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JANUARY 2013

THE INTERNATIONAL REVIEW OF BUSINESS JET INTERIOR DESIGN AND COMPLETION

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Experts who design, make, certify, install and maintain seats discuss how they can be perfected

quicksmart

The challenges faced by IFEC suppliers in integrating fast-evolving PED technology

BusinessJet
interiors
WORLD EXPO 2013
SHOW ISSUE
19-21 March 2013
LONDON FARNBOROUGH, UK



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HOW CUSTOMER ADVISORY BOARDS
HELP TO SHAPE NEW AIRCRAFT

Luxury • Aviation • Design



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ready or not?

Tenth-century English King Æthelred was famously saddled with the unfortunate epithet 'The Unready'. Except he wasn't. His Old English nickname was actually 'Unræd', which more literally translates as 'ill-counselled' – that is, his contemporaries considered him perhaps not as a king who was wilfully unprepared, but as someone who was the recipient of bad or patchy advice. This goes to illustrate how the roots of the phrases 'ill-advised' and 'unready' are fairly entwined, as can be their modern-day meanings for OEMs – harvesting good, relevant and wide-ranging advice is vital preparation for the launch of a new aircraft. The ways in which they go about this process, through exhaustive customer advisory boards, are explored in a feature starting on page 18.

The value of gathering expert opinion also informs the 'Design Panel' feature on page 26, the first of a series in which a wide selection of industry specialists deconstruct one part of the cabin – this issue, seating – sharing their insights into key challenges, how its design can be improved and what they feel the future could hold. Those offering the benefit of their considerable experience in this feature include experts in business jet seat design, manufacture, certification, installation, maintenance and refurbishment from Gulfstream, Jet Aviation Basel, Comlux America, UTC Aerospace Systems, the FAA, BMW Group DesignworksUSA, factorydesign and Duncan Aviation.

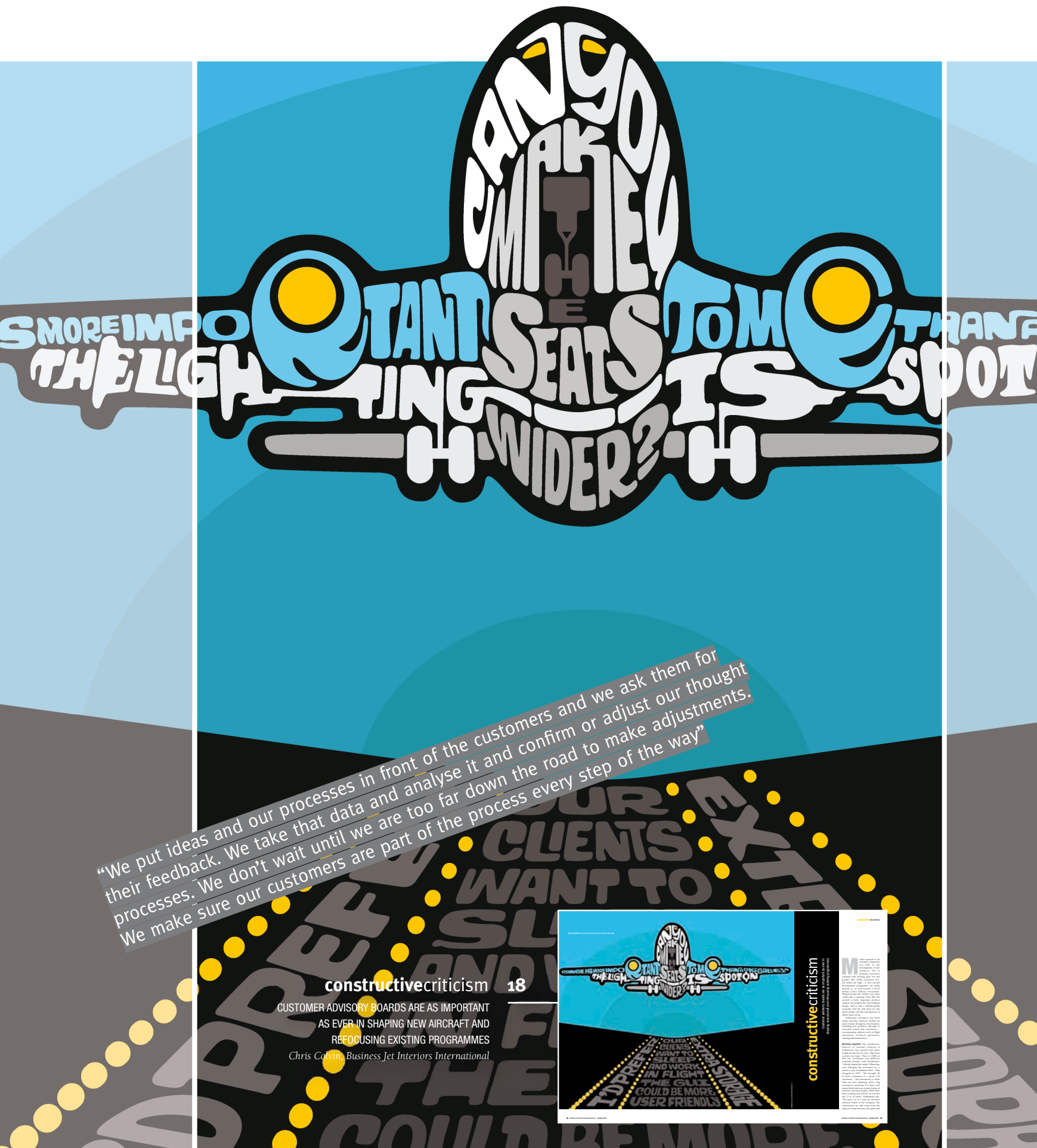
Yet more wisdom is to be shared at the free-to-attend Business Aviation World Conference, an integral part of Business Jet Interiors World Expo and Business Airport World Expo, which will be held simultaneously at London Farnborough Airport in the UK on 19-21 March 2013. In our preview starting on page 56, some of the speakers give a sneak peek of their presentations; while exhibitors reveal the innovations they'll be showcasing. As you can see from the preliminary programme on page 68, the conference will cover everything from the conversion of regional airliners into VIP aircraft to improving operations and management processes, and more speakers are being announced on a weekly basis (for the latest announcements, keep a watchful eye on www.BusinessJetInteriorsWorldExpo.com). It's clear attendees certainly won't leave feeling ill-counselled. See you there!



Izzy Kington, editor



Cover Image:
OscarWilson/debutart.com



We put ideas and our processes in front of the customers and we ask them for their feedback. We take that data and analyse it and confirm or adjust our thought processes. We don't wait until we are too far down the road to make adjustments. We make sure our customers are part of the process every step of the way

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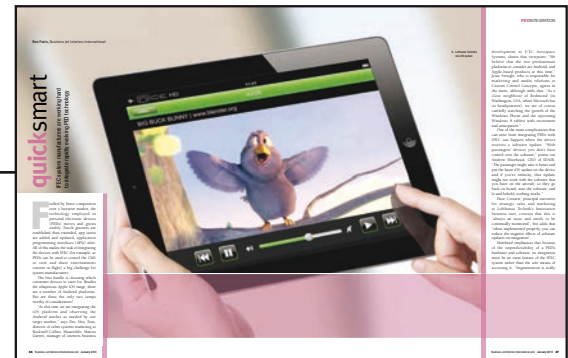
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IFEC SYSTEM MANUFACTURERS ARE WORKING HARD TO INTEGRATE RAPIDLY EVOLVING PED TECHNOLOGY

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Selwyn Parker, Business Jet Interiors International



showpreview

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Izzy Kingston and Helen Norman,
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Cabin sound on the Falcon 2000LXS has been reduced by 2dB



Gulfstream introduces DesignBook interior tool

Gulfstream has unveiled a new interior design tool known as DesignBook, which enables customers to evaluate paint schemes, layouts and interior selections.

"DesignBook brings the Gulfstream showroom experience right to the customer," said Tray Crow, director, Interior Design, Gulfstream. "With the help of our interior design team and this tool, customers can easily visualise and evaluate different elements before making cabin selections. From paint patterns to sidewall selections, DesignBook helps customers make informed decisions about their aircraft's design."

DesignBook is available through Gulfstream's interior designers and completions sales executives. Once customers have narrowed down their choices using DesignBook, Gulfstream can complete a custom rendering of the aircraft interior and exterior. "This gives customers a tremendous degree of flexibility and the potential for countless combinations," said Crow. "By using DesignBook and working with our designers, customers can create a personalised aircraft interior that reflects their particular sense of style, and they'll quickly be able to see what works for their particular cabin configuration."



Dassault unveils Falcon 2000LXS

The Falcon 2000LXS will replace the Falcon 2000LX in 2014, offering better airport performance and payload. Standard features include AirCell Axxess II satcom and FalconCabin HD+ CMS. The latter provides HD viewing on monitors up to 22in, with functions that can be controlled with an iPod Touch or iPhone. Rockwell Collins' Skybox wireless media service option gives access to a 1TB iTunes library, enabling passengers to share TV shows and music wirelessly on demand. Each traveller will be able to access 'digital rights managed' content on up to 10 Apple iOS devices, and stream directly from their devices to cabin displays. There is also an iPad moving map app.

GAL earns Transport Canada AMO certificate

GAL Aviation of St Joseph, Quebec, Canada, has been recognised by Transport Canada as an Approved Maintenance Organization (AMO) following previous accreditations and certifications including AS9100 Rev C and Nadcap (Alodine and anodising anti-corrosion treatments). The new approval allows GAL to perform and certify work on repairs and modifications, on composite and sheet metal structures for business aircraft interiors, both green and in service. The company can also offer complete airframe technical support through its technical services division.

The equivalent European (EASA) certification has been applied for and is in the approval process. GAL expects the EASA approval to be in hand by the end of 2012. A bilateral agreement between US and Canadian aviation authorities automatically gains FAA approval following the AMO certificate.

GAL operates from a 40,000ft² facility, where its main activities involve the manufacture, assembly and refurbishment of aircraft interior components.

Boeing Business Jets to offer BBJ MAX

Boeing has announced its intent to offer the BBJ MAX 8 (based on the 737 MAX 8) and the BBJ MAX 9 (based on the 737 MAX 9). The BBJ MAX 8 will be the first of the BBJ MAX family to use CFM's LEAP-1B engines and the Boeing-developed Advanced Technology winglet. These should improve fuel use by 13%, translating to a 6,325nm range – more than 14% further than today's BBJ 2. The figures are to be validated in final configuration and flight test. The BBJ MAX 8 will have the same cabin as the BBJ 2.

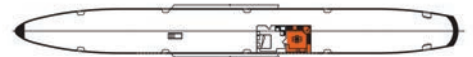
Similar performance improvements are anticipated for the BBJ MAX 9, offering a 6,255nm range with an even larger cabin than the BBJ MAX 8. Plans for a BBJ MAX 7 are being studied.



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Options on the ACJ318 Enhanced include the ability to transform the aft lounge into a cinema

Jet Aviation St Louis signs its first BBJ project

Jet Aviation St Louis of Missouri, USA, is due to induct its first BBJ, owned by Ty Warner, in April 2013, for scheduled maintenance and upgrades. The project includes the installation of Boeing's Enhanced Vision System (EVS) service bulletins for an aircraft in private use.

Jet Aviation St Louis has prepared extensively to accommodate the aircraft, expanding the facility over recent years and training its technicians at Boeing. Jet Aviation also sent St Louis technicians to work at the sister facility in Basel, Switzerland. This cooperative programme began in early 2010 and continues today.

Ty Air's BBJ 700 will undergo its 12-year inspection and gear overhaul. Additionally, the main cabin interior will be removed to facilitate the inspections and be reinstalled.

In other news, Jet Aviation St Louis has developed an iPad and iPhone app that allows clients to select interior and exterior finishes to better visualise options for their cabin and livery. The app contains libraries of fabrics, veneers, carpets and other interior items, along with cabin views of Challenger, Falcon, Global and Gulfstream aircraft. When a component is selected, a library of materials appears. Touching the fabric, wood or carpet applies it to the surface.



Airbus introduces ACJ318 Enhanced

The ACJ318 Enhanced is a new version of the smallest member of Airbus's family of corporate jets. Standard features include domed ceilings, windowshades and LED illumination throughout, and new linings designed for better integration of overhead lights and air supply outlets. There is also a wider choice of seats, HD IFE with Blu-ray player, HDMI interfaces for external equipment and a new passenger information system. Options include Sharklets, a shower in the en suite, moodlighting, iPod and iPad interfaces, wireless local area network, better soundproofing and a humidifier.

HondaJet production under way at lean facility

Production has commenced on the HondaJet light jet. "An assembly line for HondaJet production is in place, major aircraft components including the fuselage and wing have been produced, and we have started assembly of the first customer aircraft," said Michimasa Fujino, president and CEO at Honda Aircraft.

The production facility incorporates lean activities designed to standardise work and eliminate defects. The company has implemented its own production process improvement device, focused on operator work instructions while on the assembly floor. Instructions are presented on a tablet device, allowing technicians to see a graphical interface that is specifically designed to individual tasks.

The facility will also employ an on-site paint mixing system designed to achieve optimum colour while reducing paint thickness in a controlled environment. The company has also implemented an Automatic Guided Cart (AGC), which is designed to pick up and deliver parts to the facility's unique assembly areas.

New Citation Sovereign boasts Clarity CMS

Cessna has boosted the range, updated the technologies and enhanced the capabilities of its Citation Sovereign. New cabin amenities include the integrated Cessna Clarity CMS and improved seat design. Other additions include a new cockpit with Garmin G5000 avionics suite; new Pratt & Whitney PW306D engine; improved short runway performance; improved ground cooling performance; integrated automatic throttles; and winglets. Range has been increased by 150nm to more than 3,000nm.

Line flow has already started on the New Citation Sovereign, and entry into service is expected in the third quarter of 2013. The new Sovereign will also be available with a utility configuration, with options to carry payload, people, or both.



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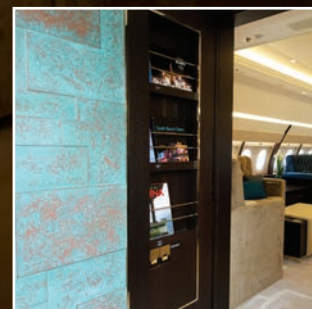
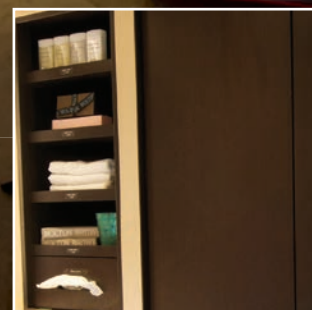
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The founder of Aircraft Interiors Expo, Tony Robinson, is now Executive Chairman and CEO of Aerolux

New 'Interiors Expo' brew at Aerolux

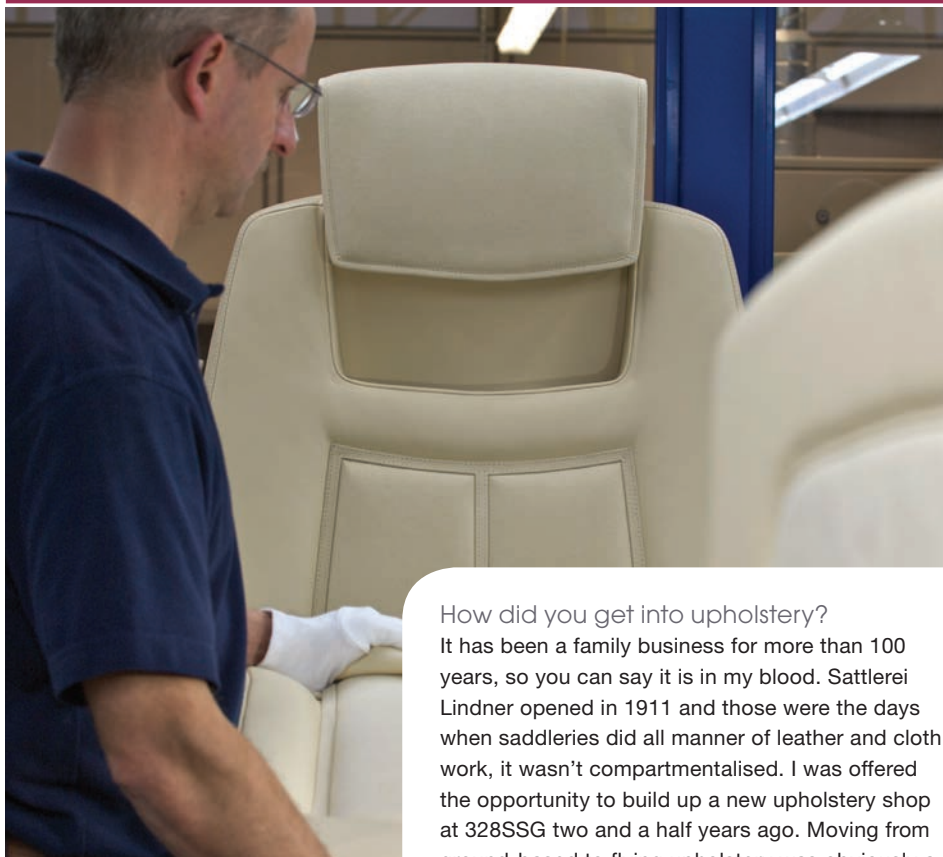
Aerolux, the long-standing expert galley inserts company, based in the UK, is renowned for its Nespresso coffee machines, wine chillers, fridges and speciality products, including rice cookers and skillets. The company is now under new management following the death of the founding owner, Ken Metcalfe, in June 2012. The new team is to be headed up by Tony Robinson (*pictured*), best known as the founder of Aircraft Interiors Expo, who takes on the role of Executive Chairman and CEO. He will be joined by another key member of the original Aircraft Interiors Expo team, Rob Shelton, who spent many years working on the show as one of three international sales coordinators. Shelton has already spent three months familiarising himself with the products and some of the company's long-standing customers, and has a mission to meet all customers over the next 12 months.

