767
Airplane Characteristics for
Airport Planning

Boeing Commercial Airplanes
### 767 AIRPLANE CHARACTERISTICS FOR AIRPORT PLANNING

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1.0 SCOPE AND INTRODUCTION

1.1 Scope

1.2 Introduction

1.3 A Brief Description of the 767 Family of Airplanes
1.0 SCOPE AND INTRODUCTION

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. Boeing Commercial Airplanes should be contacted for any additional information required.

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

- Aerospace Industries Association
- Airports Council International - North America
- Air Transport Association of America
- International Air Transport Association

The airport planner may also want to consider the information presented in the "Commercial Aircraft Design Characteristics – Trends and Growth Projections," available from the US AIA, 1250 Eye St., Washington DC 20005, for long-range planning needs. This document is updated periodically and represents the coordinated efforts of the following organizations regarding future aircraft growth trends:

- International Coordinating Council of Aerospace Industries Associations
- Airports Council International - North American and World Organizations
- 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 767 airplane 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:

Boeing Commercial Airplanes
P.O. Box 3707
Seattle, Washington 98124-2207
U.S.A.

Attention: Manager, Airport Technology
Mail Code 20-93
1.3 A Brief Description of the 767 Family of Airplanes

The 767 is a twin-engine family of airplanes designed for medium to long range flights. It is powered by advanced high bypass ratio engines. Characteristics unique to the 767 include:

- Advanced aerodynamics
- Stronger and lighter materials
- Two-crew cockpit with digital flight deck systems
- High bypass ratio engines
- Twin-aisle seating
- Extended range operations

767-200, -200ER

The 767-200 can carry up to 216 passengers and baggage over 3,900 nautical miles. The 767-200ER, with the center fuel tanks can also carry 216 passengers and baggage on routes over 5,200 nautical miles. Seating arrangement varies with airline option. Both airplane models have identical outside dimensions.

767-300, -300ER

The 767-300 and -300ER are 21 feet 1 inch longer than the 767-200. The additional length enables the airplane to carry more passengers. The -300ER is also fitted with center fuel tanks for additional range. Except for the longer fuselage, the -300 and the -300ER have dimensions identical to the -200 and -200ER.

The -300 and -300ER can be fitted with an optional mid-cabin door to facilitate loading and unloading of passengers. This arrangement also allows alternate passenger accommodations, up to and including maximum passenger capacity (exit limit).

767-300 Freighter

The 767-300 Freighter is equipped with a main deck cargo door that enables it to load cargo containers and/or pallets on the main deck. The main deck can accommodate either a manual cargo handling system or a powered transfer system (General Market Freighter). The 767-300 Freighter does not have windows and doors, except for the left entry door for crew access.
767-400ER

The 767-400ER is 21 feet longer than the 767-300. The -400ER is equipped with a new-generation wing design and new engines to enable it to achieve long range operations along with the additional payload.

Military Derivatives

The 767-200 airplane is also delivered for military uses. These derivatives are not mentioned in this document because they are equipped with special equipment used for special missions. Some of the external dimensions may be similar to the standard 767-200 airplane such that some of the data in this document can be used.

Extended Range Operations (ETOPS)

The 767 can be equipped with special features to enable it to fly extended range operations in remote areas. This feature is standard on the 767-400ER.

767 Engines

The 767 is offered with a variety of engines. These engines are high bypass ratio engines which are more economical to maintain and are more efficient. See Table 1.3.1 for engine applicability.

Cargo Handling

The lower lobe cargo compartments can accommodate a variety of containers and pallets now used in narrow-body and wide-body airplanes. The optional large forward cargo door (standard on the 767-200ER, 767-300ER, 767-300 Freighter, and 767-400ER) allow loading of 96- by 125-in (2.44 by 3.18 m) pallets and also split-engine carriage kits. In addition, bulk cargo is loaded in the aft cargo compartment and the forward cargo compartment where space permits.

Ground Servicing

The 767 has ground service connections compatible with existing ground service equipment, and no special equipment is necessary.

Document Applicability

This document contains data pertinent to all 767 airplane models (767-200/200ER/300/300ER/300 Freighter/400ER).
<table>
<thead>
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<th>ENGINE MODEL (2 EACH)</th>
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<td>PW4060</td>
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<td>CF6-80C2-B6</td>
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<td>RB211-524G</td>
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<td>RB211-524H</td>
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NOTES:

1. ENGINE/TAXI WEIGHT COMBINATIONS SHOWN ARE AS DELIVERED OR AS OFFERED BY BOEING COMMERCIAL AIRPLANES. CERTAIN ENGINES MAY NOT YET BE CERTIFICATED.
2. CONSULT WITH USING AIRLINE FOR ACTUAL OR PLANNED ENGINE/WEIGHT COMBINATION.
3. SEE SECTION 2.1 GENERAL CHARACTERISTICS FOR DETAILS ON SELECTED AIRPLANES.

1.3.1 BRIEF DESCRIPTION – ENGINE/WEIGHT COMBINATIONS
MODEL 767
2.0 AIRPLANE DESCRIPTION

2.1 General Characteristics
2.2 General Dimensions
2.3 Ground Clearances
2.4 Interior Arrangements
2.5 Cabin Cross Sections
2.6 Lower Cargo Compartments
2.7 Door Clearances
2.0 AIRPLANE DESCRIPTION

2.1 General Characteristics

Maximum Design Taxi Weight (MTW). Maximum weight for ground maneuver as limited by aircraft strength and airworthiness requirements. (It includes weight of taxi and run-up fuel.)

Maximum Design Takeoff Weight (MTOW). Maximum weight for takeoff as limited by aircraft strength and airworthiness requirements. (This is the maximum weight at start of the takeoff run.)

Maximum Design Landing Weight (MLW). Maximum weight for landing as limited by aircraft strength and airworthiness requirements.

Maximum Design Zero Fuel Weight (MZFW). Maximum weight allowed before usable fuel and other specified usable agents must be loaded in defined sections of the aircraft as limited by strength and airworthiness requirements.

Spec Operating Empty Weight (OEW). Weight of structure, powerplant, furnishing systems, unusable fuel and other unusable propulsion agents, and other items of equipment that are considered an integral part of a particular airplane configuration. Also included are certain standard items, personnel, equipment, and supplies necessary for full operations, excluding usable fuel and payload.

Maximum Structural Payload. Maximum design zero fuel weight minus operational empty weight.

Maximum Seating Capacity. The maximum number of passengers specifically certificated or anticipated for certification.

Maximum Cargo Volume. The maximum space available for cargo.

Usable Fuel. Fuel available for aircraft propulsion.
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<th>CHARACTERISTICS</th>
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<th>MODEL 767-200 (1)</th>
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<td>MAX DESIGN TAXI WEIGHT</td>
<td>POUNDS</td>
<td>284,000 302,000 312,000 317,000</td>
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<td>128,820 136,985 141,521 143,789</td>
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<td>MAX DESIGN TAKEOFF WEIGHT</td>
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<td>WEIGHT (2)</td>
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<td>MAX STRUCTURAL PAYLOAD</td>
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<td>SEATING CAPACITY</td>
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<td>MIXED CLASS</td>
<td>216 - 18 FIRST + 198 ECONOMY</td>
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<tr>
<td>MAX CARGO - LOWER DECK</td>
<td>CUBIC FEET</td>
<td>3,070 3,070 3,070 3,070</td>
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<td>CUBIC METERS</td>
<td>86.9 86.9 86.9 86.9</td>
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<td>USABLE FUEL</td>
<td>US GALLONS</td>
<td>12,140 16,700 16,700 16,700</td>
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<td>LITERS</td>
<td>45,955 63,217 63,217 63,217</td>
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<td>POUNDS</td>
<td>81,338 111,890 111,890 111,890</td>
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<td>KILOGRAMS</td>
<td>36,894 50,753 50,753 50,753</td>
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NOTES:  
(1) SPEC WEIGHT FOR TYPICAL ENGINE/WEIGHT CONFIGURATION SHOWN  
SEE TABLE 1.3.1 FOR COMBINATIONS AVAILABLE. CONSULT WITH AIRLINE FOR SPECIFIC  
WEIGHTS AND CONFIGURATIONS.  
(2) TYPICAL OPERATING EMPTY WEIGHT SHOWN. ACTUAL WEIGHT WILL  
DEPEND ON SPECIFIC AIRLINE CONFIGURATION.  
(3) 290 WITH SECOND OVERWING EXIT DOOR.

2.1.1 GENERAL CHARACTERISTICS  
MODEL 767-200
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<td>MAX DESIGN</td>
<td>POUNDS</td>
<td>337,000 347,000 352,200</td>
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<td>MAX STRUCTURAL</td>
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<td>71,670 71,750 71,650 78,500 78,390 78,390</td>
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<td>KILOGRAMS</td>
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<td>USABLE FUEL</td>
<td>US GALLONS</td>
<td>16,700 20,540 20,540 24,140 24,140 24,140</td>
</tr>
<tr>
<td></td>
<td>LITERS</td>
<td>63,216 77,752 77,752 91,380 91,380 91,380</td>
</tr>
<tr>
<td></td>
<td>POUNDS</td>
<td>111,890 137,618 137,618 161,738 161,738 161,738</td>
</tr>
<tr>
<td></td>
<td>KILOGRAMS</td>
<td>50,752 62,422 62,422 73,363 73,363 73,363</td>
</tr>
</tbody>
</table>

NOTES:  
(1) SPEC WEIGHT FOR TYPICAL ENGINE/WEIGHT CONFIGURATION SHOWN. SEE TABLE 1.3.1 FOR COMBINATIONS AVAILABLE. CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS.  
(2) TYPICAL OPERATING EMPTY WEIGHT SHOWN. ACTUAL WILL DEPEND ON SPECIFIC AIRLINE CONFIGURATION.  
(3) 290 WITH SECOND OVERWING EXIT DOOR.

2.1.2 GENERAL CHARACTERISTICS  
MODEL 767-200ER
### 2.1.3 General Characteristics

**Model 767-300**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Units</th>
<th>767-300 (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Design</td>
<td>Pounds</td>
<td>347,000</td>
</tr>
<tr>
<td>Taxi Weight</td>
<td>Kilograms</td>
<td>157,397</td>
</tr>
<tr>
<td>Max Design</td>
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<tr>
<td>Takeoff Weight</td>
<td>Kilograms</td>
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<tr>
<td>Max Design</td>
<td>Pounds</td>
<td>300,000</td>
</tr>
<tr>
<td>Landing Weight</td>
<td>Kilograms</td>
<td>136,078</td>
</tr>
<tr>
<td>Max Design Zero</td>
<td>Pounds</td>
<td>278,000</td>
</tr>
<tr>
<td>Fuel Weight</td>
<td>Kilograms</td>
<td>126,099</td>
</tr>
<tr>
<td>Spec Operating</td>
<td>Pounds</td>
<td>186,380</td>
</tr>
<tr>
<td>Empty Weight (2)</td>
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<tr>
<td>Max Structural</td>
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<td>91,620</td>
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<tr>
<td>Payload</td>
<td>Kilograms</td>
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</tr>
<tr>
<td>Seating</td>
<td>One-Class</td>
<td>FAA Exit Limit 290 (3)</td>
</tr>
<tr>
<td>Capacity</td>
<td>Two-Class</td>
<td>261 - 24 First + 237 Economy</td>
</tr>
<tr>
<td>Max Cargo</td>
<td>Cubic Feet</td>
<td>4,030</td>
</tr>
<tr>
<td>- Lower Deck</td>
<td>Cubic Meters</td>
<td>114.1</td>
</tr>
<tr>
<td>Usable Fuel</td>
<td>US Gallons</td>
<td>16,700</td>
</tr>
<tr>
<td></td>
<td>Liters</td>
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<tr>
<td></td>
<td>Pounds</td>
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<tr>
<td></td>
<td>Kilograms</td>
<td>50,753</td>
</tr>
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**Notes:**

1. Spec weight for typical engine/weight configuration shown. See Table 1.3.1 for combinations available. Consult with airline for specific weights and configurations.
2. Typical operating empty weight shown. Actual weight will depend on specific airline configuration.
3. 299 with mid-cabin type A door.
## 2.1.4 GENERAL CHARACTERISTICS

