



Boeing's 787 Dreamliner and Airbus' A350 are the aircraft of the future for heads-of-state and very-high-net-worth individuals, according to Stephen Vella of Kestrel Aviation Management. **Dave Calderwood** reports

Why Kestrel is flying high on conversions

Kestrel's Stephen Vella is behind the world's first 787 BBJ

Stephen Vella should know what he's talking about because, not only has his company delivered the first true 787 Boeing Business Jet (BBJ), but also Kestrel has managed no fewer than 10 wide-body cabin completions before, mostly for government clients.

The 787 BBJ was the star of last May's EBACE and was delivered to the customer, Deer Jet (stand 563), in July 2016 on time, on budget and, crucially, at the correct weight. It

entered into service with its Asian client in mid-August.

"The 787 BBJ and A350 have a very rosy future, driven by awesome range capability," said Vella. "We worked hard to keep the weight down so the aircraft could take off from almost any airport and fly to any other airport in the world."

Not only does the 787 BBJ have incredible range and low fuel burn, both it, and the A350, are also less ostentatious than, say, a four-engine Boeing 747.

"The 787 is a medium-size

Cupboard love! Cabin fittings, such as this credenza, take specialist expertise



wide-body aircraft and has much less ramp presence than a four-engine 747," explained Vella. "What I'm finding, particularly in the Middle East, is that people are more sensitive about putting a four-engine aircraft on the ramp. In this age of government accountability, less is more."

When Kestrel started the 787 project back in 2009, the end-user had not been decided, so the company had to make certain design decisions based on experience.

"Our primary aim was to minimise the physical toll that a passenger would suffer on an aircraft capable of 17-hour flights," said Vella. "To achieve this, we needed to push the frontiers of luxury and bespoke aircraft cabin design."

Kestrel produced the original deck plan concept and appointed Pierrejean Design Studio of Paris,

France to refine this and produce 2D and 3D drawings of the cabin. "Our experience enabled us to define which key cabin features would be preferred by potential customers, be they government, corporate or high-net-worth," said Vella.

Getting it right

"The challenge was not only getting the cabin concept right but also ensuring that these concepts were compatible with the unique structural characteristics of the carbon-fibre 787."

Creating the 787 BBJ with a true VVIP interior was far from straightforward for two fundamental reasons. As Vella explained, the aircraft structure is made from carbon-fibre composites rather than aluminium, and it's also a nearly all-electric aircraft, forsaking the steel cables and pulleys, and hydraulics of old.

Carbon-fibre can be moulded and woven into almost any shape, thus the 787 is more aerodynamic than a metal aircraft, and it's also lighter for a given strength. But carbon-fibre is a difficult material to work with – you can't just drill holes in it anywhere, for instance – and the outside of the fuselage won't diffuse a lightning strike the way a metal aircraft does. Instead, a metal mesh has to be added.

"The bad news is that they [the 787 and A350] are technically more complex than the aircraft

"The challenge was not only getting the cabin concept right but also ensuring that these concepts were compatible with the unique structural characteristics of the carbon-fibre 787"

— Stephen Vella, Kestrel

➔ TURN TO P25

aircraft interiors

VVIP Aircraft

FROM P27

they replace," said Vella. "The result is a much smaller group of people who can work on the aircraft. You need to invest in the infrastructure and knowledge before touching these aeroplanes."

In Kestrel's case that meant turning to well-known completions company Greenpoint Technologies (stand 437). Greenpoint has a uniquely close working relationship with Boeing. Even so, the 787 BBJ was still a massive challenge.

"Much of our experience with installing VVIP cabins on legacy, metal aircraft was of limited relevance to the BBJ 787," explained Vella. "An entire new data set needed to be sourced from Boeing to facilitate the design and installation of a high-end cabin on the BBJ 787. Unlike an airliner, the cabin of a large corporate is a one-of-a-kind project with bespoke features that require totally different structural solutions and data requirements."

