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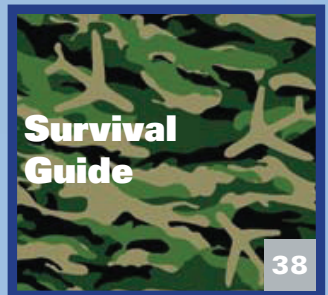
Taking your airline to new heights

A Clear Vision

A Conversation With ...
Sean Durfy, Chief Executive
Officer, WestJet Airlines,
Page 16.



Special Section



8 Japan Airlines takes steps to improve its environmental performance

21 Delta Air Lines/Northwest Airlines merger impacts regional carriers

44 Airlines have three basic options to raise capital

Fleet Shuffle

Aircraft manufacturers have been pleasantly bombarded during the last few years with record orders, but the two main aircraft makers, Airbus and Boeing, continue to struggle with seriously delayed delivery schedules, leaving carriers around the world to improvise until their new aircraft arrive. Additionally, sales for regional plane makers Bombardier and Embraer continue to climb. Especially popular are the larger airframes, with record orders for the stretched CRJ series and E-jets, but similar to the larger aircraft, it's uncertain when these orders will be fulfilled.

■ By Michael Clarke | *Ascend* Contributor



During the last five years, major aircraft manufacturers have enjoyed record orders from airlines across the globe. Granted, the distribution of these orders has been focused on the rapidly growing Indian domestic market and aggressively expanding Middle Eastern carriers. U.S. domestic network carriers, still recovering from the fallout of geopolitical situations and declining economic conditions, have been slow in ordering new aircraft to replace aging fleets of narrow-body aircraft and first-generation twin wide-body aircraft.

As of January, Boeing racked up a healthy backlog of more than 3,700 aircraft with an amazing 913 Boeing 787s ordered, while Airbus enjoys a backlog of 3,715 aircraft, including 478 of its recently launched Airbus A350 extra-wide-body aircraft. The prevailing demand for efficient wide-body aircraft and the evolving route-map structure created demand for new fleet types with enhanced mission capability and operating range. When first introduced to the airline community, there was a level of excitement unparalleled in the industry for the Boeing 787 and competing Airbus A350 aircraft. Carriers saw the opportunity to fundamentally change the flow of international passenger traffic through bypassing congested gateways such as London Heathrow Airport and New York's John F. Kennedy International Airport and offering more direct scheduled services to/from secondary markets.

External factors such as the rapid increase in the price of jet fuel (especially during 2008), the passing of the U.S.-European open-skies agreements, the approval of anti-trust partnerships across the North Atlantic and the continued growth in global airline alliances only added to the frenzy of demand for new aircraft to serve newly conceived city-pair markets. There seemed to be no end in sight for the record orders of aircraft at the two leading aircraft manufacturers.

The introduction of the new wide bodies promised the utilization of the latest technological advances, especially around engine performance and airframe construction techniques. Boeing believed that the opportunity was ripe to develop and mass produce the world's first commercial passenger aircraft using advanced composite materials, which offered significant weight savings that would in turn lead to more efficient operating in terms of fuel consumption and environmental impact. Experiences with the increasing use of composite materials across the airframe, along with the decades-long use of such materials in military and business jet construction, provided the foundation for launching the next-generation of wide-body aircraft.

With these new technologies and construction techniques came the risk of uncertainty. Adding to this risk, a decision was made to outsource a larger portion of the airframe construction to key manufacturing partners across the globe, introducing an added level of complexity in the logistics and distribution arena.

Ultimately, numerous factors centered around the construction of the aircraft frame, which resulted in a significant delay in the Boeing 787 program. The 787 now has an anticipated delivery date three years later than originally planned. Adding to Boeing's woes was an unexpected and prolonged strike by its machinist union, which more or less shut down production late last year. Airbus has also had its own share of setbacks, with the introduction of the ultra-large A380 aircraft severely impacting the availability of engineering and design resources to work on the A350 program to compete against Boeing.

In both the B787 and A380 programs, aggressive product development and delivery timelines were negatively impacted by unexpected manufacturing challenges that resulted in multiple rounds of part redesigns and/or reworks. In many cases, partially constructed aircraft sat idle along the assembly lines until engineers could figure out an efficient and effective way to resolve the problems. Ultimately, the B787 and competing A350, along with the A380, will be great aircraft in their own right, but these delays have had tremendous impact on fleet planning departments around the world. Carriers have been forced to delay the launch of new routes, the retirement of aging and less-efficient aircraft types, and, in some cases, newly established carriers have been forced to entirely postpone their launch date.