Tony Robinson, who has played a passive role on the board of Aerolux for the last three years, said: "Although I remain heavily committed to my role as Chairman and CEO of the global media and exhibitions company that I founded 21 years ago, the excellent team I have there enables me to now devote a significant amount of time to the future business development of Aerolux. The company has many excellent attributes, not least a fantastic commitment to quality and very experienced staff with great skills. It is now time to harness these strengths to move Aerolux forward. We will be unveiling new and improved products in coming months and working closely with customers and key strategic partners to build on what is already a very strong base."

Aerolux continues to operate from its Blackpool headquarters, where much investment has recently gone into new buildings. This is just the start of a long-term growth and investment strategy. Key established staff – including Noel Ellison, Sylvie Abina, Dave Brennan and Peter Robinson – continue alongside the newer appointments.



softskills



Wolfgang Lindner – head of the upholstery shop at 328 Support Services (328SSG) – shares the tricks of the trade

How did you get into upholstery?

It has been a family business for more than 100 years, so you can say it is in my blood. Sattlerei Lindner opened in 1911 and those were the days when saddleries did all manner of leather and cloth work, it wasn't compartmentalised. I was offered the opportunity to build up a new upholstery shop at 328SSG two and a half years ago. Moving from ground-based to flying upholstery was obviously a draw and has been a refreshing challenge.

How does business jet upholstery differ?

The biggest difference is the stringency of safety regulations, which is higher in aviation. For example, one must not use nails or staples, and burn tests are required to prove that all materials and material combinations are not instantly flammable. It is important to test mixed materials because sometimes putting two fireproof materials together creates a different dynamic. There are also air pressure issues to consider and functional requirements, with various grades of material available for certain g forces or rubs per minute.

Are different skills needed for various types of seating and materials?

The skills are the same but there are complications with larger surface areas. For example, one might select a different material for a divan, to prevent creasing, than one would choose for a VIP seat. Some designers avoid all leather to avoid slipping.

One should also consider use and wear. For example, pilot seats must accommodate hard wear and tear; and on charter aircraft the armrest areas are the first to become grubby.

What are your favourite materials?

I like to work with leather because it is a natural product. Each hide is unique with colour changes, different strengths, perhaps natural anomalies that one must consider. This is why there are always surprises and each item brings its own challenges.

Who else do you work with?

We normally work in pairs or in teams of three. A saddler works closely with the designer – from providing material samples to matching a concept with various stitches, or suggesting methods to turn the corners. Here, the saddler might make a suggestion on how to make something work in practice that does not work on paper. Other considerations are how the fabric interacts with passengers. For example, a red wool cloth might rub off on white trousers, or jeans could colour a white leather. We also have a good working relationship with the other interior shops and installation team.

What tools do you use?

We use specialist leather tools such as the half-moon and eel knife, as well as sewing machines, a foam-cutter and leather-splitting machines.

How do you do the material justice?

You have to optimise the cut and use a good template. Looking specifically at leather, you view each hide and choose parts to use based on their quality and what area they will cover. The best and strongest part is the croupon, or back, and you would use this for seat and back areas. Hidden areas would use the poorer parts such as the belly, where you retain the colour but the quality is not so important. The more calves a cow has had, the looser the fibre texture becomes.

What was your most challenging project?

My first aircraft project, with our very exacting designer. We work not just on seats, but on all upholstery – from floor, wall and ceiling coverings to curtains, window blinds and cushions. Team work is vital when working alongside maintenance staff, cabinetmakers, certifying engineers, avionics engineers – there are so many points of interaction when installing an aircraft interior.

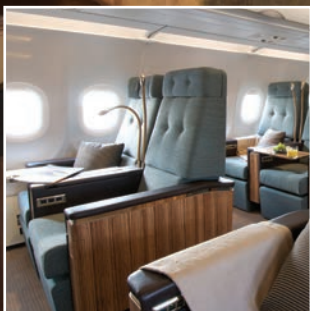
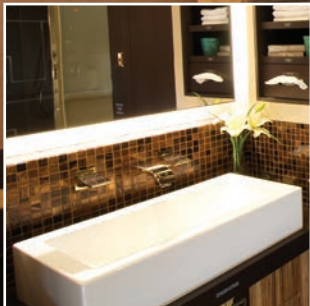


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Brief:

Pierrejean Design Studio was selected by a private customer from the Middle East to design an interior for a green BBJ 747-8. Working from a short brief, the studio first launched a study concerning the floorplan. After a few exchanges, this was decided and the studio began to work on defining the aesthetic. Taking into consideration both the culture of the customer's home region and their wishes, the studio created a refined, masculine and comfortable interior. The Arabic influence is particularly noticeable in the sophisticated materials chosen.

Description:

On the main deck there are three bedrooms, each with its own washroom equipped with shower; lounges including a majlis; a large dining room; and other social areas. The principal and panoramic bedroom is at the front part of the aircraft. On the upper deck are a crew rest, guest seating and a lounge.

A stand-out feature is the windowshade design. The windowshades are intended to provide a protective and sound-proof environment and a deep feeling of light and comfort.

For the dining area, on the owner's request, the studio focused on lighting, devising a large metal chandelier for the ceiling and tall oriental vases that will be lit from inside and set in recesses in the four corners of the room.

Up-to-date IFE and CMS equipment will enable the owner to conduct live teleconferences, while individual touchscreens enable passenger control over seats, light sources, IFE and electrical windowshades.

Material wise, the client opted for cream- and ivory-coloured leather and fabrics, complemented by rosewood with bronze accents. The studio visited various Arabic museums around the world to find inspiration for the patterns that would be applied to the carpet and ceiling lighting.





Verdict:

The studio has made an effort to reduce the completion centre's work (and therefore cut outfitting time and expense) by simplifying the ceiling, lining, bulkheads, galleys and other furniture.

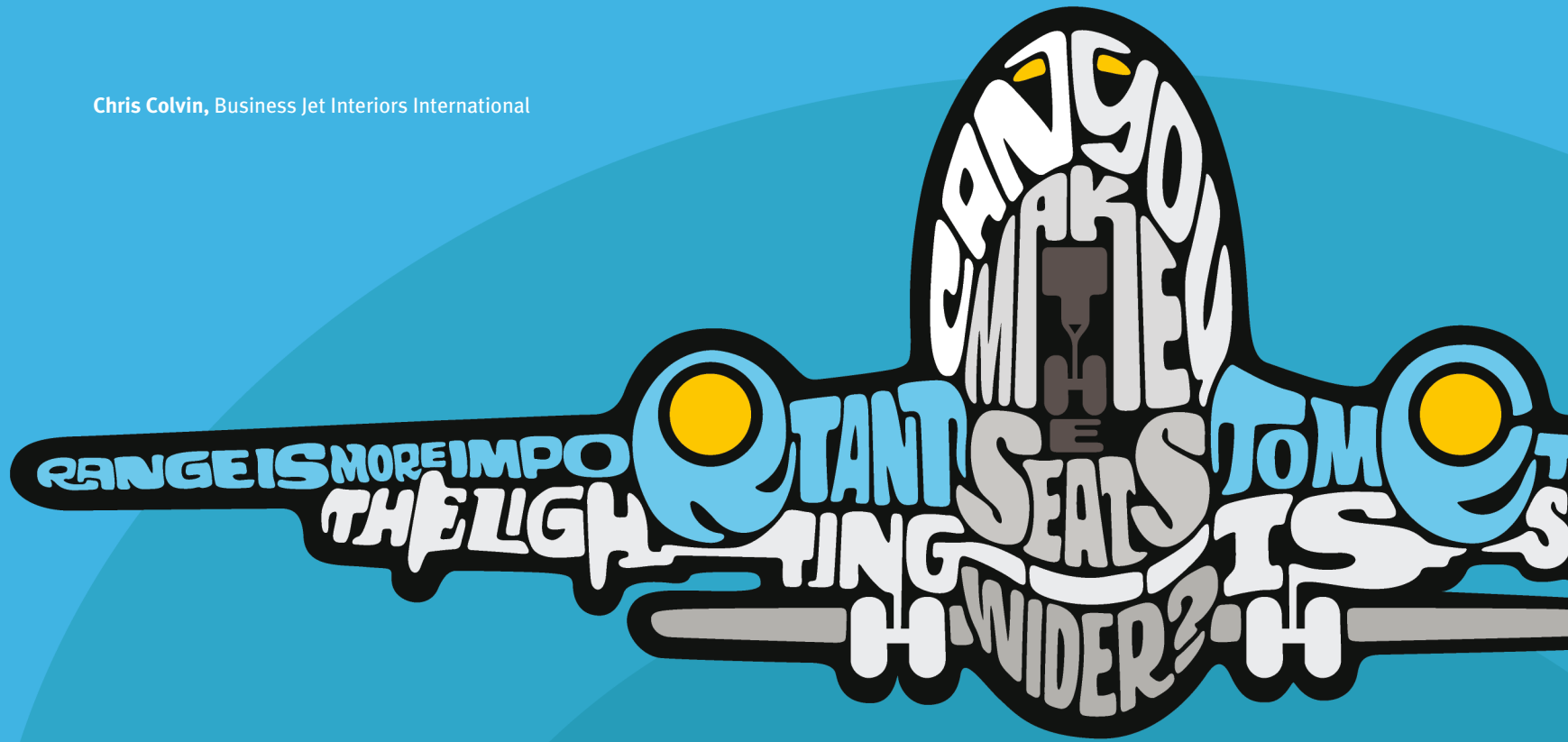
The company has built up 30 years of experience, creating interior designs for Middle Eastern, European and American customers on aircraft including the BBJ 737, BBJ 787-8, BBJ 747-8, ACJ 340, ACJ 330 and ACJ 380. A similar project is under construction now at Lufthansa Technik in Hamburg, Germany.



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Chris Colvin, Business Jet Interiors International



constructive criticism

Customer advisory boards are as important as ever in shaping new aircraft and refocusing existing programmes

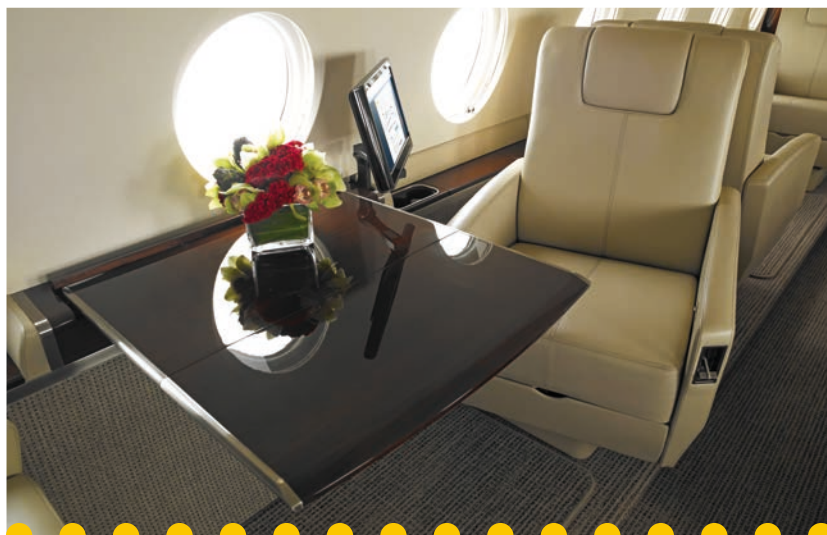
Market research is an essential component not only in the development of new products, but in keeping customers satisfied with existing ones. For the people who build corporate jets, the stakes are high – a new aircraft development programme can easily amount to, or even exceed, a £0.62 billion (US\$1 billion) investment. Misperceiving the market just once could sink a company. Even after the aircraft is built, improper product support can torpedo the most brilliant design. Add to that a skittish global economy and the risk does not get much steeper, nor the consequences of failure more severe.

Gulfstream Aerospace has been using customer advisory boards for years to hone all aspects of its business, including new products, through its customer board and committees – encompassing subjects such as flight operations, technical operations, training and maintenance.

Working together Tim Steinhauser, director of customer relations at Gulfstream, has worked with these boards for the last 25 years. They have evolved over time. “Prior to 1998 we did not coordinate our different customer boards,” says Steinhauser. “Nobody shared the results. When they were bringing the customers in, it wasn’t a very coordinated effort.” That changed in 1997. “We brought all of those customers in – about 150 customers – and announced to them what we were planning, held a big retirement ceremony for them and started fresh with our current format of customer advisory boards, which have been working very well for us over the last 15 to 16 years,” Steinhauser says. “We treat it as if it were an executive advisory board of the company. The information we take away from the advisory board becomes the goals and



1



2

1. The stage is set for a 2012 Gulfstream customer advisory board meeting in Savannah, Georgia, USA
2. One of the newest Gulfstream models – the G280

executives well grounded in the priorities of the customers,” he says.

Keeping it fresh Board terms are for three years and they are staggered so that approximately one-third of the board is replaced annually. Incoming members are mentored by an existing one – an idea that itself came from an exiting member.

“About four years ago a customer said, ‘It took me about my first year to understand exactly what my role was here,’ so we started a mentorship programme,” says Steinhauser. “We have found that it jumpstarts the customer into feeling that they are part of the team and they are not wasting that first year. These are the kind of ideas that help us understand the value of customer involvement.” Mentors greet new members, show them around, introduce them to company executives and sit with them on the same committees.

Embraer’s approach to advisory boards is a little different, according to Claudio Camelier, vice president of marketing for Embraer Executive Jets. “Board members are not required to be a customer,” he says. “We try and mix

objectives of our company. It plays a very critical role.”

Gulfstream’s senior management engages directly with these boards. “On the opening day (of a customer advisory board meeting) president Larry Flynn and the rest of our leadership team are sitting in the front row,” Steinhauser observes. Mark Burns, Gulfstream’s president of product support, chairs the board.

Today, in the aggregate, Gulfstream’s customer advisory boards are led by senior company executives and comprised of 100 customers of the company’s mid-size and large jets, including heritage models that date all the way back to the GII, a model produced in the 1960s and 1970s. Members include flight department

managers, chief pilots, maintenance directors and flight attendants. “They are the folks responsible for knowing the technology trends and the aviation issues in their companies, so they bring up a lot of great information,” comments Steinhauser. “We want to hear what they have to say and what they have seen. They bring a lot to the table for us.”

The boards meet twice a year for three days at Gulfstream’s headquarters in Savannah, Georgia, USA. Between meetings, various board committees conduct conference calls to review action items at regular intervals. Steinhauser estimates that these calls consume another six to eight hours per year. “The discussion can get down to the nitty-gritty and it keeps our

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“THE EARLY IDEAS FOR THE LEGACY 650 CAME OUT OF A BOARD WE DID FOR THE LEGACY 600”

customers and non-customers so we have a more diversified membership. It is a joint effort between us and our sales representatives. We try and identify candidates – people who are knowledgeable about the particular market segment we want to discuss. It is not our main objective to convert board members to customers. Our primary goal is to have them help us make the best aircraft out there. We look for people who will not respond for themselves, but for the industry. We

3-4. Embraer's Legacy 650, which was greatly influenced by advisory boards



3



4

What are the OEMs working on now?

Airbus Corporate Jets: The ACJ318 Enhanced, a new version of the ACJ318, was announced at NBAA 2012. It is available to order now.

Boeing Business Jets: Plans to offer the enhanced-range BBJ MAX 8 (based on the 737 MAX 8) and the BBJ MAX 9 (based on the 737 MAX 9) were made public at NBAA 2012. The possibility of a BBJ MAX 7 is “being studied”. The first BBJ 787 should arrive at its completion centre in 2013 and the first BBJ 747 is expected to emerge from cabin completion in 2014.

Bombardier: 2013 is Learjet’s 50th anniversary, and it will be a busy year with the 70, 75 and 85 due to make their entrance. The Global 7000 and 8000 are expected later, in 2016 and 2017 respectively.

Cessna: An enhanced version of the Citation Sovereign (unveiled at NBAA 2012) is targeting service entry in the early third quarter of 2013. But before that, expect the single-engine piston Corvalis TTX imminently, and the light Citation M2 in the second half of 2013. The Citation Latitude and the Citation Longitude are due to enter service in 2015 and 2017 respectively.

Dassault Falcon: Next up is the Falcon 2000S, the first deliveries of which should begin in early 2013. The newly announced Falcon 2000LXS, a replacement for the Falcon 2000LX, should follow in 2014.

Embraer: A mock-up of the mid-light Legacy 450 made its public debut at NBAA 2012. Its bigger sibling, the mid-size Legacy 500, should enter service in 2014.

Gulfstream: Both the G650 and the G280 earned FAA type certificates in September 2012, paving the way for the first customer deliveries before the end of 2012.

want operators to share their personal experiences, but we are not looking for people who will give us their specific point of view, but rather what they believe other operators would need or require on a new aircraft.”

