

Ascent Aviation Services start work on Sine Draco Aviation Development's prototype A321-200SDF freighter conversion. FAA approval is expected by 2023.

# Prototype A321 starts conversion

Sine Draco Aviation Development Ltd has announced the induction of its prototype A321-200 passenger-to-freighter (P-to-F) conversion with Ascent Aviation Services. The prototype will receive the designation A321-200SDF, and is due to be granted Federal Aviation Administration (FAA) supplemental type certificate (STC) approval in Q3 2022.

"The induction of the Sine Draco prototype A321-200 SDF for conversion is significant for our programme," says Sine Draco's chief executive officer, Alex Deriugin. "All major components are in production; and scheduled, engineering drawings and technical documentation are in the last stages of completion."

The Sine Draco A321-200SDF P-to-F conversion will have provisions for 14 main-deck cargo positions, including 13 AAA/AAY 88-inch X 125-inch bases, and one AAP/LD9 container. It will also be able to carry 10 AKH/LD3-45 containers in its lower deck.

In this configuration, the A321-200SDF will have a main-deck volumetric capacity of 6,075 cubic feet (cu.ft.), and a

lower-deck volumetric capacity of 1,518 cu. ft. To date, the A321 platform is the only narrowbody freighter to stow containers in its lower cargo hold. This has the potential to improve interlining and optimise the available cargo space.

A partial heavy maintenance check was recently undertaken on the A321-200SDF prototype, and will be completed during the modification. Ascent Aviation Services will also provide maintenance and flight line support.

According to Sine Draco, senior director of sales and marketing, Christopher Stafford, the initial phase will gain access to the areas that require modification. The installation of the surrounding door skin will begin in November 2021. "That is when we will start replacing them with the new skins for the cargo door," says Stafford.

The prototype aircraft MSN 963 was built in 1999 and is fitted with Pratt and Whitney V2500 engines. Sine Draco will amend the A321-200SDF STC to include CFM56-powered feedstock later in the programme. Yet some CFM56-powered

A321-200s do not meet Chapter 4 noise compliant regulations. This could hinder freight operations in Europe, and other regions with stringent noise requirements.

A321-200 feedstock is available in several weight variants (WV) with different combinations of maximum take-off weight (MTOW), maximum landing weight (MLW) and maximum zero fuel weight (MZFW). Sine Draco's initial focus is on WV000 and WV002 aircraft because there is a large pool of feedstock aircraft.

"The WV001 has a higher MTOW, but in operation, unless you are flying more than five hours, the additional MTOW is not needed so WV001 is typically not necessary. Most A321 freight operators will be able to complete a sub five-hour mission with the WV002 and WV000 aircraft," explains Stafford.

The prototype aircraft is expected to achieve a maximum payload greater than 28 tonnes, and will be weighed following the conversion process. Much of this payload will be due to a reduction in the operating empty weight (OEW).

MSN 963 is WV002 and has an MTOW of 89,000kg (196,211lbs) and an MZFW of 73,800kg (162,701lbs) that will translate to a gross payload of 28.2 tonnes (62,170lbs). WV000 has a lower MZFW of 71,500kg (157,630lbs) that will reduce the maximum payload. According to Stafford the reduction in gross payload at nominal cargo densities is not significant enough to hinder the aircraft's operation in the express package sector.

The conversion includes installation of a 142-inch wide by 86-inch high main-deck cargo door, Class E main deck. The cargo conversion will retain its passenger L1 and R1 doors, and will have a flight deck and supernumerary area for up to six occupants. The conversion will include an ANCRA cargo loading system (CLS) and reinforced floor and structure panels for improved running loads. According to Sine Draco, the A321-200SDF will have a lower fuel burn than 757-200 freighters.

"We are in discussions with several potential customers, not only for early conversion slots, but also the acquisition of the prototype aircraft," says Stafford. "The first conversion slots are available in North America at Ascent Aviation Services."

Ascent Aviation Services has two locations in southern Arizona, and is a large 14 CFR Part 145 certified MRO. Services also include integrated aviation maintenance, repair and overhaul, storage, and reclamation services.

The cost for conversion has not been announced, but it is believed to be in line with existing conversion STCs for A321-200 platforms. 

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## SINE DRACO A321 FREIGHTER CONVERSION PAYLOAD CHARACTERISTICS

Specification	A321-200SDF
MTOW - lbs	196,211
MZFW - lbs	162,701
OEW - lbs	
Maximum structural payload - lbs	62,170
Main deck ULDs	13 AAA/AAY + 1 AAP/LD9
Main deck freight volume - cu ft	6,075
Main deck tare weight - lbs	6,858
Lower deck ULDs	10 AKH/LD3-45
Lower deck freight volume - cu ft	1,518
Lower deck tare weight - lbs	1,720
Lower deck bulk volume - cu ft	208
Total freight volume - cu ft	7,593
Total tare weight - lbs	8,578
Net structural payload - lbs	53,592
Maximum packing density - lbs/cu ft	7.06