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Trends and Market Analysis of Aircraft Values

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Lease Rates Bottom Out

But Long Hike to Recovery Expected

Lease rentals – at least of more modern jets – are considered to have reached the trough of the current cycle and are beginning the long haul to recovery after experiencing a significant fall from the peak of late 2007.

In the two and a half years since the peak of the third quarter of 2007, lease rentals have fallen by more than 20 percent for those aircraft in production and to an even greater degree for the many older examples that are exposed to the baking heat of the desert. In late 2007 the lease rental of a five year old B737-800 amounted to approximately $350,000 per month. Today the lease rental is likely to approximate $240,000 per month. A ten year old A320 in 2007 was likely to secure a lease rental of $285,000 but today this is fortunate to top $200,000 per month. A 2001 vintage A330-200 in 2007 was able to command a lease rental in excess of $700,000 per month but today the rental is less than $525,000 though representing a 20 percent fall compared to the 25 percent of the newer narrowbodies. The B747-400 has not been so successful in resisting the volatility of the market. A 1995 B747-400 may have been able to secure a rental of $645,000 in late 2007 but today the rate is around $400,000 per month and likely to fall further in the context of more disposals of the type from primary operators such as JAL.

The fall in rentals is partly due to the fall in interest rates. With LIBOR having fallen in recent months as the financial sector has shown signs of growth, rises in lease rates have been constrained, obscuring perhaps the first signs of comparative recovery. The lessors have generally managed to retain their 15-20 percent margins during the worst recession the industry has known for 30 years. In contrast to previous downturns, the lessors have been faced with lesser calls for renegotiation of existing leases and instead have preferred to take aircraft back and lease to other carriers. This is because the market structure has experienced a significant change such that the stranglehold of the major carriers has been broken. There now exist a myriad of operators around the world for whom leasing is the only means of acquiring aircraft. Lessors are no longer dependent on a few operators. Lessees are less able to renegotiate existing agreements because lessors are able to lease elsewhere, even if subsequent rentals to other lessees have had to become more realistic.

The interest expense at Babcock & Brown Air in the last three months of 2009 amounted to $20 million compared with $22.5 million for the same period in 2008. The company had a fleet of 62 aircraft at the end of 2009, the same as at the end of 2008. Operating lease revenues for the last quarter of 2009 was only slightly down from that of the final quarter of 2008. For 2009 as a whole, operating lease revenues amounted to $214 million compared with $219 million for the previous year. The company reported that rents still owed at year-end 2009 were less than two percent of total annual rentals, an improvement over the previous year, indicating fewer defaults and late payments.

ILFC was able to show net income of $900 million for 2009 based on revenues of $5.3 billion, again demonstrating a near 20 percent margin. Aircastle reported net income of $102.5 million for 2009 on revenues of $571 million, only slightly down from the $115 million income in 2008 on revenues of $583 million. BOC Aviation saw profits increase to $137 million for 2009 from the $107 million of the previous year, albeit with a much expanded fleet. Aerocentury, a lessor of turboprops, was able to report net income of $5.6 million on revenues of $$34 million for 2009 while Willis Lease Finance, the leader in engine leasing, reported net income of $19 million on revenues of $150 million. The margins being experienced by the leasing community have been largely maintained even as net rental levels have fallen by more than 20 percent.

A problem for the lessors is that the maintenance of operating revenues has been at the expense of leases agreed before the recession. As these leases expire in the near term, there will be little opportunity to place aircraft at the same levels with either existing or new lessees, undermining revenues. If all aircraft currently possessed by the lessors were re-leased at current market rates, the lessors would inevitably report losses rather than profits. Fortunately, most lessors are likely to see a limited number of lease expirations during the next eighteen months when lease rentals will be recovering. Nonetheless, the proportion of premium grade leases will be eroded during the course of the next year.

With LIBOR perhaps only likely to increase as interest rates rise once again, there will be a positive impact on lease rentals though this will increase the expense for the lessors. The overall recovery of the industry, still very much fragile, is evident. Latest traffic figures show an important upward trend. The focus may be on newer aircraft but at present there exists sufficient capacity to meet demand. Operators prefer to increase load factors and focus on yields rather than seek rapid expansion. The still near record production rates from the manufacturers, set to rise still further by year-end, will meet demand and constrain the recovery in lease rentals, at least in the short term. The lease rentals of older aircraft are only likely to experience a sizeable recovery due to shorter terms to the less financially secure operators. The improvement in rentals, commencing in the second quarter of this year, will take time to feed through to values. Indeed, values of aircraft are still expected to continue to fall until at least the end of this year.

