There is a temporary overhang of A300 freighters. Less than a year's conversion capacity has yet to be marketed before the purchase of more aircraft for conversion will pick up. Once the limited number of remaining A300B4s have been bought, buyers will have to choose between the best A310s, A300-600s and 767s.

Cherry picking the A300 and A310

The success of the A300 and A310 freight conversion programmes in the past four years has been impressive. Up to 72 A300B4s have been committed to conversion by British Aerospace Aviation Services (BAe) and Daimler Benz Aerospace (DASA). Another 39 A310-200s have been bought and converted by FedEx.

This rapid rate of transition of a large number of A300s and A310s raises the issue of which good quality aircraft remain for freight operators that might be prospective buyers. The best and most accessible aircraft are acquired and converted first. Prospective operators that leave a fleet acquisition decision too late can find their fleet plans and choice of aircraft compromised. So what is left of the A300 and A310 fleet?

A300B2/4 & A310

The A300B4 is more desirable than the older B2. The B4 has sufficient payload-range performance for most airlines, while the B2 does not. The B4's residual values have been low enough to make the aircraft economically viable.

Most of the B2 fleet will remain unconverted. A lot have already been scrapped for parts and inventory is held by companies, such as The Ages Group, Aviation Sales, Aviation Systems International and Avatar Alliance.

The B4's success leaves a limited number of B4s as possible conversion candidates – and the number will get smaller. Most B4s already committed to conversion have been allocated to airline operators or committed to lessees. This will probably result in more A300B4 conversion commitments in the next few years, putting pressure on potential purchasers to finalise deals.

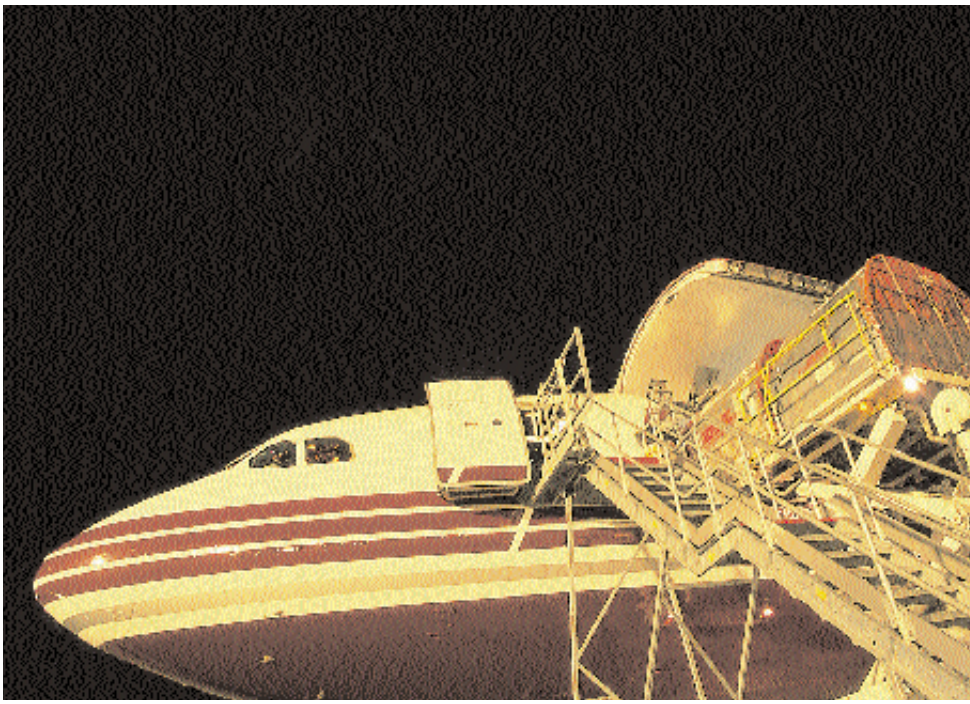
The A310 has a narrower appeal than the A300. The A310 has less payload and its residual values are higher than the A300B2/4, making it hard for most airlines to make economic sense out of converting A310s with higher residual values.

Because most freight operators find it hard to make an economic case for conversion for the A310-200, the limited secondary market puts pressure on residual values. The A310-200 has short range compared to the -300 series, but the -200's performance was enough for FedEx. The A310-200 became suitable for FedEx, but no other airlines have shown interest in the aircraft. This put FedEx in a buyer's position. The A310-200 is in a similar position to the A300B2, and it is doubtful whether more will be converted.

So far no A310-300s have been converted. The A310-300 has longer range and is younger than the -200 series. Residual values are still high and the aircraft is not yet economically viable as a conversion candidate.

