

# BusinessJet *interiors* INTERNATIONAL

JULY 2010

THE INTERNATIONAL REVIEW OF BUSINESS JET INTERIOR DESIGN AND COMPLETION

## viewfinder

BAE SYSTEMS AND DESIGN Q PRESENT THE AIR DECK –  
THE WORLD'S FIRST BALCONY FOR A PRIVATE JET!

### spaceexplorer

Sabena technics teams with Ora-Itto on  
a contemporary A320 interior concept

### richpickings

The good times continue to roll at the  
VIP wide-body completion centres

# The new compact solution for waste on board



Iacobucci HF Electronics is proud to introduce its new revolutionary WastePak trash compactor specifically developed to resolve the problem of waste on board during the long business flight. Built in small dimensions and combining two tons of compacting force with low-level power consumption, this innovative product can be installed in most long-range aircraft's galleys. Made of high-resistant aluminium and using specific water-proof carton boxes, the unit enables to compact in a convenient and hygienic way paper, plastic dishes, cutlery, aluminium cans, glass and even champagne bottles in one single box with a 3:1 ratio. Equipped with a new backlight control panel, which can be customized to fit galley décor, the WastePak can easily be operated in complete darkness.

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# bonvoyage

What's the best view you've ever enjoyed from a hotel balcony, yacht or ship's deck? Whatever your answer, Design Q and BAE Systems would like you to reconsider. As our exclusive on page 12 highlights, their new Explorer Four concept for the Avro Business Jet (ABJ) aims to take the luxury travel charter market to new heights. The aircraft features an Air Deck – a large door that opens and converts into the world's first outside decking area for an aircraft. Throw in the ABJ's spacious cabin and 'go anywhere' performance, and potentially you have the world's first flying hotel – providing access to some of the world's most remote airfields for a holiday experience with a difference.

Unsurprisingly, the concept has gone down a storm with travel editors, but the rather more conservative completions industry remains a little bemused. However, BAE Systems is adamant it can deliver on its promise, pointing out it already offers large doors as a standard feature on its freighter conversions. Meanwhile, Design Q continues to work on further concepts for the ABJ; keep your eyes peeled at the NBAA convention later this year for the next chapter in this fascinating story!

For even bigger aircraft, the latest 'must-have' is an elevator – yes, you read that right. Elevators, or lifts, as we call them this side of the pond, have been fitted to VIP B747s before; however, the B747-8 has spawned a new generation designed to transport passengers from the ground to the main deck, providing a more dignified and secure boarding experience. Such peace of mind doesn't come cheap, though – sources suggest a price in excess of US\$30 million. For more on VIP trends, see page 34; and for a round-up of who is doing what, see page 18.

We also feature an interesting collaboration between French designer Ora-Itto and Sabena technics on page 28. The latter is currently outfitting France's future presidential jet, which arrived at its Bordeaux site in May 2009 for delivery to the French state in October 2010, after an estimated €30 million refit. Nicknamed 'Air Sarko One', the A330-200, formerly in service with Air Caraïbes, might help to soothe Sarkozy's inferiority complex when it comes to Obama's bigger Air Force One. There's no elevator, but the jet is rumoured to include a front cabin with bedroom, bathroom, office and conference room, and a rear cabin with 60 lie-flat seats.



Anthony James, editor





“Explorer Four would certainly appeal to those with an adventurous spirit, but who might be at a time in their life where they just don’t want to rough it”

## viewfinder 12

A UNIQUE AIR DECK FEATURE COULD  
PROVE THE CATALYST FOR THE  
WORLD’S FIRST ‘FLYING’ HOTEL

*Anthony James, Business Jet Interiors International*



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INTERIOR FOR A CLIENT BASED IN INDIA  
OOZES CLASSIC LUXURY

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**richpickings**

The good times continue to roll at the VIP wide-body completion centres

**C**onstruction projects for the world's most exclusive aircraft are well under way at the Business Jet Interiors International (BJI) facilities in the United States, Europe and Asia. The company, which has been in operation since 1997, is currently working on a number of projects, including the completion of the Boeing 747-400 and the Airbus A380-800. The company's facilities are located in the United States, Europe and Asia, and it has a reputation for providing high-quality, customised interiors for its clients. The company's facilities are located in the United States, Europe and Asia, and it has a reputation for providing high-quality, customised interiors for its clients.



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THE GOOD TIMES CONTINUE TO ROLL AT THE  
TRANSPORT-CATEGORY COMPLETION CENTRES  
*Mark Huber, Business Jet Interiors International*

**spaceexplorer**

SABENA TECHNICS HAS ENLISTED THE  
CONTEMPORARY VISION OF PARIS-BASED ORA-ÎTO  
TO PROVIDE A FRESH APPROACH FOR FUTURE  
COMPLETION PROJECTS  
*Natasha Edwards, Business Jet Interiors International*

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**spaceexplorer**

Sabena Technics has enlisted the contemporary vision of Paris-based Ora-Îto to provide a fresh approach for future completion projects

**P**aris-based Ora-Îto has been enlisted by Sabena Technics to provide a fresh approach for future completion projects. The company, which has been in operation since 1997, is currently working on a number of projects, including the completion of the Boeing 747-400 and the Airbus A380-800. The company's facilities are located in the United States, Europe and Asia, and it has a reputation for providing high-quality, customised interiors for its clients.



**trendtalk**

ELEVATORS, FINELY CUT STONE AND THE  
IPHONE – JUST SOME OF THE LATEST TRENDS  
IN VIP WIDE-BODY COMPLETIONS  
*Mark Huber, Business Jet Interiors International*

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**trendtalk**

Elevators, finely cut stone, and the iPhone – just some of the latest trends in VIP wide-body completions

**O**ne of the latest trends in VIP wide-body completions is the use of elevators. The company, which has been in operation since 1997, is currently working on a number of projects, including the completion of the Boeing 747-400 and the Airbus A380-800. The company's facilities are located in the United States, Europe and Asia, and it has a reputation for providing high-quality, customised interiors for its clients.



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quietstorm

MIDCOAST RECENTLY TEAMED WITH SOUND GURU OTTO POBANZ AND SCHNAASE INTERIOR DESIGN TO DELIVER A GLOBAL EXPRESS XRS WITH 'THE QUIETEST CABIN IN THE WORLD'

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mid-sizereport

The global recession has not deterred OEMs from continuing to field varied and robust new offerings in the mid-size category – from refreshed versions of old favourites to 'clean sheet' designs waiting in the wings

Embraer Legacy 450 & 500

The global recession has not deterred OEMs from continuing to field varied and robust new offerings in the mid-size category – from refreshed versions of old favourites to 'clean sheet' designs waiting in the wings

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mid-sizereport

THE GLOBAL RECESSION HAS NOT DETERRED OEMS FROM FIELDING VARIED AND ROBUST NEW OFFERINGS IN THE MID-SIZE CATEGORY – FROM REFRESHED VERSIONS OF OLD FAVOURITES TO 'CLEAN SHEET' DESIGNS WAITING IN THE WINGS

Mark Huber, Business Jet Interiors International



nouvellecuisine

NEW PRODUCTS FOR THE BUSINESS JET GALLEY, FOCUSED ON EASE OF USE, ELEGANCE AND NOISE REDUCTION

Izzy Kington, Business Jet Interiors International

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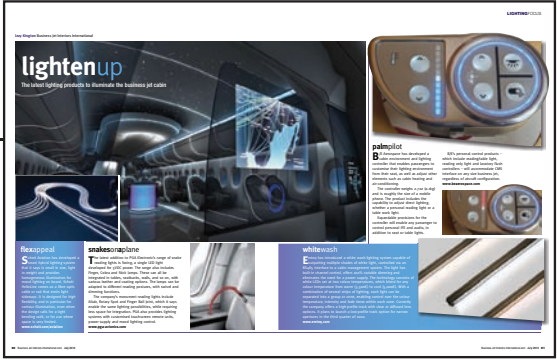


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THE LATEST LIGHTING PRODUCTS TO ILLUMINATE THE BUSINESS JET CABIN

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TOP TABLEWARE FOR INFLIGHT DINING AND DRINKING



The screen and motorised lift combination is 23in in height when stowed



## Lufthansa Technik offers VIP quick change kit

Lufthansa Technik is now offering a VIP quick change kit for narrow-body Airbus and Boeing aircraft. This new on-demand configuration allows customers who don't want to maintain a VIP aircraft permanently to convert a commercial aircraft cabin into a VIP interior overnight.

The conversion can be realised by any Part 145 organisation. The installation can be made along existing seat tracks. Lufthansa Technik will design and implement a one-time modification of the aircraft and provide the customer with an individual conversion kit. A variety of layouts (one example pictured below), seating options, colours and surfaces are available, and the kit also allows an IFE system to be integrated. Seat options range from an extra-wide VIP seat or VIP double seats to a three-seat divan (which can be converted into a full-size bed). High/low folding tables and up to three stowage cabinets can also be installed. A class divider partition, equipped with another folding table and a foldable door, separates the VIP area from the commercial area.

In other news, Hamburg-based Lufthansa Technik's VIP and executive jet solutions division has delivered its 10th A318 Elite since the start of the completion programme in 2006. Comlux The Aviation Group received the aircraft in June, after a completion time of four months and one week. It seats 19 passengers.



## LCD lift-up screen for G550

Gulfstream Appleton has installed a 32in high-definition 1080p LCD screen and low-profile motorised lift from Flight Display Systems on a Gulfstream G550. Kevin Locovozzi, Gulfstream programme manager for Flight Display Systems, was on board for the delivery. "The principal could not wait to lower all of the windows in the cabin and start watching his movie," he said. Gulfstream Appleton confirmed that other Gulfstream models will support a similar installation in a standard cabin credenza. This installation was completed as a one-time STC and can be performed by any Gulfstream Service Center or General Dynamics Aviation Services facility.

## Avionics and CMS upgrade for Citation X

Cessna is updating the Citation X, with new deliveries from 2011 to feature Honeywell Primus Elite avionics and an upgraded CMS as standard. Primus Elite will also be available as an optional service bulletin upgrade through the Cessna Citation Service Center network for in-service Citation Xs.

CMS improvements include touchscreen control panels, MP3 player inputs, an improved stereo sound system, updated Airshow display imagery and dual Blu-ray players with a high-definition display monitor mounted in the forward closet.


Based on the Citation X's current Honeywell Primus 2000 system, the five-panel Elite system incorporates electronic approach charts with aircraft position worldwide, as well as XM satellite weather in the USA and southern Canada. Improved moving map capability will depict geographical and political boundaries as well as airspace and airways.

Normally configured for eight passengers, the Citation X has a range of more than 3,000 nautical miles (5,556km).

## VoIP service installed on head-of-state A320

EMS Aviation has installed a managed Voice over Internet Protocol (VoIP) service on a Middle Eastern head-of-state A320. EMS teamed with Eclipse, an Inmarsat service provider and avionics dealer, to implement the secure end-to-end solution.

The managed VoIP service uses EMS Aviation's eNfusion avionics suite to access and manage various quality of service (QoS) SwiftBroadband streaming IP data sessions. This means the system can enable multiple simultaneous VoIP telephone calls. The system uses both EMS Aviation and Eclipse technology in the ground infrastructure on Vizada's Ground Earth Station network backbone, located in France. "The operator's feedback on the system has been very positive," said Marc Pinault, chief executive officer of Eclipse. "As a result, cabin voice on this aircraft is exclusively VoIP using SwiftBroadband. Our hardware and backbone software, coupled with EMS Aviation's CCU-200 networking device and HSD-440 high-speed data transceiver, are what make the system unique."



The companies have released a couple of 'teaser' designs to give a taste of things to come

## Jet Aviation teams with Porsche

Jet Aviation Basel and Porsche Design Studio in Zell am See, Austria, will collaborate on VVIP interior designs. "We place particular focus on technically inspired, timeless products," said Roland Heiler, managing director of the Porsche Design Studio at Zell am See. "It is that very philosophy which will be the basis for our aviation designs – not opulent, but timeless, purist and clear, with the aim to distinguish from traditional aircraft interiors." Elisabeth Harvey, manager of Jet Aviation's in-house interior design department, added that her team would bring experience and "technical guidance, particularly regarding engineering and certification" to the equation.

## Dimmable windows certified for King Air 350i

PPG Industries' Alteos Interactive Window Systems are now certified for installation on the new Beechcraft King Air 350i, following Hawker Beechcraft's receipt of FAA and EASA type certifications. PPG also supplies heated, all-glass windshields for the King Air 350i. The windshields have hydrophobic Surface Seal coating to maintain visibility in rain conditions as a secondary rain-removal system.

Alteos window systems use proprietary electrochromic technology from Gentex. Through the CMS, passengers can control the light transmittance of a dimmable window subassembly between the dust cover and structural cabin window system.



## New SwiftBroadband class for smaller aircraft

Inmarsat is introducing a new class of SwiftBroadband service – SwiftBroadband 200 (SB200). SB200 is designed to extend the benefits of Inmarsat services to smaller aircraft and also provide a more cost-effective solution for IP communications for aircraft operators. Available in the footprint of all three I-4 satellites, Inmarsat says an SB200 installation will provide standard IP data up to 200Kbps, circuit-switched voice telephony, and streaming IP data up to 16Kbps.

Since its introduction in 2007, SwiftBroadband has enabled cockpit, cabin and operational applications through one installation using a single high- or intermediate-gain antenna on the aircraft. Inmarsat says that with the introduction of the SB200 service, hardware manufacturers will be able to develop smaller, lighter systems and antenna, reducing purchase and installation costs. The first SB200s based on existing SwiftBroadband systems are expected to be commercially available from manufacturers at the end of 2010.

## Cessna expands retrofit options for Caravan seats

Cessna is offering new seat options (pictured below) for its fleet of Caravans. Owners can upgrade their Caravan seating through Cessna's network of more than 300 authorised service facilities.

"The new seats offer added comfort and seat functionality compared to the factory-installed seats. The seat height will allow passengers a better view. They also include optional tray tables, forward and aft tracking, adjustable headrests, retractable armrests and the ability to recline," said Peter Wilkinson, vice president of Cessna's parts distribution business.

Cessna has also launched a new programme that aims to reduce interior refurbishment lead times for classic Citations. Under the RightNow Interiors programme, Cessna's Citation Service Centers will stock pre-selected, certified interior design materials. Customers can choose from one of five interior schemes, or combine any of the in-stock materials for more than 2,000 custom looks without the wait time normally required to order custom materials. The programme is available at any of the nine Cessna Citation Service Centers, for all Citations except the Citation Mustang. "A customer will find it easier to schedule interior refurbishments at the last minute," said Stan Younger, Cessna's vice president of service facilities.



Real stone flooring has been fitted in the entry and galley area, as well as in the crew and passenger lavatory areas

## Jet Aviation Basel delivers A319 Corporate Jet

Jet Aviation Basel has outfitted and delivered a new A319 Corporate Jet to Boutsen Aviation. Boutsen Aviation, representing the undisclosed owner, oversaw negotiations with Airbus and worked with Jet Aviation Basel's in-house design department on the interior design, and, together with DC Aviation, supervised the completion at Jet Aviation Basel. The aircraft will be managed by DC Aviation.