By far, northern Asia airlines have been impacted the most by the B787 delays. Launch customers ANA and JAL in Japan anticipated taking deliveries of their first batch of aircraft during the first half of 2008. Some Chinese carriers expected to receive the new aircraft in time for the summer Olympics in Beijing. While the disappointment from the missed opportunity to showcase the new advanced aircraft as part of

the Olympic celebrations subsides, the carriers remain eager to receive their aircraft. As a stop-gap to these aircraft delays, ANA and JAL have been forced to place supplemental orders for the venerable B767-300 aircraft as well as postpone the retirement of existing B767s in its operating fleet. In addition, Airbus has benefitted from an increased demand for its A330 series until the competing A350s come online.

This situation has created a strong demand for these equipment types, which has resulted in higher leasing costs and residual values, delayed cargo conversion programs, and revised flight schedules. At the same time, many Asian carriers have elected to replace their aging B747-400s with twin-engine aircraft, especially the similar-capacity B777-300s. On most routes from Japan to North America, the B777-300 is becoming the aircraft of choice, replacing not only B747s but also MD-11s, which are being converted to freighter operations.

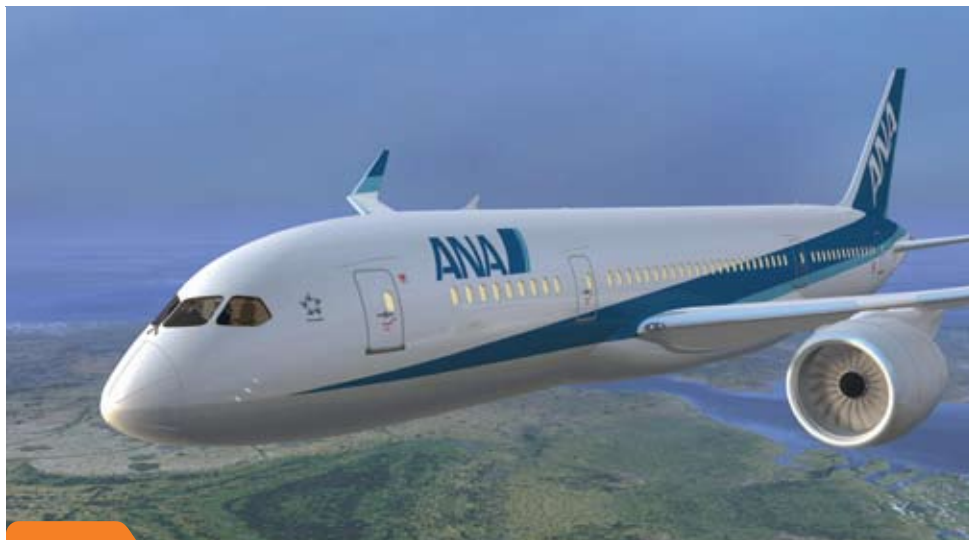
On the regional front, Embraer and Bombardier have seen the continued interest in their product lines, especially in larger airframes, with record orders for the E-jets and stretched CRJ Series. In addition, there has been a healthy resurgence in the demand for advanced turboprop aircraft with some major network carriers reintroducing turboprop operations in their scheduled service. As a fallout to the run up in fuel prices, there has been a noticed reduction in smaller jet aircraft operations, with many network carriers opting to park their 50-seat regional jets. In return, they are upgrading to larger regional jets (ranging from 70 to 100 seats), downgrading to turboprop operations or exiting the given market altogether.

A recent study by *USA Today* found that some major airports experienced more than a 30 percent reduction in operations year over year. Nonetheless, regional aircraft manufacturers also



Photo courtesy of Airbus

Qatar, along with other prominent Middle East carriers, has slowed its growth plans as it awaits the arrival of wide-body aircraft such as the Airbus A350.



Carriers in northern Asia, such as ANA, have been significantly impacted by the Boeing 787 delays, which have had an immense effect on the carriers' fleet planning departments.

Photo courtesy of Boeing

ultimately grow its operating fleet from the current 77 aircraft to 120 aircraft.

