

## 6 | AIRCRAFT OWNER'S &amp; OPERATOR'S GUIDE

# 737-300/-400/-500 specifications

The 737-300/-400/-500 is available with three different engine variants and multiple MTOW & fuel tank options.

The second generation 737-300/-400/-500 family is one of the most popular short-haul workhorses, particularly for the growing number of low-cost carriers. The various combinations of gross weight, range and engines of the 737-300, -400 and -500 are detailed in this section.

In total, 1,988 737-300/-400/-500s were built between January 1984 and December 1999. Of these, 1,113 were the -300 variant, 486 were the larger -400 and the remaining 389 were the smallest -500. The last aircraft built was a -400 for CSA Czech Airlines.

The family was launched with entry into service (EIS) in November 1984 with a -300 for US Airways: line number 1001. The airframe shares 80% commonality of spare parts with the earlier 737-200. Other internal changes compared to the -200 include materials and systems improvements first developed for the 757 and 767, including an early generation EFIS flightdeck (with four colour CRT screens). Soon demand for a larger capacity aircraft, partly as a 727 replacement with family commonality with the 737-300, led to the introduction into service in January 1988 of the

stretched -400, which added ten feet accommodating three extra seat rows. This increased capacity by 19 seats.

The -500 was launched by Southwest and entered service in 1990 to serve some of its less dense point-to-point routes. It had almost the same fuselage length as the -200, which gave it three seat rows and 18 seats fewer than the -300. The -500's main appeal is for operators of large 737-300 and -400 fleets. Although the -500 is a shortened development of the -300, the -500 still carries much of the structural weight needed for the larger models. This makes the -500 less efficient than if it was designed specifically for its size category. The -500's extensive commonality benefits more than compensate for this, however.

A variety of engine options were introduced by CFMI for the -300/-400/-500. The CFM56-3 was launched on the 737-300 in its -3B1 variant, initially rated at 18,500 lbs thrust. It had the characteristic "squashed" engine cowl to accommodate the fact that it was a high-bypass ratio engine, with a significantly larger fan diameter compared with the Pratt & Whitney JT8D on the earlier 737-100 and -200. Two other main

CFM56-3 variants are available at various thrust ratings: the -3B2 and the -3C1. There is a degree of interchangeability across the family.

There is also an option to install integral forward airstairs on all 737-300/-400/-500 models.

## Specifications

### -300 series

The -300 model can accommodate 140 passengers in an all-economy six-abreast configuration at a 32-inch seat pitch. This increases to 149 at a higher density 30-inch pitch. Major US operators, like the launch-customer US Airways, configured the aircraft with a two-class cabin, with eight first class four-abreast seats and 120 six-abreast economy seats, totalling 128 passengers.

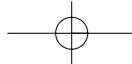
The initial -300 model has a maximum take-off weight (MTOW) of 124,500lbs and fuel capacity of 5,311 USG (see table, page 6). This is powered by the CFM56-3B1 rated at 20,000 lbs thrust. There are two other MTOW variants for this engine variant. These are the 130,000lbs MTOW with fuel capacity of 5,701USG (which is achieved with a 390USG Boeing-installed auxiliary fuel tank in the aft cargo compartment) and the 135,000lbs MTOW with fuel capacity of 6,121USG (using an 810USG Boeing-installed auxiliary tank in the aft cargo compartment).

With the CFM56-3B2 engine variant, rated at 22,000lbs thrust, MTOWs increase as do fuel capacities, again using auxiliary fuel tanks in the aft cargo hold. These are MTOWs of 137,000lbs, 138,500lbs and 139,500lbs with fuel capacity of 5,803USG (500USG Rogerson-installed auxiliary tank), and 6,295USG (1000USG Rogerson-installed auxiliary tank) for the two higher weights (see table, page 6). A derated CFM56-3C1 was also introduced with these MTOWs in 1988 after the -400 was made available.

Range with 128 passengers and standard fuel is 1,815nm, while range with 128 passengers and maximum fuel is 2,685nm. The high gross weight version has maximum range of 3,400nm with 140 passengers.



There are three main variants. Each can be powered by engines with two different thrust ratings. More than 1,100 aircraft are the -300 variant, and nearly 500 are the largest -400 variant.