**MODEL 767-300ER**

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
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<td>POUNDS</td>
<td>381,000</td>
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<tr>
<td><strong>TAXI WEIGHT</strong></td>
<td>KILOGRAMS</td>
<td>172,819</td>
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<tr>
<td><strong>MAX DESIGN</strong></td>
<td>POUNDS</td>
<td>380,000</td>
</tr>
<tr>
<td><strong>TAKEOFF WEIGHT</strong></td>
<td>KILOGRAMS</td>
<td>172,365</td>
</tr>
<tr>
<td><strong>MAX DESIGN</strong></td>
<td>POUNDS</td>
<td>300,000</td>
</tr>
<tr>
<td><strong>LANDING WEIGHT</strong></td>
<td>KILOGRAMS</td>
<td>136,078</td>
</tr>
<tr>
<td><strong>MAX DESIGN ZERO</strong></td>
<td>POUNDS</td>
<td>278,000</td>
</tr>
<tr>
<td><strong>FUEL WEIGHT</strong></td>
<td>KILOGRAMS</td>
<td>126,099</td>
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<tr>
<td><strong>SPEC OPERATING EMPTY WEIGHT (2)</strong></td>
<td>POUNDS</td>
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<td><strong>EMPTY WEIGHT</strong></td>
<td>KILOGRAMS</td>
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<td><strong>MAX STRUCTURAL PAYLOAD</strong></td>
<td>KILOGRAMS</td>
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<td><strong>PAYLOAD</strong></td>
<td>ONE-CLASS</td>
<td>261 - 24 FIRST + 237 ECONOMY</td>
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<tr>
<td><strong>SEATING CAPACITY</strong></td>
<td>MIXED CLASS</td>
<td>261 - 24 FIRST + 237 ECONOMY</td>
</tr>
<tr>
<td><strong>MAX CARGO</strong></td>
<td>CUBIC FEET</td>
<td>4,030</td>
</tr>
<tr>
<td><strong>- LOWER DECK</strong></td>
<td>CUBIC METERS</td>
<td>114.1</td>
</tr>
<tr>
<td><strong>USABLE FUEL</strong></td>
<td>US GALLONS</td>
<td>24,140</td>
</tr>
<tr>
<td><strong>USABLE FUEL</strong></td>
<td>LITERS</td>
<td>91,380</td>
</tr>
<tr>
<td><strong>USABLE FUEL</strong></td>
<td>POUNDS</td>
<td>161,740</td>
</tr>
<tr>
<td><strong>USABLE FUEL</strong></td>
<td>KILOGRAMS</td>
<td>73,364</td>
</tr>
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</table>

### NOTES:

1. SPEC WEIGHT FOR TYPICAL ENGINE/WEIGHT CONFIGURATION SHOWN. SEE TABLE 1.3.1 FOR COMBINATIONS AVAILABLE. CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS.
2. TYPICAL OPERATING EMPTY WEIGHT SHOWN. ACTUAL WEIGHT WILL DEPEND ON SPECIFIC AIRLINE CONFIGURATION.
3. 299 WITH SECOND OVERWING EXIT DOOR.

**D6-58328**

12 SEPTEMBER 2005
### 2.1.5 GENERAL CHARACTERISTICS

**MODEL 767-300 FREIGHTER**

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>UNITS</th>
<th>767-300 FREIGHTER (1)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CF6-80C2F</td>
</tr>
<tr>
<td><strong>MAX DESIGN WEIGHT</strong></td>
<td>POUNDS</td>
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</tr>
<tr>
<td></td>
<td>KILOGRAMS</td>
<td>185,519</td>
</tr>
<tr>
<td><strong>MAX DESIGN TAKEOFF WGT</strong></td>
<td>POUNDS</td>
<td>408,000</td>
</tr>
<tr>
<td></td>
<td>KILOGRAMS</td>
<td>185,066</td>
</tr>
<tr>
<td><strong>MAX DESIGN LANDING WGT</strong></td>
<td>POUNDS</td>
<td>326,000</td>
</tr>
<tr>
<td></td>
<td>KILOGRAMS</td>
<td>147,871</td>
</tr>
<tr>
<td><strong>MAX DESIGN ZERO FUEL WGT</strong></td>
<td>POUNDS</td>
<td>309,000</td>
</tr>
<tr>
<td><strong>SPEC OPERATING EMPTY WGT (2)</strong></td>
<td>POUNDS</td>
<td>188,000</td>
</tr>
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<td></td>
<td>KILOGRAMS</td>
<td>85,275</td>
</tr>
<tr>
<td><strong>MAX STRUCTURAL PAYLOAD</strong></td>
<td>POUNDS</td>
<td>121,000</td>
</tr>
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<td></td>
<td>KILOGRAMS</td>
<td>54,885</td>
</tr>
<tr>
<td><strong>MAX CARGO - MAIN DECK</strong></td>
<td>(3)</td>
<td>UP TO 24 TYPE A PALLETS AND 2 SPECIAL CONTOURED PALLETS</td>
</tr>
<tr>
<td><strong>MAX CARGO - LOWER DECK</strong></td>
<td>(4)</td>
<td>UP TO 14 M-1 PALLETS AND 2 SPECIAL CONTOURED PALLETS</td>
</tr>
<tr>
<td><strong>USABLE FUEL</strong></td>
<td>CUBIC FEET</td>
<td>4,030</td>
</tr>
<tr>
<td></td>
<td>CUBIC METERS</td>
<td>114.1</td>
</tr>
<tr>
<td></td>
<td>US GALLONS</td>
<td>24,140</td>
</tr>
<tr>
<td></td>
<td>LITERS</td>
<td>91,380</td>
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<tr>
<td></td>
<td>POUNDS</td>
<td>161,740</td>
</tr>
<tr>
<td></td>
<td>KILOGRAMS</td>
<td>73,364</td>
</tr>
</tbody>
</table>

**NOTES:**

1. SPEC WEIGHT FOR TYPICAL ENGINE/WEIGHT CONFIGURATION SHOWN. SEE TABLE 1.3.1 FOR COMBINATIONS AVAILABLE. CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS.
2. TYPICAL OPERATING EMPTY WEIGHT SHOWN. ACTUAL WEIGHT WILL DEPEND ON SPECIFIC AIRLINE CONFIGURATION.
3. 767-300 FREIGHTER - SEE SEC 2.4.6 FOR PALLET DETAILS.
4. 767-300 GENERAL MARKET FREIGHTER - SEE SEC 2.4.6 FOR PALLET DETAILS.
<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>UNITS</th>
<th>767-400ER (1)</th>
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<td></td>
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<td>PW ENGINES</td>
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<td>POUNDS</td>
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<td>451,000</td>
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<td></td>
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<td>204,570</td>
</tr>
<tr>
<td>MAX DESIGN TAKEOFF WEIGHT</td>
<td>POUNDS</td>
<td>450,000</td>
<td>450,000</td>
</tr>
<tr>
<td></td>
<td>KILOGRAMS</td>
<td>204,116</td>
<td>204,116</td>
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<tr>
<td>MAX DESIGN LANDING WEIGHT</td>
<td>POUNDS</td>
<td>350,000</td>
<td>350,000</td>
</tr>
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<td>KILOGRAMS</td>
<td>158,757</td>
<td>158,757</td>
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<tr>
<td>MAX DESIGN ZERO FUEL WEIGHT</td>
<td>POUNDS</td>
<td>330,000</td>
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<td>KILOGRAMS</td>
<td>149,685</td>
<td>149,685</td>
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<tr>
<td>SPEC OPERATING EMPTY WEIGHT (1)</td>
<td>POUNDS</td>
<td>227,400</td>
<td>229,000</td>
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<td>KILOGRAMS</td>
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<td>103,872</td>
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<tr>
<td>MAX STRUCTURAL PAYLOAD</td>
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<td>101,000</td>
</tr>
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<td></td>
<td>KILOGRAMS</td>
<td>46,538</td>
<td>45,813</td>
</tr>
<tr>
<td>SEATING CAPACITY (1)</td>
<td></td>
<td>ONE-CLASS 409 ALL ECONOMY</td>
<td>TWO-CLASS 296 24 FIRST + 272 ECONOMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>THREE-CLASS 243 16 FIRST + 36 BUSINESS + 189 ECONOMY</td>
<td></td>
</tr>
<tr>
<td>MAX CARGO - LOWER DECK (2)</td>
<td>CUBIC FEET</td>
<td>4,905</td>
<td>4,905</td>
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<tr>
<td></td>
<td>CUBIC METERS</td>
<td>138.9</td>
<td>138.9</td>
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<tr>
<td>USABLE FUEL</td>
<td>US GALLONS</td>
<td>24,140</td>
<td>24,140</td>
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<td>LITERS</td>
<td>91,370</td>
<td>91,370</td>
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<td>POUNDS</td>
<td>161,738</td>
<td>161,738</td>
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<tr>
<td></td>
<td>KILOGRAMS</td>
<td>73,363</td>
<td>73,363</td>
</tr>
</tbody>
</table>

NOTES: (1) SPEC WEIGHT FOR BASELINE CONFIGURATION OF 296 PASSENGERS. CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS.
(2) FWD CARGO = 20 LD-2 CONTAINERS AT 120 CU FT EACH
   AFT CARGO = 18 LD-2 CONTAINERS AT 120 CU FT EACH
   BULK CARGO = 345 CU FT

2.1.6 GENERAL CHARACTERISTICS
MODEL 767-400ER
2.2.1 GENERAL DIMENSIONS
MODEL 767-200, -200ER
2.2.2 GENERAL DIMENSIONS

MODEL 767-300, -300ER
2.2.3 GENERAL DIMENSIONS

MODEL 767-300 FREIGHTER
2.2.4 GENERAL DIMENSIONS
MODEL 767-400ER
### MINIMUM* MAXIMUM*

<table>
<thead>
<tr>
<th></th>
<th>FEET - INCHES</th>
<th>METERS</th>
<th>FEET - INCHES</th>
<th>METERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>23 - 6</td>
<td>7.16</td>
<td>24 - 6</td>
<td>7.47</td>
</tr>
<tr>
<td>B</td>
<td>5 - 8</td>
<td>1.73</td>
<td>6 - 9</td>
<td>2.06</td>
</tr>
<tr>
<td>C</td>
<td>13 - 5</td>
<td>4.09</td>
<td>14 - 8</td>
<td>4.47</td>
</tr>
<tr>
<td>D</td>
<td>7 - 5</td>
<td>2.26</td>
<td>8 - 3</td>
<td>2.51</td>
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<tr>
<td>E</td>
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<td>4.60</td>
<td>15 - 1</td>
<td>4.60</td>
</tr>
<tr>
<td>F</td>
<td>7 - 5</td>
<td>2.26</td>
<td>8 - 3</td>
<td>2.51</td>
</tr>
<tr>
<td>G</td>
<td>7 - 6</td>
<td>2.29</td>
<td>8 - 6</td>
<td>2.59</td>
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<tr>
<td>H</td>
<td>13 - 4</td>
<td>4.06</td>
<td>14 - 6</td>
<td>4.42</td>
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<tr>
<td>J</td>
<td>51 - 2</td>
<td>15.60</td>
<td>52 - 11</td>
<td>16.13</td>
</tr>
<tr>
<td>K</td>
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<tr>
<td>L</td>
<td>16 - 3</td>
<td>4.95</td>
<td>18 - 3</td>
<td>5.56</td>
</tr>
<tr>
<td>M</td>
<td>12 - 9</td>
<td>3.89</td>
<td>14 - 3</td>
<td>4.34</td>
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<tr>
<td>N</td>
<td>19 - 6</td>
<td>5.94</td>
<td>21 - 7</td>
<td>6.58</td>
</tr>
</tbody>
</table>

NOTES:
1. VERTICAL CLEARANCES SHOWN OCCUR DURING MAXIMUM VARIATIONS OF AIRPLANE ATTITUDE. COMBINATIONS OF AIRPLANE LOADING AND UNLOADING ACTIVITIES THAT PRODUCE THE GREATEST POSSIBLE VARIATIONS IN ATTITUDE WERE USED TO ESTABLISH THE VARIATIONS SHOWN.
2. DURING ROUTINE SERVICING, THE AIRPLANE REMAINS RELATIVELY STABLE, PITCH AND ELEVATION CHANGES OCCURRING SLOWLY.

* NOMINAL DIMENSIONS

### 2.3.1 GROUND CLEARANCES

MODEL 767-200, -200ER.
NOTES:
1. VERTICAL CLEARANCES SHOWN OCCUR DURING MAXIMUM VARIATIONS OF AIRPLANE ATTITUDE. COMBINATIONS OF AIRPLANE LOADING AND UNLOADING ACTIVITIES THAT PRODUCE THE GREATEST POSSIBLE VARIATIONS IN ATTITUDE WERE USED TO ESTABLISH THE VARIATIONS SHOWN.
2. DURING ROUTINE SERVICING, THE AIRPLANE REMAINS RELATIVELY STABLE, PITCH AND ELEVATION CHANGES OCCURRING SLOWLY.

* NOMINAL DIMENSIONS

2.3.2 GROUND CLEARANCES
MODEL 767-300, -300ER
### MINIMUM*  MAXIMUM*

<table>
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<th>METERS</th>
<th>FEET - INCHES</th>
<th>METERS</th>
</tr>
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<td>14 - 9</td>
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<td>G</td>
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<td>2.26</td>
<td>8 - 7</td>
<td>2.62</td>
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<td>J</td>
<td>50 – 8</td>
<td>15.44</td>
<td>52 – 11</td>
<td>16.13</td>
</tr>
<tr>
<td>K</td>
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<td>0.56</td>
<td>3 – 7</td>
<td>1.09</td>
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<tr>
<td>L</td>
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<td>M</td>
<td>12 – 3</td>
<td>3.73</td>
<td>14 – 4</td>
<td>4.37</td>
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<td>N</td>
<td>19 – 4</td>
<td>5.89</td>
<td>21 – 7</td>
<td>6.58</td>
</tr>
</tbody>
</table>

**NOTES:**

1. VERTICAL CLEARANCES SHOWN OCCUR DURING MAXIMUM VARIATIONS OF AIRPLANE ATTITUDE. COMBINATIONS OF AIRPLANE LOADING AND UNLOADING ACTIVITIES THAT PRODUCE THE GREATEST POSSIBLE VARIATIONS IN ATTITUDE WERE USED TO ESTABLISH THE VARIATIONS SHOWN.

