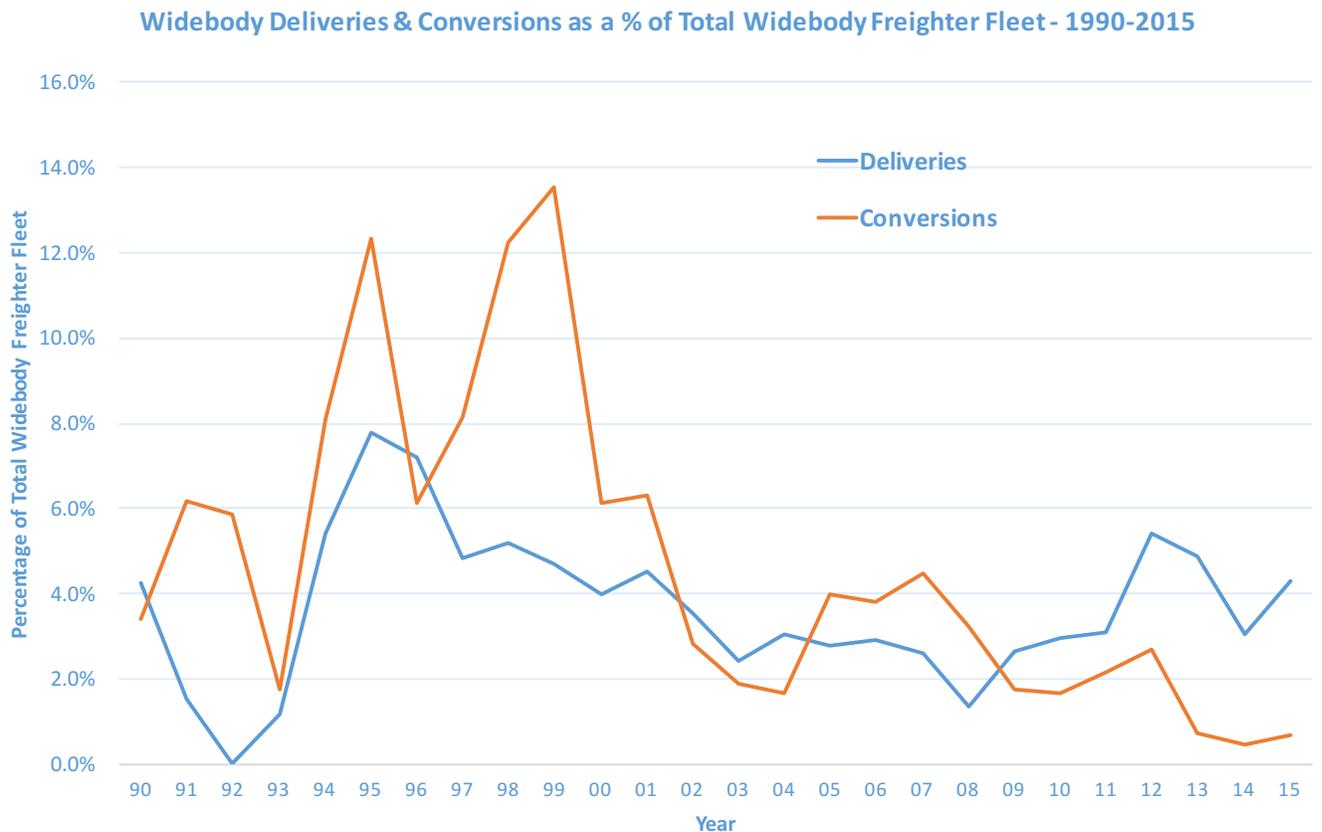


## Fundamental Changes Are Underway in the Widebody Freighter Market

The widebody freighter fleet which underpins the international airfreight market is undergoing a paradigm shift. From 1990 through 2007, widebody freighter conversions outpaced production freighter deliveries by almost 50%. However, since 2008, production freighter deliveries were more than double the number of conversions completed. This inversion is the culmination of a number of underlying changes, which together have resulted in a boon for the manufacturers, lean times for conversion facilities and serious headaches for aircraft owners. At this point, all signs point to a continuation of this new market structure for the foreseeable future.



