





AIRBUS CORPORATE JETS

STANDING UP TO THE COMPETITION

Airbus' corporate jet offering, the Airbus Corporate Jetliner (ACJ) family, has taken a firm foothold in the respected corporate airliner/long range business jet segment of the market. A derivative of the A319 airliner, the Airbus ACJ was launched in 1996, a year after the Boeing BBJ. Early returns on the well-reviewed model were hampered by Airbus' packed order book that allowed only 4-5 production slots per year, but time, along with clever marketing and customer-responsive model extensions, now have the Airbus corporate jet firmly fixed in the league, with a record of more than 100 sales valued at over \$5.5 billion. **By Philippa Barr**



The original Airbus Corporate Jet (ACJ)

was a derivative of the A319 member of Airbus' A320 family, which in airline configuration ranges from the 100-seat A318 single-aisle to the cost efficient A321, which in single class typically accommodates up to 185 passengers. Airbus describes the family as “the best selling aircraft ever”, and it would certainly be a rare air passenger who had never flown on one. In standard format, the commercial A319 will carry 124 passengers for 6-7 hours (around 6,800 km), powered by twin CFM (General Electric/Snecma) or IAE (Pratt & Whitney/Rolls Royce/Japan Aero-Engines/MTU) engines. The remarkable range extension offered by the ACJ is thanks to the addition of up to six further fuel tanks, which will carry the adapted jet model with eight passengers in VIP format up to thirteen-and-a-half hours, or as far from the Middle East as any city in Europe, most of Africa and even parts of east Asia. The extra tanks are accommodated in the cargo-hold, which obviously does not need to be so large with fewer passengers on board. Airbus marketers do concede that the aircraft's range is actually marginally less than some of its competitors, but believe that the ACJ's compensations in comfort and value for money do more than balance the equation for most customers. Flexibility is an asset in any aircraft, and whilst the ACJ can be turned into an airliner (the fuselage and wings are the same), it is not possible to convert an airliner A319 into an ACJ because of structural reinforcements added to accommodate the extra fuel tanks.

Boeing's Business Jet (BBJ) family presents as the most direct competitor for the ACJ, though with a less wide cabin, however the Gulfstream 550 and the stalwart Bombardier Global Express are also considered to be alternatives, with similar range. The difference – and the main reason behind Airbus' venture into this segment of the market – is that the A319 variant comes with a significantly larger cabin capacity at a less-than-significantly increased cost:

	ACJ	BBJ	G550	Global Express
Interior Cabin Width	3.7m	3.53m	2.24m	2.49m
Interior Cabin Height	2.24m	2.16m	1.88m	1.91m
Range	11,100km (8 pax)	9,964km (50 pax)	12,501km (8 pax)	11,390km (8 pax)
Price	US\$52m*	US\$48m	US\$49m	US\$50.1m

* Source: Alan Peaford's 2009 Pocket Guide to Business Aircraft

* This figure alone is from the Altitudes Guide and was used to ensure consistency with the specification table on page 37.

Both the top-of-the-line models, the BBJ and the ACJ, stand clear of the other models on interior cabin size, and although the 17cm difference in height may seem minimal, Airbus marketing director David Velupillai, who stands at 1.9m tall, is well equipped to affirm that it makes a difference: the ACJ is the only model in which he can stand fully upright, and over a thirteen-and-a-half hour journey that makes a big difference in comfort. A recessed dome ceiling adds to the ambience of the cabin interior, and allows for even more extra centimetres mid-cabin. An 18-centimetre difference in cabin width also seems minimal on paper, but according to Velupillai and his colleague Francois Chazelle, Airbus Vice President Executive and Private Aviation, it gives interior designers much greater room to move on layout and mobility around the cabin. “The extra cabin width means we can incorporate a large bedroom alongside a full-size corridor rather than being forced to place the bedroom at the rear of the cabin without a passing corridor, narrowing the walk-space, or reducing the room size. It also allows for the inclusion of a large round dining or conference table in the main cabin, which has proven to be a popular choice in VVIP interiors,” Chazelle explains. Velupillai goes on to add that an aircraft of this kind is “an extension of lifestyle. Passengers expect the same sort of luxury in the air that they are used to on the ground; they don't want to be cramped or have limited movement in the cabin. Research we have done indicates that passengers are even happy to accept the odd occasion on which they might have to make a stop-over if they get the extra in-flight comfort over long distances. Once a passenger has travelled in an ACJ, the other long range business jets do seem cramped and, the further you fly, the more important comfort becomes.”