2. DURING ROUTINE SERVICING, THE AIRPLANE REMAINS RELATIVELY STABLE, PITCH AND ELEVATION CHANGES OCCURRING SLOWLY.

* NOMINAL DIMENSIONS

### 2.3.3 GROUND CLEARANCES

*MODEL 767-300 FREIGHTER*
### MINIMUM*  MAXIMUM*

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<thead>
<tr>
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<th>METERS</th>
<th>FEET - INCHES</th>
<th>METERS</th>
</tr>
</thead>
<tbody>
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<td>23-8</td>
<td>7.22</td>
<td>24-6</td>
<td>7.46</td>
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<tr>
<td>B</td>
<td>5-11</td>
<td>1.81</td>
<td>6-9</td>
<td>2.05</td>
</tr>
<tr>
<td>C</td>
<td>13-7</td>
<td>4.13</td>
<td>14-5</td>
<td>4.39</td>
</tr>
<tr>
<td>D</td>
<td>7-10</td>
<td>2.38</td>
<td>8-7</td>
<td>2.61</td>
</tr>
<tr>
<td>E</td>
<td>14-6</td>
<td>4.41</td>
<td>15-1</td>
<td>4.59</td>
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<td>10-6</td>
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<td>3.07</td>
<td>10-11</td>
<td>3.33</td>
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<td>17-0</td>
<td>5.18</td>
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<tr>
<td>J</td>
<td>54-9</td>
<td>16.68</td>
<td>55-10</td>
<td>17.01</td>
</tr>
<tr>
<td>K</td>
<td>3-11</td>
<td>1.21</td>
<td>4-5</td>
<td>1.36</td>
</tr>
<tr>
<td>L</td>
<td>19-11</td>
<td>6.08</td>
<td>21-4</td>
<td>6.51</td>
</tr>
<tr>
<td>M</td>
<td>16-4</td>
<td>4.89</td>
<td>17-1</td>
<td>5.22</td>
</tr>
<tr>
<td>N</td>
<td>23-5</td>
<td>7.12</td>
<td>24-5</td>
<td>7.45</td>
</tr>
</tbody>
</table>

**NOTES:**  
VERTICAL CLEARANCES SHOWN OCCUR DURING MAXIMUM VARIATIONS OF AIRPLANE ATTITUDE. COMBINATIONS OF AIRPLANE LOADING AND UNLOADING ACTIVITIES THAT PRODUCE THE GREATEST POSSIBLE VARIATIONS IN ATTITUDE WERE USED TO ESTABLISH THE VARIATIONS SHOWN.

DURING ROUTINE SERVICING, THE AIRPLANE REMAINS RELATIVELY STABLE, PITCH AND ELEVATION CHANGES OCCURRING SLOWLY.

* NOMINAL DIMENSIONS

### 2.3.4 GROUND CLEARANCES

*MODEL 767-400ER.*
2.4.1 INTERIOR ARRANGEMENTS – MIXED CLASS CONFIGURATIONS
MODEL 767-200, -200ER

216 SEATS
18 FIRST CLASS AT 38-IN (0.97 M) PITCH
198 ECONOMY CLASS AT 34-IN (0.86 M) PITCH

174 SEATS
15 FIRST CLASS AT 60-IN (1.53 M) PITCH
40 BUSINESS CLASS AT 38-IN (0.97 M) PITCH
119 ECONOMY CLASS AT 34-IN (0.86 M) PITCH

ATTENDANT
CLOSET
GALLEY
LAVATORY
2.4.2 INTERIOR ARRANGEMENTS – ALL-ECONOMY CLASS CONFIGURATIONS
MODEL 767-200, -200ER

24 SEATS
242 ECONOMY CLASS AT 32-IN (0.81 M) PITCH

245 SEATS
245 ECONOMY CLASS AT 31-IN (0.79 M) PITCH

ATTENDANT
CLOSET
GALLEY
LAVATORY
2.4.3 INTERIOR ARRANGEMENTS – MIXED CLASS CONFIGURATIONS

MODEL 767-300, -300ER

210 SEATS
- 18 FIRST CLASS AT 60-IN (1.52 M) PITCH
- 42 BUSINESS CLASS AT 38-IN (0.97 M) PITCH
- 150 ECONOMY CLASS AT 34-IN (0.86 M) PITCH

261 SEATS
- 24 FIRST CLASS AT 38-IN (0.97 M) PITCH
- 237 ECONOMY CLASS AT 34-IN (0.86 M) PITCH

A - ATTENDANT
C - CLOSET
G - GALLEY
L - LAVATORY
2.4.4 INTERIOR ARRANGEMENTS – MIXED CLASS CONFIGURATIONS

MODEL 767-300, -300ER (TYPE A DOOR OPTION)

248 SEATS
• 24 FIRST CLASS AT 38-IN (0.97 M) PITCH
• 224 ECONOMY CLASS AT 34-IN (0.86 M) PITCH

204 SEATS
• 18 FIRST CLASS AT 60-IN (1.52 M) PITCH
• 40 BUSINESS CLASS AT 38-IN (0.97 M) PITCH
• 146 ECONOMY CLASS AT 34-IN (0.86 M) PITCH

A ATTENDANT
C CLOSET
G GALLEY
L LAVATORY
2.4.5 INTERIOR ARRANGEMENTS – ALL-ECONOMY CLASS CONFIGURATION

MODEL 767-300, -300ER
2.4.6 INTERIOR ARRANGEMENTS – MAIN DECK CARGO CONFIGURATION

MODEL 767-300 FREIGHTER

88 X BY 108 IN (2.24 X 2.74 M) SPECIAL CONTROLLED PALLET (TWO PLACES)

96 X 125 X 96 IN (2.44 X 3.18 X 2.44 M) CONTOURED M-1 PALLETS (TYPICAL – 14 PLACES)

88 X BY 125 IN (2.24 X 3.18 M) SPECIAL CONTROLLED PALLET (TWO PLACES)

98 X 108 X 96 IN (2.24 X 2.74 X 2.44 M) CONTOURED TYPE A PALLETS (TYPICAL – 24 PLACES)

CREW ENTRY DOOR

MAIN DECK SIDE CARGO DOOR

767-300 FREIGHTER (GENERAL MARKET FREIGHTER)

CREW REST AREA

GALLEY

LAVATORY
2.4.7 INTERIOR ARRANGEMENTS
MODEL 767-400ER
2.5.1 CABIN CROSS-SECTIONS - ECONOMY CLASS SEATS

MODEL 767-200, -200ER, -300, -300ER, -400ER
2.5.2 CABIN CROSS-SECTIONS - ALTERNATE SEATING ARRANGEMENTS

MODEL 767-200, -200ER, -300, -300ER, -400ER
2.6.1 LOWER CARGO COMPARTMENTS – LD-2 CONTAINERS AND BULK CARGO
MODEL 767-200, -200ER
2.6.2 LOWER CARGO COMPARTMENTS – ALTERNATE ARRANGEMENTS

MODEL 767-200, -200ER
2.6.3 LOWER CARGO COMPARTMENTS – LD-2 CONTAINERS AND BULK CARGO
MODEL 767-300, -300ER, -300 FREIGHTER

### Table: Cargo Compartment Volumes and Weight Limits

<table>
<thead>
<tr>
<th></th>
<th>FWD COMPARTMENT</th>
<th>AFT COMPARTMENT</th>
<th>BULK CARGO</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VOLUME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUBIC FEET</td>
<td>1,920</td>
<td>1,680</td>
<td>430</td>
<td>4,030</td>
</tr>
<tr>
<td>CUBIC METERS</td>
<td>54.4</td>
<td>47.6</td>
<td>12.2</td>
<td>114.2</td>
</tr>
<tr>
<td><strong>STRUCTURAL WEIGHT LIMIT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEVEN-ABREAST SEATING POUNDS</td>
<td>45,000</td>
<td>37,800</td>
<td>6,450</td>
<td>89,250</td>
</tr>
<tr>
<td>KILOGRAMS</td>
<td>20,412</td>
<td>17,146</td>
<td>2,926</td>
<td>40,483</td>
</tr>
<tr>
<td>EIGHT-ABREAST SEATING POUNDS</td>
<td>28,800</td>
<td>25,200</td>
<td>6,450</td>
<td>60,450</td>
</tr>
<tr>
<td>KILOGRAMS</td>
<td>13,063</td>
<td>11,431</td>
<td>2,926</td>
<td>27,420</td>
</tr>
</tbody>
</table>
2.6.4 LOWER CARGO COMPARTMENTS – LD-2 CONTAINERS AND BULK CARGO
MODEL 767-300, -300ER, -300 FREIGHTER

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2.6.5 LOWER CARGO COMPARTMENTS - CONTAINERS AND BULK CARGO
MODEL 767-400ER
2.7.1 DOOR CLEARANCES - PASSENGER AND SERVICE DOORS

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
### 2.7.2 DOOR CLEARANCES - LOCATIONS OF PROBES AND SENSORS NEAR MAIN ENTRY DOOR NO 1

*MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER*

<table>
<thead>
<tr>
<th>NO</th>
<th>SENSOR</th>
<th>AFT OF NOSE</th>
<th>ABOVE DOOR SILL</th>
<th>BELOW DOOR SILL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FT-IN</td>
<td>M</td>
<td>FT-IN</td>
</tr>
<tr>
<td>1</td>
<td>TOTAL AIR TEMPERATURE (LH SIDE ONLY)</td>
<td>4.3</td>
<td>1.39</td>
<td>2.4</td>
</tr>
<tr>
<td>2</td>
<td>PITOT STATIC PROBE (LH AND RH SIDES)</td>
<td>9.0</td>
<td>2.74</td>
<td>1.0</td>
</tr>
<tr>
<td>3</td>
<td>ANGLE OF ATTACK (LH AND RH SIDES)</td>
<td>8.3</td>
<td>2.51</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>PITOT STATIC PROBES (LH AND RH SIDES)</td>
<td>9.0</td>
<td>2.74</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>FLUSH STATIC PORT (LH AND RH SIDES)</td>
<td>31.0</td>
<td>9.45</td>
<td>-</td>
</tr>
</tbody>
</table>
2.7.3 DOOR CLEARANCES – STANDARD FORWARD CARGO DOOR

NOTE: CARGO DOORS ARE DESIGNED TO OPEN IN 40 KNOT WINDS FROM ANY DIRECTION DURING GROUND OPERATIONS.
CARGO DOORS ARE DESIGNED TO WITHSTAND 65 KNOT WINDS FROM ANY DIRECTION WHEN AIRPLANE IS NOT MOVING (STATIC)

[1] 67 IN. (1.70 M) IN DOORWAY AREA ONLY
66 IN. (1.68 M) INSIDE REST OF COMPARTMENT
2.7.4 DOOR CLEARANCES – LARGE FORWARD CARGO DOOR

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER

NOTE: CARGO DOORS ARE DESIGNED TO OPEN IN 40 KNOT WINDS FROM ANY DIRECTION DURING GROUND OPERATIONS.
CARGO DOORS ARE DESIGNED TO WITHSTAND 65 KNOT WINDS FROM ANY DIRECTION WHEN AIRPLANE IS NOT MOVING (STATIC)

[1] 67 IN. (1.70 M) IN DOORWAY AREA ONLY
66 IN. (1.68 M) INSIDE REST OF COMPARTMENT
2.7.5 DOOR CLEARANCES - AFT CARGO DOOR

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER

-200, -200ER: 101 FT 3 IN (30.86 M)
-300, -300ER: 122 FT 4 IN (37.29 M)
-300 FREIGHTER: 122 FT 4 IN (37.29 M)
-400ER: 143 FT 4 IN (43.7 M)

TO NOSE

NOTE: CARGO DOORS ARE DESIGNED TO OPEN IN 40 KNOT WINDS FROM ANY DIRECTION DURING GROUND OPERATIONS.
CARGO DOORS ARE DESIGNED TO WITHSTAND 65 KNOT WINDS FROM ANY DIRECTION WHEN AIRPLANE IS NOT MOVING (STATIC)

[1] 67 IN (1.70 M) IN DOORWAY AREA ONLY
66 IN (1.68 M) INSIDE REST OF COMPARTMENT

REAR VIEW

RIGHT SIDE VIEW
2.7.6 DOOR CLEARANCES - BULK CARGO DOOR

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
2.7.7 DOOR CLEARANCES – MAIN DECK CARGO DOOR
MODEL 767–300 FREIGHTER

<table>
<thead>
<tr>
<th>DIM</th>
<th>FREIGHTERS WITH POWERED CARGO HANDLING SYSTEM</th>
<th>FREIGHTERS WITH MANUAL CARGO HANDLING SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100.70 IN (2.56 M)</td>
<td>103.70 IN (2.63 M)</td>
</tr>
<tr>
<td>B</td>
<td>103.00 IN (2.54 M)</td>
<td>103.00 IN (2.62 M)</td>
</tr>
</tbody>
</table>
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3.0 AIRPLANE PERFORMANCE

3.1 General Information

3.2 Payload/Range

3.3 F.A.R. Takeoff Runway Length Requirements

3.4 F.A.R. Landing Runway Length Requirements
3.0 AIRPLANE PERFORMANCE

3.1 General Information

The graph in Section 3.2 provides information on operational empty weight (OEW) and payload, trip range, brake release gross weight, and fuel limits for a typical 767-200, -200ER, -300, -300ER, -300 Freighter, and -400ER airplanes. To use this graph, if the trip range and zero fuel weight (OEW + payload) are known, the approximate brake release weight can be found, limited by fuel quantity.