Like Gulfstream, Embraer has been using customer boards for many years. “We built on the processes we had in place for our commercial jets division,” says Camelier. However, its boards do not have fixed terms and meetings are more ad hoc.

“Members do not have specific terms,” explains Camelier. “We have meetings more frequently during the early stages of the development of an aircraft, particularly when the aircraft is still in the conceptual design phase – when we are defining the basic characteristics of the aircraft – and then we do some more specific advisory boards; we call them man-machine interface meetings.”

Camelier says the development of a new aircraft at Embraer typically takes four to five years, but the key conceptual and the detailed design phase only lasts for around two of those years. “During that period the boards meet once or twice a year,” he adds. “Then the frequency reduces, but we do keep members apprised of how those programmes are progressing.”

Embraer’s first corporate aircraft advisory board reviewed the company’s plans for the Legacy 600. “Customer advisory boards are something Embraer has been doing for a long time – from

the development of the (commercial) ERJ 145 to the E-Jets. For the executive jet side of the house, we started in early 2000 to discuss the Legacy 600 and what would come after it,” Camelier recalls. “The early ideas for the Legacy 650 came out of an advisory board we did for the Legacy 600. We had a meeting with existing operators of the 600 and we started discussing the evolution of the product with them, and what kinds of modification we should include. Those recommendations became the basis of the Legacy 650.”

Gulfstream starts gathering board reaction to a new product five to six years before its launch. “We do initial feedback sessions with the customers,” says Steinhauser. “As soon as we start to formulate the direction of a new product we get the customers involved to make sure we are making a product they will support and invest in.”

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"WHAT ASSISTS US MOST IS CONFIRMING OUR DIRECTION AND USING CUSTOMER INPUT TO LEVERAGE WITH OUR SUPPLIERS"

5. Gulfstream's G450 with Elite interior
6. Embraer's Legacy 650

Gulfstream shows board members interior and cockpit mock-ups and demonstrates components at its integration test facility. "We involve our customers in the review of all of that and how those components work together," says Steinhauser. Gulfstream also uses the latest opinion sampling technology. "We have an audience response system with remotes that asks questions and displays up to ten possible answers," says Steinhauser. "We put ideas and our processes in front of the customers and we ask them for their feedback. We take that data and analyse it and confirm or adjust our thought processes. We don't wait



Name games

Many marketing experts would disagree with Shakespeare's Juliet, who famously opined, "What's in a name? That which we call a rose by any other name would smell as sweet". In this day and age, a name is deemed important enough that several OEMs have changed the title of their latest baby after it has been announced – often influenced by customer reaction.

Most recently, in October 2012, Cessna announced that it would retain the 'Citation X' moniker for the next-generation aircraft that was previously designated 'Citation TEN' – citing public demand. "We've implemented customer input with various designs, we value customer feedback with services, and we also listen to the customer when it comes to guidance with naming our aircraft," said Roxanne Bernstein, senior vice president of marketing at Cessna, who added that customers "value the original name".

Similarly, in July 2011, Gulfstream renamed the super-mid-size G250 as the G280, prompted by "the company's sensitivity to the varied cultures of its international customer base". That is, the number '250' is slang for 'a stupid person' in Mandarin. "Since introducing the G250 in 2008 and presenting it to customers around the world, we determined that G280 is a more amenable number sequence in certain cultures," said Larry Flynn, senior vice president, marketing and sales, Gulfstream.

until we are too far down the road to make adjustments. We make sure our customers are part of the process every step of the way."

Show and tell Embraer makes similar adjustments. Camelier recalls changes made to the interior of the Legacy 500 – which is scheduled to begin flight testing later in 2012 – after advisory board members got a view of the mock-up, which then featured retro bucket seats. "Our early presentations had a different type of design for our seats in the cabin," says Camelier. "These have evolved considerably because of the advice we received from our advisors. A lot of that change is driven by feedback from our advisors."

Besides providing valuable input for the company's products and services, Gulfstream's Steinhauser says advisory boards convey an important benefit to its members. "Customers develop great relationships with middle management

and the leadership at Gulfstream," he says. "These contacts help when it comes time to know who to call to support their fleet."

Gulfstream also uses customer data with its suppliers, who periodically attend advisory board meetings. "All aspects of Gulfstream's current and future offering are adjusted to the feedback we receive from our customers. What assists us most is confirming our direction and using customer input to leverage with our suppliers. We bring them (suppliers) in for programme action updates and our customers are very engaged," says Steinhauser. "I think our customers will tell you that there is great value in the board. Customers know they have a role and take great pride in helping us direct our company." **END**

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dreamteam

Experts from the worlds of design, manufacturing, certification, installation and maintenance dissect the business jet seat to illustrate how its design can be perfected



Andrew Fulford, design operations manager, industrial design department – new product development, Gulfstream

Key challenges

The complexity of seat configurations is one of several challenges in seat design. We have to design power and manual single seats in a variety of widths, as well as double seats and a crew rest seat. And most of those have to be both forward- and aft-facing. The challenge is to find commonality within the component set.

Comfort is another challenge, because it's so important to our customers. We have to design seats that meet the needs of a wide range of occupants, from short to tall. With the G650 seat, we included a six-way seat pan adjustment. This addition best fits most people and allows the occupant to drop the nose of the seat for dining or raise the seat if you are facing aft.

We also make sure we meet varied tastes aesthetically. We offer our customers seats that differ in appearance because everyone has a different sense of style and taste. The base frame and arms are the same to keep comfort factors intact.

Making the seat look like a piece of furniture while designing around the 16g testing requirements poses another challenge. Our success with the G650 seat is the result of the solid interaction between the supplier and the studio.

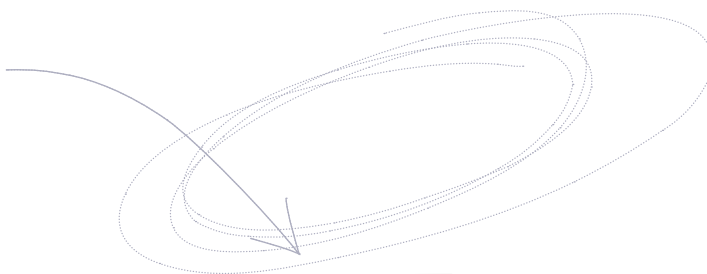
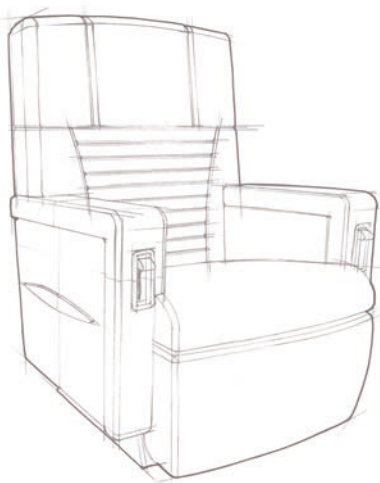
User expectations

For a manual seat, our customers are asking for the following as standard: the ability to fold flat, leg rests, flex-wing headrests, seat pan adjustment, power release for track and swivel, mechanical lumbar and in-seat storage. For a powered seat, our customers want memory settings for sleeping and favourite positions, power leg rests, flex-wing headrests, power release for track and swivel, mechanical lumbar, heated cushion and backrest, massage and in-seat storage as standard. For the G650, we provide two power seats as standard and all single seats have a 12in HD monitor.

Predictions

In the future we expect our customer requests to be based around the features found within their cars. We currently have a heated seat, but we could have a heated and cooled seat. This would then include a suspension fabric. An articulating leg rest extension would be something to consider. Lighter weight seating foam technology that passes the burn requirements would be an enabler for adding content. The main focus of our design activity will first and foremost focus on passenger comfort. A lightweight composite frame may really change the way we can design.





From design to reality

There are many considerations when attempting to convert a design into an actual seat that will provide both maximum visual appeal and the utmost comfort. We begin with a standard aluminium structure, for which we must determine if the shape of the seat fits. To accomplish this, Jet Aviation employs CATIA V5, which enables dynamic 3D modelling of every part (that is, it enables digital prototyping) to help eliminate common production and installation problems during the computer-engineering phase. CATIA works with Smarteam, which manages all the mechanical data, drawings and reports and protects the data. The designer can then review the seat's progress concurrently with the engineering department throughout the development phase.

While comfort is one of the most important aspects, engineering it into a seat is more of an art-form than an exact science. Jet Aviation has developed a proprietary combination of foams that provide a high level of comfort and are applicable to all seat designs. We also work closely with the customer, designers and our highly skilled craftsmen to ensure the comfort of each seat.

Jet seats typically swivel, track and recline, so another challenge is the

integration of the seat into the cabin environment. Thus, during the upfront phase of the project, Jet Aviation evaluates the kinematics of the design. This is complicated by the need to adhere to cabin safety certification requirements (such as minimum passageway distances, access to emergency exits, oxygen box locations and head impact distance) while preventing potential clashes. Ergonomics must also be considered when including deployable tables and monitors, emergency equipment, headrests, audio/video switches, trays and ashtrays.

Jet Aviation's engineering team then concerns itself with issues of flammability and other certification requirements. In particular, we select and test composite materials as well as the constructed whole, to meet all flammability requisites. We also define the weight and geometry of cushions to support certification while maintaining design requirements. This requires close cooperation with the designer and seat supplier to develop compliant methods for seat assembly and integration.

The future

Future business jet seats will likely be influenced by new composite methods, advanced software and manufacturing techniques, allowing greater design flexibility and lighter weight.

Scott Prieb, chief engineer, completions, and **Laurent Buhler**, mechanical engineer, Jet Aviation Basel



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Andrew Loew, interior
manager at Comlux America

Maintenance observations

Gathered or wrinkled styles could cause leather to wear much quicker and for the desired look to fade after time. Pull lines – especially deep ones – can make the upholstery look bad after time, and may trap debris in the seat, making it difficult to clean and maintain. Welt cording/piping on portions of the seat tends to get damaged quicker, due to ease of abrasion.

Very light-coloured fabrics and leathers tend to absorb dirt and stains and take away from the VIP quality look desired for the years to come.

Eliminating the flex-wing headrest could also help preserve the long-term look of the seat. Flex-wing headrests for business jets seats tend to loosen up continually and after use and time they may not line up with the backrest.

The armrest, leg rest and bottom cushions of the seats are the parts that need replacing or repairing most often. The armrest and leg rest are susceptible to high traffic and the bottom cushions are more susceptible to spills, gouges and other types of damage. Over time the seat cables can wear or require adjusting, repair or replacement to keep the seat functioning properly. The Hydroloks (for

recline) and the footrest functions will need replacing eventually.

Tips for care

If seats are properly cared for, the upholstery can look great for many years to come, even possibly a decade. Make sure you have the manufacturing maintenance manual for the seats, along with basic spare parts (such as cables and Hydroloks) in case the seat functions must be adjusted or repaired.

If the seat is upholstered with leather you need to periodically apply a good leather cleaner/conditioner (preferably one the leather manufacturer suggests or sells) to keep the leather from becoming brittle and cracking, and help to keep it soft and easier to clean and maintain.

Keeping the seat protected by covers, at all times when it is not being used, will protect it from the elements and lengthen the life of the seat.

If the seat is upholstered with light-coloured fabrics, a Scotchgard treatment or similar fabric protection treatment is suggested and if it gets stained or damaged attend to it as soon as you can; this will help increase the chance of removing the stain.





Mark Hulan,
business development,
UTC Aerospace Systems

Design factors

The first challenge is the certification aspect, as most business jets now require dynamically certified seats that will comply with 16g loads or higher. This also includes all the safety requirements for the passenger. UTC Aerospace overcomes this by applying over 25 years' worth of design, testing data and experience.

The second challenge is creating a seat that is comfortable – always a subjective aspect – for a variety of passenger sizes. With our latest seat (Nexus) we achieved comfort by first listening to our customers. We followed this with the latest technology in pressure mapping, and accumulated data and research in overall passenger size and weight.

The last challenge is to create a seat that will fit in a wide variety of aircraft, with the ability to adapt to existing seat tracks. Again, this was achieved through the application of years of engineering data and experience. The Nexus seat has the flexibility to accommodate seat track widths from 12in to 20.75in and anything in-between. The seat also has the adaptability to locate the centre of the seat within those tracks, giving more flexibility in the location it can be installed.

Standard features

Many of the standard options and features that are expected in seats of this type are adjustable flex-wing headrests, recliner-style leg rests, IFE and PCU controls. Standard options for the future could include iPod or iPhone docking, as well as iPad controls for the seats and IFE – all of which are available now, but not as standard.

Ways forward

There are many new design and styling concepts out there by a number of great interior designers, which need to be first considered.

We would like to see a simplified but elegant design with a modern look and feel. A completely new design would need careful consideration, as many classic designs have lasted the test of time, and something new would also need to do the same. Creating the visually appealing but comfortable seat is always the goal, but the certification and safety aspect remains the top priority.



Certification requirements

Seat manufacturers conduct tests and perform analyses to demonstrate to the FAA that the seats comply with the requirements. Seats are normally approved separately from the aircraft using technical standard order (TSO) C127, which provides a set of performance standards. The FAA issues a design and production approval for the seat when it meets the performance standards. An installation approval is then required for installation in an aircraft. Seat certification requirements have three primary focus areas: occupant protection (title 14, Code of Federal Regulations (14 CFR) sections 25.561, 25.562 and 25.785), flammability of materials (section 25.853 and appendix F) and emergency egress (sections 25.803, 25.813 and 25.815).

The same loading conditions apply to seats installed in any orientation. However, in the case of side-facing seats, there are additional occupant injury considerations for the neck, ribs and legs that are not covered by the regulations themselves. We address side-facing seats with regulations called special conditions for these new and novel designs. For pilot seats, we require shoulder harnesses with single-point release. Testing for emergency landings is done with a 170 lb (average weight) anthropomorphic test dummy. Validating the seat structure using the 170 lb dummy protects the widest range of occupants. Seats

optimised for high or low weight extremes would be either too stiff to absorb energy for lighter occupants or too flexible to provide protection for heavier passengers. A wide range (5th percentile female to 95th percentile male) of occupant heights is evaluated for head impact protection.

The future

We do not envision any major changes to the requirements. Possible improvements in analytical modelling may allow greater use of that technique, which should help to improve safety through better-optimised design while reducing certification costs. The FAA continues to work with aircraft manufacturers, seat manufacturers and airlines to improve the overall design to better accommodate passengers on transport aircraft. As always, the FAA will explore new technology and analysis methods with the aircraft industry to best meet the safety needs of the flying public.

Spokesperson from **the FAA**

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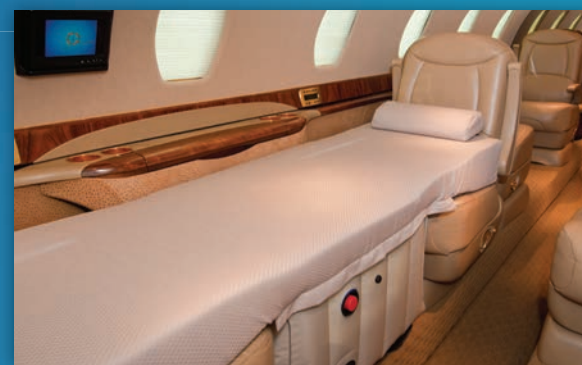
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Laurenz Schaffer,
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Design challenges

A key challenge is to stay true to the technical and cost limitations and at the same time create a unique travel experience. Secondly, business jet seats need to fit with different cultures, and with that, fit to very different needs, uses and behaviours. Thirdly, design acts as a messenger for a brand. The flair and flavour that the seat exudes and the substance that the product delivers need to represent the values of the brand authentically. Generous recline and comfort features, along with variability of seats in relation to each other, are common features expected as standard now.

Fresh thinking

In the future we will be thinking of more advanced themes around technology integration that supports comfort, experience and infotainment. We are currently looking at intelligent materials with new properties – fabrics that allow the integration of wires and switches; seat materials that support climate control and

ventilation; and materials that provide weight reduction and at the same time allow us to visually translate this into a design theme of perceived lightness. In addition, we are exploring materials that express newness and luxury.

Starting afresh means questioning not only the seat, but also the surrounding area and how the seat is embedded. Having said that, we would look into how we can redefine the current understanding of how seating is integrated into the complete cabin environment, with all aspects geared towards enhancing the customer's journey.

One of our current projects intends to break ground with seating. It involves a team of various disciplines working very closely as one – outside of the established development routines – to come up with new ideas. The team started by considering what affects innovation in seating design, beginning with customer insights. We are working hand in hand with capable engineers to provide solutions that can be prototyped and tested to meet requirements and to set new standards at the same time. But, ultimately, the nucleus for a great seat solution is a strong vision shared by us and our client – as was the case with the seat pictured, designed with Iacocca HF.



Peter Tennent,
director, factorydesign

Design considerations

Weight, space, weight, comfort, weight, certification, weight, effectively communicating brand values, and, oh, weight. Often, too, the table is problematic, as the designer has to juggle the need for the table to be robust, stable and as big as possible when deployed against the need for it to be invisible, light and not detrimental to comfort when stowed. Above all, battle lines are drawn between the amount of space given to passengers and the number of seats in a cabin, that is, passenger experience versus revenue.