The cabin features natural patterns and materials throughout. The design had to reflect the aircraft's dual private and commercial use – and so features a bedroom, shower and open-plan living area; as well as customised high-density seating. The layout includes an entrance hallway and a main cabin with executive seating area, combining lounge and dining areas. The cabin is configured during daytime for up to 14 passengers. The seats and divans, combined with high/low tables, convert into five beds on night flights. The aft section provides 19 premium business-class seats for commercial use. The aircraft is also equipped with entertainment and communications systems, allowing passengers to enjoy WLAN internet and email access anywhere on board, as well as CD, DVD and video. Satellite telephones, print and fax terminals are also part of the communications setup.



## Stone flooring for Global 5000

List components & furniture and RUAG Aerospace have fitted a Global 5000 with stone flooring for Bombardier Aerospace. "We've been able to make continuous improvements in stone flooring in terms of noise and low-temperature isolation, and by using a new attachment-to-floor system," says Helmut Wiesenberger, business development director at List. Granite is cut into 2.5mm slices and attached to a backplate, which gives it high elasticity without losing floor-loading capacity.

## Project Phoenix chooses B737-800 for next venture

Project Phoenix has identified the B737-800 as the ideal candidate to enter the narrow-body airliner conversion market, partly because the company believes there will be an increasing number of the aircraft type coming into the market. The new venture will be known as the Phoenix Large Business Jet (LBJ).

The decision follows a six-month technical evaluation of suitable airliners and dialogue with potential customers. Project Phoenix has now issued a request for information to several completion facilities in Europe, Australasia and the USA to undertake the work. Designs being prepared include a 30-seat VIP version with private office and stateroom, as well as a higher density corporate version.

The company expects a full data package to be available by late 2010 after a completion facility has been chosen. "We anticipate an official launch at the 2010 MEBA show in Dubai," said Mike Creed, vice president of business development at the company. "We already are talking to several potential buyers."

## New completion sales director at Gulfstream

Gulfstream has named William Gay as director of completion sales. In his new position, Gay supervises and coordinates completion sales activities for the company's US completion centres in Savannah and Brunswick, Georgia; Long Beach, California; Appleton, Wisconsin; and Dallas, Texas.

Gay had been a Gulfstream completion sales executive for more than 10 years, serving as that department's process team leader. In that capacity, he worked directly with customers to define their aircraft completion requirements.



Airbus A319 ACROPOLIS AVIATION



AP

ALBERTO PINTO

AIRCRAFT INTERIORS DESIGN



# simple pleasures



## Brief:

Paris-based Alberto Pinto Interior Design has designed a sumptuous Boeing 737 interior for a client based in India. The aircraft was completed by Associated Air Center in Dallas, USA, and delivered in February this year. The interior was designed to be “a modern, graphic environment”, with a beige, black and nickel colour scheme, recurring accents (with saddle topstitch details on the seats and the black leather cornices) and a silk Tai Ping carpet with a delicate stripe pattern that unifies the cabin.

## Description:

Materials include glossy grey-stained Lolo wood for cabinetwork, white lead with polished nickel inserts on horizontal surfaces, and dove-coloured suede for lateral surfaces and lounge ceilings. The forward lounge features two TTOL-certified sofas, two passenger seats and a leather-framed coffee table. American and Italian leathers have been used for the seats, trimmed with leather piping and saddle topstitching. A screen is built into the forward bulkhead, while decorative touches include sculptured chrome lamps. The aft lounge is dominated by an imposing daybed (finished with hand-woven, cream-coloured velvet mottled in black and trimmed with black piping) and a matching coffee table, set against a desk with a built-in screen. Two facing seats become a bed, while the space also contains a black leather, three-seat sofa with dove-coloured piping. The bedroom yields a king-size bed cased entirely in topstitched black leather, with large chrome drawers. A flat screen is built into the facing bulkhead. Elsewhere in the cabin, a dining room accommodates a table for four with seats in mottled velvet and black leather; the compact galley is finished with brushed metal and ivory Corian; and the bathroom features a built-in polished nickel basin under a black marble slab, and a large rectangular shower with a teak floor.





### Verdict:

Alberto Pinto has a long history of working with clients across a broad range of projects and styles – both classic and modern – from yacht and aircraft interiors through to corporate spaces and private homes, and even the occasional castle! Every aspect of this B737 is about marrying comfort and luxury. So although the seats are designed to be plush and comfy enough to relax in, the overall feel is clean, simple and timeless.



### CONTACT:

Alberto Pinto Interior Design  
[www.albertopinto.com](http://www.albertopinto.com)

# viewfinder

A unique Air Deck feature could prove the catalyst for the world's first 'flying' hotel

**D**esign Q certainly grabbed everyone's attention during EBACE when it unveiled its latest ideas for the Avro Business Jet (ABJ). The ABJ Explorer One and Explorer Four are the first of five 'high luxury, go anywhere' concepts that the UK design firm has been contracted by BAE Systems Regional Aircraft to develop for the ABJ. Both feature a unique Air Deck viewing platform, to create a product that is believed to be a first in aviation history – and one that has also attracted some disparaging remarks from the competition.

The Explorer concepts make use of a huge side door that, once safely on the ground, powers open to reveal a concealed platform that extends from the aircraft. The resulting Air Deck transforms the rear of the cabin into the ultimate living space, providing an elevated outdoor viewing deck ideal for enjoying a cocktail or two in the evening breeze as the sun begins to set... and pigs begin to fly? Not so, according to Stewart Cordner, vice-president of Avro Business Jets, who is quick to point out that BAE has already delivered aircraft





## Hitting the right note

The latest converted Avro Business Jet (ABJ) was delivered in May to VIP charter airline Cello Aviation, which is based at Birmingham International Airport, UK. Cello is part of the Gill Group, which acquired the aircraft (a BAe 146-200) late last year and is now offering it to the UK and European VIP executive charter market. Cello can switch the cabin between a straight 46 first-class-seat affair or a 44-seat layout with a club-four arrangement at the front. The four-abreast seating is set at 43in pitch and features a smart cream finish from Yarwood Leather. "This aircraft has an interior configuration unique within Europe and is targeted towards the high-end group movements market, particularly the sporting team and entertainment industry," says Nim Baines, CEO, Cello Aviation.

BAE has also delivered an ABJ for the Presidential Flight of Abu Dhabi. A third ABJ, recently acquired by Inflight Engineering Services, will incorporate an interior developed by the Linley design group. "Over the past two years, the number of BAe 146/Avro RJs that have been converted into ABJs or that are in work at present has reached 13 aircraft – about half the total of current in-service aircraft in the corporate role," notes BAE's Stewart Cordner.





with similar large doors: “We are doing this on our freighter conversion programme right now – as such it is a mature design of which there are currently 30 freighters flying today,” he says. “We have close to 30 ABJs completed over the years and about the same number of freighters, which are essentially the aircraft with a large door,” he continues. “Put them together and what do you have? An Explorer!”

Romanian company Aerostar currently installs the large doors for BAE’s freighters, and would be a prime candidate to help deliver the Air Deck, if

1. Both concepts feature a stunning Air Deck
2. Explorer One rear lounge
3. BAE says the ABJ is ideal for operating in remote locations

called upon, with the cabin completion work carried out by Inflite Engineering at London Stansted.

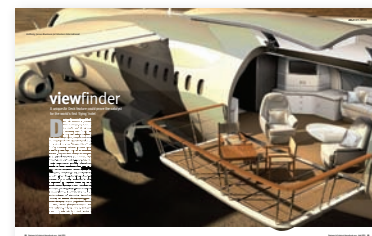
“We can have up to four large door and Air Deck mods going on at the same time,” continues Cordner. “Standard time for a large freight door conversion is about nine months; we envisage that during that time the bulk of the interior design for an Explorer would be completed and furnishings manufactured. So overall time for completion could be 12 to 15 months.”

**Rugged individual** BAE says the Explorer One is aimed at the high net worth individual who wants the freedom to travel and explore remote locations in a stylish and comfortable way.

“Middle East clients use the ABJ for a variety of missions, including safari and hunting trips and birds of prey events,” explains Cordner. “They are also used for visiting remote parts of their countries for political meetings, where their larger VIP aircraft cannot go. Some aircraft are used in parts of the world where ground security, both in terms of safety and infrastructure, is not guaranteed,” he continues. “The steep approach capability of this aircraft, coupled with being very quiet and the ability to land on rough terrain, as well as its large, flexible cabin, are very useful in this regard.”

Cordner says some customers use their aircraft to transport executive staff to high-profile events, including Formula 1, where two ABJs are regularly in operation. Rock groups and celebrities are also fond of its flexibility and comfort: Santana chartered the Hemus Air ABJ for its 2009 European tour and Aerosmith recently booked the same aircraft for its 2010 European dates.

So what can a rock star or sheikh look forward to on board? Explorer One’s elegant interior features a lounge with



curved sofas wrapped around a low central ottoman from which monitors can be deployed. A fully equipped workstation is incorporated into the forward bulkhead, with a large display cabinet located on the opposite side of the aircraft providing a focal point on entry.

A white marble floor adds to the sense of occasion and space in the entrance vestibule and this material theme is continued with a bespoke central table situated aft of the lounge in its own crescent-shaped alcove. This ‘room within a room’ approach gives an open, flowing feel to the space while maintaining an intimate atmosphere for the dining zone. A spacious lavatory can be accessed from the offset walkway leading to the rear entertainment lounge and Air Deck. Both Explorer concepts share the same layout in this area, which also benefits from a generously proportioned open plan galley.

“For Explorer One, what we were looking for was high-end elegance,” reveals Design Q’s Gary Doy. “We were inspired by 1920s glamour, in particular hotels from the period with their marble entrance halls, chrome detailing and curved glass.”

**Hotel with a difference** For Explorer Four, described as a ‘new luxury charter travel’ concept, Doy says the inspiration was provided by the yachting sector. “Although chartering a luxury yacht to explore out of the way places is well known, this has, until now, not been developed in the aircraft sector,” he says. “You’ve got the skipper there [pilot], you’ve got a chef and you’ve got people looking after you the whole time.”

Explorer Four accommodates four couples or singles in their own private VIP cabins. The fully serviced living and sleeping quarters have been designed to provide both private and social areas. An





4. Explorer Four crew quarters
- 5-6. Explorer One floorplan (top); and Explorer Four floorplan (bottom)
7. Explorer Four cabin

onboard service team act both as hosts and tour guides, leaving the passengers in no doubt that this is a luxury experience. Sleeping quarters are provided for the crew in a well-appointed cabin located in the forward lower hold and on site at the individual destinations.

Each VIP cabin features a generous sofa and chair combination, which can convert to a full-size double bed; an IFE system with a 17in HD flat screen monitor; a full-height wardrobe; and direct access to a large dressing room incorporating a toilet and shower in the mid-section. Glazed bulkheads can be transformed from obscure to transparent, opening up the interior during flight to create a more social space.

And of course, Explorer Four also features the Air Deck, providing a wow factor that should ensure bragging rights for passengers when they get home and talk to friends about their trip.

"The aircraft would be part of the holiday experience," explains Doy. "It would be ideal for a tour across Australia or Africa, or even island hopping in the Indian Ocean. You wouldn't stay on it every night – you'd stay there maybe one night in the middle of the bush at a remote airfield and then you'd fly the next day and land in Sydney, for example, where you'd stay in a luxury hotel before flying a day or two later to somewhere else."

Doy believes the aircraft's ability to reach remote landing strips and the Air Deck's novelty factor will easily compensate for spending a few nights within the confines of an aircraft: "It's a bit like an ice hotel – you wouldn't want

to stay in one for seven nights, but for one night it makes for a great experience," he says. "Obviously an aircraft isn't as comfortable as a hotel, but it's the sort of thing that when you've done it, you'll go back and tell all your friends about it. People are spending millions of pounds to book up their flight to outer space – Explorer Four would certainly appeal to those with an adventurous spirit, but who might be at a time in their life where they just don't want to rough it – they've got the cash to do things in a more luxurious way."

**Market reaction** Airplane hotels are not new – the converted cabins of long-retired commuter aircraft provide a niche design element and talking point for the backpacker crowd, but this is the first time anyone has suggested a luxury 'flying hotel', complete with balcony!

Suffice to say, the Explorer concepts have ruffled a few feathers. "We've had a few people say, 'you can't do that – you can't stick a hole in the side of the aircraft and open it up and stick a deck out'," reveals Doy. "But when we explain that the large door already exists and the

only new thing we're doing is adding an actual deck, they quickly start to see the possibilities and a lot of the scepticism disappears."

Critics have also questioned the value of such a feature in the first place: who wants to stare out at an airport terminal, after all?

"Working for BAE Systems, a supplier of not only regional jets but also turboprops [the Jetstream Series], I have travelled worldwide and noted some very remote airfields in spectacular locations," responds Cordner. "What we see with Explorer One is the ability for private individuals and families to explore remote destinations in privacy, safety and, most of all, in style. With Explorer Four, we see a new business model for operators and charter companies to apply the ocean liner cruise experience to an aircraft that can accommodate a number of clients for overnights in spectacular, hard-to-reach destinations in a very short time."

Cordner says market feedback has been "very positive" and reports that "several enquiries are currently being handled". He sees a potential market for "one to two Explorer aircraft in the first 12 months, then ramping up to three to four aircraft a year". As for price, an Explorer One would cost US\$15-17 million, while an Explorer Four would cost US\$16-18 million. If that's a bit out of your price range, at least Explorer Four would potentially offer all of us a chance to glimpse the lifestyle of a prince – if only for one or two nights! **END**



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# richpickings

The good times continue to roll at the VIP wide-body completion centres

Completion centres for VIP and head-of-state aircraft continue to do robust business with a rarified clientele rich enough to defy the global economic downturn. Most wide-body centres are booked through 2012 and prospects going forward look bright as new aircraft for the market, including Boeing's 747-8 and 787, and the Airbus A350, come online.

Meanwhile, lead times – between contract signing and aircraft arrival for completion – are averaging 12 months, with centres reporting wide-body projects such as A340s averaging 12 to 16 months and narrow-bodies completed in under nine, typically. The big demand for green completions of these aircraft already is starting to make it difficult for first-generation BBJ and ACJ owners to find centres with sufficient surplus capacity to do extensive refurbishment work.

Project Phoenix hopes to capitalise on this fact. The company that made a name for itself fashioning executive conversions of parked CRJ commuter jets hopes to do the same with older

BBJs and 737s. The Phoenix Large Business Jet (LBJ) will be based on the 737-800, with a completed target price of US\$50 million (£33.8 million) and a cycle time of 15 months. The company has yet to announce its completion centre partners on the venture. While almost half the price of a new completed BBJ, the LBJ is slated to have similar amenities, including state rooms and offices.

**New recruits** Yet, the wide-body completion queue has Boeing so concerned with the ability of its clients to take delivery of completed aircraft in a timely fashion, that earlier this year it began to recruit new authorised completion centres aggressively. The first B747-8 is scheduled to go into completion in late 2011 and the first B787 by mid-2012. Boeing currently has orders for close to 50 wide-body VIP aircraft and is believed to be talking to Altitude, BaySys, Comlux, and L-3 to ensure that these aircraft have somewhere to go after they roll off the production line. Boeing is also starting to put interfaces in place between its engineering staff on the B747-8 and

B787 with those of completion centres in an attempt to avoid the delivery delays that plagued early BBJ completions in the late 1990s. Nevertheless, concern over completions, particularly about the B787, was a prime topic of conversation at the Boeing Operators Conference in June. Meanwhile, Airbus says it will deliver its first A350 'Prestige' in 2014. For now, its A340 continues to sell strongly into the VIP market.

