JANUARY 2012

Business Jet interiors International

THE INTERNATIONAL REVIEW OF BUSINESS JET INTERIOR DESIGN AND **brand**designs Gulfstream creates a cohesive aesthetic by translating G650 style to the G550 and G450 **beyond**expectations How Deer Jet's new interiors cater to Chinese tastes lateralthinking CESSNA GETS ITS INTERIOR TEAM INVOLVED IN DEFINING THE FUSELAGE OF THE NEW CITATION LATITUDE









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published by UKIP Media & Events Ltd Dorking, Surrey RH4 1DF, UK **Tel:** +44 1306 743744 Email: aircraftinteriors@ukipme.com

NBAA (member)

Annual Subscriptions (four copies) Worldwide Rate: £42/US\$75

c/o Worldnet Shipping USA Inc, 155-11 146th Street, Jamaica,
New York 11434.
Periodicals postage paid at Jamaica, New York 11431.
US Postmaster: send address changes to Business Jet Interiors
International c/o, Air Business Ltd, c/o Worldnet Shipping USA
Inc, 155-11 146th Street, Jamaica, New York 11434.
Subscription records are maintained at UKIP Media & Events
Ltd, Abinger House, Church Street, Dorking, Surrey, RH4 1DF, UK
Air Business is acting as our mailling agent.

ISSN 1755-8182.

Business Jet Interiors International January 2012.
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Printed by: William Gibbons & Sons Ltd. P.O.Box 103, 26 Planetary Road Willenhall, West Midlands, WV13 3XT, UK

showand**tell**

Welcome to the show issue of Business Jet Interiors International! The event in question is, of course, Business Jet Interiors World Expo 2012 – which is being held on 22-23 February 2012 in Cannes, France. Organised by the publisher of this magazine, and intended to bring these pages to life, the industry's only interior-dedicated show will welcome executive jet owners, operators and completion centres from around the world. A comprehensive preview starts on page 24, including highlights of the exhibition and sneak peaks at conference presentations.

I'm proud to say we have a very strong line-up for you. In fact many speakers' latest projects are the biggest news in the industry at the moment, and accordingly, you can read all about them here! For example, Andrew Fulford, manager of design operations at Gulfstream - whose speech will cover factors such as modularity, mock-ups and brand identity - also reveals the thinking behind the new Elite option for the G550 and G450 on page 34. Likewise Andrew Muirhead, CEO of IDAIR, takes us through the prospects of wireless IFE on page 58, and will address the latest IFE and CMS technologies and trends in depth at the conference. Meanwhile, Edése Doret of Edése Doret Industrial Design whose design for a Boeing 787-9 with living walls is featured on page 20 - will expand on how to balance innovation and certification at the expo. Another big talking point at the moment is the Sukhoi Business Jet (SBJ), which recently won its first customer. Tim Callies, head of Comlux Creatives, which will design Comlux's SBJ interiors, will speak on designing for the charter market at the expo.

Elsewhere in this issue, there are features on Chinese charter company Deer Jet and its new ACJ and BBJ interiors (page 64); and our cover story (page 42) details new thinking at Cessna that is feeding into the design of the Citation Latitude. One of the main points of departure is getting the cabin interior team closely involved in defining the fuselage.

A final point before you get stuck in – we now have a LinkedIn page, on which you can converse with like-minded professionals on everything from industry news and hot topics, to the magazine and your plans for the show. Search for 'Business Jet Interiors World Expo' under groups. I look forward to meeting you online and in Cannes!



Izzy Kington, editor









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showpreview

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branddesigns

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Chris Colvin, Business Jet Interiors International



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There is a clear idea behind IDAIR. Two industry leaders have joined forces to provide the smartest, most advanced and best designed entertainment and communication solutions for VIP customers. Using the latest technology and the combined innovative power of Lufthansa Technik AG and Panasonic Avionics Corporation, we are set to help you take your travel experience to the next level.





Lufthansa Technik develops virtual fitting

Lufthansa Technik has developed a new method to shorten the fit check process, which traditionally involves trial-fitting the various elements of the cabin installation in the real aircraft.

The new procedure, developed under a project due to run to 2013 (funded by the Federal Ministry of Education and Research (BMBF) and implemented through Hamburg's aerospace cluster), is based on virtual 3D modelling of the airframe, cabin and systems. Thus, most of the components can be designed and checked prior to the start of production so that they fit into the aircraft straight away, without a test fitting.

The process also uses virtual reality. For this purpose the designers enter a 12m² glass cube known as the Cave Automatic Virtual Environment (CAVE). With the aid of special glasses and infrared cameras on the ceiling, the system creates a 3D reproduction of the cabin in which the technicians can move freely.

As all the data generated is mapped faithfully on a 1:1 basis, Lufthansa Technik says any problem areas can be identified easily and investigated more closely than on the workstation. All the data gained through CAVE flows automatically into production, so that inaccuracies or errors can be avoided even before the elements of the cabin are built in the workshops.

"We are reducing to a minimum the number of changes required to the cabin installation and as a result we are able to noticeably cut the length of layovers that the VIP aircraft spend in our hangars," said Dr Franz-Josef Kirschfink, director of technology projects at Lufthansa Technik.

Lufthansa Technik plans to fit the first interior in this way in two years time.

Tyrolean Jet Services becomes Airbus Corporate Jet operator

Tyrolean Jet Services (TJS) has announced that it is now an Airbus Corporate Jet operator, offering an Airbus ACJ318 for VVIP charter. The aircraft includes an office/bedroom. Airbus ACJ318 cabins are completed by Bizjet International in Tulsa, Oklahoma, USA. Bizjet is a 100% subsidiary of Lufthansa Technik. "As a long-established business jet company, it was a natural next step for us to operate an Airbus ACJ318, because of the new standards of comfort and space that it offers," said Martin Lener, CEO of TJS. TJS was established in 1978 and is based in Innsbruck, Austria.

New interiors for Baron and Bonanza models

Hawker Beechcraft Corporation (HBC) is incorporating new interiors in its Beechcraft Baron and Bonanza piston-engine aircraft. The upgrade also includes an automatic climate control system and an external LED lighting package. The new features will be phased into production in the second quarter of 2012.

"This programme upgrades the comfort, styling and functionality of the current Baron and Bonanza aircraft to a level similar to that found in top-of-the-line vehicles," said Jim Holcombe, VP of marketing at HBC. "We are accomplishing this by adding contemporary design elements, cleaner lines and improved ergonomics to the interior for a more blended, form-fitting look."

The new air conditioning and automatic climate control system features an engine-driven compressor with condenser and evaporator units in the tail cone. The unit has a 'set and forget' feature allowing the operator to select the desired cabin temperature that will be automatically maintained by an electronic control unit.

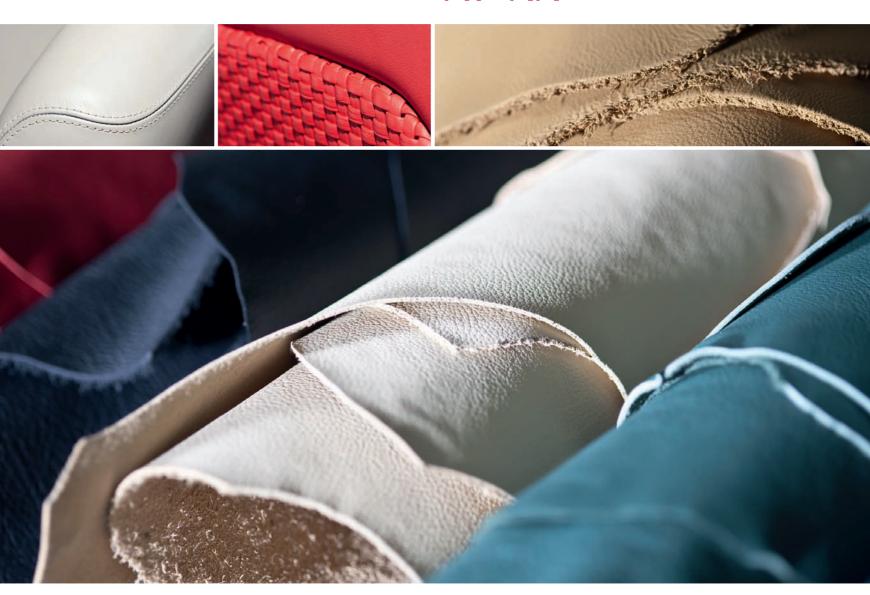
Flying Colours allies with Metrojet for Asia

Flying Colours Corp has signed an MoU with Hong Kong-based Metrojet. Under the new partnership, Flying Colours Corp plans to open a base of operation in the region that will focus on interior refurbishment for a range of mid- to large-sized business aircraft types including the Global Express series, Challenger types, Dassault Falcon, Embraer, Hawker and Gulfstream models. The structure and logistics of the partnership is still being finalised, and ratification is expected in mid 2012.

Metrojet's offering includes charter, management, maintenance, co-ownership, acquisition and sales. It also provides heavy/scheduled inspections, repair services and regional AOG support.



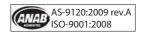
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FAA certification for Nextant 400XT

Nextant Aerospace has received FAA certification for the Nextant 400XT, a completely remanufactured business jet. The first delivery was made on 10 October 2011 to Flight Options, the first of 40 the fractional jet company has on order. The remanufacturing process requires more than 6,000 man hours per aircraft, and employs a Beechjet 400A/XP airframe, enhanced with new technology including the Williams FJ44-3AP turbofan engine, the Rockwell Collins Pro Line 21 integrated avionics suite, advanced electronics and completely rebuilt interiors. Further options include additional avionics features and cabin entertainment including high-speed wireless internet.

King Aerospace expands business strategy

King Aerospace Commercial Corporation (KACC) is now focusing on refurbishment services for a wide range of aircraft. The company has spent the past year primarily focused on the pursuit of green Boeing Business Jet (BBJ) completions. "It became very clear to us that there are too many completion centres chasing the same few available projects," said Jerry King, owner and founder of KACC. "When I was part owner of Associated Air Center in the early 1990s there were only a handful of large aircraft modification centres. Today the market and industry have dramatically changed which resulted in us reviewing our short- and long-term business strategy. It is a buyer's market and we want to make sure we position our firm with a wider range of clients who often operate a wide range of aircraft, including Boeings."

Keith Weaver, EVP of KACC said that "to support this new global service strategy, KACC was recently certified by EASA to serve clients operating under European certification. KACC is in the final stages of becoming AS9110 certified."

Greenpoint tapped for 747-8 VVIP completion

Greenpoint Technologies has signed a letter of intent for a 747-8 VVIP completion. "Over the past three years Greenpoint has added technical talent and infrastructure to accommodate a 747-8 completion," said Sloan Benson, Greenpoint's EVP and president of its Denton facilities. "We have added several in-house facilities including VIP cabinetry, an aerostructures facility and CNC 5-axis equipped machine shop."

Annika Wicklund, Greenpoint's design manager, is leading the architecture and design creation: "The 747-8 interior décor is fresh and elegant, infusing the client's rich heritage," she said. The picture below shows a 747-8 concept by the company.



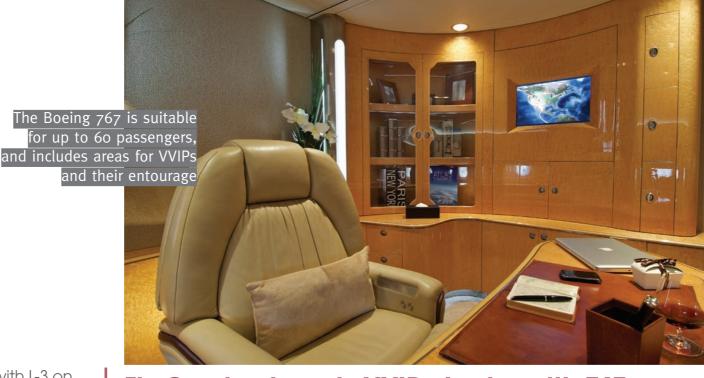
Piper rolls out improved M-class aircraft

Piper Aircraft has enhanced its M-Class single-engine business aircraft - the turboprop Meridian, pressurised piston Mirage and unpressurised piston Matrix. The biggest changes are designed to enhance pilot comfort and cockpit access. They include flat fold-down aft-facing seats, a fold-down co-pilot seat and a cockpit assist handle. When folded flat, the co-pilot seat offers a work surface and cup holders. The cockpit has been sculpted to provide more elbow and hip room, and also includes new side panels with larger map pockets to hold pilots' iPads. The cockpit seatbacks have also been restyled. The aft-facing seats have larger and reshaped bottom cushions, and the back cushions have firmer lumbar support.

New 2012 top-of-the-line Piper M-Class aircraft fly with brighter external LED lighting. Cabin reading lights and threshold lights have also been replaced with LEDs. Bose A20 headsets are now standard and the receptacles are hardwired for more power and better noise-cancelling capability while eliminating the need for batteries. The A20 includes an auxiliary audio input and Bluetooth phone connectivity for pilots and passengers.

The turboprop Meridian now has two 110V outlets for onboard recharging and for mobile devices, while the Mirage and Matrix have one additional outlet. Utilising the EmPower system by Astronics, Piper has added cabin power to support passengers' electronic devices. Piper has also revamped internal air distribution.

All three aircraft seat six with club seating. With Garmin G1000 avionics, the standard prices of the Meridian, Mirage and Matrix are US\$2,071,500, US\$997,500 and US\$869,000 respectively.



PAC partners with L-3 on head-of-state 747-8

PAC Seating Systems (PAC) has been selected by L-3 Platform Integration Head-of-State Completion Center in Waco, Texas, USA to provide a full range of 16*g* VIP seats, divan frames, slouching seats and full-flat sleeper seats with VIP surround cabinets for installation in a 747-8 head-of-state completion project. This project is PAC Seating's 37th VIP airliner programme.

PAC Seating now has more than 155 FAA TSO certifications for a wide variety of seating types. In addition to its VIP airliner programmes, PAC manufactures products for Bombardier, Dassault, Gulfstream, Piaggio, and Sikorsky, and many other completion centres that specialise in refurbishment projects.

Almost every seating product is available with motorised options, including recline, leg rests, foot rests, lumbar, massage, head rests, swivel/tracking lock release, berthing, slouching, bed tilting pans, and head lift. Whenever possible, PAC certifies 16g seating products with a 12in-high seat pan and a complete range of upholstery foam densities.

PAC's executive seats were recently installed on a Boeing 737 completed by DAS (pictured).



Fly Comlux targets VVIP charter with 767

Fly Comlux has begun operating a 767 BBJ, which was refurbished at Comlux America, the Comlux group's completion centre. For this project Comlux decided to extend its operations by setting up a new company, Comlux Aruba, which has obtained an AOC in Aruba. Fly Comlux hopes to attract governments, heads of state and royal families for medium- to long-range charter missions worldwide. "We are very pleased to welcome our first BBJ," said Andrea Zanetto, CEO of Fly Comlux. "This aircraft, based in Bahrain, will allow us to be close to key clients in the Middle East and Africa."

Satcom Direct launches SkyTicket and apps

Satcom Direct, provider of satellite voice, fax, datalink and internet communications solutions, has developed SkyTicket, a product for aircraft operators that allows passengers to pay directly for internet data usage in flight. SkyTicket is PCI compliant – credit card and payment information is sent directly to the credit card merchant and is not stored in the system. SkyTicket currently works with Inmarsat and Yonder hardware with functionality on multiple other hardware platforms coming in the near future.

The company also recently launched mobile application versions of five of its services – AeroV (VoIP), FlightDeck Freedom (flight deck data), Plane Simple (account management), SkyTicket and MATA (troubleshooting) – to help pilots, flight crew and passengers get connected and receive real-time data of activity on their aircraft. The apps are available for all Apple devices and can be downloaded from the iTunes store. Some applications require a subscription and others require existing service through Satcom Direct.

PATS delivers refurbished Challenger 850

PATS Aircraft Systems has redelivered a Bombardier Challenger SE to a customer based in the Asia Pacific region. PATS performed the major interior overhaul at its facility in Georgetown, Delaware, USA.

The interior refurbishment updated nearly all interior design elements, including substantial veneer refinishing, new carpet and upholstery and an auxiliary fuel system upgrade to match the design, functionality and operational requirements of the new owner. PATS also accomplished aircraft maintenance and exterior paint work. The aircraft was delivered on time to the customer during the third quarter of 2011.