There is rarely a magic bullet to overcome these challenges. We apply a blend of creativity, a thorough knowledge of the constraints in an aircraft and an empathy with the passenger and their requirements. Creativity, innovation, new ideas – whatever you call it – comes from a wilful determination to question why things are the way they are and challenge current products and solutions; knowledge of the complexities of working on an aircraft comes from our long experience of work in aviation; and empathy with the passenger stems from research, common sense and personal experience.



Lessons from the airline sector

Both the commercial cabin and business jet cabin have their own particular requirements and constraints, so lessons learned in each are valuable to the other. Currently it seems there is more determination in the commercial world to innovate, probably driven by fierce competition and the need to be different, better, unique. Through necessity, commercial seat design makes better use of composite materials and has become very sophisticated in the way technology is integrated.

Clean sheet

If we were to start afresh, we would be more modern, use new materials to maximise space and layout and create a business jet aesthetic, rather than the domestic armchair in the sky.

Variations in certification

Newer aircraft are dynamically certified, meaning their seating systems must meet the newer regulations. The complete seating system includes the frame, restraints, foam cushions and dress cover. The complete seating system must be tested and approved to meet the FAA requirements. This testing is typically done during the type certificate (TC) phase. When customers request that Duncan Aviation refoam and/or reupholster dynamic seats, we must ensure that we are maintaining all aspects of the seat system's approval basis.

The requirements vary depending on the seat's location. The certification requirements for forward- and aft-facing seats are generally the same, but for side-facing seats and divans the requirements are different. The FAA is developing newer testing requirements for these types of seats, to improve occupant safety.

The length of time required to complete seat certification varies, depending on the type of seating system and the aircraft make. As a delegated authority (ODA), Duncan Aviation can greatly expedite the certification process, as company representatives handle most aspects of the approval with very limited direct FAA involvement. Duncan Aviation has certified several different seating systems into multiple aircraft makes.

Ramifications for refurb

The certification requirements haven't really changed in the last few years. What has changed is that the dynamically certified aircraft are now requiring refurbishment. Dynamically certified aircraft provide a higher level of occupant safety, which should always be the first priority. However, these requirements do pose challenges (or opportunities as we like to refer to them here!) for the refurbishment business. The opportunity in this case is figuring out how to maintain safety and compliance while offering the desired look and feel.

As well as refurbishing more existing seating systems, we will also see requests to configure aircraft with newer, improved seating systems, as well as with updated floorplans. These will all require innovative thinking and thorough understanding of the certification process and requirements. As always, we believe anything is possible.



Lyle Schueth,
certification coordinator
at Duncan Aviation



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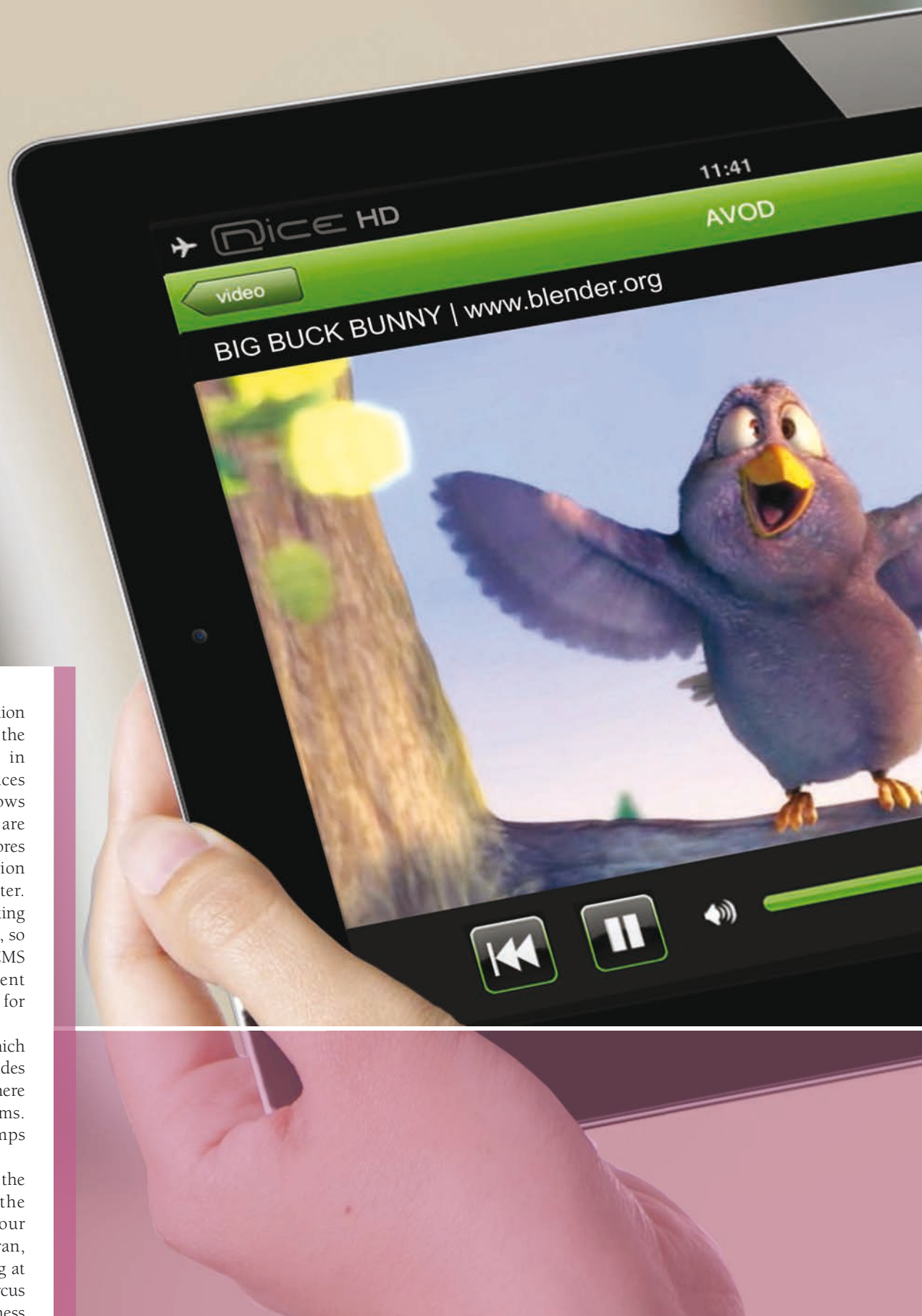
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IFEC system manufacturers are working hard to integrate rapidly evolving PED technology

Fuelled by fierce competition over a lucrative market, the technology employed in personal electronic devices (PEDs) moves and grows swiftly. Touch gestures are established then extended, app stores are added and updated, application programming interfaces (APIs) alter. All of this makes the task of integrating the devices with IFEC (for example, so PEDs can be used to control the CMS or view and share entertainment content in flight) a big challenge for system manufacturers.

The first hurdle is choosing which consumer devices to cater for. Besides the ubiquitous Apple iOS range, there are a number of Android platforms. But are these the only two camps worthy of consideration?

"At this time we are integrating the iOS platform and observing the Android market as needed by our target market," says Duc Huy Tran, director of cabin systems marketing at Rockwell Collins. Meanwhile, Marcus Garrett, manager of interiors business



1. Lufthansa Technik's nice HD system



development at UTC Aerospace Systems, shares that viewpoint: "We believe that the two predominant platforms to consider are Android- and Apple-based products at this time." Jesse Swingle, who is responsible for marketing and media relations at Custom Control Concepts, agrees in the main, although adds that: "As a close neighbour of Redmond (in Washington, USA, where Microsoft has its headquarters), we are of course carefully watching the growth of the Windows Phone and the upcoming Windows 8 tablets with excitement and anticipation."

One of the main complications that can arise from integrating PEDs with IFEC can happen when the device receives a software update. "With passengers' devices you don't have control over the software," points out Andrew Muirhead, CEO of IDAIR. "The passenger might take it home and put the latest iOS update on the device and if you're unlucky, that update might not work with the software that you have on the aircraft; so they go back on board, start the software, and lo and behold, nothing works."

Dave Crossett, principal executive for strategic sales and marketing at Lufthansa Technik's Innovation business unit, concurs that this is "always an issue and needs to be continually monitored", but adds that "when implemented properly, you can reduce the negative effects of software updates on integration".

Muirhead emphasises that because of the unpredictability of a PED's hardware and software, its integration must be an extra feature of the IFEC system rather than the sole means of accessing it. "Augmentation is really



3



4

2



2. Flight Display Systems' moving map for iPad
3. Lufthansa Technik's nice HD can be controlled wirelessly via iPhone, iPod touch and iPad
- 4-5. Custom Control Concepts' iPlane for Spectrum app

the way that we're heading," he says. "Imagine if you ripped out all of the light switches in your home and decided that you would change to iPad control, then one day you're not going to have the iPad and the house is going to be dark! That's why we're very much pushing the augmentation model, because we think PEDs are great devices to add a layer of interaction with, but there is certain basic infrastructure that it is smart to have on the aircraft anyway."

Crossett echoes this point. "It's not only hardware and software that cause concerns, there are also feature changes in these devices that can cause

There's an app for that

Suppliers are looking beyond established passenger requests and leveraging the power of PED apps to provide unique selling points. "Our new Spectrum lighting system includes integration into the existing iPlane app," says Jesse Swingle of Custom Control Concepts. "With iPlane for Spectrum, customers can import a photo and have our software automatically set the mood of their cabin based on the colours and lighting in the photo."

5



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“TO PROVIDE LEGAL CONTENT YOU’VE GOT TO MAKE SURE THAT IT’S PROTECTED END TO END”

headaches,” he comments. “We are convinced that Innovation should only supplement or augment our CMS/IFE solutions with popular consumer technology. Personal devices can and should enhance the IFEC experience, but a successful implementation cannot rely on these devices in the long term. It is therefore essential that you develop a system/network that accommodates newly developed technologies to allow continual integration. That’s why, since 2003, we have built our system around Ethernet distribution – I don’t know of a new device that has been developed without internet/Ethernet interface support.”

Lightning strikes Software isn’t the only element susceptible to change. Apple’s new iPhone 5 has a ‘Lightning’ connector that features both a smaller form factor and differing functions. To connect the iPhone 5 to an aircraft docking station designed for the old 30-pin connector, passengers will have to use an adaptor. Even then, not all functions will be available, as the

Lightning connector currently doesn’t support video output. Passengers may also find their device no longer fits neatly into their aircraft docking station with the connector attached.

“We have always sought out interface solutions that were easily changed or modular and have had some success reducing these problems, but it is a real issue that will not go away and one cannot completely guarantee that there will not be problems,” says Crossett.

Invariably, IFEC manufacturers will always be behind the curve in this respect, but Custom Control Concepts’ Swingle believes in-house production is a very useful arrow in its quiver: “Our in-house 3D printing technology has permitted our engineering staff to create lightweight, stylish and ultimately compatible parts, without looking to costly, poorly fitting adapters for new technologies.”

On the other hand, Rockwell Collins argues that just because a new connector is introduced on a popular PED, it doesn’t mean IFEC companies



6. An IDAIR CMS
7. An iPad dock from Custom Control Concepts

should rush to produce hardware for it. “At this time, Rockwell Collins does not offer a solution for a dock connection to the iPhone 5, because it does not support a video signal,” says Tran. “Rockwell Collins does offer a wireless video solution. Hardware changes, at times, limit the capabilities that the customer expects. Each CMS solution is configured based on the needs of the customer, which we would evaluate if hardware changes were impacted. Depending on what the customer requires, Rockwell Collins may have an alternate solution.”

Right and proper Assuming PEDs can be connected and integrated with the onboard system, the elephant in the room is then the issue of digital rights management (DRM). “It’s very important, particularly with wireless systems, because to provide legal content you’ve got to make sure that that content is protected end to end,” says IDAIR’s Muirhead.

So how can passengers legally stream content to their PEDs from onboard IFEC? While the technology to do so is proven and available, the roadblock has been the reluctance of content producers to allow their content to be streamed. “There are still real issues with content owners and copyright protection,” says Lufthansa Technik’s Crossett. “We have always developed within the established rules, supporting encryption and accepted DRM frameworks on our network. We continue to work with our joint venture partner, Panasonic – which supplies protected content and content services to airlines around the globe – to develop a complete hardware, software and content solution. A solution may not be far away.”

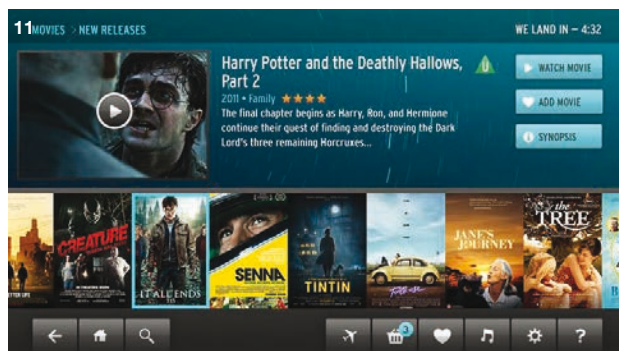




8. The DRM-compatible Skybox system from Rockwell Collins
- 9-10. A PED docking station and graphical touch-sensitive panel from UTC Aerospace Systems
11. Reactive's GUI for the AURA system

Finding favour

It isn't just IFEC hardware that is being shaped by the current crop of consumer PEDs, it's the graphical user interfaces (GUIs) themselves. "As consumers become more familiar with these devices in their everyday life, they expect all of their touchscreen interactions to be of this level of quality and responsiveness, including IFE," says Bradley Grinlinton, managing director for the UK at digital agency Reactive. "From a user experience perspective, this is manifesting itself in things like great use of icons and paging design metaphors, such as that used in both iOS and Android, in place of the more traditional carousel-based navigation. We're also seeing design being more of a showcase for content rather than about the design of the interface itself. This is in line with devices such as Apple TV and Google Nexus 7. This is an area where IFE systems will be able to compete with users' personal devices as they have access to great content!"



Garrett meanwhile, explains that UTC Aerospace Systems understands that wireless streaming DRM-based solutions are a touchy subject, and reveals the company is exploring its development options. "Granted, there are technologies available, each has its own limitations and we are pursuing a clean and flexible solution that makes the most sense for our customers," he says. "As time moves on, content will be updated and replaced. This will be DRM content, including electronic DRM content, that will require providers to meet the market demand."

DRM-compatible systems are forthcoming, however. At NBAA 2012, Rockwell Collins unveiled a solution that addresses DRM, proclaiming it the first to stream Hollywood-protected

content on demand. "Skybox brings the full Apple experience to life on business jets," says Tran. "Passengers can take full advantage of an onboard, large 1TB Apple iTunes library to share movies, TV shows and music wirelessly and on demand." The solution can stream content both to the onboard screens and up to 10 iOS devices. The first OEM convert is Dassault – which will include Skybox on new Falcons equipped with FalconCabin HD+, which currently includes the Falcon 7X, Falcon 900LX and Falcon 2000LX+. "Skybox makes it possible for our customers to pick up from where they left off at home or the office when they step on board an aircraft," says Dave Austin, vice president and general manager for cabin systems at Rockwell Collins.

And to ensure this continuity of service continues, IFEC manufacturers will have to pay very close attention to a fast-moving world. **END**

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1. The recently completed Global 6000 designed by Alberto Pinto



hautecouture

When a member of the French fashion elite wants a new VIP jet, the pressure is on to design something truly special – and Alberto Pinto's latest Global 6000 doesn't disappoint

He's like the leader of luxury worldwide," says Yves Pickardt, Alberto Pinto International Interior Design's aircraft interiors project manager, with reference to one of the company's most recent high-profile clients. He doesn't say any more for contractual reasons, but think of a man at the helm of a European luxury fashion group.

Clearly, expectations from such a client are going to be sky high, but perhaps surprisingly, the studio was in fact given great freedom. "We were totally free to design according to our feelings, ideas and taste," says Pickardt. "He relied on us to bring good ideas; there were no guidelines. In reality, 90% of aircraft look the same – the same carpets and beige interiors – or if it is different, it's often filled with science fiction – kitschy and ultra-modern things. That, we do not do. We try to stay in a soft, classical and modern design."

That this project – a Bombardier Global 6000 – is the second aircraft commission for Alberto Pinto by this client no doubt helped with trust. "We made some 3D renderings and brought material samples," recalls the project manager. "There were only two meetings, one at the very beginning and one to approve the project. He liked it and that was it; very simple."

The aircraft is a replacement for one the client has had for four years – the change wanted apparently because he likes to keep his jets fresh but also because the old one didn't match his changing needs in terms of business technology – he wanted upgraded internet, phone and live TV services.

