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On a roll

REPORT BY MARK PILLING IN LONDON

With the A380 rolling out, composite material being laid down for the 787, and derivatives of the A330 and 747 making the rounds, Airbus and Boeing have new models on offer in an increasingly buoyant marketplace

By the time the Paris Air Show comes to a close in mid-June, Airbus and Boeing could have no fewer than four new widebody aircraft on sale between them. The Airbus A350, a derivative of the A330, and Boeing's 747 Advanced, the latest version of the venerable jumbo, may both be launched at Paris if the manufacturers can persuade enough launch customers to sign up.

Their arrival will spice up a show that already promises one of the most eagerly awaited civil air transport debuts of the decade: the public flying appearance of the 555-seat A380. Paris will be a fascinating microcosm of the sales and public relations battle between the two aerospace giants as they tout differing views of the demand for ultra-large aircraft and vie for orders of new long-

range, high efficiency cruisers.

With its entry into service slated for the second quarter of next year with Singapore Airlines, the A380 will be the first of the new widebody generation to begin revenue operations. By the end of 2004 the aircraft had booked 139 orders (see *mainline aircraft orders* page 56). This number does not include another 15 A380 commitments from China Southern and UPS made earlier this year where firm contracts are being negotiated. As traffic grows again and pressure on airport capacity rises, the arrival of the A380 comes at the right time, says Johan Orsingher, senior consultant commercial aerospace at research group Frost & Sullivan.

Airbus is aiming to sign a further two A380 customers this year, and is targeting even more sales in 2006 as the aircraft enters revenue service. The

company has an official breakeven target for the A380 at 250 sales, plus or minus 10%, however officials at main shareholder EADS caution that this could drift to nearer 300 if the dollar remains weak. The book price of the aircraft is from \$272-292 million, although launch customers have gained substantial discounts.

Airbus is forecasting a demand for around 750 A380-sized aircraft over the next 20 years, says Colin Stuart, vice-president marketing. "Our absolute view is that there is a need for an aircraft larger than the 747. It will be a replacement for the 747 especially in congested hub-to-hub operations." Compared to the 747, the A380 offers up to a 35% increase in passenger capacity, greater range, improved comfort and a double-digit improvement in operating costs, he says.

As it begins to replace 747s on trunk routes like London-Singapore and Paris-New York, the market impact of the A380 will begin to be felt. Depending on configuration, the aircraft will offer capacity increases from around 60 to over 130 seats per flight compared to

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marketing
Airbus



a 747-400. This promises to radically alter the competitive dynamics on these routes. "The operators that have the aircraft will do a very good job, especially in the early years, because people are going to want to fly on it," says Stuart. Then the market will "settle down" as more A380 operators take to the skies.

The challenge will be for 747 operators to match the discount fares that A380 entrants may offer to fill their aircraft and still make a reasonable return. The lower operating costs of the A380 and its extra capacity could give the A380 carrier a significant advantage.

As the carriers that have already signed up for the A380 demonstrate, there is plenty of support for the argument that larger aircraft are needed for high volume hub-to-hub operations. However, Boeing, unsurprisingly, continues to raise doubts about the size of this market. "I question buying a bigger aircraft to take advantage of lower unit costs unless a carrier has quality revenue to fill it," says Randy Baseler, vice-president marketing at Boeing Commercial Airplanes.

Boeing puts the market in the next

The A380 was unveiled in Toulouse in January

20 years for aircraft of over 400 seats at 535 aircraft. This is a space that could include its 747 Advanced at 450 seats. Others share Boeing's scepticism about the size of the A380 market. As a leading aircraft financier notes: "I doubt it is an 800-aircraft market. It could be nearer 300-400 and I would be surprised if it goes over 500. At present, most people who could trade out of 747s would prefer to have 777-300ERs offering more point-to-point opportunities."

A clearer picture of which view prevails for longer-haul routes will begin emerging in the coming few years. There are also likely to be opportunities for A380s on dense short-haul routes. For instance, All Nippon Airways (ANA) and Japan Airlines (JAL) use 747s configured with 570 seats for domestic routes in Japan today. Air France too uses 747s for services to the island of Corsica during the busy summer months. This is just a 90-minute flight.

