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SEPTEMBER 2011

THE INTERNATIONAL REVIEW OF BUSINESS JET INTERIOR DESIGN AND COMPLETION



firmfoundations

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happybirthday

As the BBJ celebrates its 15th anniversary we look back at some of its greatest incarnations

bigdeal

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DESIGNWORKSUSA, DASSAULT'S FALCON 2000S MAKES
LUXURY AFFORDABLE IN THE SUPER-MID-SIZE MARKET



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automotives

Among the many gleaming models, shiny brochures and exciting new ideas competing for visitors' attention at May's EBACE, one exhibit stood out for me. For pride of place on the Hawker Beechcraft (HBC) stand was a Lotus sports car. HBC has teamed up with the car marque for a 'buy an aircraft, get a car free' deal, and the alliance will also see HBC showcasing aircraft at F1 events. Incidentally, HBC is opening a customer gallery in Claridge's Hotel in London, UK – could this be the forerunner to a car-style showroom for business jets?

The Lotus caught my eye not just because of its undoubted beauty, but because it is indicative of a growing link between automotive and aerospace design. And this issue is full of it. Indeed, our cover story, Dassault's new Falcon 2000S (page 32), is based on packaged interiors designed in collaboration with BMW Group DesignworksUSA. The design consultancy has form in aerospace design, having worked with Dassault before on the 7X and with Embraer on the Legacy 450 and Legacy 500, in addition to various concepts (such as its Boeing 787 concept, pictured in our feature on the Boeing Business Jet on page 48) and design duties for parent company BMW.

This issue also chronicles another car company's aerospace design debut. Mercedes-Benz has reinvigorated the interior of Eurocopter's EC145, and the result is unashamedly automotive – from the 3D sculpted wood to the boot (trunk) at the back. "The automotive industry, and in particular those brands that target the upper end of the market, have developed a very high level of design and quality of finish which is, quite frankly speaking, above anything the aeronautical world had to offer so far," says Ernst Heckert, Eurocopter's programme manager for EC145 contracts in our feature on page 56.

Certainly the bizjet industry is a more niche market that is subject to tougher regulations and greater weight considerations. Aerospace workers need a very high degree of skill, creativity and technical savvy – and are therefore a precious resource to completion centres. Many centres are working hard to build up the talent pool, as you can see on page 40.

Clearly both industries have accumulated a wealth of complementary skills, technologies and ideas that can be shared for the benefit of both.



Izzy Kington, editor

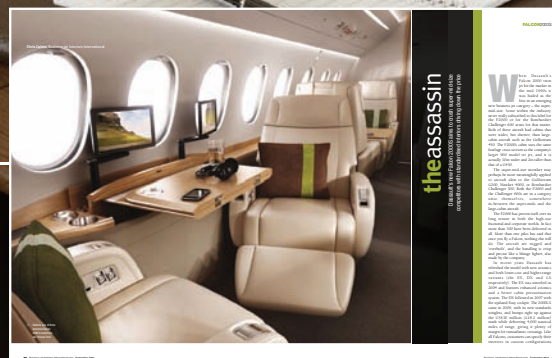


“With the 2000S we are moving into ‘packaged’ aircraft – the 7X was our first approach at this, but it is easier to do on a more entry-level aircraft like the 2000S”

theassassin

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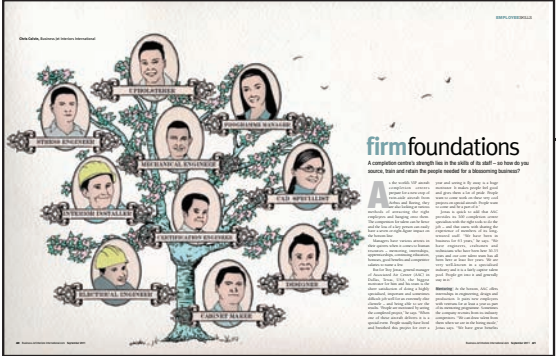
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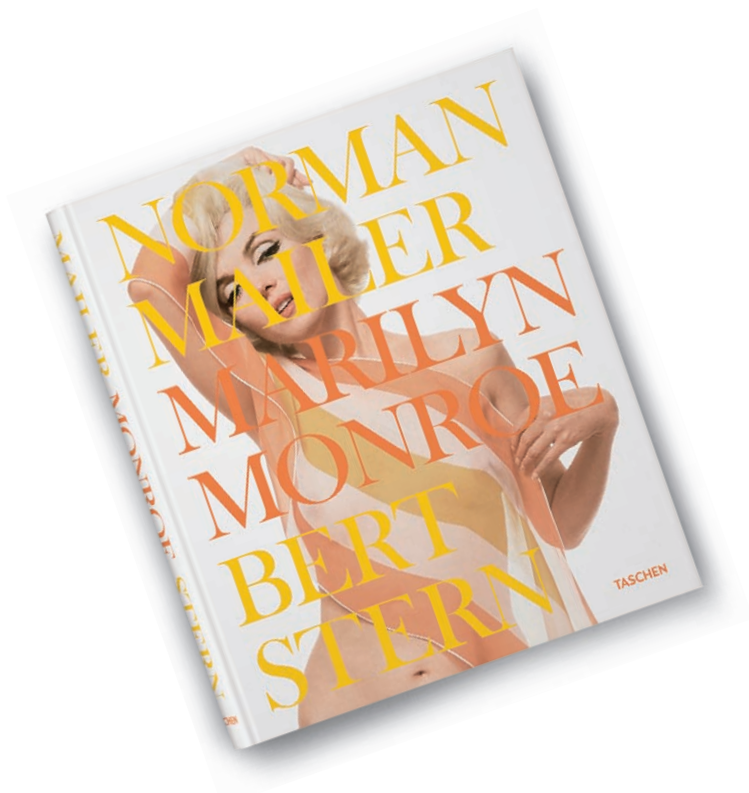
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The VIP and first-class seats include individual touchscreen LCD monitors for IFE



Photo: Andy Cline

VIP line-up for Business Jet Interiors World Conference 2012

The business jet and helicopter interior industry's only dedicated conference – Business Jet Interiors World Conference 2012 – has announced an initial line-up of speakers. The conference will take place on 22-23 February 2012 in Cannes, France, as an integral part of Business Jet Interiors World Expo 2012.

The speakers include Andrew Fulford, manager of design operations at Gulfstream; Bombardier's Global Completions Center (speaker name TBC); Magnus Aspegren, director of BMWDesignworks' Singapore studio; Paul Priestman, director of UK-based design firm Priestmangoode; Tim Callies, head of Comlux Creatives; Ross Lovegrove, director of Lovegrove Studio (pictured bottom right); Rick Roseman, founder and director of RWR Design (pictured bottom left); Andrew Muirhead, CEO of IDAIR (pictured top left); Christian Castang of Altair (pictured top right); an expert from Jet Aviation (speaker name TBC); and Oliver Stone of brokerage firm Colibri Aircraft.

The conference will cover topics ranging from certification and compliance issues through to cabin technologies and comfort, completions management, design trends and other hot topics. Additional speakers will be announced at a later date.



Ross Lovegrove photo: John Ross

Field delivers two custom Q400 interiors

Field Aviation has delivered two Bombardier Q400s with custom-designed interiors. Selected by Avitrade Belgium on behalf of its end-use customer, Field Aviation designed, engineered and integrated mixed-class interiors for each aircraft. The aircraft, with 28 and 40 seats respectively, were configured with a combination of single VIP seats and standard economy seat pairs. One aircraft features a separate cabin with four individual fully berthable VIP seats in club configuration. Highlights include in-seat power; side ledges with fold-out tables; class dividers with LCD screens that display Airshow moving map; Sky Connect real-time satellite tracking; and cordless satellite phones.

Sukhoi to launch business jet version of SSJ100

Sukhoi Civil Aircraft and Alenia Aeronautica have announced that a new business jet version of the Sukhoi Superjet 100 regional jet (SSJ100) will be launched at October 2011's NBAA convention in Las Vegas.

The Sukhoi Business Jet (SBJ) will be developed by SuperJet International, a joint venture between Alenia Aeronautica and Sukhoi Holding. Based on the SSJ100/95 platform, the SBJ will be available in three different configurations – VIP, corporate and governmental.

The companies highlighted the VIP version at the Le Bourget International Airshow in France (June 2011). The VIP version features several zones – including office, bedroom and bathroom areas – that can be tailored in line with customers' specific needs. Additional fuel tanks in the cargo hold will enable a range of almost 4,300 nautical miles – more than double the SSJ100's standard range of 1,645 nautical miles.

Certification of the SBJ is scheduled for the beginning of 2014. The first SSJ100 entered revenue service in April 2011.

A330-200 and BBJ2 contracts for Jet Aviation

Jet Aviation Basel has been awarded an A330-200 cabin modification and refurbishment contract by an undisclosed and long-standing client. To reduce downtime and ensure timely completion and redelivery, the Swiss completion centre will prepare all required parts in advance of the aircraft's arrival at the facility, which is scheduled for the end of 2011.

"Customers at Jet Aviation Basel appreciate working with our engineering and pre-production teams during the upfront phase and greatly value our ability to customise aircraft to their exact specifications," said Stephan Krenz, senior VP and general manager at the facility.

In May 2011, the company announced it had been awarded a new BBJ2 completions project by an undisclosed client. The aircraft is expected to arrive in Basel in the second quarter of 2012.

"We are well prepared to support high demand in the large VIP aircraft segment," said Eugen Hartl, VP of sales, market development and customer service for the company's completions business unit.

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The Baltic Brown granite floor was fitted over a two-week period at Ocean Sky's interiors centre in Manchester, UK

Stone floor for Ocean Sky Global Express

Ocean Sky has installed a stone floor in the entrance and galley area of a Bombardier Global Express. "The installation enables easy removal of the flooring if needed, and the material meets the FAR 25.853 aerospace standard for flammability and the FAR 25.793 standard for floor surface friction," said Lenny Gray, general manager of Ocean Sky's interiors business. The granite is complemented by a patterned carpet in the passenger cabin, lavatory and crew area. "The multilayered structure of the flooring ensures minimum weight increases," said Gray. Before starting the installation, Ocean Sky constructed a 3D model and completed a trial fit on the aircraft.

Supersonic business jet in the works

A new supersonic business jet is being developed by HyperMach in Europe. The company says the SonicStar will achieve Mach 3.5, while meeting requirements for high thrust-to-weight ratio engine designs, reduced emissions and a dramatic reduction of sonic boom over land. The jet would enable flights between New York and Sydney to be operated in five hours. HyperMach is currently working to secure investment for launch in 2021.

The propulsion system is a new hybrid engine, S-MAGJET 4000X, designed by engine partner SonicBlue. The engine will be developed and built in the UK; the company is in discussions with potential engine manufacturing partners. The UK Department of Trade and Industry has agreed to support the company in the UK.



Inmarsat GX teams with Rockwell Collins

Rockwell Collins will take the leading role in the development, production and distribution of user terminals (UTs) for future Inmarsat Global Xpress (GX) aeronautical services to the aviation industry.

With the support of Rockwell Collins, inflight testing of the Global Xpress aeronautical services is due to begin after the launch of the first Inmarsat-5 satellite, scheduled for mid 2013. Inmarsat and Rockwell Collins will enter into exclusive negotiations that are expected to lead to definitive agreements by late 2011.

Inmarsat says its GX aeronautical offering will be economical, in terms of both hardware and services to the end users, providing global Ka broadband connectivity with transmission speeds at least double that of Ku offerings.

"This combination will be integrated into end-to-end equipment and service packages by existing and new distribution partners, including Rockwell Collins, to create a new industry standard for airborne connectivity," said Leo Mondale, managing director of Inmarsat GX.

TriaGnoSys launches complete IFEC solution

TriaGnoSys and Siemens CMT have launched IFEConneX, which incorporates an entertainment and media distribution system into the TriaGnoSys inflight GSM solution, GSMConneX, which was launched in April 2011.

The modular system provides GSM, WLAN and wireless streaming of IFE content, enabling operators to combine the three. Using IFEConneX, passengers can use their own mobile phone, tablet or laptop for calls, text messaging, emails, internet connectivity and for AVOD. The solution can stream individual content to up to 100 passengers simultaneously.

"This is the perfect solution for any aircraft that does not have an embedded IFE system," said Axel Jahn, managing director of TriaGnoSys. "It is a complete communication and entertainment system in one small box."

IFEConneX extends TriaGnoSys' business jet solution AeroBTS+, an integrated server and GSM base station. Software configuration options include the GSM service alone, GSM plus IFE, GSM plus WiFi, or all three services. WiFi and wireless IFE can be installed without GSM, while retaining the option to upgrade.

TriaGnoSys says all the necessary airborne hardware is small and light enough to be mounted within the ceiling panel. For external connectivity, it connects to the aircraft's existing communications system, and has the flexibility to be used over any radio link, including SwiftBroadband, Ku-band, Ka-band and direct air-to-ground links.





The aircraft features six fully reclining, extra-wide seats and individual IFE monitors

Beechcraft 400A and King Air STCs for AvFab

Aviation Fabricators (AvFab) has received STC approval for its Beechcraft 400A two-place divan (pictured below). The STC allows for installation in all Beechjet and Hawker Beechcraft 400A series aircraft in addition to the 400 series.

The two-place divan is available with the option of close-out panels, and comes with integral shoulder harnesses mounted to the frame. To install, the existing seats/furnishings are removed, and the divan is placed by locking it into the seat tracks. AvFab offers pricing quotes on the removed seats as potential trade-ins.

The company also recently gained an STC for its arm ledge/table system for Beechcraft King Air C90, E90, F90 and 200 aircraft. The kit is designed to update the aircraft to the same look and feel as newer models of King Air aircraft. It includes two tables, a new sidewall with integrated outboard armrest, brackets, hardware, full installation instructions and the STC. The table features built-in cup holders, replacing the old 'flip out' holders. "These upgrade kits will not only modernise the look of the cabin but add value as well," said AvFab's GR Lowe.



Citation XLS+ joins Asia Jet's fleet

Asia Jet, one of the largest charter operators in Asia, has added a Cessna Citation XLS+ to its fleet. The jet is believed to be the first of its kind in Hong Kong and China. Features include a refreshment centre and an aft bathroom with sliding privacy doors. It is also equipped with Ultrason Edition 8 Palladium headphones, which are handmade in Germany. The XLS+ is the latest version of the Citation Excel and XLS models already in service in China. It will support shorter trips within Asia – for example, linking Hong Kong to Shanghai, Guangzhou to Beijing and Ho Chi Minh to Macau.

Two Brazilian installations for Aircell connectivity

Two members of Aircell's global dealer network have received separate installation certifications for Aviator 300 and Aviator 350 connectivity systems from Brazil's National Civil Aviation Agency (ANAC). Aircell's Aviator series, powered by Thrane & Thrane, enables global email, light internet and voice capabilities via Inmarsat's satellite-based SwiftBroadband.

An Aviator 350 system was installed and certified on an ACJ319 in VIP configuration by Avionics Services of São Paulo, Brazil. Incorporating an Iridium/Inmarsat filter solution, the system was integrated with the Aircell Axxess cabin system and included cockpit data capabilities. Meanwhile an Aviator 300 system was installed and certified on a Cessna Citation CJ3 by TAM Aviação Executiva at its São Paulo facility.

In May 2011 Aircell announced that from 2012, Cessna will offer the Aviator 300 system as an option on new Citation XLS+, Citation Sovereign and Citation X aircraft. It will be fully integrated with the Axxess system, for global connectivity.

Improved internet for Global 5000 and 6000s

Bombardier has selected EMS Aviation to provide increased high-speed internet connectivity as an option for Global 5000 and Global 6000 jets. The offering features a ViaSat Ku-band communication system and EMS router equipment, complementing the aircraft's standard L-band SwiftBroadband system. Operating with ViaSat's Yonder internet service and available through service partners, the system is designed to offer increased connectivity and multiregional coverage.

"Global business aircraft are specifically designed to provide a highly productive working environment," said Stéphane Leblanc, vice president and general manager of Bombardier's Global platform.

With Yonder, the Global 5000 and 6000 will feature full internet connectivity (WiFi), voice-over IP, access to virtual private networks and email with attachments via laptops, and will enable the use of other WiFi devices. The high-speed data suite includes typical download speeds to aircraft of above 1 Mbps and upload from the aircraft speeds of more than 128 kbps.

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The refreshed cabin features a stateroom with shower facilities, three passenger lounges, a mid bar, a crew rest area and an aft galley

ST Aerospace completes DC8 VIP refurb

ST Aerospace has refurbished a DC8 VIP aircraft for a client in the Middle East. The company's in-house design and engineering team in Singapore redesigned and reconfigured seats, galleys and lavatories, while its US facility performed the modifications and managed the engineering authorisation and certification. The project involved the conversion of lavatories into a new storage area and a library/crew workstation; the replacement of seats, tables, lavatory fixtures and galley features; and the alteration/installation of IFE fixtures, including LCD TVs. Ceiling panels were also redesigned, and upholstery and carpets replaced.

BAE Systems and Design Q unveil ABJ Eleganté

BAE Systems and Design Q have unveiled the fourth of five concepts for the Avro Business Jet (ABJ). The ABJ Eleganté has a forward lounge with two large sofas, a dining table and a 46in screen. The dining area can be used as a work area, with screens embedded into the surface, laptop power supply and a central pop-up communication centre.

The aft cabin provides an extra lounge and private office. The cabin can be converted into a bedroom with a full-size double bed. With a large VIP lavatory located behind a curved bookcase, the whole rear section of the aircraft doubles as a private bedroom with an en-suite.



nice retrofitted into Global Express

The first ever retrofit of Lufthansa Technik's nice CMS/IFE system on a Bombardier Global Express has been completed in cooperation with H4 Aerospace (UK), which has EASA Design Organisation Approval (DOA). The installation was performed during the aircraft's 8C check – a scheduled maintenance event that is performed on a Global Express every 10 years. The owner opted for a complete refurbishment of the interior, as well as a customised version of nice.

"With the STC, we will be able to add this kind of retrofit to any future Global airframe overhaul downtime," said Russell Wenman, CEO of H4 Aerospace (UK).

"The system features the latest technologies, including intuitive passenger control panels, the niceview high-resolution moving map system, iPod integration and WiFi network," said Andrew Muirhead, director of the Innovation Business Unit at Lufthansa Technik. "We even have an option of controlling the system via an iPhone app – a unique feature that places control at the user's fingertips."

Flying Colours delivers two Challenger 850s

Flying Colours Corp has delivered two completed Challenger 850s. ExecuJet Middle East accepted a Challenger 850 on behalf of a private customer in June 2011. This is the first time that Flying Colours has delivered this type of aircraft to the region.

The aircraft's furnishings include euro-burl veneer, customised gold inlays and fine leathers and fabrics. The aircraft is equipped with iPad functionality and True North's Simphone broadband WiFi.

A second Bombardier Challenger 850 was delivered to Russian aviation business Ak Bars Aero in late July 2011.

A further four Challenger 850s are currently undergoing completion at Flying Colours – three at its main facility in Peterborough, Canada, and one at the JetCorp facility, Flying Colours' US location in St Louis, Missouri. All four are scheduled for delivery to Asia in the next 12 months.

"We anticipate that each aircraft will take eight months to complete. However this depends on their specific requirements such as installation of our stylish stone floor veneers and increasingly complex connectivity requirements," said Sean Gillespie, director of sales and completions at the company.

Flying Colours is also currently converting three regional CRJ airliners to exeliner format for US-based customers. The first should be delivered in September 2011, the second in late 2011 and the third in mid 2012. One is designed to include an aft cabin with a full-size bed and a Tailwind 500 satellite TV system.

"This demonstrates that there is continued demand for conversions as the market recognises the economic and practical value of converted aircraft," commented Gillespie.

modelbehaviour



Dan Ouweleen, president of Pacific Miniatures (PacMin), looks back on 65 years of making intricate aircraft models

How are PacMin's models used?