The aircraft was delivered with the latest PATS auxiliary fuel system (AFS). The PATS CRJ-200 AFS is a two-tank system, installed inside the fuselage pressure vessel forward of the aft cargo compartment. PATS says the system enables aircraft range of up to 3,000 nautical miles. PATS offers AFS applications, component manufacturing and maintenance, modification and completions services.









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culinaryheights



Daniel Hulme, director of inflight catering at Alison Price on Air, explains some of the challenges involved



and tastes good in the cabin?

Dehydration and altitude can affect the quality of the food and passengers' tastebuds, but by making everything in-house we avoid these inherent problems, adapting dishes as required. We also consider how the food travels and the need to retain freshness; our specially designed packaging plays an important part in keeping the food fresh. Breads don't travel particularly well so we have to make sure the wrapping is well sealed when food is travelling outside our unique container system. To ensure suitability, we work closely with the flight attendants to discuss each of their passengers' specific requirements. We are aware of the differences between, for example, a Challenger 300 as opposed to a Challenger 850, enabling us to make suggestions about which items will work.

How would you change galleys?

The biggest change we would make is to develop a fridge. A larger working area would also be advantageous. We've noted that some aircraft are very limited on storage space in the galley. What is useful is when they have a microwave or oven and we always make sure we know what's available so we can provide the best menu options to every aircraft.

How do you ensure food is served right?

We offer flight attendant training days. These workshops provide basic culinary and modern food presentation skills and explain our unique flashcard system, which details how to present the food, step by step. The seminars also provide basic health and hygiene tips.

How much notice do vou need?

Catering requests are normally sent to us before 7pm, for provision the next day. We tend to stick to this to make sure we provide the quality our clients now expect. We can do small orders in a shorter time delivery but from a restricted menu; we're not about speed of delivery but focus on quality. Having said that, this year we've invested a lot in gaining security clearance at the key London business aviation airports. Our staff have been security cleared, as have our vans. It was a sixmonth process to get full airside access, but it has been worth it to speed up deliveries.

What are the big trends in food?

We've noticed increasing requests for Indian cuisine and consequently have teamed up with Michelin-starred restaurant Tamarind for this. Clients usually want classic dishes at a superior standard, done in a modern way - for example, our popular Caesar and Niçoise salads. Our most unusual request was for fresh eel, which we managed to source and prepare as the client liked.

How do you plan to deal with the London 2012 Olympic Games?

We are already in discussions with the main airports about how to manage business during the Games. We're exploring all opportunities, including midnight deliveries and specific Olympic menus. In theory, with the strict slot allocation system in place, flight attendants and crew should be providing orders well in advance.

What are the company's plans?

We've just taken on extra staff, which enables us to open for longer. More themed menus partnering with the right restaurants are looking likely. We'd also like to explore how we can influence galley design to make life easier for everybody involved. Following our successful first 18 months, we've been asked to consult on a variety of business aviation catering issues and we continue to develop this revenue stream.





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naturalbeauty





Brief:

Edése Doret of Edése Doret Industrial Design (EDID) has created a one-of-a-kind VIP interior for Boeing's new 787-9 Dreamliner. Boeing chose EDID to design an interior for private use, arrayed with plant life growing from the walls.

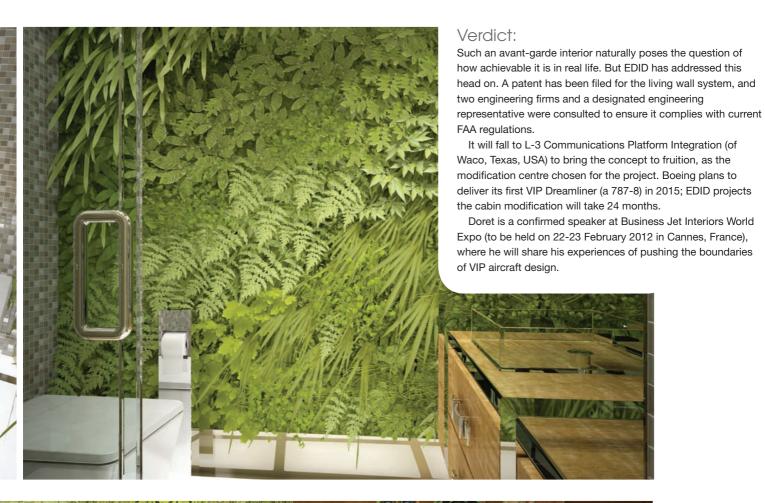
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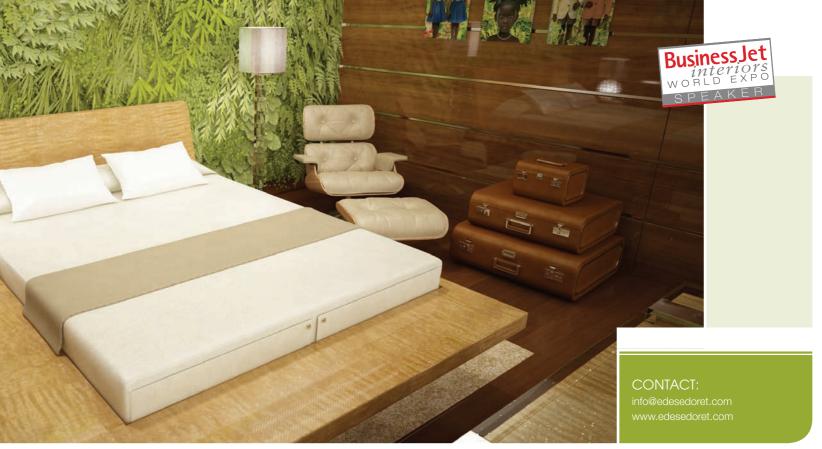
The most unique thing about the interior is obviously the bulkheads in the entryway, master bedroom, master lavatory and office, which will teem with plant life. In fact, each 'living wall' will be arrayed with carefully selected variegated evergreens that Doret says are non-allergenic, insect-free and will even enhance air quality in the aircraft. The foliage will require "minimum maintenance by a specialist", but won't shed, according to Doret. The living walls will have a dedicated irrigation and light system. The irrigation system will supply water and plant food to the structure, while natural and artificial daylight will enable photosynthesis.

Overall, Doret has designed his "private dream jet" to create a tranquil and calm atmosphere for passengers, to make them forget they are even in an aircraft. "Typical design boundaries are removed in rooms that invite adventure and include an unlimited supply of imagery," says Doret.

The interior will be supported by component suppliers including Aeristo, Aerospace Technologies Group, AeroQuest, Air Cabin Engineering, Air Cabin Trading, Atlantic Aviation International, B/E Aerospace, Custom Control Concepts, Emteq, Kydex, L-3 Communications Platform Integration, STG Aerospace, Tai Ping, Tapis and Techno Coating.







secretservice





Brief:

The ABJ Q is the fifth of five concepts commissioned by aircraft asset manager Falko and designed by Design Q for the Avro Business Jet (ABJ). The interior is bristling with technology and gadgets that are hidden in the furniture but available at a moment's notice. "We called this version the ABJ Q, in homage to Q, the head of Q Branch, the fictional R&D character made famous in many James Bond films and who specialises in creating devices that were hidden away in everyday objects," says Gary Doy, director of Design Q. "In many ways, the ABJ Q would not be out of place in a James Bond movie, as it reveals its hidden secrets at the press of a button."

Description:

Tailored to "dynamic owners who live life in the fast lane", the ABJ Q has a modern, non-traditional design and informal layout. "The traditional look of bulky volumes and straight line architecture is replaced by tailored seats over lean structural forms in a more eclectic and dynamic layout," says Doy.

A stripped-down structural approach combined with soft leather seats delivers a sporty tone within a luxury palette, while visible composite structures are used to emphasise the technical qualities of the furniture. The forward lounge has a principal seat with control centre, allowing the owner to manage all aspects of the cabin environment. The sofas combine a structural shell with a visually separate backrest cushion. There are concealed monitors and a refreshment centre embedded in the bulkheads.

The centre of the cabin is dedicated to an open-plan office. The barrelled ceiling has a lighting system that can provide a twist on mood and accent lighting, in addition to large flat-panel lights designed to deliver a full 'daylight' working environment. The desk features an array of technical equipment, including printers, computers and additional pop-up monitors. A fingerprint recognition system is used to gain access to these items and to unlock safe storage for confidential documents and data storage devices.







Verdict:

It's not only Bond who gets to live twice. The ABJ is the brand name given by Falko to executive and VIP versions of the BAe 146 or Avro RJ regional jetliners, some 400 of which were produced by BAE Systems between 1981 and 2003. Using these as a platform for new interiors, Falko says customers can get "an airliner-sized cabin for the price of a mid-size business jet". A ballpark figure for a used BAe 146-200 is about US\$2 million (£1.26 million) and from about US\$4-6 million (£2.5-3.77 million) for a used Avro RJ, depending on age and condition. The ABJ Q is a departure from the traditional interior, and targets a different type of owner from the four ABJ interiors that preceded it - the 'goanywhere' ABJ Explorer One and Explorer Four; the luxury charter ABJ Fusion; and the sophisticated ABJ Eleganté. Falko certainly now has the weapons to stir the interest of various sections of the market, and with its connections to Design Q and Inflite Engineering Services, can provide a holistic design, conversion and



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Business Jet Interiors World Expo will be held on 22-23 February 2012 in Cannes, France. Tailored specifically to showcasing the very latest in executive jet and helicopter interior design and technologies, the event, together with the neighbouring FBO destinations show Business Airport World Expo, is expected to draw around 2,000 executive jet owners, operators and completion centres from all over the world! It will also include a free-to-attend conference boasting what is probably the best speaker line-up of the year. The following pages feature just some of the highlights of the business jet industry's only interior dedicated show...

of Aircraft Interiors Expo,

Situated alongside its sister FBO and destinations show, Business Airport World Expo 2012 will for the first time global exhibition that is focused solely on their cabin interior requirements.

The Cannes-based show will bring expect to see the best seating, catering materials, design houses – everything that goes into creating bespoke, worldclass business jet cabins.

A highlight of the show will be the

including Andrew Fulford, manager of business and private aviation director at Eurocopter; Andrew Muirhead, CEO of IDAIR; Tim Callies, head of Comlux Roseman of RWR Designs.com.



TOP TECHNOLOGY



Artistic vision

John Slowsky Virtual Illustration will highlight its ability to transform rough sketches, blueprints and material swatches into accurately rendered virtual reality that is ready for highresolution print and HD-broadcast animation presentations.

Customers use these virtual illustrations to show their clients exactly how the design will appear when it is completed. Upholstery, finishes, metals, reflective properties, lighting, interiors and exteriors can all be accurately simulated using sophisticated rendering software combined with an artist's touch. The company's work has been increasingly used to visualise the next generation of luxury cruise ships, and it is now expanding into the luxury aviation market. The team boasts over 21 years of experience in print, web and animated media, and uses cinematic cameras, theatrical lighting and fine art composition to achieve a high level of realism. Stand J2012

SPEAKER SPOTLIGHT



Jean Sémiramoth, chief operating officer

of Altair, will provide an outlook on the outfitting marketplace, coverina service providers and their offerings

Why did you choose this topic?

Outfitting is an extremely complex area that can be littered with costly pitfalls for the unwary buyer. Buying and outfitting a business iet is not a auick or easv purchase - the needs for the next three to five years must be considered as a minimum. Altair purposely limits the number of projects it manages - typically just three to five transactions a year.

What are the big challenges?

Statistics indicate that today, 20% of buyers are first-time buyers. Often the project requires a much greater investment than originally envisaged and even those who have previously owned aircraft find the process difficult. So managing the team of legal,

financial, insurance and operational experts who can guide buyers on performance, price, contract terms, finance options, tax implications and legal issues is essential.

Do you have any solutions?

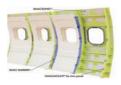
The supervision of the completion process is our main area of focus for the expo and it is an area that itself suffers from lack of capacity and limited expertise. There are a limited number of outfitting centres and only a handful attain the quality demanded. Waiting lists can extend to four years so demand exceeds supply and prices are high. Sharing expertise through mergers and joint ventures between the top players and the less experienced providers is one solution that deserves serious consideration. Not only could standards be raised, but waiting times would be reduced and throughput increased. Installing a proper project management team is also a simple solution but one that is rarely adopted. Stand J3002



Altered images

328SSG will highlight a selection of its interior conversion and refurbishment capabilities, including its partnership with top designer Robin Dunlop of

CTM Design. The company offers conversions on any small to medium/large aircraft, as well as boats, at its completion centre near Munich in Bavaria, Germany. The company argues that taking a second-hand aircraft and giving it a makeover can prove a more cost-effective way to purchase a VIP cabin than paying for a brandnew aircraft and modifying it. 328SSG has also completed VIP galleys for A340s and has its own pull-test rig on-site for proving monument stresses and loads prior to certification. Stand J1002



Keep it down

SMAC will present a full range of soundproofing and vibration-reduction materials, including Smacsonic and SMAC Barrier. Smacsonic is a skin-

damping range developed to reduce vibrations and induced noise created by a light structure. SMAC Barrier is a very dense acoustic barrier designed to remain very flexible even at low temperatures, while offering fire resistance. SMAC says SMAC Barrier is easy to integrate, either in thermal blankets or as a standalone solution behind composite panels. It is available in several thicknesses and densities. SMAC's customers include Airbus, Alenia Aeronautica, Antonov, Boeing, C&D Zodiac, CEA, CNES, Dassault, EADS, Embraer, Eurocopter, MBDA and Thales. Stand J4010



EXHIBITOR Q&A

Ronn Cort, international business manager at Kydex

What will you be exhibiting?

Kydex will display the latest in our thermoplastic sheet development, including fully compliant metallic, pearlescent and translucent products.

How do these products address current needs and trends in the industry?

Kydex's thermoplastic sheet is available in grades that meet stringent FAA and OEM requirements while letting first-class interior design shine through.

What are you especially looking forward to seeing at the Expo?

I'm looking forward to seeing innovations in lighting, fabrics and other surfaces. I'm also looking forward to catching up with old colleagues and making new acquaintances.

Have you been to Cannes before?

Yes, I have. If you have the time, there's an interesting history museum with a great view – Musee de la castre. And of course, the casino. **Stand J5012**



Finishing touches

Sabrina Monte-Carlo Déco, a design company based in Monaco and Saint-Jean-Cap-Ferrat, will present its capabilities, having worked on prestigious megayachts, houses and aircraft. In collaboration with designers, Sabrina Monte-Carlo Déco provides fine items such as tableware, linen and other accessories.

Tableware and linen brands it has supplied include Saint-Louis, Baccarat, Cristal et Bronze, Odiot, Georg Jensen, Robbe & Berking, Ercuis, Meissen, Royal Crown Derby, Raynaud, Bernardaud, JL Coquet, Médard de Noblat and Gien. Accessories come from companies such as Cristal et Bronze, Riviere and Bhome interiors; while Pratesi, Valombreuse and Michela Nicoli provide cashmere and linen. **Stand J2002**



Metal jacket

lonbond will showcase its decorative and wear-protective PVD coatings. The company offers an extensive range of standard colours across a spectrum of metallic looking finishes under the brand name Decobond (pictured). Custom colours can also be developed or replicated. lonbond says Decobond coatings offer durability, scratch and scuffing resistance; are tarnish and fade resistant, odourless, hypoallergenic, lightweight, chemically inert, non flammable and easy to clean.

The Decobond PVD process can be applied to a variety of materials like titanium, aluminium, die cast, stainless steel and plastics (ABS). **Stand J5002**



Fly drive

I M Kelly Automotive will highlight its core businesses – manufacturing interior component modules, seat covers in leather and textiles, carpets and trim parts in a range of materials as well as sourcing specialist components such as wood veneer and gold plating.

The company was established in 1975 and is especially known for supplying automotive leather trim. I M Kelly Automotive was instrumental in the development and launch of luxury interiors for the Aston Martin DB9 and V8 Vantage models, which it continues to supply today, as well as carrying out specialist interior component manufacture for Jaguar Land Rover, McLaren and BMW. The I M Kelly Aerospace division was established three years ago following a successful premium-economy seat build programme and has become a key supplier to a number of OEM seat manufacturers and a second-tier supplier to major airlines. Stand J2004



Attention to detail

Boutsen Aviation Design will highlight its ability to refine cabin comfort and elegance – paying attention to every little detail, even those not actually seen at first glance. No matter if the aircraft is a six-passenger light jet or a 26-seat

very large business or corporate jet, the company says it knows how to make it cosier.