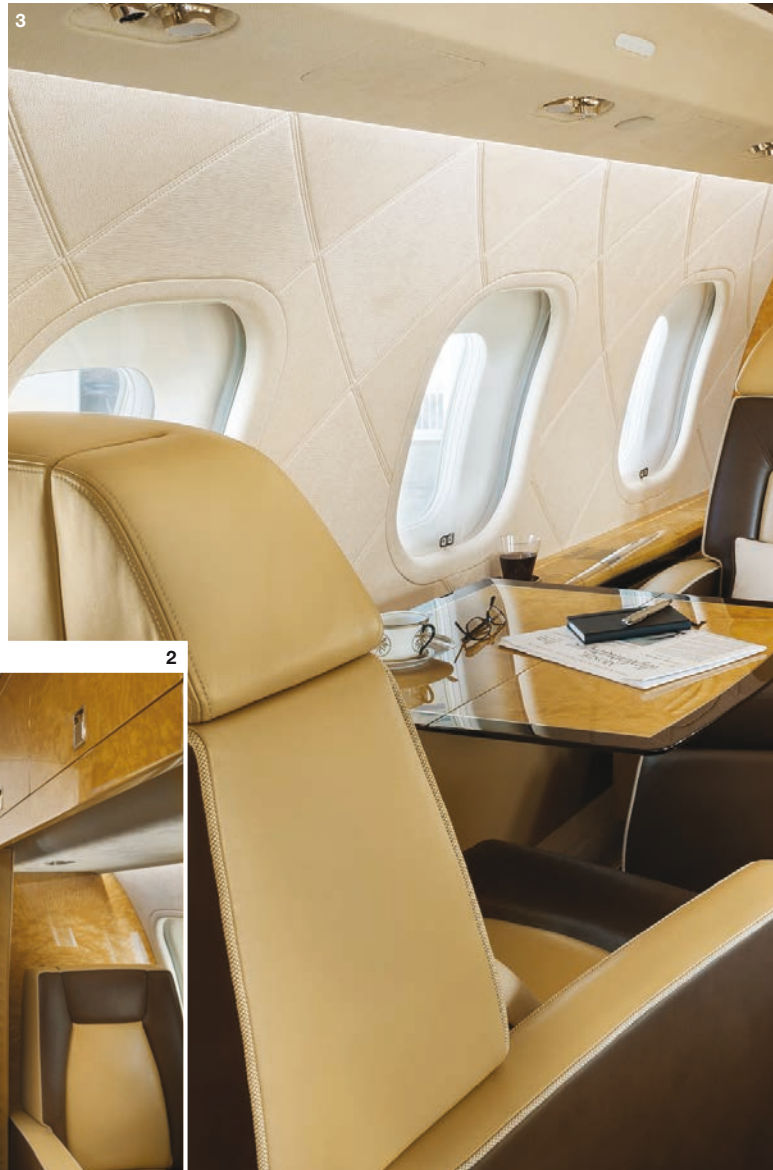
“THERE IS ALMOST NOTHING THAT COMES FROM OFF THE SHELF IN OUR VIP JET DESIGNS”

The Global 6000 has a mainly catalogue layout, but there was still plenty of room to make a distinct statement. “We may play with the main cabin to fit one less or one more seat or sofa, but the galley and the crew rest area are always at the front and the sleeping area is normally at the back,” says Pickardt. “The Global 6000 is not a huge aircraft. However, we designed the desks, seats, sofa and other furniture. The bathroom is mainly from Bombardier, but we adapted it totally, redesigning the wardrobe, custom lighting and drawers.”

Every Alberto Pinto project involves huge amounts of customisation. “There is almost nothing that comes from off the shelf in our VIP jet designs,” says Pickardt. “Almost everything is possible now – new colours, weaves, materials and even special door handles. There is nothing more expensive per square foot – a private jet interior is ten times the price of a house interior, and three times that of a yacht. In the end, it’s still an aircraft, so if we need something from the market of course we take it, but we really try, for such special

customers, to give them something they have never seen before.”

Light and shade Only one design was proposed to the client, although a few colour and trim alternatives were offered, and indeed an aspect of the contrasting two-tone seat covering was changed to meet the client’s wishes. “We originally suggested a woven fabric for the front seatbacks, but the client preferred all leather and a slightly



lighter colour for the darker shade – moving from dark brown/black to a more chocolaty colour,” reveals the project manager. “The use of two high-contrast leather colours on a seat was new for us. Normally they’re all beige, or all dark.” Edelman supplied the dark brown leather – called Royal Hide – and Garrett the beige leather. Where fabric was used – on the club-four setup and single seat in the middle of the cabin – the supplier was Hodsoll McKenzie and the material Hopscotch, although its look is reminiscent of Toile Hermes – a classic Hermes material.

Further aft there are two facing three-seat divans, the design again simplicity itself, with wide cushions covered with an oatmeal-coloured material specially developed by Leni’s and bordered by cream-coloured

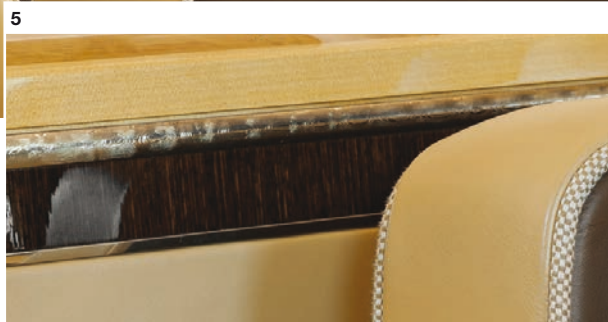


pipings. This space also turns into a big sleeping area when required.

In standard configuration, the aircraft can notionally accommodate 15 passengers, plus a crew member in the rest seat. However, in reality, it's never likely to be used by more than six guests, its role intended mainly to be corporate with auxiliary personal use, rather than the other way round.

Subtle elegance Beyond the divan area is an immaculately finished bathroom featuring a beautiful dark marble called Portoro, with thin-to-thick billowy smoke-like shapes and lines running through it for the sink surround and surface. Despite having this clearly expensive material as a focal point, the overall effect manages to remain subtle, because of the less shiny and lighter

2. The galley and crew rest area is at the front of the Global 6000
3. The club four nearest the front is all leather, while seats further back use fabric
4. The diamonds of the sidewalls are echoed on the carpet
5. A Damascus Steel metal strip
6. Understated elegance in every detail was the key design goal



Devil in the (metal) detail

A particular 'surprise and delight' area on this aircraft can be found on the 10mm-high strip of metal situated just below the wooden sideledge that runs from the front of the cabin to the back. It features an old technique called Damascus Steel that was used as far back as the Medieval period for decorating swords. The process involves folding a sheet of thin metal 30 to 40 times until it melds together, says Alberto Pinto's Pickardt: "You peel it away and this is the result. You can't fully control it – it's always a surprise – and then it's plated with a white gold colour. It's a really tiny detail that you have to discover when sitting. That's what we like to do."



materials employed around it. It's another example of the discreet approach the client wanted to take, as Pickardt reasons with a broader analogy about the aircraft type itself: "For the same money he could have bought a BBJ, but with the Global 6000 he can land anywhere and take-off quicker. With a bigger aircraft it's more complicated and thus less discreet."

Diamonds are faux leather The team also took immense care with the lining of the fuselage. The wall panels surrounding the windows feature a quilted diamond pattern using two different types of synthetic suede from supplier Majilite – one dotted and one with a wavy line more akin to a hide.

"It was very difficult for the upholstery shop at Bombardier to work out," says Pickardt. "Between each panel is double stitching that has never been done before in this way and that's what makes this aircraft so special. Bombardier buys a roll of each fabric and then cuts the diamond shapes and stitches them together, lays them onto a back panel and then assembles them onto the fuselage." The dotted suede material has also been used for the ceiling lining.

Similar rigour is applied to the diamond-patterned carpet designed by Alberto Pinto and woven by Tai Ping. The design manages to reverse the colourway – from cream with green



“WE SELECTED THE SHEETS OF VENEER ONE BY ONE TO HAVE A DISCREET PATTERN”

stripes to green with cream stripes – to indicate the end of the main passenger area and the start of the entrance hall, – without losing consistency of pattern.

Beautiful natural wood veneers are another familiar way of displaying luxury, employed on this aircraft with oak burr – obtained from the markings found at the root of the tree – on the bulkheads and sideledges. The project manager chose this veneer as he knew the customer liked it, and took special care to make sure it was used to its best effect. “We selected the sheets of veneer one by one to have a discreet pattern,” he says. “When we found one with an unusual pattern – that looked like a landscape or something – we made sure it was placed in a very central

7. The section with facing three-place divans transforms into a sleeping area
8. Simple surroundings allow the washbasin's Portoro marble to be the star of the show

8



position on a table or cabinet where it could be seen. It was not laid casually.”

To avoid using ready-made bought-in cupholders, a clever approach was taken to installing the veneer in this area. As a result, each cupholder looks as if it is simply a machined recess hewn from a solid piece of wood. Elsewhere the design firm went more exotic, sourcing a rare wood from Brazil called Wacapou for the dark stripe that surrounds the middle oak burr veneer on the tables.

Quality control After four to six months designing the interior, the completion took a year and a half, involving meetings at the completion centre every two to three months. “We review

the technical drawings and do first article inspection, where we look at the first seat, table, carpet and more to modify and review,” says Pickardt.

Alberto Pinto's quality control measures include “checking the aircraft during the process and also at completion, with a real magnifying glass in every single corner”, according to Pickardt. He relates the client's satisfaction with the result: “We only met him two or three times in total, and of course he's a very busy man, but his final comment was positive. ‘It's very classy’, he said.” **END**

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sellingpoints

Brokers reveal the impact various interior features can have on a used business jet's chances of making a fair and swift sale – and in what circumstances sellers should consider refurbishment

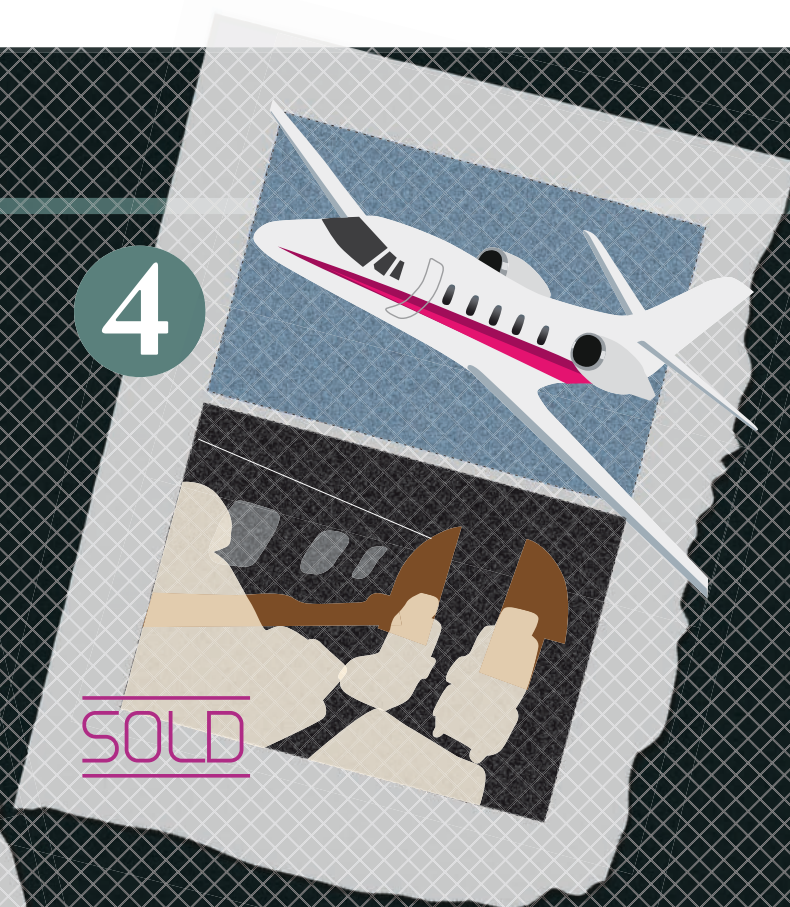
The cost of having an aircraft on the resale market for an extended period is high; with interest, hangarage and maintenance costs accruing daily for an aircraft the owner may no longer even use, it can be a frustrating wait.

Oliver Stone, managing director of London-based broker Colibri Aircraft, recalls a Global Express sold in 2011 that was on the market for 487 days – incurring estimated interest costs of £359,097 (US\$572,451) – when the average at the time for that model was

278 days. He believes that in that particular case, the extended wait was down to a non-standard – that is, not neutral – colour scheme.

“If there’s an abnormal colour scheme, it creates a very quick first impression and people may not get over that,” he explains. “Bright green seats, for instance, are very polarising. A lot of people have difficulty seeing past that, even though it’s very easy to change the colour – it takes just three weeks and some money.”

Stone believes that as well as making the sale time longer, a non-



standard colour can affect the final price, pointing to a Gulfstream III with green upholstery that was sold US\$2 million (£1.26 million) under market value in 2007.

Cover version In such cases, Stone says, reupholstering the seats in a neutral colour is a valid option to consider. “The cost depends on the aircraft,” he says. “It’s hard to give a precise number, but you can usually change the seats on a seven-seat aircraft for anywhere from US\$50,000 (£31,427) to US\$85,000 (£53,425). You can do

the maths in terms of aircraft value, but in terms of the overall investment, it’s not substantial.”

However, there is a fine line between neutral and non-descript. “We see so many jets on the market with a very neutral and very corporate style; they tend to look the same. We try and get away from that,” says Sarah Mespelt, vice president of design and engineering at Freestream Aircraft, which as well as brokerage and other acquisition services, also offers interior design and project management. Mespelt believes other aspects are more

important. “In the past year, we have had a lot of requests for additional seating groups and sleeping divans,” she reports. “If the aircraft has a group of four seats, we’re often asked to put in another group of four behind that. Business jet owners want more passengers on board. In the past year, we’ve put in more seats than any other single item.”

Installing more seats can mean items that don’t bolster capacity are removed. “We have seen floorplans that once had credenzas and large cabinets change to a transitional new seating

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Look, don't touch

Rather than making actual changes to the aircraft, another way of showing the potential of a cabin is to commission a 3D rendering of one or even several versions.

When a Chinese buyer wanted the most realistic depiction of the interior of his Boeing Business Jet before Gore Design launched into the completion, the centre went even further, deciding virtual reality would help. It took a portable system developed by 3D Viz to the client; and once fitted with the special goggles, he was able to experience a computer-generated, real-time mock-up of the cabin.

"It's just like walking through a real aircraft," explains 3D Viz president J. P. Magnano. Thus the buyer tried out the seats and tables, looked out the windows, trod the carpets and decided whether he liked the décor, all in virtual reality.

Mirage Computer Graphics also routinely prepares 3D imagery for VIP projects. "It can be applied to used or new aircraft," explains Mirage CG's Olivier Cugniet. "The purpose is mainly to show to the existing or future owner the concept of the designer's work."

A particular benefit in used aircraft is that the new owner may want to retain some of the existing layout to reduce costs, and can see from computer-generated renderings how it would be possible to do so while still developing a bespoke interior. "We often have to present several, often very different options," adds Cugniet.

The process starts with detailed drawings, sketches or even bits of material provided by the designer. From these, technicians work up a rendering that is presented to the actual or prospective buyer, in formats ranging from computer images to photographs.

Magnano points to the relatively low cost as a key benefit: "Physically changing stuff in an aircraft is ridiculously expensive," he says. The costs of highly realistic renderings range from around US\$4,000 (£2,514) for a Falcon 900 to US\$18,000 (£11,312) for a Boeing Business Jet. The use of virtual reality roughly doubles these prices but, in the case of the Chinese buyer, it clinched the sale.



1-2. Renderings, such as these by Mirage CG, can be used to illustrate a cabin's possibilities without the cost of refurbishment

group," says Mespelt. But capacity isn't the be-all and end-all for everyone. "Though for some clients maximum seating is important, you still have clients who prefer customisation such as a large bed in the aft, as requested of us by a client for a Global Express," says Mespelt.

Balancing act Although there are many things that could improve an aircraft's potential appeal, it doesn't always make economic sense to do them simply for resale. For example, although Stone has noticed a preference for forward galleys as opposed to aft galleys on older Gulfstream IV aircraft, he wouldn't recommend a reinstallation. "To move a galley from the back to the front would cost many hundreds of thousands of dollars, if not millions," he says. "Just between the engineering drawings and the movements and the certifications and plumbing and

ANOTHER WAY OF SHOWING THE POTENTIAL OF A CABIN IS TO COMMISSION A 3D RENDERING OF ONE OR EVEN SEVERAL VERSIONS

all the rest of the stuff, it would be astronomically expensive."

Regarding galley refurbishments, Freestream typically encourages the client to find ways to spruce up the galley without reconfiguration, for example by getting new countertops and appliances to give a fresh new look while saving money for other areas.

High stakes Both brokers agree that spending large amounts of money on complicated re-engineering – targeting

an unknown buyer – is a big gamble. Mespelt points out that even when there are enough seats, and in good condition, new owners invariably specify replacements because they want to get an updated look and add their personal taste to the aircraft. In fact she says about the only aspect of an interior that might survive new owners is the wood veneer. "We don't often have new owners that don't want to refinish everything in the aircraft," explains Mespelt. "The attitude or goal



Paper trail

Paperwork may be boring but it's an important element of a resale. Colibri Aircraft's Oliver Stone believes full FAA STC certification is preferable to the 337 approval. He says the former is a tougher and more widely accepted standard applying to modifications or repairs; as such, it makes an aircraft more saleable to European buyers, for example. In fact, he says modifications of the interior under a 337 "will not be recognised by other regulatory aviation bodies" outside the USA.

Some minor modifications – such as repairs to upholstery – may be signed off by the aircraft mechanic or maintenance engineer. But just in case, more and more owners are seeking STCs for even these changes, to boost the aircraft's prospects of a sale in the future. The cost of obtaining after-the-fact approvals under EASA is extremely high, adds Stone.



ONE ASPECT PARTICULARLY PRONE TO RAPID AGEING IS THE IFE SYSTEM



is typically to update the appearance and add a personal touch." And that seems to be true regardless of the quality of the original. Carpets are a good example. "They're changed every time," says Mespelt.