PacMin models are primarily used as sales and marketing tools for aircraft manufacturers and operators. New aircraft reveals and tradeshow are key venues for models. They are also commonly used for customer presentations and contract signings as well as for display in customers' lobbies. Many completion centres design special interior packages and have a model made showing off their unique designs. Sometimes PacMin models are included in aircraft sales contracts for customer marketing support. A beautiful interior model of a VIP's business jet in his office serves as a great conversation piece and an ongoing advertisement for the completion centre. Generally our clients use PacMin when they are going through the design process for a new aircraft from initial concepts through development and testing and on to certification. And there have been more than a few designs that have been modified or abandoned after being created as a PacMin miniature.

How are they made?

We depend on getting CAD data from the customer for interior seats and furniture, as well as lavatories, bedrooms and dining areas. To produce miniatures of the interior components, we use the CAD data for design parts that can be duplicated with rapid

prototyping. If the same form, a seat for example, is repeated, we will develop moulds for casting parts. We also get information on the exact colours and textures of fabrics for seats, carpet and side panels from the customer. We then carefully duplicate these, accounting for the fact that we are producing the model in a much smaller scale than the real aircraft. The aircraft exterior is usually moulded in fibreglass and polyurethane. It is carefully filled and sanded and spray painted with transport-grade paints. For finely detailed graphics, we have a silk-screen shop where we print water-slide decals with every registration.

How long does the process take?

Assuming we get all the information on time and there are no changes in the process, it takes about 12 weeks to do a detailed interior for a large-scale model. We have the capacity to do about two detailed cut-away models a month. As for our desktop and exhibit models without interiors, we produce about 1,000 units per month.

What are the biggest and most complex models PacMin has made?

We have been involved in models up to 24m long. Generally, interior models vary in length from 2-4m. We have incorporated exterior and interior lighting as well opening and closing luggage and passenger doors. We even engineered an electric operating passenger elevator on a Boeing 747 model for Greenpoint Technologies. We were the first to include multiple miniature flat-panel TV screens to depict entertainment centres. We have also duplicated some really amazing paint schemes, either real or proposed. These include designs with pearlescents, fades and whimsical decals.

What have been your favourite projects?

I appreciated the challenge HondaJet gave us when they commissioned a 4.5m model for NBAA 2007. The company is very strategic about its brand and marketing messages, which I respect and appreciate. It teamed us with a special effects company that we had not worked with before. The collaboration resulted in a model with rotating turbine blades, realistic strobes and position lights. The model was articulated in such a way that it emerged from a cloud created in the middle of HondaJet's exhibit. The company wanted us to capture the beauty of the aircraft emerging from a cloud layer, and together, we did!



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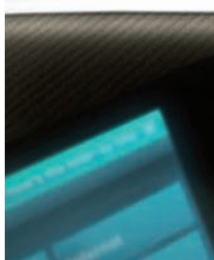
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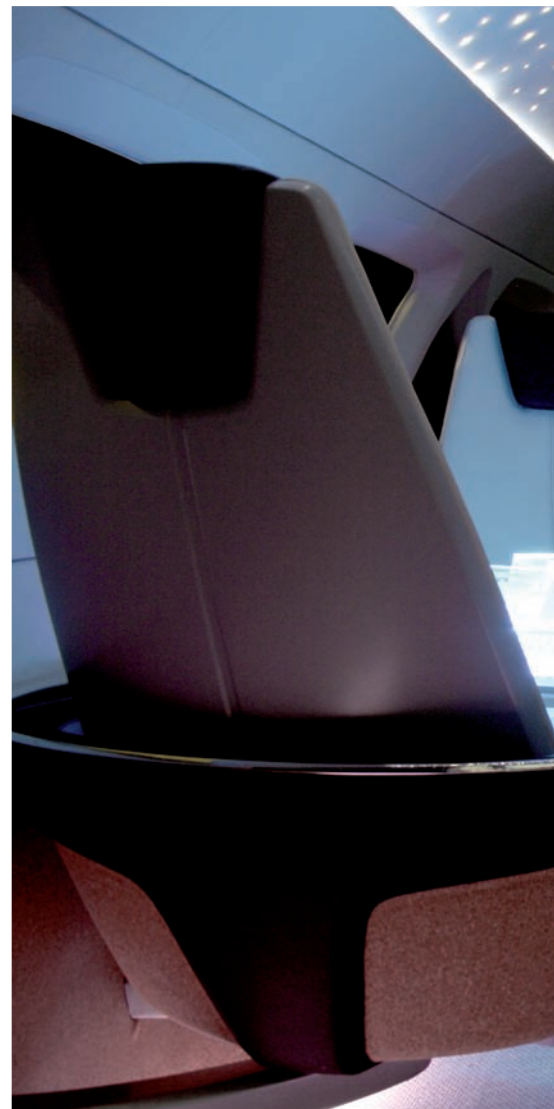


Brief:

LIFE (Lighter, Integrated, eco-Friendly and Efficient) is a business jet concept created by a consortium of Portuguese companies, including Amorim Cork Composites, Couro Azul, INEGI (an R&D organisation), SET and lighting experts Caiado and Sernis, with support from the Portuguese Aerospace Industry Association. Industrial design expertise was provided by Almadesign, while Embraer provided guidance on user requirements. The interior was developed for both business and personal use, with a focus on light, comfortable and natural materials. The concept has already been realised in a 6m-long full-scale mock-up presented at the 2011 Paris Air Show.

Description:

The cabin includes an executive area, a lounge/meeting space with two large sofas, a bathroom and a bedroom. Perhaps the most striking feature is a large geodesic sphere, an immersive infotainment system built from interactive surface modules. The technological wizardry also extends to the seats, which are “ergonomically adaptable to every passenger through a biometric identifier”, according to José Rui Marcelino, Almadesign’s design manager. Floating on a suspended carbon-fibre structure and covered with Corkgel (a viscous elastic polymer with soft cork granules) and leather, the seats are designed to enhance comfort by reducing vibration, while integrated biometric sensors monitor body temperature and heart rate. The concept is also interesting for its use of cork-based composites, a natural and recyclable alternative to synthetic composites. Amorim’s Corecork (currently approved for railway applications in terms of flame, smoke and toxicity) has been used for sandwich panels, which are then covered in leather or Corkleather. Other highlights include retractable touchscreens in each seat; a multi-touchscreen table in the lounge; and an interactive lighting system featuring fibre optics, LEDs and motion sensors.





Verdict:

The project was funded by a cool €1.85 million (£1.61 million/US\$2.57 million) from the Portuguese National Strategic Framework Programme under the Operational Programme for Competitiveness Factors and European Regional Development Fund – and has certainly succeeded in focusing attention on the country's industrial abilities. "Visitors to the Paris Air Show were very surprised to see a full-scale model of such a different concept and were very curious about some of the technical details behind it," says Marcelino. "LIFE has promoted a more multidisciplinary and cooperative approach of working for future aerospace projects, as well as demonstrated eco-efficient, lightweight and comfortable solutions." Marcelino reports that some of the solutions will be further developed to make them feasible for production in the medium term.



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romanholiday



Brief:

Laura C. White, a recent interior design graduate from the Savannah College of Art and Design in Georgia, USA, has developed a luxurious Boeing 747-400 charter concept to showcase the design opportunities offered by a customised wide-body aircraft. The interior is influenced by the stylised glamour and decadence of mid 20th century Italy. It is called La Dolce Vita, which translates as 'the sweet life' or 'the good life'.

Description:

The interior features a double-height open-deck lounge with seating for 24. "Within the concept I tried to play with verticality inside the fuselage by eliminating the normally under-utilised space beyond the upper deck of the 747-400, opening up the cabin for a more spacious and open feel," says White. "I also designed a chandelier lighting concept designed to withstand 8g static force testing and retract during take-off and landing."

Other amenities include a dining and conference room with embedded projection electromagnetic walls, which can switch from translucent to opaque at the touch of a button, for added privacy. The concept also includes a VIP master suite; a medical room with emergency equipment; and a multipurpose space that can be used as a yoga and digital fitness room, complete with pull-out massage table and bio-responsive touchscreen. White has also created a private theatre in the tail of the aircraft, using its unique shape to envelop the user with fibre optic starry sky lighting and custom theatre seats made with Italian leather and composite oak wood veneer.

For the colour scheme, White picked colours that carry positive or neutral associations across the world. The main palette is black and white, with red used as an accent colour. Red is associated with happiness and good fortune in many eastern cultures. There are also deep violet/auergine accents in the master suite; this colour represents wealth and royalty in many western cultures.





Verdict:

As well as its functional versatility, the concept's styling could make it appeal to a broad range of VIP markets. However, its main purpose is to show the scale of what can be achieved. "If this concept was completed I think it would be a powerful sales and marketing tool for any charter or FBO outfit, using the ideal of La Dolce Vita as their driving concept," says White. The interior was designed as White's final university project, along with an 80,000ft² LEED Platinum aircraft hangar and sales facility. She is now employed as an interior design coordinator at Gulfstream Aerospace.



CONTACT:

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perfectstorm



Brief:

Texas-based completion centre Gore Design Completions (GDC) has created an interior design concept for the Boeing 787 Dreamliner to showcase what can be done with this new aircraft type. "Since the 787 is such a step forward in technology we believe you will see customers wanting more than the typical VIP interior," says Tim O'Hara, lead designer on the project.

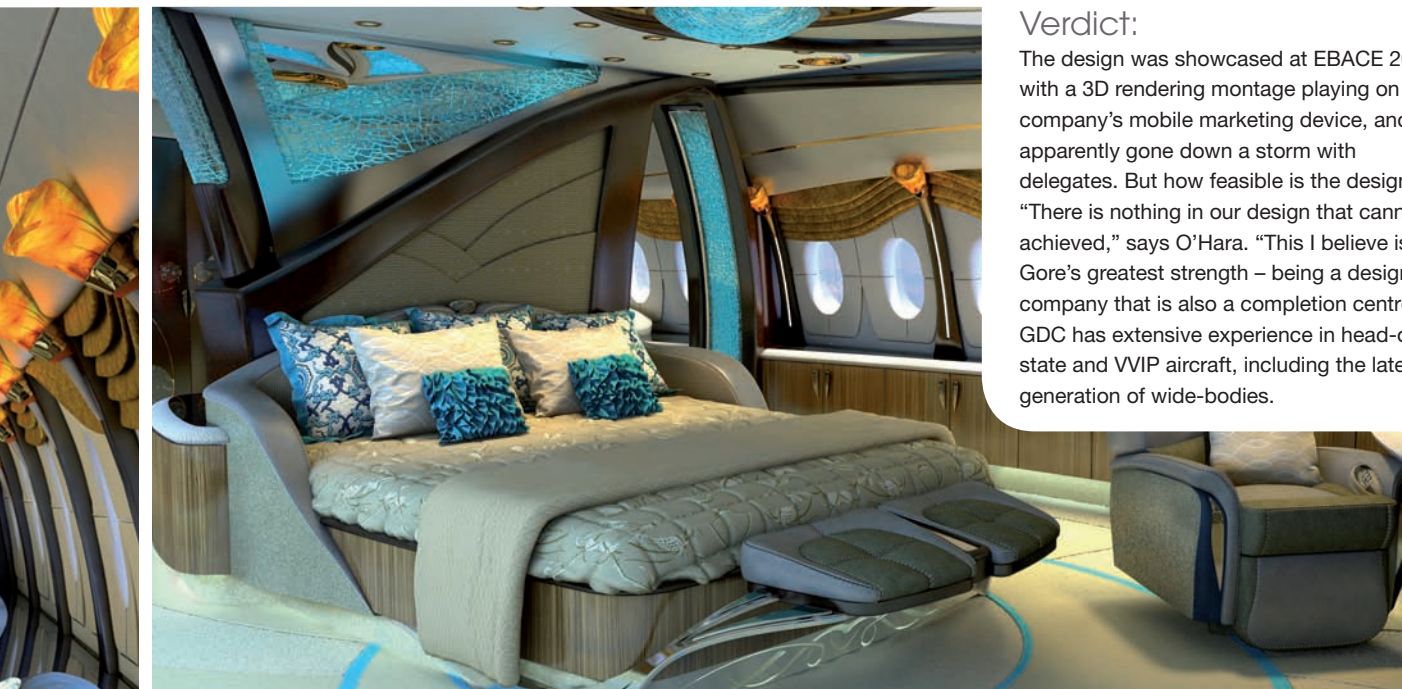
Description:

Creating an interior for a completely new aircraft inspired GDC's designers to take a fresh approach to the design, including an open-plan layout and wind theme. Swirling patterns in the headliners, creative ceiling fans and the furniture construction and placement are meant to fall in line with the air currents on the aircraft, creating a fluid environment that wraps itself around the passengers.

"We wanted to really reflect the power of wind in our interior design, after all this is an aircraft interior," says O'Hara. "There is a very nice feeling of movement in the design, with a vortex running through the ceiling design which is also reflected in the layout and furniture design."

The open-plan layout is designed to "flow from one room to another without all the confines of a regular interior but yet still provide privacy" according to O'Hara. Light was also a major focus. "We wanted it to be able to change moods from luminous day to the sultry glow of evening," he says. "The colours reflect the tranquil time of sunset over the sea, and the feeling of the ocean passage of another era. The cracked glass gives the interior a feeling of power and is a good contrast to the graceful flowing lines."





Verdict:

The design was showcased at EBACE 2011, with a 3D rendering montage playing on the company's mobile marketing device, and has apparently gone down a storm with delegates. But how feasible is the design? "There is nothing in our design that cannot be achieved," says O'Hara. "This I believe is Gore's greatest strength – being a design company that is also a completion centre." GDC has extensive experience in head-of-state and VVIP aircraft, including the latest generation of wide-bodies.



CONTACT:

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Airbus will display this ACJ318 operated by Comlux

Family name

Airbus Corporate Jets plans to exhibit an Airbus ACJ318 operated by Comlux (pictured). In May 2011 Airbus introduced new branding, colours and names for its corporate jets, reflecting aircraft improvements and family commonality. The new colours comprise metallic-blue shading on most of the fuselage and tail, highlighted by flowing curves that echo the colour schemes often chosen by Airbus Corporate Jet customers, and are accompanied by a new logo.

A new nomenclature was also introduced. 'Airbus ACJ' now precedes the model of the airliner from which each corporate jet is derived, with the A318 becoming the Airbus ACJ318, and so on throughout the family, all the way up to the Airbus ACJ380.

NBAA 2011

This year the NBAA Annual Meeting and Convention is heading to the bright lights of Las Vegas, USA, on 10-12 October. Whether you want to peruse the exhibits at the convention centre or dip into the static display at Henderson Executive Airport, the following pages will give you a taste of the innovations on show.



Heating up

International Water-Guard (IWG) will present IWG-ES-series aircraft on-demand water heaters. These products feature technology by Keltech, recently transferred to IWG. IWG-ES

series products provide hot water on-demand in high-flow situations, such as lavatories, showers and galleys for VIP airliners and corporate jets. IWG says the supply of hot water is limited only by the size of the aircraft's water tank. As well as its other aircraft water treatment units IWG also provides custom aircraft water system kits and components.



Big draw

Jet Works will use photographs and video to display all the services it offers, which include maintenance, interior completions, avionics upgrades and paint projects for BBJ, Challenger, LearJet, Citation, Pilatus and Piaggio aircraft. To add a little fun the company will once again offer a free 'butt-sketching' service at its stand. Last year's

presence turned out to be a line-forming crowd-pleaser. The company is headquartered just a few minutes from DFW Airport in Texas, USA.



Animal attraction

Garrett Leather will feature two new leathers. Native is an Italian leather that is hand-buffed to create a mottled appearance and matte surface. Some areas of each hide

resemble suede as a result of the hand-buffing process. Eight "earthy" colours are in stock.

The company will also debut Shagarrett, a full-grain, stingray-embossed Italian leather available in full hides with no plate lines. There are 16 colours in stock. Garrett Leather says that both products can be treated to pass FAR requirements for aviation use.



B/E Aerospace's latest multifunctional gourmet beverage maker

Full house

B/E Aerospace will showcase seats and divans, architectural and system lighting, specialised galley equipment, oxygen and vacuum waste systems and de-icing equipment, as well as its just-in-time services, inventory management and kitting solutions for fasteners and consumables.

The company says its wide variety of seat and divan products provide flexibility in cabin layouts and feature the latest in wireless connectivity and integrated seat controls.

Also on display is a modular Vacuum Waste System designed to reduce weight by 50% while simplifying maintenance. A new multifunctional gourmet beverage maker will also be introduced, along with a three-mode chiller and self-contained steam oven.

EXHIBITOR Q&A



Andrew Muirhead,
CEO of
IDAIR

What does each party bring to the new IDAIR joint venture?

By using the synergies of IDAIR's parent companies we are able to combine two successful products – Panasonic Avionics' eX2 IFEC system and Lufthansa Technik's nice CMS. We provide an all-encompassing solution incorporating technologies such as high definition, digital rights management, wireless and wired Ethernet, passenger device integration, iPhone applications for system control and more. In addition to the many configurations available for entertainment and cabin management, IDAIR also offers a satellite broadband internet and TV solution with global coverage, along with the option of mobile telephony.

What kind of feedback has IDAIR received since its launch in April 2011?

The feedback from the market has been very positive, particularly with respect to the fact that we can offer a multitude of services and a very strong support network via the parent companies to back it up. As far as orders go, we have got off to a good start. Work has already begun on the first VIP aircraft installations, the first of which are due to enter service in 2012. However, because of the confidential nature of the business, we are not in a position to divulge any details in public.

How do you strike the right balance between standardisation and customisation?

Our customisation efforts are focused around the parts that are visible and usable by the operator. As such, this kind of customisation can be well managed together with standard product deliveries.



Window shopping

Lou Martin & Associates (LMA) will introduce two new styles of window shade products – a dual mechanical shade and a decorative frame. The dual mechanical

shade boasts both a blackout fabric and a sheer fabric. The sheer fabric allows passengers to see out the windows but helps block UV and heat. The new decorative frame can be incorporated with any LMA shade system.

LMA says the simplicity of its designs enables it to adapt to meet almost any designer's requirements. It also says that all systems come with FAA certification; and the electrical systems meet DO-160 certification and have also been sound tested at 41DbSIL/48DbA. The company has been designing and manufacturing decorative window shade systems and interior panel systems for over 30 years.



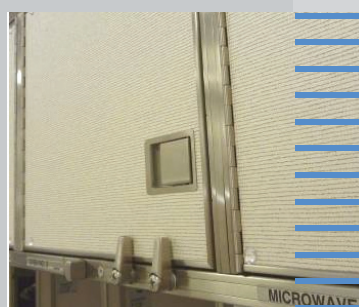
Networking opportunity

VT Miltope will exhibit the newest addition to its family of network products – an IEEE 802.11n multifunction access point (nMAP), developed to incorporate the latest access

point technology to enhance security. The new product builds upon the success of VT Miltope's other wireless access point products. As an access point, clients connect to aircraft LAN via intelligent bridging that restricts client traffic to only flow to and from the access controller. In the absence of a router, the nMAP may also be configured as an access controller to provide router functionality with firewall, as well as support access point functionality.

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Yonder offers inflight broadband with continuous coverage via Ku-band

Surf's up

ARINC Direct will highlight the addition of the ViaSat Yonder mobile broadband service to its aircraft cabin service portfolio. It says that Yonder delivers unlimited global high-speed internet connectivity, even when travelling over oceans. Already available on hundreds of aircraft today, Yonder is delivered over existing multipurpose Ku-band satellites.

Yonder enables passengers to browse the internet, send and receive emails with attachments in real time, video conference, access corporate VPNs; and make and receive VoIP telephone calls. The system can provide continuous coverage on the ground and in the air with no service limitations, and a variety of pricing plans are available.

ARINC Direct's cabin services are backed by 24-hour technical support and consultations. Customers can also stay connected with ARINC Direct using Inmarsat SwiftBroadband, Inmarsat Classic Aero Services, Iridium and Direct Dial.



Expert advice

Altitude VIP Completions will have a team of sales and marketing, procurement and engineering representatives on hand to advise BBJ

operators on any maintenance, refurbishment and green completion requirements they may have.

Altitude is an independent provider of VIP jet interior services, based in New Zealand.

