

Shifting FOCUS

The narrowbody freighter conversion market has been dominated by Boeing single-aisle jets until now, but A320-family aircraft are expected to be converted in large numbers in the future. **Chris Kjelgaard** reports

Of 2,430 freighters larger than regional aircraft to be delivered by the end of 2039, at least 1,458 will be converted former passenger aircraft, according to the latest *Boeing 2020 World Air Cargo Forecast*. Of that number, 72 per cent (at least 1,050 aircraft) will be single-aisle jets, or ‘narrowbodies’.

Today the narrowbody converted-freighter scene is dominated by the highly capable Boeing 757-200, with hundreds of converted 737-300s, 737-400s and, more recently, 737-800s making up almost the entire remainder of the market. Previous-generation converted single-aisle types such as Boeing 707s and McDonnell Douglas DC-8s have been retired, though a few 727s, 737-200s, DC-9s and a couple of dozen MD-80s remain in service as freighters, largely operating in less-developed countries or in niche markets.

While conversions of ‘Classic’ 737-300s and 737-400s, 757s and MD-80s continue to be performed, the numbers of suitable passenger examples of those types available as feedstock for conversion is running low. In most cases, this is because the aircraft themselves have aged to the point where it is no longer

commercially feasible to pay for them to be converted, because their ageing-aircraft maintenance costs in freighter operation would be too high. In a few cases – particularly for some late-model 757s – the aircraft remain so attractive as passenger jets that their owners want to keep them in service as such.

Robert Convey, senior VP sales and marketing for Aeronautical Engineers, Inc. (AEI), estimates the market will see about another 25 MD-80s being converted – AEI is the only company which holds a supplemental type certificate for MD-80 conversions – and approximately another 30 757s will end up being converted. AEI recently inducted two former Delta Air Lines MD-88s for conversions and has four more in backlog. Last September, AerSale bought 24 late-model, well-looked-after 757-200s stored at its storage facility in Roswell, New Mexico and said it would have most of them converted to freighters at the same airfield, while cannibalising the rest for spares to support the converted aircraft in service.

AEI is one of several companies which hold STCs for freighter conversion of

737-300s and is one of three – along with Pemco and IAI – which hold STCs for 737-400 conversions, offering cargo payloads of up to 18 tonnes. To date, AEI has performed about 25 737-300 conversions but has carried out 130 737-400 conversions, and Convey expects 150 of these to be carried out in all. The overall total of 737-400 conversions worldwide is about 225, he says.

While Pemco holds an STC for a ‘FlexCombi’ 737-700 conversion – for which it has won customers – and is also developing a 737-700 full-freighter conversion, Convey believes the 737-800 “will be the largest converted-aircraft [programme]”. He estimates that up to 1,000 737-800s could be converted over the next 20 years as the highest-selling 737NG model is gradually replaced by 737 MAX variants. “We’re seeing that already,” he says, with AEI expecting to convert about 30 737-800s in 2021 and Boeing – which over the past four years has established a lead in the field, with about 80 converted to date – probably converting a similar number.

IAI has recently joined the list of 737-800-conversion STC holders. As its

programme works up, Convey expects to see 60 to 70 737-800s converted this year and similar numbers being converted in each of at least 2022 and 2023.

Smaller operators may want to stick with the 737-800 as their converted freighter for the foreseeable future

Right: A look inside the lower deck of a converted A321



“In my view, the narrowbody freighter world is a Boeing-built world,” says Convey, mainly because of the 737. In his view, the 737-800 is robust and reliable and can be parked in a corner of a cold airfield throughout the day – converted freighters typically fly much less than passenger aircraft and often at night – and its systems will immediately be fully functional when turned on. Given the 737’s long existing history as a converted freighter and the 737-800’s 23-tonne cargo payload, Convey sees smaller operators in particular wanting to stick with the 737-800 as their converted freighter of choice for the foreseeable future.

The converted A321

Many air cargo industry experts believe the A321 is a very strong candidate for freighter conversion. Although it does not have the same range performance as the 757, nor the 34-tonne structural payload of the big Boeing single-aisle jet, its containerised payload is 15 per cent higher than that of the 757 at 27 tonnes, according to Elbe Flugzeugwerke’s (EFW) VP sales and marketing Wolfgang Schmid. The Dresden-headquartered company is the first to have certificated a freighter-conversion programme for the A321-200 and has so far delivered two converted A321s.

As a freighter the A321 offers some important operational advantages over the 757 and the 737-800, Schmid claims. While its 14-position main-deck cargo capacity is one container position less than that of the 757, the A321P2F’s fuselage cross-section allows its belly hold cargo space to store 10 LD3-45 containers. However, the narrower lower fuselages of the 757 and the 737-800 prevent their belly holds from being able to store standardised containers at all: all their belly-hold cargo is bulk cargo. The A321 is also about 20 per cent more cost-efficient to operate than the 757, says Vallair’s CEO Grégoire Lebigot, the launch customer for EFW’s A321P2F programme.

