

Alcoa-SIE launches 757 passenger-to-freighter modification

Alcoa-SIE has launched its 757 passenger-to-freighter modification programme with a lower list price than competitor Precision Conversions.

Alcoa-SIE Cargo Conversions (ASCC) has joined Precision Conversions and Boeing in the 757-200 passenger-to-freighter conversion market, officially making three providers of 757-200 conversions. DHL has been Boeing's sole customer for its modification, Precision Conversions has won all deals to modify 757s since. The market is therefore now effectively left to Precision and ASCC, although other modifications may yet join the market.

The ASCC conversion programme for the 757-200 is about one year behind Precision Conversions. Precision has had its first aircraft in conversion at Goodrich ATS, Washington and expects to receive its supplemental type certificate (STC) in August 2004. ASCC has now inducted its first aircraft for conversion at Cascade Aerospace, Abbotsford, British Columbia. STC target date is May 2005, and ASCC plans to have downtime for conversion reduced to about 30 days by the time it has converted its seventh aircraft.

The first aircraft being converted by ASCC is owned by Babcock & Brown, and was previously leased to UK leisure airline First Choice. The aircraft will then be re-leased by Babcock & Brown following modification.

The main difference between the ASCC and Precision Conversions modifications is that Precision Conversions offers a full 15 pallet capacity, while ASCC's modification provides an aircraft with 14 full pallets and a last position half-pallet. This puts ASCC-converted aircraft at a small disadvantage in terms of total containerised volume. The main reason for offering an aircraft with 14 and a half pallet/container positions, however, is that it makes conversion process easier because it avoids blocking off the current first left cabin door on the passenger aircraft and installing a new crew door forward of this position, which would allow 15 full containers. ASCC's conversion leaves the first left door intact, simplifying engineering and the design process, which makes it cheaper than Precision Conversions's. ASCC is offering its conversion at a list price of \$3.75 million. Precision Conversions has a list price of \$4.5 million.

There are five different maximum

take-off weight variants of the 757-200, varying between 220,000lbs and 255,000lbs. Aircraft converted under the ASCC programme will not have their maximum take-off weight (MTOW) upgraded. Structural payload is the difference between maximum zero fuel weight (MZFW) and operating empty weight (OEW). ASCC expects the MZFW to be 184,000lbs and 188,000lbs (*see table, this page*). Target OEW for the aircraft following conversion is 116,000lbs (*see table, this page*), which compares to 134,000lbs for the passenger-configured aircraft. Allowing a further 500lbs for crew weight, this will result in a gross structural payload of 67,500lbs and 71,500lbs for the two MZFW variants (*see table, this page*).

This compares to 66,500lbs and 73,500lbs for the aircraft converted by Precision Conversions (*see Revenue earning capacity of the 737-300 & 757-200SE, Aircraft Commerce,*

February/March 2004, page 42).

The actual available net structural payload will then depend on the weight of the containers or pallets and their volume. The 14 full positions on the maindeck are 88-inch by 125-inch containers. These each have a volume of 440 cubic feet, and provide a total of 6,160 cubic feet (*see table, this page*). These containers have a tare weight of 507lbs, totalling 7,098lbs.

The fifteenth position can be occupied by an AYY, LD-3 or Demi container, which would have a volume of 220 to 340 cubic feet, and a similar tare weight to the 88-inch by 125-inch containers. This would take total maindeck container weight to about 7,605lbs and maindeck container volume to 6,380-6,500 cubic feet, depending on the actual container used in the fifteenth position (*see table, this page*).

The underfloor space could be loaded with bulk freight, which provides a

PAYLOAD CHARACTERISTICS OF ALCOA-SIE CONVERTED 757-200SF

VARIANT	Option 1	Option 2
MZFW-lbs	184,000	188,000
OEW-lbs	116,000	116,000
Crew weight-lbs	500	500
Gross structural payload-lbs	67,500	71,500
Number of maindeck containers	14	14
Type of maindeck containers	82/88/125 inch	82/88/125 inch
Unit tare weight-lbs	507	507
Unit volume-cu ft	440	440
Number additional maindeck containers	1	1
Type of additional containers	AYY/LD-3/Demi	AYY/LD-3/Demi
Unit tare weight-lbs	507	507
Unit volume-cu ft	220-340	220-340
Total tare weight maindeck containers-lbs	7,605	7,605
Total volume maindeck containers-cu ft	6,380-6,500	6,380-6,500
Lowerdeck volume-cu ft	1,790	1,790
Net structural payload-lbs	59,895	63,895
Total volume-cu ft	8,170-8,290	8,170-8,290
Maximum packing density-lbs	7.22-7.33	7.70-7.82
Volumetric payload @ 6.5lbs/cu ft	53,105-53,885	53,105-53,885
Volumetric payload @ 7.0lbs/cu ft	57,190-58,030	57,190-58,030



further 1,790 cubic feet of volume. This takes total available freight volume to 8,170-8,290 cubic feet. This compares to 8,390 cubic feet for aircraft converted under the Precision Conversions programme. The difference in total available freight volume between the two conversions is therefore small.