However, both brokers warn that a dated interior is a sales-killer. The difficulty lies in deciding how it should be changed, because the market can be unpredictable. "The issue is not that an interior may not be to everyone's personal taste, but over time interiors can just date," says Mespelt.

One aspect particularly prone to rapid ageing is the IFE system. Even if it won't get much use, brokers say an up-to-date IFE system will boost the

3-4. Renderings by 3D Viz showcasing cabins in popular neutral schemes

chances of a sale because it presents the aircraft as state-of-the-art.

Aerocare International, which helps clients with IFE retrofit projects, believes the price of this kind of endeavour is coming down: "The latest technology is now within everyone's grasp, with remarkable savings over original equipment options," says David Hickson, managing director of the company (see page 72 for more information). However, Stone thinks the price is prohibitive if a vendor is simply trying to second-guess a potential buyer, rather than fulfil their own wishes: "It's not worth the while typically to install a new IFE system just for resale," he says.

Above all, aside from perhaps choosing an IFE system that offers easy scalability for the future, the brokers advise new owners to simply install what they want, and enjoy their aircraft. "Although a lot of emphasis is placed on resale, owners should consider what they would enjoy and take the opportunity to apply a new chic style or make improvements that appeal to both buyers and current users," says Mespelt. **END**

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Components such as galley inserts, IFEC equipment, window assemblies, showers and dinnerware; materials including leather, carpet, thermoplastic, seat foam, veneer, faux stone and finishes; services ranging from design to refurbishment and completion – all will be the focus at Business Jet Interiors World Expo 2013, which will be held at London Farnborough in the UK from 19-21 March.

The event will once again be co-located with FBO and destinations show Business Airport World Expo. Highlights from this

free-to-attend event are previewed from page 64.

Meanwhile, another attraction is the free-to-attend Business Aviation World Conference. Speakers include Jean-Pierre Alfano, creative director of Airjet Designs; Didier Wolff, president of Happy Design Studio; and David Velupillai of Airbus Corporate Jets, who will discuss the possibilities afforded by today's large corporate jets.

Turn the page to learn more!

www.BusinessJetInteriorsWorldExpo.com

**CASINO
CONCEPT**
Design ideas

AirJet Designs (whose creative director, Jean-Pierre Alfano, is also speaking at the conference, see panel below left) will showcase its latest designs, which include the Casino Jet Lounge, created jointly with Designescence.

The lounge is a new social space for wide-body airliners, designed to bridge the gap between commercial and private aviation. It features a casino blackjack table, a bar counter, and four club chairs. The style is light and airy, with ceramic white, light bamboo and white leather. In between the seating groups is a transparent glass TV screen using holographic technology. Another highlight is the touchscreen bar surface, which enables passengers to order drinks or nibbles directly from the touchscreen menu.

The concept was designed (after consultation with EASA/FAA certification experts) with the idea of minimising certification costs. **Stand J3012**

SPEAKER SPOTLIGHT



Jean-Pierre Alfano,
creative director of
AirJet Designs, will
discuss how designers
can fulfil the wishes of a
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What trends have you seen?

A need for the aircraft to be an extension of the owner's home is a strong trend. People almost want to forget they are flying. I also notice higher expectations of the level of craftsmanship. This is why it is very important to get to know the people who make my designs come true, and fully understand their constraints.

What is your biggest challenge?

Taking inspiration, trends and innovation from industries other than aviation – with products that have not been certified yet – is very challenging. Sometimes the technical constraints and aircraft regulations do not allow all my ideas to be implemented.

Where do you see the market in 10 years' time?

The market will grow significantly, because of economic growth in areas of Asia, Russia and South America. On the technical side, I believe in the potential of supersonic jets – I think they will become a standard for business aviation.

What differentiates you?

Our clients can rest assured that our design proposals will correspond to the final product. The solutions we propose are realistic and fully compliant with airworthiness standards – which saves time and money. Coming to us is a guarantee that they will receive the highest level of creativity and that the design will be tailor-made to their needs. We choose the suppliers we work with based on the design we imagine for each particular project.

What is your dream jet?

A wide-body supersonic jet with a transparent fuselage and a pool!

Communication solutions

Satcom Direct will highlight its 'User Xperience' solution, combining satellite voice, data, critical information and datalink services for both flight deck and cabin communications. The company aims to enhance the pilot's, passenger's and technician's experience through immediate technical support, secured and closed networks, user-friendly mobile applications and knowledgeable hardware experts. The company is a premier Inmarsat distribution partner, Iridium service partner and preferred ViaSat Yonder reseller, as well as a GSA contract holder. Satcom Direct also offers portable satellite communication equipment such as satellite phones and BGAN units for purchase and rental. **Stand J2018**

New leather

Yarwood Leather will launch a luxury leather, Snowdon, at the expo. The company says Snowdon is a natural, full-grain leather made using the highest quality raw material. It is stocked in 10 earthy pastel colours to complement various interior schemes.

Yarwood continues to offer its cutting service to help take the labour out of cutting for seats. Its Gerber Taurus leather cutters work at almost 10 times the speed of a human cutter and are coordinated to ensure the maximum use of a hide. The company's high-tech equipment can cut any leather from any source, fabric or synthetic material to pattern. Yarwood will also be talking to customers about burns testing and compliance. The service offered is free if clients specify Yarwood's leather. The company says modifications can also be incorporated into the test service, with full DOA approval. **Stand J4016**



**NEW DESIGN
OPPORTUNITIES**

Thermoplastic sheet

Kydex will feature an expanded aviation palette with contemporary hues. Fully compliant Kydex FST sheet is designed to offer expanded versatility, durability and environmental benefits. The company's designLab also provides a centre for creative collaboration in aviation-grade thermoplastics. Kydex challenges visitors to visit its stand to preview in-development products, and to bring their toughest challenges and 'impossible' dreams. **Stand J2028**



EXHIBITOR Q&A

Neil Turner, general manager, aerospace, I M Kelly Aerospace



What will you be highlighting?

We are an upholsterer and trim company that aims to make seats look a bit different. Last year we brought a few samples of stitch patterns that we can do – like a baseball stitch and a cross stitch – as an alternative to the standard twin stitch. We had a lot of interest in that. We've got a

new machine that does a whole range of stitching patterns, so we're going to bring some samples for people to have a look at.

What is the most challenging aspect of your work?

It's trying to understand the customer's or the designer's requirements and interpret them into a workable and usable pattern and seat. Some shapes you just cannot cover, so it's about talking together to realise the client's expectations and negotiate a compromise for the best way forward.

Have you noticed any trends in demand?

A lot of people go for an automotive look for aircraft interiors, which is good for us because our parent company is an automotive trim specialist and we do a lot of automotive interiors – for companies such as Aston Martin, Range Rover, McLaren and others.

Who are you hoping to speak with at the show?

We're happy to speak to designers, seat manufacturers, customers – all are welcome. **Stand J5002**



Foam materials

Zotefoams will showcase its Zotek F polyvinylidene fluoride (PVDF) foam materials. The company says its nitrogen-saturation manufacturing process produces lightweight, closed-cell foam materials that have consistent cell structure, are pure

and low in odour, and free from CFC, HCFC, HFC and VOC. Zotefoams has designed Zotek F to have outstanding flame, smoke and toxicity performance; low heat release, meeting FAR 25.853(d); high thermal and acoustic insulation performance; excellent resistance to impact and crush; excellent fluid and moisture barrier properties; and a high level of resistance to a wide range of chemicals. Zotefoams will display a selection of Zotek F product samples, highlighting the variety of process methods available to produce integrated engineered solutions. Samples will include carpet underlay, gaskets and insulation products from Wulfmeyer Aircraft Interiors; ECS ducting, window seals and mounts by Technifab; MGRSoftwall Soft Touch removable interior panels from MGR Foamtex; and regional aircraft wall panels by Aero Plastics & Structures. **Stand J1016**

Interior upgrades

Aerocare International provides 'fixed price on site' cabin interior upgrade and refurbishment programmes ranging from a simple five-day makeover to bespoke, fully integrated upgrades.

"In a challenging economic climate we are delighted to be moving forward so strongly," comments Jason Hickson, operations director at the company. "With considerable growth in our market share we are further expanding and enhancing our IFE and seating services to the business sector, while ensuring our excellent reputation for high-quality service and products is maintained." Aerocare International holds CAA EASA 145 and 21G approvals and has a close partnership with 21J design, enabling it to provide a total solution for its customers. **Stand J3013**

SPECIALISTS IN AIRCRAFT INTERIOR UPGRADES AND CERTIFICATION SERVICES

DEPENDABILITY

Aerocares ability to accommodate high quality upgrades to strict schedules and deliver on time has enabled us to secure a number of long term relationships

All our Products all match our "Quality of care" policy and our customers get real expertise, care and attention that exceeds their high expectations, Aerocare International is approved to CAA, EASA 145 for component maintenance and EASA 21G for component manufacture.

Our capabilities extend to include in-house 3D Cad design integrated with our EASA 21J partner through to fully certified production completions.



INNOVATION

It's all about being contemporary and courageous whilst maintaining a trust on delivering.

Being innovative means that we are convinced there is always a better way of doing things. By continually focusing on progress, we raise the customer's productivity. The innovative spirit is vital to Aerocare Internationals identity; it is the driving force that made us an industry leader in providing product and equipment solutions.

Aerocare International Ltd provide a highly competitive "fixed price on site " cabin interior upgrade and refurbishment programs, from a simple 5 day make-over to bespoke custom fully integrated upgrade.

In a challenging economic climate we are delighted to be moving forward so strongly and with considerable growth in our market share we are further expanding and enhancing our IFE, and seating services in the business sector, to ensure our excellent reputation is maintained.

TRUST

Being committed means that we are totally engaged in every project in which we participate. Thus, we keep our promises and consistently deliver high-quality products and services. We are here to stay; we believe in lasting genuine relationships, this trust grows as customers realize just how much we understand them, and the depth of support we offer.

sales@aerocareinternational.aero +44(0)1925 710694 www.aerocareinternational.aero



EXHIBITOR Q&A

Robert Hodgson, sales director at TRB Lightweight Structures



What services do you provide?

For many years, TRB Lightweight Structures has been involved in the manufacture of lightweight composite components and structures. Typically, these could involve bespoke galleys, kitchens, bathrooms and panelling for lounge areas, etc.

What is the most challenging aspect?

Developing new and innovative solutions to meet the end client's aspirations, together with looking at ways of creating new space. It's a pleasure to work with clients, but their aspirations are high in terms of both delivery and quality of finish. To cater for this, TRB Lightweight Structures can provide a total engineered solution for lightweight composite structures, and that can include everything from initial discussions with clients, agreeing and defining the scope, design validation and manufacture, right through to project managing installation and commissioning.

What's the next step?

We're working in two major areas – firstly on ways to reduce weight, at the same time as improving performance; and secondly, in the use of environmentally friendly materials and processes. Reducing the weight in aircraft has always been important, but clients are also trying to install more technology, so it's a constant requirement to come up with lighter materials and better solutions. **Stand J1018**



Cabin amenities

Dahlgren Duck will showcase its range of luxury amenities, which it has been supplying for VIP aircraft interiors, yachts and palaces for the past 30 years. It specialises in the

customised design of integrated dinner services including bespoke china, one-of-a-kind sterling silver flatware and barware, and table linens. It also offers linens for the bedroom and bathroom, as well as other interior amenities. The company recently partnered with Silverlining to expand the finishes available for its VIP aircraft trolleys; adding combinations such as ebony with shagreen accents, santos rosewood with trim in 'sports rust' shagreen and a cream-coloured leather trimmed with black anodised aluminium to its existing options, which include full gold-plating. **Stand J3008**

Wood veneers

Freed Veneers and Eurogroup Belcaire will highlight their high-grade wood veneers, which are used to decorate the interiors of VIP aircraft. The offering includes natural, coloured and smoked varieties in all exotic woods, which are supplied with a 1.8mm backing in plyboard or 1mm paperbacking. All these materials are treated with fire-retardant '0' protection as standard, plus glues designed to resist all harsh environments. Sample plaques can be expedited within 48 hours around the world, with finished orders ready in as little as four days, with 48-hour air delivery to door. Freed Veneers' laboratories can also colour-match for repair work or create special colours for projects. **Stand J3028**

UPGRADE YOUR INFLIGHT COFFEE



Coffee makers

One of the highlights of Aerolux's stand will be its 28VDC espresso maker, which uses the authentic Nespresso capsule system, approved for aircraft use. The company worked closely with Nespresso on its development.

This machine is versatile, easy to use and very reliable. It can also provide hot water for tea and steam for cappuccinos if required. It comes with high-specification finishes to suit individual requirements.

Aerolux has 25 years of experience in serving the aviation industry with an exclusive, innovative and specialised range of espresso machine and beverage makers optimised for an enhanced inflight experience. **Stand 9001**

Materials and finishes

Exhibitor Carter Green represents manufacturers of high-end materials and finishes for the VIP aviation and yacht industries in Europe. Companies highlighted on its stand will include Spinneybeck, Scott Group Custom Carpets, Metalcomposite and PolyStone Creations. Spinneybeck offers upholstery leathers – with more than 800 colours and 19 aviation qualities in stock for immediate shipping. Special ranges include Forte, with an abrasion-resistant finish; the pearlised Alaska; nubuck Ducale Velour and Lucca; Hand Tipped and Embossed Tipped styles; high-gloss Lucente; and Belting Leather tiles, which can be lasered or embossed to specific requirements.

Scott Group, meanwhile, specialises in hand-tufted bespoke carpets made from wool, silk and wool cashmere (pictured). Machine-tufted programmes are also in place and the in-house design team will create individual carpets as well as creating several collections of new and exciting designs every year.

Also on display will be samples of Metalcomposite's decorative metal finishes. Metals used include bronze, titanium, copper, brass, zinc and pewter – but metals can also be combined to imitate various shades of gold and other tones.

A selection of faux stone finishes will highlight PolyStone Creations' work. These can be cast to create basins, countertops, vanity units and galley areas. Finishes include solid colours, speckles with coloured minerals and cultured marbles. The range is completed by FlexStone, a stone composite material, and Crystalex, a glass substitute.

Also on the booth will be Bell Bespoke Interiors, which manufactures, repairs and refurbishes corporate, VIP, WVIP and head-of-state aircraft interiors at its base in the UK; and F. H. Lambert, with its focus on metal plating, offering variations of gold, silver, rhodium, chrome, nickel, copper, antique and lacquer coatings. **Stand J3022**




**REFURBISHMENT
PARTNER**

Manufacturing and refurbishment

PPA Group will highlight its interior manufacturing and refurbishment services. The company's experienced engineers manufacture interior parts and furnishings to specifications set by the client. The company carries out refurbishment on small, mid-size and large VIP aircraft. VIP and executive jet interior projects have included aircraft from the Cessna Bravo up to the BBJ. The company also offers non-metallic components and assemblies, including windows for flight decks and passenger areas in executive jets. **Stand J3018**

SPEAKER SPOTLIGHT



Didier Wolff, owner and designer at Happy Design Studio, will present a new, creative approach to business jet livery.
 2:00pm, Wednesday 20 March 2013

What trends are affecting livery?

Owners usually go with the constructor's catalogue (the usual two or three lines or latest designs), they add a logo or a personal fantasy, without considering it as a specific design matter. It is often because they have not been properly informed that it can be changed, or considered the benefits of designing something special for the exterior. The line, though, is starting to move; it is then a matter of taste and technicality.

How does your approach differ?

I give the same attention to an exterior design as any other designer or studio would give to the interior. It requires strong technical knowledge and a very specific design approach. We work from

the start on precise 3D models, to consider the design from all angles. We verify its full compatibility with aeronautical engineers and supervise the painting process with the selected paint shop.

Why is a distinctive livery important for business jets?

It is exactly like asking why all birds are not white. The aircraft by itself is an artwork. It is such a wonderful object to personalise, from extremely discreet but intense details to a beautiful expression of its owner's personality. A design approach for the exterior can add even more spirit and feeling; do justice to what is already a beautiful object.

Who needs to attend your presentation?

Anyone who wants to see our design approach and how it can, to some extent, shuffle the cards in the aeronautical industry.



Custom showers

Jeff Bonner Research and Development (JBRND) will promote its services in VVIP aircraft component and subassembly fabrication. JBRND says it can manufacture 99% of aircraft components under one roof without relying on outside vendors. It offers machining, sheet metal fabrication, composite fabrication, tooling, Mil Spec finishes, heat-treating and prototype fabrication services.

One of the company's specialties is the custom design and manufacture of VVIP showers, which are made using the most lightweight materials available. JBRND showers incorporate motion sensors, specialised LED lighting made in-house, and most weigh no more than 130 lb when finished. The company completes all the manufacturing under one roof, including final finishes. It also offers a series of lavatories, bidets and toilet shrouds.

Another capability is building antenna mounting plates and adapter plates for major satcom antenna manufacturers, and assisting completion centres and avionics installation companies with any and all their requirements for satcom antenna installations. "You can have the most sophisticated satcom antenna in the world riding on top of the aircraft," says John Sweet, director of sales for avionics equipment at JBRND. "However, without the foundation of a well-engineered and structurally sound antenna base installing it to the aircraft, you cannot leave the ground." **Stand J1020**

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SATCOM DIRECT®, the leading innovator of satellite voice, fax, and broadband data service for business and corporate aviation, is proud to announce a new office in Dubai.