The graphs in Section 3.3 provide information on F.A.R. takeoff runway length requirements with typical engines at different pressure altitudes. Maximum takeoff weights shown on the graphs are the heaviest for the particular airplane models with the corresponding engines. Standard day temperatures for pressure altitudes shown on the F.A.R. takeoff graphs are given below:

<table>
<thead>
<tr>
<th>PRESSURE ALTITUDE</th>
<th>STANDARD DAY TEMP</th>
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</thead>
<tbody>
<tr>
<td>FEET</td>
<td>METERS</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2,000</td>
<td>610</td>
</tr>
<tr>
<td>4,000</td>
<td>1,219</td>
</tr>
<tr>
<td>6,000</td>
<td>1,829</td>
</tr>
<tr>
<td>8,000</td>
<td>2,438</td>
</tr>
<tr>
<td>10,000</td>
<td>3,048</td>
</tr>
</tbody>
</table>

The graph in Section 3.4 provides information on landing runway length requirements for different airplane weights and airport altitudes. The maximum landing weights shown are the heaviest for the particular airplane model.
3.2.1 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 767-200

NOTES:
- 0.80 MACH AT 35,000 AND 39,000 FT (10,668 AND 11,887 METERS)
- ATA DOMESTIC RESERVES
- STANDARD DAY
- TAKEOFF WEIGHTS ARE 2,000 LB (917 KG) LESS THAN TAXI WEIGHTS
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.2.2 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 767-200ER
3.2.3 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 767-300
3.2.4 PAYLOAD/RANGE FOR LONG-RANGE CRUISE
MODEL 767-300ER-300 FREIGHTER

NOTES:
- 0.80 MACH AT 35,000 AND 39,000 FT (10,668 AND 11,887 METERS)
- ATA DOMESTIC RESERVES
- STANDARD DAY
- TAKEOFF WEIGHTS ARE 1,000 LB (454 KG) LESS THAN TAXI WEIGHTS
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.2.5 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 767-300ER (CF6-80C2B7F1 ENGINES)

NOTES:
- 0.80 MACH AT 35,000 AND 39,000 FT (10,668 AND 11,887 METERS)
- ATA DOMESTIC RESERVES
- STANDARD DAY
- TAKEOFF WEIGHTS ARE 1,000 LB (454 KG) LESS THAN TAXI WEIGHTS
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
NOTES:
- 0.80 Mach at 35,000 and 39,000 ft (10,668 and 11,887 meters)
- ATA Domestic Reserves
- Standard Day
- Takeoff weights are 1,000 lb (454 kg) less than Taxi weights
- Consult using airline for specific operating procedure prior to facility design

3.2.6 PAYLOAD/RANGE FOR LONG-RANGE CRUISE
MODEL 767-300ER (PW4062 ENGINES)
3.2.7 PAYLOAD/RANGE FOR LONG-RANGE CRUISE
MODEL 767-300 FREIGHTER (CF6-80C2B7F1 ENGINES)

NOTES:
- 0.80 MACH AT 35,000 AND 39,000 FT (10,668 AND 11,887 METERS)
- ATA DOMESTIC RESERVES
- STANDARD DAY
- TAKEOFF WEIGHTS ARE 1,000 LB (454 KG) LESS THAN TAXI WEIGHTS
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.2.8 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 767-300 FREIGHTER (PW4062 ENGINES)
3.2.9 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 767-400ER (CF6-80C2B8 ENGINES)
3.2.10 PAYLOAD/RANGE FOR LONG-RANGE CRUISE

MODEL 767-400ER (PW4062 ENGINES)

NOTES:
- PW4062 ENGINES
- 31-35-39,000 FT STEP CRUISE
- CRUISE MACH = 0.80
- TYPICAL MISSION RULES
- STANDARD DAY
- 200 NMI ALTERNATE
- NOMINAL PERFORMANCE
- TAKEOFF WEIGHTS ARE 1000 LB LESS THAN CORRESPONDING TAXI WEIGHTS
- CONSULT USING AIRLINES FOR SPECIFIC OPERATING PROCEDURES PRIOR TO FACILITY DESIGN

MAX ZERO FUEL WEIGHT
330,000 LB (149,688 KG)

245 PASSENGERS AND BAGGAGE
DEW = 229,000 LB (103,872 KG)

MAX DESIGN WNG. WGT.
ASD (1986)
450 (2062)
400 (1965)
350 (1863)
300 (1762)
250 (1660)
200 (1567)
150 (1465)
100 (1362)

MAX FUEL CAPACITY
(61,380 US GAL.)

330,000 LB (149,688 KG)

229,000 LB (103,872 KG)

1,000 NAUTICAL MILES
STILL AIR RANGE

100 200 300 400 500 600 700 800 900

100 120 140 160 180 200 220 240 260 280 300 320 340 360

1,000 POUNDS
DEW PLUS PAYLOAD (1,000 POUNDS)

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3.3.1 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY

MODEL 767-200, -200ER (JT9D-7R4D/7R4E, CF6-80A/80A2 ENGINES)

NOTES:
- JT9D-7R4D/7R4E, CF6-80A/80A2 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.2 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY +31°F (STD + 17°C)

MODEL 767-200, -200ER (JT9D-7R4D/7R4E, CF6-80A/80A2 ENGINES)

NOTES:
- JT9D-7R4D/7R4E, CF6-80A/80A2 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.3 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-200, -200ER (CF6-80C2B2, PW4052 ENGINES)
3.3.4 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY +31°F (STD + 17°C)

MODEL 767-200, -200ER (CF6-80C2B2, PW4052 ENGINES)

NOTES:
- CF6-80C2B2, PW4052 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.5 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-200ER (CF6-80C2B4, PW4056, RB211-524G ENGINES)
3.3.6 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 31°F (STD + 17°C)
MODEL 767-200ER (CF6-80C2B4, PW4056, RB211-524G ENGINES)
3.3.7 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-300 (CF6-80A/80A2 ENGINES)
3.3.8 FAA TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 33°F (STD + 18°C)
MODEL 767-300 (CF6-80A/80A2 ENGINES)

NOTES:
- CF6-80A/80A2 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.9 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-300 (JT9D-7R4D/7R4E ENGINES)

NOTES:
- JT9D-74RD/74RE ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.10 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY + 27°F (STD + 15°C)

MODEL 767-300 (JT9D-7R4D/7R4E ENGINES)

NOTES:
- JT9D-7R4D/7R4E ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.11 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-300 (CF6-80C2B2, PW4052 ENGINES)

NOTES:
- CF6-80C2B2, PW4052 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.12 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY + 31°F (STD + 17°C)

MODEL 767-300 (CF6-80C2B2, PW4052 ENGINES)

NOTES:
- CF6-80C2B2, PW4052 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

MAX TAKEOFF WT

STANDARD DAY + 31°F
(STD DAY + 17°C)

225 MPH (362 KMPH)
TIRE SPEED LIMIT

F.A.R. TAKEOFF FIELD LENGTH
1,000 METERS

F.A.R. TAKEOFF WEIGHT
1,000 POUNDS

AIRPORT ELEVATION
10,000 (3,048)
8,000 (2,439)
6,000 (1,829)
4,000 (1,219)
2,000 (610)
SEA LEVEL

1,000 KILOGRAMS
OPERATIONAL TAKEOFF WEIGHT
3.3.13 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY

MODEL 767-300ER, -300 FREIGHTER (CF6-80C2B4, PW4056, RB211-524G ENGINES)

NOTES:
- CF6-80C2B4, PW4056, RB211-524G ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

MAX TAKEOFF WT

UNBALANCED FOR BRAKE ENERGY

225 MPH (362 KMPH)

TIRE SPEED LIMIT

AIRPORT ELEVATION
10,000 (3,048)
8,000 (2,438)
6,000 (1,829)
4,000 (1,219)
2,000 (610)
SEA LEVEL

FLAPS 5

FLAPS 15

FLAPS 20

1,000 POUNDS

1,000 METERS

1,000 FEET

1,000 KILOGRAMS

OPERATIONAL TAKEOFF WEIGHT

110 120 130 140 150 160 170 180 190

3.3.14 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 31°F (STD + 17°C)

MODEL 767-300ER, -300 FREIGHTER (CF6-80C2B4, PW4052, RB211-524G ENGINES)
3.3.15 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY

MODEL 767-300ER, -300 FREIGHTER (CF6-80C2B6, PW4060, RB211-524H ENGINES)

NOTES:
- CF6-80C2B6, PW4060, RB211-524H ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.16 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY + 27°F (STD + 15°C)

MODEL 767-300ER, -300 FREIGHTER (CF6-80C2B6, PW4060, RB211-524H ENGINES)

NOTES:
- CF6-80C2B6, PW4060, RB211-524H ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.17 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY

MODEL 767-300ER (CF6-80C2B7F ENGINES)

NOTES:
- CF6-80C2B7F ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

235 MPH (378 KM/H) TIRE SPEED LIMIT
UNBALANCED FOR BRAKE ENERGY
225 MPH (362 KM/H) TIRE SPEED LIMIT

FAIR TAKEOFF FIELD LENGTH
1,000 METERS
1,000 FEET

1,000 POUNDS
1,000 KILOGRAMS
OPERATIONAL TAKEOFF WEIGHT

AIRPORT ELEVATION
FEET (METERS)
10,000 (3,048)
8,000 (2,439)
6,000 (1,829)
4,000 (1,219)
2,000 (610)

SEA LEVEL
MAX TAKEOFF WT
FLAPS 5
FLAPS 15
FLAPS 20
3.3.18 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY + 27°F (STD + 15°C)

MODEL 767-300ER (CF6-80C2B7F ENGINES)

NOTES:
- CF6-80C2B7F ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.19 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-300ER (PW4062 ENGINES)

NOTES:
- PW4062 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.20 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY + 27°F (STD + 15°C)

MODEL 767-300ER (PW4062 ENGINES)

NOTES:
- PW4062 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.21 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-300 FREIGHTER (CF6-80C2B7F ENGINES)

NOTES:
- CF6-80C2B7F ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

![Diagram showing F.A.R. takeoff runway length requirements for a standard day with various lines indicating different conditions and weights.](image-url)
3.3.22 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY + 27°F (STD + 15°C)
MODEL 767-300 FREIGHTER (CF6-80C2B7F ENGINES)

NOTES:
- CF6-80C2B7F ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.23 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY
MODEL 767-300 FREIGHTER (PW4062 ENGINES)

NOTES:
- PW4062 ENGINES
- ZERO RUNWAY GRADIENT
- ZERO WIND
- AIR CONDITIONING OFF
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.24 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 27°F (STD + 15°C)
MODEL 767-300 FREIGHTER (PW4062 ENGINES)
3.3.25  F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY, DRY RUNWAY SURFACE

MODEL 767-400ER (CF6-80C2B8F ENGINES)

NOTES:
- CF6-80C2B8F ENGINES
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- DRY RUNWAY SURFACE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.26 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 31°F (STD + 17°C), DRY RUNWAY SURFACE
MODEL 767-400ER (CF6-80C2B8F ENGINES)

NOTES:
- CF6-80C2B8F ENGINES
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- DRY RUNWAY SURFACE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

STANDARD DAY + 31°F
(STD DAY + 17°C)
3.3.27 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY, WET SMOOTH RUNWAY SURFACE

MODEL 767-400ER (CF6-80C2B8F ENGINES)

NOTES:
- CF6-80C2B8F ENGINES
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- WET SMOOTH RUNWAY SURFACE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.28 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 27°F (STD + 15°C), WET SMOOTH RUNWAY SURFACE
MODEL 767-400ER (CF6-80C2B8F ENGINES)