Lease rentals are expected to reach their next peak in 2012-2013. However, in the event both Airbus and Boeing launch re-engined narrowbodies, lessors are likely to refrain from ordering additional capacity such that a shortage of newer equipment may emerge enabling lease rentals of existing types to enjoy an extended recovery through to 2014. With the bottom of the leasing cycle having been acknowledged – and all but passed – there is now an expectation that rentals will start to experience an improvement, albeit labored. ✈

Production Rate Increases Likely to Impact Value Recovery

Despite concerns that a higher delivery rate will delay the recovery of values and lease rentals, both Airbus and Boeing have announced an intention to increase production of narrowbodies.

The rise in production is at odds with a lack luster orderbook for 2010 from both manufacturers but both cite demand based on the existing backlog. Airbus will increase production from 34 to 36 A320 family members per month by year-end while Boeing will announce a decision in the coming months. Current B737NG production amounts to 31.5 units per month. The increases are in response to an expectation of renewed demand. Boeing has announced that slots are sold out in 2010 and 2011. Both manufacturers however, have needed to switch customers to maintain production.

The increase in production is at odds with a call from the wider community for a reduction in production to enable an imbalance to emerge that much more quickly, thereby driving up lease rentals and values. However, the manufacturers need to generate revenue to cover the expense of new programs. Both the A380 and B787 have experienced significant cost overruns and the delay to the service entry of the B787 is costing Boeing tens of millions of dollars. Airbus is starting to expend scarce resources on the A350. Re-engining will only complicate matters for the manufacturers – increasing R&D while potentially impacting sales.

The need to increase production rates is perhaps also a reflection of a changing market structure. Imposing historical trends onto the current and future market fails to reflect market realities. The major carriers around the

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world no longer dominate or dictate the market. The size of the legacy carriers fleets has contracted at the same time as the number of aircraft in service has expanded.

The industry has become much more fragmented such that there are many more operators. The difficulties being suffered by a few carriers no longer have the ability to upset the wider market – the situation of JAL, Alitalia and Olympic for example have served to highlight the fragility of the airline industry but not undermine the recovery. The influence of China has also become much more notable and both manufacturers are anxious to place their products in this market. The market has become sufficiently global as alter supply/demand dynamics.

With operators having pared their cost structures to the minimum, the operating cost of aircraft has become of ever greater importance, particularly as jet fuel is above $2 a gallon. This has led to sustained demand for new aircraft, at the expense of the old. Operators are conscious of the need to address environmental considerations both in terms of operational cost and passenger perception and this again is making newer aircraft more favored. The manufacturers are also likely to be offering attractive deals for customers willing to accept earlier deliveries, particularly as financing has become less of an issue. The move to newer equipment is therefore likely to remain and the manufacturers are unlikely to take note of calls for production cuts. ✈

Two Categories of Aircraft See Divergent Value Behavoir

Values of aircraft in production and those out of production are experiencing different fortunes such that any recovery of the latter category will be much more muted.

While the behavior of out of production aircraft has traditionally differed from those in production, the values of those aircraft out of production have experienced a much more significant fall in this recession, suggesting that recovery will be difficult to contemplate. This contrasts with those aircraft in production – notwithstanding the early build A320s – who have also seen a fall but are expected to stage a recovery as from 2011. The recovery from the downturn of 2001 saw out of production aircraft, such as the B737 Classic and B757, experience a marked improvement. The market has now moved on such that the older aircraft are viewed with lesser enthusiasm, which will be even more marked when CFM introduces an upgrade to their CFM56 engine next year which will offer a further improvement in fuel efficiency.

While the differential in capital cost between those in production and those out of production will continue to increase, the age profile and operating cost of the latter will make such aircraft that less attractive. The emergence of new operators and a change in business models for existing carriers, which now necessitates the use of reliable and low maintenance aircraft, will make the use of older aircraft less palatable even should a shortage of capacity emerge. Aircraft values therefore will increasingly be divided into two categories, featuring different trends. ✈

Turboprop Lease Rates

Turboprop Rentals Continue to Exhibit Stability

While jet lease rentals have experienced considerable falls those of turboprops have also suffered but have stabilized at least four months sooner.

