

747-400 values & aftermarket activity

Trading activity of used 747-400s relies mainly on passenger aircraft being acquired for freighter conversion. Availability of passenger aircraft is tight, which has seen their values rise and make freighter conversion uneconomic.

The 747's size means that it is almost exclusively used by the world's largest carriers. It has always had few used market opportunities in the passenger role, and the only market where a demand exists for appreciable numbers of used aircraft is in conversion to freighter.

Conversion to freighter only makes economic sense, however, when the total investment of used aircraft purchase, conversion to freighter, installation of the cargo loading and handling system, and additional associated maintenance, are low enough for the investor or lessor to realise a return from investment from the prevailing market lease rates that they are likely to receive for the aircraft. Investors and lessors that convert passenger aircraft at 15-20 years old need to receive a lease rate equal to 1.3-1.5% per month of their total investment.

The cost of conversion is lower for Combi aircraft, making them preferable candidates for airlines, investors and lessors. The list prices for freighter conversion are \$20 million for the IAI-Bedek modification, and up to \$28 million for the Boeing conversion.

A cargo loading system will add \$2 million, and additional equipment another \$0.5 million.

The corresponding costs for converting Combis are \$16 million for the IAI-Bedek conversion and \$24 million for the Boeing option. The costs for the loading system and other items are similar to that for passenger aircraft.

The cost of required maintenance will depend on maintenance status, and can be as high as \$4.5 million for a D check if required (see *747-400 maintenance analysis & budget, page 14*).

This can take total costs to \$19-30 million when converting a Combi aircraft, and higher to \$26-34 million when converting a passenger aircraft. This limits the maximum purchase price at which used aircraft can be acquired.

"The tight supply of large freighters means that many are expecting airlines will be prepared to lease converted aircraft for \$750,000-800,000 per month," says Steve Rimmer, chief

executive officer at Guggenheim Aviation Partners. "The limited supply of freighter aircraft is made worse by there being no Boeing conversion slots available until 2009 or 2010. This is because Boeing individually engineers each aircraft for conversion, and the company has a limited engineering capability. There is therefore a long lead time."

This probable lease rate of \$750,000 per month limits the total investment in a converted aircraft at \$50-55 million. Even when discounts on conversion programmes are considered, this means that the highest price at which used aircraft should be acquired is \$36 million. The price falls to as low as \$25 million in many cases. There is a trade-off between the purchase value and the cost of required maintenance, however. "Prices need to be \$28-30 million to make conversion viable," estimates Rimmer.

This has to be considered in relation to the current market values of the oldest 747-400s being at \$38-40 million. This takes the total investment up to \$65 million, which is too high compared to the expected market lease rate. "Another issue is that the tight supply of widebodies generally means lessors can get lease rates of \$550,000 per month for passenger aircraft of this age, so it is more attractive to keep them in their current configuration," continues Rimmer.

Current market values are in contrast to the lower values of the 2002-2004 period when a large number of 747-400s were available. In 2003, when there were about 30 aircraft available, values fell to \$30-40 million. Aircraft were marketed by Air Canada, Malaysian Airlines, Singapore Airlines (SIA) and United Airlines. Some ex-United aircraft were acquired by Thai International and some ex-SIA aircraft were bought by Oasis Hong Kong, but several aircraft that came on the market were bought by Guggenheim Aviation Partners. "We bought nine aircraft from Air Canada, SIA and Malaysian in 2004 and 2005 and converted these to freighter," says Rimmer. "Several aircraft came onto the market because of surplus capacity after 9/11. The difficulty now is that supply

has reduced so lease rates and values have strengthened again."

Values of used 747-400s will remain strong until the A380 and 747-800s start to be delivered in significant numbers. This will not occur until at least 2010 in the case of the A380, and 2014 in the case of the 747-8. At this stage major 747-400 operators will begin to retire the aircraft in appreciable numbers.

A few 747-400 operators are already getting ready to retire their aircraft. All Nippon Airways of Japan has already started retiring its fleet and will replace them with 777-300s. This could depress values slightly.

Avitas's value forecast puts the current market values of aircraft built between 1989 and 2004 at \$34-110 million. It also forecasts future values given predicted prevailing market conditions. Values of the oldest aircraft, built in 1989 and 1990, are expected to fall to about \$31 million by 2009 and to drop further to \$24-28 million in 2011-2012. Conversion will therefore start to become economic again from about 2009 or 2010.

An examination of the aircraft that have already been converted from all-passenger or Combi-configuration, shows that they were all built between 1989 and 1993. They had accumulated 7,400-12,000 flight cycles (FC), which is an important factor in the value and remaining life of the aircraft. "The age of the aircraft has a lot to do with its valuation. When the cost of conversion and a heavy maintenance visit is added, the converted freighter should have a market value of \$70-75million," according to Greg Peppes, manager of marketing for Boeing's freighter conversion programmes. "Customers need to look at the oldest passenger aircraft, which have the lowest residual value to minimise their investment into a freighter. We have seen aircraft as young as 13 years old being converted. In general therefore, candidate aircraft would need to be about 15 years or older."

"Cycles are important, with the 747-400's original design goal of 35,000FC," notes Peppes. "We are seeing 747-400s coming to the modification with about half of this number of accumulated FC. Given that freighter utilisation is typically less than passenger utilisation, conversion helps prolong the life of the aircraft. So they will be able to operate as freighters for another 10-15 years with no problem. Even the oldest aircraft that we built in 1989-1990 have plenty of cycles left, so really that element is not yet on the critical path." **AC**

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