EFW inducted three A321s for conversion in 2020, two going to its conversion lines in Singapore and one at parent

ST Engineering’s facility in Guangzhou. EFW’s first converted A321 was delivered to Vallair in October. In turn, Vallair – as the lessor – delivered the aircraft (MSN 835) to Qantas, which put it into service carrying mail for Australia Post. Qantas has been very happy with the operating performance of the aircraft to date, says Lebigot. EFW delivered its second converted A321 in January to customer BBAM, which leased it to UK carrier Titan Airways for operation on behalf of Royal Mail. BBAM is having another A321 converted at EFW’s Singapore facility, the aircraft being due for delivery to Titan Airways in February.

Vallair also has the initial EFW conversion slot at Guangzhou. There, aircraft MSN 1017 is undergoing conversion for lease upon completion to SmartLynx Malta, which will operate the aircraft on behalf of DHL, according to Lebigot. The Luxembourg-

20%

The A321 is about 20 per cent more cost-efficient to operate than the 757, says Vallair’s CEO Grégoire Lebigot, the launch customer for EFW’s A321P2F programme

headquartered company holds 10 firm A321 conversion slots with EFW and also has “quite a high quantity” of options.

Its strong belief in the future of the A321 as a converted freighter also convinced Vallair to become the launch customer for A321 Aircraft Solutions’ A321PCF freighter-conversion programme in the US. Unlike EFW, this company – a joint venture between ATSG and Precision Aircraft Solutions, which had concentrated on 757 conversions until it launched its A321 programme – does not have access to Airbus’ original design and engineering data for the A321, so it has had to reverse-engineer its conversion design.

When A321 Aircraft Solutions obtains certification for its A321 conversion, a step expected by March, Vallair will lease

The future of the A321 as a converted freighter appears assured, with the A321neo also suitable for conversion

the aircraft (MSN 891) to SmartLynx Malta, also for operation on behalf of DHL. Precision’s A321 conversion creates a palletized, 14-pallet-position storage configuration on the aircraft’s main deck and Lebigot says having the two differently configured SmartLynx Malta aircraft will allow DHL to compare the two modification designs and decide which (if any) it prefers for future use and orders. Vallair has an “undisclosed number of slots” booked with Precision for A321 conversions, but Lebigot says that when announced in a few months’ time, “it will be a large number”.

Vallair has also agreed a letter of intent with planned start-up Global Crossing Airlines, or GlobalX, for 10 converted A321 freighters. Although its shares are registered in Canada and the carrier will indeed have operations there, its Air Operator’s Certificate is being established in Miami, according to Lebigot.

GlobalX plans to take its aircraft over a two-year period, with the first two planned to go to the carrier in the second half of 2021. Lebigot says that Vallair is assisting GlobalX in its negotiations with potential end users of the A321 capacity, “to make sure they will have a strong contract with a famous player” in the industry. The contract probably will be announced within the next three months, he says.

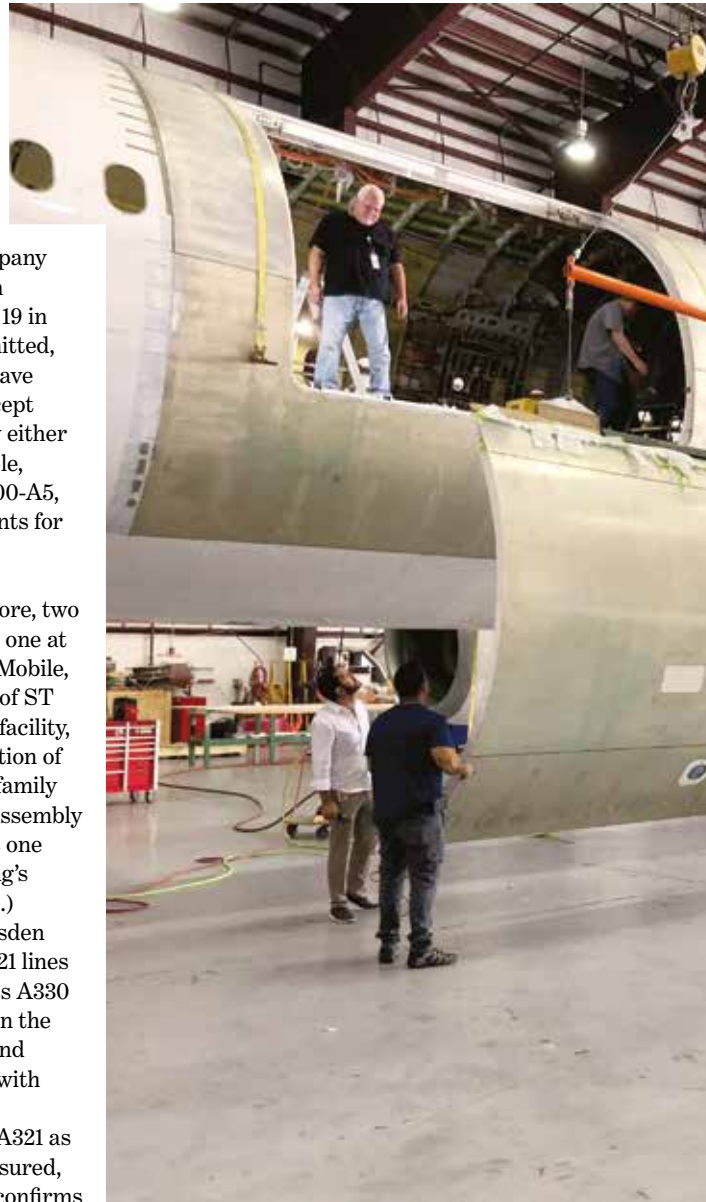
Right: Vallair believes strongly in the A321 as a converted freighter and is involved in many programmes
Below: EFW inducted three A321s for conversion in 2020, two going to its conversion lines in Singapore and one at ST Engineering’s Guangzhou facility