Boutsen Aviation Design has teamed up with famous luxury brands in porcelains, glassware, cutlery, bathroom essentials and accessories. They were selected based on the most stringent criteria of quality, elegance as well as sustainability. Most of these companies were established several centuries ago.

Boutsen Aviation Design also provides tailor-made table and bed linen. The company says its workshop is equipped with state-of-the-art machinery that means it can provide virtually any embroidery on almost any fabric. It can also engrave plates, glasses and cutlery to the owner's arms, name or aircraft registration. **Stand J5014**



Beach chic

RMD Air will exhibit new interior design concepts for Boeing and Airbus interiors, such as a beach house-style interior for a Boeing Business Jet 1 (pictured). It will also showcase its refit and re-rag solutions for smaller jets; and premiere a new range of exterior livery designs.

The design consultancy is based in London, UK, and specialises in the custom design of luxury VIP interiors for fixed-wing and rotary aircraft.

RMD Air works alongside its sister company RMD Marine, a renowned superyacht design consultancy, to create imaginative interiors for aircraft, from executive helicopters and jets to the most exclusive private airliners. Stand J3010

SPEAKER SPOTLIGHT



Richard (Rick) Warren Roseman, owner/ director of RWR Designs. com, will speak on the need to improve the completions process

Why did you choose the topic?

Because I believe it is one of the critical components in completing large VIP aircraft smoothly and on time. My background in this area is as an independent designer with 22 years' experience in the field of VIP design and completion.

What are some of the biggest challenges in this area?

I believe all the new wide-bodies coming on line for VIP conversion will quickly fill the large centres in Europe and the USA - leaving smaller secondtier centres for narrow-bodies. This will expand the market but challenge owners to find good completion facilities for these smaller aircraft.

Who needs to attend your presentation?

Owners and completion heads alike.

Why should owners appoint a completion supervisor?

It is simply not smart to do otherwise. A good technical representative, hired independently by the owner, is imperative in making sure the owner's interests are protected and in insuring conformance to the design and technical specifications.

What are you looking forward to doing at the Expo?

Visiting with owners and completion heads and forging new ways to streamline the current paradigm for large VIP completions - specifically relevant to design integration.

What should people do in their free time?

Go to Cap' Antibes - it's wonderful!

Good as new

Farnborough Aircraft Interiors (FAI) will highlight its interior replacement and repair services for fixed- and rotary-wing aircraft. All work can be carried out to EASA PT21 J&G. Offerings include interior design, seating, lining panels, carpets, seatbelts, metal finishing, soundproofing, exterior painting, leather restoration, interior and exterior cleaning and carpentry. FAI is based at a custom facility at Farnborough, UK. Stand J4006

Sound and light

ITT Control Technologies will show many of its isolators, which have been optimised for size, weight and noise performance. The company says the acoustic device selected to control noise must be properly balanced to obtain the desired noise control at minimum possible weight. ITT uses linear transform methods based on experimentally derived frequency dependent transfer functions, such as the four-pole method and ISO 10846, to specify and evaluate high-frequency isolator performance. Stand J5006

Art deco

Chameleon Products will display its Deccotex VIP wood veneer solution, developed with partner AIM Composites. Deccotex consists of a decoration applied to a phenolic pre-preg laminate sheet that can be supplied as a 950 x 1500mm sheet. The company says is 300% lighter than a wood veneer and it does not crack and lift off. Customers can cut and fix Deccotex to their interior or Chameleon can CNC-cut to drawings and supply as a kit of parts that can be applied during maintenance. Stand J2000



NEW PRODUCT

Smart phone

TrueNorth will display the Stylus, a multilingual telecommunications handset. The all-digital handset is designed for large-cabin aircraft, and can be programmed for use in any language, including those with distinct character sets like Chinese, Japanese, Russian and Arabic. Available in either wired or wireless configurations, its menu-driven operating system lets passengers perform voice, data and fax operations with the touch of a button.

The Stylus is engineered to improve voice communications to near broadcast quality by incorporating digital HD Voice Quality signal processing. It can be constructed in virtually any aviation-grade material. Colours, finishes, inlays, ringtones and splash screens can be personalised. Stand J3028

EXHIBITOR Q&A

Matthew Nicholls, group managing director of Yarwood Leather

What will Yarwood be exhibiting?

It's our first proper foray into the bizjet market. As an established supplier in the corporate aviation industry, we have given careful consideration to the bizjet market and the type of products that appeal to the sector. We have combined this research with our advanced flame retardants to create some great new products. We often hear from clients who want the leather in their boat, car or couch replicated in the sky and the result should be a perfect fit. In addition to leather products, we have recently extended to offer full manufacturing capabilities for seat covers. Who better to make leather fit a seat than the people that make the leather?

Yarwood is great at creating a buzz at shows - what are your plans?

We always aim to bring a fun experience to all aspects of our business. Just because we're working, it doesn't mean it can't be enjoyable. Cannes is the town of glitz, glam and movie stars, which is pretty much on-code for Yarwood. At the moment, our plans are swathed in a cloak of secrecy, so I'll just have to leave you guessing... for now.

What are you looking forward to seeing at the show and conference?

Well, in Tony Robinson (CEO of UKIP Media & Events, the show's organiser and this magazine's publisher), you have a true visionary and I think this show will be no exception. I'm looking forward to exhibiting at a UKIP show again and I'm looking forward to seeing how this industry will react to Mr Robinson's unique style of expo.

What are your recommendations for Cannes?

I love Cannes. We originally exhibited here with Aircraft Interior Expo, so it will be like coming home. My tip would be to book your hotel early. The best way to get around Cannes is on foot, so make sure you're pretty central! **Stand J1000**

KEY THEMES OF THE CONFERENCE

Interior design

This topic will be covered in great detail – from Andrew Winch Designs' Jim Dixon on what can be learned from yacht design; to Edese Doret on balancing innovation with certification; and Tim Callies of Comlux Creatives on designing for the charter market. Other speakers include Magnus Aspegren of BMWDesignworks Singapore, Paul Priestman of Priestmangoode, Marcelo Teixeira and Ross Lovegrove.

The completions process

Speakers focusing on the completions process include Elisabeth Harvey, head of Jet Aviation Basel's in-house interior design studio, who will discuss how to optimise relations between design and engineering; Rick Roseman of RWR Design (see opposite page), who will address how completions can be made more efficient; and Jean Sémiramoth of Altair (see page 26), who will give an overview of the marketplace.

Aircraft ownership

Aircraft owners/operators can look forward to tips on navigating the potentially bewildering worlds of aircraft acquisition and outfitting, including the myriad technologies on offer. Oliver Stone of Colibri Aircraft will address how interiors can impact the aircraft's resale value (with lots of good and bad examples!); and Andrew Muirhead of IDAIR will address the fast-moving arena of IFEC and CMS (see also page 58).

The view from aircraft OEMs

Aircraft manufacturers will be represented by Andrew Fulford, manager of design operations at Gulfstream (see page 34); Patrice Royer, business and private aviation director at Eurocopter; David Velupillai of Airbus Corporate Jets; Sandra Henry, business unit leader for design, visualisation and customer experience at Bombardier's Global Completions Center; and Tracy Valentine of Boeing Business Jets.

Successful operations

As Business Jet Interiors World Expo is co-locating with Business Airport World Expo, delegates will also benefit from speakers addressing the wider aspects of aircraft operations. These include advice on fuel deals from Craig Scolding, fuel manager at Flightworx; and a look at airspace capacity management during the 2012 London Olympic Games, by Lee Campbell, MD of Airport Coordination.







ECO SOLUTION

Green dream

Tapis will exhibit soft furnishing products for corporate, VIP and commercial aircraft. Providing highquality products that are safe for the environment remains one of Tapis' top priorities. All the company's products are designed to be lightweight to improve fuel economy, and all have 100% yield for low cutting waste.

Ultraleather products are made of polyurethane, and therefore contain no volatile plasticisers and stabilisers. Tapis says Ultraleather weighs half the weight of genuine leather. Meanwhile, TapiSuede is made of 100% high-purity recycled polyester. Finally, Ultrasuede is made of 100% recycled ultramicrofibres. Tapis says the technology utilised in the production of Ultrasuede results in reduced energy consumption and a more ecologically sound manufacturing process. Stand J5016



Building society

PPA will promote its manufacturing and refurbishment services. Past projects have included A340-600 and Boeing 737 aircraft. PPA can oversee interior manufacturing of galleys, vestibule cabinets, tables,

bulkheads, wardrobes, IFE housings, fibreglass structures, monuments, sidewall and credenza units, vanity cubicles, Corian for sinks and worktops, interior cabinets, hard woods and veneers, composite floor panels and vacuum-formed panels. The company's large-capacity vacuum forming facility and range of large and small vacuum form machines enables multiple tool loading. PPA also provides covers for a wide range of aircraft, and for Nacelle engines. Stand J4002



All-round entertainer

IDAIR will promote its capability to provide highly customised IFEC and CMS systems for VIP customers and commercial airlines. The company was formed in April 2011 as a joint venture between Lufthansa Technik and

Panasonic Avionics Corporation, and is headquartered in Hamburg, Germany. IDAIR offers seamlessly integrated IFEC and CMS incorporating the latest technologies such as high definition, digital rights management, wireless and wired Ethernet, passenger device integration, iPhone/iPad applications for system control and much more. IDAIR also offers a satellite broadband internet and TV solution with global coverage along with the option of mobile telephony. Beyond communication offerings, a vast array of entertainment content can be provided to customers looking to maintain a media library on board. Stand J2006

AND WHILE IN CANNES...



Discover new routes, FBOs and destinations!

Business Airport World Expo 2012 is co-locating with Business Jet Interiors World Expo 2012 on 22-23 February 2012 in Cannes, France. Visitors will include executive jet, corporate fleet, private charter and private owners and operators' chief pilots, operations directors, scheduling directors, CEOs and managing directors as well as brokers.

Exhibitors include FBOs, business and general aviation airports, MROs, handling agents and refuelling companies from all over the world. Whether you are looking for new routes, loyalty schemes, new partners or to meet up with your established suppliers in one convenient location, Business Airport World Expo 2012 is the place to be.

For example, London Oxford Airport (stand 1026) will highlight its investment in facilities and infrastructure. The airport has invested £25 million (US\$40.2 million) in the last five years, with hangar space increasing by 80%, construction of a new main runway and an FBO terminal along with the installation of an instrument landing system and a state-ofthe-art radar system. With a recently extended runway, long opening hours and enhancements such as Cat 6 RFF and pet importation approval, London Oxford, just an hour from the west side of London, has attracted several engineering and charter operators. The airport now has 35,000m² of jet parking area in readiness for the 2012 Olympic Games.

Meanwhile Butzbach (stand 5036) will present its sliding door systems for aircraft hangars up to a width of 400m and a height of 45m. As it wouldn't be possible to present a full-size hangar door at the Expo because of space restrictions, Butzbach will present its hangar doors by means of models, animations and samples.

Finally, Harrods Aviation (stand 3041) will highlight recent investment, particularly at its FBO facilities at London Stansted Airport. The newly refurbished business, VIP and VVIP lounges are designed to provide a relaxed and quintessentially Harrods environment for passengers to unwind in either before or after a flight.

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SPEAKER SPOTLIGHT



Jean-Pierre Alfano, creative director of AirJet Designs, will focus on designing for the Chinese market

Why did you choose this topic?

Last year, after we started to work on a project for a Chinese client, I soon realised that Chinese culture is very unique and often makes people see things from a different angle from Westerners. I also realised very quickly that there would soon be an increasing demand for private jets and helicopters in China, because of the booming economy and its successful entrepreneurs and companies. I decided then to open an office in Shanghai. I now travel to China regularly to support our staff and clients.

What will you cover?

The presentation will focus on the specifics of Chinese culture, with an overall discussion of its past for a clear understanding of its present, and I'll try to give some insight into its future. Topics will include Chinese history, culture, trends in fashion and interior design, the needs of Chinese business aviation clients, and the consequences for aircraft interior design choices.

What have been your favourite projects in that market?

We recently finished designing a VIP A319 for a private individual. The design process for that project was fascinating because we brought Italian and French styling on the table while our client was highly inspired by Chinese views and aesthetics. Taking into consideration the client's view, I rediscovered the importance and power of symbolism and accessories and understood that very often there is more than meets the eye in a design choice.

What will you use the Expo for?

I look forward to seeing other designers, potential customers such as business charter companies, completion centres, and anyone interested in VIP or business jet design. If visitors can take a day off, I would suggest a visit to Ile Saint Honorat, where there is a 15th century fortified monastery still producing its own wine, honey and layender. **Stand J3026**

FULL SPEAKER LINE-UP

Wednesday 22 February

Moderated by Mark Huber, freelance business aviation writer

10:00 The business aircraft valuation cycle

Chris Miller, managing director, Guggenheim Partners

10:25 Ready, set, stop... improving the completions process

Richard Warren Roseman, owner/director, RWR Designs.com

10:50 Business jet interiors and their impact on aircraft resale value

Oliver Stone, managing director, Colibri Aircraft

11:15 Getting the best fuel deals that time can buy

Craig Scolding, fuel manager, Flightworx

11:40 Designing interiors for the charter market

Tim Callies, head of Comlux Creatives

12:05 Business aviation and the 2012 London Olympic Games

Lee Campbell, MD, Airport Coordination Limited

12:30 Catering for business aviation – why you need to think differently

Daniel Hulme of Alison Price on Air

12:55 Business jet interiors: cultural insights for unchartered opportunities

Magnus Aspegren, director of BMWDesignworks' Singapore studio

13:20 A review of emerging regulations, including EU-ETS and SMS

Juan Muniz, senior regulatory specialist, Universal Weather and Aviation

13:45 IFE and CMS technologies and trends

Andrew Muirhead, CEO of IDAIR

14:10 The role of the product definition team in the completion phase

Sandra Henry, Business Unit Leader for Design, Visualization and Customer Experience (Business Aircraft) at Bombardier's Global Completions Center

14:35 The outfitting marketplace – an outlook on service providers and their offerings

Jean Sémiramoth, chief operating officer of Altaïr

15:00 Business aircraft recovery – are we there yet?