NOTES:
- CF6-80C2B8F ENGINES
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- WET SMOOTH RUNWAY SURFACE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING
  PROCEDURE PRIOR TO FACILITY DESIGN
3.3.29 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY, DRY RUNWAY SURFACE
MODEL 767-400ER (CF6-80C2B7F1 ENGINES)
3.3.30 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 27°F (STD + 15°C), DRY RUNWAY SURFACE
MODEL 767-400ER (CF6-80C2B7F1 ENGINES)
3.3.31 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY,
WET SMOOTH RUNWAY SURFACE
MODEL 767-400ER (CF6-80C2B7F1 ENGINES)
3.3.32 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 27°F (STD + 15°C), WET SMOOTH RUNWAY SURFACE
MODEL 767-400ER (CF6-80C2B7F1 ENGINES)
3.3.33 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY, DRY RUNWAY SURFACE

MODEL 767-400ER (PW4062 ENGINES)
3.3.34 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 27°F (STD + 15°C), DRY RUNWAY SURFACE
MODEL 767-400ER (PW4062 ENGINES)
3.3.35 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS - STANDARD DAY, WET SMOOTH RUNWAY SURFACE
MODEL 767-400ER (PW4062 ENGINES)

NOTES:
- PW4062 ENGINES
- NO ENGINE AIRBLEED FOR AIR CONDITIONING
- ZERO WIND, ZERO RUNWAY GRADIENT
- WET SMOOTH RUNWAY SURFACE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.3.36 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS
STANDARD DAY + 27°F (STD + 15°C), WET SMOOTH RUNWAY SURFACE
MODEL 767-400ER (PW4062 ENGINES)
3.4.1 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 25

MODEL 767-200, -200ER

NOTES:
- NO REVERSE THRUST
- ANTI-SKID ON
- AUTO SPEED BRAKES
- ZERO WIND, ZERO RUNWAY SLOPE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.4.2 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 30
MODEL 767-200, -200ER
3.4.3 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 25
MODEL 767-300
NOTES:
- NO REVERSE THRUST
- ANTI-SKID ON
- AUTO SPEED BRAKES
- ZERO WIND, ZERO RUNWAY SLOPE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

3.4.4 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 30
MODEL 767—300
3.4.5 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 25
MODEL 767—300ER

NOTES:
- NO REVERSE THRUST
- ANTI-SKID ON
- AUTO SPEED BRAKES
- ZERO WIND, ZERO RUNWAY SLOPE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
NOTES:
- NO REVERSE THRUST
- ANTI-SKID ON
- AUTO SPEED BRAKES
- ZERO WIND, ZERO RUNWAY SLOPE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

3.4.6 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 30

MODEL 767—300ER
NOTES:
- NO REVERSE THRUST
- ANTI-SKID ON
- AUTO SPEED BRAKES
- ZERO WIND, ZERO RUNWAY SLOPE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

3.4.7 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 25
MODEL 767—300 FREIGHTER

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3.4.8 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 30

MODEL 767—300 FREIGHTER

NOTES:
- NO REVERSE THRUST
- ANTI-SKID ON
- AUTO SPEED BRAKES
- ZERO WIND, ZERO RUNWAY SLOPE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
3.4.9 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 25
MODEL 767-400ER
3.4.10 FAA LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 30
MODEL 767-400ER

NOTES:
- STANDARD DAY
- NO REVERSE THRUST
- ANTI-SKID OPERATIVE
- AUTO SPEED BRAKES
- ZERO WIND
- ZERO SLOPE
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN
4.0 GROUND MANEUVERING

4.1 General Information

4.2 Turning Radii

4.3 Clearance Radii

4.4 Visibility From Cockpit in Static Position

4.5 Runway and Taxiway Turn Paths

4.6 Runway Holding Bay
4.0 GROUND MANEUVERING

4.1 General Information

This section provides airplane turning capability and maneuvering characteristics.

For ease of presentation, these data have been determined from the theoretical limits imposed by the geometry of the aircraft, and where noted, provide for a normal allowance for tire slippage. As such, they reflect the turning capability of the aircraft in favorable operating circumstances. These data should be used only as guidelines for the method of determination of such parameters and for the maneuvering characteristics of this aircraft.

In the ground operating mode, varying airline practices may demand that more conservative turning procedures be adopted to avoid excessive tire wear and reduce possible maintenance problems. Airline operating procedures will vary in the level of performance over a wide range of operating circumstances throughout the world. Variations from standard aircraft operating patterns may be necessary to satisfy physical constraints within the maneuvering area, such as adverse grades, limited area, or high risk of jet blast damage. For these reasons, ground maneuvering requirements should be coordinated with the using airlines prior to layout planning.

Section 4.2 shows turning radii for various nose gear steering angles. Radii for the main and nose gears are measured from the turn center to the outside of the tire.

Section 4.3 provides data on minimum width of pavement required for 180° turn.

Section 4.4 shows the pilot’s visibility from the cockpit and the limits of ambinocular vision through the windows. Ambinocular vision is defined as the total field of vision seen simultaneously by both eyes.

Section 4.5 shows approximate wheel paths of a 767 on runway to taxiway, and taxiway to taxiway turns.

Section 4.6 illustrates a typical runway holding bay configuration.
NOTES:  
* ACTUAL OPERATING TURNING RADII MAY BE GREATER THAN SHOWN.  
* CONSULT WITH AIRLINE FOR SPECIFIC OPERATING PROCEDURE

<table>
<thead>
<tr>
<th>STEERING ANGLE (DEG)</th>
<th>R-1 INNER GEAR</th>
<th>R-2 OUTER GEAR</th>
<th>R-3 NOSE GEAR</th>
<th>R-4 WING TIP</th>
<th>R-5 NOSE</th>
<th>R-6 TAIL</th>
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<td></td>
<td>FT M</td>
<td>FT M</td>
<td>FT M</td>
<td>FT M</td>
<td>FT M</td>
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<tr>
<td>30</td>
<td>94.0 28.7</td>
<td>129.7 39.5</td>
<td>130.8 39.9</td>
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<td>74.4 22.7</td>
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<td>132.1 40.3</td>
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<td>45</td>
<td>46.7 14.2</td>
<td>82.4 25.1</td>
<td>93.0 28.3</td>
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<td>122.2 37.3</td>
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<td>55</td>
<td>27.4 8.3</td>
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<td>19.4 5.9</td>
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<td>76.2 23.2</td>
<td>118.7 36.2</td>
<td>87.8 26.8</td>
<td>102.4 31.2</td>
</tr>
<tr>
<td>65 (MAX)</td>
<td>12.3 3.7</td>
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<td>72.9 22.2</td>
<td>111.8 34.1</td>
<td>85.0 25.9</td>
<td>97.8 29.8</td>
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4.2.1 TURNING RADII - NO SLIP ANGLE
MODEL 767-200, -200ER
### 4.2.2 Turning Radii - No Slip Angle

**Model 767-300, -300ER, -300 Freighter**

<table>
<thead>
<tr>
<th>Steering Angle (Deg)</th>
<th>R-1 Inner Gear</th>
<th>R-2 Outer Gear</th>
<th>R-3 Nose Gear</th>
<th>R-4 Wing Tip</th>
<th>R-5 Nose</th>
<th>R-6 Tail</th>
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<td>M</td>
<td>FT</td>
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<td>STEERING ANGLE</td>
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<td>R2 OUTER GEAR</td>
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<td>R6 TAIL</td>
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**NOTES:**
*ACTUAL OPERATING TURNING RADII MAY BE GREATER THAN SHOWN.
*CONSULT WITH AIRLINE FOR SPECIFIC OPERATING PROCEDURE

**4.2.3 TURNING RADII - NO SLIP ANGLE**

*MODEL 767-400ER*
### NOTES:

* TIRE SLIP ANGLE APPROXIMATE FOR 61° STEERING ANGLE
* CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE

### EFFECTIVE STEERING ANGLE (DEG)

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<th>MODEL</th>
<th>X</th>
<th>Y</th>
<th>A</th>
<th>R3</th>
<th>R4</th>
<th>R5</th>
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</tbody>
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### 4.3 CLEARANCE RADII

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER -400ER

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4.4 VISIBILITY FROM COCKPIT IN STATIC POSITION

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
NOTE
BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THAT ARE EXPECTED TO SERVE THE AIRPORT.

4.5.1 RUNWAY AND TAXIWAY TURNPATHS - RUNWAY-TO-TAXIWAY, MORE THAN 90-DEGREE TURN
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
4.5.2 RUNWAY AND TAXIWAY TURNPATHS - RUNWAY-TO-TAXIWAY, 90-DEGREE TURN
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
4.5.3 RUNWAY AND TAXIWAY TURNPATHS - TAXIWAY-TO-TAXIWAY, 90-DEGREE TURN, NOSE GEAR TRACKS CENTERLINE
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
NOTE

BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THAT ARE EXPECTED TO SERVE THE AIRPORT.

4.5.4 RUNWAY AND TAXIWAY TURNPATHS - TAXIWAY-TO-TAXIWAY, 90-DEGREE TURN, COCKPIT TRACKS CENTERLINE

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
NOTE

BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THAT ARE EXPECTED TO SERVE THE AIRPORT.

4.5.5 RUNWAY AND TAXIWAY TURNPATHS - TAXIWAY-TO-TAXIWAY, 90-DEGREE TURN, JUDGMENTAL OVERSTEERING
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
4.6 RUNWAY HOLDING BAY
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER

NOTE
BEFORE DETERMINING THE SIZE OF THE INTERSECTION FILLET, CHECK WITH THE AIRLINES REGARDING THE OPERATING PROCEDURES THAT THEY USE AND THE AIRCRAFT TYPES THAT ARE EXPECTED TO SERVE THE AIRPORT

1) 767-200/300 = 267 FT (81 M)
2) 767-400ER = 285 FT (87 M)

20 FT (6.1 M) CLEARANCE BETWEEN CENTERLINE OF GEAR AND PAVEMENT EDGE

75 FT (23 M)
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5.0 TERMINAL SERVICING

5.1 Airplane Servicing Arrangement - Typical Turnaround
5.2 Terminal Operations - Turnaround Station
5.3 Terminal Operations - En Route Station
5.4 Ground Servicing Connections
5.5 Engine Starting Pneumatic Requirements
5.6 Ground Pneumatic Power Requirements
5.7 Conditioned Air Requirements
5.8 Ground Towing Requirements
5.0 TERMINAL SERVICING

During turnaround at the terminal, certain services must be performed on the aircraft, usually within a given time, to meet flight schedules. This section shows service vehicle arrangements, schedules, locations of service points, and typical service requirements. The data presented in this section reflect ideal conditions for a single airplane. Service requirements may vary according to airplane condition and airline procedure.

Section 5.1 shows typical arrangements of ground support equipment during turnaround. As noted, if the auxiliary power unit (APU) is used, the electrical, air start, and air-conditioning service vehicles would not be required. Passenger loading bridges or portable passenger stairs could be used to load or unload passengers.

Sections 5.2 and 5.3 show typical service times at the terminal. These charts give typical schedules for performing service on the airplane within a given time. Service times could be rearranged to suit availability of personnel, airplane configuration, and degree of service required.

Section 5.4 shows the locations of ground service connections in graphic and in tabular forms. Typical capacities and service requirements are shown in the tables. Services with requirements that vary with conditions are described in subsequent sections.

Section 5.5 shows typical sea level air pressure and flow requirements for starting different engines. The curves are based on an engine start time of 90 seconds.

Section 5.6 shows air conditioning requirements for heating and cooling (pull-down and pull-up) using ground conditioned air. The curves show airflow requirements to heat or cool the airplane within a given time at ambient conditions.

Section 5.7 shows air conditioning requirements for heating and cooling to maintain a constant cabin air temperature using low pressure conditioned air. This conditioned air is supplied through an 8-in (20.3 cm) ground air connection (GAC) directly to the passenger cabin, bypassing the air cycle machines.