Birthday presence

MSA Aircraft Products is celebrating its 25th anniversary, and 25th consecutive year of attendance at the NBAA convention, by introducing two new products.

The first of these is called the Economical Shade, designed to address higher-volume, cost-sensitive OEM applications. The product is the result of extensive research into cost-effective, lightweight materials and manufacturing processes that lend themselves to higher-volume production.

The second new product is an electric stacked dual shade for mid-size corporate aircraft. It provides two levels of light control through the use of a transparent and an opaque shade. Deploying the transparent shade yields approximately 50% light blockage; deploying the opaque results in blackout.

MSA will also show how the Inspectech i-Cabin system can be used with MSA shade assemblies and window products.



Hide and seek

Moore & Giles will present a new leather called Brentwood. Designed in Italy on European hides, Brentwood is a full-aniline dyed leather with a soft wax

finish. The company says it is treated to meet technical specifications for aviation. In fact Moore & Giles says that the majority of its portfolio of natural, embossed and transfer-patterned leather can be treated to meet these standards.



Nice work

Lufthansa Technik's stand will include an 'Innovation Corner' featuring the nice high-definition CMS. Customers can control all cabin, communication

and entertainment functions in three ways – with a combined personal pop-up display/touchscreen panel, a four-button scroll wheel, or with nice remote, an app for iDevices.

Lufthansa Technik will also highlight its involvement in the new Inairvation alliance, founded by Lufthansa Technik's Business Unit Innovation, LIST components and furniture, Design Q and Schott. "What makes Inairvation unique and valuable for customers is the full integration of CMS/IFE, lighting, furniture, seats and industrial design," says Dave Crossett of Lufthansa Technik's Business Unit Innovation. "Inairvation is designing new interiors that combine the strengths of each company."



A Boeing 747-8 lounge concept by Greenpoint Technologies

Going up

Greenpoint Technologies will have an updated booth focusing on Boeing 747-8 VIP interiors. Greenpoint's VIP products for the 747-8 include the AeroLoft and AeroLift. Both products will be on display in a 1/40th scale 747-8 aircraft model.

The AeroLoft is in production with deliveries scheduled to start in early 2012. It consists of sleeping berths located between doors four and five above the main deck and is accessed via a spiral staircase from the main deck.

The AeroLift is a patent-pending, ground-to-main deck lift (elevator) for the 747-8. The first AeroLift installation is forecasted for 2013 for an undisclosed customer.

"We are currently working on our 17th, 18th and 19th BBJ completions as well as modifying other Boeing aircraft," says Sloan Benson, Greenpoint's EVP and president of its facilities in Denton, Texas, USA.

EXHIBITOR Q&A



Bill Rowell,
cabin systems
senior manager
technical sales
at Honeywell
Aerospace

Which is the stronger market for Honeywell's Ovation Select CMS – line-fit or retrofit? Ovation Select is currently being installed in both arenas. We have been selected by Embraer as the line-fit CMS solution for its Legacy 450 and 500 platforms and expect to obtain both FAA and EASA certification before the end of 2011. Similarly, we currently have several retrofit installations under way with the first STC to be completed in September 2011 on our own F900EX. Right now the greater demand appears to be with retrofit customers. OEM line-fit is a more long-term process and is typically associated with new platform development.

How can today's CMSs be improved? One word – wireless. Everyone is asking, "When can we

acquire a totally wireless CMS?" We are actively pursuing this technology and expect to have the first iteration in place during the second half of 2012 in the form of a high-definition AVOD solution.

What influence are consumer technologies having?

Consumer technologies, especially the iPad, have greatly affected customer expectations. The good news is that Ovation Select has been specifically designed to be able to maintain pace with consumer technologies with no modification to the system's fully digital backbone. Regarding the iPad, we will offer an application that will reside on the customer's own iPad, that will turn it into a complete CMS remote control device that will have the same look and feel as the rest of the cabin's user interface devices. Our roadmap also includes the ability to be able to stream audio and video content to passengers' iPads, or other handheld personal electronic devices.

G force

Gulfstream will have a fully outfitted G650 and G280 on site. The super-mid-size G250 was renamed as the G280 in July 2011. "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, president of Gulfstream.

The G280 features 19 windows, a vacuum toilet system and inflight access to 120ft³ of baggage space.

The first production G280 is now at the Gulfstream Mid-Cabin Completions Center of Excellence in Dallas, Texas, USA, where it is being outfitted and painted for delivery later in 2011.



Early bird

Dassault will display the Falcon 2000LX, Falcon 900LX and Falcon 7X. The new Falcon 2000S is not ready yet to be displayed in the USA, but will be emphasised on the stand.

The Falcon 2000S is an entry-level aircraft for the super mid-size category. It is built on the Falcon 2000 platform, but in terms of performance, capability and style, the 2000S is an entirely new aircraft. It is available in a standard floorplan with seating for ten passengers.

The interior design, conceived in partnership with BMW Group DesignworksUSA, is completely new. Three colour and design schemes are available. The 2000S also features a Rockwell Collins CMS and AirCell Axxess II Iridium satcom system as standard. The CMS provides high-definition viewing for Blu-ray media on wide-screen monitors up to 19in. For more on the Falcon 2000S, turn to page 32.

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Chris Colvin, Business Jet Interiors International



1. Sedona, one of three schemes Falcon 2000S customers can choose from



the assassin

Dassault's new Falcon 2000S aims to crush super-mid-size competitors with standardised interiors driving down the price

When Dassault's Falcon 2000 twin jet hit the market in the mid 1990s it was hailed as the first in an emerging new business jet category – the super-mid-size. Some within the industry never really subscribed to this label for the F2000 or for the Bombardier Challenger 600 series for that matter. Both of these aircraft had cabins that were wider, but shorter, than large-cabin aircraft such as the Gulfstream 450. The F2000's cabin uses the same fuselage cross section as the company's larger 900 model tri jet, and it is actually 10in wider and 2in taller than that of a G450.

The super-mid-size moniker may perhaps be more meaningfully applied to aircraft akin to the Gulfstream G200, Hawker 4000 or Bombardier Challenger 300. Both the F2000 and the Challenger 600 are in a category all unto themselves, somewhere in-between the super-mids and the large-cabin aircraft.

The F2000 has proven itself over its long tenure in both the high-use fractional and corporate worlds. In fact more than 300 have been delivered in all. More than one pilot has said that once you fly a Falcon, nothing else will do. The aircraft are rugged and 'overbuilt', and the handling is crisp and precise like a Mirage fighter, also made by the company.

In recent years Dassault has refreshed the model with new avionics and both lower-cost and higher-range variants (the EX, DX and LX respectively). The EX was unveiled in 2004 and features enhanced avionics and a better cabin pressurisation system. The DX followed in 2007 with the updated EASy cockpit. The 2000LX came in 2009, with its new standard winglets, and bumps right up against the US\$30 million (£18.2 million) mark while delivering 4,000 nautical miles of range, giving it plenty of margin for transatlantic crossings. Like all Falcons, customers can specify their interiors in custom configurations



seating up to 10 in the cabin. These highly individualised interiors help drive the price – Falcons have never been the least expensive aircraft in their categories but they have a reputation for holding resale value well.

Cutting the cost But when Dassault decided to use the F2000 to take market share away from the super-mid-size market, price became a big issue. Dassault had to get the F2000S's unit cost down to around US\$25 million (£15.2 million), at 2011 prices, to be competitive. It did this by standardising cockpit and cabin offerings based on what most F2000 customers wanted, in conjunction with in-house designers in the USA and France, as well as BMW Group DesignworksUSA. Dassault had worked with DesignworksUSA before, developing optional standardised

**WHEN DASSAULT DECIDED TO
USE THE F2000 TO TAKE
MARKET SHARE AWAY FROM
THE SUPER-MID-SIZE MARKET,
PRICE BECAME A BIG ISSUE**



- 2-3. The Alpine scheme
- 4. The Havana interior
- 5. Wind tunnel trials at RUAG Aerospace

interior packages for its long-range luxury tri jet, the 7X. “With the 2000S we are moving into ‘packaged’ aircraft,” says Roy Elsasser, Dassault Falcon Jet’s director of aircraft specifications. “The 7X was our first approach at this, but it is easier to do on a more entry-level aircraft like the 2000S as opposed to a US\$50 million (£30.4 million) 7X. On the 7X these packages are optional – on the 2000S they are standard.”

While Dassault Falcon spokesman Andrew Ponzoni says the 2000S has been years in the making, Elsasser says that it was relatively easier than coming up with packages for the 7X, despite the diverse design team. “On the 7X we

built a mock-up that was never shown to the public – it was to ensure the proof of concept before we ever built an aircraft,” says Elsasser. “It took a lot longer.” The first 7X with a DesignworksUSA interior is due to be delivered in the third quarter of 2011.

Package deals The three standardised interior ‘harmonies’ and common cabin configuration for the first 20 aircraft – two or three more may eventually be offered – have allowed Dassault to trim price out of the 2000S more than anything else, according to Elsasser.

“On the 2000LX customers can pick whatever they want from a showroom;



Performance art

In addition to fashioning standardised interiors for the 2000S, Dassault also lightened the aircraft by removing a fuel tank, thus dropping the range to 3,350 nautical miles – still plenty of margin for a transcontinental trek across the USA. Combined with new inboard wing slats, it allows the 2000S to use airports previously not suitable for the aircraft – places like the UK’s London City – with steep approach gradients, shorter runways and prickly noise abatement restrictions. The lighter weight also lessens the gap between maximum landing and take-off weights, meaning that the 2000S can fly short hops, tanker fuel economically and climb quickly to its maximum altitude of 41,000ft. The engines were upgraded by Pratt & Whitney with the new Talon II combustor that cuts emissions by up to 40%. The new engines, combined with winglets, help the 2000S burn “10% less fuel than aircraft that are 20% smaller”, according to Dassault. The company claims the 2000S is “a large-cabin aircraft with fuel economy and operating costs that are much less than smaller aircraft in the mid-sized business jet category”.



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6

it is unlimited,” says Elsasser. “With the 2000S we took a different approach, so that we could have an aircraft in a price range that is in a lower end of the market – entry level for our set of business jets. To hold the price down we came up with a set packaged interior and a set flight deck with a new clean look in the cockpit. The engineering package is already done and it doesn’t deviate substantially between the harmonies.”

The three interior choices are labelled Alpine, Sedona and Havana. Alpine contrasts crisp whites with dark rock and stone tones, Sedona is inspired by the desert of southwest USA, with “earthy beige” colours, while Havana is built around a warm and rich palette of browns.

Visual design elements were used to stretch the appearance of the cabin and create better flow. Up-wash and down-wash ambient lights, along with materials of greater contrast, emphasise cabin spaciousness.

The first 20 2000S aircraft will be configured with a forward club-four and a six-seat rear conference grouping, which Elsasser says is the most popular among current F2000 customers. Although Dassault has cut costs out of

- 6. Seats from B/E Aerospace are used on the Falcon 2000S
- 7. The new cockpit, incorporating EASy flight deck



7

“TO HOLD THE PRICE DOWN WE CAME UP WITH A SET PACKAGED INTERIOR AND FLIGHT DECK”

the cabin, it has not skimmed on styling or functionality, Elsasser says. “It has a fresh new look – a much more modern look than in the past,” he says. “You don’t have to opt for anything because we provide it all for you.”

It starts with resculpted seats on new frames from B/E Aerospace. The new cabin management system – called the Falcon Cabin HD – is built around Rockwell Collins’ Venue system. It provides high-definition viewing for Blu-ray media on widescreen monitors up to 19in in size and can be controlled from anywhere on the aircraft via iPod Touch or iPhone devices with a special application that controls functions including video playback, operation of electric window shades and adjustments

DesignworksUSA expands to China

Dassault's design partner on the Falcon 2000S, DesignworksUSA, has existed as a creative consultancy for almost 40 years. Acquired by BMW Group in 1995, DesignworksUSA creates designs for both its parent company and clients outside the automotive industry. As well as Dassault, these include Embraer, Coca Cola, John Deere, HEAD, HP, Microsoft, Siemens, Intermarine and Varian Medical Systems. Currently boasting studios in Los Angeles, USA, Munich, Germany, and Singapore, DesignworksUSA plans to open a new studio in Shanghai, China, later in 2011.

"Our new studio in Shanghai will help contribute to China's creative industry development," says Laurenz Schaffer, BMW Group DesignworksUSA president. "Being deeply connected with this vibrant culture of Shanghai enables us to strengthen our global creative competency, while supporting China's growing role in global design."

China is the largest present growth market and third-largest single market worldwide for the BMW Group. DesignworksUSA says it will be able to provide entry into the Asian market for its European and North American clients with the new studio. DesignworksUSA also hopes to bring new opportunities to the region.

"By tapping into the Chinese market, DesignworksUSA gains a deeper understanding of Chinese consumer behaviours and offers a global creative perspective to clients in China and in Asia," says Schaffer. "Additionally, we will incorporate the Chinese viewpoint in projects for US and European clients."

to lighting and temperature. AirCell's Axxess II Iridium satcom is standard. The system is modular to enable operators to upgrade it as new technologies become available.

Up front the EASy II cockpit is more functional and has more options, including synthetic vision, XM weather and ADS-B Out. The cockpit also benefits from new paint and trim. A new style of paint finish in the cockpit gives a fabric appearance.

Weight has been taken out of the cabin by using an improved cabin shell with built-in insulation, and by removing laminates on the inside of drawers and painting them instead. "These are parts the customer doesn't see and it saves weight," says Elsasser.

Efficiency gains Limiting choice is one way Dassault will save time and cut completion costs on the 2000S, but it goes deeper than that. At Dassault's mammoth completion centre in Little Rock, Arkansas, USA, the company has revamped its design, manufacturing

and assembly processes with the goal of "reducing the amount of time" an aircraft needs to be there, Elsasser says. That includes expanded use of digital design tools such as CATIA, as well as building cabinets on an assembly line. The 2000S will be the first Dassault aircraft to fully take advantage of all these improvements.

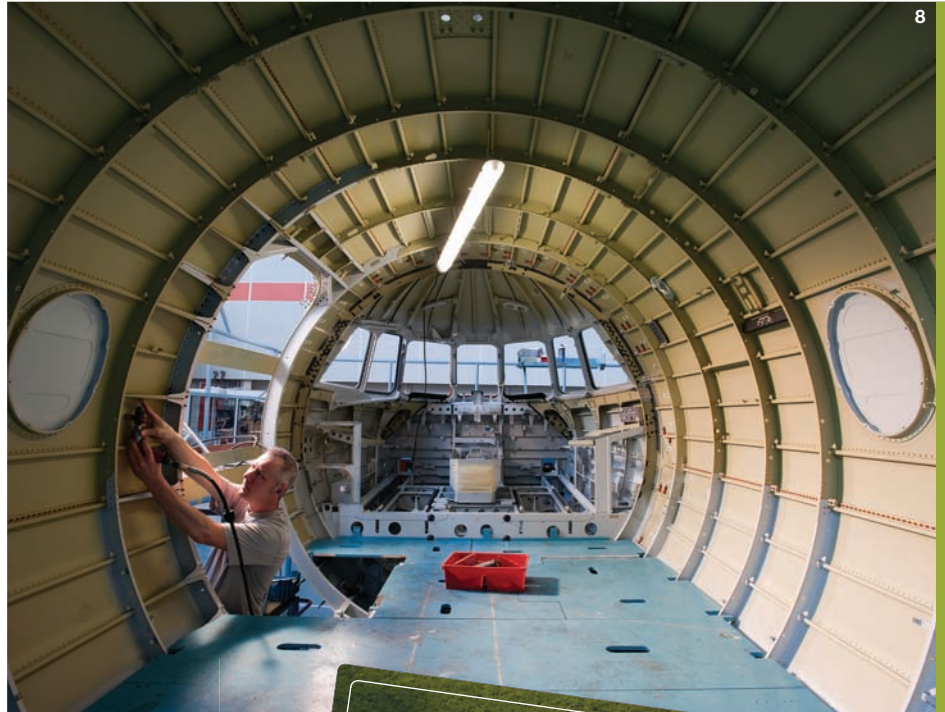
Dassault plans to deliver the first 2000S in 2013; and the first 2000S interior will be on display inside a 2000LX at the 2011 NBAA convention in Las Vegas, USA (10-12 October); it should be of interest to competitors and prospective customers alike.

If Dassault can bring this aircraft to market at its intended price point, builders of today's super-mid-size business jets have reason for concern. "This aircraft is going to knock the heck out of the competition. It's a great product," Elsasser says. **END**

Web www.dassault-aviation.com;
www.designworksusa.com

WEIGHT HAS BEEN TAKEN OUT BY USING AN IMPROVED CABIN SHELL WITH BUILT-IN INSULATION

8. Assembly of the 2000S's forward section



CABIN STATS

Dassault Falcon 2000S

Cabin width: 7ft 8in

Cabin height: 6ft 2in

Cabin length: 26ft 2in

Seats: 2 crew + 10 passengers

Range: 3,350 nautical miles with 6 passengers, 2 crew and NBAA IFR reserves at Mach 0.80

High-speed cruise: 570kts

Max altitude: 47,000ft

Price: US\$25 million (£15.18 million) at 2011 prices

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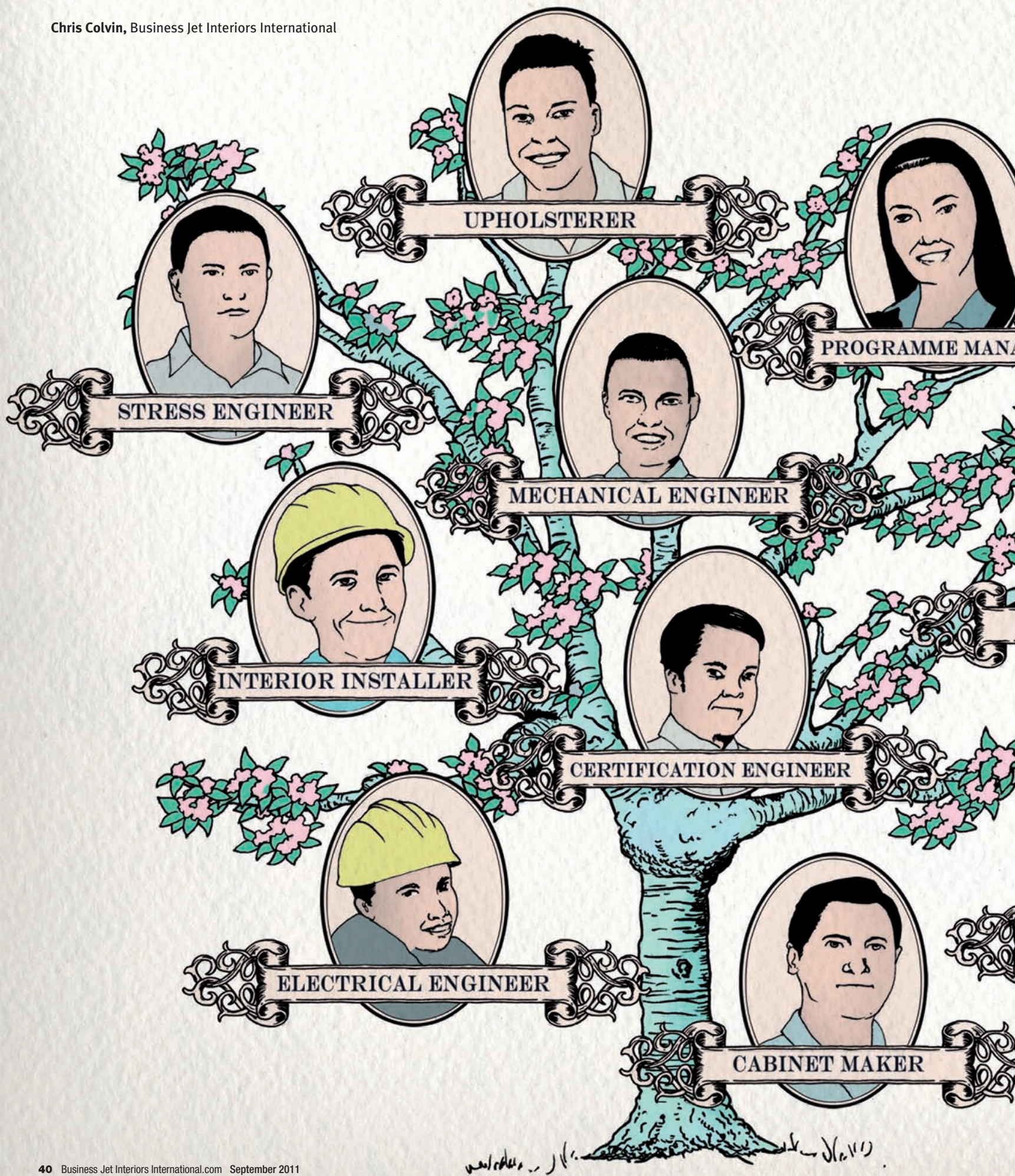


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firm foundations

A completion centre's strength lies in the skills of its staff – so how do you source, train and retain the people needed for a blossoming business?