At EFW, Schmid says the company has 12 A321-conversion induction slots scheduled for this year and 19 in 2022. All of these slots are committed, with deposits taken, but not all have finalised contracts. EFW can accept for conversion A321s powered by either of the two engine choices available, the CFM56-5B and the IAE V2500-A5, and holds conversion commitments for aircraft with each engine type.

EFW is establishing six A321 conversion lines: three in Singapore, two in Guangzhou and one at Brookley Field in Mobile, Alabama, the site of ST Engineering’s US facility, as well as the location of Airbus’ US A320-family and A220-family assembly

lines. (Vallair has booked at least one conversion slot at ST Engineering’s Mobile site, according to Lebigot.) Schmid says EFW’s original Dresden site probably will not see any A321 lines for another two years, because its A330 conversion business is booming in the wake of the Covid-19 pandemic and Dresden remains fully occupied with A330 conversions.

At this stage the future of the A321 as a converted freighter appears assured, all the more so because Lebigot confirms that in the future the A321neo – which has the same fuselage dimensions as the A321ceo but new engines, greater payload, more range, and a larger number of aircraft ordered – will also be suitable for freighter conversion. Some A321neos are now nearing five years of age and in as little as five years’ time it is possible that some A321neos could become economically viable candidates for freighter conversion, he says.





What about the A320?

Industry opinion is more divided on the suitability of the A320 for freighter conversion. The potential feedstock population of A320s (and eventually A320neos) is vast, far bigger than the entire size of a freighter market already supplied with large numbers of 737-800s and A321s. Additionally, the A320 may pose some technical, financial and operating challenges as a converted freighter, according to IBA Group head analyst Jonathan McDonald.

But the die is already cast. California-based C³ (‘C Cubed’) Aerospace has been working for some time to develop STCs for freighter conversions for both the A320 and the A321, though it does not have access to Airbus’ original design and engineering data for either model and its completion date for the prototype A320 conversion, which began in 2019, remains unclear. Additionally, while EFW confirms the A320 will require a different freighter conversion kit than the A321, it already has an induction slot booked for its A320 conversion prototype.

One of the 12 conversion slots EFW has booked for this year is for an A320 rather than an A321 and Schmid confirms “there is at least a customer for the A320 prototype,” adding, “we are getting more and more requests for the A320, as well [as for the A321]. We are entering with an Airbus product a market segment which has never been an Airbus market before.

We will not dominate it soon, but we are sure we will take over a big part of it.”

EFW is Airbus’ partial affiliate for the A320 conversion and expects to obtain its STC for the A320 conversion in the first quarter of 2022. Vallair thinks the A320 has a promising future as a converted freighter and is planning to become a customer for A320 conversions. However, the company wants to establish its A321 programme before adding A320s. “The more the cargo operators are confident with the A321, the more the possibility is of them taking the A320,” Lebigot says.

Other possibilities

AEI holds an STC for converting the Bombardier CRJ100 regional passenger jet to a freighter and is thinking of developing freighter-conversion STCs for the CRJ200 and the much-longer fuselage CRJ900 too, according to Convey. However, IBA’s McDonald thinks few such aircraft are needed; their payloads and operating characteristics making them suitable only for niche markets where small cargo loads have to be flown quite long distances quickly.

The turboprop ATR family remains successful globally both as a converted freighter and as a new-build. Recently de Havilland Canada has developed a conversion STC for the Dash 8-400 in an attempt to tap this market too. While these turboprop types aren’t as fast as jets and offer only 8-10 tonne cargo payloads as freighters, they are much cheaper to operate and they usually incur lower landing fees. Aircraft feedstock for conversions is likely to remain high.

Beyond the 737-800, AEI thinks there might be a future for the 737-900 and the 737-900ER as a converted freighter. Such an aircraft would offer 12 container or pallet positions on the main deck, just as did the converted 727-200, once the most widely used narrowbody freighter.

“We don’t see [the converted 737-900/900ER] as being anywhere near as successful as the 737-800,” concedes Convey, with a potential market for somewhere from 100 to 200 aircraft. AEI plans to develop one or more STCs to cover conversions of both major 737-900 versions, but sees the programme as longish-term. Convey thinks the company might decide to launch a 737-900/900ER conversion programme in 2022, so with two to three years needed to develop the STCs, it might set a target date around 2025 for delivery of its first conversion. ©

72%

There will be 1,458 freighters in 2039 converted from former passenger aircraft – some 72 per cent of those will be narrowbodies