Section 5.8 shows ground towing requirements for various ground surface conditions.
5.1.1 AIRPLANE SERVICING ARRANGEMENT - TYPICAL TURNAROUND
MODEL 767-200, -200ER

NOTE: IF THE APU IS USED, ELECTRICAL PNEUMATIC AND AIR CONDITIONING TRUCKS ARE NOT REQUIRED

SCALE:

FEET METERS

0 10 20 30 40
0 2 4 6 8 10 12
5.1.2 AIRPLANE SERVICING ARRANGEMENT - TYPICAL TURNAROUND
MODEL 767-300, -300ER
5.1.3 AIRPLANE SERVICING ARRANGEMENT - TYPICAL TURNAROUND
MODEL 767-300 FREIGHTER

NOTE: IF THE APU IS USED, ELECTRICAL, PNEUMATIC AND AIR CONDITIONING TRUCKS ARE NOT REQUIRED
5.1.4 AIRPLANE SERVICING ARRANGEMENT - TYPICAL TURNAROUND
MODEL 767-400ER

NOTE: IF THE APU IS USED, ELECTRICAL, PNEUMATIC AND AIR CONDITIONING TRUCKS ARE NOT REQUIRED
### 5.2.1 TERMINAL OPERATIONS - TURNAROUND STATION

**Model 767-200**

<table>
<thead>
<tr>
<th>Time (Min)</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>POSITION PASS. BRIDGE OR STAIRS</td>
</tr>
<tr>
<td>5.5</td>
<td>DEPLAN PASSENGERS</td>
</tr>
<tr>
<td>13.5</td>
<td>SERVICE CABIN - AFT LEFT DOOR</td>
</tr>
<tr>
<td>21.0</td>
<td>SERVICE GALLEYS - ONE TRUCK</td>
</tr>
<tr>
<td>9.0</td>
<td>BOARD PASSENGERS</td>
</tr>
<tr>
<td>1.0</td>
<td>REMOVE PASS. BRIDGE OR STAIRS</td>
</tr>
<tr>
<td>12.0</td>
<td>UNLOAD FWD COMPARTMENT [1]</td>
</tr>
<tr>
<td>10.0</td>
<td>UNLOAD AFT COMPARTMENT</td>
</tr>
<tr>
<td>26.0</td>
<td>UNLOAD &amp; LOAD BULK COMPARTMENT</td>
</tr>
<tr>
<td>10.0</td>
<td>LOAD AFT COMPARTMENT</td>
</tr>
<tr>
<td>12.0</td>
<td>LOAD FWD COMPARTMENT [1]</td>
</tr>
<tr>
<td>18.0</td>
<td>FUEL AIRPLANE</td>
</tr>
<tr>
<td>12.0</td>
<td>SERVICE TOILETS</td>
</tr>
<tr>
<td>7.0</td>
<td>SERVICE POTABLE WATER</td>
</tr>
<tr>
<td></td>
<td>PUSH BACK</td>
</tr>
</tbody>
</table>

**Time - Minutes**

- **216 PASSENGERS DEPLAN & BOARD VIA DOOR L1**
- **DEPLAN & BOARDING TIMES BASED ON RATES OF 25 & 20 PASSENGERS PER MINUTE, RESPECTIVELY**
- **LOWER LOBE - 10 LD-2 CONTAINERS AFT, 12 LD-2 CONTAINERS FWD**

- **FUEL - WITH 2,000 GAL (7,571 LITERS) OF RESERVE FUEL, MAX FUEL OF 14,700 GAL (55,645 LITERS) AT 800 GPM (3,028 LPN) ADDED**
- [1] WITH OPTIONAL WIDE CARGO DOOR, THREE FULL PALLETS, LOAD & UNLOAD TIME ESTIMATED TO BE 6 MINUTES

**Note:** 2 NOZZLE FUELING AT 50 PSI (3.5 KG/SQ CM); ACTUAL FUELING TIME MAY VARY DEPENDING ON FLOW RATE AND NOZZLE PRESSURE.
### 5.2.2 TERMINAL OPERATIONS - TURNAROUND STATION

#### MODEL 767-200ER

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<th>Activity</th>
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<tr>
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<td>18.5</td>
</tr>
<tr>
<td>Service Galleys - One Truck</td>
<td>21.0</td>
</tr>
<tr>
<td>Board Passengers</td>
<td>10.8</td>
</tr>
<tr>
<td>Remove Pass. Bridge or Stairs</td>
<td>1.0</td>
</tr>
<tr>
<td>Unload Fwd Compartment [1]</td>
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<tr>
<td>Unload Aft Compartment</td>
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<tr>
<td>Unload &amp; Load Bulk Compartment</td>
<td>31.0</td>
</tr>
<tr>
<td>Load Aft Compartment</td>
<td>10.0</td>
</tr>
<tr>
<td>Load Fwd Compartment [1]</td>
<td>6.0</td>
</tr>
<tr>
<td>Fuel Airplane</td>
<td>30.0</td>
</tr>
<tr>
<td>Service Toilets</td>
<td>12.0</td>
</tr>
<tr>
<td>Service Potable Water</td>
<td>7.0</td>
</tr>
</tbody>
</table>

#### Time - Minutes

- 0  5  10  15  20  25  30  35  40

---

- **216 Passengers Deplane & Board via Door L1**
- **Deplane & Boarding Times Based on Rates of 25 & 20 Passengers Per Minute, Respectively**
- **Lower Lobe - 10 LD-2 Containers Aft**
  - 3 Full Pallets FWD
- **Maintenance Check Prior to ETOPS Flight**
  - Can Extend Turnaround Considerably Depending on Airline Practice
- **Fuel** - With 2,000 Gal (7,571 Liters) of Reserve Fuel, Max Fuel of 18,450 Gal (69,841 Liters) Added; 14,700 Gal (55,645 Liters) at 800 GPM (3,028 LPW)
  - And Then 3,750 Gal (14,195 Liters) at 310 GPM (1,173 LPM)
- **Position/Remove Equipment**
- **[1]** With 12 LD-2 Containers
  - Load & Unload Time Estimated to Be 12 Minutes

**Note:**
- 2 Nozzle Fueling at 50 PSI (3.5 kg/sq cm);
  - Actual Fueling Time May Vary Depending on Flow Rate and Nozzle Pressure

---

**Diagram Notes:**
- Available Time
- Last Baggage
- Position/Remove Equipment
## 5.2.3 TERMINAL OPERATIONS - TURNAROUND STATION

### MODEL 767-300

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<thead>
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<td>Service Galley - One Truck</td>
</tr>
<tr>
<td>13.0</td>
<td>Board Passengers</td>
</tr>
<tr>
<td>1.0</td>
<td>Remove Pass. Bridge or Stairs</td>
</tr>
<tr>
<td>16.0</td>
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<tr>
<td>14.0</td>
<td>Unload Aft Compartment</td>
</tr>
<tr>
<td>36.0</td>
<td>Unload &amp; Load Bulk Compartment</td>
</tr>
<tr>
<td>14.0</td>
<td>Load Aft Compartment</td>
</tr>
<tr>
<td>16.0</td>
<td>Load Fwd Compartment [1]</td>
</tr>
<tr>
<td>18.0</td>
<td>Fuel Airplane</td>
</tr>
<tr>
<td>12.0</td>
<td>Service Toilets</td>
</tr>
<tr>
<td>10.0</td>
<td>Service Potable Water</td>
</tr>
<tr>
<td></td>
<td>Push Back</td>
</tr>
</tbody>
</table>

### Time - Minutes

- **261 Passengers Deplane & Board via Door L1**
- **Deplane & Boarding times based on rates of 25 & 20 passengers per minute, respectively**
- **Lower Lobe - 14 LD-2 containers Aft**
- **16 LD-2 containers FWD**
- **Fuel - With 2,000 gal (7,571 liters) of reserve fuel, max fuel of 14,700 gal (55,645 liters) at 800 gpm (3,028 lpm) added**
- **Position/Remove equipment**
- **Note:** 2 nozzle fueling at 50 psi (3.5 kg/sq cm); actual fueling time may vary depending on flow rate and nozzle pressure
- **With optional wide cargo door, four full pallets, load & unload time estimated to be 8 minutes**

[1] Optional wide cargo door, four full pallets, load & unload time estimated to be 8 minutes.
### 5.2.4 TERMINAL OPERATIONS - TURNAROUND STATION

**MODEL 767-300ER**

<table>
<thead>
<tr>
<th>Time (Min)</th>
<th>Description</th>
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<tbody>
<tr>
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<td>Position Pass. Bridge or Stairs</td>
</tr>
<tr>
<td>10.5</td>
<td>Deplane Passengers</td>
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<tr>
<td>14.5</td>
<td>Service Cabin - Aft Left Door</td>
</tr>
<tr>
<td>26.0</td>
<td>Service Galleys - One Truck</td>
</tr>
<tr>
<td>13.0</td>
<td>Board Passengers</td>
</tr>
<tr>
<td>1.0</td>
<td>Remove Pass. Bridge or Stairs</td>
</tr>
<tr>
<td>8.0</td>
<td>Unload Fwd Compartment [1]</td>
</tr>
<tr>
<td>14.0</td>
<td>Unload Aft Compartment</td>
</tr>
<tr>
<td>36.0</td>
<td>Unload &amp; Load Bulk Compartment</td>
</tr>
<tr>
<td>14.0</td>
<td>Load Aft Compartment</td>
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<tr>
<td>16.0</td>
<td>Load Fwd Compartment [1]</td>
</tr>
<tr>
<td>28.0</td>
<td>Fuel Airplane</td>
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<td>12.0</td>
<td>Service Toilets</td>
</tr>
<tr>
<td>10.0</td>
<td>Service Potable Water</td>
</tr>
</tbody>
</table>

**Time - Minutes**

- **261 Passengers Deplane & Board via Door L1**
- **Deplane & Boarding Times Based on Rates of 25 & 20 Passengers per Minute, Respectively**
- **Lower Lobe - 14 LD-2 Containers Aft 4 Full Pallets Fwd**
- **Maintenance Check Prior to ETOPS Flight Can Extend Turnaround Considerably Depending on Airline Practice**

**Fuel** - With 2,000 Gal (7,571 Liters) of Reserve Fuel, Max Fuel of 24,149 Gal (83,809 Liters) Added; 16,700 Gal (63,210 Liters) at 1,000 GPM (3,785 LPM) and Then 5,440 Gal (20,593 Liters) at 470 GPM (1,779 LPM)

**Note:** 2 Nozzle Fueling at 50 PSI (3.5 KG/SQ CM); Actual Fueling Time May Vary Depending on Flow Rate and Nozzle Pressure

[1] With 16 LD-2 Containers Load & Unload Time Estimated to be 5 Minutes
### 5.2.5 TERMINAL OPERATIONS - TURNAROUND STATION

**MODEL 767-300 FREIGHTER**

<table>
<thead>
<tr>
<th>Cargo Handling Main Deck</th>
<th>Time (Min)</th>
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<tbody>
<tr>
<td>Open Side Door - Position Loader</td>
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<tr>
<td>Unload Main Deck</td>
<td>36.0</td>
</tr>
<tr>
<td>Load Main Deck</td>
<td>36.0</td>
</tr>
<tr>
<td>Close Side Door - Remove EQPT</td>
<td>3.0</td>
</tr>
<tr>
<td>Unload Aft Lower Lobe</td>
<td>5.0</td>
</tr>
<tr>
<td>Unload Forward Lower Lobe</td>
<td>4.0</td>
</tr>
<tr>
<td>Unload &amp; Load Bulk Compartment</td>
<td>76.0</td>
</tr>
<tr>
<td>Load Forward Lower Lobe</td>
<td>4.0</td>
</tr>
<tr>
<td>Load Aft Lower Lobe</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Airplane Servicing**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Airplane</td>
<td>26.0</td>
</tr>
<tr>
<td>Service Toilets</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Push Back**

<table>
<thead>
<tr>
<th>Time - Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:**

1. **Main Deck Cargo** - 24 88 X 125 in (224 X 318 cm) Containers/Pallets. 100 Percent Cargo Exchange - 1.5 Minutes Per Container/Pallet

2. **Aft Lower Lobe** - 5 Containers: 3 LD-7/LD-9s, 2LD-2s
   - **Forward Lower Lobe** - 4 Containers: 4 LD-7/LD-9s
   - 1.0 Minute Per Container, Lower Lobe

3. **Fueling with 2 nozzles at 50 PSI (3.5 kg/sq cm):**
   - Total Airplane Fuel Added = 22,140 Gal (83,809 L)
   - Refueling from a Reserve Level of 2,000 Gal (7,571 L)
### 5.2.6 TERMINAL OPERATIONS - TURNAROUND STATION

**MODEL 767-400ER**

#### AIRPLANE SERVICING
- **Fuel Airplane**: 28.0 minutes
- **Service Toilets**: 12.0 minutes
- **Service Potable Water**: 10.0 minutes
- **PUSH BACK**: ---

#### PASSENGER SERVICES
- **Position Pass. Bridge or Stairs**: 1.0 minute
- **Deplane Passengers**: 8.0 minutes
- **Service Cabin - Aft Left Door**: 20.5 minutes
- **Service Galley's - One Truck**: 26.0 minutes
- **Board Passengers (FWD)**: 12.0 minutes
- **Board Passengers (AFT)**: ---
- **Remove Pass. Bridge or Stairs**: 1.0 minute

#### HANDLING CARGO/BAGGAGE
- **Unload Fwd Compartment [1]**: 10.0 minutes
- **Unload Aft Compartment**: 18.0 minutes
- **Unload & Load Bulk Compartment**: 36.0 minutes
- **Load Aft Compartment**: 18.0 minutes
- **Load Fwd Compartment [1]**: 10.0 minutes

**NOTE:**
- **Fuel**: With 2,000 GALL (7,571 LITERS) of reserve fuel, max fuel of 24,140 GALL (83,809 LITERS) added; 16,700 GALL (632,169 LITERS) at 1,000 GPM (3,785 LPM) and then 5,440 GALL (20,593 LITERS) at 470 GPM (1779 LPM)
- **Position/Remove Equipment**: [1] with 20 LD-2 CONTAINERS LOAD OR UNLOAD TIME ESTIMATED TO BE 20 MINUTES
- **F 304 Passengers Deplane & Board Via Door L1**
- **Deplane & Boarding Times Based on Rates of 25 & 20 Passengers Per Minute, Respectively**
- **Lower Lobe - 18 LD-2 Containers Aft 5 Full Pallets FWD**
- **Maintenance Check Prior To ETOPS Flight Can Extend Turnaround Considerably Depending On Airline Practice**
- **2 Nozzle Fueling at 50 PSI (3.5 KG/SQ CM)**;
  Actual fueling time may vary depending on flow rate and nozzle pressure
### 5.3.1 TERMINAL OPERATIONS - EN ROUTE STATION