"There's so much green work out there," says Rob Tomenendal, vice president of Gore Design Completions of San Antonio, Texas, USA, which is currently working on five A340 completions and one green BBJ. Gore has added another 111,000ft<sup>2</sup> to its physical plant and plans on hiring 150 more employees to handle the demand. Tomenendal also reveals that the company is developing more sophisticated modelling to forecast manpower demand, generally one of the most vexing balancing acts at all completion centres. "We're making more of a science of evaluating our head count needs on any project at any point in time," he says. These predictive



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## Comlux opens new Indianapolis completions facility

Comlux successfully opened its new completion and maintenance facility in Indianapolis, USA, at the end of April. Comlux purchased the Indianapolis Jet Center, a former FAA repair station, in October 2008, and immediately embarked upon a comprehensive refurbishment and upgrade of the facility, with financial assistance from the state.

"Thanks to the support of the state of Indiana, we have been able to upgrade the facilities massively, and we have developed the skills of our mechanics, craftsmen and engineers in order to achieve additional qualifications that will bring us more business," says Ettore Rodaro, president of Comlux USA.

Those qualifications include an authorised service facility agreement with Bombardier, and Comlux's approval as a BBJ completion centre.

"We already have one A320 Prestige and one Bombardier Challenger 850 in completion in our hangars, and two additional VIP airliners will join them before the end of the year," adds David Edinger, CEO of Comlux USA. "Thanks to our own integrated production line, including our brand new engineering department, we will be able to ensure the completion of four to six aircraft simultaneously, without compromising on the quality."

Comlux is also working with Belgian manufacturer Sonaca to offer polished wing slats for ACJ family aircraft. Sonaca is responsible for the design and manufacture of the slats.

# PREDICTIVE MODELS WILL HELP GORE AVOID BALLOONING HEAD COUNTS AS A PROJECT MATURES

1. The master bedroom of Greenpoint's 16th BBJ completion, delivered in 2009



ILLUSTRATION BY

David Moore (www.lemonadeillustration.com)

models will help Gore avoid ballooning head counts as a project matures, and avoid playing catch-up. Tomenendal says Gore does not currently have any B787 projects signed up, but is pursuing the B747-8 market: "The B747-8 is an interesting programme for us and we can put a couple in the hangars." Tomenendal admits that Gore is so busy with green completions that it is not actively pursuing any extensive refurbishment work.

Similar to Gore, Greenpoint Technologies in Kirkland, Washington, USA, says it is "strategically developing our team to support the onset of workload ahead", so that it can continue to deliver its BBJ projects on time even as it gears up for the B747-8 and its 'Aeroloft' private suites. Greenpoint contracted a head-of-state BBJ in the first quarter of 2010, and is in discussions for a private BBJ. It is also speaking with a B747-8 head-of-state client. Contracting for this programme should occur mid-2010.

Greenpoint also completed its AS9100 recertification audit in April, with 100% compliance. "Greenpoint passed with 100 out of 100 points – average points of other certified companies are in the 80s," says Rosa Kendall, Greenpoint's manager of business management systems. The firm is currently working on 'multiple' BBJ completion programmes.

Associated Air Center (AAC) is also busy with BBJs: it has already delivered two this year, boosting its tally to 18 since becoming a Boeing approved completion centre in 2001. Its 17th BBJ





## THE DEMAND GLUT IS ALSO ENCOURAGING A FRESH GENERATION OF NEW COMPLETION CENTRES

was completed for an Eastern European client and was designed by Peder Eidsgaard, a well known London-based aircraft and yacht interior designer appointed by the owner. Its 18th BBJ features an interior designed by Paris-based Alberto Pinto Design.

Meanwhile AAC has delivered its 13th ACJ, with an elegant interior also designed by Peder Eidsgaard. All three aircraft feature high-speed data (HSD) satellite communication systems capable of voice/fax/data transmissions and internet access; and high-definition AVOD IFE systems and multi-zone surround sound.

**Triple rated** The demand glut is also encouraging a fresh generation of new completion centres, with AMAC of Basel, Switzerland, enjoying particular success, having signed its first B777 projects. A B777-300ER for Abu Dhabi

2



2. AMAC's first VIP A320 completion, delivered in January 2010

will arrive in November, while a B777-200LR for a Middle East VVIP client is scheduled to enter work in December.

Earlier this year AMAC rolled out its first A320 completion. Designed by Francis Munch and completed in nine months, the 48-seat VIP head-of-state configuration features a bedroom, shower and a state-of-the-art cabin entertainment system, including AVOD, wireless LAN and satcom. Project management was handled by Altair Aero Projects of Cyprus.

AMAC continues to build its capabilities with OEMs and regulators. Following a series of audits, AMAC qualified as an Airbus-approved completion centre and became an official Airbus referenced and approved supplier. It also received EASA certification as a Continuing Airworthiness Management Organisation (CAMO+). CAMOs

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3. Lufthansa Technik's 10th A318 Elite completion, delivered to Comlux The Aviation Group in June 2010

## LEAN ACTIVITIES HELPED US INCREASE THE EFFICIENCY OF OUR PRODUCTION



### On the up down under

Altitude Aerospace Interiors has signed its first contract to fully fit out a BBJ VIP aircraft interior. "The Asian-based customer will deliver the new BBJ to Altitude's Christchurch completion facility in early 2012, when, in conjunction with support from Air New Zealand Technical Operations, the aircraft will be installed with its customised interior, says Altitude's general manager, Michael Pervan. "The scope of work to complete the fitout will cover entire electrical, entertainment and mechanical system installation within the empty aircraft shell."

A subsidiary of Air New Zealand, Altitude has been operating as a standalone company for almost two years and has offices based in Auckland and Christchurch, New Zealand. Altitude's offering of interior engineering design, manufacturing and maintenance in conjunction with Air New Zealand Technical Operations, on both VIP aircraft and commercial airlines, is based on using the latest technologies and computer modelling to deliver lightweight, innovative and high-quality custom aircraft furniture and interiors systems.

"We have built up our capabilities in engineering design and have considerable aviation certification credibility, which is essential to successfully participate in this sector," continues Pervan. "Couple this with extensive programme management over many VIP and airline programmes, Altitude is now well-positioned to tackle the most complex of projects," he says. "This experience and credibility has seen Altitude become the only Boeing-recognised supplier of luxury aircraft interiors outside of Europe and the USA."

manage the aircraft on behalf of the owner/operator to ensure all scheduled maintenance, defect rectification and airworthiness directives or service bulletins are carried out and generate scheduled maintenance, ensuring that the aircraft is managed in a controlled environment in which the Airworthiness Review Certificate can be issued.

**Profit centre** Long-established Lufthansa Technik recently rolled out its 10th A318 Elite since 2006. It has two more in work – one in Hamburg, Germany, and the other at its US completion centre, Bizjet International in Tulsa, Oklahoma, USA. It plans on completing eight more of the aircraft by the end of 2013.

The Hamburg facility recently handed over its second A319 CJ to the Special Air Mission Wing of Germany's Federal Ministry of Defence. Like its first A319 CJ, which was delivered in March, this second aircraft features a VIP area with 12 seats and a delegation area with seating for 22 to 32 people, depending on configuration. The completion was realised in just seven months. Lufthansa Technik is also due to deliver two A340-300s, which are

due to form the Special Air Mission Wing's new long-haul fleet towards the end of 2010 and in the summer of 2011 respectively.

Despite the global downturn, Lufthansa Technik recorded a revenue increase and stable profit in 2009. Revenues increased by 6.6% to €4 billion (£3.3 billion), while profits increased by 5.7% to €316 million (£264.2 million). Company CEO Wilhelm Henningsen called the results "excellent" in light of "the aviation crisis" and credited the company's "broad product range, international strategic orientation and great flexibility". Like Gore and Greenpoint, Lufthansa Technik has also sharpened its labour model and operating efficiencies. "For example, at German facilities with annual working time models we were able to respond flexibly to the decline in demand. And the large number of lean activities helped us increase the efficiency of our production in all operating facilities," says Henningsen.

**Official partner** Another European colossus of VVIP completions, General Dynamics unit Jet Aviation, is moving to tighten its relationship with Airbus.

## FOLLOWING THE LEADS OF LUFTHANSA TECHNIK AND JET AVIATION, MORE CENTRES ARE ALSO LOOKING TO ADD INTERNATIONAL CAPACITY



4-5



At this year's EBACE convention, Jet Aviation Basel signed a deal that renewed its authorisation with the EADS company for five years to provide completion services including interior design, engineering, manufacturing, installation and certification. Over the past years, notable Airbus completions at Jet Aviation Basel have included more than 10 projects on A319, A320, A330-200, A340-300 and A340-600 aircraft. Jet Aviation Basel also announced that it recently integrated CATIA and Smarteam engineering software into its completions programme. The company says the move will allow its engineering team to completely view a full cabin entirely in a 3D environment, in order to engineer cabinets, structure components and systems for an aircraft, thus cutting costs and speeding completion times.

Jet Aviation Basel is also looking to strengthen its interior branding in a

4-5. An A319 completed by Jet Aviation Basel for Boutsen Aviation

recent agreement with Porsche Design Studio in Zell am See, Austria. Under the deal, the companies will collaborate on VVIP cabin interiors. Roland Heiler, managing director of Porsche Design, says the company intended to provide Jet Aviation and its clients with cabin designs that are "not opulent but timeless, purist and clear with the aim to distinguish from traditional aircraft interiors".

Jet Aviation Basel continues to collaborate with other well-known designers, including Andrew Winch – the two companies delivered a BBJ to an undisclosed customer in November 2009. Meanwhile Jet delivered an A319 CJ to Boutsen Aviation in May 2010, featuring a main cabin with seating for up to 14 passengers, and an aft section with a further 19 business-class-style seats.

**International presence** Beyond brand building, growing international production capacity continues to be the

focus of many centres, even comparatively smaller ones. Following the leads of Lufthansa Technik and Jet Aviation, more centres are also looking to add international capacity. Virginia, USA-based BaySys Technologies recently announced an agreement with a strategic regional investor to support the development of a VIP completion facility in Casablanca, Morocco.

BaySys CEO Steve Walton says that the facility will provide a much-needed capability to the Gulf and Middle East region, as well as serving the needs of European clients, with VIP and head-of-state interior completions, upgrades and modernisations, flight deck upgrades and aircraft maintenance. BaySys is currently completing two wide-body aircraft in Virginia – a B777 and an A340. The company also recently became a licensed Boeing completion centre.

Across the VIP completions spectrum, it appears the good times just keep rolling. **END**

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# spaceexplorer

Sabena technics has enlisted the contemporary vision of Paris-based Ora-Ïto to provide a fresh approach for future completion projects

Perhaps the first thing that surprises when you've seen a few of Ora-Ïto's designs is that he has not been asked to do an aircraft before. After all, the first adjectives that spring to mind about his work are streamlined, aerodynamic, futuristic... hence the launch of his collaboration with Sabena technics in an "innovative interior design concept, unique to the aviation industry" aroused plenty of curiosity when announced at EBACE in Geneva in May.

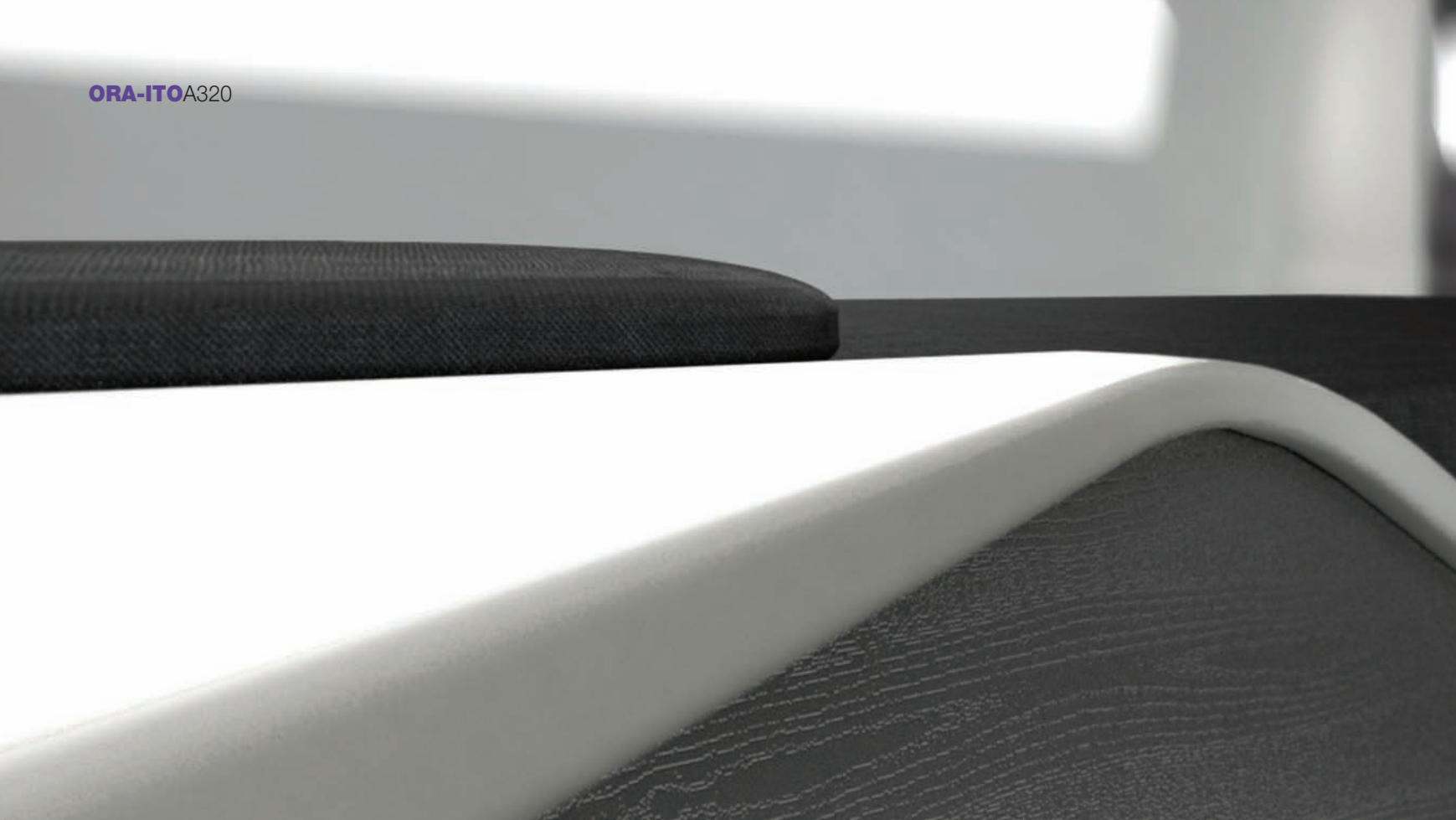
While Sabena technics is well known in the maintenance sector for both civil and military aircraft, its entry in the VIP completion market is relatively recent, stemming from the company's acquisition of Bordeaux-based EADS Sogerma Services, a subsidiary of EADS, in 2006, bringing with it not only its capacity in maintenance but also its design department. "In restructuring the design office, with all the means for design, calculations, etc, we began to look at this sector as early as 2007,"

explains Christophe Bernardini, CEO of Sabena technics. "We are already working with the government for the fitting out of an A330, a project which we should be delivering in October this year." An A340 completion is also on course for 2011.

As a relative newcomer to the elite business jet scene, Sabena technics is keen to differentiate itself in a sector that for all its technological innovation, is often marked by an extreme aesthetic conservatism. Determined "to change the codes", as Bernardini puts it, Sabena technics immediately saw the benefits of working with an 'outside' designer such as Ora-Ïto, who had previously approached the group's communication department himself with the desire of working on an aircraft interior.

