

What's Ahead for the Freighter Conversion Market?

An update on current passenger-to-freighter conversion programs

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The passenger-to-freighter ("P2F") conversion market generates in excess of \$500 million in annual business and yet receives little attention from the commercial aircraft trading community. In fact, Airbus projects demand for almost 1,900 conversions over the next 20 years. Boeing's forecast is similar with a forecast for 1,990 units. This projected demand results in a \$20 billion plus market between now and 2031. Although small in comparison to new aircraft sales, the P2F space warrants a further look from time to time. This article provides a status report and a look forward.

Table 1

Commercial Freighter Fleet - February 2012			
	Active	Stored	Total
BaE 146	22	4	26
707	-	6	6
727	168	68	236
737 (CFMI)	103	9	112
737 (JT8D)	25	15	40
747	291	61	352
757	188	8	196
767	133	6	139
777	54	-	54
A300	193	25	218
A310	54	16	70
A330	10	-	10
CRJ Regional Jet	4	1	5
DC-10	81	23	104
DC-8	32	30	62
DC-9	19	36	55
F.28	-	1	1
L-1011 TriStar	-	3	3
MD-11	167	6	173
TOTAL	1544	318	1862

Source: Ascend

To operate efficiently, the commercial airfreight market requires an aircraft mix of different sizes and capabilities. From the short-hop Cessna Caravan to the 120-ton payload and intercontinental capability of the 747-8F, each aircraft type serves a specific mission in creating a highly effective global air cargo fleet. Currently 1,862 jet aircraft make up the freighter fleet with an additional more than 860 turboprops. Converted freighters make up 60 percent of this fleet.

The decision to convert a particular aircraft type is driven by many factors, including available feedstock, estimated freighter performance, availability of similar production freighters, intended market use and the freighter aircraft size class. For example, the economics of operating narrowbody freighters rarely, if ever, supports the use of production aircraft. In the narrowbody freighter market, low aircraft utilization creates a premium for the significantly lower capital cost provided by a converted aircraft. This helps to mitigate the impact of the higher maintenance cost and fuel burn of these older aircraft. Two-thirds of the current narrowbody freighter fleet (497 units) is conversions, including a 46-year-old 727 converted 20 years ago.

Despite a narrowbody fleet that most of us would consider to be in its twilight

years (average age is 28 years), Boeing and Airbus, in a rare moment of agreement, both forecast that additions and replacements to the narrowbody fleet will be 100 percent converted aircraft.

Unlike the narrowbodies, medium and large widebody aircraft (current and future) consist of a mix of production and converted aircraft. In the widebody market, the typical scenario is a successful production freighter program followed by conversion of passenger models of the same aircraft type. The ubiquitous 747 freighter fleet of almost 300 aircraft is dominated by production freighters (66 percent of the fleet) but still enjoys a robust conversion market. Some operators, such as Cargolux, find that they need the higher performance of the latest production freighter, while other operators can profitably operate older production aircraft or converted passenger units. The inexorable rise in jet fuel prices, however, is forcing the retirement of older 747 variants in favor of the 747-400 P2F and eventually the 777 P2F.

In contrast to the 747, certain aircraft types enjoy greater success as converted freighter than they did as passenger aircraft. For example, approximately 200 passenger A300-600s were produced, but 157 converted and production A300-600s freighters are currently flying. The A300-600 passenger model competed

unsuccessfully against the 767 but conversely enjoyed strong demand as a converted freighter. The conclusion one may draw from these examples is that the make-up of the P2F market is a result of numerous diverse, though predictable, factors and, while demand for certain aircraft types can be predicted with reasonable accuracy, the timing and duration of demand for a specific model is much more elusive. As a consequence, the P2F industry must weather numerous boom and bust cycles. Not surprisingly, the decision by a conversion provider to spend \$30 million or more in non-recurring P2F engineering costs in the hope that the market will be there at the right time and with sufficient volume, is not for the faint of heart.

Conversion Programs MD-80

In February 2010, AEI surprised the industry by announcing the launch of an MD-80 P2F program. Although an abundance of attractively priced MD-80 feedstock has been available for several years, the industry had dismissed the idea of an MD-80 freighter. Conversely, AEI believes that a market exists for a low-capital cost alternative to replace the 727 and 737-200 freighters and to compete against the 737-300. The company now has 15 firm orders and expects to receive FAA certification within the next few months. With more than 270 MD-80s currently parked and an aging (ancient?) 727 fleet, the opportunity exists for a successful program.

737 Classic

Three companies, AEI, IAI and Pemco, offer conversions for the 737-300 and -400 (see Table 2). As of this date, approximately 107 aircraft (excluding combis) have been converted and demand remains steady, although below

the combined production capacity. The China air cargo market fuels a large part of the 737 Classic freighter demand. Pemco, together with its Chinese partner, HAECO, has been highly successful in China with an 80 percent market share of the existing conversion fleet. With declining 737 Classic passenger demand and more than 200 aircraft 15 years or younger, sufficient feedstock exists for a robust market for the foreseeable future. Conversion providers are properly geared with multiple facilities in the U.S., China and elsewhere.