**MODEL 767-200, -200ER**

<table>
<thead>
<tr>
<th>Time (Min)</th>
<th>Activity Description</th>
</tr>
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<tbody>
<tr>
<td>1.0</td>
<td>Position Pass. Bridge or Stairs</td>
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<td>4.5</td>
<td>Deplane Passengers</td>
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<tr>
<td>7.0</td>
<td>Service Cabin-Aft Left Door [1]</td>
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<tr>
<td>12.0</td>
<td>Service Galley - One Truck</td>
</tr>
<tr>
<td>5.5</td>
<td>Board Passengers</td>
</tr>
<tr>
<td>1.0</td>
<td>Remove Passenger Bridge</td>
</tr>
<tr>
<td>6.0</td>
<td>Unload Fwd Compartment</td>
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<tr>
<td>16.0</td>
<td>Unload and Load Bulk Compartment</td>
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<td>6.0</td>
<td>Load Fwd Compartment</td>
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<tr>
<td>6.5</td>
<td>Fuel Airplane</td>
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<td>0.0</td>
<td>Service Toilets [2]</td>
</tr>
<tr>
<td>0.0</td>
<td>Service Potable Water [2]</td>
</tr>
</tbody>
</table>

- **Position/Remove Equipment**
- **Passengers** Deplane & Board via Door L1
- **50% Passenger Transfer** - 108 Passengers
- **Deplane & Boarding Times** Based on Rates of 25 & 20 Passengers per Minute, Respectively
- **Lower Lobe** - 6 LD-2 Containers Fwd

- **Fuel** - With 5,000 gal (18,927 liters) added at 800 gpm (3,028 lpm)

**Note:** 2 Nozzle fueling at 50 psi (3.5 kg/sq cm) Actual fueling time may vary depending on flow rate and nozzle pressure.

[1] Cabin service restricted to minor pickup.
[2] No potable water or toilet service.
5.3.2 TERMINAL OPERATIONS - EN ROUTE STATION

MODEL 767-300, -300ER

<table>
<thead>
<tr>
<th>Time (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSITION PASS. BRIDGE OR STAIRS</td>
</tr>
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<td>DEPLANES PASSENGERS</td>
</tr>
<tr>
<td>SERVICE CABIN-AFT LEFT DOOR [1]</td>
</tr>
<tr>
<td>SERVICE GALLEYS - ONE TRUCK</td>
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<tr>
<td>BOARD PASSENGERS</td>
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<tr>
<td>REMOVE PASSENGER BRIDGE</td>
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<tr>
<td>UNLOAD FWD COMPARTMENT</td>
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<tr>
<td>UNLOAD AND LOAD BULK COMPARTMENT</td>
</tr>
<tr>
<td>LOAD FWD COMPARTMENT</td>
</tr>
<tr>
<td>FUEL AIRPLANE</td>
</tr>
<tr>
<td>SERVICE TOILETS [2]</td>
</tr>
<tr>
<td>SERVICE POTABLE WATER [2]</td>
</tr>
<tr>
<td>START ENGINES</td>
</tr>
</tbody>
</table>

- POSITION/REMOVE EQUIPMENT
- PASSENGERS DEPLANES & BOARD VIA DOOR L1
- 50% PASSENGER TRANSFER – 130 PASSENGERS
- DEPLANES & BOARDING TIMES BASED ON RATES OF 25 & 20 PASSENGERS PER MINUTE, RESPECTIVELY
- LOWER LOBE – 6 LD-2 CONTAINERS FWD

- FUEL – WITH 5,000 GAL (18,927 LITERS) ADDED AT 800 GPM (3,028 LPM)

NOTE: 2 NOZZLE FUELING AT 50 PSI (3.5 KG/SQ CM) ACTUAL FUELING TIME MAY VARY DEPENDING ON FLOW RATE AND NOZZLE PRESSURE

[1] CABIN SERVICE RESTRICTED TO MINOR PICKUP
[2] NO POTABLE WATER OR TOILET SERVICE
5.3.3 TERMINAL OPERATIONS - EN ROUTE STATION

**MODEL 767-400ER**

---

<table>
<thead>
<tr>
<th>Time (Min)</th>
<th>Time - Minutes</th>
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<tbody>
<tr>
<td>1.0</td>
<td>POSITION PASS. BRIDGE OR STAIRS</td>
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<td>DEPLANE PASSENGERS</td>
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<td>14.5</td>
<td>SERVICE CABIN-AFT LEFT DOOR [1]</td>
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<td>15.0</td>
<td>SERVICE GALLEYS - ONE TRUCK</td>
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<td>BOARD PASSENGERS</td>
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<td>0.0</td>
<td>SERVICE TOILETS [2]</td>
</tr>
<tr>
<td>0.0</td>
<td>SERVICE POTABLE WATER [2]</td>
</tr>
</tbody>
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---

- Position/Remove Equipment
- Passengers Deplane & Board Via Door L1
- 50% Passenger Transfer
- Deplane & Boarding Times Based on Rates of 25 & 20 Passengers Per Minute, Respectively
- Lower Lobe -- 8 LD-2 Containers FWD

---

**Fuel**

- Fuel -- With 5,000 Gal (19,927 Liters) Added At 800 GPM (3,028 LPM)

**Note:**

- 2 Nozzle Fueling at 50 PSI (3.5 KG/SQ CM) Actual fueling time may vary depending on flow rate and nozzle pressure
- [1] Cabin Service Restricted to Minor Pickup
- [2] No Potable Water or Toilet Service

---
5.4.1 GROUND SERVICING CONNECTIONS
MODEL 767-200, -200ER
5.4.2 GROUND SERVICING CONNECTIONS
MODEL 767-300, -300ER
5.4.3 GROUND SERVICING CONNECTIONS
MODEL 767-300 FREIGHTER
5.4.4 GROUND SERVICING CONNECTIONS
MODEL 767-400ER
<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>MODEL</th>
<th>DISTANCE AFT OF NOSE</th>
<th>DISTANCE FROM AIRPLANE CENTERLINE</th>
<th>MAX HT ABOVE GROUND</th>
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<tr>
<td></td>
<td></td>
<td>FT</td>
<td>M</td>
<td>FT</td>
</tr>
<tr>
<td>CONDITIONED AIR ONE 8-IN (20.3 CM) PORT</td>
<td>-200, -200ER, -300, -300ER, -300 F</td>
<td>58</td>
<td>17.7</td>
<td>5</td>
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<tr>
<td></td>
<td>-400ER</td>
<td>68</td>
<td>20.8</td>
<td>5</td>
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<tr>
<td></td>
<td>ALL</td>
<td>79</td>
<td>24.1</td>
<td>5</td>
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<tr>
<td>ELECTRICAL TWO CONNECTIONS 90 KVA, 200/115 V AC 400 HZ, 3-PHASE EACH</td>
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<td>18</td>
<td>5.5</td>
<td>-</td>
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<tr>
<td>FUEL TWO UNDERWING PRESSURE CONNECTORS ON EACH WING</td>
<td>-200</td>
<td>80</td>
<td>24.4</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>-200ER</td>
<td>81</td>
<td>24.7</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>-300</td>
<td>90</td>
<td>27.4</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>-300ER</td>
<td>91</td>
<td>27.7</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>-300 F</td>
<td>101</td>
<td>30.8</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>-400ER</td>
<td>102</td>
<td>31.1</td>
<td>46</td>
</tr>
<tr>
<td>FUEL VENTS</td>
<td>-200</td>
<td>103</td>
<td>31.4</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>-200ER</td>
<td>113</td>
<td>34.4</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>-300</td>
<td>124</td>
<td>37.8</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>-300ER</td>
<td>124</td>
<td>37.8</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>-300 F</td>
<td>124</td>
<td>37.8</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>-400ER</td>
<td>124</td>
<td>37.8</td>
<td>70</td>
</tr>
</tbody>
</table>

TOTAL TANK CAPACITY: 
-200, -300, -300 FREIGHTER 16,700 U.S. GAL (63,210 L) 
-200ER 20,450 U.S. GAL (77,410 L) 
-300ER, -400ER 24,140 U.S. GAL (91,370 L) 

MAX FUEL RATE: 
1,000 GPM (3,970 LPM) 

MAX FILL PRESSURE: 
55 PSIG (3.87 KG/CM²) 

### 5.4.5 GROUND SERVICING CONNECTIONS AND CAPACITIES

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
### SYSTEM DISTANCE FROM AIRPLANE CENTERLINE

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>MODEL</th>
<th>DISTANCE AFT OF NOSE</th>
<th>DISTANCE FROM AIRPLANE CENTERLINE</th>
<th>MAX HT ABOVE GROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FT</td>
<td>M</td>
<td>FT</td>
</tr>
<tr>
<td>HYDRAULIC</td>
<td>-200, -200ER</td>
<td>87</td>
<td>26.5</td>
<td>-</td>
</tr>
<tr>
<td>ONE SERVICE CONNECTION</td>
<td>-300, -300ER, -300 F</td>
<td>97</td>
<td>29.6</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL SYSTEM CAPACITY</td>
<td>-400ER</td>
<td>108</td>
<td>32.9</td>
<td>-</td>
</tr>
<tr>
<td>FILL PRESSURE</td>
<td></td>
<td></td>
<td>87</td>
<td>26.5</td>
</tr>
<tr>
<td>= 80 GAL (303 L)</td>
<td></td>
<td></td>
<td>97</td>
<td>29.6</td>
</tr>
<tr>
<td>= 150 PSIG (10.55 KG/CM²)</td>
<td></td>
<td></td>
<td>108</td>
<td>32.9</td>
</tr>
<tr>
<td>LAVATORY</td>
<td>-200, -200ER</td>
<td>123</td>
<td>37.5</td>
<td>0</td>
</tr>
<tr>
<td>BOTH FORWARD AND AFT TOILETS ARE SERVICED THROUGH ONE SERVICE PANEL</td>
<td>-300, -300ER</td>
<td>144</td>
<td>43.9</td>
<td>0</td>
</tr>
<tr>
<td>THREE SERVICE CONNECTIONS : DRAIN – ONE 4 IN (10.2 CM)</td>
<td>-400ER</td>
<td>165</td>
<td>50.3</td>
<td>0</td>
</tr>
<tr>
<td>flush – TWO 1 IN (2.5 CM)</td>
<td></td>
<td></td>
<td>123</td>
<td>37.5</td>
</tr>
<tr>
<td>TOILET FLUSH REQUIREMENTS: FLOW – 10 GPM (38 LPM)</td>
<td></td>
<td></td>
<td>144</td>
<td>43.9</td>
</tr>
<tr>
<td>PRESSURE 30 PSIG (2.11 KG/SC CM)</td>
<td></td>
<td></td>
<td>165</td>
<td>50.3</td>
</tr>
<tr>
<td>TOTAL SERVICE TANK REQUIREMENTS: WASTE – 140 US GAL (530 L)</td>
<td></td>
<td></td>
<td>123</td>
<td>37.5</td>
</tr>
<tr>
<td>FLUSH – 50 US GAL (189 L)</td>
<td></td>
<td></td>
<td>144</td>
<td>43.9</td>
</tr>
<tr>
<td>PRECHARGE – 12 US GAL (45 L)</td>
<td></td>
<td></td>
<td>165</td>
<td>50.3</td>
</tr>
<tr>
<td>OXYGEN</td>
<td></td>
<td>ALL</td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>CREW SYSTEM USES REPLACEABLE CYLINDERS</td>
<td></td>
<td></td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>PASSENGER SYSTEM USES SELF-CONTAINED OXYGEN GENERATION UNITS</td>
<td></td>
<td></td>
<td>6</td>
<td>1.8</td>
</tr>
<tr>
<td>PNEUMATIC</td>
<td></td>
<td>-200, -200ER</td>
<td>61</td>
<td>18.6</td>
</tr>
<tr>
<td>TWO 3-IN(7.6-CM) PORTS</td>
<td></td>
<td>62</td>
<td>18.9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>-300, -300ER, -300 F</td>
<td>71</td>
<td>21.6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>72</td>
<td>21.9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>-400ER</td>
<td>82</td>
<td>25.0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>83</td>
<td>25.3</td>
<td>3</td>
<td>0.9</td>
</tr>
</tbody>
</table>