**Individual expression** Bernardini divides the business aviation market into three: state and government clients; big business (corporate) clients; and the ultra-rich – private individuals looking for something original – the





1

## Meet Ora-ïto

From packaging and graphics to chairs, interiors and mobile phones, Ora-ïto's versatility is impressive, yet the very first product the 33-year-old French designer created was himself, when he set up as a 'virtual designer' in 1998 after dropping out of art school, turning even his own name into a brand (Ora-ïto is a registered trademark). As a cyber-pirate, Ora-ïto subverted famous logos to create spoof products (a suave Vuitton bag, a pseudo Apple iBook) that in fact existed only on his website, before being taken up by the very sort of companies he had pirated, among them an award-winning aluminium beer bottle for Heineken and the Toyota flagship showroom on the Champs-Élysées. Known for his futuristic, streamlined style, Ora-ïto is also renowned for his fusion of luxury (his father is luxury goods designer Pascal Morabito) and technology, with fetish materials that include Corian, leather and silver. Today at the head of a 15-strong design studio in Paris, recent projects range from a perfume bottle for Guerlain, silver candlesticks (inspired by tree branches) for Christofle, furniture for Steiner and Dunlopillo and the Gorenje range of carbon-fibre kitchen appliances to the Audi beach at Cannes Festival and a sleek newspaper kiosk that will be in French shopping centres this December.



2

sector he is hoping to appeal to with this new concept. "It is really that clientele we want to touch in working with Ora-ïto, people with money who want something new," he says. "In the world of aviation, it's always the same designers, there are very few. When you visit EBACE, for example, you visit all the stands, you see all the models of interior layouts and they are all about the same. We wanted to work with a young designer, someone who didn't have preconceived ideas of the paradigms of business jets, who could reflect on what the interior of the A320 could be like," explains Bernardini. "Ora-ïto is a designer full of talent, very dynamic, someone who is very well known internationally in the world of design. He has worked for major brands, for perfume, cosmetics, drinks design. We are a young company when it comes to VIP design and we wanted

PEOPLE CALL ON ME  
WHEN THEY WANT  
SOMETHING NEW THAT IS  
DIFFERENT FROM WHAT  
WE ARE ACCUSTOMED TO



3

to bring something new. We began to work on concepts of aircraft interiors that are very pure, very pared back with the concept of monoblocks that can integrate several functions, things that are rather new compared to what you see at the moment.”

“People call on me when they want something new that is different from what we are accustomed to,” says Ora-Itō himself. “It is a sector that is very traditional and paradoxically has very little innovation in a field that is bursting with innovation.”

**Keep it simple** One idea Sabena technics has espoused is Ora-Itō's concept of ‘simplicity’ or “the art of making complicated things simple, of developing a simple answer to a complex problem”. It's a phrase that could seem like a glib formula but in fact expresses well the way Ora-Itō

1-3. Renderings from Ora-Itō's first VIP project – an A320 featuring an interior inspired by the idea of ‘simplicity’

integrates technology into his apparently simple-looking designs. The designer has approached the aircraft cabin like an architectural interior, almost like an apartment with a single streamlined form that can vary in function – reception, lounge, meeting room – that provides a series of different spaces as you proceed through the aircraft, and at first sight, something that could easily come from the bright white interior he designed for Paris nightclub Le Cab or the sort of folding principles in his Ora-Gami chair for Steiner (*see overleaf*).

“Today the clientele have evolved in their vision of the world, new technology has brought new lifestyles, so that implies a work that is in a sense sociological in the world of private aviation. We are developing different concepts for different aircraft. We have started with the A320, which has a very large cabin – one can wash, one can

have a dining room, it's really an apartment in the air,” says Ora-Itō.

While Ora-Itō has worked closely with Sabena technics' engineering team, notably on certification and validating materials, Bernardini stresses that Ora-Itō was left a pretty free hand: “The only guidelines we gave were technical guidelines, the sort of materials we can use, the question of weight, the volumes, the problems of fire testing, evacuation, etc. The rest was completely up to him.”

What lies behind the concept and what will the experience bring to Ora-Itō's future designs? “One project always nourishes another,” says Ora-Itō. “An aircraft can inspire a hotel, a hotel can inspire a boutique, a boutique can inspire an object and so on. Already the technological aspect of the aircraft is something that inspires me, at the same time, I always manage to transform technology into another domain.”



For Ora-Itô, “the aircraft is like a pinnacle of interior architecture, because it integrates all the notions of engineering, of technology, weight, safety, of materials, as well. It is fascinating. I have the chance to work with Sabena technics, which brings me all the savoir-faire that I don’t have. It is really a team effort in which we try to unite my universe with that of aviation. Working on an aircraft comes somewhere between the industrial and the artisanal, it is the top of technology but an aircraft is also somehow artisanal; it is not an object produced in large quantities.”

**Material world** It’s not just Ora-Itô’s streamlined style that somehow seems appropriate for aircraft interiors but also his mix of craftsmanship and technology

## ORA-ITO IS NOW DEVELOPING THE CONCEPT FOR SMALLER AIRCRAFT

– the concept blends the luxury touch of leather with new synthetic materials that minimise weight and reduce fuel consumption. “In my architecture and in my objects, I always like to combine technological materials with materials that are noble and intemporal, like wood, leather and silver,” he says.

“We are in the process of looking at different materials, to see how they work not just from an aesthetic aspect but also for fire regulations and so on, as we hope to use materials that are a little new – we really want to follow the total concept of Ora-Itô, and what he

4. Futuristic open-plan bathroom scheme
5. ‘Ora-Gami’ domestic chair for Steiner, by Ora-Itô

calls ‘simplicity’,” confirms Bernardini. The concept can be adapted to Boeing, Airbus or Bombardier platforms – after initial renderings for the A320, Ora-Itô is now developing the concept for smaller aircraft.

Bernardini says that Sabena technics has the hangars and personnel to refit one wide-body and two corporate jets a year, essentially in Bordeaux but also at the group’s historic Dinard location. With some 70 engineers and designers in the Bureau d’études in Bordeaux, the VIP team also has a dedicated purchasing department and project managers, as well as specialist craftsmen (for example, in carpentry and upholstery) and a network of subcontractors, mostly in France, all of which can be allied with Sabena technics’ maintenance capacity to offer a lifelong package for the aircraft.

Ever keen to change attitudes and set itself apart in the world of VIP aircraft, as part of the ‘French Touch’ context of design and fashion, Sabena technics intends to follow up the ‘teaser’ at EBACE with actual prototypes and scale mock-ups in September or October in what is still a fiercely kept secret but will probably be ‘a non-aviation setting’ in Paris. We look forward to watching the project progress. **END**

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# trendtalk

Elevators, finely cut stone, and the iPhone – just some of the latest trends in VIP completions

ostentation may be out, but connectivity and convenience continue to reign supreme in new VIP aircraft designs, according to the world's leading designers and completion centres. 'Whizz-bang' electronics continue to lead the way on customers' wish lists, but practical matters relating to security and the encroaching geriatrics of global leaders are also coming into play.

L-3 in Waco, Texas, USA, is developing an aircraft-to-ground wide-body elevator system that is slated for initial installation via STC on the Boeing 747-8. The circular shaft deploys to the ground through a custom-designed belly hatch that is electronically enabled by the pilot once the aircraft has come to a stop.

The cab can be tailored to customer preference, but L-3's director of VIP and head-of-state programmes, Steve Smith, says typical installations will have an 18ft<sup>2</sup> cab floor, suitable for an over-sized, motorised wheelchair and attendant, or a motor scooter. Making the cab much larger would be "cost prohibitive". The elevator can run from the ground to the cargo deck and the main deck and can be operated between decks while the aircraft is in flight.

The latter feature creates more cabin design options, according to L-3. For example, additional VIP cabin space can be created on the main deck by moving support functions such as the galley, communications and storage to the cargo deck, with inflight access via the elevator. Smith says the elevator installation can be performed as part of a green completion without additional cycle time, or over the course of four to five months as a standalone project. Among other things, the elevator will allow infirm potentates to arrive in a more dignified style, as opposed to being carried down an air stair or wheeled into the catering truck's

1. Recent BBJ completion featuring an interior by Alberto Pinto







## THE ENCLOSED CARRIAGE DESCENDS DIRECTLY TO THE TARMAC, REDUCING THE OCCUPANT'S EXPOSURE FROM PUBLIC VIEW

hydraulic lift box. Smith thinks the option will be a big seller.

Greenpoint Technologies is marketing a ground-to-main deck bulletproof elevator for the Boeing 747-8 VIP aircraft, dubbed 'Aerolift'. The elevator is capable of transporting up to four passengers at a time from the ground to the main deck, providing an elegant and secure method of boarding.

"Tackling the complex task of modifications to the aircraft's primary structure, Greenpoint's Aerolift is a complete installation," says Mike Weisner, the completion centre's chief customer engineer.

The elevator consists of an automatic door on the fuselage, a power unit and elevator structure from the keel up

though the main deck, an elevator carriage with internal doors and a cabin enclosure. "The carriage was specifically sized to permit the transport of a wheelchair and attendant, creating a dignified, secure boarding experience," continues Weisner. "From a security standpoint, the enclosed carriage descends directly to the tarmac, reducing the occupant's exposure from public view and permitting close-quarters boarding of awaiting ground transportation."

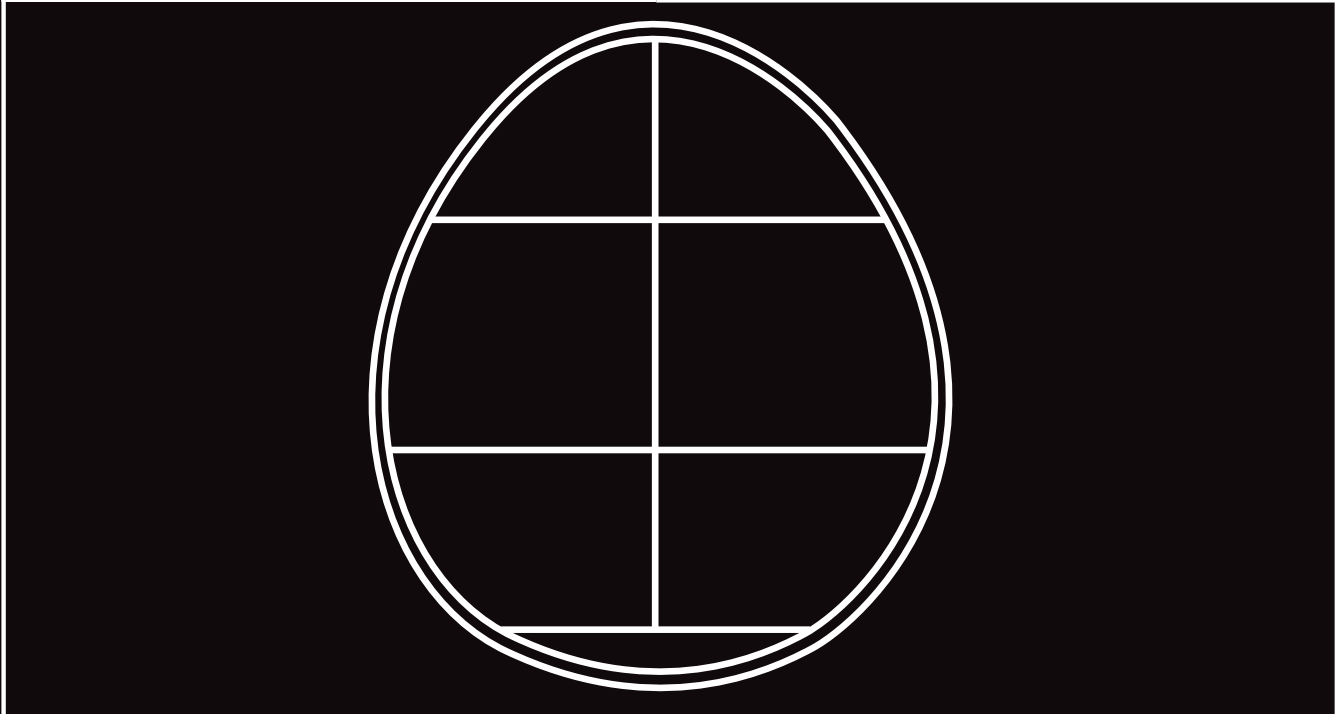
Greenpoint is working with engineering data from Boeing to work out where to relocate systems displaced by the elevator. The company says the feature is likely to cost a cool US\$35 million, partly as a result of all the re-engineering required.

2. L-3's elevator system for a 747-8
3. Greenpoint's Aerolift for the 747-8
4. The Aerolift opens onto the main deck

Of course, arriving in style also means arriving alive. Security is paramount in these trying times, and L-3's long experience with government programmes has allowed it to develop a strong expertise in the areas of defensive aircraft hardening, and aircraft alarm and detection systems.

Such security allows the principal to sleep well. Comfort also means finding ways to deliver larger beds, seats and lavatories that weigh less. Lifeport has developed a VIP bed made of machined aircraft aluminium parts, as opposed to welded steel. The new design chops 50-60 lb (22.7-27.2kg) from the average bed frame. The company also reports strong demand for its throne-like 'slouching' oversize seat. The recliner can be installed in forward-, aft-, or side-facing positions. Because it reclines 'down and out', it can be mounted against bulkheads and sidewalls without compromising clearances or comfort.

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Platform Integration

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**There's an app for that** Overall, customers seem to be opting for “simpler, cleaner, more modern” designs in terms of “ornaments and materials”, according to Michael Reichenecker, aircraft interior architect at Lufthansa Technik. Gone are the grandiose planetarium ceilings and Louis XIV-style salons fashioned for early BBJs.

But simplicity ends when it comes to cabin electronics. They continue to reign supreme with the younger generation and lately it's all about controlling virtually everything plugged into cabin management and communication systems with an iPhone or similar device from wherever the VIP is on the aircraft. Audio International, Custom Control Concepts and others are working with Apple and completion centres on this ‘cabin control in your pocket’ concept.

Gore Design Completions says it is currently installing this capability on a VIP A340. “The aircraft's network recognises your iPhone when you board the aircraft and the device recognises the aircraft's internet protocol (IP) address and launches the application on the iPhone,” says Gore's Rob Tomenendal.

From the embers of the original Iridium and Boeing's folded Connexion, more speed and volume continues to be a top customer craving when it comes to connectivity – and Panasonic's

Ku-band eXconnect could at last offer VIP customers the near-T1 speeds they have long demanded. However, Panasonic, which launched eXconnect with the airlines last year, admits it needs to have the system on board at least 300 to 500 aircraft to justify its business case.