However, for the time being, neither Japanese carrier has ordered the A380. JAL, for example, says it has enough domestic aircraft capacity with "future increases handled by increasing frequencies with smaller aircraft, especially after the expansion of Haneda. That policy is reflected by our recent aircraft orders for the 787 and the 737NG series." A fourth runway at Tokyo Haneda, which almost exclusively serves domestic routes, is scheduled to open in 2010.

More frequencies at Japanese airports, including Tokyo Narita, means ANA will be shifting from large to medium-sized aircraft domestically, says Yoji Ohashi, ANA president. By 2012, the carrier intends to have streamlined its large aircraft fleet to exclusively 777s, with its 747s phased out. "The issue is with it to do after 2012," says Ohashi. ANA's longer-term fleet planning calls for a next generation large type with superior economics, with the A380 possibly coming into the picture. "We do not count it in and we do not rule it out. We are considering it for our new large type aircraft."

Stuart at Airbus is not put off by the initial reluctance of the Japanese majors to commit to the A380. "In the long-term we believe A380s will be used in the domestic Japanese market."

Boeing's Advanced 747

The Airbus decision to develop an aircraft significantly larger than the 747-400 clearly helped to differentiate the new A380 in terms of both size and unit cost. But Boeing may close the gap somewhat with its 747 Advanced. "The

only question mark in our long-term product strategy is the 747 Advanced," says Baseler.

Boeing has been studying an upgrade to the 747 for several years, but has not found enough support to launch another version. The time to make a decision is looming fast. "Customers have said they want us to commit by mid-year as they want to solidify their long-term planning," says Baseler. JAL is not among this group, but has looked at the aircraft. "We are considering the possibility to use the 747 Advanced on high demand leisure routes such as Hawaii, in the future," says the carrier.

The 747 Advanced stretches the aircraft to accommodate 450 passengers in a three-class layout. Using the engines developed for the 787 gives the aircraft the sharp improvement in fuel efficiency that previous 747 derivative studies could not achieve. Around a dozen 747 operators are pressing Boeing to decide either way. The company sees a potential market for around 270 passenger and 130 freighter aircraft in the 400-500 seat segment in the next 20 years, says Baseler. The 747 Advanced "would pretty much have this whole segment to itself", he notes. If launched it would enter service around 2009. However, some question the demand for the 747 Advanced, and the undermining effect it may have on 777-300ER sales, which are just picking up momentum.

Whether or not it launches the 747 Advanced, Boeing believes Airbus has a yawning seat gap in its product range between the 380-seat A340-600 and the 555-seat A380. If Boeing does go for the 747 Advanced, Airbus will have to think about building an aircraft to fill this gap, believes Baseler.

Airbus is unperturbed. "We can live with it and are not looking at it like that in any way, shape or form," says Stuart. "We deliberately planned the capacity of the A380 away from the A340-600 and 747. It was the size customers asked us to build."

As the size debate rumbles on, the 747-400, the current large aircraft favourite, is easing gently towards a production sunset, at least for the passenger version. Boeing only has nine outstanding orders for passenger 747s and new orders have dried up. The freighter has been more popular lately, especially among Asian carriers, with 20 outstanding orders in total. The conversion of 747-400s to carry cargo is also picking up momentum, although this too will hit orders of new 747 freighters (see *Decline of the jumbo?* page 62).



Boeing

As interesting as the battle is between the two manufacturers at the top end of the market, the action is even more intense in their efforts to deliver an ultra-competitive mid-sized cruiser. After being scathing about the prospects for the 7E7 for most of last year, Airbus was finally moved to respond in December by announcing the A350, a derivative of the A330.

Mid-sized cruisers

Airbus says it has been privately looking at a development of the A330 since early 2004, with the new powerplants being produced for the 787 giving it the chance to field a sister aircraft to the A330 operating in new long-range markets. In addition to announcing it had the authority to offer the A350 to customers, Airbus also revealed that Spanish carrier Air Europa had signed a memorandum of understanding to buy 10 of the new type plus two options.