The turboprop market, in terms of new orders at least, may not be exhibiting the strength of previous years but their relative fuel efficiency compared to both 50 and 70 seat regional jets has continued to ensure enthusiasm. Lease rentals, having previously fallen, reached the bottom late in the third quarter of 2009.

In contrast to 2007, when quality used aircraft were in such short supply that some operators considered welding together airframes previously parted out for scrap, the used market is amply supplied with a number of examples. The reduction in LIBOR makes for lower lease rentals.

Rentals are expressed in thousands of US dollars and are for indicative purposes only. Long lease terms, less credit worthy lessee, return conditions, will vary rentals considerably.

Aircraft Rentals courtesy of The Aircraft Value Analysis Company www.aircraftvalues.net. www.aircraftvalues.com ✈

European Specification Turboprop Lease Rates (Dry) US$ '000s pm – March 2010

Aircraft	Age	Rental	Trend Analysis
ATR42-300	1985-90 1990-95	35-50 40-60	The -300 remains very much a viable variant of the ATR42 range but age is making it less attractive such that operators have a choice of aircraft which will have a bearing on lease rentals. With such an age profile, lease terms will likely be shorter, exposing the type to greater availability. Lease rentals will likely show some variation due to the financial standing of lessees.

ATR42-500	1995-01 2002-10	60-90 85-145	The -500 has been a mainstay of the ATR product line for many years. Not too long ago, the used leasing market was very limited with ATR themselves being a major and decisive player. With the type now more on general release, there are other players in the market. The stability of lease rentals is providing lessors with some measure of confidence. The arrival of the -600 now provides an important indication of the age profile of the type. The -600 represents an incremental improvement rather than a radical improvement. There are a number of -500s on the market which is not necessarily to the benefit of lessors.
ATR72-200	1989-96	45-85	The -200, being the original version of the ATR72, is clearly showing its age with the oldest being more than 20 years of age. This does not endear the type to freighter conversion making for a weaker leasing market than might be hoped.
ATR72-500	1998-02 2003-10	70-95 95-165	The flight testing of the -600 provides for incremental improvement rather than a significant replacement. Lease rentals of the -500 have therefore managed to remain stable despite the emergence of the -600. The larger turboprops remain very much in demand because of their fuel efficiency. Passengers are also aware that turboprops can represent more cost effective fares and are therefore less adverse to their use. The development of an all new turboprop still seems some way off.
Beech C99	1981-86	10-15	The type is no match for those produced much later and which have only marginally higher capital costs. Maintaining the aircraft perhaps requires a basic toolkit than modern aircraft.
Beech 1900C	1983-87	15-25	The 19 seaters are not among the most desirable of aircraft though there are a number of routes which cannot support larger aircraft. Rates are relatively constant given the age and nature of the type.
Beech 1900C1	1987-92	10-30	Again the cost of leasing the 1900C1 is such that other costs are of far greater importance.
Beech 1900D	1991-01	20-40	A good aircraft that represents the pinnacle of 19 seaters offering passengers at least a modicum of comfort – ie seats. The problem for 19 seaters is that the difference between profit and loss can be dependent on a single passenger for each flight.
DHC6-300	1969-75 1976-88	<10-25 15-40	A great aircraft that is continuing to shrug off the effects of a new example. There are many commercial and leisure routes that continue to rely on the types ruggedness and versatility.
DHC7	1977-82 1983-88	<20-30 20-30	Finding lessees for the type must be a less appealing task than being in tele-sales. Specialist operators remain a source of demand but these are few and far between which unfortunately cannot be said of the number of engines on this aircraft.
Dash8-100 Dash8-100B Dash8-100Q	1984-91 1992-96 1997-01	20-40 25-35 30-45	The smaller capacity of the -100s remains very much viable even in todays market. The design of the Dash8 has a proven track record and even after all these years is perceived to be a relatively modern design. The Q series is clearly favored. Lease rentals are not considered to have moved. The -100 offers PW120A engines, while the -100B is powered by PW121 engines. The Q also has PW121 engines but a restyled interior and a vibration suppression system.
Dash8-200A Dash8-200Q	1992-96 1997-02	30-40 30-45	The -200 sees increased performance through PW123C engines making it more attractive than the -100.
Dash8-300 Dash8-300Q	1988-96 1997-08	35-50 50-105	Being a 50 seater offers lessors greater opportunity for placement. Unlike remarketing the DHC7, lessors of the Dash8-300 will at least be able to avoid having the door closed. The fall in traffic ensures that not all operators are seeking larger aircraft. The efficiency of the type and relatively modest operating costs make for a good combination.
Dash8-400	2000-10	85-165	The -400NG again represents a modest incremental improvement rather than a major shift in operating performance. Lease rentals of the -400, like those of the ATR72-500, are considered to have remained stable over the last quarter. The sustained rise in the price of fuel continues to make the turboprop a viable alternative to the myriad of regional jets.
BAe J32	1988-93	15-30	The 19 seater continues to be in demand from a variety of sectors, aided by the support of BAE Systems.
BAe J41	1992-97	20-40	The J41 may not have been the most desirable of aircraft when originally built but placement has been slightly easier in recent years. The type is considered to offer the type of space and economics that is attractive to operators. Rates have remained steady.
BAe ATP/J61	1988-93	30-50	The ATP has had modest interest as a freighter and this has left a limited number available for passenger use than might have otherwise have been the case. Rentals are remaining stable. Having fallen so far it is not expected that there will be a major change in rates anytime in the near future.
Do328	1992-01	20-30	While the Do228 may have seen a restarting of production the Do328 is likely to remain isolated. Rates have remained unchanged.
EMB110	1980-89	10-25	As with all 19 seaters the lack of production points to a static market in terms of rentals. The aircraft age profile is also a growing negative but the Banderainte remains a versatile aircraft, one that can be used in a number of theaters with little more than a spanner and screwdriver in the toolkit.
EMB120	1985-93 1994-99	15-30 20-35	The 30 seat segment has not disappeared despite all the naysayers of the 1990s. The EMB120 is a robust design offering versatile performance but there remains a steady flow on the market offering lessees a choice.

