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727 Family of Airplanes

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1.1 Scope

This document provides, in a standardized format, airplane characteristics data for general airport planning. Since operational practices vary among airlines, specific data should be coordinated with the using airlines prior to facility design. The Boeing Commercial Airplane Company should be contacted for any additional information required.

Format of the document reflects the results of a coordinated effort by representatives from the following organizations:

Aerospace Industries Association of America
Airport Operators Council International
Air Transport Association of America
International Air Transport Association

1.2 Introduction

This document conforms to NAS 3601. It provides characteristics of the Boeing Model 727 family of airplanes for airport planners and operators, airlines, architectural and engineering consultant organizations, and other interested industry agencies. Airplane changes and available options may alter model characteristics; the data presented herein reflect typical airplanes in each model category.

For additional information contact:

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1.3 A Brief Description and Comparison of the 727 Family of Airplanes

727-100

The 727-100 is a three-engine jet transport airplane designed for short to medium ranges and short runway operations. The Pratt & Whitney JT8D turbofan engines provide ample thrust for rapid climbout. The airplane also has rapid descent and short-field landing capability. The airplane is highly self-sufficient on the ground, and the cabin cross section is the same as that of the 707 and 737 models. Significant features of interest to the airport planner include the following:

- Engines are located near the tail of the airplane on the fuselage.
- The horizontal stabilizer is mounted atop the vertical fin.
- The airplane has self-contained stairways; the ventral stairway is standard and a forward stairway is optional.
- An auxiliary power unit is standard, and it allows the airplane to function without ground-supplied electrical or pneumatic power.
- Servicing connections are provided for single station pressure refueling and overwing gravity refueling.
- All servicing of the 727 is accomplished with standard ground equipment.

727-100C

A large cargo door on the upper deck is the prominent feature of the convertible cargo configuration of the 727-100 series. It has removable or foldaway internal fixtures that allow it to carry various ratios of passengers and cargo on the upper deck. This model has a higher empty weight and payload capability than the basic passenger model, but is dimensionally the same.

The 727-100QC is an optional quick-change configuration of the -100C in which the passenger seats are mounted on pallets so that conversion can be made from passenger to cargo configuration in a matter of minutes. When equipped with a palletized passenger interior, the -100QC empty weight is approximately 3,600 lb. (1,634 kg.) higher than that of the -100C.

727-200

The original 727-200 was an extended-body version of the 727-100 with no increase in taxi gross weight. Two 10-foot sections were inserted into the fuselage, one forward of the front wing spar and the other aft of the main wheel well. This allowed additional passenger and cargo capacity for airlines with medium-haul, high-density traffic routes. The -200 empty weight and maximum gross weight are higher than the short-body versions.

Advanced 727-200

Advanced development features have produced significant improvements over the original 727-200 which result in improved performance and capability.

Advanced 727-200 Principal Features:

- Basic
 - 185,800 LB (84,350 kg) maximum taxi weight
 - JT8D-9A Engines
 - Quiet Nacelle
 - New Interior
 - Integral wing center section fuel
 - Automatic spoilers and Mark III brake anti-skid system
 - Cascade vane thrust reverser
 - Automatic braking
 - Ground proximity warning
- Options (examples)
 - 191,000 lb (86,700 kg) maximum taxi weight
 - 195,500 lb (88,800 kg) maximum taxi weight
 - 197,700 lb (89,800 kg) maximum taxi weight
 - 210,000 lb (95,300 kg) maximum taxi weight
 - 161,000 lb (73,100 kg) landing weight
 - 141,000 lb (64,010 kg) zero fuel weight
 - 40° flap load limiter
 - 50 x 21 IN (1.27 x 0.53M) tires
 - JT8D-15, JT8D-17 or JT8D-17R engines with full acoustical treatment
 - Automatic Performance Reserve (APR) with JT8D-17R engine
 - Supplementary fuel, up to 2480 U.S. gal. (9,390 l)
 - Carry-All overhead compartment
 - Containerized baggage system
 - Lowered landing minimums - Category IIIa with 50-ft/15 m decision height
 - Area navigation (RNAV)
 - Dual inertial navigation system
 - Omega navigation system
 - Digital TAT/EPRL system
 - Forward airstairs

Advanced 727-200 Characteristics and options of Interest to Airports:

- Lower community noise
- Higher gross weights
- Higher landing weight
- Improved runway loading
- Improved takeoff distance
- Reduced stopping distance
- Increased fuel capacity
- Forward Airstairs

727 Engines

Early 727s were equipped with JT8D-1 engines; later models used JT8D-7 engines. The JT8D-9, -11, -15, -17 and -17R engines reflect successive improvements in the areas of Noise Reduction, Thrust, and Maintenance Costs.

Currently, the JT8D-1, 7 and 9 are used on the 727-100, the JT8D-7, -9 and -11 on the original 727-200, and JT8D-9, -15, -17 and -17R on the Advanced 727-200.

ENGINE THRUST DATA:

<u>MODEL</u>	<u>MAX THRUST POUNDS</u>
JT8D-1	14,000
JT8D-7	14,000
JT8D-9	14,500
JT8D-11	15,000
JT8D-15	15,500
JT8D-17	16,000
JT8D-17R	17,400

The standard option installation of the JT8D-17R on the 727-200 includes a Boeing conceived control system called Automatic Performance Reserve (APR). With this system installed the alternate JT8D-17R rating of 16,400 pounds is used for takeoff. In the event of an engine failure during takeoff the APR system senses the engine failure and automatically advances the fuel control to the maximum rated takeoff thrust on the remaining engines.

The JT8D-17R engine with APR is of particular benefit on hot days at high altitude airports. The allowable takeoff gross weight increase at a typical high altitude airport would be from 3000 to 9000 pounds (1400 to 4100 kg).

727 Gravel Runway Capability

727 Gravel Runway Capability is available for retrofit on 727-100 and -100C airplanes. With this capability, the 727 brings a new era of jet transportation to remote areas where only propeller-driven airplanes have operated previously.

The special environment of the gravel runway dictates some changes in operating procedures and techniques for maximum operational safety and economy. The Boeing Company and the FAA have specified procedural changes for operating the 727 from gravel runways.

Airports interested in operational details associated with 727 Gravel Runway Capability are referred to the using airline or the Boeing Commercial Airplane Company.

NOTE: Pages in this document titled "Model 727-200" are applicable to both the 727-200 and Advanced 727-200. Pages uniquely applicable to a specific model are so marked.

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