Southwest Airlines has reduced its growth plans for the year and has been actively reviewing its current system network to determine which routes and flights to trim and how to reallocate the impacted aircraft capacity to support attractive growth opportunities in recently established markets such as Denver, Colorado, and Minneapolis-St. Paul, Minnesota.

JetBlue has slowed the delivery on new aircraft and has opted to sell some older A320s as it continues to accept Embraer E-190s to support its continuing growth strategy. AirTran Airways has deferred the delivery of 36 B737s and has recently sold five B737 aircraft (three used and two new) to end 2008 with an operating fleet of 136 aircraft. In addition, it plans to further reduce its fleet by 3 percent to 7 percent this year.

In the international arena, the rapid growth for India-based carriers, both domestically and internationally, has fundamentally changed the face of commercial passenger service in the subcontinent. In tandem with the record-breaking growth has come the anticipated consolidation of major players as India experiences market deregulation in an accelerated mode. The two leading government-owned carriers have been merged into Air India, and the two leading private carriers (Jet Airways and Kingfisher Airlines) have elected to acquire Air Sahara and Air Deccan, respectively, to create low-cost subsidiaries to effectively compete in the ever-changing landscape.

In spite of all this consolidation, there is excess capacity in the domestic market as a result of the rapid downturn in global economic conditions and its impact on passengers' willingness to travel.

Similar to U.S. carriers, India's carriers have opted to redeploy their next-generation narrow- and wide-body aircraft on regional and international routes. Today, a large portion of the outstanding narrow-body backlog orders are from Indian carriers, so only time will tell what happens to these aircraft. The only silver lining is that many U.S. domestic carriers that are in need of new aircraft have not placed the necessary orders due to the lack of collateral and resources to secure them. In addition, it's become somewhat of a wait-and-see situation as many U.S. major network carriers are strongly encouraging aircraft manufacturers to develop the subsequent generation of advanced narrow-body aircraft beyond the Boeing 737NG and A320.

In the Middle East, fast-growing carriers Emirates, Etihad and Qatar have been forced to slow their growth plans because, collectively, they hold a large percentage of the outstanding orders for current and next-generation wide-body aircraft.

Emirates has opted to continue its expansion plans for the Americas, but instead of daily service, it provides service to Los Angeles and San Francisco, California, three times a week. As it receives new aircraft on order, its ultimate goal

enjoy a record level of aircraft backlog, but as with the mainline carriers, only time will tell what percentage of these orders finally materialize.

Within the U.S. domestic market, there has been a significant reduction in flight schedules, not only in the amount of regional flying but also scheduled flights flown by older narrow-body aircraft such as the B737-300s and MD-80s. During the second quarter last year, major network airlines facing a marked reduction in passenger demand and escalating fuel prices made drastic reductions in the number of scheduled flights in the timetable. In conjunction with the flight reductions, carriers decided to accelerate the retirement of aging narrow-body fleet without making any new substantial aircraft orders. In effect, the equivalent of one major network carrier's fleet (in terms of the number of aircraft) was voluntarily removed from the U.S. domestic system during the fourth quarter of 2008.

Some of the larger narrow-body aircraft, especially B757-200s, were not parked but redeployed for international operations, particularly across the North Atlantic. Delta Air Lines opted to add winglets to the majority of its B757s, and it introduced many new year-round and seasonal routes from JFK International Airport to secondary markets in Europe and Western Africa. In addition, the carrier has increased substantially the number of routes served from its home base in Atlanta, Georgia, to Central and South America using its next-generation narrow-body aircraft.

In the midst of all these changes, the recently completed merger of Delta Air Lines and Northwest Airlines has allowed the residual Delta Air Lines to completely rethink its fleet planning and allocation of equipment types. Although the integration of the separate airline operations and culture will take time to complete, this has not stopped Delta Air Lines from making some imme-

diated fleet changes. Aircraft such as the B747-400s and A330-300s operated by Northwest Airlines crewmembers are now being deployed on Delta Air Lines' scheduled flights, and B767-300s and B767-400s being operated by Delta Air Lines crews are flying scheduled Northwest Airlines flights. Before the merger with Northwest Airlines, Delta Air Lines was in the process of a fleet reconciliation with the retirement of aging fleets and the increased use of regional aircraft in its network.