Aircraft demand

There are several factors that will spur demand for freighter aircraft in the A310 and A300 size category. First, the number of DC-10s has diminished. All -10 series aircraft have been



The majority of A300B4s committed to freight conversion have been marketed. The number of aircraft unallocated to airlines is less than a year's demand. This will soon prompt the purchase of more aircraft, which will begin to exhaust the number of potential A300B4 conversion candidates.

A300, A310 & A300-600 FLEET SUMMARY

Aircraft type	Destroyed	Retired	Stored	Active pax	Inactive pax	Active freight	Inactive freight	Total
A300B2-100	1	15	2	8			1	30
A300B2K				13				13
A300B2-200	1	1	2	8				12
A300B4-100	2	13	10	17		4	7	53
A300B4-200	4	5	10	42	10	27	40	138
A310-200	1	1	6	37	1	39		85
A310-300	3		11	147	1	5		167
A300-600	2		1	34				37
A300-600R	3		2	158		30		193
Total	**20**	**35**	**44**	**464**	**12**	**105**	**48**	**728**

Source: BACK Information Services

earmarked for freight conversion and Northwest's -30/-40 fleet is one of the few left that has not begun to be sold into the secondary market.

The L-1011 has not been a success in the freight market. This leaves used A300s and A310s to compete in the conversion market against new 767Fs and the possibility of a 767 freighter conversion programme.

The current freighter fleet in the A300/767 size category is only about 100, but is forecast to grow to more than 600 units in 20 years. This leaves a net increase of 500 units.

During this time stalwarts in the DC-8-60/-70 and 707 fleets are bound to retire and A300s and 767s will partially fill the gap left by older narrowbodies.

The predicted growth in the fleet will stimulate demand for about 25–30 aircraft per year. Some will be provided as new to a small number of carriers, such as FedEx and United Parcel Service. The remainder will be supplied as converted aircraft.

The 72 A300B4s already converted or due for conversion will fill part of this 500–600 aircraft gap, but the remainder will have to come from other converted aircraft that will follow them. The remaining A300B4, A310-300 and A300-600 fleets will not be large enough to satisfy all future fleet requirements.

This indicates that unless potential operators act soon, they may find themselves facing a shortage of the right quality A300s and A310s as purchase and conversion candidates. This is bound to stimulate interest in a 767 freighter conversion programme.

The A300B4 fleet will be exhausted first. Once this has happened operators will be left to choose between the A310-300 and A300-600; and at some point the 767-200 and 767-300.

An analysis and breakdown of the A300 and A310 fleets will reveal what is left and what may be better purchases.

A300B4 fleet

There are now 38 A300B2s and 132 A300B4s either in service or in storage. So far 72 B4-100s and B4-200s have been converted or committed to conversion to freighter. This leaves 98 aircraft not yet converted.

The 72 committed for conversion are split between 32 converted by DASA and the rest by BAe. Fifty-nine of the 72 have already been committed to operators. This includes 14 for TNT, up to seven for Grupo Taca, 12 for European Air Transport, seven for DHL in the US and smaller fleets for ICC in Canada, MNG in Turkey, L'Aeropostale, Channel Express, Schreiner Airways and Heavylift.

This leaves 13 of the A300 committed for conversion unmarketed. This overhang may have pushed down lease rates from $250,000 a month to less than $200,000 a month. The number of aircraft, however, represents less than an average year's anticipated demand. "The 13 aircraft left to be marketed will go in about a year," says Bharat Bhise, president of C-S Aviation.

Acquisition costs of B4s have been at about the $8 million level. "The appraised market value of a converted aircraft is about $20 million," explains Bhise. "This leaves a build cost margin for us of about $1.5 million, which is low. Once the overhang of 13 aircraft goes, a shortage of converted aircraft will see market values rise and then we may start buying aircraft again. It will probably take about another 18 months to acquire the good aircraft that are left."

Pete Seidlitz, president of Bristol Associates, expects the demand for freighters to exceed supply some time in 2000. "The number of good B4s is finite. We now have a reasonable idea of what it costs to build an aircraft, and the maintenance costs were higher than expected. Aircraft always seem to need a D check, but there are areas where you have to be careful. This includes engines and records."

Only 11 of the 72 committed for conversion are B4-100s, which leaves 27 stored and passenger configured aircraft as potential conversion candidates. These aircraft are a mixture of Alitalia, Iberia, Air Alfa, Olympic and Premiair aircraft.

The Iberia and Premiair aircraft are JT9D-powered and so form a minority fleet. The CF6-powered B4-100 fleet comprises aircraft leased to Irish charter carrier Transaer coming off lease at the end of 1999, an aircraft leased to Thai International, aircraft owned by Onur Air, Air Alfa and lessors AR Aviation, Airfleet Credit Corp, Pegasus Aircraft and Eagle Aviation.