Phil Jordan, managing director, Business Air International

15:25 TBA

Tracy Valentine, director of operations at Boeing Business Jets

Thursday 23 February

Moderated by Mark Huber, freelance business aviation writer

10:00 Past and future cabin design

Paul Priestman, director of Priestmangoode

10:25 Business aviation in the French Riviera: past, present and future

Umberto Vallino, marketing manager, Cannes-Mandelieu Airport

10:50 Thinking outside the box

Edese Doret of Edése Doret Industrial Design

11:15 OEM design factors – modularity, mock-ups, and brand identity

Andrew Fulford, manager of design operations at Gulfstream

11:40 Chartering in a swiftly changing aviation scene

Markham Jackson, chief executive, Baltic Air Charter Association

12:05 Designing for the Chinese aviation market

Jean-Pierre Alfano, creative director of AirJet Designs

12:30 Shannon Airport – A new centre of excellence for business aviation

Joe Buckley, technical traffic development director, Shannon Airport

12:55 Airbus Corporate Jets – space that goes a long way

David Velupillai, Product Marketing Director at Airbus Corporate Jets

13:20 Safety management systems for airports and FBOs

Paula Kraft, managing director, Aviation Catering Consultants

13:45 VIP helicopter interior design

Patrice Royer, business and private aviation director at Eurocopter

14:10 Brazilian aesthetics in business jet cabin design

Marcelo Teixeira of Studio Marcelo Teixeira

14:35 Applying lessons learnt from yacht design when designing VVIP aircraft

Jim Dixon, director of aviation at Andrew Winch Designs

15:00 Bridging the gap between design and engineering

Elisabeth Harvey, head of Jet Aviation Basel's interior design studio

15:25 Designing the 21st century

Ross Lovegrove, director of Lovegrove Studio

*This programme may be subject to change

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- □ Engineering design
- □ Installation
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 - Cabin upgrades & refurbishment
 - Airframe maintenance & upgrade
 - Spares
 - Full engine support
 - Airworthiness engineering



1. A G450 sporting the new Elite interior

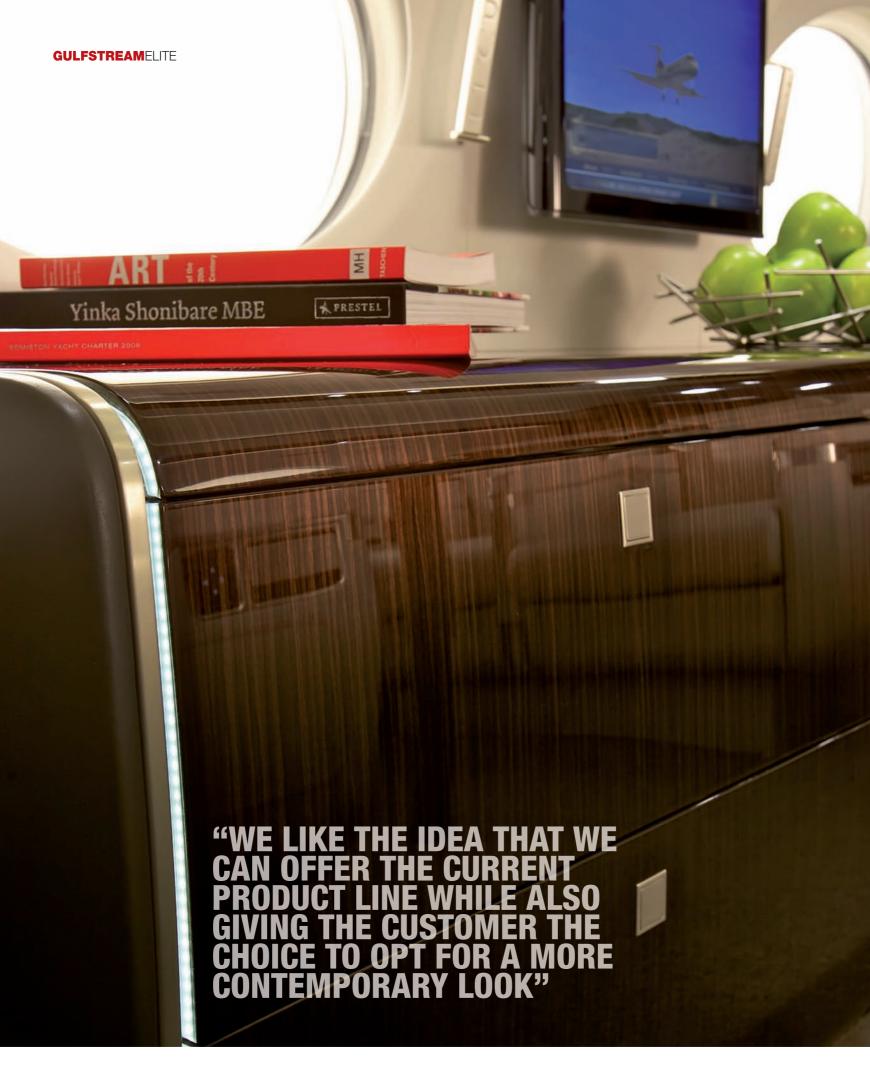


ulfstream customers can now get the look and feel of the new flagship G650 interior on their smaller G550 and G450 jets. The optional Elite package was unveiled in October 2011 and "is built on the brand DNA of the G650", according to Gulfstream president Larry Flynn.

Elite copies the look, feel and functionality of a G650 interior, from the high-tech galley to the seat styling to the wireless Gulfstream Cabin Management System (GCMS). Elite could become as big a visual branding component as the aircraft line's signature oval passenger windows.

Andrew Fulford, manager of design at Gulfstream (and a speaker at Business Jet Interiors World Expo, to be held in Cannes, France, on 22-23 February 2012), says that the Elite is part of a larger effort to create a brand aesthetic for Gulfstream interiors from the G650 to the new super-mid-size G280. "We've established the new DNA for Gulfstream with the G650 cabin and we have followed that into the G280 and now the Elite package," he says. "It is very much a conscious effort. We don't want these cabins to appear as if they are exactly the same - they are definitely not the same - but they are very well linked together."

"Customers will see that the signature G650 look has been carefully tailored to accentuate the attributes of the G550 and G450," explains Flynn. "For example, the Elite package includes a racetrack accent embracing the aircraft's lower sidewall. This design detail, which features French





2. Accent lighting strips adorn the credenza. table box and galley on the G450 Flite

3. The G450 Elite boasts feature-packed seats and sturdy, electrically deployed tables



Hot seats Fulford says Gulfstream wanted to give G550 and G450 customers "all the good stuff we developed for the G650". That includes electrically deployable, big and very stable sidewall tables between the luxurious club seats. Fulford says the Elite seat frame is all-new and has "very similar content to the 650 seat frame".

The seats themselves (from B/E Aerospace) are a downsized 27in-wide version of the same ones you will find inside the G650, with massive 3.5inwide arm rests and 20in between them. The flex-wing headrests telescope and the backs are 41in high. The seats also feature waterfall legrests, electric lumbar controls, powered track-andswivel release, and can berth fully flat at the push of a button.

As an option, the two forward-facing seats in the forward club grouping can be made fully electric, with a singleposition memory preset, and press-andhold controls for full recline and return to take-off and landing position. They can also be equipped with backcushion massage and back- and basecushion heat. The divan has been reworked too, and is now considerably more comfortable with a backrest pitched at 104° and a lowered seat cushion that is closer to the floor. With one-touch convenience it berths into a 78in x 39in sleeping area.

The sidewall ledge features dual cup holders at every seating position, each with a pull-out neoprene insert for easy cleaning. All the IFE monitors are highdefinition units custom-developed for Gulfstream by Rosen - 12.1in seat monitors, a 24in bulkhead monitor and a 19in credenza monitor.

The unobtrusive capacitive touch switches at each seat position control overhead LED lighting, cabin call and electrically controlled, two-stage window shades that can be adjusted from sheer to solid and all gradations between to give passengers their preferred level of natural light. These functions can also be controlled by the passenger through his or her personal device once loaded with the GCMS app that goes active at the wing tip.

Aesthetic changes "We see this as a timeless, modern design," says Fulford. "We like the idea that we can offer the current product line while also giving the customer the choice to opt for a more contemporary look. We re-evaluated the balance of materials within the Elite cabin - a little bit less veneer and bringing this high-gloss, uniform look to the galley. In the (promotional) images you will see the first aircraft is dressed in a high-gloss cashmere in the galley - it is very effective. We also have piano black accents throughout the cabin."

LED lighting is provided throughout the interior, including automatically activated lights in the drawers, cabinets and closets. The Elite suite also features ambient lighting with an accent strip that softly illuminates the edges of the credenza, the table box and the galley.

There are also numerous thoughtful, useful changes in terms of stowage and functionality, primarily in the galley. The latch mechanisms are smoother and quieter. The handsome hardware utilises satin nickel plating over machined aluminium. Strikers are located at the bottom of each drawer so latches stay clean and flight attendants no longer lose fingernails. Some of the cabinets are larger and there are more of them. The drawer lights make access easy without having to light up the





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entire galley and disturb passengers. Intelligent design - including hinged doors on the crystal storage unit yields more work surface. The exposed touch-control appliances - two coffee makers, a microwave and a convection oven (the latter two by Enflite) - are decidedly high-tech looking and save space wasted previously on garaging ugly boxes. Some surfaces are finished in a clear coat over paint over veneer, making choosing between the two a pre-engineered non-event. Countertops come in either Corian or stone.

In layouts utilising the universal aft galley, the lav closets are moved into the galley area for easier access and better odour control. The restyled lavatory features intelligent little touches like an LED-lit makeup/shaving mirror that rotates up.

Cabin management However, the GCMS is perhaps the most enticing feature of the Elite package. Developed for the G650 and migrated to the G280, GCMS uses the iPod Touch, synched to individual seats, to control the CabinView AVOD system, lighting, window shades, monitors, speakers, temperature and attendant call. Gulfstream's proprietary graphical user interface will be developed for other personal systems such as Android or Windows 7 Mobile and any others that are viewed as industry standards.

From the start the GCMS was designed to be modular and scalable



4-6. The G280, which shares a design language with the Flite interior

across Gulfstream's entire range of aircraft. The system is built on multiple networks with a 24-channel fibre-optic backbone used for routeing audio and video and for communications. The controllers and switches are also wireless. They can receive commands, report on status and communicate wirelessly if primary communications over the backbone break down. The system can also be serviced wirelessly on board the aircraft via laptop.

THE GCMS WAS

Messages go from the iTouch over a WiFi connection, through the cabin server and are routed over the fibre optic network to a GCMS controller. The controller then sends a different type of wireless message to the device that has control of the unit or function the passenger is trying to turn on, turns it on, and sends a status message back to the system computer.

GCMS is fully redundant and in the event of a failure, will automatically generate a message that is sent to the aircraft's PlaneConnect system. This is then sent onwards to the operator and simultaneously to Gulfstream's technical operations centre, if the operator so chooses. On the aircraft, a fault message is displayed on the galley touchscreen, so the crew can see and acknowledge the message. Finally, at the end of a flight, the fault report is uploaded to, and is part of a report from, the aircraft's health and trend monitoring system. This system monitors the data buses and collects trending information. The database is continually updated so that data can be backtracked and used to spot likely failures before they occur in the future.

7-9. The G650 interior. which features a lot of the same technologies and features as the Elite



G650 and G280 move closer to launch

The large-cabin G650 has moved several steps closer to its anticipated certification later in 2011. Gulfstream has now flown seven production aircraft in preparation for induction into final-phase manufacturing, where the aircraft are outfitted and painted. There are 14 aircraft in the production process.

On the flight-test side, aircraft number 6005 has completed ground and inflight certification testing for engine inlet compatibility and electromagnetic interference. Aircraft number 6004, the first Gulfstream test aircraft to have a fully outfitted interior, has conducted inflight tests on the functionality of the flight management system, as well as completing extensive cabin system tests and interior acoustic noise surveys. The company has also completed FAA certification tests for hot-weather operations using aircraft number 6003.

Powered by Rolls-Royce BR725 engines, the G650 can travel 7,000 nautical miles at Mach 0.85 and boasts a maximum operating speed of Mach 0.925. Gulfstream announced the G650 programme in March 2008. It remains on schedule for entry-into-service in 2012.

Meanwhile at October 2011's NBAA, Gulfstream announced that the final performance specifications for the mid-range G280 will exceed the capabilities originally announced at the programme's public launch in 2008. It also had a fully outfitted G280 on static display. Following extensive flight testing, Gulfstream has demonstrated that the G280 flies 3,600 nautical miles with four passengers at Mach o.80 with NBAA IFR reserves - 200 nautical miles over target. In addition, the aircraft's balanced field length has been reduced from 4,96oft to 4,75oft, an improvement of more than 1,300ft compared to the G200 it replaces.

The G280 will accommodate up to 10 passengers. Interior highlights include a larger lavatory (with two windows, a sink with raised ledge and vacuum toilet system), an improved galley and inflight access to 120ft3 of usable volume in the baggage compartment.



The GCMS is also designed to easily incorporate new technology, and not just on the controlling devices. Updating a traditional CMS with new technology can be problematic, but fibre optics make the GCMS system much more expandable.

Customer choice The Elite interior is the second interior option for Gulfstream's large-cabin aircraft, joining the existing Select interior. While Elite arguably makes it easier for a customer to specify an aircraft and should bring certain efficiencies to Gulfstream's cabin component manufacturing, Fulford stresses that it won't limit customer choice. "Customers will still have freedom of choice but obviously there are some constraints," he says. "For

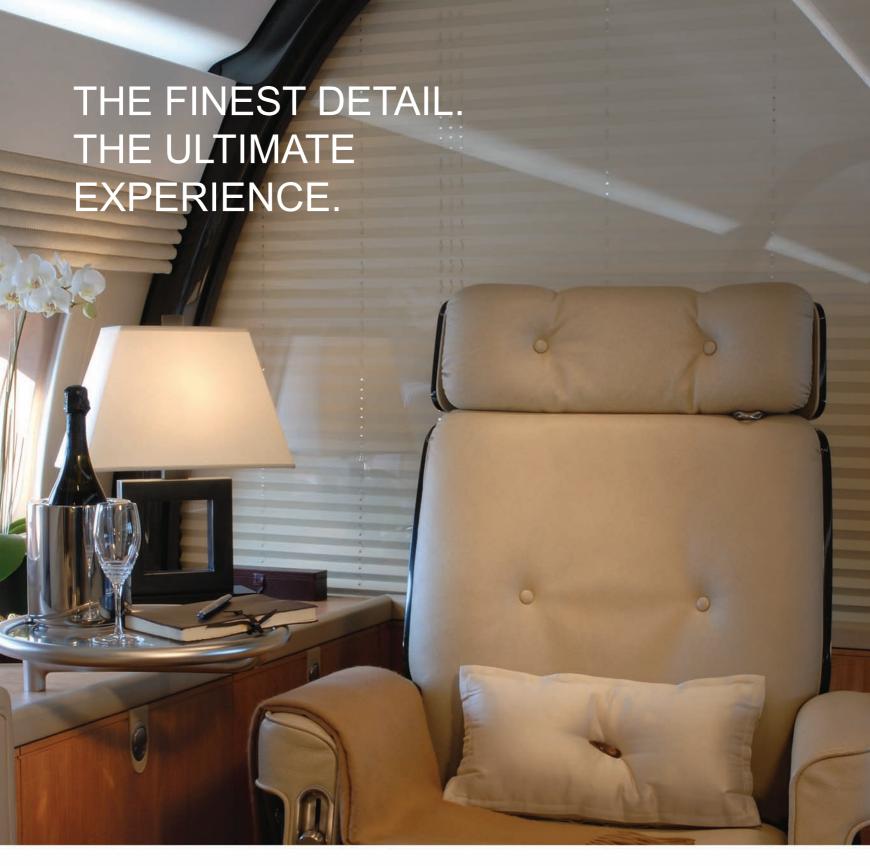
example, if a surface is veneer it needs to stay in a hard finish; if it is soft it needs to stay in a soft finish. We've paid a lot of attention during the design to make sure the aesthetic works no matter how it is dressed. The customer will still have the same freedom of choice with floorplan, choice of materials, colours in options just like they have with a regular G450 and G550 today."

That translates into a total of 12 standard floorplans for the G550 Elite and six for the G450 Elite. "The customer still needs to be able to configure the aircraft to their needs and wants," says Fulford.

Elite interiors will be installed at Gulfstream's facility in Savannah, Georgia, USA, and the company's other large-cabin completion centres in Appleton, Wisconsin, and Long Beach, California, could also eventually share in the work.

Gulfstream is now taking orders for G450 and G550 aircraft equipped with Elite. The option starts at US\$1.5 million (£0.94 million), a relatively modest price for a lot of style and capability. END

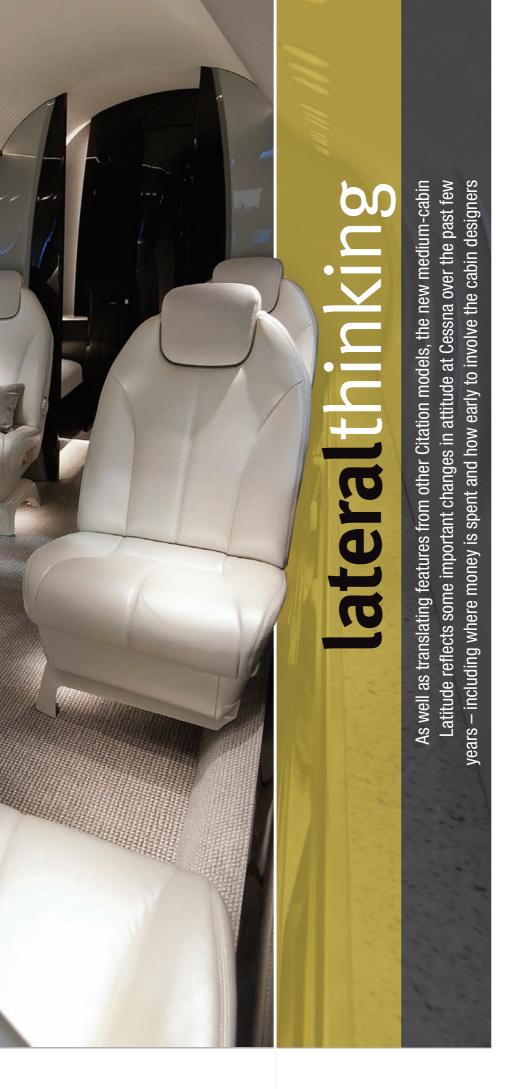
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o one can amortise the parts and pieces like Cessna. The fuselage cross-section that is now the backbone of its current mid-size cabin offerings – the XLS+, Sovereign and X, began life as the Citation III back in 1979. It will be recycled again on the new, barely subsonic Citation Ten, scheduled to enter service in 2014. But with new product pressure from Bombardier and Embraer, and price slashing from Hawker Beechcraft, Cessna executives knew it was time for a change if the company was going to rebuild its eroding share of the midsize market.

