to Gama Aviation’s MRO facilities in Bournemouth, UK and Fort Lauderdale, Florida, either.

Think twin-turboprop business aircraft and it’s likely the King Air springs to mind, but Cessna achieved some success with its Conquest II. Built until 1986, the type remains popular and has been the source of considerable upgrade work at West Star Aviation. Its TPE331-8 engines were upgraded to -10 standard and Debi Cunningham recalls that four conversions per month frequently went through West Star’s Grand Junction, Colorado facility in the 1990s; often the exterior paint, interior and avionics were also refurbished. The

programme remains active through West Star’s STC.

Airframe modifications may also go a long way towards improving the operating economics and performance of an older aircraft and winglets are an obvious addition. Many MROs have winglet capability but, as an authorised Aviation Partners installer, Duncan Aviation, for example, has fitted more than 100 pairs on Falcon 50, 900 and 2000 aircraft.

Avionics & Connectivity

Kevin Kliethermes at Flying Colours Corp says the primary maintenance challenge almost always relates to avionics as parts become obsolete, or connectivity and cabin management systems, which have advanced to the point where modifications are needed to support contemporary equipment. “Connectivity systems quickly lag state-

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Flying Colours installed Ka-band connectivity on this Challenger 604. Flying Colours

The upgraded cabin of a West Star Aviation Falcon 50 project. West Star Aviation

of-the-art options and flight deck software changes rapidly, leaving older aircraft with outmoded systems. Their technology often fails to support the latest airspace demands and new mandates are regularly coming online. “We encourage flight deck refurbishments as this gives a new lease of life to an aircraft perhaps first launched to market

25 years ago. For example, we are installing Collins Aerospace Pro Line Fusion avionics on Challengers, updating connectivity systems on Global XRS/ Express models to Ka-band, and installing Collins Venue management systems in the cabin.” Aside from essential avionics upgrades and the comfort of a refurbished cabin,

connectivity perhaps plays the greatest role in refreshing an aircraft from the passenger perspective. John Miedwig, Director, Certification Services at StandardAero Business Aviation, says: “We routinely develop STCs in support of ageing aircraft and in many ways their updating is core to StandardAero’s modifications business. We regularly

develop STCs to support cabin upgrades, glass cockpit retrofits, satcom installations and high-speed broadband, to name a few.”

Mike Creek, the company’s Avionics Technical Manager, explains: “We are seeing a lot of upgrades replacing ‘obsolete’ equipment, including replacing cockpit cathode ray tube displays with new liquid crystal displays [LCD]. The new LCDs incorporate additional technology that allows for synthetic vision, charts/maps, XM Weather and video to be displayed, bringing information that used to be on an electronic flight bag to the fore. “On the connectivity front, Gogo has developed the Avance L3/L5 platform, which replaces the older ATG system and provides a faster internet experience above 3,000ft. There are also several solutions for Ku and Ka used for video

streaming through taxi and all phases of flight. Customers are not necessarily looking for the fastest aircraft, but the aircraft with the fastest internet.

“We are also seeing customers take advantage of new technology in the cabin by upgrading the cabin management system to interface with the latest devices on the market, with HDMI ports and USB charging. A customer can take an Apple TV or other streaming device and plug into the HDMI port to display on the cabin monitors. That same device can then connect to the internet through the Gogo Avance L5, Ku or Ka systems for video streaming, just like you would at home. It’s really amazing how far we have come with connectivity in the last 20 years. Back then, getting a fax to work seven out of ten times was good, now customers are able to stream video and use FaceTime.”

Owning and operating an older aircraft successfully comes down to the machine’s history, quality maintenance, avoiding obsolescence and upgrading. With an eye to US purchasers, Jeff Hutcherson concludes with some advice from StandardAero Business Aviation. “Some aircraft age better than others, but I’d say pick one with avionics systems that are either still supported or have a clear upgrade path; avoid airframes with low production engine models, which can be very expensive to maintain; avoid aircraft that have been based in wet/salty environments; and if the aircraft has been operated outside the US, check the fuel tanks closely for corrosion during the pre-buy. All the major OEMs have older aircraft they continue to support well and if properly maintained they can offer good value compared to purchasing a new aircraft.” ■



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Twice honoured at the 2021 Middle East Aviation Achievement Awards, Empire Aviation Group offers a comprehensive service mix, including aircraft charter, management, sales and flight operations, alongside a robust CAMO (continuous airworthiness maintenance organisation) offer. The Business Aviation Operator of the Year and Aircraft Management Service Provider awards demonstrate the quality of Empire's product, yet it offers services readily available elsewhere in the region, so what is it that sets the company apart?

Paras P. Dhamecha, Managing Director of Empire Aviation Group, believes the answer is in Empire's integrated services and its people. "Since its launch in Dubai in 2007, Empire Aviation Group has developed into a global private aviation business integrating a comprehensive range of services, based on a distinctive aircraft asset management approach and personalised service. "It's the integration of our comprehensive offer and the expertise and experience of the team that enables Empire Aviation to provide the highest degree of personalised services. Our aircraft sales capabilities and experience extend to global markets and

Dubai-based Empire Aviation Group takes a personal approach to its private aviation services, including aircraft management, charter and CAMO, as Managing Director Paras P. Dhamecha reveals



Paras P. Dhamecha, Managing Director, Empire Aviation Group

transactions, while our aircraft management differentiates us from traditional brokers. It's the ability to draw together all the strands of private aviation – sales, management, operations, and charter – that enables the team to make private aviation a great experience for owners and charter guests.”

Global Reach

Although it is headquartered in the UAE with one of the Middle East's largest managed fleets, Empire's reach extends to a presence in Africa, Europe, India, Indonesia and the US. Dhamecha identifies these as 'the key regions for private aviation', while noting that the entire Empire team comprises 130 aviation specialists. The majority are based at the Dubai headquarters, with branch offices in India and San Marino, and aircraft sales representatives in the US. The company's offer is further enhanced by UAE and San Marino AOCs (air operator certificates) and an NSOP (non-scheduled operator permit) in India. “We also



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recently appointed a new group director of aircraft sales and acquisitions to lead development of this aspect of the business,” Dhamecha notes. “It’s a vital element of our business model and the basis of our asset management approach.”

For a company to offer charter, management and aircraft sales is not unusual, but offering CAMO too is less common. Dhamecha says Empire’s CAMO certification is central to its aircraft management services, but also available as a stand-alone offer for third-party aircraft owners and operators. “The group takes responsibility for the quality management, auditing and records of each aircraft,” he explains. “In 2016, Empire Aircraft Management, our affiliate in India,

began operating a dedicated CAMO and compliance facility from a sub-branch at the Aerocity in Delhi, India. It also has a corporate office in Bangalore.”

Dhamecha’s mention of aircraft records is significant. Easily neglected, quality records are essential to good maintenance, safety and aircraft value. “Our aircraft management service is built on close personal working relationships with owners, developing a high degree of trust, openness and transparency,” he explains. “The team builds trust and manages expectations by looking after every operational and maintenance detail of their aircraft. This includes the negotiation of all contract services with suppliers and tracking costs to ensure

owners are receiving the best deals, with open books at all times.”

It is also significant that while many of the aircraft Empire manages are also offered for charter, some are not. Tailored management means that Empire delivers personalised service to every aircraft owner, according to their unique business model. The company’s policy of recognising and delivering upon unique customer requirements ensured that Empire weathered the worst ravages of the COVID pandemic, emerging strongly and with an eye to the future. Dhamecha acknowledges the team’s efforts throughout the crisis, examining potential new opportunities, including expanding its markets, product and service offering. ■

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