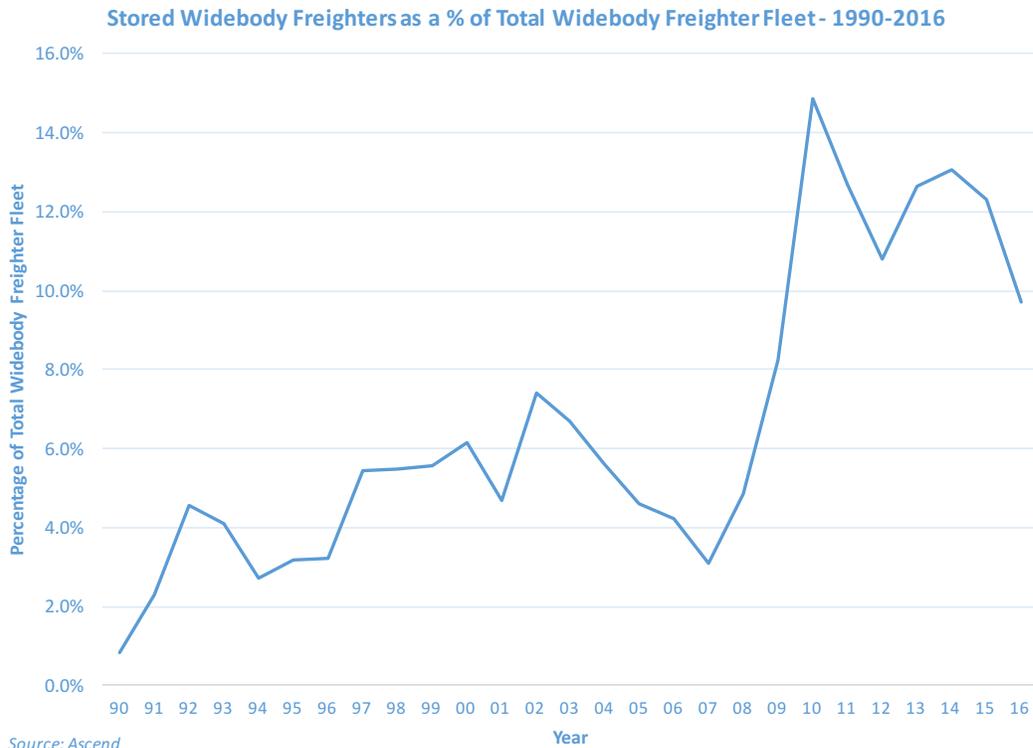
Source: Ascend

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The widebody freighter conversion market has always been volatile, experiencing market extremes driven by the global economy. The first Gulf War in 1990 created economic conditions that resulted in a significant market correction with conversions declining by 68% from 1991 to 1993. During the early 90s, the the 747 and DC10 were the only widebodies in conversion and the 747-200 was the only production freighter being delivered. In 1994, the market recovered and the following four years saw a 450% increase over the previous four-year conversion and production totals.

The period from 1997 until 2003 represented the high watermark for widebody freighter conversions and included the introduction of regional widebody freighter. Although a few A310s had been converted prior to 1997, this period saw the introduction of the A300B4 (83 conversions) and the 767 (24 small cargo door conversions). The A310 continued to have a robust conversion rate and the DC10-30 hit a high of 18 conversions in 2001. Regional widebody freighter demand during this period was driven as always by integrator requirements, but there was also significant demand in the general freight market with at least twenty-two operators entering the market.

The period from 2004 until 2008 was marked by a resurgence in demand for the 747 as -400s entered the “conversion zone” and fifty-five units were converted. Also during period, the DC10-30 fell out of favor as fuel prices rose resulting in unfavorable operating economics for the type. Regional widebody freighter conversions continued to flourish and, unlike the previous period, conversions and new deliveries were more in balance (157 conversions versus 112 deliveries).



After the global recession of 2008, the widebody freighter market established a new pattern whereby production freighters outpaced conversions by almost a 3 to 1 margin. In addition, large numbers of 747s including recently converted 747-400s were placed into storage. By the end of 2010, there were eighty-four 747-400 freighters parked including two production freighters that had been delivered the previous year. By 2010 the active 747 freighter fleet had shrunk by 64 units, a decline of almost 20% and the only decline in this type that has ever occurred. Conversion activity continued in the regional widebody sector, albeit at a slower pace and primarily in support of the major integrators. On the production side, a renaissance was underway with the 747-8F, 777F, 767-300ERF and A330-200F experiencing a solid stream of deliveries and orders. The manufacturers delivered 282 aircraft in the six-year period ending in 2015, almost double the six years immediately preceding, an astounding figure considering that the global economy was recovering from one of the worst recessions on record.

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So will widebody production freighters continue to outpace conversions? Most likely yes for the following reasons:

- Regional widebody freighter conversions will remain low with only one potential conversion candidate, the 767-300ER available until the certification of the A330-200/300 in two plus years.
- With 32+ 747-400 freighters parked, there is no justification for additional 747 freighter conversions.
- Integrator demand has shifted from converted widebodies to production freighters. FedEx, which replaced the MD11 with the 777, experienced a significant improvement in operating costs and reliability. Likewise, the 767-300ERF has been an excellent replacement for the MD10 for FedEx. Since the retirement of its older 747 converted freighters, UPS exclusively operates production widebody freighters and has shown no inclination to consider any current or prospective conversion products. DHL, with a smaller widebody fleet, needs to consider replacement of its existing A300-600SF fleet. However, since DHL introduced this fleet type in 2010, a replacement decision is likely to be several years away. Furthermore, DHL is likely to consider production aircraft given the actions of its competitors.
- With the exception of the 767-300ERSF, there is no general freight demand for existing widebody conversion products. As mentioned previously, additional 747 conversions are unlikely. The DC10, MD11 and A310 are technically obsolescent with no active conversion programs. The A300-600 feedstock is depleted forcing EFW to close the only active conversion program. With respect to the 777 conversion, serious concerns have been raised regarding cost and operational limitations. The A330 conversion,

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which has not yet achieved certification, will encounter tough competition given the actions of the integrators and the predominance of the Boeing converted fleet.

- Two potential factors that could breathe life into widebody conversion programs are low fuel prices and the launch of the proposed inexpensive LCF (“Low Cost Freighter”) for the 777 and A330. However, fuel price volatility over the longer term creates uncertainty thereby impacting financial decisions for long-lived assets and the LCF product faces challenges that will likely preclude widespread acceptance.

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