For instance, on the 787, Boeing has optimised the floor structure to keep the weight down and that means you cannot just place items anywhere. The load has to be distributed.

The complex electrics also presented a steep learning curve for all involved. The 787 BBJ cabin alone has 42 kilometres of new wiring with more than 17,000 connections needing to be incorporated into its basic electrical architecture without causing a power overload or interference. One client's wishes for a microwave oven had to be turned down for the very reason that a microwave generates a huge amount of electrical interference.

Comprehensive contract

It took more than a year to design the detailed engineering before even starting work on the 'green' aircraft in early 2015. Fortunately, Kestrel negotiated a comprehensive modification contract that anticipated most of the challenges – key to the success of the project, said Vella. It also started with one big advantage: the aircraft itself was the 143rd 787 built by Boeing. The early aircraft – numbers 7 to 20 are nicknamed the 'terrible teens' – were sometimes heavy but, by



The all-composite airframe of the Boeing 787 makes fitting a VVIP cabin a challenge

number 143, the production line had matured and reached a stable specification.

Kestrel also brought in new materials and suppliers to the project, including F/List from Austria, Metal Composites from France and Draxmeier from Germany, who all made important contributions to the cabin aesthetics "with manageable risk". Other key cabin suppliers were B/E Aerospace, Idair, Zodiac, Townsend Leather and Emtec Lighting.

Integrating all the complex systems, new materials, and new ways of working took a team of between four and six people on the Kestrel side alone. Kestrel checked and approved all cabin furniture (known as monuments), systems, customised components and seating before delivery, as it arrived and then again on installation. It took its toll. "We had no private lives," admitted Vella.

But what a result. The finished



Kestrel's 787 BBJ is making its MEBAA debut

In brief

Dream on...

There is only one VVIP BBJ 787 in the world available for charter. Dubbed 'DreamJet', serial number N28MS has been in service since July and is managed by China's Hongkong Jet (in conjunction with parent Deer Jet) out of Hong Kong. Deer Jet has just taken a major stake in Dubai-based UAS Trip Support as it expands its global footprint, and the long-legged 787 supports such ambitions.

787 BBJ is an incredible aircraft.

To achieve its objectives and make the 787 BBJ a truly useful long-range aircraft, Kestrel took guidance from the five traditional senses: sight, touch, sound, smell and taste. The entrance to Kestrel's 787 BBJ has been likened to entering an opulent home with a lobby rotunda and dome ceiling, hardwood flooring and sculpted hardwood doors, with decorative metal finishes and soft lighting. The master suite includes a bedroom with California king size bed, 42in television hidden behind custom artwork, satcom handset and ample storage.

The adjacent master bathroom has a large, hand-rubbed marble centrepiece with double sinks and oversized mirror, oversized

shower and separate lavatory. There's also a separate dressing room with wardrobe, a refreshment centre with fridge/freezer and storage safe for valuables.

A large open-plan lounge in the centre of the aircraft is configured for 16 passengers – the aircraft is certified for 40 passengers in total, with 28 having full-flat sleeping facilities. There are several divans, separate seats and large flat screens offering places to connect, socialise or just unwind. Aft of this lounge is a large VIP toilet, bar/buffet module and extensive wardrobe and general storage.

Needless to say, the 787 BBJ has extensive connectivity and audio-visual entertainment, with cutting edge tablet-controlled technology. The tablets also manage lighting, window shades and can call the attendants, thus reducing hard-wired controls and clutter. Passengers can use smartphones to telephone worldwide, surf the internet, watch videos on monitors or play music.

At the rear of the aircraft, there's a segregated cabin for guests or staff with 18 lay-flat first class seats and six premium economy seats.

Part of Kestrel's job was also to sell the aircraft on behalf of its client, an unnamed US investor.

"Market interest on this exceptional aircraft was predictably high, given the attractive cabin design, and the aircraft was sold with modest effort," said Vella. "We have had serious interest from disappointed buyers to produce similarly configured BBJ 787 wide-bodies."