Metro III	1981-91	<10-25	The Metro III is available in a number of guises and as such the lessee is often in the driving seat. The focus is very much on the HGW version.
Metro 23	1992-99	20-30	The Metro 23 represents a versatile and productive machine, one which can make money for the operator while offering passengers more than a bench upon which to sit. Even the baggage can travel in a different compartment.
Fokker 50	1987-96	30-50	Fokker marketed the Fokker 50 as a strong aircraft capable of taking the knocks associated with operating to less developed airports. However, operators – particularly those buying new – will be more conscious of the associated operating costs.
Saab 340A	1984-89	20-35	Still a good aircraft despite the level of availability. The type has a role to play in the smaller turboprop sector but as with any aircraft advancing years, means constant availability and harder work. The efforts of Saab Aircraft Leasing are particularly noteworthy in ensuring aircraft are constantly leased.
Saab 340B	1989-96	30-45	
Saab 340B+	1995-99	35-45	
Saab 2000	1994-99	35-50	Not the commercial success that Saab had hoped for. The type has had to find alternative roles to remain viable.

Commentary reflects change from the last update to Turboprop Rentals of December 2009.

Stage 3 Market Analysis & Values

Values of Narrowbodies in Production Edge Down

With values of the narrowbodies in production having fallen by more than 20 percent since the start of the recession, there is at last some light at the end of the tunnel. However, this is not to say that the end has been experienced but rather that the rate of fall has steadied to more modest proportions with the bottom of the trough expected to occur during the third quarter of this year.

An Aircraft Rating has again been included reflecting the suitability of the type for asset based financing over the medium term. Values & Aircraft Rating courtesy of The Aircraft Value Analysis Company (AVAC) www.aircraftvalues.net; www.aircraftvalues.com. ✈