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Discover new destinations, partners and routes

**MORE THAN 150
EXHIBITORS EXPECTED**

Once you've conducted your business jet interior-related business, why not visit Business Airport World Expo? The complementary event will be held alongside Business Jet Interiors World Expo on 19-21 March 2013 in London Farnborough, UK, and is also free to attend. Business Airport World Expo will showcase the industry's leading FBOs, business and general aviation airports, MROs, handling agents and refuelling companies from all over the world. More than 150 exhibitors are expected, showcasing their latest developments to an anticipated 3,000 visitors, including executive and private jet owners and operators, operations directors, CEOs and managing directors.

Now in its third year, Business Airport World Expo has cemented its place in the industry as the must-attend event for anyone looking for new destinations, FBO partners and routes. Over the past two years the show has attracted more



than 5,000 visitors from 50 countries and this year's event promises to be the biggest yet.

As Europe's only exhibition dedicated to showcasing the world's FBOs and business aviation destinations, the event will provide visitors with everything they need to plan new routes or loyalty schemes, meet new partners or strengthen existing relationships.

A highlight of the event will be the free-to-attend Business Aviation Conference, which will run over three days and feature more than 20 industry experts. Topics will include social media, brand management, FBO development, safety management systems and staff training. The preliminary programme is on page 68, with updates available on www.BusinessJetInteriorsWorldExpo.com.

1. Business Airport World Expo was held very successfully at London Farnborough in 2011

SPEAKER SPOTLIGHT



Graham Stephenson, a senior aviation consultant specialising in FBOs, will discuss how to improve staff professionalism at FBOs. 11:00am, Thursday 21 March 2013

What is your background?

I joined BEA in 1958 as a commercial apprentice and transferred to BOAC in 1966. I trained as an operations officer/dispatcher and served as a duty officer and airport manager. Subsequently I was responsible for the general management of British Airways' handling unit at Gatwick. Roles after that included director of development for Luton Airport, and customer relations specialist for Saudi Arabian Airlines. I was then appointed VP and COO of Jet Aviation Saudi Arabia, responsible for designing, building and outfitting the company's first FBO in Saudi Arabia. When I returned to the UK I was appointed duty operations manager for Jersey European Airways, and then

moved to London to develop the Jet Centre at London City Airport. I introduced a QMS – ISO9001-2000 – and obtained certification. I then developed ExecuJet's FBO in Zurich and was responsible for the operation of all its FBOs worldwide. I developed new FBOs in Berlin, Kuala Lumpur and Cambridge. I'm now a freelance senior consultant.

Who needs to hear your talk?

Anyone considering opening an FBO, developing a facility, training staff and/or implementing a QMS. The audience will learn what makes a good, safe FBO, and how to improve all aspects of its activity.

Why is training so important?

Everyone who works on the ramp near, on and in aircraft must be formally trained to maximise the safe operation of the aircraft and personal safety. Just as pilots, cabin crew and engineers are trained, so must FBO staff receive formal training on a wide variety of subjects.



Aircraft detailing

For the first time, The Full Wax – one of the UK's market leaders in aircraft detailing – will be opening its doors to new clients at the expo. Visitors to the company's stand will learn

about the benefits of quality aircraft detailing and its director and detailers will be available to answer questions. The Full Wax will also have a running video showing its more specialised services. The company says regular use of its services will improve and enhance an aircraft, increase paintwork longevity and keep brightwork corrosion at bay. **Stand 6012**

Fuel services

World Fuel Services Corporation (WFS) will promote its aviation fuel products and related services. The company says its customers value single supplier convenience, competitive pricing, trade credit, risk management, logistical support, fuel quality control and fuel procurement outsourcing – all of which it aims to provide through a global team of local professionals.

Among its aviation services, WFS champions an international contract fuel programme, the AVCARD global aviation charge card, which is accepted at more than 7,200 locations worldwide; BaseOps International trip planning and support services; the Air Elite Network of exclusive FBOs; and the newly expanded international FlyBuys rewards programme. **Stand 1010**

EXHIBITOR Q&A

Paul Worrell, CEO of IAM Jet Centre



What is your core offering?

IAM has been providing VIP handling and fuel services to business and diplomatic aviation across the Caribbean region since 1989, and currently in our 24th year we proudly provide dedicated support to our clients in more than 30 airports – including our two flagship five-star FBOs located in Barbados and Montego Bay, Jamaica.

Who are your clients?

IAM Jet Centre of the Caribbean is privileged to be the primary service provider in the region for most of the leading global flight service companies – as well as many independent flight departments and operators from across the globe. As a specialist business aviation service provider in the Caribbean with more than two decades of experience, we also maintain preferred relationships with regional oil companies and are active jet fuel suppliers to our client base.

What developments have you made recently?

Our Single Source programme – managed from our two flagship FBOs – leverages our handling agents' extensive local expertise and know-how to ensure operators enjoy truly seamless support from one island to the next. This single source frees flight crews to better focus on their primary responsibilities, while dispatchers and flight service companies benefit from the ability to work with a single established supplier. **Stand 8002**

Membership enquiries

Baltic Air Charter Association (BACA) will use its stand to attract more companies to apply for membership. The association is already the world's largest network for the air charter market, but is keen to have more companies sign up to its code of professional standards.

As well as air charter brokers, members include airports, airlines, business aircraft operators, handling agents and FBOs, aviation lawyers and consultants.

The association runs training sessions, represents its members' interests to aviation and government bodies and holds two networking lunches a year, one of which includes the prestigious BACA Awards ceremony. **Stand 2012**

Ground support products

Vestergaard will showcase its ground support equipment, which the company manufactures, distributes and supports. The equipment is designed to fit the needs of any size of aircraft.

Just like big airports, small airports need efficient and durable equipment to do the job on the ground. Therefore the company has endeavoured to build the strength and durability of its big units into more compact units designed to offer the same efficiency but at a lower cost and higher manoeuvrability.

The company's philosophy is to provide reliability in operation and servicing; unsurpassed unit lifetime and low maintenance costs; mobile and swift operations; environmentally friendly solutions; long-term cost-effectiveness; and first-rate customer service. **Stand 8018**

MAKE A PARTNER IN AFRICA

African operations

International Flight Clearances will showcase its expertise in African aviation operations and logistics, as well as its FBO facilities and ground handling capabilities at Lanseria International Airport in Johannesburg, South Africa. The first-time exhibitor would like to network with European businesses to find synergies to operate its client's aircraft more effectively in Europe, and supply services to operators coming to Africa. **Stand 9004**



Ground transportation

LimousinesWorldWide.com will promote its global ground transportation and logistics services, which it offers round the clock. Whether by ground, air, ship, or any means necessary, a network of affiliates representing LimousinesWorldWide.com can meet travel needs in more than 500 cities. With the use of the internet and the strong relationships it has with other ground transportation and private aviation partners, LimousinesWorldWide.com is able to have a chauffeur-driven standard or luxury vehicle personally receive the client, their family, or anyone at any general aviation or major airport.

Exhibitors and visitors at the show will be able to access a number of user-friendly tools designed to enhance their browsing experience when they visit the company's newly designed website, where they can share their stories and experiences with other attendees, and post information about their services. **Stand 7002**



Gateway to New York

Morristown Municipal Airport (KMMU) will launch its 'Why wait?' campaign.

"We recognise that your time is valuable," says Maria Sheridan, senior director of business development at the airport. "We think this venue is the ideal opportunity to show Europe that when arriving into New York City's Metro-Plex, you don't have to wait in line with the others." The airport prides itself on quick and easy customs clearance, extensive amenities and a country club-like setting. **Stand 7000**

**MORE THAN 2,250 VISITORS
ATTENDED BUSINESS AIRPORT
WORLD EXPO 2012 IN CANNES!**

**EXPANDED
FACILITIES**

FREE TO ATTEND



New hangar in Basel

Air Service Basel (ASB) will showcase its newly modified parking hangar. Having recently finalised extensive modification works, the facility is now able to accommodate aircraft up to the size of a BBJ or ACJ319 on more than 4,500m² of secure and private hangar space, be it on an ad-hoc basis, for home-base operations, or long-term parking arrangements. Clients will also have a chance to meet representatives from ASB and learn about its FBO terminal at EuroAirport Basel-Mulhouse. **Stand 3008**

EXHIBITOR Q&A

Rani Awad, founder, Atlantic FuelEx



What does Atlantic FuelEx offer the business aviation industry?

Atlantic FuelEx was launched in Dubai in July 2011 and provides high-quality fuel

services to commercial carriers, corporate organisations and governmental entities at competitive prices. We have a vibrant and reliable global network. Be it Africa, the Middle East, Europe, North and South America, the Caribbean or Asia, Atlantic FuelEx has major fuel suppliers and regional fuel distributors everywhere. With their support, we extend dedicated localised services to clients worldwide. Atlantic FuelEx is also authorised to undertake jet-fuel quality and specification tests and inspections all over the world.

What are your plans for Business Airport World Expo 2013?

Atlantic FuelEx will use the Business Airport World Expo 2013 to highlight the

exciting news that we have become an IATA fuel supply consultant, which will enable us to support the airlines in terms of maximum annual savings by offering them a customised supply model for their individual requirements.

What does the future hold for Atlantic FuelEx?

One of the major value-adds we are looking to provide in the near future is to facilitate the use of fuel card schemes across Africa. At many African bases, and at numerous other places around the world, fuel sales are done on a strictly cash basis. We are working very hard with FBOs and incumbent fuel service companies to get them to accept cards from our major fuel partners, and we are also looking to get the cards accepted on military bases. We are also working to open three more representative offices (in Miami, USA; Istanbul, Turkey; and Stuttgart, Germany), to add to the Operational Center we opened in Dubai in November 2012.

Stand 1000

HOW TO GET THERE

By road

The ShowCentre exhibition centre, which hosts Business Jet Interiors World Expo 2013 and Business Airport World Expo 2013, is situated in Farnborough, North Hampshire, south west of London, close to Junction 4 of the M3. Follow the Farnborough signs on all major routes.

Satnav users should enter 'GU14 6AZ Queen's Roundabout' for directions to the nearby Queen's Roundabout. From the roundabout follow signs to 'FIL - Gate D'.

By rail

The ShowCentre exhibition centre is within easy reach of three railway stations – Farnborough Main, North Camp and Aldershot. Disabled passengers are advised to travel via North Camp.

For further information and train times, please contact National Rail Enquiries on +44 8457 484950 or visit www.nationalrail.co.uk.



EXHIBITOR Q&A

**Ries Vriend, owner and CEO of
Amsterdam Software**



What is your key product?

Since 2007 we have been contributing to the efficiency and profitability of FBOs and FBO networks with our FBO One software and global 24/7 support. FBO One's Google-style dashboard and search capabilities make the system easy to use. It manages, enhances and visualises all

workflows, from creating and confirming an order to handling, payment, invoicing and booking. Web-based and accessed through your favourite browser, FBO One can be used on any mobile device, providing up-to-date information on the ramp as well as to managers on the go. Currently, more than 70 FBOs worldwide are powered by FBO One, processing more than 7,000 actual aircraft departures per month. FBO One is officially supported by and integrated with NetJets, as well as CFMU/Eurocontrol and FlightAware, so changes in flight data are accurate and up to date, and handling requests are automatically updated according to changes in flight data. Other strong points are fuel sales and inventory control, providing live monitoring and management of running stock, payment card processing and management reporting.

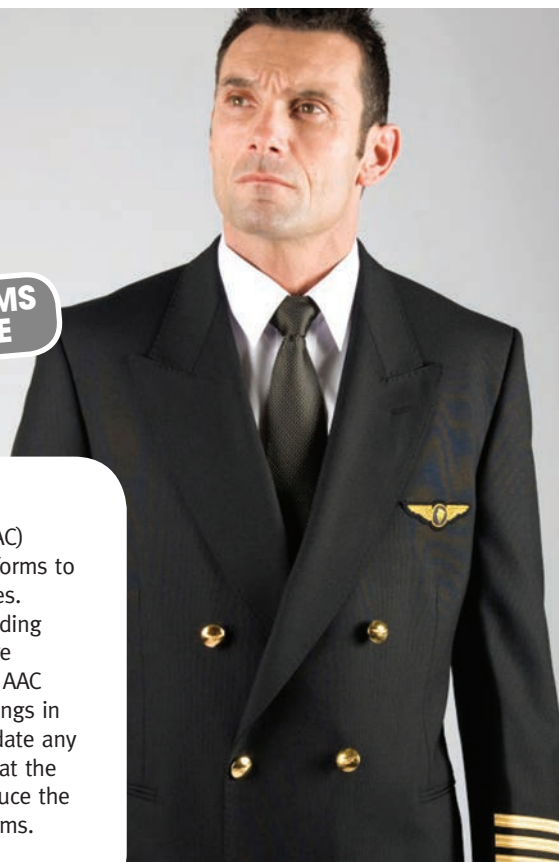
What does the future hold?

The focus is on expanding our customer base and excellent support from our offices in Amsterdam and New Jersey. We plan to open an office in Singapore in 2013 and add more online interfaces with industry partners such as Universal Weather & Aviation. **Stand 3022**

PILOT UNIFORMS IN EVERY SIZE

Crew uniforms

Armstrong Aviation Clothing (AAC) manufactures and supplies uniforms to commercial and business airlines. Complete pilot uniforms – including shirts, jackets and trousers – are available in virtually every size. AAC offers standard and athletic fittings in shirts and jackets to accommodate any physique. AAC will be on hand at the show to discuss how it can reduce the costs of supplying pilots' uniforms. **Stand 8026**



**THE ANNUALLY PERMITTED
AIRCRAFT MOVEMENTS AT
TAG FARNBOROUGH AIRPORT
WILL RISE TO 50,000 IN 2019**



By air

The ShowCentre exhibition centre is situated directly adjacent to TAG Farnborough Airport, Europe's premier business airport.

The airport features a runway measuring more than 2,000m in length. The airport's FBO provides direct ramp access to the aircraft by ground transportation, a concierge passenger and crew service, on-site customs and immigration clearance, an on-site café, crew lounges and TAG Aviation flight planning. There is also an on-site hotel. TAG Farnborough provides fuelling services (Jet A1), hangar facilities, full de-icing, toilet and water services as well as push back and air start capabilities.

The airport operates from 7:00am to 10:00pm Monday to Friday and from 8:00am to 10:00pm at weekends and on bank holidays. Contact TAG Farnborough Airport on +44 1252 379000.

By London airports

Heathrow Airport is approximately 30 minutes by car (25 miles). Gatwick Airport is approximately 50 minutes by car (45 miles).

FARNBOROUGH AIRPORT TOUR!

Visitors to the World Expo are exclusively invited to a tour of the neighbouring facilities at TAG Farnborough Airport. The tour will include a trip around the award-winning FBO, state-of-the-art terminal building and hangars. With a brand-new set of hangars that were opened during the 2012 International Farnborough Airshow, the airport now offers a total of 240,000ft² of hangarage for both based and transient aircraft. **To book a space on this dedicated tour, please contact Katy Marlow on kmarlow@tagfarnborough.com or +44 1252 379018.**

PRELIMINARY PROGRAMME

FREE TO ATTEND!

The Business Aviation World Conference 2013 will be held inside this year's Business Jet Interiors Expo and Business Airport World Expo. The free-to-attend event, which is located on the exhibition floor, will see industry experts from around the world discuss some of the sector's most important trends and challenges. The conference will focus on three core areas: the future of business jet interiors; how to expand the reach of your FBO; and improving operations and management processes within your business aviation organisation. Read on to discover a first look at the preliminary programme. More speakers are being announced on a weekly basis – to view the latest conference programme, visit: www.BusinessJetInteriorsWorldExpo.com

Tuesday, 19 March**EXPANDING YOUR FBO REACH AND EXAMINING NEW AREAS OF GROWTH****10:30am How to make an FBO work in any airport**

Catherine Gaisenband, founder, Aviacare

This presentation will look at what makes a fixed base operation (FBO) successful. The origins of an FBO date back to the early 1900s in the USA. Today, FBOs differ greatly around the world and each country has different requirements and needs. The FBO has evolved greatly over the years, and as the business aviation sector grows, regions such as Europe, the Middle East, and Asia are all helping to improve the services offered by the FBO. This presentation will look at mandatory services and also offerings that help improve the passenger experience. It will also look at the importance of staff training in today's industry.

11:00am The growing demand for executive airports in Brazil

Doriêdo Luiz dos Prazeres, Brazilian Civil Aviation Agency, and Francisco de Assis Souza Campos Lyra, CFly Aviation

This presentation will look at the current business aviation market in Brazil in terms of demand for airport infrastructure in the biggest cities. It has recently been announced that new business aviation airports will be developed in São Paulo, Brasília, Recife and Manaus. This is in preparation for the two upcoming major events: the 2014 FIFA World Cup and the 2016 Summer Olympic Games, which will see a strong demand for more slots, hangars and maintenance facilities.

11:30am The challenges of business aviation in an emerging market

Segun Demuren, CEO of Evergreen Apple Nigeria

This presentation will look at the challenges faced when managing business aviation in an emerging market. Nigeria is well known as leading the way in the African sector's growth, but it is not without challenges. Lack of automated systems, minimal regulations relating to business aviation activity, and selecting the right partners from the many who see the potential in the region, are all topics that will be covered. Representing a national Nigerian company founded in Lagos with eyes on African expansion, Demuren will also discuss the differences between being an internationally established business, and being a local company, and the various benefits, disadvantages and considerations of this.