Airbus hopes to fully launch the A350 at Paris with some 50 orders in the bag. First deliveries are slated for 2010, putting it two years behind the 787. The A350 is unlikely to quite match the all-new 787 in performance terms, but with its commonality with the existing A330/340 family, and the ability of Airbus to price aggressively, the European manufacturer will offer a competitive product.

The A350 pairing, one with 245 and one with 285 seats, will offer almost exactly the same interior configurations as the A330 family. But with new engines and a new largely composite wing helping the aircraft achieve an 8t weight reduction compared to the A330, there will be significant technical improvements, says Airbus. The manufacturer

concedes it is relatively early in the life of the A330 for such a major upgrade, but Stuart describes the move as an "evolution of the aircraft rather than a replacement".

But will the A350 be so superior to the A330 that it effectively replaces it? Airbus hopes not. It believes the two aircraft will complement each other and that the extra performance of the A350 does not automatically mean it will make the A330 or even the A340-300 and A340-500 obsolete. One of the big benefits of the A330 is that it has delivery slots available beyond 2006, says Stuart. The A330 will continue to sell in its own right for the next 10-15 years, he believes.

But the emerging new models mean a transformation in the character of the middle market of 250-400 seats with the 787, 777 and A350 beginning to dominate. "There will be changes in the overall dynamics of this market category," says Stuart. Boeing believes the shift includes nailing the Airbus claim that four engines are better for long-haul operations. "The launch of the A350 was a terrific day for us because it validated our view that twin-engine aircraft are the most efficient way to fly long range, something we've been saying all along with the 777," says Baseler. "They took their product strategy of 20 years and threw it out of the window."

Whatever the rights or wrongs of the Airbus strategy, the A350 presents Boeing with a direct 787 challenger. With the 787 winning significant orders and support, its promise of long range and a 15% improvement in operating costs over the 767 at the same price has been compelling. Airbus had little option but to enter a game-changing

environment or else risk losing the middle ground to a resurgent Boeing.

Although the 787 is a direct replacement for the 767, the first customers will seek to take immediate advantage of the aircraft's extra 2,500nm range capability, says 787 programme general manager Mike Bair. "It's the perfect aircraft to fly point-to-point," says Franco Pecci, chairman of 787 launch customer Blue Panorama. The Italian carrier will fly the aircraft on routes to the Caribbean, the Far East and destinations in the USA such as Los Angeles. "We'll be able to fly 17-hour routes with 299 passengers and a 15t cargo load," he says.

ANA is thinking of putting its 787s on the Tokyo-New York route, which is too far for a 767. "The first 787s to enter service with ANA will be the -8, which can be used on domestic and international routes, including as far as the USA. This could open up new opportunities," says Ohashi. Other routes that become possible with the 787 are London Gatwick to Honolulu, which UK charter carrier First Choice Airways wants to fly, while Air New Zealand will be able to operate non-stop from Auckland to the USA. At present it has to operate these sectors with a 747 as the 767 does not have the range.

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Panorama

Long-range 787

In the 787 Boeing appears to have as close to a "game changer" as it could achieve. "It is ahead in terms of sales of any Boeing widebody programme so far," says Bair. "This is a testament to what the aircraft is able to do." He claims the launch of the A350 has had little effect, other than causing a number of potential customers to pause and look. "Since 10 December [when the A350 was announced], Boeing has signed up 11 customers for 111 aircraft, which is a terrific validation of the momentum for our aircraft," adds Baseler. None of the carriers that had selected the 787 changed their mind after looking at the A350, he says.

To date, Boeing has 193 commitments for the aircraft with 64 firm orders. The commitments include a relatively small deposit that enables carriers to secure delivery positions prior to full contract negotiation. The company has over 250 of these deposits over and above the firm orders, says Bair.