Chapter 3 Narrowbody Current Values US$m – March 2010

Aircraft	Rat.	Age	Val.	Trend Analysis
A318 (CFM)	C--	2003 2006	12.4 18.0	The focus of attention has been the corporate version rather than the passenger example. Values have inevitably fallen further as operators favor dedicated regional jets rather than a shortened version of an existing model. The Aircraft Rating for such a new aircraft remains a disappointment.
A319 IGW	B	1996 2001 2004 2007	14.5 20.0 24.0 27.5	A versatile aircraft that has proved the worth of many airlines. The values of the type may have suffered but not as much as for some other types. There must however be some concern for the future in terms of the intrusion of the CSeries.
A320-100	E-	1988 1991	2.2 2.4	The Aircraft Rating has fallen further signifying sustained disdain for the type. Values are at levels which makes for difficult remarketing particularly as there is a plentiful supply of -200s.
A320-200 73t	C-- C-	1988 1993	6.0 12.0	The –A1 engines make for difficult remarketing. A 1990 -200 is being advertised for $11 million while a new example has a very optimistic price tag of $46 million. Values overall have continued to fall such are the problems of the market. The introduction of further improvements to the engines and sharklet winglets in 2012 will further differentiate various A320s. New A320s were previously commanding values of more than $43 million but no longer. The Enhanced versions features improved aerodynamics, a new interior and /3 engines.
	B-- B-	1998 2004 2007 2009	19.5 28.5 33.0 36.0	
A321-100 LGW	D+	1996 2001	11.0 18.0	The Rating for the -100 has once again fallen signifying a sustained disinterest in the type.
A321-200 LGW	B--	1996 2001 2004 2007 2009	17.5 25.0 30.5 36.0 39.0	The aircraft continues to be versatile but values have experienced a decline as operators consider the wisdom of operating larger equipment at a time of depressed yields. There is an expectation that values will continue to fall through to next year before enjoying a temporary revival in 2012. The type remains attractive, particularly those featuring higher weights and the /3 engines.
B717	D-	1999 2003	6.5 8.5	Another fall of more than five percent over a period of just six months does not bode well for the type. The aircraft is facing new pressures as the larger regional jets become more popular.
B737-600 LGW	D+	1998 2003	9.0 15.5	The values of the -600 keep on falling such is the lack of appetite – perceived or otherwise – for the type. The most that can be hoped for is a period of stability at the end of 2011 but even this may elude the aircraft.
B737-700 LGW	B-	1997 2004 2007 2009	16.5 24.5 28.5 30.0	It would be so good to think that values of the -700 has stopped falling but the fragility of the market makes for prudence. Even when the market is in equilibrium it would be expected that values would fall by more than five percent per annum. This suggests that nearly half the decline of 25 percent since 2007 can be attributed to normal depreciation.

B737-800 LGW	B+	1998 2004 2007 2009	21.5 32.0 36.0 40.0	Orders for the -800 continue to be placed while those for the -700 have slowed somewhat. The backlog of orders clearly favors the larger version but even this appetite has not prevented values from experiencing a further material fall. The market may be recovering and lease rentals may have reached the bottom of their cycle but values still have some opportunity for deterioration. The more recent versions feature the Tech Insertion engine denoted by the suffix /3 which makes a minor difference to values.
B737-900	D+	2000 2003	19.0 23.0	The values of the -900 have not stopped falling and are now well below those attributed to the -800.
B737-900ER	B-	2006 2009	37.0 43.0	The -900ER represents a great aircraft even if the orderbook is slightly lighter than might have been expected a few years ago. Like the A321-200, the size of the -900ER is a negative in such trying market conditions.
B737-300 EFIS HGW	D	1985 1993 1997	3.0 5.5 6.5	The number of -300s parked is becoming more notable as the months pass and values are at levels that make parting out all the more likely. The type is suffering from accelerated retirement from a number of fleets, prompted in part by still record production levels.
B737-400 EFIS HGW	D-	1988 1996	4.0 7.0	A reasonable stable mate of the -300 but the time has long since passed when the baton has been passed to more appropriate types. Values have fallen by a sizeable amount even over the last six months and further declines must be expected.
B737-500 EFIS HGW	D	1990 1996	3.5 6.0	A versatile aircraft when it was only competing against either ageing types or other shortened versions of larger models. With more dedicated regional jets able to offer better economics, values have experienced a significant decline from which recovery is not expected.
MD81	E-	1981 1989	0.5 1.0	Little can be said for the MD81 as it has failed to even benefit from the Ripple Effect. Values are now below the $1 million mark.
MD82	E-	1983 1995	0.5 1.8	With the return of some 25 MD82s to lessors by Alitalia and the permanent retirement of examples by American, there is little to commend the type.
MD83	E+	1985 1993	1.3 2.2	The MD83 used to be the one bright spot for the beleaguered MD80 series but the market has even turned against this type. Placement is again possible but at what cost?
MD88	E	1987 1995	1.5 3.0	Even with more modern avionics values of the MD88 have continued to falter.
MD90	E++	1996	4.0	Previous stalwart operators of the type are now moving to other alternatives underlying the fragility in values.