Bigger monitors and high-definition (HD) systems are also quickly becoming standard equipment on VIP aircraft. Giant 52in flat-screen monitors are now the norm, rather than the exception. Audio International's 1080p, 3G-SDI

5. Completion centres report a trend for ever wider HD screens, such as this 42in Bang & Olufsen plasma unit installed on a Bulgarian Air Avro Business Jet
6. Lufthansa Technik's nice iPhone application for cabin management



### Pinto eschews trendy for the timeless

For more than four decades, Paris-based Alberto Pinto International Interior Design has been giving clients a clean, signature look on its wide-ranging portfolio of commercial buildings, residences, yachts and aircraft. Since Pinto broke into aircraft 10 years ago, it has done five BBJs, several Airbus aircraft, works closely with Bombardier, and recently completed the design work for a Gulfstream G550, a Falcon 7X, and a head-of-state Boeing 747-8 that is due to enter completion in 2011. The design firm avoids following fashion for the sake of it, preferring to create schemes with an understated elegance, which make use of custom carpets designed by Pinto specifically for each customer and employing unique, high-end, one-off fabrics that may not have been previously used on board aircraft. “We never use fluffy leather that wrinkles. Never. Our seat leather is always tight,” says principal, Alberto Pinto. Another thing you will not see in a Pinto aircraft: overly glossy and pattern-busy veneers. “The reflection from them plays with the light and I believe it makes you dizzy.” Recent innovations include a circular foyer entrance on an Airbus project, custom bronze lamps, the use of liquid metal to subtly highlight and enhance the natural grain in veneers, and laser engravings in the metal inlays of side ledges and tables. “This is a small detail, but it really makes a difference,” says Pinto. He adds that innovations from residential projects frequently filter into the company's yacht and aircraft work – including a new, oversize square shower design ideal for Airbus and Boeing aircraft.



- 7. Stone flooring from List components & furniture GmbH installed on a Global 5000
- 8. More stone flooring from List



## A CLIENT OF LUFTHANSA TECHNIK RECENTLY HIRED A FENG SHUI MASTER TO ADJUST THE CABIN LAYOUT

Platinum system is typical of this new theatre-quality breed. The company also knows that these systems need to be easier to install and maintain; the system uses standard video cable coax and software downloads can be inputted directly into the system.

Colour-specific LED mood lighting is also generally part of new standard designs. Modulating natural light with electronic window shades is not quite ready for VIP applications, although that is expected to change as the Boeing 787 comes on line. Right now, most electrochromatic shades cannot achieve 100% light blockage. However, their simplicity makes them “the way to go” eventually, according to one senior completion centre executive.

Cabin materials change little year on year, but 2010 is seeing advances in synthetics, faux finishes and metal inlays. In what seemed like pure commercial heresy, elite veneer provider Carl Booth announced its RealRock line of flexible stone cabinet coverings. Austrian company List also reports strong interest in its newly developed granite stone flooring for the entrance and lavatory areas of executive business jets. The company was the first to offer a stone veneer – a natural granite stone surface ground to 1.3mm (0.05in) that can be applied to cambered surfaces.

**Test one's patience** Of course, there are always the occasional requests that push completion centres to the core of their understanding. A client of Lufthansa Technik recently hired a Feng Shui master to adjust the cabin layout. This required entrances to be changed and “mirror objects”, according to Lufthansa Technik's Reichenacker, who described the challenging process as “great fun”.

Tomenendal recalls how a recent client wanted a heated and lighted lavatory floor, triggering a cascade of vendor and certification issues that had to be overcome. The floor had to be slip-resistant and submersible without shorting out, but the vendor specified by the designer did not make the necessary components. Eventually a sealed, low-voltage panel made by another manufacturer was found to do the trick.

“Designers sell a design to the end user and that is what has to be built. It is all about the look, but practicality, buildability and certification are not always in the equation,” says Tomenendal. “It challenges us to explore new technologies and new applications of commercial products. It's not exactly as complicated as putting in a Jacuzzi on a disco floor with a mirror ball ceiling.” But you get the feeling it's close.

And Star Trek-like holographs and holographic television could be the next VIP frontier. You can almost hear Captain Picard booming through the aircraft's HD system, proudly announcing that the next VIP aircraft will “boldly go where no completion centre (or customer's budget) has gone before”. Meanwhile, in the hangars, the engineers are reaching for the antacids. **END**

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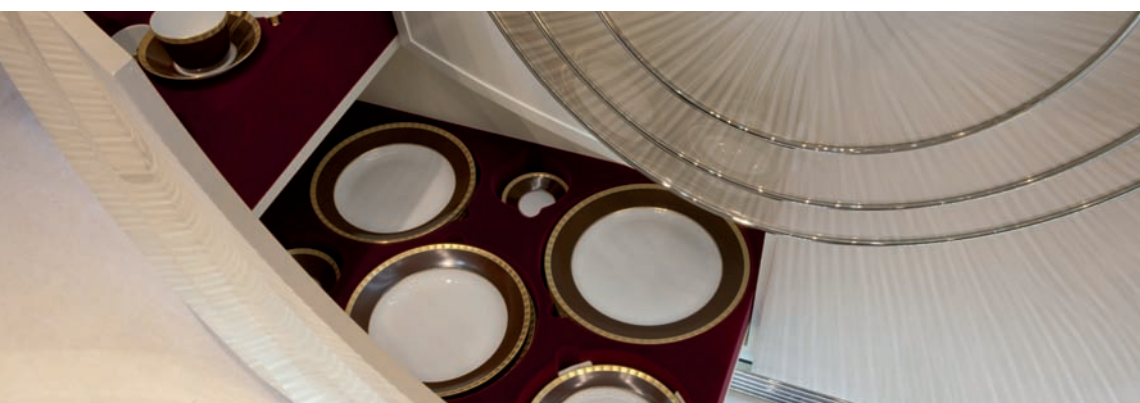
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# quietstorm

Midcoast recently teamed with sound guru Otto Pobanz and Schnaase Interior Design to deliver a Global Express XRS with 'the quietest cabin in the world'

It was, to say the least, a challenging brief for an interior designer. That is, the creation of an elegant and sensuous space in a brand-new Global Express XRS with accents including stingray skins and mother of pearl matched with the gold-grained allure of macassar wood. To make things more difficult, all this had to happen within the "quietest cabin of any aircraft in the world", as the client firmly specified. Inevitably, this posed significant technical problems in the choice, treatment and use of materials.

The person charged with the design aspect of the project, Hamburg-based Birgit Schnaase, had never before designed the interior of a business jet and was largely unfamiliar with the FAA's rigorous standards in safety, although she is well accustomed to maritime regulations. Undaunted, her mantra is: "There's always a plan B."

However the project would test the patience and expertise of the international parties involved: Montreal-based project manager JEM Aviation; Austrian consultant Markus Hanny (representing the owner); Cincinnati-based sound guru Otto Pobanz; St Louis,

Missouri-based completion centre Midcoast Aviation; and of course, Schnaase Interior Design.

**Liquid motion** At the onset of the project it helped that Schnaase already knew the client and his classic tastes. A specialist in yacht interiors, she had already completed his superyacht to the required standards of elegance and sensuousness. "The interior of a yacht is very close to the user, as it is in an aircraft," she explains. "Also, lightness in a yacht is important."

And she was excited at the owner's brief. "Elegance was the most important element for the owner, as it is for me," she says. "Elegance and good materials that were lovely to look at but that also fulfilled a tactile function."

And it may be that, compared with their land-bound peers, the designers of sea-going interiors have a natural advantage when working within the confines of an aircraft. The XRS has a cabin length of 14.73m, much shorter than the average superyacht, but a lot more has to be shoe-horned into the sailboat in terms of furniture, galley, recreation and working areas. "I've

## WE PROCEEDED WITH THE HOPE THAT EVERYTHING WOULD BE ABLE TO PASS THE CERTIFICATION PROCESS

learned from my yacht interiors that there's always space for everything," says Schnaase.

Holding the view that "most aircraft look the same inside," Schnaase came to Midcoast Aviation, which has a history of successful Bombardier completions, with a startling package of ideas. "They had not been done before," enthuses Donna Rosemann, her pointwoman at Midcoast. "We proceeded with the hope that everything would be able to pass the certification process and nothing would have to be changed." So much for optimism.

The owner chose the XRS, the latest version of the Global Express, for two main reasons, according to Hanny whose company, Vienna-based Diham Capital Management, bought the aircraft on behalf of the owner in mid-

2006 and managed the overall project throughout its three years. First, he had already owned an Express, liked it – "he had developed a very good relationship with Bombardier", and now wanted a longer-haul aircraft. And when he didn't need the XRS, it would be become the flagship of family-owned Amira Air's high-quality fleet of charter jets flying out of Austria.

**Light touch** The aircraft was configured for 13 passengers, with a forward cabin featuring four wide seats and pull-out tables; and a mid-cabin providing a further four seats in a conference setting with a manual Hi-Lo table cover, a right-hand mid-cabin credenza and low cabinet. The aft cabin features dual, three-place, fully berthing divans with end cabinets – in short, a

### Sound check

When the owner rang sound guru Otto Pobanz recently to get the latest sound checks, he was able to tell him: "You've got global bragging rights." Measured by both dBA and SIL standards (speech interference levels), the Global Express XRS boasts the quietest cabin aloft, rating much higher than most business jets at high altitude. At SIL(4) it's much quieter than the first-class lounge in a commercial jet.

Pobanz's preferred working method is to attack the source of the noise, even to the extent of rounding off edges that can produce whistling sounds. When that's not possible, he employs various sound-damping systems attached to hard interior surfaces that would otherwise not absorb sound.

"They can be responsible for at least 2.0-3.5dB (SIL<sub>3</sub>) in the cabin," he says. "However the method of attaching or connecting damping materials to vibrating areas can greatly determine their effectiveness."

Pobanz's main target is the pressurisation system. "The driving component of all aircraft is the noise from the cabin air system. Most, if not all, have high velocity air exiting from small openings," he explains. "The cabin air noise contribution must be at least 10dB lower than the target noise levels."

Another major contributor to cabin noise is unbalanced engine fans – "a few grams out of balance at the fan can cause major low frequency noises which can also stimulate additional noises at fan frequency multiples in the cabin."

# IT GAVE THE AIRCRAFT A SENSE OF OPENNESS AND FRIENDLINESS, WHICH WE DIDN'T WANT TO SACRIFICE, BUT IT WAS A BIG RISK



1. Stylish monochrome bathroom scheme
2. Credenza lamps are 'off-the-shelf' but feature a custom base



3. Macassar-finished side ledge
4. The table features a stingray skin finish

practical configuration for a private aircraft that would also be used for charter.

And therein lay a big part of the problem for the interior: "Because it would also serve as a charter, there were a lot of conversations about how to create a beautiful interior that was also industrial-strength," explains Hanny. As the conversations proceeded, a lot of good ideas had to be binned or at least re-thought.

The carpet – a soothing blend of silk and wool with a bevelled design that is designed to feel good underfoot – started out lighter in colour than it now is. "We said 'well, it will be only two hours before the first red wine gets spilt on it', so we ended up with a darker colour," explains Hanny. But it took some ten samples to get it right.

The same debate raged over the colour of the headliner, which was also of a light shade. "It gave the aircraft a sense of openness and friendliness, which we didn't want to sacrifice, but it was a big risk," adds Hanny.

It was also a big issue because Schnaase wanted a light headliner to give the illusion of greater headroom than there is actually is. Eventually, taking a

deep breath, the completion team decided to stay with the light-coloured headliner and be prepared to foot the bill if red wine was splashed on it.

Along the way, FAA-compliant compromises were frequent. One such adjustment concerned the crystal-look lamps mounted on the credenza. Expensive as they appear, the lamps are actually off-the-shelf but the base isn't.



- 5. The club seating features a cream leather finish
- 6. Two divans convert into beds

In charter use, as well as for taxi-ing and landing, the lamps are stowed and the custom-made sconce removed.

The macassar, much prized as the material of choice for guitar fingerboards, was definitely not off-the-shelf. Sourced from South-East Asia after a long search, it was selected for the high contrast between its ebony and blond veins. The wood was shipped to St Louis, cut into veneers and sewn together on site. "The craftsmen are real artists and knew exactly what to do," enthuses Schnaase.

**Second skin** Inevitably the stingray skins, which are stretched over the table tops, brought their own set of difficulties. Just one was that they came with the spines more or less intact, which provided a great talking-point as well as a highly tactile experience. However, the spines made for an unstable platform for glasses and crockery in general and didn't work quite as planned. This was a blow for Schnaase. "It's very important to me that all the materials are nice to touch," she explains. Eventually, the belly of the ray's skin was selected for the table tops. It was, in short, plan B. "We played around with that for months," remembers Hanny.

## WE ENDED UP WITH THE QUIETEST CABIN... WITH READINGS OF 43DB

Unsurprisingly, the FAA had trouble getting their heads around the stingray skins, but so did – unexpectedly – border control. When Schnaase tried to bring the skins into St Louis, officials took one look and impounded them. It took strenuous efforts from Midcoast Aviation and a lot of paperwork to get them back.

**Hush now** The owner's insistence on a super-quiet cabin provided endless headaches. Octogenarian and former US Navy pilot Otto Pobanz became almost a permanent fixture at St Louis. Hanny takes up the story: "Otto had to come in all the time on everything related to sound absorption. Every little change by Otto created an avalanche of other changes. But we ended up with the quietest cabin I've ever heard of with readings of 43dB."

Richard Plourde, president of Montreal-based JEM Aviation which

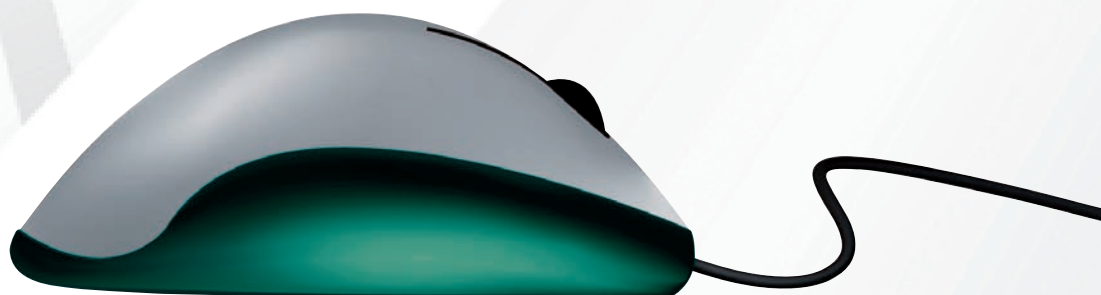
oversaw the North American part of the completion, agrees: "The sound-proofing package installation impacted almost every structure of the aircraft. It required great attention to detail from both the engineering group and the workers."

It certainly did, even down to the under-table material. Schnaase started out with veneer because it's easy to clean and does not scuff easily. But Pobanz, who's been described as the "sound scourge", specified fabric instead. Eventually, the team traced a fabric that resembles macassar. The prevailing attitude around the project, remembers the sound expert appreciatively, was 'we'll find a way or we'll make one'. However at US\$1.4 million for the sound-damping, the price of all that attention was high.

**Expert partner** From start to finish, the XRS was a collegial project that relied heavily on Midcoast Aviation's long experience with FAA standards on flame-proofing, crash testing and other safety regulations. "It was a big advantage working with Midcoast because they could generally tell me in advance from my colour sketches what would or would not be allowed," explains Schnaase. "The certification process did not seriously affect the creative process. I always tried to retain the original idea while adjusting to the regulations."

