



Backgrounder

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The Boeing Next-Generation 737 Family – Productive, Progressive, Flexible, Familiar

The members of the Next-Generation 737 family -- the 737-600/-700/-800/-900ER models -- continue the 737's popularity and reliability in commercial jetliner transport. The Next-Generation family has won orders for more than 6,500 airplanes, while the combined 737 family has surpassed 11,200 orders. Boeing has delivered more than 7,700 737s (of those more than 4,600 are Next-Generation 737s) through September 2013.

The 737 program broke the record for orders for any Boeing model in a single year, accumulating 1,124 net orders in 2012. The 737 MAX – which brings the best of future engine technologies to the record-selling 737 – accounted for 914 of those orders in 2012. In addition, the Next-Generation 737 set a new single-year record with 415 deliveries to customers worldwide. The 737 program also celebrated its 10,000th order in 2012.

Two airplane models delivered in 2007

Two Next-Generation 737s were certified and entered service in 2007.

The 737-900ER (Extended Range) was launched July 18, 2005, with an order for 30 airplanes from Indonesian carrier Lion Air. The airplane was certified by the U.S. Federal Aviation Administration (FAA) on April 20, 2007, and validated by the Indonesian regulatory agency April 26. Lion Air received its first 737-900ER on April 27, 2007. Certification by the European Aviation Safety Agency followed on April 22, 2008.

On Jan. 31, 2006, the 737-700ER was launched with an order conversion from ANA (All Nippon Airways) for two airplanes. The derivative, inspired by the Boeing Business Jet, is designed for long-range commercial applications and has the longest range capability of any 737 family member in commercial service. FAA certification took

place Feb. 1, 2007, with validation through the regulatory agency in Japan closely following. ANA received its first 737-700ER on Feb. 14, 2007 and its second Aug. 16.

First three Next-Generation models delivered between 1997 and 1998

Boeing certified and delivered the first three Next-Generation models in less than one year.

The 737-700 was launched in November 1993 with a Southwest Airlines order for 63 airplanes. On Nov. 7, 1997, the 737-700 was awarded type certification by the FAA, and the first delivery followed in December 1997. Europe's Joint Aviation Authority, or JAA, gave its validation Feb. 19, 1998.

The second model, the 737-800, was launched Sept. 5, 1994, with commitments for more than 40 airplanes. The 737-800 earned FAA certification March 13, 1998, and JAA type validation April 9. The first delivery was to German carrier Hapag-Lloyd in spring 1998.

Scandinavian Airlines (SAS) became the launch customer for the third model -- the 737-600 -- on March 15, 1995, when the airline ordered 35 airplanes. The 737-600 earned type certification from the FAA Aug. 14, 1998, and JAA validation Sept. 4. First delivery of the 737-600 went to SAS in the third quarter of 1998.

Between 1997 and 2003, Boeing offered the 737-900. Fifty-two of the airplanes were delivered to six customers. Launch customer Alaska Airlines received the first of 10 airplanes in May 2001. Customers began ordering the -900's replacement, the higher capacity, longer-range 737-900ER, in 2005. To date, the 737-900ER has logged more than 500 orders from 17 customers in 10 countries.

Delivering value to customers is key

The 737 -- a short-to-medium-range airplane -- is based on a key Boeing philosophy of delivering added value to airlines with reliability, simplicity and reduced operating and maintenance costs. In addition, the newer 737 models offer a modern flight deck using the most advanced navigation technology available today. Airlines can choose to provide their flight crews with either the latest display format, common with models such as the 777, or opt for data format commonality with earlier 737 models.

A family of airplanes in a range of sizes

The Next-Generation 737 family is currently offered in three sizes, ranging from 120 to 220 seats.

- The 737-700 is capable of carrying up to 149 passengers.

- The 737-800 can seat up to 189 passengers.
- Finally, the 737-900ER is the longest 737, capable of carrying up to 180 passengers in a two-class layout and is certified for up to 220 passengers in a one-class layout.