Room to Move

Typically, ACJ owners have chosen to accommodate a maximum of around 19 passengers in their interior configuration. Options include zoning the cabin to separate VIP club seating, a bedroom and private ensuite bathroom, an office closed off from the rest of the aircraft, or a dining or conference table seating six-to-eight people. Airbus has six approved outfitters for the ACJ around the world, each of which has undergone a strict selection process. This gives customers a wide choice, though with most outfitters facing a workload bottleneck, it is often a case of where the work *can* be done. In order to alleviate some of the finishing delays, Airbus has developed some of its own outfitting resources and is working with outfitters and investors to further expand capacity. Chazelle does not expect that the current downturn will do much to improve the shortage of completion resources as the trend toward larger VIP aircraft has meant that each now takes longer to complete. Swiss-based Comlux Aviation, which was the A318 Elite launch customer and now operates the world's largest private fleet of Airbus corporate jets (two ACJs and several A318 Elites by the end of 2009) addressed concerns over completions of their fleet by launching its own design and project management house, Comlux Creatives, which is run by Isabelle Bevilacqua. Bevilacqua was personally responsible for the interior of the prestigious Comlux ACJ that was on display at the 2008 Middle East Business Aviation (MEBA) exhibition in Dubai, and is featured in images in this article. She took the aircraft's extra capacity into unchartered territory, producing a unique contemporary design that she describes as 'mild', meaning soothing and relaxed; it's openly planned with 12 fully reclinable seats and a six-seat dining table. Comlux (whose name is derived from 'comfort' and 'luxury') is well placed to comment on the ACJ, as in addition to operating a significant fleet, it is now run by President and CEO Richard Gaona, who ran the Airbus ACJ division until he hit what he still sees as the pinnacle of achievement in the market: selling the first private A380 to Saudi Arabian Prince Alwaleed bin Talal. He left Airbus to "see if the product was as good as he had been claiming," and has been pleased to find that it is. Adding to the company's design capability, Gaona has also taken part of a 40-percent share of the Airbus Corporate Jet Centre in Toulouse, France, and taken over a centre in Indianapolis now renamed Comlux Completions USA.

INTERIOR DESIGNERS HAVE GREAT FLEXIBILITY WITH THE ACJ CABIN, OPTING FOR COMBINATIONS THAT MAY INCLUDE BEDROOMS OR PRIVATE OFFICES.





THE COMLUX ACJ SEEN ABOVE, WITH AN INTERIOR DESIGNED BY ISABELLE BEVILACQUA OF COMLUX CREATIVES, WAS ON STATIC DISPLAY IN DUBAI AT MEBA 2008.

The Under-21's

In addition to cabin capacity, the major superiority claim of the Airbus fleet over its competitors is modernity: every single aircraft currently under production by Airbus has emerged in the last twenty years. Not surprisingly, with the ACJ based on the 1993-launched A319, Airbus likes to emphasize the comparative 1968 entry into service date of the Boeing 737, from which the BBJ is derived (with subsequent “cosmetic upgrades”). Mechanically, an advantage of the modern design is its self-diagnostic centralised maintenance system. On an ACJ, all of the aircraft’s systems are electronically monitored. If there is any sort of hiccup in any part of the system, the pilot receives an automatic notification and both the site and nature of the problem are logged for the attention of mechanics at the next destination. The centralised maintenance system can also radio ahead if there is any particular part or service that needs to be arranged prior to arrival in order to minimise service time. “With 99.9-percent reliability,” points out Velupillai, “we hardly need laud this feature of the aircraft, but it is a significant advantage in terms of diagnosing and facilitating rectifications. Boeing claim to have the same, but the truth is they have it only on some of the aircraft systems whilst the ACJ has it on all.”

Now a mature aircraft, there is plenty of pilot feedback on the A320 family, and no shortage of pilots qualified to fly jets from the range – a useful attribute for recruitment by either charter or private operators. To cite an ACJ variant pilot in an Aviation Week in 2002, “This is an aircraft designed by and for pilots. Its controls and displays are intuitive.” The A320 family was the first to introduce fly-by-wire technology in civilian aircraft, running the risk of over-technifying the cockpit, but most reporting agrees that the electronically signalled control system, which was introduced to replace some of the aircraft’s mechanical parts with electronic interfaces and hence save

weight, is user-friendly and not over-complicated. Indeed, fly-by-wire technology is now commonplace on corporate jets, reducing weight and leading to lower fuel consumption and operating costs, and alleviating pilot workload. The major risk attributed to fly-by-wire systems – reliability – is compensated for in the ACJ in the form of multiple redundancy, different microprocessors and vendors, and segregation between both computer systems and power supplies. Along with extra fuel tanks, enhancements found in the ACJ include additional engine thrust for improved take-off performance, a higher cruise altitude of 41,000-feet for greater efficiency, Category 3B autoland as a standard feature, and in-built airstairs for self-sufficiency at busy airfields and at those with limited facilities.