The follow-on to the XLS+ seemed a logical place to start. The latest iteration of the 650 series, the US\$12.5 million (£7.82 million) XLS+ is popular for its ability to take off and land on short runways and cruise up to 1,800 nautical miles on a bag of gas with cabin seating for eight. Even in the current market, used XLS+ are a rarity because of their price point and the utility they offer. In all the XLS+ is a competitive aircraft now; but it was unlikely to be so four or five years down the road. A follow-on aircraft would need to offer stand-up headroom as well as better overall cabin space and functionality.

Retreating the parts drawer would not suffice this time. Cessna needed a new tube; one suited for both the follow-on aircraft and derivative aircraft likely to follow in the footsteps of the Sovereign and even, someday, the Ten. Enter the Citation Latitude.

Mature technologies While the Latitude features an all-new taller (6ft) and wider (6ft 5in) flat-floor cabin, risk is minimised by the incorporation of mature technologies and those well along the development path for other Cessna aircraft. The engines are Pratt & Whitney Canada PW306D turbofans and the cruciform tail and the tweaked airfoil are basically the same as on the XLS+. The Garmin G5000 avionics are the same as those being developed for the new Ten, as is the Clairity fibreoptic CMS (developed with Heads Up



Cessna Citation Latitude

Cabin width: 6ft 5in Cabin height: 6ft Cabin length: 27ft 6in

Seats: 2 crew + 8 passengers

Range: 2,000 nautical miles with NBAA IFR

High-speed cruise: 442kts Max altitude: 45,000ft Price: US\$14.9 million (2011) (£9.39 million) and the aircraft can comfortably use runways shorter than 4,000ft. With speedy certification in mind, Cessna has taken a pass on flyby-wire flight controls like those on the Legacy 450. Cessna hopes to have the aircraft certified in the USA by the second half of 2014 and in service by 2015. The Latitude is aimed squarely at Asia, although Cessna expects it to do well in other markets too.

club with a forward, dual side-facing couch. Six pedestal seats track forward and aft 7in and laterally 4in on the seat base, with 180° swivelling capability and infinite recline positions. Cabinlength indirect LED lighting is provided overhead in the passenger service units with variable adjustment for direct reading lights.

The Latitude announcement came less than two weeks after Cessna





few years," she says. "Good design makes complicated things look easy. The [cancelled large jet] Columbus taught us that a more judicious use of space management is important - it is not just the icing on the cake. Ergonomically it has to work very well for the customer and it has to be very flexible for their missions."

Tube definition Halsey and her team played a large role in defining the Latitude's new fuselage. "We were truly integrated into the product design process," says Halsey. "Instead of being able to say how to use the tube, we get to define the tube - the structure, where the ducting goes. That is a real gift for our team."

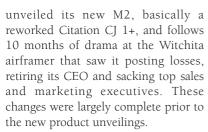
Halsey says her team has worked recent projects, including the Latitude, around a design philosophy of "clean, simple design lines, bright lighting,

amazingly comfortable ergonomic seats and a highly productive cabin as it relates to technology. We want to become the most technologically advanced aircraft front-to-back".

A lot of thought has been paid to making the interior seem much larger than the aircraft's fuselage size would suggest. "This appears and feels so much larger than it does on the outside," says Halsey. "It results from a very clever use of lighting, ergonomics and seat-to-seat eye reference. We are trying to create an uncomplicated environment. Life is hectic and we want people to walk onto our aircraft, sit down and have a respite where they can think, work and relax."

Lighting is a big part of creating that feeling. Cessna has partnered with a company it will not yet disclose that is "extremely adept at LED lighting". For the Latitude Cessna used a development

- 1. The Citation Latitude will seat eight nassengers
- 2. The Latitude's cockpit - where much of the Clairity CMS will be located



Cessna veteran Cindy Halsey, vice president of interior design and engineering, remains in place and is overseeing much of what goes into Cessna's new product offerings. "We've been on a bit of a journey for the last



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Cessna also recently launched a new light business jet, the Citation M2. The aircraft features Garmin G3000 avionics, engines similar to those on the Citation CJ series and an all-new interior design. A cabin mock-up was displayed alongside the Citation Latitude at NBAA 2011. The Citation M2's first flight is scheduled for the first half of 2012, with FAA certification (Part 23) expected in the first half of 2013, followed by deliveries beginning in the second half of 2013.

The US\$4.195 million (£2.63 million) Citation M2 has room for two crew and up to six passengers. The cabin is 15ft 9in long and 4ft 10in wide, with a 5in dropped aisle providing a cabin height of 4ft 9in. The cabin features pedestal seats and eight large windows. Materials and colours can be hand-selected by customers. Cessna's proprietary CMS, which includes the latest interface options for productivity and connectivity, is optional. In the cockpit, the fully integrated Garmin G3000 avionics suite centres on three 14.1in LCD primary and multifunction displays and two infrared touchscreen control panels.

Cessna says the Citation M2 will have a maximum cruise speed of 400kts true airspeed and a range of 1,300 nautical miles. The aircraft can operate at airports with runways as short as 3,250ft and will climb to 41,000ft in 24 minutes. "We expect to see customers new to the Citation family, Mustang owners looking for a logical next step or CJ1+ operators who want a new, more advanced Citation," says Scott Ernest, Cessna's president and CEO.

mock-up with lots of different lighting looks and techniques, which it showed to employees and customers. Cessna collected over 500 "constructive and productive" comments, which found their way onto the mock-up unveiled at the NBAA show in October 2011. The patent-pending cabin lighting on the Latitude is controlled by algorithms that can direct light streams to be intense in one area and to shine in a specific shape such as a square or a cone on a table. "It's a wonderful way of making a very smart cabin work for you," says Halsey.

Cabin management Much of the CMS on the Latitude will be located in the cockpit and share space with, and in some instances be driven by, the

avionics. "If you think about it, you have everything you need right on the flight deck," says Halsey. "Why do I have to duplicate it in the back with extra boxes? So we took tons of weight out of the aircraft and we have a brilliant system that works very well in the back."

3. The Citation M2,

six passengers

4. The Citation M2's

which will seat up to

Halsey reveals that the fully redundant, fibre-optic Clairity system is an "evolution" of what is going on the new Citation Ten. She says that system is more hard-mounted, while on the Latitude it will be more adaptive to future technologies and is scalable. "A CMS that is very fresh and innovative when you start can be difficult to update," she explains.

CMS engineers on the Latitude were given the mandate that it must work

- 5. The light Citation M2
- 6. The medium-cabin Citation Latitude



well with future mobile technologies and be able to 'talk' to them as they evolve. "They did a lot of research on what is in the backbone of all those devices and designed a distributive platform that is probably going to stay the same for the next 10-20 years," says Halsey. "We have a platform now that can stay with us."

She adds that Clairity will eventually become invisible over time, by the addition of features such as VoIP. "You walk on board the aircraft with whatever smart device you have (iPhone, Droid etc) and it works. You can work on it, talk on it and play on it. Those are all technologies that are coming today, they are just not in aircraft yet." Clairity can run up to eight movies while using only 7% of the distributive power of the system.

Exposed pedestals The seats and soundproofing were the top two areas of expenditure in the cabin. The Latitude's cabin seats use the same structure and are the same size as those in the new Citation Ten.

"I can spend more money if I can make it for multiple platforms across multiple aircraft," explains Halsey. "We're putting a ton more money into our seats than we have in the past. That's become a very important thing in the aircraft."

The Latitude's new single executive cabin seat design is fully mature and the company expects to have the seat in a year. The design has withstood 'buttchecking' with multiple focus groups, which all voiced their approval of its comfort. One key feature is the exposed pedestals, which maximise space for feet and small carry-ons. Omitting pedestal shrouds also eliminates unsightly scuff marks and broken connectors. "We will not go back to the box shrouds," says Halsey.

Having completed the basic design, Cessna is partnering with a supplier to test and manufacture the seats. "We don't want to be in the business of manufacturing seats," says Halsey. "We've formed a true collaborative team and the results of that are amazing." Cessna clearly has a new Latitude. END

Web www.cessna.com



Cessna Citation M2

Cabin width: 4ft 10in Cabin height: 4ft 9in Cabin length: 15ft 9in Seats: 2 crew + 6 passengers

Range: 1,300 nautical miles with NBAA IFR

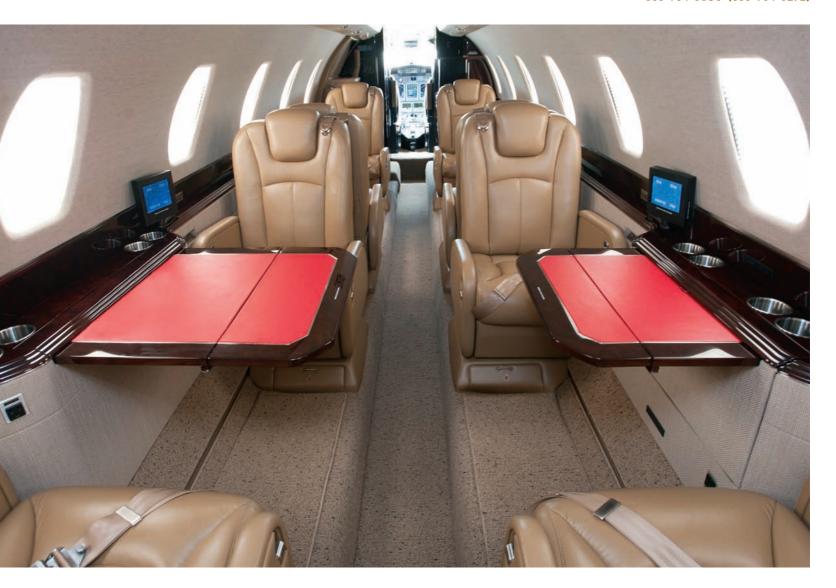
High-speed cruise: 400kts Max altitude: 41,000ft Price: US\$4.195 million (2011)



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the US\$50 million (£31.04 million) executive version of the Russian-built US\$32 million (£19.86 million) Sukhoi Superjet 100 (SSJ), a 100-seat regional jet now entering service.

Superjet International announced the SBJ in June 2011 and signed its first customer, Comlux, in October 2011. Comlux's business aviation empire includes aircraft charter, sales, management, cabin design, outfitting concept layouts of its own for corporate, government and VIP versions of the SSJ, Comlux is partnering with Superjet on as-yet undisclosed interiors for its two SBJs. Work on these designs is already underway at Comlux Creatives, headed by Tim Callies (who is speaking at the upcoming Business Jet Interiors World Expo, to be held on 22-23 February 2012 in Cannes, France).

Sukhoi Business Jet

Cabin width: 10ft 7.4in Cabin height: 6ft 11.5in Cabin length: 66ft 11.3in

Seats: 2 + 14 passengers in VIP layout

Range: 4,250 nautical miles at Mach 0.78 with eight

passengers and NBAA IFR reserves High-speed cruise: 465kts

Max altitude: 40,000ft

Price: US\$50 million (£31.04 million)



First there was the Lineage

Embraer may hold the clues to the potential success of the recently announced Sukhoi Business Jet (SBJ) and executive versions of large regional jets likely to follow, including Bombardier's CSeries. Embraer announced the Lineage 1000 in 2006 and delivered the first to the end user in 2010. The airframe is based on the company's E-190/195 jet, which has been flying since 2004. Over the last five years, the price of the Lineage has crept up to US\$50 million (£31.04 million) and most of its customers have come from the Middle East, home to many long, near sea-level runways.

Initially, Embraer farmed out much of the work on the Lineage, including cabin design and completion. There were glitches and vendor 'modifications' along the way, and the initial completions took much longer than anticipated. The first Lineage rolled into completion in 2008 and the customer had to wait until 2010 to get the aircraft.

Still, the Lineage broke valuable new ground when it came to designing functionality in, and costs out of, large aircraft interior completions, largely through a modular scheme that divides the main cabin into five zones plus the lavatory and walk-in baggage compartment. The modules maximise flexibility and utility, simplify installation and hold down costs. Customerspecified interiors are available for an additional charge.

The Lineage has an NBAA-IFR range with 19 passengers of 3,967 nautical miles, 622ft2 of passenger cabin floor area and 4,085ft3 of cabin volume. That is more than twice the volume of both the Gulfstream G550 (1,669ft3) and the Bombardier Global XRS (2,022ft3), but about 75% that of the ACJ (5,300ft3) and BBJ (5,390ft3). Yet the Lineage can still carry eight passengers directly from New York to Moscow at speeds up to Mach 0.82.

The Lineage developed a new niche in the large cabin market and competition was only a matter of time. Still it could be a very slim niche. Together in 2009 and 2010, Embraer delivered 10 Lineage 1000s and in 2011, for the first six months of the year, had not delivered any more.





- 2. The private bedroom on Superjet's Government SBJ concept
- 3. The bar, lounge and conference area on Superiet's VIP SBJ lavout

The SBJ interior is expected to be similar to the US\$49.25 million (£30.57 million) Embraer Lineage in terms of modularity, layouts (three-five zones) and options. The aircraft are strikingly similar in performance capabilities and range. In addition, Comlux is likely to leverage its experience from Boeing Business Jets (BBJs) and Airbus Corporate Jets (ACJs). The company operates a diverse fleet of 19 charter aircraft, including a Boeing 767, five ACJs, seven Bombardier Globals, five Challengers and a Dassault Falcon 900LX.

Completion Comlux will also handle the completion of its SBJs at the Comlux America completion centre in Indianapolis, USA, now designated the first approved Sukhoi Business Jet Completion Centre. The completions should take place in 2014, with service entry scheduled for 2015.

Established in 2008 through the acquisition of IndyJet, which specialised in refurbishments, small business jets and maintenance, Comlux America finished its first full completion, a VIP A320CJ, in early 2011. It is now expanding and adding capabilities to its facility in anticipation of the SBJ and other transport category completions a second Airbus (an A319CJ) and a BBJ are in the works.

A new 64,500ft² building should open by mid-2012 and the company is adding up to 100 new jobs there. Inhouse capabilities include back shops for cabinetry and upholstery, sheet metal and avionics.

Superjet International's CEO, Carlo Logli, sees the Comlux deal as the first



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It could have been so different...

Up until now, indigenous Russian business jets have largely been madeover Tupolev airliners such as the model Tu-134 twinjet or Tu-154 trijet. But the idea of Sukhoi throwing in with a Western business partner to develop a fresh business jet is not entirely new. In 1989, the company teamed up with USA-based Gulfstream to develop a supersonic business jet - the S-21 Gulfstream-Sukhoi SST. Under the plan, Sukhoi would build the airframe, while Gulfstream would be responsible for integrating the aircraft's engines and avionics.

The plan came unglued when Gulfstream was sold months later to New York investment bank Forstmann-Little, CEO Teddy Forstmann preferred the likely profits from a new long-range subsonic business jet derivative, the GV, versus the costs of developing the first supersonic bizjet. The Gulfstream-Sukhoi partnership was dead, and the dream of a new Russian business jet put on hold.

step for the SBI to become "a new player in the wide-cabin VIP aircraft segment", while Comlux CEO Richard Gaona expressed confidence that the SBJ would "deliver the efficiency and the reliability that our VIP customers are looking for".

Logli estimates a market for 80-100 SBJs over the next 20 years, primarily to customers in North America, the Middle East and Russia.

The SBJ will feature key and mature technologies from a wide variety of well-known Western suppliers: avionics from Thales, electrical systems from Hamilton Sustrand, wheels and brakes from Goodrich, an environmental control system from Leibherr, a Honeywell auxiliary power unit (APU) and hydraulics by Parker. The SAM 146 engines were developed by PowerJet, a joint venture between Saturn of Russia and Snecma of France. Italy's Alenia Aeronautica joined Sukhoi as a development and marketing partner and Boeing provided significant engineering and marketing support. If this aircraft could speak it would be a polyglot; punctuating the point that many future aircraft development programmes could be truly multinational enterprises.