The aircraft is undergoing final tests in mid-June and, according to JEM Aviation's Richard Plourde, shows that high levels of creativity can survive necessarily tough regulations: "It's a very special aircraft against which others will be benchmarked," he says. **END**

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**CABIN STATS**

**Embraer Legacy 450**

**Cabin width:** 6.83ft (2.08m)

**Cabin height:** 6ft (1.83m)

**Cabin length:** 22.40ft (6.83m)

**Seats:** 2 crew + 9 passengers

**Range:** 2,300 nautical miles (4,260km) with 2 crew + 4 passengers, 2,200 nautical miles (4,074km) with 2 crew + 8 passengers

**Top speed:** 549kts (1,017km/h)

**Max altitude:** 45,000ft (13,716m)

**Price:** US\$15.25 million (£10.48 million)

**Orders:** Undisclosed

# mid-size report

The global recession has not deterred OEMs from continuing to field varied and robust new offerings in the mid-size category – from refreshed versions of old favourites to several ‘clean sheet’ designs waiting in the wings

## Embraer Legacy 450 & 500

Embraer has begun “cutting metal” on its new mid-size offerings, the Legacy 450 and 500 models. Final assembly will start later this year with the first flight of the 500 scheduled for the second quarter of 2011. The two aircraft will share the same wings, empennage, cabin cross-section, engines, and avionics, but the 500’s fuselage will be approximately 6ft (1.83m) longer than that of the shorter-legged 450. Both aircraft will have a 6ft stand-up cabin, a flat floor, a fully equipped galley, and an externally serviced aft lavatory with vacuum toilets – a very uncommon feature for aircraft in this category. The Legacy 500 will be offered with a wet galley. Embraer says both will have “best in class” cabin volume, baggage space, and cabin noise levels. Cabin altitude is 6,000ft (1,829m) at 45,000ft (13,716m). The 500 is expected to enter service in 2012, followed by the 450 in 2013.

As with the Phenoms, Embraer collaborated with BMW Group DesignWorksUSA on cabin design for the 450 (pictured, left) and 500 (below). In late 2007, BMW unveiled an innovative mock-up design for the aircraft featuring moulded bucket and full-berthing single executive seats with cylindrical pedestals that swivelled at the floor attach point, and optional mood lighting. The seat and table designs were changed after feedback from customers, with a new style armrest for the seats and a different folding mechanism for the sidewall tables. The B/E seats selected for these aircraft are far more traditional-looking than the ones in the mock-up, with squared pedestal and more traditional squared arms and tapered sides. The company has selected Honeywell to provide its Ovation Select IFE system for both aircraft. Electric window shades will be optional.


**CABIN  
STATS**

### Embraer Legacy 500

**Cabin width:** 6.83ft (2.08m)

**Cabin height:** 6ft (1.83m)

**Cabin length:** 26.80ft (8.17m)

**Seats:** 2 crew + 9 passengers

**Range:** 3,000 nautical miles (5,556km) with 2 crew + 4 passengers, 2,800 nautical miles (5,186km) with 2 crew + 8 passengers

**Top speed:** 549kts (1,017km/h)

**Max altitude:** 45,000ft (13,716m)

**Price:** US\$18.4 million (£12.64 million)

**Orders:** Undisclosed



## Bombardier Learjet 60XR Signature Series

The current top-of-the-line Lear, the mid-size model 60XR, weighs in at just over 23,000 lb (10,431kg), has near-transcontinental range and cabin space for up to eight passengers. But the average male still cannot stand up in it without banging his head and you have to be something of a contortionist to use the toilet. However, in all fairness, the 60 and its progenitor, the Model 55, were never designed to be true transcontinental or transatlantic machines, but were increasingly thrown into the role by operators.

This year Bombardier began offering the 60XR with new Signature Series interiors that give the aircraft more of a big cabin feel, both in terms of aesthetics and features. The

new interiors weigh less, have larger seats, more legroom, and the latest in connectivity, including SwiftBroadband high-speed internet, HD monitors, and interfaces for Sony PlayStations, Blu ray, and DVDs.

Signature Series is all about comfort, even if that means sacrificing some style – case-in-point, the seats. Gone is the tapered, rounded look of earlier Lear 60 designs. While visually appealing, these seats had comfort issues, especially for larger passengers. The new single executive seat is decidedly squared-off looking with big drop-down armrests, deeper and longer seat cushions, and taller backs reminiscent of a Challenger 605. But they are much more

comfortable than even the redesigned XR seats. The arms can be dropped flush with the seat bottom cushion to create extra area, while increased pitch and more space between seats yields an extra 3.50in (8.89cm) legroom between the facing club seats. The new B/E Aerospace seat frames each weigh 10 lb (4.54kg) less than the model they replace, but are more functional, with a seat pan lifter that activates through 70° as the seat is reclined to full berthing. This eliminates the gap between the bottom and back cushions when the seat is reclined. The seats rotate 180°. The facing clubs can be moved together and reclined to create a very comfortable bed.



CABIN  
STATS

### Bombardier Learjet 60XR

**Cabin width:** 5.95ft (1.81m)

**Cabin height:** 5.71ft (1.74m)

**Cabin length:** 17.67ft (5.39m)

**Seats:** 2 crew + 8 + 1 passengers

**Range:** 2,405 nautical miles (4,454km) with 2 crew + 4 passengers

**Top speed:** 536kts (993km/h)

**Max altitude:** 51,000ft (15,545m)

**Price:** US\$14 million (£9.63 million)

**Orders:** 380+ Learjet 60 and 60XR aircraft "manufactured" to date






**CABIN STATS**

**Bombardier Learjet 85**

**Cabin width:** 6.08ft (1.85m)

**Cabin height:** 5.91ft (1.80m)

**Cabin length:** 24.75ft (7.54m)

**Seats:** 2 crew + 8 + 2 passengers

**Range:** 3,000 nautical miles (5,556km) with 2 crew + 4 passengers

**Top speed:** 542kts (1,004km/h)

**Max altitude:** 49,000ft (14,935m)

**Price:** US\$18.25 million (£12.56 million)

**Orders:** 60+

## Bombardier Learjet 85

Given customer use profiles and the Model 60's constraints, Learjet saw room to enlarge its mid-size offering, and in 2009 introduced plans to build a bigger aircraft completely from composites. The Model 85 is scheduled to enter service in 2012. Composites were the means to leapfrog the competition with a more aerodynamic shape, lighter weight, better fuel economy and range, and an ovoid and compound curve fuselage that provides more cabin space when matched with a comparable all-metal aircraft. While the 85 will weigh one third more than the Model 60, it will

only need 20% more thrust, fly 500 more miles on a load of fuel, and actually have a slightly faster top cruise speed – all while offering better specific fuel consumption.

The proposed cabin for the 85 is capacious compared to the 60XR. The latter's cabin yields 453ft<sup>3</sup> (12.83m<sup>3</sup>) while the 85 boasts 665ft<sup>3</sup> (18.83m<sup>3</sup>) of passenger space and 130ft<sup>3</sup> (3.68m<sup>3</sup>) of luggage stowage, including three large cabin closets with a combined 30ft<sup>3</sup> (0.85m<sup>3</sup>) of storage. Several configurations will be available, including eight single executive seats in a double-club

layout, or single seats and a three-place divan. The single seats are pitched at 30in (76.20cm) and recline into full-berthing positions (four can be berthed at any one time). The divan and the berthing seats reflect the 85's transcontinental/transatlantic design range. This longer-legged Lear also features a full galley and an aft cabin lavatory. Like several other contemporary cabin designs, the 85 will feature larger passenger cabin windows, in its case 12 x 16in (30.48 x 40.64cm) each, and more monolithic, streamlined headliners and sidewalls.

## Hawker 750 & 900XP

Hawkers have been around since 1962 and perhaps no business jet has a better history of durability or a longer history of evolutionary performance improvement. The aircraft is built like a tank with simple mechanical systems that stand up to ham-handed pilots and high annual utilisation rates. This durability has helped to make Hawkers a mainstay in the several Part 135 charter fleets as well as those of fractional providers NetJets and Flight Options. Hawker refreshed the line in 2007 with the 750 (pictured, below) and 900XP (right). The two share similar cabins, but the latter's is slightly more upscale and the aircraft has additional range. Although comparatively slow, the Hawker packs a lot of utility. Operators rarely have to choose between full seats or full fuel.

The cabin remains remarkably unchanged from the previous model, the 850. The cursed submarine-hatch size external door has not been improved upon and the average guy still has to hunch over in the 5.75ft (1.75m) tall cabin. That headroom comes only when you stand in the trenched centre aisle. In-cabin storage is still notably absent. The standard layout features five single executive seats and one three-place divan. The comfortable single seats, perhaps the best in any aircraft in this category, slide and swivel and have limited recline. The divan is really not big enough for a six-footer to fully stretch out on, but it is nevertheless useful for longer trips.

There is also room – for the hapless person who happens to draw the short straw – on the belted potty in a lavatory best reserved for emergencies or use by the very diminutive. The lavatory cabinetry is slightly improved, with more little drawers and niches for stowing personal products and supplies – a minor but important improvement. A new optional layout allows you to remove the two most aft single seats and punch out the aft baggage compartment, adding a modest 10ft<sup>3</sup> (0.28m<sup>3</sup>) of stowage. Bags must still be loaded internally (no external baggage door). However, most of the luggage stowage – 33ft<sup>3</sup> (0.93m<sup>3</sup>) – is in the forward cabin closet across from the entry door. Bags that have to go in the aft baggage compartment must be carried through the cabin. In a tight aircraft with such a narrow aisle, this is not just inconvenient – it leads to prematurely trashed interiors from bags being slapped on seat edges and arms.



### Hawker 750

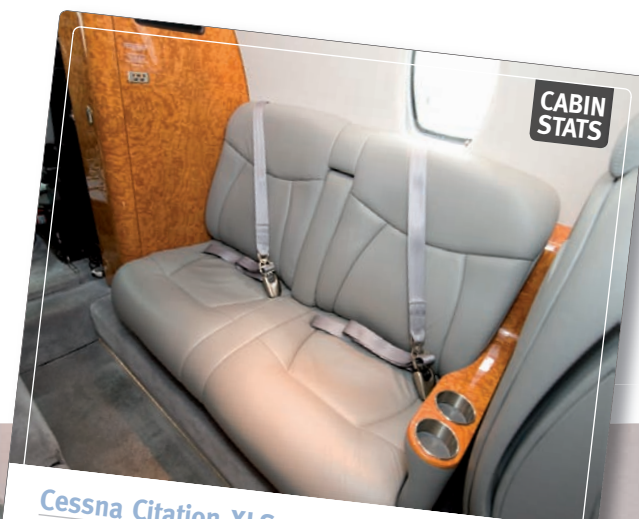
<b>Cabin width:</b>	6ft (1.83m)
<b>Cabin height:</b>	5.75ft (1.75m)
<b>Cabin length:</b>	21.33ft (6.50m)
<b>Seats:</b>	2 crew + 9 passengers
<b>Range:</b>	2,111 nautical miles (3,910km) with 2 crew + 4 passengers
<b>Top speed:</b>	465kts (861km/h)
<b>Max altitude:</b>	41,000ft (12,497m)
<b>Price:</b>	US\$13 million (£8.97 million)
<b>Orders:</b>	36 deliveries up to the end of the first quarter of 2010



**Hawker 900XP****Cabin width:** 6ft (1.83m)**Cabin height:** 5.75ft (1.75m)**Cabin length:** 21.33ft (6.50m)**Seats:** 2 crew + 9 passengers**Range:** 2,818 nautical miles (5,219km) with 2 crew + 4 passengers**Top speed:** 465kts (861km/h)**Max altitude:** 41,000ft (12,497m)**Price:** US\$15.80 million (£10.93 million)**Orders:** 125 deliveries up to the end of the first quarter of 2010

## Cessna Citation XLS+

This latest incarnation of the almost 30-year-old Citation 560 series features a refreshed interior with redesigned sidewalls and a new lavatory. The improved sidewall design produces 2in (5.08cm) more shoulder room and the lavatory now comes with a vanity. Basic cabin seating is for eight passengers – six single executive seats and a side-facing, two-place divan in the forward cabin. The single seats have a redesigned armrest that stows out of the aisle when not in use, making transiting the cabin a tad easier. The aircraft also has improved cabin pressure at altitude and a more robust auxiliary power unit to run air conditioning on the ground.



### Cessna Citation XLS+

**Cabin width:** 5.51ft (1.68m)  
**Cabin height:** 5.68ft (1.73m)  
**Cabin length:** 18.50ft (5.64m)  
**Seats:** 2 crew + 8 + 1 passengers  
**Range:** 1,858 nautical miles (3,441km) with MTOW  
**Top speed:** 441kts (817km/h)  
**Max altitude:** 45,000ft (13,716m)  
**Price:** US\$12.45 million (£8.65 million)  
**Orders:** 45 deliveries up to the end of 2009





### Cessna Citation Sovereign

<b>Cabin width:</b>	5.51ft (1.68m)
<b>Cabin height:</b>	5.68ft (1.73m)
<b>Cabin length:</b>	25.26ft (7.70m)
<b>Seats:</b>	2 crew + 9 passengers
<b>Range:</b>	2,847 nautical miles (5,273km) with MTOW
<b>Top speed:</b>	458kts (848km/h)
<b>Max altitude:</b>	47,000ft (14,326m)
<b>Price:</b>	US\$17.61 million (£12.24 million)
<b>Orders:</b>	300th delivery scheduled for this year

## Cessna Citation Sovereign

The Cessna Citation Sovereign has the same 5.51ft (1.68m) tube width at the shoulders as the smaller Citation XLS+ and the faster and longer 609kts (1,127km/h) Citation X, with a trenched centre aisle providing 5.68ft (1.73m) of headroom. Eight individual slide, swivel and reclining passenger seats are arranged in two facing club-four configurations. Two- and three-place divans can be substituted for some of these at additional cost, but that's not a listed option. Room exists for an extra

single side-facing seat opposite the entry door, although this space can also be used for an optional extended refreshment centre.

The standard right-hand refreshment centre is located forward of the main entry door. It is 31in (78.74cm) wide and holds two hot beverage tanks, an ice drawer, a trash receptacle and storage. The 8ft<sup>3</sup> (0.23m<sup>3</sup>) coat closet opposite the refreshment centre can hold 140 lb (63.50kg). A 27ft<sup>3</sup> (0.76m<sup>3</sup>) hanging closet in the aft cabin (inside the

lavatory) can accommodate 415 lb (188.24kg). The main 100ft<sup>3</sup> (2.83m<sup>3</sup>) baggage hold is in the tail cone and can accommodate 1,000 lb (453.59kg); it is heated but not accessible from the passenger cabin. Sliding divider doors separate the functional, but not plush, lavatory from the main cabin. The lavatory features an externally serviced flushing toilet, sink, vanity and some storage. Overall cabin noise is low for an aircraft in this category and lighting and ventilation are excellent.

## Gulfstream G150

In 2001, Gulfstream bought Galaxy Aerospace, thus adding two smaller aircraft, which it renamed the G100 and G200, to its product line. Those aircraft are manufactured by Israel Aircraft Industries but completed at Gulfstream facilities in the USA. An improved version of the G100, the G150, was introduced in 2005.

The six to eight passenger aircraft represents the latest and best incarnation of the venerable Westwind/Astra line. It can still fly non-stop from New York to Los Angeles, but has a taller and wider cabin than its predecessors, 5.74ft (1.75m) tall and across. Baggage volume also increases from 51ft<sup>3</sup> (1.44m<sup>3</sup>) to 80ft<sup>3</sup> (2.27m<sup>3</sup>). A typical cabin layout features a side-facing two-place divan and five single executive seats. The aircraft's combination of speed, comfort, price, and range hits the sweet spot in the mid-size cabin market. While there is no danger you would confuse this aircraft with the larger Gulfstream G450, it is capacious and faster than almost anything else in its class.