As the world's VIP aircraft completion centres prepare for a new crop of twin-aisle aircraft from Airbus and Boeing, they are also looking at various methods of attracting the right employees and hanging onto them. The competition for talent can be fierce and the loss of a key person can easily have a seven or eight-figure impact on the bottom line.

Managers have various arrows in their quivers when it comes to human resources – mentoring, internships, apprenticeships, continuing education, bonuses, good benefits and competitive salaries to name a few.

But for Troy Jonas, general manager of Associated Air Center (AAC) in Dallas, Texas, USA, the biggest motivator for him and his team is the sheer satisfaction of doing a highly specialised, important and sometimes difficult job well for an extremely elite clientele – and being able to see the results. “People are motivated by seeing the completed project,” he says. “When one of these aircraft delivers it is a special event. People usually have lived and breathed this project for over a

year and seeing it fly away is a huge motivator. It makes people feel good and gives them a lot of pride. People want to come work on these very cool projects on special aircraft. People want to come and be a part of it.”

Jonas is quick to add that AAC provides its 300 completion centre specialists with the right tools to do the job – and that starts with sharing the experience of members of its long-tenured staff. “We have been in business for 63 years,” he says. “We have engineers, craftsmen and technicians who have been here 30-35 years and our core talent team has all been here at least five years. We are very well-known in a specialised industry and it is a fairly captive talent pool. People get into it and generally stay in it.”

Mentoring At the bottom, AAC offers internships in engineering, design and production. It pairs new employees with veterans for at least a year as part of its mentoring programme. Sometimes the company recruits from its industry competitors. “We can draw talent from them when we are in the hiring mode,” Jonas says. “We have great benefits

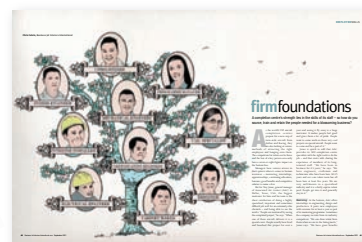


ILLUSTRATION BY
Claire Scully



and can offer a very competitive compensation package overall.”

At Greenpoint Technologies in Kirkland, Washington, USA, the emphasis is on recruiting the right candidates from the get-go. “Greenpoint has a full-time recruiter on staff and an unusually low attrition rate because of the rigorous recruiting process,” says company spokeswoman Christine Hadley. “We hire people who agree with our values and culture and many new employees are referred by current employees – and this helps sustain our strong culture. Greenpoint’s systems are robust and dictated by the users. Our focus on continual improvement encourages employees to take action when problems arise.” Hadley points

**“MANY NEW
EMPLOYEES ARE
REFERRED BY
CURRENT EMPLOYEES”**

Starting out

This year Swiss completion centre Jet Aviation Basel recruited a new manager of cabinet engineering, Cristian Sutter (pictured), from the commercial airline world. Sutter has over 10 years’ experience as an industrial designer specialising in airliner cabin design. Highlights have included designing a cabin for a turboprop family, a first-class cabin for the A380, and branding and aircraft liveries for various airlines. Most recently, he acted as an interface between design studios and the certification process. However, he has not worked in the VIP sector before.



“Even though airliners and VIP aircraft are worlds apart in many areas, the design and engineering processes are really similar,” he says. “The constraints and requirements may vary with the nature of the projects, but you are still working with the common limitations associated with the aircraft industry. Having said that, some materials and manufacturing techniques are very different from the ones used in airliner cabins. Surface finishes and the integration of high-end IFE equipment into cabinets presents new challenges from a design standpoint.”

Training provided for Sutter by Jet Aviation has mainly focused on internal procedures, CAD/DMU software, DOA particularities, specific training on aircraft types and the impact the cabin designs have over the aircraft configuration, which are “way beyond the level of modifications you can achieve in an airliner”, he notes.

Sutter says providing a holistic service from concept design to completion under the same roof is also a very different working dynamic from the airline industry, where most of the work is outsourced. Then there is the focus on designing a personal rather than a mass means of air transport. “It is a highly bespoke market where attention to detail is critical, you produce one-offs as opposed to the small to medium series in the commercial market, and the requirements for operation and maintenance vary considerably,” he says.

Despite the challenges, Sutter is clearly relishing the role, and has relocated to Basel to fulfil it – he flies back to London, where his partner is based, every weekend. In particular it is the diversity and challenging nature of the projects that he enjoys. “In comparison with the airline industry when you concentrate all your effort in one or two projects, at Jet Aviation we have several completions ongoing simultaneously, with radically different cabin designs and layouts, for different clients in different aircraft types from narrow- to wide-bodies,” he says. “That makes my day-to-day working dynamic extremely high-paced.”



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“WE ARE BASED IN THE ALSACE REGION AND THAT PROVIDES A VERY GOOD SUPPLY OF SKILLED CRAFTSMEN”

Finding the manpower to meet demand



With more than 25 years in aviation finance procurement, structuring, asset management and project management, Altair Aero Projects has a ringside seat at the business jet completions arena. The company's founder and executive director, Christian Castang (pictured), believes capacity is becoming a real problem as major completion centres struggle between loading their payroll with large engineering teams, managing vendors, or finding enough skilled people to meet demand.

“The state of the global economy has no effect on the purchasers of large VIP aircraft, for example heads of state or super-wealthy people,” he says. “Their demand for these aircraft is still high. But this is affecting the most renowned completion centres as they are very busy, there is a backlog, no slots are available. This is creating a ‘dead’ industry as they have no completion spaces to sell for years ahead.”

Indeed, Castang categorises outfitters into three broad types – large top-league legacy completion centres that are in so much demand that backlogs until 2014-2015 are not uncommon; less in-demand second-tier outfitters that are working their way up; and newcomers starting out with smaller aircraft projects.

Castang believes that there is a way forward to meet pent-up demand – by creating a joint venture between key players in the first and second leagues.

“What this means is that the first league can stay in touch with a marketplace that they would normally be putting off, or on hold, because of their backlog,” he says. “Even though they are fully busy themselves, they could share their understanding of quality and general know-how with the second league. For the second league this is a fast way forward. They can provide the completion slots and reach the next level with the right support. We’ve been recently promoting and actually engineering such projects and can confirm that both parties realise that such a move leads to a consolidation of players with more capacity and a broader range of skills.”

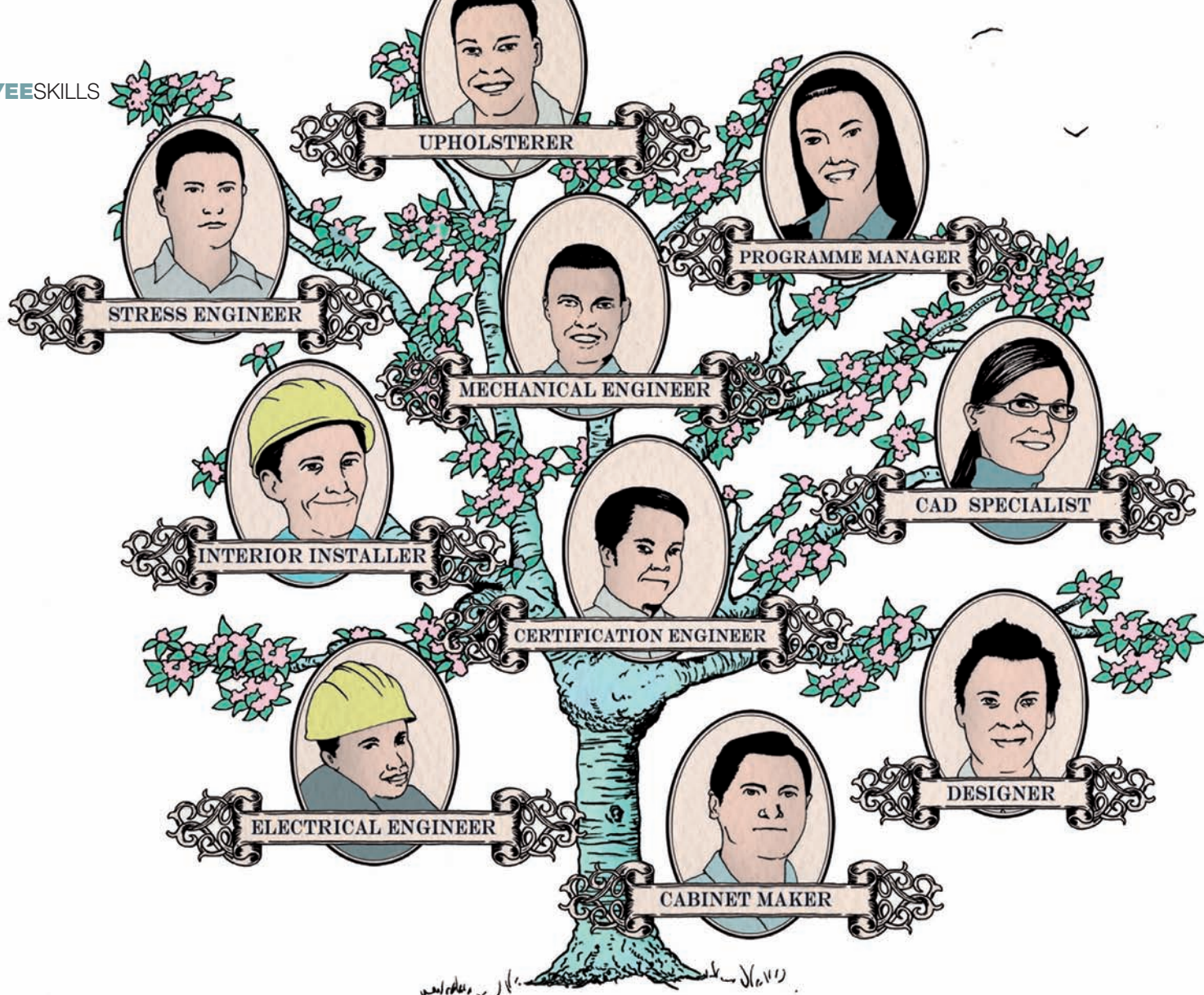
Castang is lined up as a speaker at Business Jet Interiors World Conference 2012 (to be held on 22-23 February 2012 in Cannes, France).

out that the company's strategy pays off with recognitions such as the Pacific Northwest Aerospace Company of the Year and the Supplier Excellence Alliance in Aerospace.

Internal recognition is a big part of keeping the troops happy at Gore Design Completions (GDC) in San Antonio, Texas, USA, according to co-founder Kathy Gore-Walters. “We host luncheons, company parties and other celebrations from time to time,” she says. “It gives all of our employees an opportunity to come together and celebrate the successes we have achieved together over the past several years.” Gore-Walters also stresses the important role the company's internship and mentoring programmes have in training new talent, as well as an executive open-door policy for everyone in the company. “It is

important to us that every person has the opportunity to make themselves heard and express ideas, concerns and suggestions for a better work experience,” she says. GDC's other founder, Jerry Gore, stresses the importance of a “friendly work environment” coupled with competitive pay and benefits.

Talent pool Taking advantage of local resources is the key to staffing at Switzerland's AMAC according to company president Heinz Kohli. “We are based in the Alsace region and that provides a very good supply of skilled craftsmen, many of whom come from the French automotive industry or nearby air bases,” he says. He also points to a cooperative training programme AMAC started with local government as being particularly



“WE HAVE FOUR BIG EMPLOYEE TRAINING PROGRAMMES”

effective and says the company is focused on employee retention. “Keeping them is our biggest target and being a good employer with good social skills is as important to us as paying a very good salary,” he says.

Training academy At Germany’s Lufthansa Technik (LHT) it is all about giving employees the right training in partnership with its own training academy, Lufthansa Technical Training, says spokesman Wolfgang Reinert. “We have a great variety of programmes. For our VIP completions business we have four big employee training programmes. Every new employee receives a four-part entry programme that teaches them all about the company; the company’s rules that apply to design,

production, MRO and CAMO; and internal process management with an internet-based tool – we have a standardised approach to everything – and the last step is training on the job with an experienced mentor.”

Apprenticeships at the company can last three to three-and-a-half years. The apprenticeships combine class work with on-the-job training and actual work. Employees recruited from other companies receive the same type of training as recruits who join the company fresh out of secondary school. “This is something for everyone who joins the company,” says Reinert.

The mutual investment by company and employees over the course of the training programme yields a very low turnover rate, according to Reinert. Turnover rate runs between 3-4%, barely the rate of normal attrition due to retirements or deaths.

Check ups All LHT employees receive regular refresher training and are re-tested for competency. The frequency

of these classes and exams “depends on the level of the job and the level of responsibility,” says Reinert. “The more skills you have to show the more intensively these skills are monitored.” Programme managers are tested annually. The testing “establishes a level of quality and reliability,” Reinert says.

LHT says it rewards this system-driven excellence with generous salaries, benefits and bonuses. Rather than layoffs, it strives to shift employees to other divisions during valleys of completions business activity. Employees also get another benefit most of its competitors cannot offer – cheap airline tickets with Lufthansa. A manager with five years’ experience gets 30 days off. That leaves lots of time for travel. **END**

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happy birthday

This year the Boeing Business Jet (BBJ) marks its 15th anniversary – but what is the secret of its success?



2



3



1. A BBJ designed by Andrew Winch Designs and completed by Jet Aviation
2. The king-size bedroom on board a BBJ 737 designed by Alberto Pinto Designs for an Asian customer
3. Detail from a BBJ VIP lounge completed by Goderich Aircraft
4. A china and silverware cabinet on a BBJ completed by Greenpoint Technologies

Sometimes Steve Taylor, the Boeing Business Jet (BBJ) president, just has to pinch himself. "None of us expected to sell the number of units we have sold," he reflected in August 2011 as the executive jetliner entered its 15th year. "We delivered another one just yesterday and before the delivery ceremony a bunch of us were standing around talking. Never did we ever imagine we would be doing this 15 years on and still have a compelling and competitive product."

But they are. And they do. The original BBJ was created in 1996 in partnership with General Electric, maker of the CFM-56 series engines for newer 737s, the aircraft the BBJ is based on. The 737 is one of the most successful airliners ever produced and nearly 6,000 Next Generation models are on order. The BBJ utilises components from two 737 models – the main fuselage of the 737-700, and the larger wing, centre fuselage section and landing gear of the 737-800. The belly of the aircraft can be outfitted with 3-9 auxiliary fuel tanks, giving it a maximum range of nearly 6,200 nautical miles (11,482km), or 14 hours in the air with eight passengers.

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With all those extra fuel tanks there is not much room in the baggage hold, so in 2005 Boeing began offering the BBJ2, with 25% more cabin volume, and an even bigger BBJ3, based on the 737-900ER, which has 1,120ft² of cabin floor space. Compared to the original BBJ, the BBJ3 is 28ft longer, has 35% more cabin volume and weighs nearly 17,000 lb (7,711kg) more. Another version, the BBJ Convertible (BBJC) became available in 2009. It converts from all-passenger to all-cargo configuration in less than eight hours.

OF THE 154 737-BASED BBJs SOLD BY BOEING THROUGH SEPTEMBER 2011, 15 HAVE BEEN BBJ2S AND NINE BBJ3S

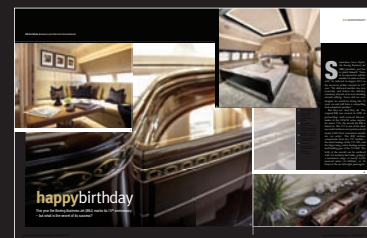
The original BBJ remains the company's bestseller. Of the 154 737-based BBJs sold by Boeing through September 2011, 15 have been BBJ2s and nine BBJ3s. Overall, Boeing has sold 205 BBJs based on all of its aircraft models and that includes its two newest wide-bodies, the 787 and the 747-8 Intercontinental. Those twin-aisle jets now make up the majority of the BBJ backlog, a development that took Taylor and his colleagues by surprise. "I don't think any of us saw that coming," he says. "But that is the reality of where customers have taken our business."

However, demand for the 737-based BBJ soldiers on and could even see a bump up depending on when the aircraft becomes eligible for the new, more efficient 737 MAX engines that Boeing will soon be fitting on the airliner versions. Taylor sees this

happening around 2017 and those engines could increase a BBJ's range by up to 12%. Meanwhile, customers continue their love affair with the BBJ's large cabin, which is 11ft, 7in wide and 7ft, 1in tall. It provides ample room for designers to work their magic, fashioning staterooms with real beds, showers, gourmet galleys and the latest in cabin electronics.

Institutional memory BBJ completions have come a long way from the huge delays and cost overruns that plagued the process early on. Today's 737-based BBJ completions are more efficient, but not necessarily faster, because of the increasing complexity of what customers want on the aircraft, says Troy Jonas, general manager of Associated Air Center (AAC) in Dallas, Texas, USA.

AAC had delivered more than 82 large-cabin VIP completions since the 1970s, delivered the first completed BBJ, and also the 21st of the type this summer. Two more are under way and another arrives in September 2011. AAC has worked closely with Boeing virtually since the BBJ's inception and has developed an extensive institutional memory on the aircraft, Jonas says.



6



8



9

5. The VIP dining area on a BBJ2 completed by Lufthansa Technik
6. A BBJ completion by Jet Aviation
7. Altitude has built a BBJ VIP mock-up to showcase its completion skills
- 8-9. A BBJ cabin by RWR Designs



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Memory lane

Pierrejean Design Studio undertook its first Boeing 737 design in 1983, for a Swiss charter company. It included a master bedroom and washroom at the front; a lounge in the centre; and a separate club area at the back. Finishing touches included golden globe lampshades and natural honey wood, with light blue and soft green providing the material colour scheme.

The design agency's first Boeing 747-8 was another exciting project. "Following a number of meetings with our customer, we proposed various options for both the LOPA and the general ambience," recalls Jacques Pierrejean, director at the studio. "But they were not enough! The real target was to design something really special, that didn't exist on the market."

To do so, the company had to explore totally new directions and work closely with vendors. "We looked beyond current private aircraft standards, tested the latest technologies, designed new shapes and created new functions, all in total accordance with aeronautical regulations," says Pierrejean.

He likens the two-deck cabin to a loft-style apartment. "The side panels were given the appearance of high curved walls and the inside volume was like in a real house," says Pierrejean. "A question arose concerning the final style – should we reproduce a cosy residential interior or create a unique concept worthy of the aircraft's splendid proportions? We made our choice."



10

"Over time you understand the structure and the loading capacity of the airframe and it becomes easier to accommodate what the customer wants," he elaborates. "We understand the load paths, the frames and the seat tracks and have built a database – and that is a huge advantage."

AAC recently acquired a 737 fuselage that it has mounted to a tooling fixture and uses for cabin component fit checks and customer layout approvals, long before the completion aircraft arrives. Jonas estimates that this mock-up will cut as much as a month off the typical 6-7 months the company has a BBJ in house for completion.

"We can have a full set of cabinetry fit checked, covered and ready to go before the completion aircraft gets here," he says. "The customer has the ability to walk onto the mock-up and experience what his aircraft is really going to be like and make whatever changes he wants now, as opposed to

"MORE OF THE INTERIORS ARE BEING DESIGNED BY WORLD-RENOUNDED DESIGNERS"

- 10. Pierrejean Design Studio's first Boeing 737, from 1983
- 11. Pierrejean's first Boeing 747-8 design

when we are installing the actual aircraft interior."