4-5. Superiet envisages a private washroom on its Government and VIP SBJ concepts

Challenges Still, converting the SSJ into an executive luxliner is likely to be fraught with complexities, according to someone who should know - Boeing Business Jet president Steve Taylor. Early BBJ completions went less than smoothly and while, in theory, making over an airliner into a VIP barge sounds simple, Taylor and others who have been in the trenches know it is not.

"It's such a big challenge," Taylor says when asked about the prospects of the SBJ. "It is a really unusual aircraft

that you can move from one category (airliner) to another (business jet)."

Having enough cabin space is key, and in that category the SBJ more than delivers with a tube that offers volume of 4,191ft3 and is approximately 6ft 11.5in tall, 10ft 7.4in wide and 66ft 11.3in long.

Conceptual SBJ layouts currently displayed by Superjet show arrangements with up to four main zones. The VIP layout features a large forward galley, two forward lavatories



- Tim Callies, who is currently working on Comlux's own SBJ interior design
- The private office on Superjet's VIP concept
- The SBJ is based on the Superjet 100
- Alternative styling for Superjet's SBJ concepts







(one designated VIP), a bar, lounge with three-seat divan and half-club, a six-seat (a club-four and half-club) conference area, a private office and an aft stateroom complete with bed, large private washroom and shower.

Superjet's corporate concept features the same forward galley, lavatories and bar/lounge, but cuts the rest in favour of a double club-four conference area, 2-2 guest seating, aft lavatory and a second galley.

The government layout is the same as the VIP one except for the middle section, where the lounge and conference area is swapped for a firstclass compartment with 1-2 seating.

Performance All of this capaciousness comes with a performance price, if the figures remain as projected. While the SBJ is likely to be a luxurious ride it will also be a slow one, with a cruising speed of Mach 0.78 (high-speed cruise is Mach 0.81). It will also need 6,732ft of runway to take off at maximum weight, which is likely to come in around 109,019 lb. That means the unwelcome mat will be out at places in the USA where a 100,000 lb weight limit remains in force. Cruising altitude is limited to 40,000ft; meaning the SBJ will have to share airspace and weather with the airlines. Maximum range with eight passengers is 4,250 nautical miles, dropping to 4,000 nautical miles with 19 passengers and 3,500 nautical miles with 38.

Overall, compared to the Embraer Lineage, the SBJ promises to use slightly more runway, be slightly slower, but offer a cabin that is wider and taller - although the Lineage cabin volume is only slightly smaller at 4,085ft³. But for a potentate on a budget, who might not want to fork out for a new ACJ or BBJ (which can ring the register at upwards of US\$75 million/£46.55 million when fully kitted out), the SBJ may be just the ticket. **END**

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more and more passengers carry personal electronic devices (PEDs) onto business jets, there's a growing demand for content to be streamed wirelessly to these devices. Furthermore, as the diversity of content continues to expand, passengers expect to consume different media simultaneously, making the ability to facilitate different streams to disparate devices essential.

The real level of demand for onboard wireless streaming, through WiFi technologies, is difficult to quantify and varies upon the specific market segment. "We haven't seen a significant number of requests for this kind of system yet," says Claudio Camelier, Embraer's vice president of market intelligence for executive jets. "We have noticed an increasing number of questions about the subject, mainly from fleet operators. Customers have asked for information and support to learn about these technologies, but not necessarily for an immediate implementation."

Meanwhile, outfits at the cutting edge of developing wireless streaming solutions are feeling greater market demand. "Since the technology has matured, the market is showing a strong interest in the functionality that such systems can provide. It will however be up to the initial entrants to demonstrate that they have easy-touse, robust solutions for it to be a longterm success," says Andrew Muirhead, CEO of IDAIR (a joint venture between Lufthansa Technik and Panasonic), who is confirmed as a speaker at the upcoming Business Jet Interiors World Expo (to be held in Cannes, France, on 22-23 February 2012).

Technical challenges Technical hurdles to onboard WiFi implementation and streaming seem to be in the past. Rockwell Collins' Lupita Ho, principal marketing manager of cabin systems, says that "enabling content in the aircraft to stream wirelessly within the cabin is almost a non-issue". Embraer's Camelier concurs: "The hardware part was the easy part!"

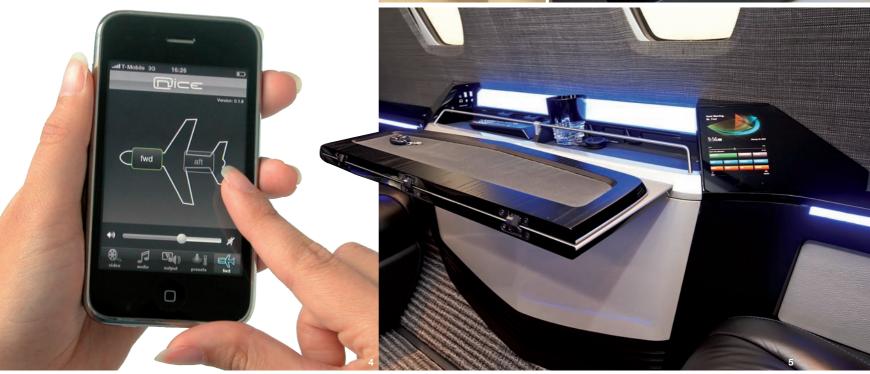
1. IDAIR plans to enable wireless streaming of licensed and DRMprotected content to passenger PEDs from 2013



- 2. Honeywell's Ovation Select CMS
- 3. An IDAIR IFEC/CMS solution
- 4. Controlling Lufthansa Technik's niceHD CMS through a smartphone
- 5. Heads Up Technologies' Lumin CMS
- 6. Rockwell Collins' Venue CMS

Even the capability to stream content in high-end consumer-level high-definition (HD) formats is already in place; the only limitation being the passenger's device, rather than the streaming hardware. "We can support 720p for streaming," says Ho. "That's only a limit because most portable devices will not require a resolution as high as 1080i or 1080p." Lufthansa Technik's Dave Crossett, principal executive for strategic sales and marketing, echoes these sentiments: "We can even do 1080p, but currently the tablets and the like don't support







"CERTIFYING AN 802.11 WIRELESS ACCESS POIN IS A CONCERN THAT MAY HAMPER THE UPTAKE"

HD. At present, if I'm sending streaming video to something like an iPad. it's only SD."

Even multiple streams of HD content are not cause for concern, "In a Challenger 300, if you have say six people, all six of them will be able to access the media server, choose an HD movie or an audio file, and they can all play the same or a different one," says Crossett. The number of concurrent streams certainly isn't something he feels could disrupt their offering. "We're providing a system that could provide hundreds of streams," he says. "Certainly in the business jet aircraft world, technically it's not an issue."

Vendors are also keen to point out there are no technical issues relating to CMS. "Physically there's a logical separation between the IP and CMS networks," says Crossett. "The wireless streaming will not affect the CMS functions, so if you were trying to do

email or Skype or whatever, it won't affect streaming."

Certification meanwhile is always tricky, as Ho says: "Certifying an 802.11 wireless access point is a concern that may hamper the uptake for a wireless solution." IDAIR's Muirhead shares this concern: "Certification is never an issue to be taken lightly and we are currently working on the first installations of IEEE 802.11n wireless," he says. "Once this hurdle is behind us, most of the hard work leading to mass deployment is complete."

Crossett encapsulates Lufthansa Technik's stance on streaming content within the business jet cabin: "It's really not as much a technical issue, as it is a digital rights management (DRM), licensing and legal issue and I think that can't be understated," he says. "You can have a technically wonderful system that can distribute wireless content - but if you don't have rights to





that content, you're placing somebody in a legally dubious situation and that's therefore not a good solution."

Licensing The multifaceted issue of content licensing is a notoriously difficult one to navigate. "IFE suppliers learned that managing content was a particular challenge," says Embraer's Camelier. "Building agreements with movie studios, building servers and software that allows for proper access control and billing are some examples of the things that need to be fixed prior to a commercial launch of any wireless IFE system. In short, feasible solutions are relatively new to the industry."

Content providers and producers have remained understandably wary of licensing their content for streaming. The risk of consumers carrying off the latest blockbuster on their PED during the early release window, in all its HD glory, is a situation that content producers are working hard to negate. Indeed while the wireless technology is in place to provide multiple streams of content, even in full HD format, studios are yet to approve. "HD wireless streamed content is currently difficult to obtain because of legal aspects still to be ironed out with the studios," says IDAIR's Muirhead.

However, for standard-definition (SD) content, there are options. "We

Recent developments

While manufacturers are currently finding streaming to passengers' PEDs problematic, many do factor in devices such as the iPad and iPhone in other ways. Popular offerings include enabling passengers to upload personal content from PEDs to the IFE screen, and enabling PEDs to be used as a remote control for IFEC and CMS.

For example, Custom Control Concepts' iPlane turns the iPad, iPhone or iPod Touch into a wireless controller for IFE and CMS; likewise Emteq's eConnect allows passengers to use their PEDs to control aspects such as lighting and temperature, as well as to connect to the internet; a new app from Innotech Aviation and Esoteric allows users of Innotech's I-Ku broadband system to use their iPads as a controller for the SkyPad IFE system; Honeywell's Ovation Select CMS can be controlled by iPad or iPod; and Rockwell Collins' new HD version of its Cabin Electronic System (CES HD) for Bombardier Global 5000, Global 6000 and Challenger 605 aircraft

(which will be standard fit on these aircraft from early 2012) allows passengers to use PEDs to control the CMS and provide content.

Meanwhile, InTheAirNetVIP's recently introduced abSeries platform enables passengers to play PED content on cabin displays, enjoy previously stored onboard content and moving map, or connect to the internet; while Heads Up Technologies' Lumin CMS technology powers the Clairity cabin technology system that is standard on the Cessna Citation Ten, and optional on the Cessna Citation M2. The Citation M2 provides a wireless app user interface, which can be accessed through smartphones and tablets.

Finally, the latest iteration of Lufthansa Technik's niceHD CMS and IFE system includes readiness for streaming Hollywood studio-approved DRM/encryption-protected HD video to each seat, and nice remote for the iPhone, iPod Touch and iPad - a wireless application for system control.



have released DVD movies, in SD, approved now," says Crossett. But even with SD content, there are, however, some caveats: "DVD releases must still be licensed by the studio. And we don't have approval for early window content - content that has left the movie theatre but is not on DVD," explains Crossett. "The studios are wary of having that content transmitted wirelessly."

Future solutions Some are meeting the licensing challenge of streaming HD content head on. IDAIR, for example, is on course to provide its HD 'all-in-one' solution from the second quarter of



8-9. Flight Display Systems' new iPad arm mount 2012. The system will allow licensed and DRM-protected content to be browsed and selected and eventually, streamed wirelessly.

"We have an add-on system under development that will provide a streaming capability to a variety of passenger devices, including Android, iOS and more," says Muirhead. "This system will support DRM and will be available for installation from the first quarter of 2013."

DRM solutions, such as those enabled by technologies including Microsoft's PlayReady/Silverlight (the DRM technology that is currently implemented for Netflix, a USA-based consumer TV and film on-demand service), although burdening the provider with extra cost, could provide peace of mind for those acquiring and facilitating IFE content for streaming.

Content producers themselves are still struggling to prevent copyright violations and subsequently developing more advanced protection methods. Encryption and DRM is evolving to the point where it can be added to the actual video stream, rather than the medium (such as DVD or Blu-ray disc) that carries it.

If such protection proves difficult to circumvent, a possible scenario could be one in which access to non-DRM protected content will eventually dwindle, possibly becoming so difficult to obtain that it will in fact cancel out any cost saving.

OEMs waiting Until the road ahead clears, many OEMs are taking a cautious approach to wireless system implementation. Embraer typifies this: "We are not installing this feature as of today," says Camelier. "We have been in close contact with the industry's main players, enhancing our understanding of solutions and customer demands so we can build solid requirements before we make any decisions about what to install." It will then be a case of tailoring the solution. "At Embraer, it is usual to work with vendors to customise such systems to some extent, based on our own experience in human factors, engineering and design," explains Camelier.

As is often the case with technological advances, intellectual property concerns are proving the biggest hurdle to mainstream adoption. Stacked against the obvious marketand passenger-generated pressure to implement, are many longer-term acquisition and legal considerations, making final decisions in the current climate difficult to call. END

Web www.idair.aero www.lufthansa-technik.com www.rockwellcollins.com

Avoiding arm ache!

While Apple's iPad is growing in popularity and manufacturers are including it in their IFEC and CMS plans, others are addressing how the tablet can be physically integrated in the cabin. For example, Flight Display Systems now offers an iPad arm mount hip, have to put up with juggling it on a food tray, or balancing it on their lap during flight?" says David Gray, president of Flight Display Systems.

Meanwhile Goodrich Cabin **Electronic Systems (CES) also** offers iPad arm mounts, in multiple configurations. The and removable arm that can a version for mounting and charging an iPad and also a version for accepting audio and video connections to distribute the client's content to the CES IFE/CMS system. This is in addition to allowing clients to control IFE and CMS from their devices while they are mounted or wireless.



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predicted to become the world's biggest within a decade - so what do its latest BBJ and ACJ deliveries say about Chinese tastes? Deer Jet is one of the largest business jet charter operators in a market

ormer United Nations secretary Kofi Annan flies Deer Jet - there's a photo and quote on Deer Jet's website to prove it. As endorsements go it's right up there and ringing, and alongside a client list that also includes big corporate businesses like Shell, UBS and Honda, it indicates that this Chinese charter operator, with a parent company in Hainan Airlines, is a serious player with global as well as local customer clout.

Since setting up in 1995, Deer Jet - the 'Deer' part of the name represents 'good luck and safety' - now includes 21 self-owned and 19 managed aircraft. More recently it has added a Boeing Business Jet (BBJ) and Airbus Corporate Jet (ACJ) to its fleet, very much in line with its corporate strategy of "fostering Chinese traditional culture and soul in combination with Western advanced science and technology".

So how do those values translate into those new aircraft and did the designers behind them have to approach their respective design briefs any differently as a result?

Cultural considerations Airbus Corporate Jet Centre (ACJC), based in Toulouse, France, was tasked with designing and outfitting Deer Jet's new ACJ. For ACJC's head of creative design, Sylvain Mariat, the approach





- on the ACJ, which comes with WiFi internet service
- 4. Stitching details on the ACJ's seats reflect the interior's automotive influence
- 5. A subtle Chinese pattern used on the ACJ's partitions

likes, their culture," Mariat says. "For example, I think finding out what hotel they like is good information. But this project was not for a private client but a charter aircraft, so I had a picture of a contemporary car that could provide a VIP experience, using a dark wood effect – but not a dark interior – plus natural leather and stitching on seats."

It's a perspective backed up by Deer Jet's marketing manager, Yingpeng Li, who believes, very broadly speaking, that elite Chinese business customers want "big-size aircraft with leather seats and a bright and clean interior". For Mariat the key thing was to avoid the





THE KEY THING WAS TO AVOID THE CLICHES THAT ESTERN DESIGNERS CAN





clichés that Western designers can fall into when designing for Chinese clients, "like using lots of deep red colours," he says. "Rather, I think they want to mix the contemporary with their own culture." A good example of this approach on the ACI – delivered in May 2011 - is the subtle geometric graphic design on its internal partitions. "You only see the design properly when up close," enthuses Mariat. "It's just an abstraction of a Chinese pattern that has no direct meaning, but it has appeal to a wide customer base."

The cabin was also influenced by Apple computer design, and features a bespoke seat aesthetic over an existing structure. The layout includes a forward private office with en-suite bathroom, including a shower. The office can be configured as a bedroom via a fold-out sofa, and has a 42in screen. The midcabin conference area features two club-four groups, while the aft cabin offers 20 electrically actuated flat-bed cocoon seats, all equipped with video screens. The cabin can carry up to 28 passengers, and features WiFi internet.

The design process with Deer Jet was straightforward. The first meeting was all about sketches and material sample ideas. The second meeting showed the cabin in 3D with the right materials rendered using CATIA software, with Rhino software for the precise details. "CATIA is good, but too harsh to render soft materials," says Mariat. For the third and final meeting

a full 3D visualisation using precise Airbus data was available to show to the customer.