Now, Delta Air Lines is both blessed and cursed with a very diverse fleet that allows it to allocate the ideal aircraft type for a given route — so much so that the carrier is now reconsidering its inherited B787 launch order, originally placed by Northwest Airlines to enhance its international operations (mainly from Detroit, Michigan, to cities in northern Asia and beyond). Nonetheless, one challenge Delta Air Lines faces today is the large number of hub airports it now has in its system network. Deciding which market should be served from which hub and using which aircraft type will definitely remain challenging for a period of time.

Even the venerable North American low-cost carriers — AirTran Airways, jetBlue, Southwest Airlines and WestJet — were not immune to the economic downturn. While most low-cost carriers did not significantly reduce their operating fleets, some did opt to sell older aircraft and replace them with new tails accepted from the manufacturers. In other cases, intended growth plans were impacted by the prolonged machinist strike at Boeing, which produces the B737 workhorse favorite of many value-based carriers. For example, WestJet has reduced its forecasted growth rate this year from 8 percent to 5 percent, a direct result of the aircraft delivery delays. In spite of this setback, it still intends to



Photo courtesy of Embraer

is to offer daily service in all markets and, in some cases, increase it to twice daily or even more, depending on market demand. Emirates offers service to most continents with extended-range operations with the B777-200LRs to São Paulo, Brazil, and Houston, Texas. As one of the launch customers for the A380, Emirates was finally able to deploy the aircraft type on high-frequency, high-volume routes to London Heathrow Airport and John F. Kennedy International Airport. As one of the world's most profitable airlines, Emirates plays a major role in the Europe to Australia market and has aggressive plans to increase frequency and service in this market as well as continue to serve as a major feeder of traffic into the Indian sub-continent. On the heels of Emirates are Etihad and Qatar Airlines, which share a similar large order of wide-body aircraft and the desire to rival the larger neighbor in fleet size and network structure.

The prolonged delay of the A380 program also had a substantial impact on Singapore Airlines, the global launch customer of the equipment type. In many cases, the carrier was forced to either temporarily increase frequency and/or maintain B747-400 operations on routes slated for the A380. Ultimately, Singapore Airlines plans to reduce the number of B747 in its fleet and supplement its operations with B777, A330 and A380 aircraft. Similarly to Emirates, Singapore has introduced the A380 on high-frequency, high-volume routes from its base airport to London Heathrow Airport, Tokyo Narita International Airport and Australia's Sydney Airport.

Qantas Airways has also introduced the A380 on its high-volume routes to Los Angeles from both Sydney and Melbourne, Australia, with the goal of offering daily service between the two city pairs. Interestingly, Singapore Airlines has opted to reintroduce A330s into its operating fleet, replacing some B777s on regional routes that were used almost a decade ago to replace the older A330s.



The economic downturn has also impacted low-cost carriers, such as jetBlue, which has opted to sell its older Airbus A320 aircraft while continuing to accept Embraer E-190s to support its growth plans.

Nonetheless, the airline is committed to the use of the B777 for international operations and has used them to replace older B747-400s.

Although the immediate future for the global airline industry remains uncertain, one thing remains valid — there will be a residual demand for new aircraft rolling off the production lines, and carriers that have taken the necessary steps during the economic downturn will be well positioned to reap the benefits of the newly acquired resources. There will be rationalization in the Indian and Middle East markets, and U.S. major network carriers will have to face the reality of obtaining new aircraft to improve their operational efficiency and reduce fuel costs.

Regardless of the future trends in fuel prices, airlines can actively control their fuel expenses either through fuel hedging and/or operating modern, more-efficient aircraft. In addition, these new aircraft will give carriers the flexibility to pursue new markets

that result from recent market liberation and open-skies agreements.

As the world economy recovers from its current recession, passenger and cargo traffic levels will recover, and airlines will see the need to increase their flight schedules to serve the increasing traffic demand. The continued growth of global airline alliances will influence future fleet planning decisions as alliances reconcile their marketing strategies and realign key markets. [f](#)

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+count it up

3.2

The percentage of estimated annual growth rate for aircraft in service between the years 2007 and 2027, according to Boeing.

2027

The year in which 82 percent of the industry's fleet will be aircraft that do not exist today, according to Boeing.

98

The percentage of accurate baggage handling of the 2.25 billion bags airlines handle each year. According to IATA, the 2 percent of mishandled bags leave 48 million passengers disappointed each year.