The Story So Far

Airbus announced that the ACJ program had passed the milestone of 50 sales in November 2005, and just three years later, in 2008, the 100th ACJ was sold. In fact, if you add the twin aisle corporate jet models (A330, A340, A350 and A380) to the ACJ and its sister A320 family business jets, the longer A320 Prestige and the entry level A318 Elite, sales total more than 150 in the VIP segment. The 2008 order book was boosted by sales of a single aircraft to an undisclosed private cus-



We are launching Al Jaber Aviation with the Middle East's largest fleet of Airbus ACJ aircraft. The ACJ offers unprecedented comfort and style, providing families and companies with a new way to fly. In addition to the huge improvement in space and comfort, high-end travellers in the Airbus ACJ family will also benefit from separate cabin-zones and unmatched freedom of movement in flight.

Mohammed Al Jaber



tomor via BAA Jet Management, three aircraft to Jet Alliance, and, famously, November's confirmed total of six Airbus VIP aircraft for Abu Dhabi's newly launched Al Jaber Aviation. Initially ACJ sales were highest in the government sector, and the ACJ is the carrier for officials and senior military representatives of many nations, but the sales split today is close to equally divided between government, charter and private operator customers. In total, more than 30-percent of ACJ sales have been to customers in the Middle East, a proportion that jumped to 50-percent in 2008. Airbus has boosted its presence in the region, notably with the division's Vice President now calling Dubai home – though he continues to maintain an office in Toulouse, aware that Europe has, and will continue to be, a stronghold for the brand. "Our focus is definitely global," Chazelle asserts, "though we do see the new markets of Asia as offering great potential. We already have a record of more than fifteen corporate jet sales in greater China, which is well ahead of Boeing. East Asians tend to prefer 'the latest', and the youth and modernity of our fleet is proving popular there. We were also pleased to recently make our first sale in the US, and whilst we face an uphill battle there against Boeing and against the trend for smaller business jets, we will persist."

If you were to order an Airbus corporate jet today, the best delivery window you could hope for would fall in 2012. With most business jets plagued by long lead times, Airbus Corporate Jets are fortunate to be fully owned by Airbus, enabling the company to allocate priority delivery slots if necessary, a luxury not available to Boeing whose Business Jet division is shared with General Electric, placing them equivalent in 'rank' to other third party customers. Both Chazelle and Velupillai are reluctant to comment on the future of business jets in the current economic climate, noting that order numbers are so small and the track record so short, that it is difficult to make generalisations. "The credit crunch is sure to affect the business aviation industry, but larger jets fall at the more resilient end of the market," says Chazelle. "In 2008 we sold 38 aircraft but could only deliver 16-18. On those figures, sales would have to fall a long, long way before we dropped below capacity."

PERFORMANCE & SPECIFICATIONS

Basic equipped price US\$ 52,000,000

Performance

Max. cruising speed

1,005 km/h / 485 kts (Mach 0.82)

Maximum range (NBAA, IFR reserves)

11,100 km / 6,000 NM

Take off run (SL, ISA, MTOW) 1,880 m / 6,170 ft

Landing run (SL, ISA, MLW) 1,360 m / 4,460 ft

Ceiling 12,500 m / 41,000 ft

External dimensions

Length 33.84 m / 111 ft

Height 11.76 m / 38 ft 7 in

Wingspan 34.10 m / 111 ft 10 in

Cabin

Crew + passengers 4 + 8

Height 2.25 m / 7 ft 4 in

Max. width 3.7 m / 12 ft 1 in

Length 23.65 m / 77 ft 7 in

Cabin volume 167 m³ / 5,900 cu ft

Baggage compartment volume (with 5 ACTs)

3.6 m³ / 128 cu ft

Engines IAE V2527-A5 (Power 26,500lb/117.9 kN)

Limitations

Max take off weight 76,500 kg / 166,500 lbs

Max landing weight 62,500 kg / 137,800 lbs