The B4-200 fleet is larger than the B4-100's. Stored aircraft include six CF6-powered models. There are also six JT9D-powered Garuda aircraft in storage, as well as another two currently undergoing D checks. Seven of these eight aircraft have just been sold.

The remaining active B4-200 fleet consists of fleets of three to 11 aircraft operated by Air Afrique, Air Anatolia, Air India, China Airlines, Indian Airlines, Japan Air System (JAS), Pakistan International, South African Airways, Transaer in Ireland and some small fleets of other carriers.

"Several aircraft are in poor condition and will be too expensive to build. This includes four Alitalia aircraft that are parked," says Andy Toutt, director, programmes and acquisitions at C-S Aviation. "The only real acquisition candidates are the Sempati and Philippine Airlines aircraft leased by Airbus. At the moment, however, they have too high a book value to buy. The JAS aircraft are not for sale because the airline needs more capacity, and the Indian aircraft are in the same position. The problem is that current owners do not want to sell and the aircraft still have high book values. Many of the other aircraft are run out on cycles."

After the A300B4?

The A300B4 fleet is now diminished and the conversion candidates are likely to be exhausted in three to four years.

The issue then will be what will

The A300-600R is still too young and expensive for freight conversion. The type has the advantage of operating in large uniform fleets that have not changed hands since being built. This will make them attractive acquisition prospects.

follow the A300B4 in the conversion market to satisfy demand for freighters. Although the market for freighter aircraft acquisitions is now subdued, a low level of growth will see a quick resurgence in demand.

The A310 and A300-600R are not the only alternatives. The 767 will start to become available at similar times, although it is likely to be kept longer by its original operators than the the A310-300s and A300-600Rs.

The aircraft to follow the A300B4, however, will be the type least in demand from the passenger airlines. This type will suffer the largest fall in residual values and will become economical for freight conversion. "The A300-600 is the most likely aircraft to follow the A300B4," claims Bhise. "The timing on the 767 when the A300B4s run out is too long, since demand for the 767 will stay high among passenger airlines. The A310 already has an STC and so the A300-600 will be able to get an STC relatively easily. The process of getting a STC for the 767 will have to start from scratch."

Seidlitz agrees with Bhise. "The A300-600 will reach the right residual value in two years. The first aircraft to go will be the short-range -600 models, since these are the least desirable aircraft and will hit the right price point first. The residual value is basically a function of the availability of the aircraft, which depends on the fleet plans of the passenger airlines. Freight conversions are at the end of the food chain."

A310 fleet

The A310 still has several advantages. It already has a freight conversion STC, has lower residual values and the same cross-section as the already-converted A300B4, and so will use the same containers. Airlines may also be not too concerned about requiring a technical stop on long-distance routes with the A310 or A300-600.

The A310-300 and A300-600R fleets alone could satisfy most of the balance of demand in their size category for the next 20 years that has not already been filled by converted A300B4s and orders for factory-built A300s and 767Fs.

The A310-200 is undesirable to most freight operators. Thirty nine have already been converted by FedEx and the airline is unlikely to buy more.

There are now only 43 stored and passenger-configured aircraft active. The few stored aircraft belong to Nigerian Airways, Airbus and Air Algerie.

Active passenger aircraft are the Air France, China Northwest, Cyprus Airways, Hapag Lloyd, MEA, Nigerian Airways, Royal Jordanian and THY fleets.

The A310-300 could be in demand once all the A300B4 fleet has been cherry picked for conversion. Many of the 147 aircraft in passenger configuration operate in large fleets and will present some attractive conversion candidates in later years when their residual values have reduced enough. This large fleet is comprised of aircraft operated by Aeroflot, Air Afrique, Air India, Air Jamaica, Air Niugini, Austrian Airlines, Emirates, the German Air Force, Hapag Lloyd, Kenya Airways, Kuwait Airways, Lufthansa, MEA, Pakistan International, Royal Jordanian, Singapore Airlines, Swissair, Air Portugal, Tarom, THY, Uzbekistan Airways and Yemenia.

A small number operated by Swissair and Oman Air are early aircraft powered by JT9D engines.

The remaining fleet is split between CF6 and PW4000 engines. Besides desirable primary operators and engines, most A310-300s are up to 13 years old.

The Swissair, Austrian and Emirates fleets are due for retirement soon, and they will all be replaced by A330-200s. No other A310-300 operators have placed orders to replace their fleets. THY has also placed one -200 and two -300s on the market.

The retirement of the Swissair, Austrian and Emirates fleets raises the issue of what will be a suitable secondary market. The charter market is not appropriate and so only second-tier carriers, start-ups and, primarily, freight conversion, are the only options.

Build costs of converting the oldest A310-300 to freighters can be up to about $20 million with the current market values. This is still too high for buyers to justify a purchase. Afall in market value of about $5 million might trigger some purchases. There are nevertheless up to 160 A310-300 conversion candidates.