Germany's Lufthansa Technik (LHT) has been doing VIP completions since the 1950s and was also an early player on the BBJ, working extensively with Boeing during its development. At the 1999 NBAA convention, it was a BBJ completed by LHT that was first presented to the public. LHT's early involvement gave the company "exceptional knowledge about the structural and system-related specifics of the BBJ and provided the foundation for successful engineering development



for the early and later BBJ completions", says Joerg Loewes, deputy director of product sales and design at LHT.

Sophistication Boeing's Taylor says the level of design sophistication on the aircraft has come a long way since the early days when some completion centres mocked up an interior by laying duct tape on a hangar floor. "We are seeing a new level of sophistication in the aircraft," he says. "More of the interiors are being designed by world-renowned designers who have experience in yachts and luxury homes



12



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and have very high standards. Some of the interiors we are seeing now are unbelievably well stitched together from a design point of view."

Heinz Koehli at Switzerland's AMAC agrees. Koehli worked with the first BBJ president, the late Borge Boeskov, during the early days of the BBJ. "The BBJ is a great aircraft and they have made huge developments over the last decade," he says.

Other centres too, have honed their BBJ skills over the years. "As our experience has increased with the BBJ, so has our sensitivity and experience with weight issues," says Jerry Gore, a principal at Gore Design Completions (GDC) in San Antonio, Texas, USA. Gore is currently completing its sixth green BBJ.

Taylor credits the completion centres for employing digital design technology, such as CATIA, to make the design and manufacturing processes more efficient for aircraft interiors. What has not changed is the imagination all that cabin space can cater for. "People ask for things you may not be able to give

TANTALISING STORIES HAVE EMERGED OF A VARIETY OF EXCESSES

- 12. An AVOD IFE system, installed by Goderich on a BBJ
- 13. Club-four seating on a BBJC completed by Greenpoint Technologies
- 14. A VIP lavatory on a BBJ by Lufthansa Technik

them – like an aquarium," says AAC's Jonas. But there are plenty of things they can have. "We recently finished an aircraft with a sunken ship motif, complete with carpet that looks like rippled sand," he says.

Sloan Benson, EVP of Greenpoint Technologies in Kirkland, Washington, USA, says that some of the company's more interesting BBJ installations have included rare Asian jungle woods and royal artwork that had to be specially treated to pass flammability standards. Meanwhile GDC president Kathy Gore-Walters recalls a lighted and heated VIP lavatory floor on a recent completion project, as well as a modern and sleek theatre room.

Most BBJ designs are confidential, but tantalising stories have emerged of a variety of excesses, from antique furniture to custom-painted ceilings. Perhaps that is why the BBJ remains popular after a decade and a half – if you can dream it, you can fly in it. **END**

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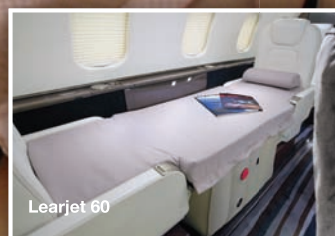
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The image shows the interior of a helicopter, specifically a Eurocopter EC145, which has been customized with Mercedes-Benz styling. The cabin features light-colored leather seats with dark leather accents and blue seatbelts. The ceiling is white with recessed lighting and air vents. A large window on the left side provides a view of a city skyline at night. The overall design is clean and modern, reflecting the luxury of a Mercedes-Benz vehicle.

Izzy Kington, Business Jet Interiors International

spindoctors

Eurocopter's collaboration with Mercedes-Benz has transformed the versatile EC145 into a VIP helicopter with many neat automotive features – from the clean lines and styling down to the boot at the back



Eurocopter's medium-sized, twin-engine EC145 helicopter has amassed more than 400 orders, for a full range of operations, since joining the manufacturer's ranks in 2002. It is a particularly versatile model that can seat up to eight passengers. However, in 2009 Eurocopter decided it was time to update the interior to target the VIP market. Various additions over the years had improved the helicopter's functionality, but also complicated the interior. Eurocopter turned to renowned automotive brand Mercedes-Benz for its design expertise.

"The automotive industry, and in particular those brands that target the upper end of the market, have developed a very high level of design and quality of finish which is, quite frankly speaking, above anything the aeronautical world had to offer so far," says Ernst Heckert, Eurocopter's programme manager for EC145 contracts. "Eurocopter's attempt is to make these two worlds converge and give the customer a continuity of design when travelling in his limousine and then transferring to the helicopter."

As well as its design pedigree, Mercedes-Benz was also a natural



Eurocopter's other business aviation helicopters

Eurocopter has launched three major initiatives in eight years for the executive and private marketplace. Along with the EC145 MB, there is the Stylence family and an EC135 designed with Hermès, L'Hélicoptère par Hermès. In fact the company has sold more than 500 helicopters in the corporate, business aviation and VIP markets over the past four years.

"Eurocopter has always been committed to the business aviation market with constant innovation and enhancements," says Patrice Royer, key segment manager for the business aviation market at Eurocopter. "It offers the widest product range, comprising 12 different model types which can seat from 4-19 passengers in VIP configuration."

The light, single-engine range comprises the EC120, EC130, AS350 B2 and AS350 B3, seating 4-7 passengers. The light and medium twin-engine AS355 NP, EC135, EC145, AS365 N3 and EC155 have proven popular for passenger transport and offshore missions, with the ability to carry up to 12 passengers in the EC155. Meanwhile the Super Puma heavy twin-engine range (the AS332 and EC225) seat up to 19. Then there is the new medium twin-engine EC175 – a joint development with China's AVIC Group. The first delivery of this 16-seater helicopter is expected in 2012.

"Trademark features of Eurocopter VIP-configured helicopters include the exceptionally spacious cabin, the substantial storage space, the spectacular view from a generously windowed cabin, low noise and vibration levels, and outstanding range, speed, reliability and safety," says Royer.

choice as the two companies are linked (in a very roundabout way) through Eurocopter's parent company, EADS.

For its part, Mercedes-Benz was also excited at the prospect of designing a helicopter. "We work in completely different industries, and we have never worked with Eurocopter before, so it was also a very interesting project for us – a chance to learn something completely new rather than always doing cars, cars, cars!" says Michele Jauch Paganetti, who led the Mercedes-Benz design team on this project.

Discussions began in 2009. All the technical and engineering work was conducted by Eurocopter, freeing Mercedes-Benz to focus on the design, material selection and supplementary presentation materials such as the brochure and a video.

Multifunctionality A vital part of the brief was to capitalise on the EC145's versatility. "The typical customer for the EC145 MB Style will probably use it for business trips during the week, while at the weekend using it for challenging outdoor activities or simply to fly out of one of the world's congested metropolitan areas to their cottage in the mountains," says Heckert.

Thus all seats are mounted on rails, enabling them to easily be reconfigured for seating arrangements from 4-8

passengers – or removed to make room for luggage. Eurocopter says conversion should take a trained technician a couple of hours.

There are two walls closing off the cabin from the pilot and the baggage. The rear wall can be removed depending on the layout. The walls also contain three multifunctional cabinets, again depending on configuration. These can incorporate a non-electric cooler box, cup holder, table, monitor and DVD player, as well as extra storage space. The cooler box is a direct automotive influence, and possible because of the short flight times typical of helicopter use. "You just put ice in it, like in a car," says Jauch Paganetti.

Cabin technology includes a large 15in display and six touchscreens. The latter act as control points for the passenger-to-passenger and passenger-to-pilot intercom system, as well as



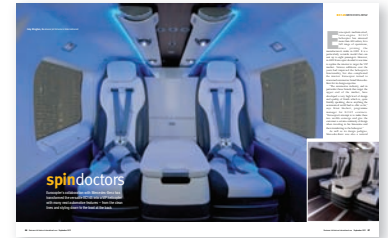
“FOR US IT’S IMPORTANT HOW THE STITCHES WORK, HOW THE DIFFERENT PARTS OF THE SEAT RELATE, HOW THE LINES MATCH UP”



2



1



1. Highlights of the EC145MB include 3D sculpted ceiling panels, real ebony flooring and ambient lighting
2. The helicopter even has a boot, complete with storage boxes and attachment points

enabling control over lights, IFE and other aspects.

Automotive influence Another crucial part of the brief was to translate the look and feel of Mercedes-Benz cars into the helicopter. For Jauch Paganetti, the key to doing this was paying attention to detail, and simplifying things as much as possible. “We had to clean up most of the surfaces, especially on the side panels, the roof and seats,” he says. “For us it’s important how the stitches work, how the different parts of the seat relate, how the lines match up together. In the past surfaces were continuously updated according to engineering needs, for example adding a hole here or another angle there, another surface to put this and a button for that.”

He is particularly proud of the treatment of the wood, especially on the ceiling. “We have a three-dimensional shaped wood panel, which is used more and more now in the car industry, but it’s something really new,” he says. Wood is also used for the flooring, a real ebony that extends throughout the entire helicopter. “This was the idea; that from the boot to the pilot’s cabin, there is one wooden floor,” says Jauch Paganetti.

The automotive influence is perhaps most evident in the rear compartment, reimagined as a boot (trunk). It features numerous attachment points on the floor and walls for securing baggage, golf clubs and other large items. “As far as I know, no other helicopter has a boot like this,” says Jauch Paganetti. “So on other helicopters you have to put your luggage in the cabin, which is not so nice.”

Mercedes-Benz also influenced the four colour and trim options – which are called Performance, Essence,

Nose job

Mercedes-Benz also instigated changes to the exterior of the EC145, starting with its nose. "From a design point of view it looked really awful, so we tried to create a more aerodynamic shape," says Michele Jauch Paganetti, head of the Mercedes-Benz design team on this project. "Even Eurocopter was surprised how much of a change it made. They tested it and said it was very new and very interesting to have this nose."

As well as the livery, the Mercedes Benz team also designed new skids. "We covered the tubes with carbon fibre pieces in a wing shape so that they can improve the airflow in the lower part of the helicopter," says Jauch Paganetti. "Now they look much stronger. The helicopter doesn't look like a heavy object on tiny skinny legs, but sits on something really solid."

Energy and Attitude. The Essence scheme differs from the Performance one in the wood and leather used, and also uses shiny as opposed to matte aluminium accents; Energy features green suede and piping details; and Attitude uses fabrics instead of leather. Livery options include silver or black paint schemes.

For Mercedes-Benz, the reason for offering set schemes was to make sure the Mercedes-Benz-branded helicopter reflected its style. "If you want Mercedes then somehow it has to look like a Mercedes; it has to have the style, the finish and the quality that Mercedes has," says Jauch Paganetti. "You can't say you want the helicopter in pink. If that is the case then buy another one, leave the Mercedes name out of it."

Challenges There were some aspects that the automotive designers found did not translate to the air. "Eventually we had to calm down our design, because of the certification and weight issues, which cars don't have to the same extent," says Jauch Paganetti.

One particular challenge was choosing soft materials that provide the right finish and still comply to regulations. "Even in a car, the leather is treated and can therefore lose a little bit of its natural feel; at the end it can

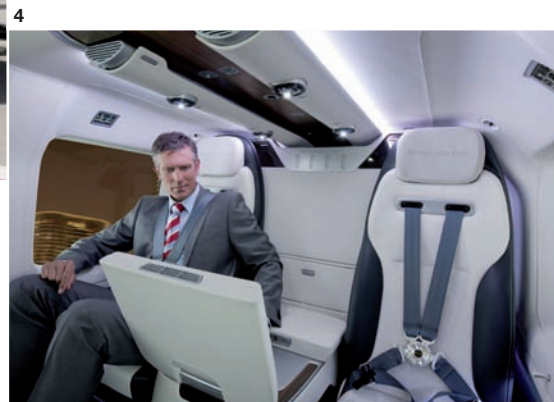


3. Mercedes-Benz also looked at aspects of the exterior, including the nose and skids
4. Passengers can control lights, IFE and the intercom from touchscreens

look like it's very heavily painted," says Jauch Paganetti. "This was also the kind of discussion we had to go through on this project – how far can we go with the leather. The napa leather we have is certified but it still looks like real leather. Of course to get the best look, you would have to use leather used in the furniture industry, but this is not possible in aviation."

However it is a textile that is causing a few headaches at the moment. "We had some problems with one of the textiles because of the inflammability," says Jauch Paganetti. "This is something that is still under investigation, how we can implement the textile that we have chosen. With leather no problem; with textiles it's a little bit more difficult."

The textile in question applies to only one of the four colour and trim schemes (Attitude) – and is intended for use on the seats and possibly the lower part of the side panels. Leather is used on the seats and the upper part of the side panels. "The lower part is darker (grey), and the upper part is



always white, but both parts are leather at the moment because with the leather we have no problem with certification," says Jauch Paganetti.

That certification is scheduled for completion in time for delivery to the first customer (a European) at the end of 2011. Eurocopter is also in discussion with several other potential customers and says deliveries will ramp up in 2012. "The customisation is fully integrated into Eurocopter's final assembly process," says Heckert. "Therefore the extra time needed for an EC145MB compared to a standard EC145 is only one month." **END**

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Guy Bird, Business Jet Interiors International

Designing and completing a business jet in just 12 months is certainly not common, but a recent G550 project proves it is possible. “The speed of this job involved a lot of trust from the client,” says Alberto Pinto, founder of Alberto Pinto International Interior Design. “It was at least 6-12 months quicker than normal. It was the shortest project ever.” The endeavour also necessitated communication between parties based on two continents – Pinto is based in Paris, France, while the Gulfstream completion centre chosen for the job is in Savannah, Georgia, USA.

Luckily, the clients in question – a Brazil-based businessman and his wife – seem, from Pinto’s description, to be understanding types. Having already had a house designed by Alberto Pinto (which has more than 40 years





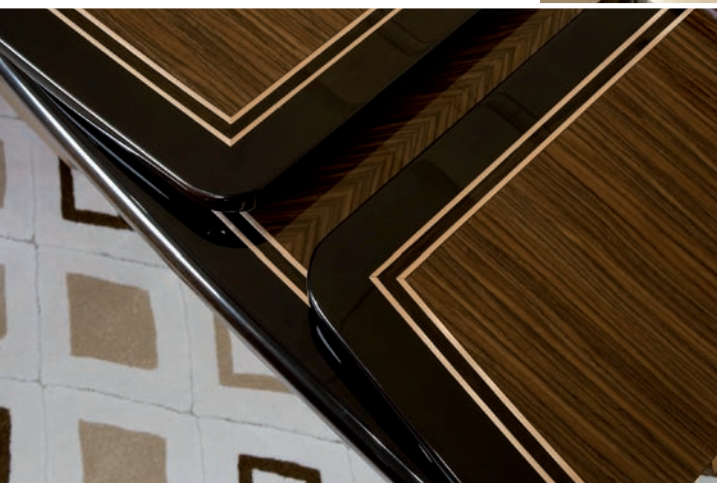
instant classic

Keeping things classical enabled a G550 to be designed and completed in just 12 months

of experience in domestic and commercial interiors and ten years in the aviation interior business), they knew what the firm was capable of.

"The customer wanted something very exclusive and comfortable," continues Pinto. "It's like when people go to a haute couture house, the wife of this businessman knew what was possible from Alberto Pinto." And indeed it was the clients that stipulated the speed of the process, so they understood that decisions would need to be made quickly.

Just how swiftly the basics were decided is still surprising to hear. The process began with a series of hand-coloured sketches. "They were not revolutionary," Pinto honestly concedes. "But they were quick, easy to understand and in the end, simple and elegant. It's an aircraft in which you can spend 11 hours travelling from Brazil to Europe for private use or business and be comfortable."



1

From houses to aircraft

Maison Alberto Pinto is a household name in interior design, and celebrated its 40th anniversary in 2010. French founder Alberto Pinto was born in Casablanca, Morocco, and believes this exotic environment and upbringing gave him a relaxed perspective on European culture, allowing him to view it with a “certain objectivity”. He went on to study in Paris and started his professional career in New York.

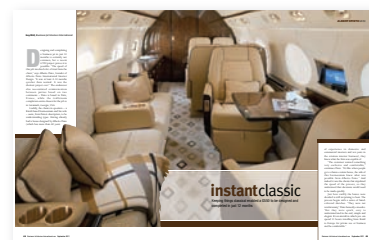
Although most well-known for residential projects, corporate interiors and hotels (including the Hostellerie de Plaisance in Saint-Emilion, France, and a re-imagining of the Lanesborough Hotel in London, UK, due to finish soon) Alberto Pinto has branched out into yacht and aircraft interior design and also a limited range of furniture and accessories.

The aviation department was set up ten years ago and has completed 30 projects in that time. The aircraft interiors project manager has an interior design background and came to aircraft via residential and yachting interiors. However, the department prides itself on being thoroughly up to speed with stringent aircraft regulations. Current or recently completed projects include three Bombardiers, a Dassault Falcon, an Airbus and a Boeing, plus the interior development for the 747-8 replacement for the 747-400.

Where Alberto Pinto would say its approach to aircraft interiors differs from some others is in its complete involvement in all aspects of the fit, and the experience and skills garnered from other fields. “The agency imposes standards of excellence on the installation specialists that are typical of those applied to all projects undertaken by Alberto Pinto, with a choice of materials and technical refinements seldom seen in this field,” the company states. “It is wholly involved in the project, from oversight to cross-disciplinary work, applying a haute couture perspective that allows for complete personalisation. Upholstery, bed linens, fabrics, carpets, soundproofing, lighting systems, telephony, kitchen, bathrooms, live TV, tableware and uniforms – all are taken together to change a cabin into a fully fledged living space.”



1. Reconstituted wood was used to speed the completion
2. The spacious cabin accommodates eight
3. The double diamond pattern of the carpet is echoed in stitching around the windows



Amazingly, Pinto says it only took three weeks for the project to be understood by both the completion centre and the customer. "If we'd studied the design in 3D it might have added three months," he adds. "We did have a very technical sample board."

Tie dye That mood board suggested a classical style with a beige and brown colour scheme delivered through very high-quality materials and finishes. One quirk was a requirement from the businessman's wife that the carpet should remind her husband of a tie he owns. Pinto used a designer tie as a starting point and the final diamond pattern design is one of the more striking elements of the aircraft. "Risky, modern designs were not sought from the client," says Pinto, adding that keeping things classical tends to make more long-term financial sense, as such fits are generally easier to re-sell.

Housing eight passengers inside an aircraft that can normally take 19, the layout is unsurprisingly very generous. Behind the cockpit, front galley and toilet, the main customer space is made up of six large seats arranged in three facing pairs with a table in-between; four more smaller chairs around a larger table; and a four-seat sofa. To the rear, behind sliding doors, are two further facing sofas that can convert into the main bedroom with another bathroom beyond. The single seats can all connect together to make further beds so that six people in total can sleep on horizontal surfaces.

One 20in LCD monitor is mounted on the bulkhead in the main cabin, and there are 7in internet-connected IFE monitors built into the side panels at each single seat.

Custom elements Despite the time constraints, a remarkable amount of customisation has been achieved. The aluminium seat structure is off the shelf, but its exterior design is custom-made. "The shaping of the foam is like going to a fashion designer," contends Pinto. "We also made many decisions about the material used, where the stitching and piping goes, and even the thickness of the thread."

The beige-coloured leather utilised on the main part of the seats is a pleasingly grainy hide by Paris-based Tassin – which also supplies leather for houseware, bags and commercial interiors – and that Pinto glowingly



3



KEEPING THINGS CLASSICAL TENDS TO MAKE LONG-TERM FINANCIAL SENSE



5



“OUR FIRST SHOT WAS ACCEPTED – IT ALL WENT VERY SMOOTHLY”

describes as “almost haute couture quality”. The woven armrests are by Garrett, a US supplier known for its Italian-sourced leathers for aircraft and yachts. Underneath the side ledge on the dado panels, yet another leather finish and supplier has been utilised, this time the US-based Townsend, with an embossed shark skin effect.