## 737-300/-400/-500 SERIES SPECIFICATIONS

Variant	-300	-300	-300	-300	-300	-300
MTOW lbs	124,500	130,000	135,000	137,000	138,500	139,500
Fuel volume USG	5,311	5,701	6,121	5,803	6,295	6,295
Engine	CFM56-3B1	CFM56-3B1	CFM56-3B1	CFM56-3B2 /-3C1	CFM56-3B2 /-3C1	CFM56-3B2 /-3C1
Engine thrust rating lbs	20,000	20,000	20,000	22,000	22,000	22,000
Seats	128/140	128/140	128/140	128/140	128/140	128/140
Variant	-400	-400	-400	-400	-400	-400
MTOW lbs	138,500	142,400	150,000	142,500	143,500	150,000
Fuel volume USG	5,311	5,701	6,121	5,803	6,295	6,295
Engine	CFM56-3B2	CFM56-3B2	CFM56-3B2	CFM56-3C1	CFM56-3C1	CFM56-3C1
Engine thrust rating lbs	22,000	22,000	22,000	23,500	23,500	23,500
Seats	138/159	138/159	138/159	138/159	138/159	138/159
Variant	-500	-500	-500	-500	-500	-500
MTOW lbs		115,500	124,500	133,500	124,500	133,500
Fuel volume USG		5,311	5,701	6,121	5,803	6,295
Engine		CFM56-3B1	CFM56-3B1	CFM56-3B1	CFM56-3B1	CFM56-3B1
Engine thrust rating lbs		18,500	18,500	18,500	20,000	20,000
Seats		108/122	108/122	108/122	108/122	108/122

### -400 series

The larger -400 model can accommodate 159 passengers in an all-economy layout at a 32-inch seat pitch. This is achieved with a six-foot fuselage plug insertion forward and another four-foot plug insertion rear of the wing. Seat capacity increases to 168 at a higher density 30-inch pitch. Some major US airlines operate with a two-class cabin layout, with eight first class four-abreast seats and 138 six-abreast economy seats.

The initial basic -400 model has an MTOW of 138,500 lbs and fuel capacity of 5,311 USG. This is powered by the CFM56-3B2 rated at 22,000lbs thrust, the same engine as the high weight -300.

There are two other MTOW variants for this particular 22,000lbs engine variant. These are the 142,500lbs MTOW with fuel capacity of 5,701USG (which is achieved with a 390USG Boeing-installed auxiliary fuel tank in the aft cargo compartment) and the 150,000lbs MTOW with fuel capacity of 6,121USG (using a 810USG Boeing-installed auxiliary tank in the aft cargo compartment). The higher gross weight aircraft have strengthened undercarriages.

The higher thrust CFM56-3C1 engine variant, which entered service in September 1988, and is rated at

23,500lbs thrust, allows MTOWs and fuel capacities to increase. Higher fuel capacity is again achieved using auxiliary fuel tanks in the aft cargo hold. The different versions are MTOWs of 142,500lbs, 143,500lbs and 150,000lbs. The first has a fuel capacity of 5,803USG (500USG Rogerson-installed auxiliary tank), and the two higher weights have a 6,295USG fuel capacity (Rogerson-installed 1,000USG auxiliary tank).

The CFM56-3C1 can also be de-rated for use on the 737-300 and -500. The -3C1 is the most numerous of the CFM56-3 family and superseded the -3B2 and -3B1.

The -400's standard range with maximum payload is 2,160nm, while typical range with 146 passengers is 1,960nm. Their range of the high gross weight option with 146 passengers is 2,080nm. Its transcontinental US range made it an ideal 727 replacement.

### -500 series

Originally designated as the 737-1000, the smaller -500 model is a direct replacement for the 737-200 and can accommodate 122 passengers in an all-economy configuration at 32-inch seat pitch. This increases to 132 at a higher density 30-inch pitch. In a two-class

cabin layout, with eight first class four-abreast seats and 100 six-abreast economy seats, but airlines rarely use this aircraft in this configuration.

The initial basic -500 model has an MTOW of 115,500lbs and fuel capacity of 5,311USG. This is powered by the CFM56-3B1 rated at 18,500 lbs thrust, the same engine as the low weight 737-300. There are two other MTOW variants for this thrust rating of the -3B1. These are the 124,500lbs MTOW with fuel capacity of 5,701USG (which is achieved with a 390USG Boeing-installed auxiliary fuel tank in the aft cargo compartment), and the 133,500lbs MTOW with fuel capacity of 6,121USG (using an 810USG Boeing-installed auxiliary tank in the aft cargo compartment).

With the same CFM56-3B1 engine, up-rated at 20,000lbs thrust, there are two further MTOWs available. The 124,500lbs MTOW has a fuel capacity of 5,803USG with the 500USG Rogerson-installed auxiliary tank, and the 133,500lbs MTOW has a fuel capacity of 6,295USG with the 1,000USG Rogerson-installed auxiliary tank.

Standard range with maximum passengers is 1,520nm, while the higher gross weight option has a range of 2,400nm with maximum passengers. **AC**