Despite a few conversions by ABX, the 767 does not have a conventional freight conversion STC. Although the 767-200 has many advantages as a freight conversion candidate, it is not superior in every aspect to the A310-300. The supply of A310s, A300-600Rs and 767-200s will outstrip demand for aircraft conversions over the next 20 years and so other secondary markets will have to be found.

A300-600 fleet

The A300-600 will present itself as a desirable freight conversion candidate due to its larger capacity and stronger payload-range performance compared to the A300B4.

The A300-600's main problem is that there is a small sub-fleet: the -600 series. These are older aircraft and have shorter range than the -600R. Although DASA has offered conversions for the A300-600 it does not yet have a supplemental type certificate (STC) for a conversion programme. Two separate STCs would be required for the A300-600 and A300-600R.

The A300-600 fleet has one stored and 34 active passenger aircraft. These are mainly 13–16 year old Korean Air, Lufthansa, Saudia and Thai aircraft.

The -600R fleet is larger, younger and has the best payload-range performance of all A300 types as a converted freighter. The A300-600R fleet is made up of large fleets operated by major airlines.

There are two JAS aircraft in storage and 158 active aircraft. American has a fleet of 35, some it owns itself and some owned by Wilmington Trust. There are also 12 aircraft operated by China Airlines, 10 by China Eastern, five by China Northern, five by China Northwest, nine by Egyptair, six by Emirates, 16 by JAS, 23 by Korean Air and 15 by Thai International, as well as other smaller fleets operated by Kuwait Airways, Olympic, Monarch, Qatar and Lufthansa. Most A300-600Rs, except for a few of American's, are less than 11 years old. While they are quality fleets it will be some years before their owners are willing to accept the residual values offered to them by buyers for freight conversion.

Airlines looking for payload capacity in the A300's range will look to the A300B4 fleet first. With the A300B4's numbers already running low, however, it may only be about three years before there is demand for an A300-600 conversion programme.

The Emirates aircraft will be some of the first to become available, when they are replaced by A330-200s. There are few signs of others being available, but this may change as freight operators show more interest in their acquisition.

Another fleet that may become available in a few years would be all or part of American's fleet of 35. American recently delayed the decision to replace the A300-600R's because of the Asia Pacific crisis, but will resume its study. About one-third of American's fleet have leases that are due to expire between 2008 and 2010.

The A300-600R fleet's main advantage is that there are large numbers of uniform quality aircraft that have remained with their original operators. This is unlike many of the A300B4 fleet which changed hands several times between airlines and lessors.

The A300-600R fleet is powered by CF6-80C2A5 and PW4158 engines in similar numbers. In total, there are about 160 A300-600R conversion candidates.

767?

There are no third-party STCs for 767 freighter conversions yet, but these have already been studied. There are 211 767-200s and 482 767-300s in service.

The 767-200ER would have similar payload to a DC-8-60/70 series aircraft when converted to a freighter, as well as a long range performance. The -200 series would also have good range performance similar to an A310. The 767's range capability, larger numbers and its flightdeck commonality with the 757 could make it a more attractive freight conversion candidate than the A310.

The 767-300 will have similar freight capacity to the A300B4, but less than the A300-600R. The 767-300, however, will have longer range performance. Both the 767-200 and -300 could offer airlines an aircraft with the right capacity to absorb growth on 707 or DC-8 routes and sufficient range to match, while the A310 and A300-600R would be restricted to short- and medium-range markets.

The prospects for the 767 in the freight conversion market would be good from a performance point of view. The 767, however, will also be in higher demand in the secondary market from second-tier airlines. It would also be retired at a slower rate by primary operators than would be the A310 and A300-600R.

There is likely to be a split between the 767-200 and 767-300 series. Because of the 767-300's higher capacity and traffic growth leading to airlines ordering types like the 767-400, airlines will start to look for secondary market opportunities for their 767-200s first.

The 767-200 is already polarised from the -300 series. The oldest -200s are 17 years old. Airborne Express has already converted a few to freighters with its own unique conversion programme. The 767-200's performance may be enough to draw attention away from the A310-300.

Because many 767-200s are still operated by their original airlines they will be regarded as being of good quality, since it will be possible to buy large fleets of uniform specification and quality.

United, Delta and American have 767-200 fleets, as do Air Canada, Ansett, Britannia, JAL and All Nippon Airways (ANA). ANA has already shown its willingness to sell its 767-200s with its sale to ABX of some of its fleet. ABX may yet take more aircraft from ANA.

Conversely, the 767-300 is likely to be held onto for longer than the -200 series by its original operators. This will cause a problem for freight carriers interested in the 767-300. AC