12:00pm The importance of networking when developing business aviation at airports

Bud Slabbaert, business aviation consultant and chairman of BA-Meetup

This presentation will look at how to develop business aviation at airports and what can be done to help draw in more flights/clients. The presentation will highlight recent examples in Europe where airports have expanded their business aviation offering.

**Wednesday, 20 March****DEALING WITH THE THREAT OF ILLEGAL CHARTERS AND LOWERING YOUR CARBON EMISSIONS****10:30am – 12:30pm Session hosted by the Baltic Air Charter Association (BACA)**

Chaired by Markham Jackson, chief executive, BACA

Speakers TBC

THE FUTURE OF BUSINESS JET INTERIORS**1:00pm Making space go further in large corporate jets**

David Velupillai, marketing director, Airbus Corporate Jets

Today's large corporate jets have more space than ever before, giving customers a more comfortable space and a larger surface area to outfit. The way that this space is designed and outfitted continues to evolve, and a number of new trends and technologies are starting to emerge. This presentation will look at how Airbus predicts the market will evolve over the next few years, and it will highlight some of the more popular features found on today's corporate aircraft.

1:30pm Designing the next-generation business aircraft for the sophisticated client

Jean-Pierre Alfano, creative director, AirJet Designs

Owners of private jets are very demanding and flying in an aircraft that is an extension of the user's home is a key wish for many clients. Some recent examples of collaborative efforts between furniture houses and aviation companies have confirmed this need. However, private aircraft owners are demanding much more than this. They want the highest level of craftsmanship available to enable their aircraft to fulfil their lifelong dreams and passions of owning a private jet. This presentation will address the specific needs, challenges, solutions and excitement involved in designing for some of the most demanding clients in the world.

2:00pm How the aircraft can help improve brand identity

Didier Wolff, president, Happy Design Studio

The aviation industry is changing and the importance of brand identity is growing. Communication agencies are now being hired to help companies and individuals promote their brands in the best way possible. This has led to increased competition, and the aircraft itself has become the first means of advertising that brand. However, commercial aviation has become ugly, and a new approach to branding is needed. This presentation will look at one possible approach that takes the industry back to the early days of the aviation industry, when flying was experiencing its golden era and travelling by air was seen as glamorous. The presentation will examine this new approach to brand identity and challenge the audience on this issue.

2:30pm Sensory design in aircraft interiors

Frédérique Houssard, head of Designescence

Does the current design of aircraft interiors enable passengers to connect on an emotional level with their surroundings? Sensory design makes this possible. Design is normally carried out by meeting aesthetic and functional requirements, and it blends the various needs of designers, engineers and researchers. Sensory design, however, is a different approach to aircraft cabin design as it aims to deliver an environment that is human-centred, and it goes beyond functional requirements. An aircraft designed with a sensory approach aims to create a bond between passengers and the aircraft environment by calling into play the five senses. This presentation will provide guidelines and solutions for the use of sensory design in order to create a more interesting and engaging aircraft cabin.



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3:00pm Suspension fabrics: a new era in seat design

Jeffrey Gross, director of product development, Acme Group
After being in the textile industry for 95 years, supplying trim components and batting, Acme Group is no stranger to the ever-evolving market of transportation seating. Cutting-edge designs in the aircraft seating market have demanded that weight and bulk be removed from the seats and seating bank. The fabric known as Dymetrol enables seat designers to take mass out of the seat by eliminating springs and reducing the need for PU-foam, while increasing comfort and durability. As a result, the fabric suspension is more durable than the typical foam pad, seat pan, or spring suspension, and is much more comfortable.

3:30pm Converting regional airliners into VIP aircraft

Robin Freigang, director of the cabin interior programme, and Tobias Laps, head of sales, marketing and business development, RUAG Business Aviation

This presentation will look at interior completion programmes that have seen the conversion of aircraft, such as Bombardier regional jets, into VIP business aircraft. As a result, the value of the aircraft is significantly higher than the total cost of the project. This presentation will look at options for the interior and upgrades to aircraft systems, and will highlight various examples. Further focus will be on the opportunities for the owner to customise the aircraft interior and exterior, and there will also be some samples of exterior designs and ways to present these to the owner.

11:00am How to improve the professionalism of FBO staff

Graham Stephenson, senior aviation consultant specialising in FBOs
This presentation will discuss in detail what needs to be done to improve the training standards and the professionalism of staff that work in FBOs. For staff to be trained correctly, there needs to be a recognised standard for each of the tasks undertaken. What are these tasks, standards and procedures? Are they incorporated in an SMS or QMS, and are they audited? Finally, the presentation will look at a proposal on how the FBO industry could become more professional, with staff and FBOs benefiting from their training and experience, which must ultimately translate into better safety standards – the industry's number one objective.

11:30am How to fully utilise social media in the business aviation industry (presentation TBC)

Rob Mark, CEO, CommAvia

Social media and business aviation are not mutually exclusive, as some people seem to believe. Leveraging social media for a non-airline airport is not easy, by any stretch of the imagination. Social media's tools may be mostly free, but to make a system work well at a business aviation airport, an FBO or airport manager needs someone who understands the tools and is dedicated to engaging all the airport's stakeholders. Although social media can be time consuming, it's proving to be money well spent because of the ability to send messages directly to the people who need to hear them. Best of all though, social media includes a variety of measurement tools confirming the effectiveness of any programme. Social media also allow trial of tactics never before available due to cost. This presentation will draw from examples that have proved successful within the industry.

12:00pm Developing the right public relations and branding programme for your business aviation organisation

Alison Chambers and Jane Stanbury, Emerald Media

A company's brand is the first thing a client sees when it deals with a company, and first impressions count. Going on to develop this brand so it becomes recognised within the industry is extremely important for growth. Brand development can be achieved by implementing the right public relations programme. Alison Chambers and Jane Stanbury from Emerald Media will draw from their experiences in helping some of the industry's leading organisations develop their brand and improve their public relations.



Thursday, 21 March

OPERATIONS AND MANAGEMENT

10:30am Safety management systems: not a 'thing' you purchase

Jason Starke, safety management system operations manager, Universal Weather and Aviation

There are misconceptions in the business aviation industry regarding safety management system (SMS) requirements, how they can be met, and third-party industry audit standards. Some operators believe SMS is something you can buy, or a series of boxes you check. However, an effective SMS is a collection of processes, resources, beliefs and practices that has the aim of managing and reducing risk. This session will help attendees understand ICAO requirements for SMS, performance goals of SMS, how third-party audit standards tie into SMS, the key components of SMS, and that they can do SMS on their own.



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Designers want unique colours, textures and effects – so Kydex offers a collaborative approach to achieve them

Thermoplastic sheet manufacturer Kydex, LLC, prides itself on creating virtually infinite possibilities for designers – offering colours, textures and effects that can transform designs. As well as an extensive range of coloured sheets that are already certified for aviation, the Kydex designLab can work with designers to create custom variations that are compliant with FAA standards.

The company reveals designers are also increasingly playing with textures. “Through advances in pressure forming, thermoplastic sheet can now hold textures that offer infinite variety, with consistency throughout each variation,” says John English, Kydex’s colour specialist and designLab supervisor. “The cupholder that once was monotone and utilitarian can now embrace varied textures, hold intriguing shapes and shadows, and even present logo impressions that quietly reinforce a brand.”

The team has also perfected some truly special effects – including the incorporation of text, logos and patterns; pearlescent materials with integral shimmer (Kydex 6503); and compliant, frosted coloured translucent materials (Kydex FST CTL). “It’s our responsibility to work closely with the design end of the industry to continually push boundaries so that they can, too,” says David Scott, Kydex global creative.

Scott has designed stunning aircraft interiors for prestigious long-haul airlines. It was his quest for coloured translucence that led to the development of Kydex FST CTL. It was a long path of continuous formulation, reformulation and testing, but the result is that dividers that once blocked light can now refract and reflect it. Passengers can enjoy privacy without feeling walled in or isolated.

Cabin classes can have different lighting motifs within a unified whole. LED lighting can be used to its maximum advantage to create moods for different flight segments.

“With translucency, light does not just shine. It travels, plays and bounces,” adds Scott.

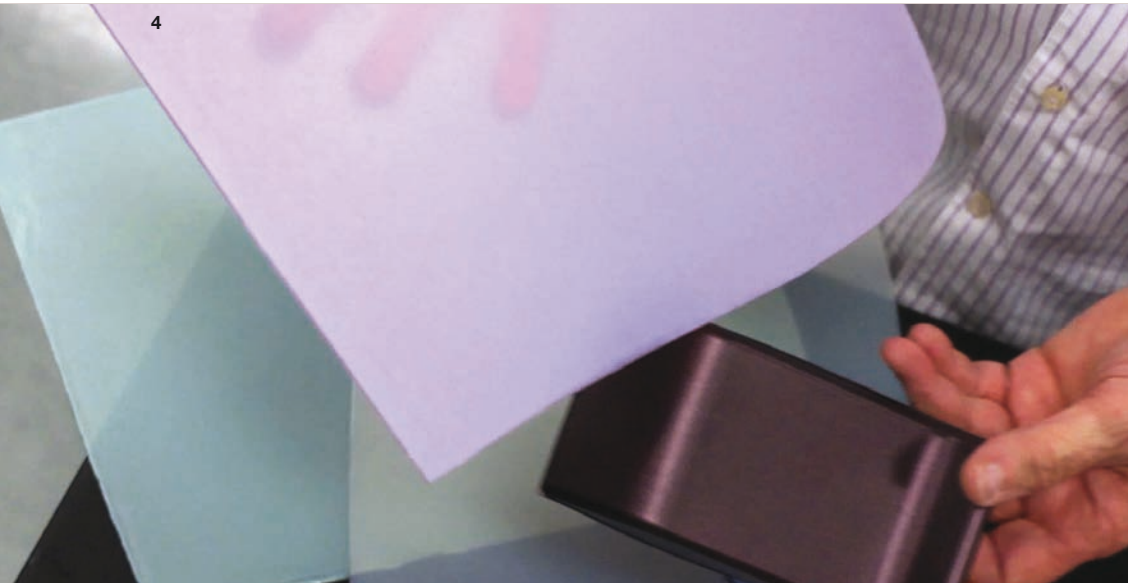
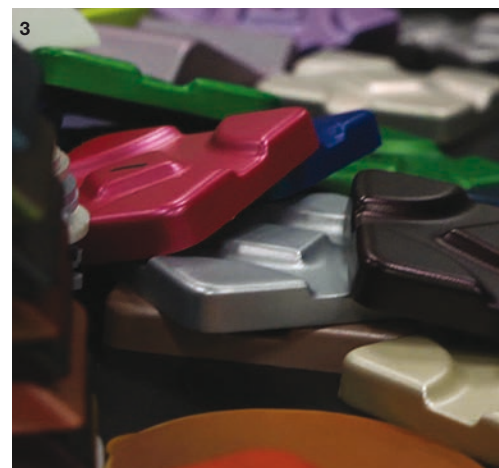
Stepping up to unique challenges is what the designLab is all about. Customers can go beyond chips and colour samples, and have custom colours created. They can see formed pieces that are true to the final product and their vision.

The process is founded on close collaboration. The conversation can begin with something as simple as a fabric swatch, a household object or a picture from a magazine. It extends from that initial inspiration to final implementation in a fully realised cabin environment. First, colour- and texture-matching are perfected in the designLab. Next, the specifications are entered into the production schedule and manufactured on the factory floor. The colour submitted is available in the product specified on the drawings.

The ethos of the designLab extends to Kydex’s website, where customers can see informative and inspiring videos presented by Scott. The point is that Kydex is not just a manufacturer, it also offers itself as a design resource and partner in realising clients’ visions. “Everyone has a way of expressing themselves when it comes to colour,” says English. “Communication is really important in determining the direction a customer wants to go with the colour. That creative collaboration really gives us the edge over our competition.”

Kydex

Reader Enquiry No. 501



1. A huge range of stock colours is available
2. The company also offers custom colour-matching
3. Kydex thermoplastic sheet can be formed with interesting textures
4. Kydex FST CTL enables designers to play with translucence

fastforward

Retrofitting IFE is becoming a more cost-effective option for operators

1. IMS's Rave installed in business class
2. A new-generation digital personal control unit



IFE has historically been one of the most complex and difficult electrical systems to upgrade on an aircraft. "For a while, handheld devices were the only option for operators keen on delivering the latest IFE technology to customers," says David Hickson, managing director of Aerocare International. "The need for miles of hard wiring, central servers and multiple racks of players to distribute various media channels to numerous zones has always limited the cost-effectiveness of upgrading the IFE."

This is especially unfortunate given how quickly technology advances in the consumer communications and entertainment market, particularly driven by personal electronic devices (PEDs) that boast incredible processing power and a plethora of services.

"The restrictions of aviation approvals for electrical equipment and the challenges involved in upgrading innately complex systems mean that even the latest equipment is effectively behind the curve by the time it is installed, by years in some cases," says Hickson. "But we are now in the midst of the IFE revolution."

Aerocare International contends that the advancement of technology driven by PEDs has had a huge impact on development, leaving the door open for companies such as IMS, digEcor and Bluebox Avionics to introduce a range of advanced technologies, covering the spectrum from retrofit terminal data loader systems to handheld HD gaming consoles.

"The pressure is on to integrate PEDs of all description, and many of the new systems are incorporating interface ports for PEDs," says Steve Whittaker, business development director at Aerocare International. "The sheer speed of advancement in the last few years – in the solid-state components and computing power available to these companies – has allowed a complete step change in the systems available. If you add the significant weight-saving advantages of a combination of fibre optic cabling and wireless technology, you realise that this is a revolution in what is available to the

business and corporate sector, which has historically been served by hybrid adaptations of commercial systems."

Whittaker is sure that there are many high-end corporate and VIP aircraft with upgraded interiors that still house VHS video and Dolby cassette decks, the only advance being the addition of a DVD and CD player. "But the opportunity for state-of-the-art IFE upgrade is now wider than ever before," he says. "Retrofit systems are now available at a fraction of the original cost of some of these systems, and represent a very cost-effective modification to bring corporate IFE bang up to date."

Recent advances include wireless technology, HD displays, smartphone and PED interfaces, internet and datalink and interactive marketing functionality. "In addition, mobile phone companies are fast closing the gap on satellite phones, and the challenges of transatlantic signal availability are falling day by day," says Whittaker. "Cost of ownership and downtime are all significantly reduced with the new systems, because of facilities such as the automatic upload of the latest news and information, whenever the aircraft docks, and 'self-diagnosis' from virtually any seat. The low cost of components has also enabled plug-and-play repair. And there are even standalone units with USB upload options for small corporate operators, which require low-cost implementation, simple maintenance and even simpler upgrades."

One of Aerocare International's specialities is working with operators to support IFE retrofit projects. "We are experiencing a huge upturn in requirements to develop and support fully integrated installations for the latest generation of equipment and are working closely with a number of companies on retrofit programmes," says Hickson. "The latest technology is now within everyone's grasp, with remarkable savings over original equipment options."

Aerocare International

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Satcom Direct offers helpful tips to keep SwiftBroadband costs down

1-2. Satcom Direct provides broadband communication solutions for the cabin and cockpit



1

SwiftBroadband (SBB) provides aircraft with worldwide access to email, internet, virtual private networks (VPNs) and video-conferencing by using Inmarsat satellites. "All of that coverage, speed and bandwidth comes at a price," says Kevin Finegan, vice president of operations at Satcom Direct.

The company provides global satellite voice and broadband data solutions for flight deck and cabin communications, and offers many tips to help operators keep their SBB costs in check.

The first is to expect the unexpected. "Operators should know the cost of their high-speed services, and control usage on the aircraft," says Finegan. Satcom Direct recommends that operators think through expected usage and choose a solution to match. The company can provide an overview of the plans it offers, to find something that meets each operator's needs and budget.

Another recommendation concerns protecting the network. "The most common intrusion method is an unsecured wireless network," warns Finegan. Satcom Direct recommends operators should always protect the onboard wireless network. "Enforce strict security protocols for any wireless router on your SBB system and only allow trusted people to access your network," adds Finegan.

The home page holds another key in reducing costs. Just a few downloads can quickly raise SBB charges. To cut back and still get the data needed, Satcom Direct suggests choosing a lightweight home page that doesn't contain large graphic images or streaming content. "A lightweight URL reduces the number of images, videos, Java and Flash, leaving the basics while reducing the data volume," says Finegan.

"Avoid using sites loaded with video or Flash content as your home page, and in general."

Another tip is to forego streaming and ISDN when not critical. At US\$7.95 per megabyte (based on current data rates, subject to change, and not including taxes and/or other fees), this background traffic can become costly.

"When not using the SBB unit, operators should power off their devices (such as laptops, iPhones and iPads)," says Finegan. Likewise, operators should turn off streaming IP when a data exchange is complete. Per-minute rates apply while the connection is on, even if data is not streaming.

"These tips can help reduce SBB costs, but your monthly bill depends on how much speed you really need," says Finegan. "A standard IP connection is fast enough for casual internet browsing and checking email, while video-conferencing or viewing high-resolution video and images takes streaming IP. And there is a big difference in cost between the two options."

Satcom Direct also provides exclusive tools such as SkyShield, which applies different filters to eliminate unintended traffic, and AeroX to accelerate and compress data. "The best way to ensure your data and budget balance is to create a solution that best fits your needs and expectations," says Finegan. "Knowledge is more than power – it's also the money you'll save by choosing the right plan. And that is what we help our customers do every day."

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2

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