Listening to customers

Airline customers who were involved in the development of the Next-Generation 737 models delivered a very clear message: They wanted advanced technology that allows for simplicity, reliability and low cost -- not just technology for technology's sake. They also wanted flight-deck commonality with earlier 737s.

In addition to airline customers, Boeing chief mechanics and field service representatives participated in the airplanes' development.

A bigger wing, longer range and higher speed

The 737-600/-700/-800/-900ER models incorporate a new, advanced-technology wing design that helps increase fuel capacity and efficiency, both of which increase range. On each wing, the chord is increased by about 20 inches (50 cm) and the total span by approximately 18 feet (5.5 m). The total wing area is increased by 25 percent to 1,341 square feet (125 m²), providing 30 percent more fuel capacity for a total of 6,875 U.S. gallons (26,020 L).

New-technology Blended Winglets, which are available on the 737-700, -800 and -900ER, further boost performance. The 8-foot (2.4-m)-long wingtip extensions enhance range, fuel efficiency and take-off performance while lowering carbon emissions, engine maintenance costs and noise.

The Next-Generation 737 models fly approximately 3,000 nautical miles (5,500 km), an increase of up to 900 nautical miles over earlier 737 models. This increases 737 route capabilities throughout the world. The 737-700ER equipped with nine auxiliary fuel tanks has a maximum range of 5,785 nautical miles (10,710 km).

The advanced wing airfoil design provides an economical cruise speed of .78 Mach (590 mph).

The Next-Generation 737 airplanes are capable of cruising to a maximum altitude of 41,000 feet (12.5 km), compared to 37,000 feet (11.3 km) for the 737-300/-400/-500 models, and 39,000 feet (11.9 km) for the competition.

Advanced engine technology

In April 2009, Boeing and CFM introduced the new CFM56-7BE engine enhancement program to coincide with 737 airframe improvements. The combination reduces fuel consumption by two percent.

CFM's engine hardware changes improve airflow, and the engine runs at cooler temperatures resulting in a one percent reduction in fuel consumption. Boeing's airplane structural improvements will reduce drag, reducing fuel use by about one percent. The combined improvements also equal a two percent reduction in carbon emissions.

Depending on an engine's thrust rating, the new engine provides up to four percent lower maintenance costs.

The CFM 56-7BE engine rolled into Boeing's production line beginning in mid-2011. Boeing will introduce its airframe improvements into production as they become available, and all will be in place by late 2013.

In 2007, CFM introduced a tech insertion package for the CFM56-7B engine. The Tech Insertion engine lowers fuel consumption by one percent over the life of the engine and lowers maintenance costs by 12 percent through longer time on wing and improved durability. The Tech Insertion engine also reduces nitrous oxide emissions by 25 percent.

CFM is a joint venture between General Electric Co. of the U.S. and Snecma of France. All of its engines meet strict international emissions restrictions and when efficiently integrated on the 737, meet international noise restrictions.

The original CFM56-7 engines -- which were certified by the FAA in late 1996 at 26,400 pounds of thrust -- also offer lower fuel burn and lower engine maintenance costs. The CFM56-7B has a higher thrust capability than the CFM56-3C engines powering the 737-300/-400/-500 models. To take additional advantage of the engine's increased thrust, the newer 737 models' vertical fin and horizontal stabilizer are larger.

737 Boeing Sky Interior debuts

Drawing from years of research inspired by the travel experience, the 737 Boeing Sky Interior features modern sculpted sidewalls and window reveals that draw passenger eyes to the airplane's windows, giving passengers a greater connection to the flying experience.

The design offers larger, pivoting overhead stowage bins that add to the openness of the cabin. The bins give more passengers room to store a carry-on roll-aboard near their own seat, adding both extra convenience and extra leg room.

Boeing redesigned reading-light switches so passengers can find them more easily and avoid accidentally pressing the flight-attendant call button.