The pattern in the carpet is echoed in the wide double diamond stitching on the lining around the windows. It may be an elegant and simple-looking effect, but Pinto says it had to be executed extremely precisely to look professional. The wall covering is Novasuede from US supplier Majilite.

The fabric for the three sofas is also special – a velvet and leather weave by US-based Leni’s with a cashmere throw by Hermes. Other high-end finishes include satin rose gold-plated inlays for

4. The carpet was inspired by one of the client's ties
5. The client now has both a G550 and a house designed by Alberto Pinto

the tables, side ledge, cupholders and TV frame; and Emperador marble in the master bathroom.

Timely decisions Because of the speed of the project, the wood used is reconstituted. Pinto says natural woods were not suitable, as “you only find what you want off the shelf”. He chose a product made of reassembled rosewood and teak fibres, given a new colour for surfaces like the tables.

Christoffe supplied the cutlery, and the tableware came from the completion centre’s showroom selection rather than Parisian suppliers like Dior, which Pinto says he might normally choose given more time. Equally the interior lighting is standard G550 specification rather than anything bespoke.

Despite these small compromises, overall the project went incredibly well.

The more usual back-and-forth of changing ideas simply did not happen. The design team travelled to the USA for two days at a time, but only on four occasions in total, and as Pinto explains, “there were no modifications, nothing to re-do, our first shot was accepted – it all went very smoothly”.

Delivery of the project – including a Sahara beige exterior with simple striping also designed by Alberto Pinto – was made inside 12 months of the original start date. It is an incredibly quick timeline that is a testament to the skills of the aircraft interior design team at Alberto Pinto and the Gulfstream completion centre, but also to the trust the clients placed in them. **END**

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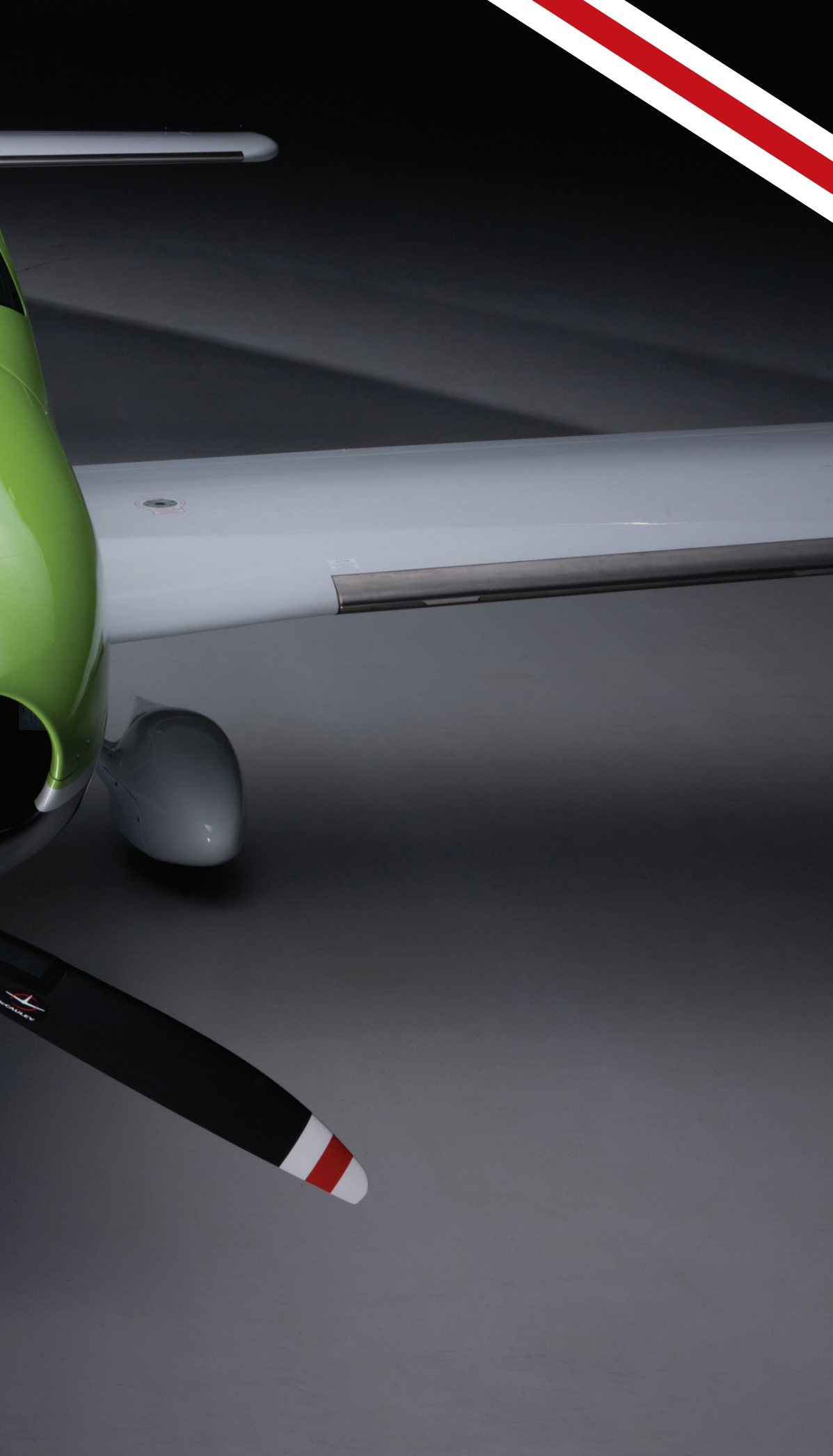




Chris Colvin, Business Jet Interiors International

secondlife

Cessna hopes upgrading the interiors and avionics will rekindle sales of its ailing Corvalis – an aircraft with a colourful history



Earlier in 2011 Cessna unveiled the Corvalis TTx, an upgraded version of its fast single-engine piston aircraft featuring the new Intrinzie cockpit with Garmin G2000 avionics suite and Citation jet quality leathers. Cessna plans on having the new panel certified by 2012, with deliveries of the US\$734,000 (£445,794) aircraft to start immediately thereafter. Customers will be able to choose from four basic interior colour schemes.

The manufacturer hopes the new insides will rejuvenate sales of the high-performance aircraft, which sold only seven copies in 2010 after posting triple-digit sales just a few years ago. For the Corvalis, it has been a long, strange trip up to this point.

Kit heritage The aircraft has its roots in the kit aircraft company Lancair, founded by sculptor Lance Neibauer in 1981. Neibauer's uncle had been a collaborator on the slick Meyers 200 fast single-engine aircraft. Neibauer selected a new wing design from NASA that enabled his small kit aircraft to outfly anything else in its class. It was an instant hit with the home-building community for its performance and sculptural aesthetics. Neibauer, like design guru Burt Rutan, was also conceiving aircraft made of composites, adding to their sleek appearance. By 1998, Lancair had sold 1,400 aircraft kits to dreamy-eyed garage builders.

In 1991, Neibauer unveiled a design that turned the general aviation community on its head – the Lancair IV. The optionally pressurised piston-powered monster shattered speed records, posting an average of 313.1kts (360.3mph). A propjet model later became available.

The IV was a very hot aircraft that unfortunately challenged the piloting



AGATE WAS DESIGNED TO GET PEOPLE OUT OF CARS AND INTO SMALL AIRCRAFT FOR TRIPS UNDER 250 MILES LONG



2



3



4

skill of weekend warriors – 325 would eventually be built and 19 would crash, most of them fatally. Neibauer began work on a simpler, lower-performance version of the aircraft more in line with the skills of the everyman pilot – the Lancair ES.

The kit-building industry enjoyed commercial success during the 1980s and early 1990s because the certified small-aircraft industry had basically gone into hiding beginning in the late 1970s. Cessna had mothballed its single-engine production line, while competitors spun in and out of bankruptcy, spurred on by liability awards to widows who had lost their husbands in the air. In 1994, the US Congress passed the General Aviation

1. The Corvalis TTX is available in four fit and trim options – this one is called Stealth
2. The Twilight interior
3. The Classic interior
4. The Tranquility interior

Revitalization Act, giving manufacturers some relief from product liability lawyers. That same year, NASA launched the Advanced General Aviation Transport Experiments (AGATE), part of a grand plan to work with industry to create a national Small Aviation Transportation System.

AGATE was designed to get people out of cars and into small aircraft for trips under 250 miles long. AGATE used a new Lancair ES as a flying testbed for advanced glass panel avionics trials and Neibauer was encouraged to put his kit aircraft into full-blown production. He formed Columbia Aircraft to do so. The ES was redesigned for factory production and certified as the Columbia 300 in 1998.

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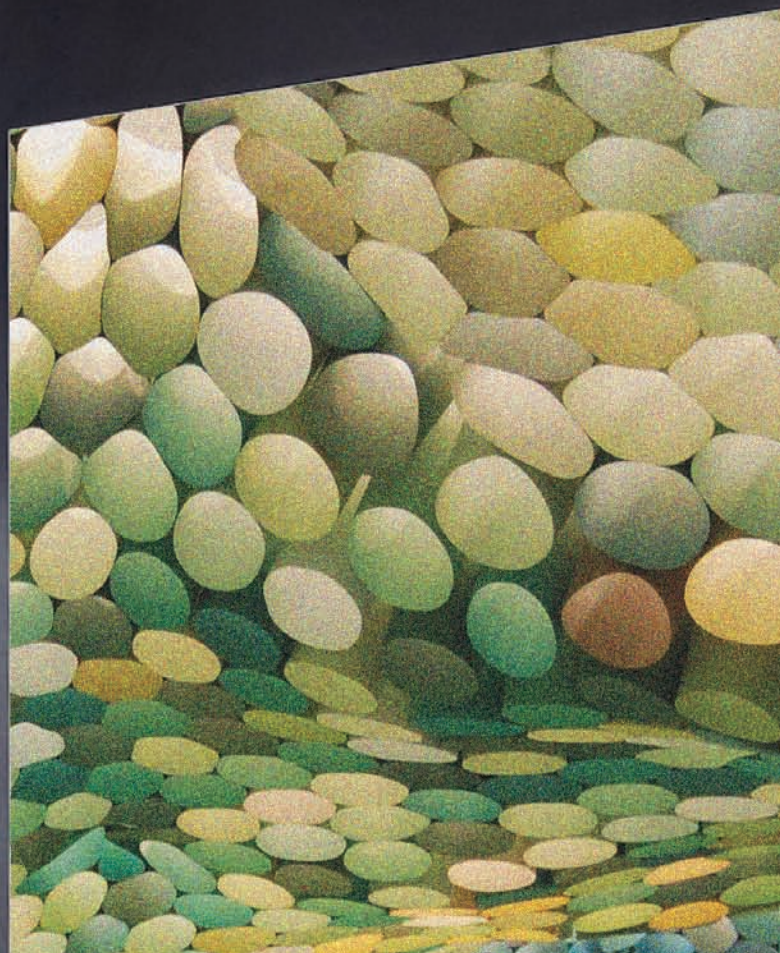
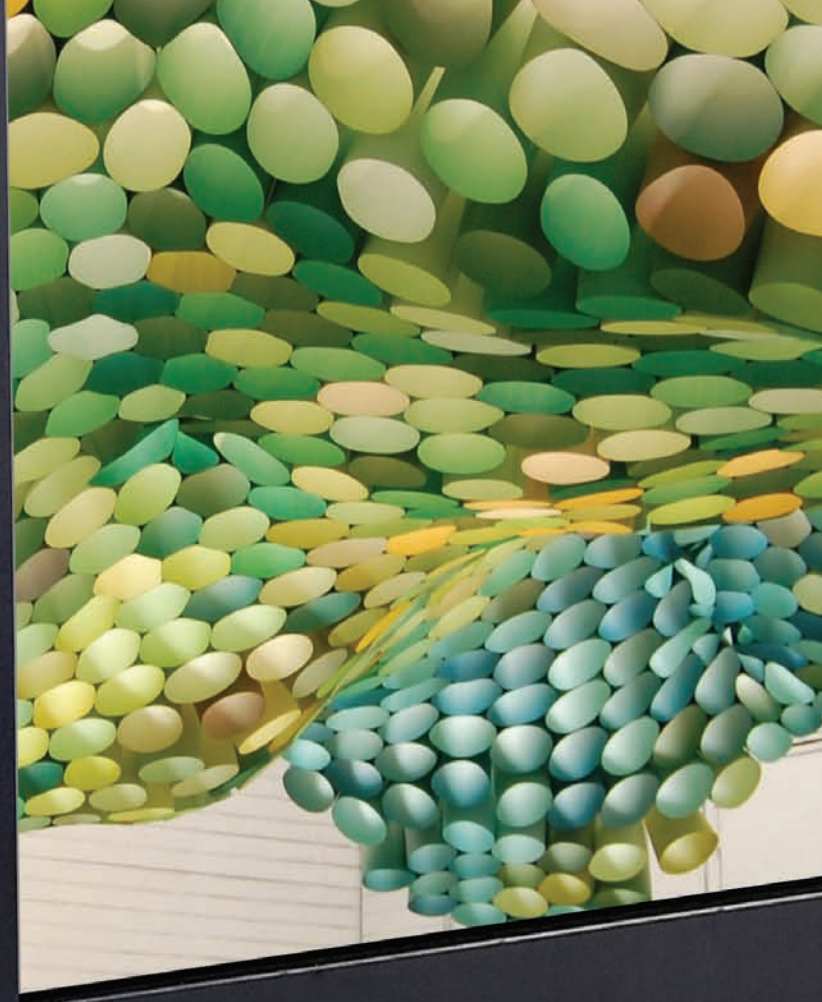
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A more powerful version, the 400, was certified in 2003.

The 400 was an aircraft you could strap on in almost perfect ergonomic harmony. It had a sidestick controller like an F-16 fighter, gull-wing doors like a classic Mercedes, bucket seats with lumbar support and four-point harnesses, and the whizbang all-glass cockpit propagated by the AGATE programme. The aircraft was slick,

- 5-6. The new Garmin G2000 flight deck
7. The touchscreen controller

WHILE COMFORTABLE AND FUN, THE OLD CORVALIS DID HAVE SEVERAL FIT AND FINISH DEFICIENCIES

Decked out

As nice as the new leathers and fabrics are, the TTx's most dramatic feature is the all-new Garmin G2000 flight touchscreen deck with matching FMS controller in the console. It is visually stunning and gives those sitting up front a true state-of-the-art jet experience. This is information as art.

The system features twin 14in screens with a 16 x 9 aspect ratio that provide up to 16 million colours. The second screen or multifunction display (MFD) is customisable and can be split into various panes. The touchscreen uses an infrared matrix for better durability and reliability. Air-conditioning and just about everything else is controlled through the touchscreen – no more out-of-place switches or junky controllers tacked on below the dash. The system can be equipped with the optional GSR Iridium satphone datalink system, providing voice, text, email and worldwide weather. The menu structure is very shallow, allowing fast navigation with a user-friendly interface. The system is fully compliant with the new ADS-B air traffic control technology.

In short, the G2000 presents information faster, better and clearer than its G1000 predecessor, a system that initially reduced many experienced pilots to tears as they negotiated the learning curve before going on to sing its praises. It has been successfully flying in a test aircraft since February 2011.

robust and fast – with a top speed of 235kts (270.4mph); about the same as a turboprop, while burning half the fuel. It could be flown onto the deck like a jet – landing with a fairly flat flair over the runway. Pop the speed brakes up at 25,000ft and it came down like a dive-bomber. Flying a 400 was just too much fun.

However, making it was not. The company struggled with capitalisation and found itself a constant sales also-ran to another new kid on the block with deeper pockets, Cirrus Design.

Neibauer sold the controlling interest in Columbia to an entity owned by the Malaysian government in 2003. That did not go particularly well and Cessna was able to pick up the pieces out of bankruptcy in 2007, for pennies on the dollar – just in time for the great general aviation collapse.

The Columbia factory in Bend, Oregon, USA, was shuttered, and production was relocated to Cessna's plant in Independence, Kansas, USA. However, before it was moved, the aircraft was renamed the Corvalis after a town in Oregon.

While comfortable and fun, the old Corvalis did have several fit and finish

deficiencies, harkening back to its kit-aircraft heritage. These included tape decal striping, an under-dash air conditioning control that looked like it came out of the 1950s Soviet bloc, wooden folk-art side stick and fuel selector controls, and certain substrates not befitting of a four-seat aircraft pushing US\$700,000 (£425,144).

Going up Cessna designers took a hard look at these things and decided to go upscale. "We've been looking at the aircraft since we acquired it," says Scott Howell, Cessna's brand manager for propeller aircraft.

Input came from human factors engineers, ergonomics experts and user





8

THE BACK SEATS CAN BE REMOVED, GIVING A MUCH-NEEDED BOOST TO THE AIRCRAFT'S BAGGAGE CAPACITY

pilots. What Cessna came up with were four interior concepts packaged Stealth, Classic, Tranquility and Twilight. All feature much upgraded leathers, fabrics, textures and substrates to create an interior worthy of the aircraft's flight performance. They are included in the base price of the aircraft.

Stealth resembles the inside of a European sports car, with generous leather accents and a leather-wrapped side-stick. Classic features seats with perforated leather inserts, an Alcantara headliner, brown leather and exotic wood accents. Tranquility has a lighter ivory leather interior while Twilight sort of combines the best features of the Stealth and the Classic.

Flexibility New on the TTx, the back seats can be removed, giving a much-needed boost to the aircraft's baggage capacity (25ft³, 54.4kg). With the back seats out, the TTx can swallow skis,

8. The baggage compartment, which can be boosted by removing the back two seats

golf clubs and large dogs. Removing the seats is a fairly easy process – just pull the mounting pins out and fold the Oregon Aero seats forward and they come right out.

With a full gas bag of 102 gallons, the TTx remains payload challenged, with only 176kg available for pilot, passengers and bags if you want to make the maximum range of 1,250 nautical miles. However, most trips in this aircraft category are far shorter – for one thing there is no lavatory. With three adults and their gear this is a 400-nautical mile aircraft that makes that trip in about two hours.

While the TTx is the next evolution, there are still a few things that would have been nice to add to the change list. The electro-pneumatic door seals and bank vault latches make for a really tight fit for the doors, but the cabin is still relatively noisy because of the rigidity of the aircraft's composite

construction and the big honking Continental engine in the nose. Without noise-cancelling headsets you are doomed. The throttle, prop and mixture plunger controls are decidedly retro and this aircraft deserves an integrated single-lever control for all three. Now just where to put it? The 49in-wide cabin yields more shoulder room than some cabin-class turboprops and there are moulded cup holders on the floor, but space for extras is at a premium. The side-sticks ensure the front passengers have ample space, but rear seat legroom is still a little tight for the average 6ft male.

Nevertheless, the TTx promises to be a joy for pilots and passengers alike. It combines the latest technology with speed and style. If only all aircraft did that. **END**

Web www.cessna.com

Cessna Corvalis TTX

Cabin width:	49in
Cabin height:	49in
Cabin length:	11ft 8in
Seats:	4
Range:	1,250 nautical miles
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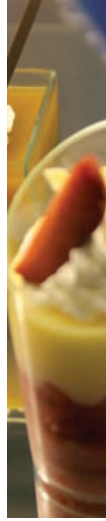
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futurevisions

New ways to use 3D visualisation technology in the design of business jet cabins

1. Using virtual reality, clients can actually walk through a cabin concept
2. A photorealistic Falcon 900 rendering created for Falcon Jet USA
3. Pilatus' iPad cabin configurator uses an app by 3D Viz



The use of 3D graphics, computer renderings and animations is now common in the business jet industry; particularly for showing a client something that he or she must approve. But what else can be done with this technology to enhance a presentation? In a world where people expect to be wowed by new things, 3D Viz of Miami, Florida, USA, responds with several new alternatives.

Its first step to enhancing a presentation is to start with an ultra-realistic image that cannot be told apart from a photograph. "This is always a powerful way of expressing a design," says J. P. Magnano of 3D Viz. "An image is worth a thousand words, especially when you are sitting with a client that is not well versed in design or colour. It makes his or her decision simple and quick; no guess work."