**CABIN  
STATS**

### Gulfstream G150

**Cabin width:** 5.74ft (1.75m)

**Cabin height:** 5.74ft (1.75m)

**Cabin length:** 17.65ft (5.38m)

**Seats:** 2 crew + 6-8 passengers

**Range:** 2,950 nautical miles (5,467km) with 2 crew + 4 passengers

**Top speed:** 562kts (1,041km/h)

**Max altitude:** 45,000ft (13,716m)

**Price:** US\$15.05 million (£10.44 million)

**Orders:** Approximately 80 in service



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# nouvelle cuisine

New products for the business jet galley, focused on ease of use, elegance and noise reduction

## silence is golden

**M**ühlenberg Interiors has been working on a comprehensive design study aimed at reducing noise generation within the galley. "Recent investigations by OEMs have revealed that technologies such as low-noise engines and new fuselage materials have resulted in noise within the cabin becoming more noticeable," says Jakob Versemann, head of sales at Mühlenberg Interiors. "VIP or corporate jet passengers are familiar with the annoying rattle of a galley during take-off, landing and turbulence. As well as these technically caused inconveniences, there is also the noise caused by cabin crew slamming doors or drawers during operation."

The new MIPacific galley combines various noise-absorbing principles – such as door and drawer dampening, spring-loaded fixation for containers, and an advanced trolley fixation system – with ambient lighting and an overall philosophy of clear and straight lines. A prototype of the galley was displayed at this year's Aircraft Interiors Expo (held in Hamburg on 18-20 May) and the accredited maturity of the product means it should be introduced onto the market within the next six months.

[www.muehlenberg.de](http://www.muehlenberg.de)



## multitalented

**M**GS has updated its Multifunctional Heating Unit, which incorporates a toaster, top-heater, steam exhauster and steamer. Improvements include a new graphical display with integrated illuminated Piezo switches, and new RFID-coding system. In addition, the company says it has reduced the unit's weight.

MGS is also developing a new microwave in line with ARINC size 4, the smallest available on the aircraft market. Among its predefined programmes there will be special applications for popcorn, defrosting and baby bottle heating, which can be adapted upon request.

The company says that 28V versions of both products should be available in 2011. Meanwhile, it continues to offer its Inductive Hot Plate (pictured), which enables open restaurant-style cooking inflight. This product features a Ceran cooking top with two standard hot plates and one extra-large wok plate.

[www.mgs-aircraft.com](http://www.mgs-aircraft.com)



## independent means

**B**&W Engineering has launched a VIP version of its A-LogEqu system of thermally insulated food and beverage containers. A-LogEqu offers hot or cold storage, independent of the galley and without consuming power.

The containers incorporate various layers of high-tech insulation compounds, designed to keep food and drink hot or cold for longer, and thus enable various new onboard service options. For example, the company envisages the container being used to store caviar or fresh seafood, hot meals or chilled champagne under ideal temperature conditions, without any electrical galley inserts on board.

The new Business Line version of this product is finished with premium leather supplied by rohi and applied by Paustian Airtex. The smooth leather surface is available in various colours to match the aircraft's interior design, and complemented with fittings made of satin stainless steel.

Available in two different heights and as a front- or top-loader version, the A-LogEqu Business Line is also offered with other decorative and functional surfaces.

[www.bw-forschung.de](http://www.bw-forschung.de)





## small packages

Iacobucci HF Electronics' new WastePak trash compactor was developed specifically for the business aviation market, to reduce the amount of space taken up by waste on board. Although compact in size – with dimensions of 381 x 635 x 426mm – the unit boasts 2 tonnes of compacting force. The company says the aluminium unit weighs 40kg when empty, and consumes less than 300W power.

The new WastePak uses an electromechanical mechanism for compression instead of a hydraulic method. Using waterproof carton boxes also engineered by the company, the WastePak compacts paper, plastic dishes, cutlery, aluminium cans, glass and even champagne bottles in one single box, with a 3:1 ratio. In addition the unit is equipped with a newly designed backlight control panel, which enables the unit to be operated in total darkness.

[www.iacobucci.aero](http://www.iacobucci.aero)



## Flight clearance

Enflite says its latest 'zero-clearance' convection oven (pictured) remains cool to the touch on the outside, while inside an even flow of hot air cooks the food at a constant temperature without the need to move food around. Enflite designed the appliance to have a cool exterior so that it doesn't need space left around it to protect other surfaces, thereby taking up less space in the galley. The unit features computerised, all-digital control for managing temperature, and is available in standard and custom sizes. Enflite is currently developing a large convection oven with broiling feature, which it says will give the customer many of the features of a home oven.

The company also recently launched a new microprocessor-controlled coffeemaker that can brew 1.6 litres of coffee in seven minutes. In addition, the unit includes a hot water spigot for tea, kept separate to avoid mixing with the coffee. The electronically controlled water heater maintains brew temperatures, while a double redundant flow measurement system is designed to eliminate spills, and a lock keeps the brew basket in place during brewing cycles. The product features an LED indicator for easy reservoir filling, and non-contact water-level measurement.

[www.enflite.com](http://www.enflite.com)

## image overhaul

Sell recently unveiled a new generation of galley inserts, due to be available from the first quarter of 2011. The range runs on 115V and includes ovens, coffeemakers, beverage makers, water boilers and bun warmers – all available in ATLAS and ARINC versions. They have been styled with a new elegant look to fit smoothly with cabin interior design.

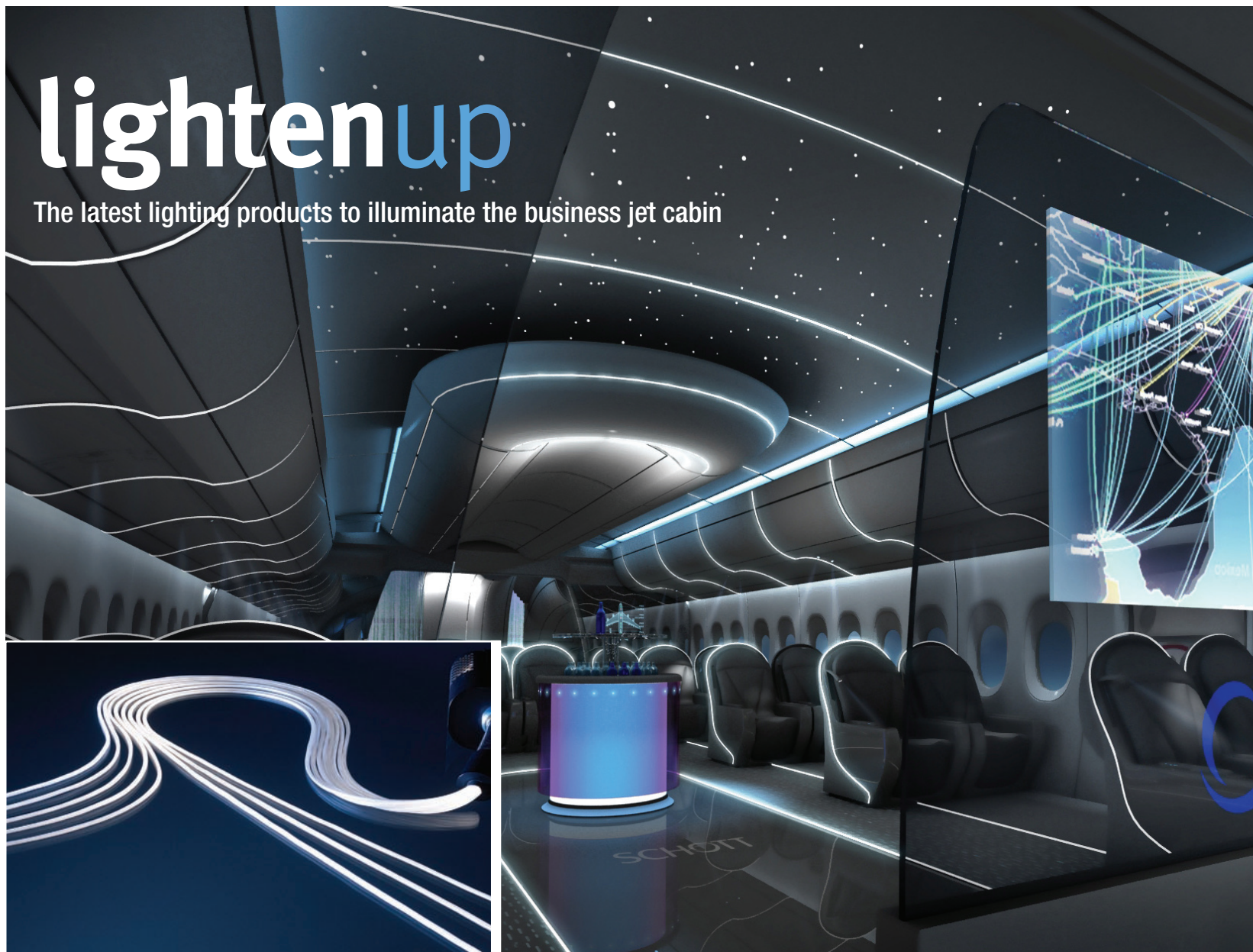
The coffeemaker, with 1.5-litre capacity, can dispense instant or fresh coffee and tea, while the beverage maker (which also has 1.5-litre capacity) serves instant coffee and tea. The water boiler has a 3.2-litre capacity and features an insulated tap, while the programmable oven boasts one-hand handling, is available in 32- or 48-meal versions, and is 6.5kg lighter than the model it replaces.

[www.sell-interiors.com](http://www.sell-interiors.com)



# lightenup

The latest lighting products to illuminate the business jet cabin



## flexappeal

Schott Aviation has developed a smart hybrid lighting system that it says is small in size, light in weight and provides homogeneous illumination for mood lighting on board. Schott HelioLine comes as a fibre optic cable or rod that emits light sideways. It is designed for high flexibility, and in particular for contour illumination, even when the design calls for a tight bending radii, or for use where space is very limited.

[www.schott.com/aviation](http://www.schott.com/aviation)

## snakesonaplane

The latest addition to PGA Electronic's range of snake reading lights is Swing, a single LED light developed for 5VDC power. The range also includes Finger, Cobra and Stick lamps. These can all be integrated in tables, seatbacks, walls, and so on, with various leather and coating options. The lamps can be adapted to different reading postures, with swivel and dimming functions.

The company's monument reading lights include Altaïr, Rotary Spot and Finger Ball Joint, which it says enable the same lighting possibilities, while requiring less space for integration. PGA also provides lighting systems with customised touchscreen remote units, power supply and mood lighting control.

[www.pga-avionics.com](http://www.pga-avionics.com)





## palmpilot

**B**/E Aerospace has developed a cabin environment and lighting controller that enables passengers to customise their lighting environment from their seat, as well as adjust other elements such as cabin heating and air-conditioning.

The controller weighs 2.7oz (0.1kg) and is roughly the size of a mobile phone. The product includes the capability to adjust direct lighting, whether a personal reading light or a table work light.

Expandable provisions for the controller will enable any passenger to control personal IFE and audio, in addition to seat or table lights.

B/E's personal control products – which include reading/table light, reading only light and lavatory flush controllers – will accommodate CMS interface on any size business jet, regardless of aircraft configuration.

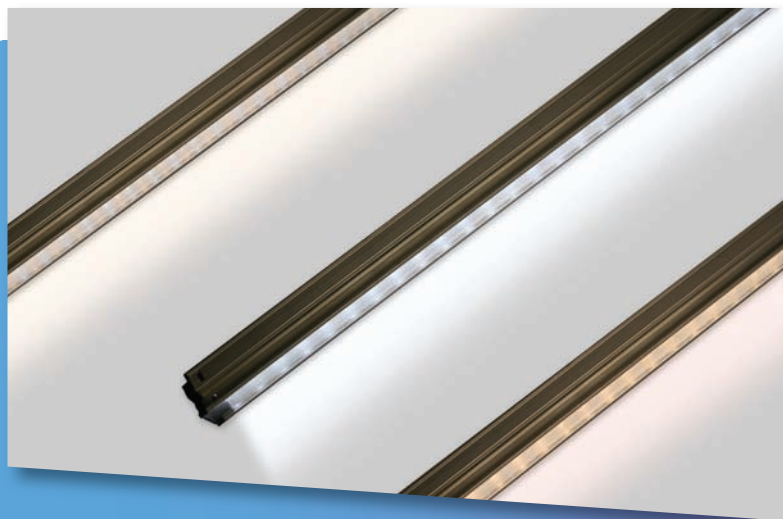
[www.beaerospace.com](http://www.beaerospace.com)

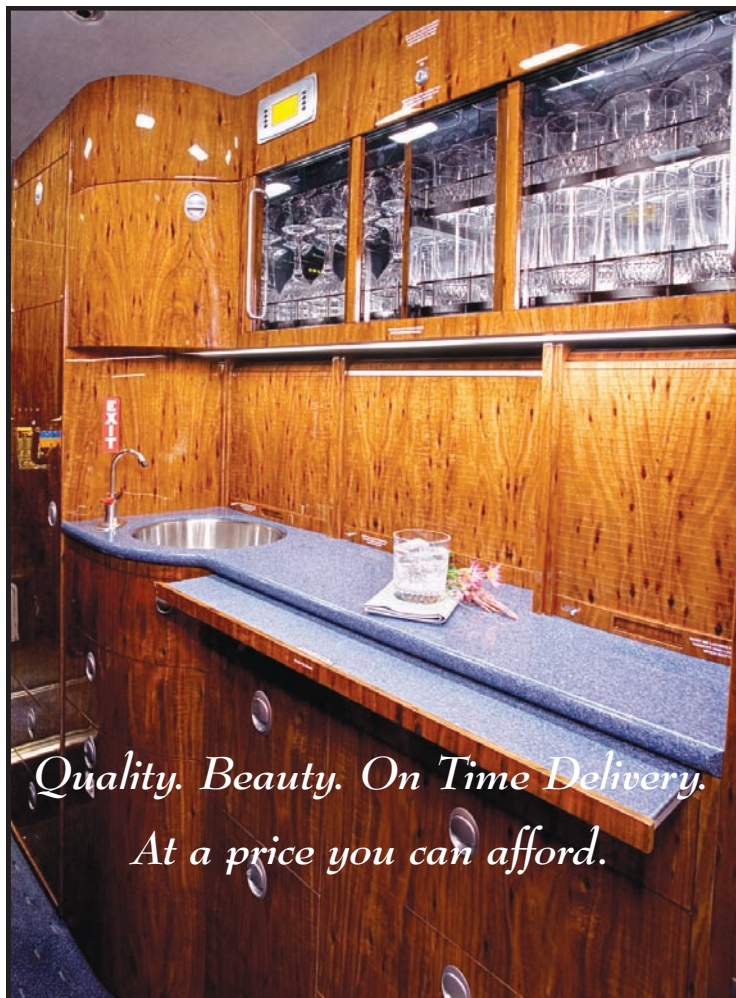


## whitewash

**E**mtcq has introduced a white wash-lighting system capable of outputting multiple shades of white light, controlled via an RS485 interface to a cabin management system. The light has built-in channel control, offers 100% variable dimming and eliminates the need for a power supply. The technology consists of white LEDs set at two colour temperatures, which blend for any colour temperature from warm (3,500K) to cool (5,000K). With a combination of several strips of lighting, each light can be separated into a group or zone, enabling control over the colour temperature, intensity and fade times within each zone. Currently the company offers a high-profile track with clear or diffused lens options. It plans to launch a low-profile track option for narrow apertures in the third quarter of 2010.