Speakers integrated into each row's passenger-service unit will improve sound and clarity of public address operations, while the new air grill is tamper-proof and improves operational security.

Deliveries of the 737 Boeing Sky Interior began in October 2010. The program marked the 500th Boeing Sky Interior delivery in early November 2012.

Demonstrates Continuous Improvement

The Next-Generation 737 program continuously evaluates and incorporates value-added technologies and design innovations to improve performance and capabilities. Recent offerings include short-field performance enhancements to increase payload capacity and reduce takeoff and landing field length; and carbon brakes to reduce weight for improved airplane operating economics.

Other changes include leading-edge display and flight-management software that allows the airplane to fly the most restricted navigation routes through use of industry leading Required Navigation Performance. The Next-Generation 737 is the first commercial jet airplane certified for Ground Positioning System landings, which use satellite technology to make landings more efficient, accurate, and environmentally friendly.

The Next-Generation 737 flight deck is equipped with technologies such as Vertical Situation Display, which shows the current and predicted flight path of the airplane and indicates potential conflicts with terrain; and Head-Up Display, which provides pilots with "eye-level" flight and safety information. These optional features are examples of how the Next-Generation 737 is designed to reduce flight delays, enhance safety and flight-crew efficiency.

The Electronic Flight Bag and Maintenance Performance Toolbox, available through Boeing Commercial Aviation Services, are other features that increase flight and maintenance operational efficiency

737 Family Technical Characteristics				
	737-600	737-700	737-800	737-900ER
Passengers				
2-class configuration	110	126	162	180
1-class configuration	132	149	189	215 to 220

Cargo	720 cubic ft (20.4 m ³)	966 cubic ft (27.3 m ³)	1,555 cubic ft (44 m ³)	1,826 cubic ft (51.7 m ³)
Engines (Maximum thrust)	CFM56-7BE 22,000 lb (97.9 kN)	CFM56-7BE 26,100 lb (116.0 kN)	CFM56-7BE 28,400 lb (126.3 kN)	CFM56-7BE 28,400 lb (126.3 kN)
Maximum Fuel Capacity	6,875 gallons (26,020 L)	6,875 gallons (26,020 L)	6,875 gallons (26,020 L)	7,837 gallons ² (29,660 L)
Maximum Takeoff Weight	145,500 lb (65,990 kg)	154,500 lb (70,080 kg)	174,200 lb (79,010 kg)	187,700 lb (85,130 kg)
Maximum Range	3,235 nm at max weight/thrust (5,990 km)	3,445 nm ¹ (6,380 km)	3,085 nm ¹ (5,710 km)	3,235 nm ^{1,2} (5,990 km)
Typical Cruise Speed (at 35,000 ft)	Mach 0.785	Mach 0.781	Mach 0.789	Mach 0.79
Basic Dimensions				
Wingspan	112 ft 7 in (34.3 m)	112 ft 7 in (34.3 m)	112 ft 7 in (34.3 m)	112 ft 7 in (34.3 m)
With winglets		117 ft 5 in (35.7 m)	117 ft 5 in (35.7 m)	117 ft 5 in (35.7 m)
Overall length	102 ft 6 in (31.2 m)	110 ft 4 in (33.6 m)	129 ft 6 in (39.5 m)	138 ft 2 in (42.1 m)
Tail height	41 ft 3 in (12.6 m)	41 ft 2 in (12.5 m)	41 ft 2 in (12.5 m)	41 ft 2 in (12.5 m)
Interior cabin width	11 ft 7 in (3.53 m)	11 ft 7 in (3.53 m)	11 ft 7 in (3.53 m)	11 ft 7 in (3.53 m)
Body exterior width	12 ft 3 in (3.73 m)	12 ft 3 in (3.73 m)	12 ft 3 in (3.73 m)	12 ft 3 in (3.73 m)

- 1 With optional blended winglets
- 2 With two optional auxiliary fuel tanks

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