Another way of using the technology involves giving the client the ability to interact with the design, for example using an Apple iPad. Swiss aircraft manufacturer Pilatus provides its sales team with iPads for use in the field. In addition, each new customer receives an iPad 2 with the purchase of an aircraft. The sales team is able to work with customers to configure the BMW-

designed interior using a special app custom-made by 3D Viz.

"Using high-end renderings and cutting edge technology, Pilatus' clients can now easily configure and visualise their customised photorealistic interior design and exterior paint schemes months before actual delivery of their aircraft," says Magnano. "The configurator saves Pilatus both time and money compared to the traditional methods of sending sample materials around the world. Customers enjoy being able to easily try numerous material and colour combinations, and immediately see how their design choices affect the look of their aircraft. Everybody benefits by there being no surprises at the time of delivery."

But perhaps the 3D imaging option with the biggest 'wow' factor is virtual reality, which of course many people recognise from its use in sci-fi films. The principle of virtual reality is still the same as 25 years ago, when it was commercially introduced – the viewer wears special goggles that block out the view outside and a computer generates special stereoscopic images through the LCD screens inside. However, although the principle is the same, Magnano reports that the quality and resolution of these screens has improved dramatically.

"Today, using lightweight high-definition goggles and other high-tech equipment, you can literally step inside the 3D world," he says. "The images are very realistic, similar to latest-generation video games. It's a little like teleporting into an ultra-realistic rendering – you can walk around, inspect the furnishings, sit on the seats and even check out the lav."

3D Viz

Reader Enquiry No. 501





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two's company

The Iacobucci HF Group is continuing its expansion into the business jet seat market with a second model

It was at NBAA 2010 that the Iacobucci HF Group, known primarily for its galley inserts, formally took the plunge into the VIP seating market. Although a new avenue for the company, the prototype on display had the Italian company's hallmarks written all over it – sleek, modern styling; premium materials; and functionality.

To create the concept the group set up a dedicated business unit and collaborated with BMW Group DesignworksUSA on the design. Later Iacobucci HF produced a second design in house, enhancing the concepts expressed in the first prototype and offering clients (who obviously have varying technical and styling needs) a choice of seats.

Both seats are designed to marry comfort and style. For example, extensive pressure mapping tests were conducted to optimise the seat's volume; Iacobucci HF wanted to suggest lightness while also making the product look and feel as comfortable and inviting as possible.

Responding to the market, both seats also offer transparent and customisable options for OEMs. The first model is 23in wide and features fixed track fitting, full fractioned drop-down armrest and an extendable legrest including a foldable manual footrest. The 45in backrest boasts a personalised recline mechanism and a three-way headrest with vertical, horizontal and tilting features, plus earflaps to enhance comfort when in the rest position.

Designed and developed with a customer-oriented approach, the VIP seat can be customised to suit clients' individual needs

and will also fit a wide variety of cabin interior designs.

"The project team developed a seat ergonomically responding to the form of the human body," says Riccardo Palmeri marketing director at Iacobucci HF Group. "The mechanical 360° swivel enhances the useful space into the cabin while the light structure and smooth movements make it extremely lightweight and easy to install and maintain, reducing operation costs."

As with the first seat, in designing the second, the project partners wanted to create a feeling of "perceived lightness". To emphasise transparency and openness they removed material from the armrest and created a reduced, graceful shape.

Featuring a 21in width, single 45-46in backrest structure and a 7in deployable and extendable legrest, the seat is designed for maximum comfort and to support the body in various positions. The seat features a cradle recline mechanism – the seat pan tilt is coordinated with the backrest recline to convert the seat into a fully flat bed. The armrests are fully retractable (with a friction drop-down movement), so there are no bumps or ridges to spoil the bed surface. Other features include a headrest with vertical, horizontal and tilting adjustments; and a floor tracking mechanism.

Iacobucci HF's seat division recently exhibited at Aircraft Interiors Expo Americas (held in Seattle, USA on 12-14 September 2011) and will also attend NBAA (Las Vegas, USA, 10-12 October 2011).

Iacobucci HF Group

Reader Enquiry No. 502



1-3. Iacobucci HF Group's first seat concept, launched at NBAA 2010
4-5. The newest VIP seat model

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package deal

With the addition of Mühlenberg Interiors,
Diehl Aerosystems can offer harmonised cabin solutions

Attentive observers of the aircraft cabin industry will have noticed a major acquisition recently made by the Diehl group. Proposed in spring 2011 and made official on 1 August 2011, Mühlenberg Interiors is now an affiliated company of the Diehl group's aviation division, Diehl Aerosystems.

The Diehl group's expansion strategy started with the acquisition of the former Airbus site Laupheim (now Diehl Aircabin) in 2008, followed by Dasell – also from Airbus – in 2010. Diehl Aerosystems now has four units – Diehl Aerospace, Diehl Aircabin, Dasell and Mühlenberg – which enables it to approach the VIP completion market with a more comprehensive product portfolio.

Mühlenberg, based in Hamburg, Germany, is a specialist in designing, certifying, producing and delivering galleys, stowages, partitions and small monuments for both line-fit and retrofit projects. The company specialised in high-end customised cabin interiors, starting in 1978 with a Boeing 747 galley complex. Today it boasts more than 100 VIP galley projects, using this

experience to deliver plug-and-play galleys for most Airbus and Boeing types.

Even before the acquisition of Mühlenberg, the Diehl group offered varied capabilities. Diehl Aerospace is an expert in cabin systems and lighting – a field which has become a key technology for high-end aircraft cabins. Meanwhile, Diehl Aircabin embarked in the business of floor-to-floor installations and furniture for VIP and executive jets more than 12 years ago, and has performed more than 80 demanding projects since then. And although lavatory and bathroom systems make up Dasell's core competence, retrofits and special VIP solutions such as showers, stowages, class dividers (including sliding doors), changing and refreshment rooms and the like are increasingly in demand. Strongly benefiting from its experience on serial lavatories, Dasell has developed and delivered VIP items to completion centres for more than 15 years.

Diehl Aerosystems believes that one of the biggest challenges for completion centres and MROs with regards to highly customised cabin interiors is the harmonisation of industrial design features and trim and finish across the cabin, as well as interface coordination between monument and lining suppliers. With its latest acquisition, the group will not only be able to offer a huge range of products – from lighting systems to lining, bathrooms, monuments and galleys – but it will also be able to provide harmonised solutions and coordinate interfaces within its family of suppliers.

Mühlenberg Interiors

Reader Enquiry No. 503



1. Mühlenberg products incorporated in a cabin design by Mahler Industrial Design



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freshstart

A new aircraft remarketing company is making its mark with a BAe 146 and Avro RJ VIP conversion programme branded Multijets

It has not taken the Cordner Aviation Group long to make an impact. Founded by former BAe Systems executive Stewart Cordner earlier in 2011, the Berlin-based enterprise has just signed its 16th BAe 146/Avro RJ remarketing mandate and says it is well on the way to its first placement in one of its three target sectors.

The company specialises in multirole BAe 146 and Avro RJ VIP conversions, but will also explore other aircraft conversion platforms. It has formed strategic alliances under contracts with Design Q (interiors) and Inflight Engineering Services (completions). For its first customer, Bulgaria Air, it will remarket a VVIP Avro Business Jet and seven BAe 146 airliners.

"Our company's mission is to serve our customers at any or all stages in the conversion process," says Cordner. "This includes sourcing and evaluating the aircraft; arranging for bespoke interior concepts through Design Q; and providing post-sale maintenance and completions through Inflight Engineering Services."

Cordner's first concept is called Surveyor and is targeted at the mining, exploration and energy sectors. The programme will see BAe 146s and Avros (in a range of models/variants) purpose-outfitted for those industries, with up to 112 seats. Initial

designs include a quick-change capability, for example enabling the aircraft to be changed from an all-passenger layout to one accommodating passengers and a separate VIP module, or to one for passengers and a separate Medevac LifePort cabin.

"The initial reactions to the Surveyor and our range of design concepts – resulting from many candid conversations with prospects in the mining industry – have been totally positive," says Cordner. "The 146s and Avros are not strangers to mining and energy exploration and in fact have earned high marks over the years in operations worldwide. So what we are doing now is building on a proven basic platform and greatly enhancing it based on our extensive customer needs analyses and using new technologies now available to us. For example, we plan to reduce the operating weight empty by over half a tonne over the basic passenger aircraft."

The aircraft is approved for short runways, such as London City, which means it can make very steep approaches over rough terrain typical of mine locations. And when it lands, it is quite independent with an electric internal starter system, integral air stairs and several other autonomous features. "The aircraft has all-round excellent hot and high performance, as well



as outstanding short field capability," says Cordner. "That can be nothing more than a gravel or dirt airstrip, located potentially right where the mine is located. By taking this mine/customer-centric approach, we can minimise the permanent 'land take' for the airfield, which also greatly reduces the environmental impact and, naturally, provides the industry with a maximum production and logistical upside."

Cordner believes the BAe 146/Avro series, with which he has worked for over 20 years, is very well-suited to this use. "These aircraft have been simply and ruggedly built originally to airline standards and for high utilisation at remote locations," he says. "Considering their fuel efficiency, low acquisition and operating costs, and a 60,000-hour lifespan barely touched, they have to be the best bargains in the air. They also have the lowest noise print of any similarly sized jet and meet all current emissions standards."

Cordner says more concepts will be revealed in November 2011 (QJet) and early 2012 (Private 11).

Cordner Aviation Group Reader Enquiry No. 504

2



1. Stewart Cordner, founder and president of Cordner Aviation Group
2. Surveyor is based on BAe 146 and Avro aircraft, which can land on short dirt or gravel airstrips

Architect of innovations



iPad revolution

Vision Systems is launching a motorized deployment arm for an iPad in the passenger armrest. The iPad solution, Vision Systems is developing, will not only offer multimedia but also cabin environment management.

Evolutionary IFE

Vision Systems' VisiVip offers to corporate and VIP operators a flexible system that combines AVOD, passenger connectivity and cabin management functions.

The sets of functionalities are hosted in one single hardware called the VisiBox.

Vision Systems' IFE solutions can be tailored to meet specific customer requirements.



Noctis

Innovative shading systems

Noctis is a breakthrough shading system allowing passengers to instantly and uniformly control at any level, light and heat intensity entering the cabin.

Another recent development from Vision Systems is the Comfort Shade Dual which features two electrical shades in a single system for optimized solar protection: one shade designed for ultra-violet limitation and the second for total blackout.

Vision Systems is able to combine Comfort Shade with Nuance tintable windows solution.

Comfort Shade Dual



lightrelief

New window shading systems from Vision Systems enable passengers to control light and shade in the cabin

Adding to its range of solar protection systems for both the cockpit and passenger cabin, Vision Systems recently introduced Noctis. The system is designed to enable passengers to instantly and uniformly control the light and heat intensity entering the cabin. Instead of shades, the glass itself switches instantly with shading levels ranging from transparent to blackout.

The system can be controlled directly at the seat and/or by the cabin crew to synchronise multiple tintable windows at the same time. Unlike a shade, the system is totally silent and passengers can switch to see through the windows without disturbing other passengers. This new technology opens up a new array of design possibilities for aircraft and helicopters. Noctis can be used as solar protection (offering 99% protection from UV), for 100% blackout or as a cabin divider, allowing areas of privacy.

At the 2011 Paris Air Show, Noctis was on display in Bombardier Aerospace's CSeries (a family of 100-149-seat mainline aircraft) cabin

mock-up. Bombardier has equipped the business -class windows in its mock-up with the solution for market evaluation purposes.

Another recent development from Vision Systems' research and development department is the Comfort Shade Dual, a system incorporating two electrical shades for optimised solar protection. The first roller shade is designed to limit UV transmission and the second for blackout. It can be operated directly from the passenger seat or by the cabin management system.

The company is also currently finalising a two-screen manual solar protection solution called the Easy Shade Dual, which will be launched at NBAA 2011 (to be held in Las Vegas, USA, on 10-12 October 2011).

Both systems are equipped with an anti-jamming mechanism and manual unlocking device in case of emergency. The non-pleated shades can be customised through a broad choice of colours and fabrics.

Through its partnership with asscom, Vision Systems can offer worldwide AOG support and daily technical assistance for problem diagnosis, replacement and repair of its shading systems.

As well as its latest generation of solar protection systems, Vision Systems will use NBAA 2011 to present IFE systems for business and VIP aircraft, including a new offering, iPad interfaced with Visibox. With Visibox as the brain of the system, passengers can manage cabin comfort functions and access entertainment, multimedia content and connectivity via the iPad. For greater comfort, the iPad can be combined with a motorised deployment arm that is integrated into passenger armrests.



Vision Systems

Reader Enquiry No. 505

1. One of Vision Systems' solar protection products for the cockpit
2. Comfort Shade Dual
3. The Noctis system

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economydrive

Goderich Aircraft is seeing a boom in VIP conversions of used airliners

Located at Centralia Airport in southern Ontario, Canada, Goderich Aircraft Inc (GAI) operates in the top-end, VIP segment of the private aircraft industry as a conversion and MRO facility. Founded in 1993, its services have expanded from maintenance, paint and interior work to design, engineering, technical certification, conversions and completions. This past year, GAI has completed a Boeing Business Jet (BBJ) and two head-of-state aircraft for overseas clientele.

A large portion of GAI's business stems from the conversion of narrow-body aircraft, installing VIP cabins. The company refurbishes older airliners through interior and exterior manufacturing and remanufacturing; exterior painting; repairs and maintenance (C and D 'heavy' checks); and avionics upgrades and installations.

"GAI's market position allows the company to not only withstand, but continue to profit during a recession; as those customers who would normally purchase new aircraft explore less expensive (conversion) options," says Andy Orr, vice president of sales at GAI.

The company also credits its success to its ability to provide multiple services in parallel, saving clients critical and costly months of downtime. It also boasts

approvals from Transport Canada, the US Federal Aviation Administration, the European Aviation Safety Agency, and the UAE General Civil Aviation Authority, enabling it to achieve certification in line with many importing countries' requirements. Many contracts require complex additions and modifications for staterooms, en suites, conference rooms, bars, entertainment and connectivity.

Aircraft remanufactured by GAI are outfitted with technological features such as AVOD IFE, cellular and satellite communications for phone and fax, outlets for personal electronics, and moving map display systems. Other options include internet access, live television, cockpit and security cameras, and the high-level security features required for heads of state, diplomats and other VIP clientele.

For a recent BBJ completion, multiple surround sound systems were installed in four separate zones without the use of speakers. Using technology from QinetiQ, over 180 sound vibration exciters were installed on the ceiling panels for an enhanced acoustic experience.

"With the majority of corporate revenues driven from international markets, it is imperative to be at the leading edge of technology and design," says Orr.



"Recently, we installed a 41in flatscreen – that's one of the largest currently flying."

GAI says it is also capable of upgrading weight allowances, enhancing engine performance, and increasing fuel capacity as required by each client.

Later in 2011, the company is scheduled to complete two MD-87 aircraft converted from airliner to VIP configuration, as well as embark on a similar VIP conversion contract with a pair of ERJs.

Goderich Aircraft

Reader Enquiry No. 506

3



1. An AVOD IFE installation by GAI
2. A 41in flatscreen monitor on a BBJ
3. A formal meeting area on a BBJ

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biggerpicture

A year on from acquiring a host of new suppliers, Goodrich Interiors explains how the development has expanded its offering

In September 2010, Goodrich Interiors became the proud new owner of the majority of DeCrane Aerospace's businesses, including Carl F. Booth Veneers, DeCrane Aerospace Aircraft Seating, Audio International, PCI and Precision Pattern Interiors. The acquisition of these businesses has helped to launch Goodrich further into the regional and business jet market, serving OEMs, completion centres and individual aircraft owners.

Goodrich takes pride in offering what it calls "total cabin capability", which it says means it can offer economies, both in time and resources, with single-point programme management and accountability. The company has over 60 years of experience in designing, manufacturing and certifying aircraft cabin interiors. Some of its major customers include business jet manufacturers such as Airbus, Boeing, Bombardier, Cessna, Dassault, Embraer, Gulfstream and Hawker Beechcraft.

As well as making interior products, Goodrich has repair stations in Wichita (Kansas) and Little Rock (Arkansas). More than a million interior part numbers and 1,000 aircraft interiors have been produced by Goodrich Cabin Systems (formerly Precision Pattern, PCI Composites, The Infinity Partners, and Customer Woodworks & Plastics).

Goodrich can repair a huge array of aircraft interior items – including galleys/refreshment centres, closet assemblies, vanities, bulkheads/dividers, credenzas, monitor shrouds,

wardrobes, table assemblies, entertainment cabinet assemblies, toilet cabinet assemblies, cabin door assemblies, sideedges/arm rest assemblies, cabin wire harness assemblies, PSU assemblies, headliner assemblies, valance assemblies, sidewall assemblies, window shade assemblies and Prepco hot tanks.

Highlights of Goodrich's in-house capabilities include an OEM-specified test stand for Prepco hot tanks; a fully FAA-certified and DER-staffed burn laboratory; large cabinet repair and finishing capabilities; and dedicated programme management staff. The company also offers a huge stock of veneers courtesy of Goodrich Cabin Systems – Booth Veneers, including diverse hardwood species to match clients' existing cabinetry, and a wide variety of cabinetry finish options.

Aircraft models on Goodrich's capability list include the Cessna Citation Mustang, CJ-3 (525B), Bravo (550), Encore and Ultra (560), Excel (560XL, XLS, XLS+), VII (650), Sovereign (680) and X (750), the Hawker-Beechcraft Beechjet (400), Beech Baron (G58), Hawker (4000) and KingAir (350i), Boeing VC-25 (747-200), 20-1101 and 20-1102 (747-400), Embraer Lineage (ECJ-190), Bombardier Challenger 300 (BD-100-1A10), Challenger 604 (CL600-2B16) and Global Express (BD-700-1A10), Gulfstream G300/400 (GIV/GIV-SP) and G500/G550 (GV), and the Dassault Falcon Jet 2000.

1. New acquisition Audio International focuses on IFE and CMS
2. Precision Pattern Interiors products installed on a Cessna Citation Ten



Goodrich

Reader Enquiry No. 507

Skylounge

AIRCRAFT CABIN MATTRESS

CASCADE
DESIGNS 

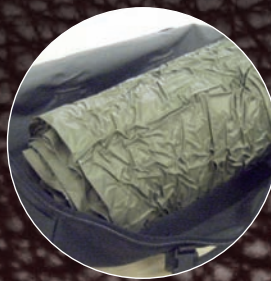
In 1997 Cascade Designs pioneered the development of the world's first customised self inflating aircraft cabin mattress to fit all aircraft models under the brand Skylounge™. To date there are in excess of 12,000 units in service.

The Skylounge™ is lightweight and can be rolled up into a customised equipment bag and stored in a fraction of the space of a conventional sleeping unit. The underside is custom contoured to match the top surface of the users preferred seat configuration which ensures a flat top surface for sleeping. We design and manufacture for single, double and divan units.

To operate, open the valves, the mattress will self inflate in minutes. By closing the valves, the air is trapped inside the foam maintaining structural integrity. An electric pump can be provided as an accessory to assist with inflation and deflation.

Skylounge benefits:

- Compatibility → customised design to fit any aircraft model
- Flexibility → mattress can be armrest height
- Security → ability to use seat belts
- Stow ability → minimal volume when deflated
- Lightweight → approx weight (single = 8.0lbs - double = 13.0lbs)
- Easy to use → user friendly set up and packaging
- Comfort → self regulated comfort
- Stability → minimal rocking during flight
- Longevity → decompression valve fitted
- Reliability → 2 year warranty
- Value → the most competitive price on the market
- Trust → over 13 years product history



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greenteam

Tapis explains how its range of materials achieves environmental sustainability

For nearly 35 years, Tapis has provided soft furnishings designed to last, and therefore decrease waste and replacement costs. As part of its commitment to provide high-quality products for the aircraft interiors industry that are safe for the environment, Tapis also utilises efficient manufacturing processes based on the conservation of raw materials, toxic-free solutions and with minimal dependency on natural resources.