The commentary highlights the change in fortunes from the previous update of November 2010. Values are for indicative purposes and should be used for guidance only.

Aircraft Value Review—A321

A321-200 Values Suffer

While orders for the A321 continue to trickle in, operators are increasingly seeking to maximize yields on smaller equipment.

A321 Vital Statistics

LAUNCH	11/1989	STANDARD MTOW	183,000lbs	LIST PRICE (2010)	$95.5m
FIRST FLIGHT	03/1993	OPTIONAL MTOW	206,100lbs	TYPICAL DISCOUNT	50%
SERVICE ENTRY	03/1994	FUEL CAPACITY	6,260usg	VALUE Y1996 – 89t	$18.5m
ORDERS	778 (02/2010)	FUEL - OPTIONAL	7,790usg	VALUE Y2001 – 89t	$26.0m
DELIVERIES	582 (02/2010)	RANGE–185pax LGW	2,300nm	VALUE TREND	Declining
AVAILABILITY	6	RANGE- 185pax HGW	3,000nm	2012 F/V – Y1996 LGW	$14.0m
OPERATORS	75	CARGO	1,838cf	2012 F/V – Y2001 LGW	$23.0m
ENGINE TYPES	V2500 CFM56-5	PAYLOAD	55,600lbs	LEASE RATE – DoM 2000 LGW	$240,000m
VARIANTS	-100 -200	MZFW-STD	157,630lbs	RENTAL TREND	Stable
D CHECK COST	$1.5m	MLW-STD	162,000lbs	2012 LEASE RATE –DoM 2000	$250,000PM
ENG O/H COST	$0.8-2.9m	CABIN WIDTH (Internal)	146 inches	AIRCRAFT RATING	B--

After a sluggish start and an extended gestation period for a basic stretch, orders for the A321 continued to mount, perhaps at the expense of the B757. In the first ten years since launch in late 1989, the A321 managed to secure only 252 orders. Since the end of 1998, through to 2004, the total had risen to 415 representing a reduction during the period 2002 and 2004. Since 2004 orders have improved such that there are now 778 on order. The first two months failed to see a single order for the A321.

The backlog for the A321 now stands at 196. Recognizing the infiltration of the A321 into its own backyard, the U.S. domestic market, Boeing sought stimulate B737-900 orders by developing the -900ER which has been in service for some time. Orders for the -900ER are well ahead of those placed for the -900 and number 256, representing only a modest increase from that of two years ago. The -900ER provides for larger capacity while retaining commonality with the rest of the B737NG family. Commonality has proven a major advantage for Airbus in selling the A321. The MTOW of the optional -900ER now amounts to just over 85 tonnes with a range of 3,200nm, slightly further than the A321-200.

The A321–200 offered a higher gross weight, longer range capability and improved operating performance over the -100. Initially the A321-200 was offered with a MTOW of 89 tonnes but this was subsequently increased to 93 tonnes in 1999 offering even greater payload/range performance. Airbus has offered a further 500 kilo increase to the MTOW. The MTOW of the A321 therefore now stretches from 183,000lbs through to 206,100lbs. The higher MTOW has resulted in much better performance, allowing charter operators in particular to fly with full loads from hot/high airports. Higher MTOWs, and operation from hot and high airports, require greater power for longer periods thus increasing wear and tear on engines. Ranges of 2,650nm and 2,950nm require the use of additional fuel tanks, taking up increasingly valuable cargo space.

The A321 is powered by either the CFM56 or V2500. However, the /3 Tech Insertion and SelectOne program on the CFM56 and V2500 respectively have been introduced differentiating the new engine variant from predecessors. At present there is no discount applied to either engine. The A321 came of age only with the introduction of the –200 variant, launched by International Lease Finance Company (ILFC). The launch of a new variant or model was previously an unusual step for lessors but such has been the increase in leasing that the major lessors now have a vested interest in promoting and selecting the right equipment. ILFC has now placed orders for 80 A321s of which 80 have been delivered. The lessor has not as yet placed any orders for the -900ER.

