

AEI's MD-80SF payload specifications

Aeronautical Engineers Inc (AEI) has launched a passenger-to-freighter conversion for the MD-80. Operators have the option of two main types of ULD. Either choice provides a total available freight volume that is similar to that provided by the 737-300SF and -400SF.

Aeronautical Engineers Inc (AEI) has launched a passenger-to-freighter conversion programme for the MD-80. The converted aircraft will be designated the MD-80SF.

Such a programme has previously attracted negative comments because the aircraft's fuselage and main deck cross-section is narrower than that of the 727, 737, 757 and DC-8. The MD-80's narrower fuselage would mean a mixed fleet of MD-80SFs, and other narrowbody freighters would not be optimised for an interlining operation, because the latter types would have to use narrower containers (ULDs) or pallets than they are capable of carrying.

AEI's view, however, is that true interlining of ULDs between narrowbody types is rarely required by most freight operators. Moreover, AEI argues that the MD-80SF is a highly attractive freighter because of the low capital costs of conversion candidates, its durable airframe and low maintenance costs, all of which could make the MD-80SF an attractive alternative to the 737-300SF, 737-400SF and A320F.

The three main MD-80 variants (the MD-82/-88 and -83) will have gross structural payloads of 47,024lbs and 45,314lbs (*see table, this page*). This compares with gross structural payloads of 42,900lbs and 47,100lbs for the 737-300SF and -400SF, for which AEI also offers conversion programmes.

The MD-82/-88 have a lower fuel capacity than the MD-83, and range with maximum payload is 1,650nm and 2,280nm (*see table, this page*).

The main feature of the MD-80SF is its payload accommodation. It will primarily use its main deck, but also has underfloor belly space for bulk loading. The underfloor belly space will provide 1,253 cu.ft. on the MD-82/-88 and 1,013 cu.ft. on the MD-83 (*see table, this page*).

The main deck on the MD-80 can accommodate ULDs that are 78 inches high at the centre. With respect to ULDs, freight carriers have two main choices, of which there are two variants. The first is contoured ULDs that are 108 inches wide

at the base, which makes it a narrow ULD, but makes it suitable for interlining between other narrowbody types.

There are two variants of this 108-inch wide ULD: one with a depth of 98 inches; and another with a depth of 96 inches. This means that they utilise 88 or 96 inches of the main deck's length. The main deck can accommodate 12 of these ULDs. The 88-inch deep units have an internal volume of 359 cu.ft., with 12 of them providing a total volume provided of 4,308 cu.ft. (*see table, this page*).

The 96-inch deep ULD has an internal volume of 412cu. ft. The main deck can still accommodate 12 of these, and total volume provided is 4,944 cu. ft. (*see table, this page*).

The second main choice is the use of a contoured ULD that is 125 inches deep, and has the same height of 78 inches. This depth of 125 inches means only eight can be accommodated longitudinally on the MD-80's main deck.

The first sub-variant has a base width of 88 inches, and the ULD has a volume of 459 cu.ft. These provide a total volume of 3,672 cu.ft. The second sub-variant has a base width of 96 inches and a volume of 510 cu.ft. The eight ULDs provide a total volume of 4,080 cu.ft.

Once belly capacity is taken into

consideration, the total available freight volume provided by the four ULD configurations varies from 4,925 cu.ft. to 6,197 cu. ft. (*see table, this page*).

The MD-80SF has similar gross structural payload and available volumes to the 737-300SF and -400SF, also available from AEI.

ULDs commonly used on the 737-300/-400 are the AAY. This has a height of 79 inches, a base width of 125 inches and is 88 inches deep. This has an internal volume of 440 cu. ft. The 737-300 can accommodate nine of these. With belly capacity, the aircraft has a total volume of 4,588 cu.ft.

The 737-400 can carry 10 of the same ULD, generating a main deck volume of 4,400 cu.ft. With belly space, total volume is 5,773 cu.ft.

The MD-80SF is therefore able to compete directly on payload capacity with the 737-300SF/-400SF. AEI is offering the MD-80 passenger-to-freighter conversion at a list price of \$2.2 million, and says it expects to go into production with orders for more than 40 conversions. **AC**

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PAYLOAD SPECIFICATIONS OF

Aircraft type	MD-82SF/-88SF	MD-83SF
Gross structural payload-lbs	47,024	45,314
Range-nm	1,650	2,280
Main deck containers:	12 of 88/96 X 108, or 8 of 125 X 88/96	
Main deck volume-cu.ft.:	3,672/4,080/4,308/4,944	3,672/4,080/4,308/4,944
Lower deck volume-cu.ft.	1,253	1,013
Total volume-cu.ft.	4,925-6,197	4,925-6,197