757

DHL was the launch customer for the 757 P2F with the conversion of British Airways fleet of 34 aircraft beginning in 2001. After a dormant period, the 757 P2F market accelerated when FedEx announced in 2007 its intention to convert 90 or more units. By the end of 2011, a total of 117 aircraft are flying with 13 operators and three active conversion programs. Precision Conversions has completed 31 conversions with a backlog of seven aircraft including two combis. The company, which has continued to enhance its products with operating weight improvements, is currently seeking regulatory approval to convert 757s equipped with aftermarket winglets. Given the popularity of aftermarket winglets for the 757 and also the 767-300ER, the ability to convert a winglet-equipped aircraft (or restore the aircraft to its original configuration) will become an important P2F product enhancement feature. Ironically, given the shorter average trip distance of freighters versus the passenger aircraft, winglets provide little, if any economic value to the converted freighter.

In addition to Precision Conversions, ST Aero, under license from Boeing, is an active 757 converter due to winning



the large FedEx order. To date, ST Aero has converted 49 units. Finally, Pemco, which acquired the dormant Alcoa STC, has focused on the 757 combi market and currently has four aircraft in work.

767

The 767 conversion history occurs in two distinct chapters. In the late 1990s, Airborne Express converted 24 767-200s into their own unique freighter configuration that included a cargo floor but retained the existing passenger door for loading and unloading. Today all these unique aircraft have now or will shortly have been converted to a standard freighter configuration by IAI. Eventually the 767-200 fleet would grow to 60 aircraft with vast majority now operating in sub-service for DHL and UPS.

The second chapter involves the 767-300ER, which despite having excellent prospects as a converted freighter, is struggling to get out of the starting gate. Boeing launched the program with an order for five units from ANA and the first delivery in April 2008. Since that time, Boeing has not converted any additional aircraft, and its competitor, IAI, has only completed seven units. Despite strong P2F demand, the market has stagnated due to a lack of attractively priced feedstock. This shortage is due in part to the long delay in the 787 program. As the 787 program comes up to speed, 767 feedstock should become available and provide a boost for this P2F program. In addition, FedEx, which has ordered production 767-300ERFs, can be expected to ultimately require P2F units to supplement its fleet.

A300

As noted previously, the A300-600 is an example of an aircraft that enjoyed a mediocre reputation as a passenger aircraft but has been successful as a

Table 2

	MD-80	737 Classic	757	A300-600	767	MD-11	747	A330	777
AEI	✓	✓							
Boeing			✓		✓	✓	✓		★
EFW				✓				✚	
IAI		✓			✓		✓		
Pemco		✓	✓						
Precision Conversions			✓						

✚ Launched (2016 1st delivery)

★ Under study for potential 2016 entry into service

freighter. Airbus delivered 106 freighters, and 55 passenger aircraft have been converted. EFW, the EADS freighter conversion subsidiary, has a backlog of 15 aircraft, all for delivery to DHL. FSI, a subsidiary of BE Aerospace that acquired the A300B4 STC from British Aerospace, has converted one aircraft with a second in work for delivery to MNG. Given the age profile of the remaining A300 passenger aircraft, an additional 10-15 aircraft are likely to be converted over the next few years.

747

The 747 in all its variants has been the long-haul cargo workhorse for the past 30 years and is expected to continue its domination until the introduction of the 777 P2F conversion. As 747-200 freighters have retired, they are replaced by 747-400s. Seventy-one aircraft have been converted at facilities in Tel Aviv (IAI), Singapore, Korea and China. The current backlog of five aircraft is well below the production capacity of Boeing and IAI who both cite softness in the market. Given its international airfreight prominent role, the recovery in 747

P2F market is highly dependent on a strong global economy. Expect conversion orders to accelerate in late 2012.

MD-11

Like the A300-600, the MD-11 enjoyed greater success in the freighter role. An astounding 87 percent of the passenger fleet was converted with two additional units due for conversion in 2012. Given the lack of remaining feedstock, fleet age and the market availability of existing freighters, this Boeing conversion program being carried out by ST Aero should terminate this year.


A330

Airbus launched the production A330-200F in 2007 and has delivered 10 aircraft to date. This aircraft fills a niche role as a long-range medium widebody freighter and has enjoyed limited success. At the recent Singapore Airshow, Airbus announced the launch of the A330-300 P2F program with first deliveries expected in 2016. The -300 variant with its longer fuselage represents an ideal replacement for the A300-600F and a formidable competitor to the 767-300ERSF.

Airbus' stated intention in launching the program is to combine the resources of EFW and ST Aero with production slated for Dresden, Germany.

777

According to Dan da Silva, Boeing's VP – Freighter Conversions, the company has completed 777 P2F product development studies on the -200ER and is currently in discussion with potential customers. Continuing strong demand in the passenger market has kept feedstock values too high to justify conversion. Boeing is targeting 2015-2016 for entry into service.

In summary, the P2F market depends on airline passenger market developments as well as global economic conditions that drive airfreight demand. While there is an abundance of conversion capacity and sufficient investment capital, desirable passenger aircraft feedstock pricing remains stubbornly high and airfreight flows in key global markets are weak. History somehow has a way of repeating itself however, and a recovery for this market sector can be expected in 2013. 



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