The involvement of lessors in such a major way was initially a cause for concern for the manufacturers. For the wider marketplace however, the participation of the lessors allows the operator base to be broadened, probably far beyond the boundaries expected for direct sales. The experience of the A320 demonstrated the advantages of lessor participation. Aircraft are leased to carriers that may not be in a position to buy direct or which fail to meet the financial criteria laid down by Airbus. Lessees of existing equipment may be more able to swap existing older equipment for the A321 more easily with a lessor. A spreading operator base clearly benefits residual values. Though a large percentage of the increase in the order book can be attributed to lessors orders, such lessors usually only order in quantity if they feel that the aircraft can be relatively easily marketed to a variety of airlines over a number of years. Such potential ease in remarketing represents an intrinsic part of residual values.

While production of the B757 came to a close many years ago, the A321 was able to take full advantage of the absence of a direct competitor until such time as the B737-900ER was introduced. For many operators, the capacity remains has become more suited to the market that needs to focus on seat mile costs. Operators are however, reluctant to operate such a relatively large narrowbody on a system wide basis preferring 150-seat equipment. The low cost carriers have also opted for smaller capacity though this may change in the coming years.

The prospects for the A321 are considered to be good once the market experiences a recovery. The values of the A321 had improved prior to the peak of the market in late 2007 and before overall market conditions considerably eroded gains. Future value projections of the A321 experienced some uncertainty in the early years of service. The combination of the lack luster performance of the –100 and limited order book undermined long-term confidence. The values of earlier A321-100 are still performing badly compared to those of the –200 due to limited payload/range performance. ✈

Aircraft Asset Assessment

The A321-200

Market Presence. Based extensively on the A320, use of computers, fly-by-wire systems, side stick controllers, all ensure that the family will maintain parity with other products on the market for the short term. Although able to compete effectively against the B737-800/-900 and B757, enhancements to the basic A320 family design are likely, centered on improvements in engine technology and even a future stretch to the A320. The introduction of f the -900ER represented an important challenge to the A321 but in view of the modest changes required the length of time required to launch the new variant, Boeing may be concerned that demand is muted, particularly as the B737-

800 seems to match current market conditions. The 582 A321s delivered to date represent an impressive number for a variant, particularly when compared to the lesser numbers secured for the B737-500 and B737-400. Operators outside the U.S. are perhaps favoring the type as a means of reducing unit costs and coping with congestion issues.

Market Outlook. Once seemingly set to be marginalized, the A321 bounced back, possessing a sufficient number of orders to provide reasonable confidence in medium to long-term residuals. Residual values of the A321 are outperforming those of the B757 in both dollar and percentage terms. The family membership, performance of the –200 and proven economic capability are likely to generate further orders as the market rebounds. The threat from the –900ER is likely to increase but with the B757 no longer in production, Airbus can anticipate a further expansion of the already considerable customer base. ✈

B777-300ER Enhancements Will Create Differential in Values

Just as the values of early A320s are faring worse than those A320s being built today, then so too will values of early B777s falter as Boeing enhances the type.

The development of the A350 is well underway and Boeing is facing a tough choice. The B777 needs to be improved if it is to maintain parity with the new Airbus product. Enhancements will provide interim capability until such time as an all new B777 emerges. A new product development team for the B777, as well as for the B737, was formed earlier in the year. A new wing and new engines provide further alternatives. A number of changes to the B777 are already under consideration. The zero fuel weight is already being increased on the B777-300ER which will allow some 25 extra passengers to be carried on specific routes. As early as the end of this year, the thrust of the -300ER is due to be increased which allows hot and high airports to be better serviced, allowing for more passengers and cargo to be carried. The thrust upgrade will be offered as a retrofit. An extension to the existing wing will provide for further performance improvements and could enter service in 2012.

The demand for the B777-300ER remains strong but such strength will not be maintained as development of the A350-1000 progresses. The service entry of the A350-1000 may not be due until 2015 and based on current experience, service entry may be effected even later. Even with the considerable efficiency of the existing B777-300ER, Boeing will have to introduce changes to ensure that the type offers at least some competition although any decision will likely be determined by the pace of development at Airbus.

Values of the B777-200ER have been suffering as indeed has the orderbook while orders for the A330-300 have seen sustained demand. At present, the focus of any development of the B777 seems focused on the -300ER which suggests that the B787-10 is seen as an eventual successor to the B777-200ER. Even though the B777-300ER entered service earlier this decade, as the product is developed in the coming years, the residual values of those built earlier in the program will see the deterioration in values accelerated, opening a differential that goes beyond incremental cost of the upgrades. ■

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