For example, its faux leather Ultraleather products are part of a new generation of polyurethane-based products manufactured in a process that Tapis says minimises effluent, reduces emissions and consumes less energy.

"Ultraleather is made of polycarbonate, an extremely durable polyurethane resin with high performance resistance to heat and light," says Jason Estes, sales manager at Tapis.

"Additionally, as a result of its substantially lighter weight, Ultraleather reduces fuel consumption, driving costs down and reducing the carbon footprint. It also offers 100% yield, which means no waste."

Tapis also partners with The Leather Institute to provide customers with the resources to clean and repair Ultraleather, and extending its lifespan even further. In addition, The Leather Institute offers a complete line of restoration

services, including cleaning products, conditioning, touch-ups, colour restoration, repairs and training.

Meanwhile, TapiSuede, one of Tapis's faux suede products, is comprised of 88% polyester – all of which is high-purity recycled polyester – and 12% polyurethane. The polyester fibres are made from a mixture of post-industrial and post-consumer recycled polyester. The company says it uses high-tech manufacturing techniques and special water-dispersed polyurethane to make TapiSuede, eliminating the need for harmful organic solvents. The product is also designed to be resistant to stains, prolonging its life.

TapiSuede BHC-SS maintains the same characteristics as the standard TapiSuede, but is engineered for the lowest possible weight and to meet the most stringent flame-retardancy requirements for commercial aircraft.

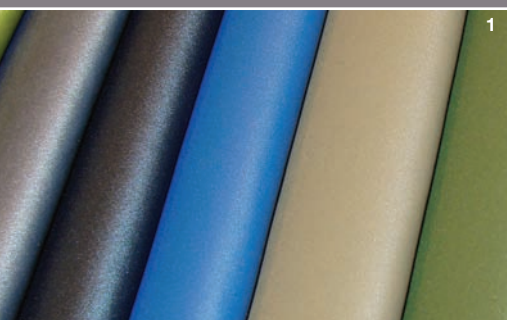
"The durability, flexibility and ability to function on many panels with various adhesives makes TapiSuede BHC-SS an excellent choice for aircraft interiors," says Estes.

Tapis's other major faux suede product line is called Ultrasuede. This product is composed of 100% recycled ultra-microfibres and made in a process that the company says results in reduced energy consumption.

"Ultrasuede is inherently stain resistant, which means no harmful chemical treatments are required for cleaning it," explains Estes. "This faux suede product is a luxurious, cruelty-free and environmentally safe alternative to genuine suede and is suitable for a multitude of aircraft interior applications."

Finally, for Grospoint and Geneve, Tapis uses only 100% raw (undyed) cotton and 100% raw wool. These fibres are naturally grown; no synthetic fibres are used for these fabrics. Tapis says that none of the substances used in the dyeing and finishing of these fabrics appear on the SVHC list.

1. Tapis' Ultraleather (Fusion collection)
2. Ultrasuede



Tapis

Reader Enquiry No. 508

simple pleasures

Installing a power supply system is a small change that could make a big difference to passenger satisfaction

To reap the full benefits of IFE, passengers are demanding extra power outlets during their flights, reports system supplier Astronics AES. "Both business professionals and recreational fliers want to plug in their devices," says Kellsey Justus, vice president of airborne power and controls at Astronics AES. "The days of a single-outlet business jet are gone. In this day and age, the need to feel connected has become increasingly real, and the ability to power mobile phones and laptops, for example, provides a simple, yet effective, sense of security and luxury."

Furthermore, entertainment devices that are installed in an aircraft – WiFi devices, gaming systems and so on – all require their own power sources. "Despite the fact that OEMs are willing to rise to their customer's demands for wider IFE options, few are also updating the power source options," says Justus. "This can be even more frustrating to passengers than not having the options at all."

The EmPower product line, offered by Astronics AES, delivers an off-the-shelf solution. The company says the power supply system can be integrated seamlessly, and provides up to three outlets per unit. Each unit contains redundant circuitry, making each box independent from all the rest and protecting

passengers from experiencing widespread outages or power surges. Astronics AES says that all its EmPower products meet or exceed FAA requirements. Each unit is available in various AC and DC configurations with up to 150VA per outlet. The most recent addition to the product line also integrates a USB outlet into the unit, so that passengers can charge their USB devices while still leaving 110V AC available for their laptop or other device.

"Technology has become more engrained in our everyday lives," says Justus. "As more and more fliers take their business on board, the ability to plug in a laptop for long hours during a flight can be the difference between a relaxing, productive journey, and a stressful, time-wasting commute. Even the leisurely passenger, accustomed these days to an onslaught of electronic gadgets and entertainment, can settle in and enjoy a flight with outlets available on board to power personal electronic devices."

Astronics AES says its outlet units are an easy upgrade to any aircraft – weighing as little as 1 kg (2.2lb) per unit, and



mounting either in-seat or throughout the aircraft. "EmPower systems are a perfect example of a simple change in an aircraft that can make an enormous impact," says Justus. "Especially when making changes for IFE purposes, such as preparing an aircraft with WiFi capabilities, including a power supply system as part of the upgrade is simple. Having entertainment options, as well as the ability to power on and utilise those IFE options even during a long flight, is a key part of assuring the success of an IFE upgrade."

Astronics AES

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1. The latest power outlet from Astronics AES also incorporates a USB socket
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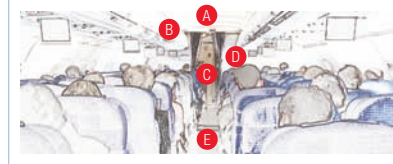
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growthpotential

First Emirates Aviation Group, a completion centre based in the heart of the Middle East, has ambitious plans

Strategically placed in Abu Dhabi, First Emirates Aviation Group (FEAG) claims to be one of the first companies specialised in cabin interior repairs, refurbishments and completions for VIP aircraft and commercial airliners in the Middle East region.

It has certainly picked a ripe location in Abu Dhabi, which as well as being the capital city of the UAE, is at the centre of one of the world's booming aviation markets and borders the global business centre that is Dubai.

The company itself has extensive knowledge in leather and fabric seat upholstery, veneer and wood repairs, VIP carpeting, galley refurbishment and other cabin-related refurbishment activities, enabling it to provide specialised services aimed at fulfilling customers' every request.

FEAG's most recently completed projects include the partial retrofit of Bombardier Dash 8, and the complete retrofit of an AW139 helicopter for a local customer. FEAG's

customers include Royal Jet, Abu Dhabi Aviation, Airarbia and Etihad.

Launched in 2008, as GAS Aviation Services, FEAG is a 100% local company and belongs to the ruling family of Abu Dhabi. Still in the growing stage, FEAG believes it is yet to reach its true potential. With a small team of handpicked specialised staff, FEAG is already one of the leading interior refurbishment companies in the UAE. To strengthen its presence and capabilities in the Middle East and also to provide bespoke turnkey solutions, FEAG has forged alliances with leading European companies such as Voith Engineering Services, Paustian-Airtex and JCB Aero.

FEAG boasts certification in accordance to GCAA Part 145 regulations and is currently pursuing EASA Part 145 certification. With its current client portfolio extending over the UAE, FEAG says it will soon venture further afield.

First Emirates Aviation Group

Reader Enquiry No. 510



- 1-2. FEAG's workshop
3. A recent project – the partial refurbishment of a Bombardier Dash 8

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far and away



PATS Aircraft Systems prides itself on helping its customers go the extra mile – literally. For decades, its auxiliary fuel systems have extended the range of aircraft and OEM business jet platforms by as much as 50%. The certified products that are offered by PATS include systems for Boeing 737NG, 757 and 767; and CRJ200 and CL850 aircraft.

While its auxiliary fuel system business is the cornerstone on which PATS was founded nearly 30 years ago, it has given rise to expertise in other aspects of executive and VIP aircraft services.

PATS is a leading provider of VIP aircraft maintenance, modifications and total interior completions, with over 20 narrow-body VIP interior completions delivered. It is a BBJ-centric facility.

"PATS has hands on BBJ experience unmatched in the industry," contends Matt Hill, vice president of sales and marketing at the company. "Our diverse business model allows us to approach our VIP customer projects in a unique way, not based on volume, but rather through a focused hangar plan that includes limited interior

completions in work at any given time to complement our BBJ and other auxiliary fuel system installs and ongoing BBJ maintenance and interior modifications."

As many BBJs are nearing 12 years of operation, PATS believes they are facing large scheduled maintenance events and interior system obsolescence. The company is prepared to support existing and new customers as a one-stop-shop for maintenance and interior modifications, and is now scheduling hangar slots into 2012.

Hill points to the recent refurbishment of a Middle East-based BBJ and an ongoing total interior refurbishment of an Asia Pacific-based BBJ as perfect examples of PATS' global experience and broad capability. "We're prepared to provide every aspect of service and support, from pre-buy inspections to complete interior reconfigurations," he says. "PATS in-house design engineering and FAA ODA designation enables smoother, quicker certifications and regulatory approvals equating to shorter aircraft downtime."

PATS Aircraft Systems

Reader Enquiry No. 511

opening doors

Steecon Enterprises was established in 1982 based on a frangible (breakable) aircraft pocket door concept. Now almost 30 years later, the frangibility of a pocket door is a standard safety requirement for executive and VIP aircraft.

From the beginning, sound engineering, high quality and reliability were the key attributes the company aimed for with its products. "We build our products to last," says Chris Steel, vice president of Steecon Enterprises. "In fact, some of our first production pocket doors are still in service today. We know this because they are returned to us periodically for technology upgrades or a service check-up."

Building on the success of its frangible pocket door, Steecon has expanded its product offering to include more customised monuments such as curved pocket doors, tables (Hi-Lo and pull-out) and monitor lifts/mounts.

"Our 30 years of technical expertise with complex mechanisms enables us to successfully produce the unique monuments demanded by aircraft interior designers and aircraft owners,"

says Steel. "In addition, our company size and culture allow us to take engineering and manufacturing risks that other suppliers may not want or be able to; we can also react more quickly to changes in project requirements."

Customer service/support to back those products is not just lip service with Steecon. "Being responsive to your customers is vitally important," says Steel. "You know that issues are going to come up from time to time and it's how you handle them that separates you from the competition. We fully endorse our products by offering a generous warranty and exemplary customer service; our customers know that they can truly count on us for the support they need."

As Steecon advances toward its 30th year in business, it remains optimistic about the future. The company believes a combination of ingenuity, reliability in its products and a genuine customer focus will make it a strong proposition for many years to come.

Steecon Enterprises

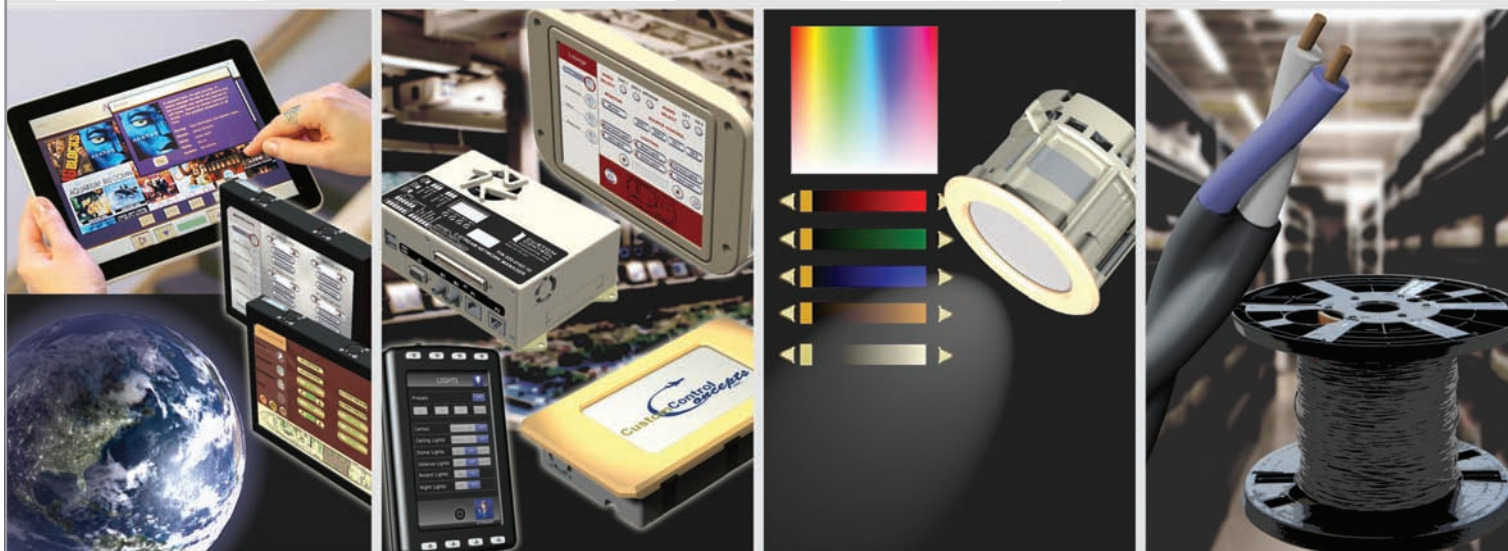
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BUCHER

personalshopper

Custom Control Concepts (CCC) has been designing and manufacturing custom IFE and CMS for wide- and narrow-body aircraft for over a decade. From the beginning, the company has focused on providing aircraft owners with complete IFE and CMS packages, personalised for the aircraft and VIP's specification.

Every system, from simple to complex, is designed with the latest technology to provide an intuitive and elegant inflight experience. CCC says its design philosophy ensures that each system integrates seamlessly with OEM and third-party components, while remaining reliable and easily upgradable as components and technology evolve.

CCC's in-house capabilities include design, engineering, PCB fabrication, full machine shop, cable assembly, product assembly, unit testing, systems integration laboratory testing, FAA/EASA repair stations, DO-160 testing and more. The company says that these in-house capabilities allow it to stay flexible, control

costs and respond quickly to changes at every stage of development.

Many of CCC's innovations originate from VIPs requesting custom IFE and CMS features that have not been built before – CCC has the in-house expertise and capabilities to take new ideas from the drawing board to reality.

CCC's product line includes HD-integrated monitors, iPad/iPhone/iPod remotes, surround sound speakers, switch panels, LCD touchpanels, touchscreen monitors, AVOD, SkyShow 3D moving maps and more.

The company recently launched a new line of cabin lighting designed to overcome the inflexibility of traditional cabin lights. Each light can be independently controlled, offering endless colour and brightness variations. Whether passengers want to dim all the lights or just one seat, this product gives them the flexibility to create their required ambience.

Custom Control Concepts Reader Enquiry No. 513



Photo courtesy of Comlux - ACJ320 interior

arminarm

Following its success developing and delivering first- and business-class tray tables and IFE deployment systems to the commercial airline industry, Bucher Aerospace Corporation is expanding further into the business jet market. It offers a wide array of modular, scalable food-tray table and IFE deployment solutions, and has worked with many aircraft seat manufacturers to help adapt their products. Now with the trend towards a highly integrated cabin, Bucher is partnering with some of the best-known names in the cabin system integration, IFE, business jet and aircraft seating markets to deliver integrated displays, passenger control units, IFE deployment systems and tray tables for business jets.

The company believes that partnership is the key to a successful luxury-class product line, and has made it central to its business strategies and day-to-day operations. Whether it is with the seat manufacturer, the completion centre, the industrial design consultant or the aircraft manufacturer, Bucher handles each programme with a team mentality and understands the importance of integration and collaboration throughout the entire development process.

Based on experience, Bucher understands the vision that industrial design consultants have for the overall product and appreciates this vision can encompass not just the aesthetics but also the functional and tactile qualities. Bucher is committed to establishing and fostering partnerships with the industrial design and OEM communities to promote early integration into the overall concept and planning processes. It believes this is paramount to creating a final product that matches the original vision and commits to maintaining product integrity from start to finish.

With its existing modular product line, new product innovations, a team of experienced engineers and a passion for success, Bucher is excited about the years to come.

Bucher Aerospace Corp.

Reader Enquiry No. 514





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naturalselection

Moore & Giles has launched a new range of aviation leather – the Dresden collection. Crafted by a small, family-run tannery, Dresden is designed to embody the purity and natural beauty of German aniline leather.

“Marked by its luxurious, supple hand and beautiful pronounced grain, it captures the essence of understated elegance,” says Chad Evans, vice president of aviation sales at Moore & Giles. “Skilled master tanners treat the hides in various processing phases with EC regulation-compliant products to achieve an exquisite leather with substantial body, yet an extremely soft texture.”

To further enhance the appeal of this leather, hides averaging 60ft are trimmed to provide excellent cutting yields. Current colours in the collection include cream, chocolate and black.

All Moore & Giles aviation leathers are treated to meet technical aviation specifications. Additionally, many of the company’s more fashion-forward leathers can be treated to meet these standards.

A 78-year-old leather design and development company, Moore & Giles is totally committed to designing natural leathers utilising only the highest levels of quality, originality and craftsmanship.

Moore & Giles

Reader Enquiry No. 515



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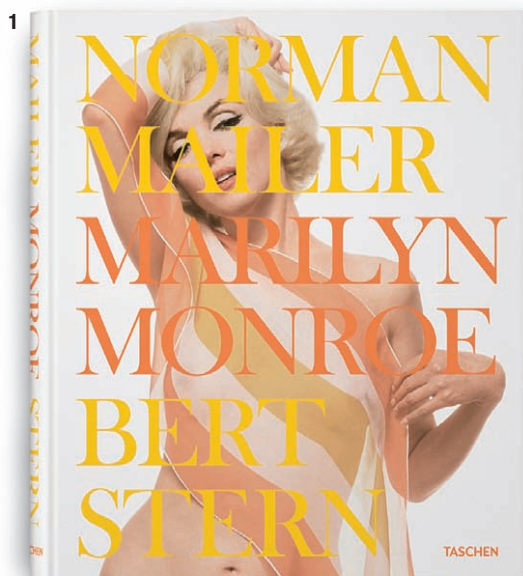
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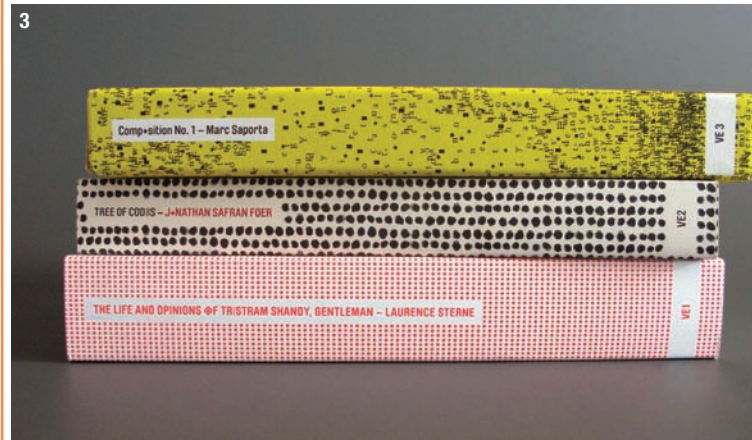
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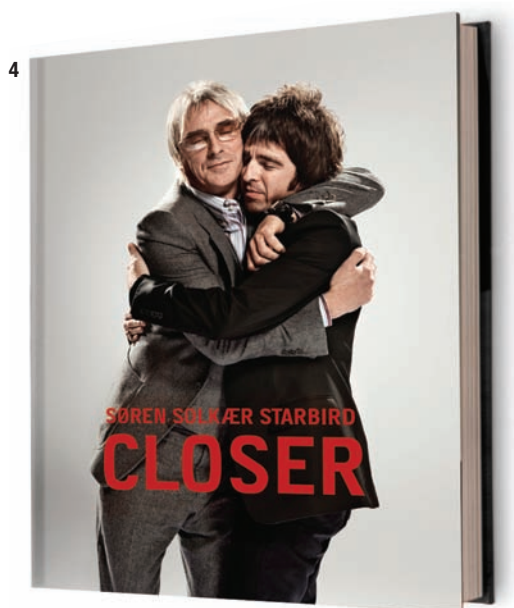


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