Automotive luxury USA-based Associated Air Center, the design and completion business within Standard Aero, was behind Boeing's latest Deer let BBJ. The centre has the experience of 21 BBJ projects already under its belt. Three design themes were proposed to Deer Jet by Associated Air Center's lead designer Rafael Tapia. As with the ACJ, an automotive-inspired theme - nicknamed 'BMW' by Associated – was Deer Jet's first choice. Featuring dark leather seats, rich midbrown wood tables and lower walls and lighter upper walls and ceilings, it fits neatly with many current contemporary (German) prestige automotive interior designs. With an office that can turn into a bedroom it also meets the brief of being able to be "a home or office in the sky" as Tapia puts it.

Despite its material choices being very familiar to automotive design, the extent of their use in this business jet proved to be a challenge, according to Patricio Altuna, Associated Air Center's executive vice president of sales and marketing. "On a VIP-type jet you normally like to see real wood for a rich and elegant look, but unfortunately the wood veneer, although it passes vertical burn testing, does not pass the smoke and heat release test," he explains. "However, through working with our designers and engineers we came up with a similar process that simulates

Why China's business jet market is set to soar

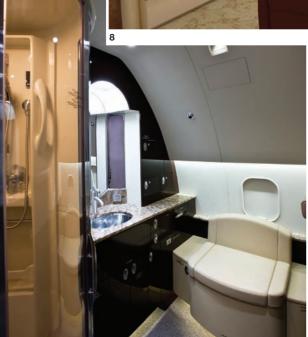
Deer Jet - and indeed the wider Chinese business aviation market - shows no signs of slowing down its growth. Deer Jet's Yingpeng Li predicts 150-200 business aircraft in China by 2012 if the economy keeps going well there and says the company is planning to construct more facilities "such as FBO, MRO and hangars", and introduce more aircraft to get past a current lack of facilities in the region.

In fact the Chinese market will be the largest new aircraft market in the world by 2018 according to Jason Liao, chairman of the China Business Aviation Group (CBAG) speaking at NBAA in October 2011. Far from a figure plucked from thin air. Liao bases the assertion on 5% annual growth in deliveries over the next six years worth some US\$11.6 billion (£7.30 billion).

There are of course some issues to overcome first, as the NBAA identifies. Aside from the lack of pilots, support staff and airports suitable for executive travel, the Chinese military still restricts private flights to lower altitudes. This makes non-stop flights to destinations outside of the country tricky even for long-range aircraft. But, as CBAG's regional director Walter Wang declared at the same convention, that situation should be rectified in the near-term too: "The market needs to push the environment to change and because the need is already here, we can see the change very soon."

- 6. The bathroom on the AC.I by AC.IC
- 7. The bathroom on the BBJ by Associated
- 8. The French Palace concept by Associated that will be used for a second BBJ





real wood so well that even if you placed a finished sample next to real wood veneer you wouldn't be able to tell the difference."

Other key materials include Tapis Ultraleather on the headliner in the VIP area and bulkhead of the VIP lounge and Tedlar laminate wallpaper for wall surfaces and window panels in the business area and all three lavatories.

Tapia says that as a charter aircraft, the BBJ had to be designed for more frequent and robust use than a private business jet. "We did things we'd never done before on this project," he says. "The materials have a VIP appearance but they also have to be more maintenance-friendly than usual. For instance the veneer we used is a dipped material on an aluminium sheet but the

mouldings are actually hard wood and designed to be easily removable if they get damaged in flight."

As a charter jet capable of carrying more than 19 passengers it also had to meet different legislation. One stipulation is that doors can't be used between compartments - Associated used curtains instead - while another is the requirement for crews to be able to observe passengers for take-off and landing - resolved on this project by the use of remote cameras.

Deer Jet is clearly happy with the results, having commissioned another BBJ from Associated since, using one of the original three themes - a 'French Palace' design with a more traditional colour scheme of richer red seating and lighter mid-brown wood effect veneer, teamed with gold detailing on handles, knobs and picture frames.

Tapia says it took about three months to get the first cabin package approved to the design freeze stage in early 2010, but what they learned from that made the second BBJ easier to start in early 2011. Currently it's waiting for Chinese government approval before entering service. **END**

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comfortzone

The latest developments in the business jet seat market - from wireless controls and audio response massage to glamorous new styling and easy installation



hightech

P/E Aerospace's newly designed UCT 2.0 seat includes enhancements such as connectivity and wireless controls powered by the iPad. Comfort features include hydraulic actuation, ultra-glide swivel system, four-way lumbar support, an ergonomic design and infinite comfort adjustment options.

The UCT 2.0 also has a modern design featuring a waterfall upholstery style. This upholstery style marries the seat cushion and leg rest, eliminating gapping to create a seamless aesthetic.

www.beaerospace.com

chillout

Aero Seating Technologies (AST) has added a new interactive massage feature to its Serenity full-power, full-flat seat for both narrow- and wide-body jets. The audio response massage feature interacts with the aircraft's IFE system. It combines the tactile feeling of massage pulsation with what is currently being played or watched. If the passenger is watching a movie or listening to music, the massage system responds to the audio with feedback movements. The current system includes new enhancements which offer greater interactive response and increased compatibility with plug-and-play hardware. AST says the massage system is 50% lighter than the previous design, and boasts low power consumption and custom expandability.

compatibility with plug-and-play hardware. AST says the massage system is 50% lighter than the previous design, and boasts low power consumption and custom expandability.

AST continues to update its product offerings with new features designed to enhance the travel experience. Forward, aft and lateral translation – including 360° swivel – are standard on all AST 9g and 16g Master Class VIP seats. Other 16g AST seats include a power-assist feature for track and swivel, thigh support adjustment, vertical lift and floor tracking. AST's manual seat for wide-body jets reclines fully flat with an articulating seat bottom and in addition offers vertical lift capabilities.

www.aeroseating.com

doubledelight

A viation Fabricators (AvFab) recently received STC approval for its Beechcraft 400A 2-Place Divan. The STC allows installation in all Beechjet and Hawker Beechcraft 400A series aircraft in addition to the 400 series. The 2-Place Divan is available with the option of close-out panels and comes with integral shoulder harnesses mounted to the frame. No airframe modifications are necessary. Installation is achieved by removing the existing furnishings and locking the divan into the seat tracks. AvFab offers pricing quotes on the removed seats as potential trade-ins.

Econo seat, received STC approval in December 2003. Both models now have EASA approval as well. These seats are designed to boost passenger capacity. They are available in narrow-back versions allowing installation in later model B200/B200GT and 350 King Air aircraft, without removing the arm ledges from the sidewall. The Traveler seat builds on the Econo model while adding more legroom, easier egress and improved comfort. This was all accomplished without increasing the seat's weight (23 lb). All AvFab's high-density seating kits include seatbelts, foam backs and ledge panel for outboard armrest. The seats also come with a one-year warranty.

www.avfab.com





allsystems**go**

TF Aerospace is offering a new seating system to support its Boeing 747-81 AirSuite overhead sleeping quarters. The seat base and back cushions have been widened to almost 30in, enabling TTF to custom design the seat and headrest cushion system to each customer's preference.

The new armrest design provides a wider passenger seat with additional hip space for more natural seating positions throughout flight. The armrest has been positioned forward to remove pressure from the elbow, and oversized to reduce pressure points on the arm. Cup holders and controllers are convenient but not installed as part of the seat itself, as TTF's priority is to optimise personal and visual comfort.

The example pictured shows a chilled refreshment station between the seats along with the entertainment and sound system controls. TTF says it can customise this interior to accommodate any customer request.

www.ttfaero.com



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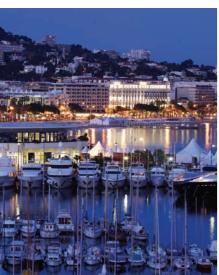
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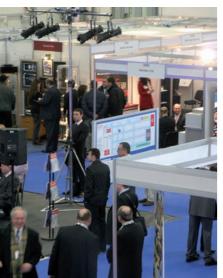
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highromance





A BBJ interior designed by Andrew Winch Designs to offer a romantic yet comfortable atmosphere

Andrew Winch Designs entered the private

the company has delivered interior designs for numerous private aviation projects from BBJ 1s to an interior scheme for a private A380.

One recent design for a BBJ was nicknamed Ingram. It was designed to be contemporary yet comfortable, functional yet beautiful. Throughout the jet, a light and natural framework has been used to ensure that the illusion of space is maximised within the entire design. A contemporary and eclectic mix of materials and textures has been used in the construction, including rich exotic timbers, stitched leatherwork and shagreen. Natural coloured fabrics provide a background to the scheme with accents provided by textured fabrics and

The light and spacious entrance hall is designed to instil an instant sense of calm as passengers board the jet. A book/magazine display runs the length of the entrance area, along with semi-transparent 'sohji' screens elegantly carved from wood. Both carefully conceal the working galley area from the boarding passenger's eye.

The open plan arrangement of the dining/ conference and executive lounge areas creates

a feeling of space, which continues into the private lounge as well as bedroom and bathroom. The design accentuates the interior architecture and structure of the fuselage - by exposing the high-gloss carbon fibre ring frames, a visual distinction between areas has been achieved.

Created using the most intricate detailing, everything has been custom designed to fit perfectly with the client's requirements and tastes. The ceiling of the fuselage has been carefully decorated with anigre wood yet soundproofed to ensure a peaceful journey for passengers. All furniture must be aesthetically pleasing yet certified compliant, such as the classic chair designs made using a laminated wood shell complemented by the contrasting leather. Even the porthole frames have been intricately hand painted with a trompe l'oeil effect, giving the illusion of a wood surround and thus tying them into the overall design.

owner's fully private bedroom and en suite, complete with full-sized double bed. It has been finished using a combination of furs, woods and leathers. No portholes have been included in the bedroom area, so that the only light that is able to enter the room comes through the custom-etched glass shower surround. The overall feel is a romantic, moonlit setting reminiscent of Dr Zhivago

complexity of systems working together to serve the diverse requirements of comfort, functionality and safety," says Jim Dixon, director of aviation at Andrew Winch Designs. "As the architects and designers of the interior, we have to use all of our experience to turn a creative process into a first-class flyable busy lifestyles.



- 2. The open-plan layout includes dining and lounge areas
- 3. Highlights include the accentuated carbon fibre ring frames and anigre wood ceiling



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Dornier 328 conversions are only the tip of 328 Support Services' abilities







Now in its seventh year, the growth of 328 aircraft. Having taken the Fairchild-Domier Envoy into the 21st century with its DBJ cabin, other aircraft manufacturers are looking to this Bavarian completion expert for interiors. With a top designer in London – Robin Dunlop, head of CTM Design – and 328SSG's own Part 21J design organisation approval, the company offers interior conversions and renovations for any flying machine.

Our only restriction as to what we can work on here in Munich, Germany, is the size of the hangar. We already make and pull-test A340 VVIP galleys and could design and manufacture any interior for installation anywhere in the world," says Ray Mosses, head of sales at 328SSG. "We are also talking with some major aircraft manufacturers about providing VIP interiors for OEM aircraft, where they would

in-house, thus giving it more control over materials, quality, delivery and finish. 328SSG says this approach also ensures more efficient use of the customer's budget, avoiding costly sub-contraction. The 328 team aims to offer



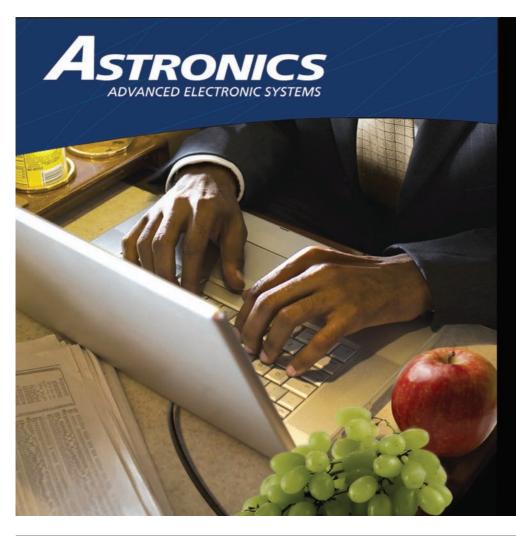
cabin is crucial," says Dunlop. "We consider the customer's requirements of use and mission to achieve the best all round. Materials and finishes are bespoke too, creating a unique interior for each customer. We work with 328SSG's engineering department and the customer's representatives to get the best out of everyone

The company also pays close attention to trends and advances in materials and technologies. For example, it works with companies such as List, which provides lightweight real stone veneer for work surfaces or flooring. IFE systems are also important to definition IFE systems, satcom telephones and WiFi internet. One customer specifically wanted a large screen for his children to play computer developed. Other customers are content with bulkhead monitors or plug-in screens for individual passengers. The company sees the iPad as the next development, and thinks it will reduce weight while enhancing the flying experience. 328DBJ customers have a master console to control all cabin functions from lights and IFE through to the electric window blinds and temperature in each zone. Other highlights of the 328DBJ include 750kg of luggage space and a cabin over 1.8m (5ft 11in) tall. 328SSG believes the 328DBJ costs a quarter of the price of some equivalent OEM aircraft.

The 328DBJ is a good example of the company's approach of refitting second-hand 328SSG envisages these aircraft appealing to customers who want to supplement their fleet exciting exterior livery designs from CTM Design to complete the transformation.

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forwardthinking

Aeristo is building on 20 years of success with new technologies and products, including a passive seat ventilation system and leather splitting and skiving services

Founded in 1991, aviation leather specialist Aeristo celebrates its 20th anniversary in 2011. The company says its sights remain prosperous, because of the strong principles it was founded on and which it continues to exemplify to this very day.

Aeristo's main focus is to research, develop and distribute interior leathers and associated seating comfort products exclusively formulated for aeronautical applications. Its aviation leather brands include Aeronappa, Belvedair, Volaero, Rotinda, Aerolino and Aerolamb.

Realising that seating comfort does not stop with surface materials, Aeristo also offers a line of seat comfort products. The company, already the supplier of a nanocarbon-fibre seat heater known as Fybairheat, recently began to investigate seat ventilation solutions, after receiving numerous inquiries from OEMs, seat manufactures, FBOs and end customers. While the company says it has found that at this time an active seat ventilation system for an aircraft is simply unrealistic in light of weight, packaging and space requirements, there are alternatives. It believes that a passive ventilation system is not only the best approach for ventilating seats, but also offers valuable added benefits.

The resulting material is known as Ventimesh, and has only recently been released. The loop structure of the yarn allows for a wide range of seating comfort levels from firm to soft. Aeristo says additional advantages include passive ventilation, superb testing results, comfort, versatility, a low weight, enhanced hygiene and an excellent recovery feature.

Also new are the company's leather splitting and skiving services. This allows customers to specify leather to any thickness they wish - which Aeristo says facilitates the upholsterer's job and provides for a nicer, cleaner end product.

To handle growing demand, two years ago Aeristo relocated its headquarters to a new facility near Dallas/Fort Worth International Airport in Texas, USA. The company says the new location positions it better than ever to facilitate quick shipments to customers' worldwide. Aeristo prides itself on going the extra mile to help customers struggling with time constraints.

Customers have been benefiting from the company's stringent quality controls over the past two decades. Now Aeristo has accomplished a further milestone in its commitment to continual improvement and has been awarded AS 9100 rev. C, AS 9120 rev. A and ISO 9001:2008 certification - the latest in certification standards.

While Aeristo believes it has always gone above the industry standard to ensure customer satisfaction, the company understands the necessity for formalities in



an industry that requires speed, perfection and traceability. "We are very proud of our industry-leading quality certifications," says Shawn Weishuhn, operations manager at Aeristo. "However, our customers are the ones who truly benefit from our inherent quality-driven culture."

What customers can continue to expect from Aeristo is a huge inventory of aircraft leathers ready for immediate shipment in some 180 colours. All these leathers are central European bull hides chosen for their cleanliness, tight grain and large size, optimising yield.

The company's aviation customer base nears the 700 mark, and includes airlines; seat manufacturers; jet and turboprop aircraft manufacturers such as Bombardier Learjet, Gulfstream, Dassault Falcon Jet, Hawker Beechcraft, Cessna and Pilatus; completion centres such as Associated Air Center, Lufthansa Technik, Duncan Aviation, AMAC and Jet Aviation; highly specialised aircraft interior design and refurbishment firms; and defence contractors throughout the USA and as far away as India, Hong Kong, Lithuania, the UK, France, Germany and Switzerland. The company looks forward to moving into its third decade, with a commitment to providing the best in aviation seating comfort.