Boeing's sales total to date has been built almost entirely without orders from its strongest client base: US carriers. Only Continental Airlines has committed to the 787, and its firm order is contingent on it winning labour con-

Boeing – large intra-regional and inter-continental aircraft size and range comparison

Type	767 -200ER	767 -300ER	767 -400ER	787 -3	787 -8	787 -9	777 -200ER	777 -200	777 -200LR	777 -300ER	777 -300	747 -400	747 Advanced
Capacity	181	218	245	296	223	259	301	305	301	365	368	416	450
Design range (km)	12,223	11,306	10,454	6,500	15,700	15,400	14,316	9,649	17,446	14,594	11,029	13,450	14,816
Service entry	1984	1988	2000	2010	2008	2012†	1997	1995	2006	2004	1998	1989	2009

NOTES: *Programme not launched. All figures are for typical operations taken from *Flight International World Airliner Census* and manufacturer data. 1 nm=1.85km. Capacity for 787-3 is two-class configuration, all others three-class. †=Date depends on launch orders. In the 747 family, Boeing offers an extended range version, the 747-400ER, with a three-class seating capacity of 416 and a range of 14,205 km that entered service in 2002.

Airbus – large intra-regional and inter-continental aircraft size and range comparison

Type	A321-200	A310-300	A300-600	A350-800*	A350-900*	A330-200	A330-300	A340-200	A340-300	A340-500	A340-600	A380-800
Capacity	185	220	266	245	285	253	295	239	293	313	380	555
Design range (km)	5,600	9,600	7,700	15,900	13,900	12,500	10,500	14,800	13,700	16,700	14,600	15,000
Service entry	1994	1985	1984	2010†	2010†	1998	1993	1993	1993	2003	2002	2006

NOTES: *Programme not launched. All figures are for typical operations taken from *Flight International World Airliner Census* and manufacturer data. 1nm=1.85km. Capacity for A321 is two-class configuration, all others three-class. †=Date depends on launch orders

cessions for cost cuts. Gaining such a healthy order book “is remarkable given the fact that a big chunk of the industry is hobbled”, says Bair.

In January Boeing won a major confidence vote in the aircraft from China, which announced a commitment for 60 787s, with the aircraft being taken by six of the country’s carriers from 2008. The Chinese order coincided with Boeing changing the name of the aircraft from the 7E7 to the 787, continuing its traditional numerical naming sequence. The

first deliveries of the 787 are in 2008. All of this year and the following year’s production is sold out, with around 80% of 2010 output also reserved, says Bair.

The first 787s off the line will be long-range -8 versions, with the short-range -3 arriving two years later in 2010. Boeing would prefer to wait a couple of years to around 2012 to begin delivering the stretched 787-9, says Bair, but could bring this forward if customers want it earlier. “We don’t want to start the stretch until we are well into the

testing programme of the -8, but we could come forward by a year or so.”

With a book price of \$120 million for both versions, the 787 costs the same as the 767-300ER. Pecci of Blue Panorama is impressed with the up front price and the operating economics of the aircraft. “The 787 will really help us in our costs. Whether it is a leased 767 or an owned 787 the cost to us will be the same.”

Like many carriers, Blue Panorama is seeking extra capacity as traffic and business opportunities arise. After some

quiet years, lessors are seeing strong demand for the 767-300 and A330 in particular, especially for lease terms of five to eight years. Carriers want so-called "bridge lift" for this relatively short period before introducing new models like the 787 or A350. One lessor notes that it could tie up 787 or A350 deals today if it could guarantee the appropriate bridge lift until the new aircraft were delivered.

Product planning

It looks like 2005 will be a critical year for both Airbus and Boeing and their respective long-term product strategies. For analysts like Orsingher at Frost, Airbus has to launch the A350 if it wants to prevent Boeing running away with the middle market. On the other hand, he believes Boeing should milk the 787 and only look to the 450-plus seater market a decade from now with an all-new aircraft with next generation technology to take on the A380.

Another view is that Boeing should concentrate on taking the technology it is developing for the 787, along with the latest engine advances, and produce a game changing 737NG successor.

Boeing's 777-200LR will enter revenue service in early 2006



As it ponders its options, Boeing is feeling good about its 787 and 777 range which looks a strong and modern twin-aisle proposition. Its latest and fifth version of the 777 is the ultra-long range -200LR, which took to the air in March and will enter service in January 2006. However, this niche aircraft only has five orders to date.

For its part, Airbus may be dominat-

ing the headlines with the A380 but is playing catch-up in the middle market. And, after so long as the player bringing out new models to rival existing types, Airbus is now into the replacement game that Boeing has been familiar with for so long. "Airbus has not had to replace a product yet and is learning how very difficult it is to make those decisions," says Boeing's Baseler. ■