[www.emteq.com](http://www.emteq.com)





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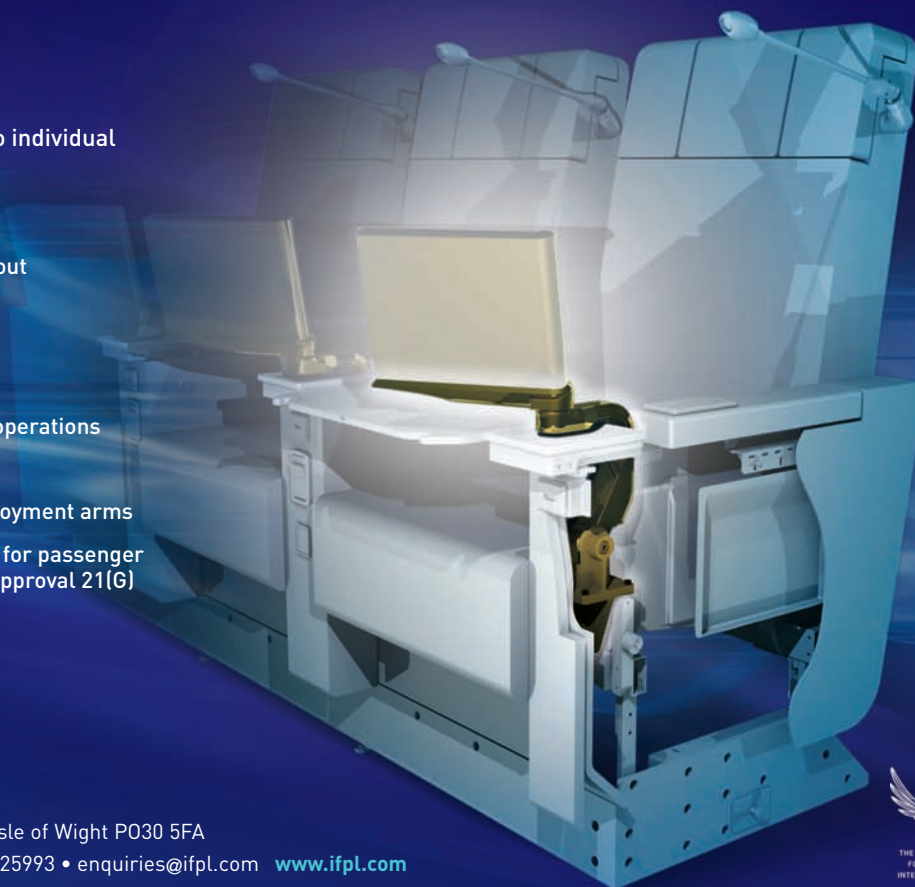
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# centre of attention

Loher Raumexklusiv and Loher Engineering made their Aircraft Interiors Expo debut with an eye-catching VVIP galley concept

One of the highlights of this year's Aircraft Interiors Expo 2010 (held on 18-20 May in Hamburg, Germany) was a VVIP galley/bar concept integrated into an A340 fuselage mock-up made for the fair. It was a striking show debut for Loher Raumexklusiv and Loher Engineering, which set out to prove that a galley in the VVIP segment does not have to be restricted to technology and functionality – it can be the centrepiece of the cabin.

The design goal behind the art deco-style galley and bar was "understated luxury". This was pursued through the combination of a subtle lighting concept with precious materials including Onyx Fantastico, high-gloss Macassar veneer, gold dust and mother of pearl.

The company has not neglected functionality and ergonomics in the pursuit of a stylish finish. The galley is designed to enable culinary delicacies to be freshly prepared to the highest standards. Functional elements such as a teppanyaki grill and induction cookers have been incorporated. An extractor hood is included next to the cooker – after use, both are concealed by the sliding red Onyx marble worktop. Specially made pull-out cooling units have also been built in under the bar top. Meanwhile a coffee machine, microwave and induction oven have been integrated into the galley's back wall. Care has been taken to ensure these appliances fit in with the overall design – they vanish

when necessary, at the touch of a button, behind flexible glass light panels finished with the same Onyx used elsewhere.

Loher Raumexklusiv – run today by Alfred Loher and his sons Alfred Loher Junior and Roland Loher – was founded in 1931 and specialises in creating individual, high-end interior fittings and one-off pieces of furniture. The company has over 75 years' experience in developing, planning and manufacturing exclusive interiors and furnishings for villas, boardrooms, yachts and private aircraft, and prides itself on its dedication to quality. Managed now by the third generation of the founding family, the enterprise has continually developed into a forward-looking and internationally oriented firm of craftsmen, with a workforce of about 215 employees.

Since April 2006 the company has been licensed by the German Federal Aviation Authority as a manufacturing firm for aircraft interiors under Part 21 Main Section A Section G for C1/C2 ratings, and can therefore operate in the market as an independent supplier. In addition, in December 2007 Loher Raumexklusiv obtained a licence as an approved maintenance company under Part 145.

Loher Engineering was set up in 2009 and certified as a development company by EASA under Part 21, Main Section A, Section J – enabling the company to offer expertise from a single source, even with complex projects. Aircraft Interiors Expo



2010 was the setting for the ceremonial handover of the certification by EASA, to which numerous guests from aviation and interior design were invited.

The company is gearing up to expand in the aviation and yacht segments, and plans to open another production hall, specifically for these divisions. The 37,000m<sup>2</sup> facility is due for completion in 2013.

Loher Raumexklusiv

Reader Enquiry No. 501



1. Onyx, Macassar veneer and mother of pearl combine for a luxurious look
2. The concept displayed as part of an A340 fuselage mock-up
3. Loher Engineering receiving its EASA certification at this year's Aircraft Interiors Expo

Images: Klaus Jordan

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# emotional rollercoaster

Industry veteran Herbert Artinger outlines the agony and the ecstasy of VIP interior completions

## What does Cabin Completion Quality Management (CQM) do?

CQM, a new technical service venture from Aircraft Conformance Engineering Services (ACES), focuses purely on overseeing business jet and VIP cabin completions – from the initial concept design, through to specification drafting and risk analysis, and representing customers at the completion centre. My role at CQM is to ensure that all vendors, designers, completion centres and any other parties involved in the completion comply to the highest standards of quality, and deliver the aircraft interior that the customer has specified.

## What are the challenges involved in deciding on an initial design?

For every moment of ecstasy there is a gruelling moment of agony. It can be agony trying to translate the aircraft owner's vision into words, and ecstasy when some consensus is reached – even if it is just everyone agreeing that the design isn't possible! The biggest challenge, which recurs throughout the entire completion, is finding the balance between what is desirable and what is achievable. Designers may have celestial ideas – such as transparent floors and planetarium-like apertures for viewing – completely disregarding the fact that the design is for an aircraft and not an earthbound palace.

## What are the potential pitfalls once a completion centre has been chosen?

It is agonising to be told that actually, the design is not fully feasible from an engineering/certification point of view. The engineering/certification department might strip the plans right back to a normal, pedestrian concept – not what the client was after. At this point all the parties involved need to talk together about possible solutions. Each must be open to compromise. Facility engineering, senior management and the operator need to speak in a common language that all understand. A great cabin can be realised, if we all pull towards the same goal.

## How do you ensure quality?

Eventually what emerges begins to resemble an interior. But at this point deficiencies in installation and quality of workmanship may come into play. The last thing the operator wants to hear, after a month of downtime with possible delay already, is that there is not enough time to correct the anomalies before redelivery.

## How do time factors influence the completion process?

Too little time is the usual problem. We all know that time is money and also that value for money is a commendable goal. The definition of what constitutes time varies greatly between operator and facility



– I'm sure that different clocks are used! For the operator that has an aircraft in completion layover, time stands still, while for the facility, it appears to be evaporating by the second. The aircraft owner needs to understand that the slightest change it requests generates an avalanche of additional work for the facility.

CQM

Reader Enquiry No. 502

2



1. Herbert Artinger
2. A successful VIP completion overseen by ACES, with interior by Edése Doret

# transmissionvamped

New IFEC applications are driving demand for higher data transmission rates – but the wires used still have to be durable, reliable and light

Burgeoning avionics and IFEC applications are driving a need for aircraft networks that mimic ground-based Ethernet systems. Thermax, which makes wire and cable for these networks, says that data transmission requirements have increased a thousand-fold in little over a decade.

"Looking back to the implementation of the first aircraft databus systems, engineers worked with Mil Standard 1553, which had a data rate of 1Mbps. This was the industry standard for many years until it slowly evolved into an Ethernet-based protocol for higher data rates," says Don Slutz, senior product manager at Thermax. "Initial implementations consisted of 10Mbps. Even as these were being put into action in the late 1990s, the trend almost immediately began to move towards 100Mbps – a ten-fold increase." Slutz says that today, most applications are based on the 1,000 Base-T standard, which requires a 1Gbps data rate. "Future applications will require 10Gbps, and much of the cable being installed today should be capable of operating at this speed," he adds.

Thermax says that these increasing data transmission requirements have driven a need for continuous wire and cable improvements, as well as the development of multiple cable types to support various applications. So what does the company identify as the key requirements of an aircraft-grade Ethernet-based wire system? Firstly, it must transmit data at the desired protocol speeds. Secondly, it must be durable and constructed from materials that meet industry standards, supporting the rigours (temperature extremes and vibration) of the

aerospace environment. Finally, it must be reliable, ideally over many years. As if this were not enough, the cable must also be as light as possible in weight. To further challenge design engineers, different applications require different types of cable.

There were several obstacles to overcome for Thermax in translating the transmission characteristics of commercial-grade cable used in land-based networks to an aerospace environment. The company says the most important of these was the need to use a stranded conductor to survive vibrations encountered in flight. "Solid copper conductors do not fare well in the aerospace environment, so engineers had the task of implementing a stranded conductor without sacrificing the electrical properties," says Slutz. "The result is a product that can meet and exceed 1,000 Base-T requirements to distances close to 100m. Systems today are now typically based on the highly capable 1,000 Base-T standard transmission rate. In addition, these cables are capable, in many cases, of meeting many 10G requirements as well."

But environment is not the only consideration. Unlike home and business environments, one design does not fit all applications in the air. "For many applications, a cable that is highly electrically shielded and durably jacketed is desired. But for other applications, such as for seatback IFE – where routing through tight spaces is required – a much smaller, flexible version is needed," says Slutz. "Thermax and other manufacturers have responded with a lightweight and flexible standard design."

A final consideration is customisation. "Wire and cable manufacturers' goals should be not only to create standard cables, but also to create building blocks that can be customised for a specific requirement," says Slutz. "In many cases, it is desirable to combine several functions into a single cable – USB, firewire (IEEE 1394), docking for portable media players, and, as always, power and ground lines."

1. Compact, flexible wires are needed for routing in tight spaces such as seats



Thermax

Reader Enquiry No. 503

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## precious metals



Creating unique decorative plating finishes has been one of the keys to HighTech Finishing's success over the past 25 years. In 2010, the company unveiled three new lines of aviation plating finishes that were designed at the request of clients.

The first of these, Crescent Gold, was developed after several leading European completion centres requested this look for use in VVIP programmes. This electroplated finish has a distinctive colour with very accurate consistency and is available in polished, satin, pearllite, frosted and hammertone textures.

Another finish, Oil-rubbed Bronze, was designed at the request of Airbus, which wanted a finish similar to a specific look it had seen. "Oil-rubbed Bronze combines our electroplated product with a cold-staining process to achieve the desired look," explains Rick Niefeld, vice president of

marketing at HighTech. "The final outcome is an exceptional architectural look that is currently being considered by several aircraft interior designers and refurbishment centres." HighTech also introduced Spanish Bronze, which is an offshoot of Oil-rubbed Bronze but with more of a visible brushed pattern in the finish.

In addition to the launch of these new finishes, HighTech recently expanded its headquarters in Houston, Texas, USA, by increasing the size of its production tanks. This enables the company to plate longer lengths of interior trim as well as complex pieces with unique sizing. "We are always listening to the customer to ensure they receive the highest quality, quickest turnaround times and most unique selection of finishes for their projects," says Niefeld.

**HighTech Finishing**

Reader Enquiry No. 504

## fullofbeans

Addressing growing concern over the quality of potable water on aircraft, Monogram Systems – TIA Division (TIA) has launched a new 1604 Top-Fill coffee brewer. The new brewer does not rely on aircraft potable water supplies, instead using its own internal water tank to brew coffee.

To use, the water tank is filled inflight with the customer's choice of bottled water. The fill port is mounted on the front of the unit for convenience, and is stowed in a hidden position when not in use. The design completely separates the coffee brewer from the aircraft water system.

Pour-over technology is not new to TIA, and has accumulated thousands of hours of flight time in business aviation and cargo aircraft. The company says that in addition to a better-tasting cup of coffee, the 1604 coffee brewer is up to 5 lb (2.27kg) lighter than existing units. It is available in ATLAS and ARINC standards.

"With the 1604 coffee brewer, business jet owners and operators now have a cost-effective alternative to the overly complex, commercial airline coffeemakers that have been used in the past," says Peter Tottenham, manager, aviation sales at TIA.

**Monogram Systems – TIA Division** Reader Enquiry No. 505



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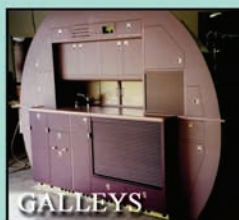
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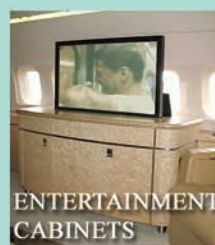
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## modsquad

Field Aviation has a long history of converting commercial regional jet and turboprop aircraft into mixed-class corporate shuttle configurations for aircraft OEMs and corporate and government clients. The company recently launched its new branding at the Singapore Airshow (held on 2-7 February 2010), reaffirming its focus on aircraft modifications and interior conversions.

Occasionally, a commercial aircraft might meet a customer's performance requirements but is not available from the OEM in the configuration that meets their service needs. This is where Field Aviation can help. The company works with the commercial aircraft OEM to provide one-off configurations that are outside of the OEM's standard production offering. "It's a win-win solution – helping the OEM sell an aircraft they may not normally sell, and helping a customer get the aircraft they need in the configuration they want," says Carrie Servos, sales director, business

development at Field Aviation. "Keeping the main interior shell of a commercial aircraft and installing new VIP or business seating in all or part of the passenger cabin can also make acquiring a corporate shuttle aircraft more affordable than one with a complete VIP interior."

Field Aviation says the level of finish expected in VIP or business cabins is always high, but in mixed-class layouts seating 19 passengers or more, flammability requirements can limit the type of materials that can be used. "Our extensive experience designing mixed-class configurations under these more stringent certification requirements allows us to provide the customer with the best possible material selection for the aircraft, with the comfort of knowing it meets all certification requirements," says Mark Bennett, director of engineering at Field Aviation.

As well as assisting commercial aircraft OEMs with custom configurations for new aircraft, Field Aviation also works with end users directly to customise new or used aircraft interiors.

Field Aviation

Reader Enquiry No. 506



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4. Orrefors Divine champagne coupe; £35 (US\$52); [www.orrefors.se](http://www.orrefors.se)
5. Baccarat Concorde highball glass; €350 (£293, US\$434); [www.baccarat.com](http://www.baccarat.com)
6. Wallace Grande Baroque five-piece place setting; £283 (US\$420); [www.wallacesilver.com](http://www.wallacesilver.com)
7. Aspinal sterling silver bottle stopper (£79, US\$117), bottle drip collar (£35, US\$52), bottle coaster (£79, US\$117), and coasters (£149, US\$221); [www.aspinaloflondon.com](http://www.aspinaloflondon.com)



1.



2.



3.



6.



4.



5.



7.

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