Aeristo

Reader Enquiry No. 503





- Aeristo's facility
- Aeristo's many leathers are all European bull hides
- The company now offers custom splitting and skiving



1. The Bluebox system can be integrated on

nostrings

Bluebox Avionics' IFE platform can now be integrated on the iPad, and has been installed on a BBJ as a wireless-controlled semi-embedded system

deployable handheld COTS-based IFE system that is in daily use with a number of leading Jet2.com and Jetstar. These units are deployed in a mixed environment – some customers provide Bluebox as a business-class 'service enhancement' offer, while others treat it as a revenue-generation opportunity. Both models have proved successful.

The Bluebox system has also been deployed in semi-embedded format on a Boeing Business

world's first wireless controlled IFE system, and embedded system is designed to provide a very

Jet (737). The company believes this is the also the first portable device to have Rockwell Collins' Airshow passenger flight following interface delivered over wireless. The semicost-effective 'near AVOD' level of service to premium passengers.

is Apple's iPad tablet. The iPad has some unique particularly suitable for IFE use. Bluebox's core application suite has been adapted for use on the iPad, including robust security features to protect sensitive digital content.

Bluebox Avionics has also integrated its own

software solution to produce a handheld system designed to offer excellent flexibility, capability particularly suitable for deployment as a revenue-generation system

The technical features of the iPad open up a myriad of possibilities. For example, the accelerometers built into the unit enrich the gaming experience. The iPad is also ideally suited to the deployment of electronic books and magazines, which are offered as part of Bluebox Avionics' optional content offering.

Bluebox Avionics is jointly owned by a leading content provider, Dawson Media Direct (DMD). The allied resources of AvilT and DMD enable Bluebox Avionics to support portable device deployment throughout the world by building on DMD's global logistics infrastructure and AvilT's

In support of the iPad as a standalone IFE device, Bluebox Avionics has commissioned a custom-designed case and removable battery, which enables up to 20 hours of continuous use between charges. Security can be enhanced by device's location. Bluebox Avionics says its software also ensures that all content is secured to the highest possible level to prevent approved by many major distributors for earlyprogramme types including TV and audio.

Bluebox is therefore a turnkey solution to





IFE ... as you want it to be

Handheld or fitted, revenue generating or service enhancing, content inclusive or content exclusive – bluebox plays to your rules





<u>iudgement</u>call



Satcom Direct evaluates the myriad options for connectivity available to business aircraft operators

Connectivity has drastically changed how we communicate and do business, whether at the office, at home or on the run. "Passengers and able to make a call, access their email, surf the internet and more while they're in flight," says Jason Natwick, director of product line management at Satcom Direct. "Recent advances in technology have made these capabilities more accessible, whether you operate or fly on a large-cabin Gulfstream or a smaller Cessna Citation.

There are many options available for business aircraft. "Existing capabilities include Iridium, Inmarsat, Yonder, Gogo Biz and Airfone (Magnastar)," says Natwick. "New technologies are in development and include Iridium OpenPort and Inmarsat Global Xpress. Ultimately, the down to the mission of the aircraft, the passengers that are on board, the type of

knowledgeable service provider that has years of experience supporting business aviation communications, such as Satcom Direct."

Adding to the already abundant options when selecting connectivity for an aircraft, mobile applications have become increasingly popular.

Most applications are built for Android or iOS devices such as the iPad, iPhone and iPod. "All

people expect to get connected," says Natwick. the applications available and differentiating

Satcom Direct has developed applications for its customers that work regardless of the communications systems installed on board the aircraft, enabling pilots, schedulers and maintenance personnel to have the tools needed to communicate on or with the aircraft, as long as they have an internet connection. Pilots can view interactive weather, request clearances and file flight plans all from an iPad. Passengers can use their own personal smartphones to make calls from the aircraft. Ground crews also have the capability to message the aircraft while it's in flight, see real-time usage information and track the aircraft worldwide.

Another aspect of connectivity that gets overlooked by many operators is flight deck Natwick. "One such option is FlightDeck operators the capability to do more than could be done with legacy services, and at the same time makes datalink simple to use."

Using this package, flight departments can choose their preferred flight planners, track their

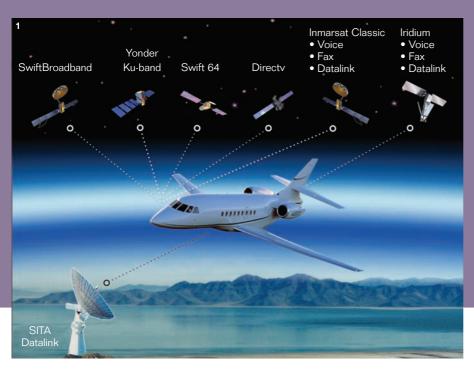
aircraft fleet globally, utilise mobile applications and use interactive messaging – all for a simple annual fee.

With so much choice, choosing a communications service provider can be a daunting task. "Evaluate their billing capability, real-time account access, value-added applications for utilising the services and most importantly the support they offer," advises Natwick. "If your system is not operating when ground supporting the aircraft are less effective. In many cases, the flight could be cancelled. Remember, choosing the best service provider is not simply about cost; it is about how easy it is to get connected and stay connected, so pilots can concentrate on the most important aspect of their mission – the flight – and passengers can concentrate on the things that are important to them."

Satcom Direct

Reader Enquiry No. 505





freerange

A network of partners around the USA and beyond helps B&D Design Services to offer a broad range of aircraft integration engineering and management services

B&D Design Services was founded in 2004 with the goal of providing expert VIP aircraft integration engineering and management. Since then the company has added more principal partners and expanded to a multidisciplined engineering approach. B&D Design Services operates in a virtual office environment that gives it the flexibility to manage multiple projects in different regions of the USA and internationally. The principal partners are located in Arkansas. Texas and New Mexico, with an extended workforce of engineers in eight US states and Canada. The company says this decentralised structure and the utilisation of digital data and communication methods allow it to draw from the best engineers in this highly specialised industry, while keeping overhead to a minimum and increasing efficiency, translating into savings for clients.

B&D Design Services' platform experience includes mid- and large-sized aircraft such as Boeing 737, 747, 757, 767 and 777; Airbus A319CJ, A320CJ, A321CJ and A340CJ; McDonnell Douglas MD11 and MD80; and Lockheed L1011. The company also has experience with smaller airframes such as Gulfstream and Bombardier Learjet.

The company's principal partners are mechanical/aerospace engineers with more than 25 years of special US Department of Defense clearance experience and 80 years of combined experience in VIP interior modifications.

B&D Design Services uses an integrated engineering and management approach implemented by a multidisciplined team of engineers, as well as strategic partnerships with aircraft interior designers, manufacturers and completion centres to ensure each project's feasibility at the outset, and requirements throughout, are kept in clear focus. This emphasis drives decision-making and execution with regard to time schedules, budget estimates and engineering objectives.

The company's services include all aspects of VIP aircraft interior modification engineering, including structural modifications, monument design, electrical and mechanical systems engineering, interior reconfiguration and structural floor modifications. It also provides engineering services for rack modification and equipment relocation, antenna installation, LOPA rearrangements and exterior paint scheme designs. In addition, the company can assist with project management services for reconfiguration and STC projects. It says all engineering is FAA/DER certifiable when required, but always FAA and EASA compliant.

Liaison and support services are offered as part of all projects B&D Design Services undertakes. Experienced engineers are available to serve as liaisons during the design, engineering and completion phases to ensure that the client's goals are met.

B&D Design Services Reader Enquiry No. 506











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meetingofminds

Thermoplastic sheet manufacturer Kydex employs a collaborative approach to turn designers' visions into reality

Believing that its thermoplastic sheet products could be used to create design statements in of renowned designer David Scott to help guide

his own project, and found them through close collaboration, experimentation and shared determination. He has stayed on with the company as a consultant, bringing the dual benefits of his design talent and the practical knowledge of a veteran industry insider. The partnership is a reflection of the company's focus on collaboration in every phase of planning, design and execution.

Kydex's flagship product for aviation is Kydex FST, a material designed to offer the best of both worlds – full compliance with the most stringent regulations in the business, and a dizzying array of design options in terms of

custom colours with quick lead times and high quality," says Ronn Cort, international business manager at Kydex.

Kydex FST is now in development in translucent form. "Translucence has long been the holy grail of aircraft interior design, the seemingly impossible dream laden with limitless possibilities, yet long unattainable in compliant form with standard thermoplastic sheet," Cort. "Our development means that physical

separators that provide privacy need not limit the integrated flow of light, colour and design separators, galleys and more can now be a part separators, galleys and more can now be a part of the design, instead of a breed apart. And the colour-matching possibilities, textures and durability of Kydex FST mean it can be used throughout the cabin for a seamless design."

Scott believes the translucent sheet will be a game-changer. "Kydex FST transforms a designer's thinking – sheet is no longer just a solid surface, because of its translucent

possibilities," he says. While Kydex FST looks great on paper, the ultimate test is putting it before aircraft interior designers. Kydex did just that at Aircraft Interiors Expo Americas in September 2011. More often than not, Kydex says the traditional five-minute tradeshow stops became hour-long benefits and possibilities of the FST material.

was a meeting of design minds," says Cort.

Kydex promises aircraft interior designers to help them realise their unique vision."

Kydex FST is only the beginning of a raft of new aviation-compliant materials on the way.

They will roll out in 2012 and be featured prominently at tradeshows. Kydex is also introducing an expanded colour palette that's "design-forward, rich in variety and full of fresh and surprising hues", according to Cort.

Kydex sheet is now being developed to include the option of Kydex with Soft-Touch technology, which can be used to give surfaces a feel akin to glove leather. "Passengers get a more pleasing tactile experience, designers get a new dimension of texture and operators get durability in high-use areas," says Cort.

All these developments are brewing in the Kydex Design Lab, which is also expanding in size, operations and scope. "Designers come in with a vision, a plan or just a sketch, and the Design Lab technicians use their experience and expertise to make it happen," says Cort









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LIGHTS





perfectharmony

Alto Aviation has been designing and manufacturing cabin audio/surround sound systems for business aircraft for more than 10 years. Each system is customised to the aircraft type or to the specific aircraft to With a very wide range of small speakers, can be scaled for use on aircraft ranging from the smallest business jet up to the largest wide-bodies.

The latest addition to the Alto product

line is the TSO-approved Forte series of digital amplifiers. These new class-D amplifiers are all 8x40W powered by 28VDC or 110VAC, offer an optional integrated public address (PA) system and are designed to be highly efficient. The PA system operates on a separate 28VDC power supply and features multiple microphone, briefing and ordinance inputs. Alto says a complete line of PA speakers, entertainment speakers and subwoofers

The PA and the cabin audio amplifiers contain a powerful digital signal processor (DSP) that Alto says enables its engineers to apply advanced audio processing effects of the cabin, providing the best possible sound for all passengers. One of

provides surround-sound processing, which provides surround decoding for movies and music from all audio sources.

Over the past 12 months, Alto has received TSO-C139 approval on 15 different Forte amplifier models and more than 50 speaker variations. The first approvals were for models slated for current and future OEM programmes but all are now available for retrofit applications. Alto currently has products flying on more than 1,500 aircraft including OEM models from Gulfstream, Falcon, Embraer, Cessna and Sikorsky.

that's entertainment

Custom Control Concepts (CCC) has been designing and manufacturing custom IFE and CMS systems for VIP, head-of-state and business aircraft worldwide for more than a decade. The company invests constantly in research and development dedicated to inventing and adapting the latest technologies for its IFE and CMS systems. Recent advances have included the introduction of wireless IFE streaming to iPad, iPhone and iPod Touch through iPlane.

CCC believes that a luxury aircraft's CMS should be as unique and elegant as its custom interior. This approach is supported by in-house engineering, production and certification services. The company says it has the capabilities and resources to meet any request and deliver a truly inspiring inflight experience, taking new ideas from the drawing board to reality, quickly.

Common customisation work includes graphics for user interfaces, touchscreens and bezel designs, as well as custom integration and control of third-party and OEM equipment. CCC says many of its innovations originate from requests for CMS and IFE features that no-one has ever designed or built before.

CCC's extensive product line covers every aspect of IFE and CMS including HD, LED, LCD and AVOD-integrated thin monitors; wireless iPad/iPhone/iPod integration with iPlane; surround-sound speakers; touchscreen switch panels; touchscreen monitors; AVOD; SkyShow 3D moving maps; Spectrum lighting and much more.

Custom Control Concepts

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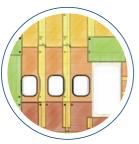
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requirements definition, through development and installation support.

Aerotage also has a division that provides employment solutions for the aviation industry, addressing the challenges of fluctuating workloads, specific projects and surge requirements for businesses with hard-to-find skill sets.

The division specialises primarily in engineering and technical search programmes providing highly experienced for contractors, temporary personnel to direct hires, large volumes or managed services programmes (on-site recruiting).

"The need to find top talent remains

paramount, and in today's economic landscape, budgets require creative and cost-effective solutions," says Brad 60 years of combined aviation experience, clients can count on our specialised search teams to assist in finding the exclusive search solution, both domestically and internationally. Aerotage can provide turn-key solutions for clients' aerospace engineering, certification and personnel

Aerotage

Reader Enquiry No. 510

soundadvice

N2 Aero takes a holistic approach to cabin acoustic design. "We begin with an extensive aircraft and technology evaluation, perform a detailed review of the aircraft configuration and all of its properties and complete the development, implementation and certification of a customised and comprehensive noise control solution," says Greg Nelson, president of N2 Aero.

"Cabin acoustics are a critical aspect of today's VIP completions," says Olen Nelson, vice president of the company. "Owners demand quiet, comfortable acoustic environments that complement their cabin interiors. There are many types of noise sources that can mar the luxury cabin environment; isolating aerodynamic and engine noise is simply not enough to meet the standards of today's discerning customer."

Hisses, whines, rattles and other common phenomena can cause excessive fatigue and discomfort but N2 Aero says these are not adequately assessed by measuring decibel values alone - each and every noise source must be isolated, evaluated and treated to produce a truly excellent aircraft environment. "Piecemeal approaches to noise control, such as those focused solely on materials or components, cannot meet today's performance expectations," says Greg Nelson. "These processes neglect many key acoustic issues and the results are often heavy, over-complicated and less effective.'

N2 Aero believes a comprehensive acoustic design should be tightly integrated with the aircraft and its systems to be as effective and lightweight as possible. "This requires not only well-designed installation kits but also expert guidance in the acoustic aspects of all of the aircraft systems and equipment," says Greg Nelson. "Creating a comprehensive, fully documented and supported design ensures the best acoustic results that are also economical, lightweight, easy to install and reliable for the lifetime of the aircraft.'

N2 Aero

Reader Enquiry No. 511







<u>openforbusiness</u>





OHS Aviation Services, which specialises in the refurbishment and care of executive jet interiors, has expanded its facilities in Berlin, Germany. As well as its two paint facilities and in-house upholstery and carpentry workshops, OHS Aviation

ceremony for the new facilities was held at the end of October 2011.

"The showroom is at the core of our new company premises," says Ornulf Hilarius, managing director at OHS Aviation Services. "This is where customers are given in-depth advice about new options in interior design and at the same time they have the opportunity to compare, touch and test the most diverse materials.

As well as broadening the scope of its services, OHS Aviation Services says the new premises will enable it to expand capacity. "With an investment totalling over €1 million (US\$ 1.37 million/£0.86 million) we have responded to increased demand

and we can continue to expand our position as a full-service provider," says Hilarius. "From polishing scratches to leather complete refurbishments, we offer our customers a wide range of services.

cabin interiors and exteriors, including leather, wood and upholstery work; varnishing, sealing and special cleaning.

On top of this, it offers accessories and care/cleaning products through its aviation supply shop. Hilarius founded OHS Aviation Services in 2000 and employs around 35 staff at the main site in Berlin and a second in Erfurt, Germany.

OHS Aviation Services is an affiliate of Townsend Leather Group, Lufthansa Bombardier Aviation Services (LBAS), Fiber Seal Aviation Service, List and Granitize Aviation International.



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