Net structural payload for aircraft modified with the ASCC programme, after deducting container tare weights, will be 5,9895lbs and 63,895lbs for the two MZFW options (see table, page 41). Taking into consideration the total available freight volume, the maximum possible packing density on the aircraft will be 7.22-7.33lbs per cubic foot for aircraft with the lower MZFW and 7.70-7.82lbs per cubic foot for aircraft with the higher MZFW (see table, page 41).

These are both relatively high compared to the typical packing densities of most freight types. Express package operations have packing densities in the region of 6.5lbs per cubic foot. At this density the aircraft will have a volumetric payload of 53,105-53,885lbs, depending on which type of container is used in the fifteenth position.

A higher packing density of 7.0lbs per cubic foot, which is typical of general freight, results in a volumetric payload of 57,190-58,030lbs. Again, while this is close to the volumetric payload of a 757-200SF converted with Precision Conversions modification, it is also close to the A310-300F's volumetric payload at the same packing densities.

At packing densities of 6.5lbs and 7.0lbs per cubic foot, the A310-300F has

a volumetric payload of 62,790lbs and 67,620lbs (see Revenue capacity of the A300-600RE, A310-300F, 767-200SF & 767-300SF, page 43).

Conversion activity

After years of slow and weak activity, to passenger-to-freighter market is showing signs of increased activity, with several conversion providers taking deals.

The most prominent of these is Boeing's 747-400 passenger-to-freighter programme. Cathay Pacific launched the modification with a contract to modify six ex-Singapore Airlines (SIA) aircraft. This was followed with a contract for Dragonair to convert another four ex-SIA units. All Nippon Airways announced in May 2005 it would convert four of its aircraft for Nippon Cargo Airlines (NCA), and placed options to modify another four of its passenger aircraft.

The largest order to date has been placed by Korean Air, which will convert 10 of its own aircraft for use in its freight division. It also placed options to convert another 10 unspecified aircraft. This takes the number of firm orders for 747-400 passenger-to-freighter conversions to 24. Finally, SIA has said it may convert four or five of its passenger-configured aircraft.

Boeing, meanwhile, has gained few orders for new 747s, except for a small number of 747-400fs from carriers such as Cargolux, China Airlines and Korean Air. The immediate success of the -400 passenger-to-freighter programme brings

Alcoa-SIE's passenger-to-freighter conversion avoids removing the first left door on the passenger aircraft and installing a new crew door forward of this position. As a consequence the main deck will be able to accommodate 14 and a half containers, compared to the 15 containers allowed by Precision Conversions's 757 freighter modification, but will allow Alcoa-SIE to offer the lower list price of \$3.75 million.

some relief.

The only other contestant in the 747-400 modification race is Bedek Aviation, which has not yet secured a launch customer.

The narrowbody conversion market will receive a boost when FedEx finally makes its decision on which modification programme it will use for the 50 737-300s it is expected to acquire. There are up to four programmes it could choose from. These include Pemco, Bedek, Boeing and FedEx's own 737-300/-400 modification. The placing of this conversion contract and the announcement of which aircraft will be modified will remove lingering issues over the 737-300 market, and should shore-up values.

Meanwhile, Kitty Hawk's decision to take seven 737-300SFs from GECAS indicates freight carriers are preparing themselves to replace their old fleets.

One area of little activity is the conversion of medium-sized widebody freighters. Indications are, however, that a US carrier may be about to sign a contract to convert at least 10 of American Airlines' 767-200s, and could eventually convert up to 40 units. This would certainly remove a large number of 767-200s from the passenger fleet, and shore-up values to a degree.

While the 757 conversion market has been active during the year while Precision Conversions has its first aircraft undergoing modification, EADS-EFW has had an order drought for freighter modifications for the A300-600 and A310-300. **AC**