### 5.4.6 GROUND SERVICING CONNECTIONS AND CAPACITIES

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>MODEL</th>
<th>DISTANCE AFT OF NOSE</th>
<th>DISTANCE FROM AIRPLANE CENTERLINE</th>
<th>MAX HT ABOVE GROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FT</td>
<td>M</td>
<td>FT</td>
</tr>
<tr>
<td>POTABLE WATER</td>
<td>-200, -200ER</td>
<td>107</td>
<td>32.6</td>
<td>0.3</td>
</tr>
<tr>
<td>ONE SERVICE CONNECTION (BASIC)</td>
<td>-200, -200ER</td>
<td>121</td>
<td>36.8</td>
<td>-</td>
</tr>
<tr>
<td>OPTIONAL LOCATION</td>
<td>-200, -200ER</td>
<td>128</td>
<td>39.0</td>
<td>0.3</td>
</tr>
<tr>
<td>ONE SERVICE CONNECTION (BASIC)</td>
<td>-300, -300ER, -300 F</td>
<td>149</td>
<td>44.4</td>
<td>0.3</td>
</tr>
<tr>
<td>TANK CAPACITY</td>
<td>ALL</td>
<td>46</td>
<td>14.0</td>
<td>0.3</td>
</tr>
<tr>
<td>102 U.S. GAL (386 L)</td>
<td>-200, -300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>149 U.S. GAL (564 L)</td>
<td>-200ER, -300ER, -400ER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILL PORT – ¾ IN (1.9 CM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX FILL PRESSURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= 25 PSIG (1.76 KG/SQ CM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.4.7 GROUND SERVICING CONNECTIONS AND CAPACITIES
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER
5.5.1 ENGINE START PNEUMATIC REQUIREMENTS - SEA LEVEL

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER (GE ENGINES)

NOTES:
- ALTITUDE = SEA LEVEL
- GARRETT STARTER MODEL ATS200-5B
- USE OF TWO GROUND CONNECTIONS IS ASSUMED
- PROVIDES MINIMUM ENGINE STARTING REQUIREMENTS
5.5.2 ENGINE START PNEUMATIC REQUIREMENTS - SEA LEVEL

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER (PRATT & WHITNEY ENGINES)

NOTES:
- ALTITUDE = SEA LEVEL
- HAMILTON STANDARD STARTER MODEL PS700-5
- USE OF TWO GROUND CONNECTIONS IS ASSUMED
- PROVIDES MINIMUM ENGINE STARTING REQUIREMENTS
5.5.3 ENGINE START PNEUMATIC REQUIREMENTS - SEA LEVEL
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER (GENERAL ELECTRIC ENGINES)
5.5.4 ENGINE START PNEUMATIC REQUIREMENTS - SEA LEVEL

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER (GENERAL ELECTRIC ENGINES)
5.5.5 ENGINE START PNEUMATIC REQUIREMENTS - SEA LEVEL
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER (ROLLS ROYCE ENGINES)
5.6.1 GROUND PNEUMATIC POWER REQUIREMENTS - HEATING AND COOLING
MODEL 767-200, -200ER
5.6.2 GROUND PNEUMATIC POWER REQUIREMENTS - HEATING AND COOLING
MODEL 767-300, -300ER

HEATING (PULL-UP)
* CABIN INITIALLY AT 0°F (-17.8°C)
* NO OCCUPANTS OR OTHER HEAT LOAD
* AIR TEMPERATURE AT GROUND CONNECTION 300°F (149°C)

COOLING (PULL-DOWN)
* CABIN INITIALLY AT 103°F (39°C)
* NO OCCUPANTS, NO GALLEY OR ELECTRICAL HEAT LOAD
* AMBIENT TEMPERATURE AT 103°F (39°C)
* SOLAR HEAT LOAD 11,400 BTU/HR (2,870 KCal/HR)
* AIR TEMPERATURE AT GROUND CONNECTION 450°F (232°C)
5.6.3 GROUND PNEUMATIC POWER REQUIREMENTS - HEATING AND COOLING

MODEL 767-400ER
5.7.1 CONDITIONED AIR FLOW REQUIREMENTS – STEADY STATE

MODEL 767-200, -200ER
### 5.7.2 CONDITIONED AIR REQUIREMENTS – STEADY STATE

**MODEL 767-300, -300ER, -300 FREIGHTER**

#### Conditioned Air Requirements – Steady State

<table>
<thead>
<tr>
<th>Condition</th>
<th>Ambient Temperature (°F, °C)</th>
<th>Solar Load</th>
<th>Electrical Load (BTU/min, KCal/min)</th>
<th>Occupants</th>
<th>Cabin Temperature (°F, °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0°F (-17.8°C)</td>
<td>0</td>
<td>45 BTU/min (11.3 KCal/min)</td>
<td>0</td>
<td>75°F (23.9°C)</td>
</tr>
<tr>
<td>2</td>
<td>-20°F (-28.0°C)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>75°F (23.9°C)</td>
</tr>
<tr>
<td>3</td>
<td>-40°F (-40.0°C)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>75°F (23.9°C)</td>
</tr>
<tr>
<td>4</td>
<td>10°F (28.0°C)</td>
<td>214 BTU/min (53.9 KCal/min)</td>
<td>803 BTU/min (201.5 KCal/min)</td>
<td>268</td>
<td>75°F (23.9°C)</td>
</tr>
<tr>
<td>5</td>
<td>10°F (28.0°C)</td>
<td>214 BTU/min (53.9 KCal/min)</td>
<td>803 BTU/min (201.5 KCal/min)</td>
<td>268</td>
<td>75°F (23.9°C)</td>
</tr>
</tbody>
</table>

**Note:** All doors and hatches closed on all conditions.

**Pressure at Ground Air Connection IN. (N)**

- 40 (1.02)
- 35 (0.89)
- 30 (0.76)
- 25 (0.64)
- 20 (0.51)
- 15 (0.38)
- 10 (0.25)
- 5 (0.13)

**Airflow**
- Kilograms per minute
- Pounds per minute

**Degrees Fahrenheit**

- Degrees Celsius

**Air Temperature at Ground Air Connection**

---

**D6-58328**

148 SEPTEMBER 2005
5.7.3 CONDITIONED AIR REQUIREMENTS

MODEL 767-400ER

COOLING (1), (2)
- All exterior doors and windows closed
- Outside temperature 103°F (39°C)
- Full solar and electrical heat loads
- Recirculation fans off
- Chillers on
- 216 occupants
- Cabin temperature maintained at 75°F (24°C)
- IFE on
- LF off

HEATING (3)
- All exterior doors and windows closed
- Outside temperature -40°F (-40°C)
- No solar or electrical heat loads
- Recirculation fans off
- Chillers off
- No occupants
- Cabin temperature maintained at 75°F (24°C)
NOTE:
The graph on this page shows the static pressure gage at the connector as a function of airflow. This graph is used in conjunction with the graph in Section 5.7.1 to determine the airflow and pressure requirements when using a conditioned air ground source.

5.7.4 CONDITIONED AIR FLOW PRESSURE REQUIREMENTS
MODEL 767-400ER

D6-58328

150 SEPTEMBER 2005
5.8.1 GROUND TOWING REQUIREMENTS - ENGLISH UNITS

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER

NOTES:
1. STRAIGHT-LINE TOW
2. UNUSUAL BREAKAWAY CONDITIONS NOT SHOWN
3. COEFFICIENTS OF FRICTION (μ) ARE ESTIMATED FOR RUBBER-TIRED TOW VEHICLES

EXAMPLE: A 767-300ER WEIGHING 325,000 LB BEING PUSHED UP A 2% SLOPE ON WET CONCRETE AGAINST TWO ENGINES AT IDLE THRUST (APPROX 5,000 LB OF THRUST) WILL REQUIRE APPROX 24,300 LB OF DRAWBAR PUSH AND A WHEEL TRACTION LOAD OF APPROX 42,700 LB
5.8.2 GROUND TOWING REQUIREMENTS - METRIC UNITS

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER

NOTES:
1. STRAIGHT-LINE TOW
2. UNUSUAL BREAKAWAY CONDITIONS NOT SHOWN
3. COEFFICIENTS OF FRICTION (μ) ARE ESTIMATED FOR RUBBER-TIRED TOW VEHICLES

EXAMPLE:
A 767-300ER WEIGHING 150,000 KG BEING PUSHED UP A 2% SLOPE ON WET CONCRETE AGAINST TWO ENGINES AT IDLE THRUST (APPROX .2250 KG OF THRUST) WILL REQUIRE APPROX 11,200 KG OF DRAWBAR PUSH AND A WHEEL TRACTION LOAD OF APPROX 19,750 KG
6.0  JET ENGINE WAKE AND NOISE DATA

6.1  Jet Engine Exhaust Velocities and Temperatures

6.2  Airport and Community Noise
6.0 JET ENGINE WAKE AND NOISE DATA

6.1 Jet Engine Exhaust Velocities and Temperatures

This section shows exhaust velocity and temperature contours aft of the 767-200, -300, -400ER airplane. The contours were calculated from a standard computer analysis using three-dimensional viscous flow equations with mixing of primary, fan, and free-stream flow. The presence of the ground plane is included in the calculations as well as engine tilt and toe-in. Mixing of flows from the engines is also calculated. The analysis does not include thermal buoyancy effects which tend to elevate the jet wake above the ground plane. The buoyancy effects are considered to be small relative to the exhaust velocity and therefore are not included.

The graphs show jet wake velocity and temperature contours for representative engines. The results are valid for sea level, static, standard day conditions. The effect of wind on jet wakes is not included. There is evidence to show that a downwind or an upwind component does not simply add or subtract from the jet wake velocity, but rather carries the whole envelope in the direction of the wind. Crosswinds may carry the jet wake contour far to the side at large distances behind the airplane.
6.1.1 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS

- IDLE THRUST

MODEL 767-200, -200ER, -300 (JT9D-7R4D, -7R4E ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND  * STATIC AIRPLANE
  * 2,550 LB (1,157 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING
6.1.2 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS
- IDLE THRUST

MODEL 767-200, -200ER, -300 (CF6-80A, -80A2 ENGINES)
6.1.3 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS
- IDLE THRUST
MODEL 767-300, -300ER, -300 FREIGHTER (PW4000, CF6-80C2 SERIES ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND  * STATIC AIRPLANE
  * 2,550 LB (1,157 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING
6.1.4 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS

MODEL 767-300, -300ER, -300 FREIGHTER (RB211-524 ENGINES)

NOTES:
- CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND  * STATIC AIRPLANE
  * 2,550 LB (1,157 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING
6.1.5 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS

MODEL 767-400ER (ALL ENGINES)

NOTES:

* CONDITIONS:
  - SEA LEVEL  
  - STANDARD DAY  
  - ZERO WIND  
  - STATIC AIRPLANE  
  - 2500 LB (1130 KG) THRUST PER ENGINE  
  - TWO ENGINES OPERATING
6.1.6 Predicted Jet Engine Exhaust Velocity Contours

Model 767-200, 200ER, 300 (JT9D-7R4D, -7R4E Engines)

NOTES:
* Conditions:
  * Sea Level
  * Standard Day
  * Zero Wind
  * Static Airplane
  * 8,500 lb (3,856 kg) Thrust per Engine
  * Two Engines Operating

---

Height Above Ground - Meters

Distance from Airplane Centerline - Meters

Axial Distance Behind Airplane - Feet

Axial Distance Behind Airplane - Meters

Ground Plane
6.1.7 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS
- LOW BREAKAWAY THRUST
MODEL 767-200, -200ER, -300 (CF6-80A, -80A2 ENGINES)
6.1.8 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS - LOW BREAKAWAY THRUST

MODEL 767-400ER (ALL ENGINES)

NOTES:
- CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND   * STATIC AIRPLANE
  * 8500 LB (3860 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING
6.1.9 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS
- HIGH BREAKAWAY THRUST

MODEL 767-200, -200ER, 300, -300ER, -300 FREIGHTER (ALL ENGINES)

NOTES:
- CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND  * STATIC AIRPLANE
  * 11,000 LB (4,980 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING

11 FT (3.3 m)
767-200/200ER
767-300
50 MPH
(80 KMPH)
100 MPH
(161 KMPH)
35 MPH (56 KMPH) TO APPROX 510 FT (155 M)

HEIGHT ABOVE GROUND - METERS
HEIGHT ABOVE GROUND - FEET

AXIAL DISTANCE BEHIND AIRPLANE - FEET

AXIAL DISTANCE BEHIND AIRPLANE - METERS

DISTANCE FROM AIRPLANE CENTERLINE - FEET

DISTANCE FROM AIRPLANE CENTERLINE - METERS

CENTERLINE OF AIRPLANE
6.1.10 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS
- HIGH BREAKAWAY THRUST

MODEL 767-400ER (ALL ENGINES)
6.1.11 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS

MODEL 767-200, -200ER, -300 (JT9D-7R4D, -7R4E ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND  * STATIC AIRPLANE
  * 48,000 LB (21,772 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING

** Takeoff Thrust **

- 300 MPH (483 KMPH)
- 250 MPH (402 KMPH)
- 200 MPH (322 KMPH)
- 150 MPH (241 KMPH)
- 55 MPH (89 KMPH) TO APPROX 1,300 FT (396 M)
- 50 MPH (80 KMPH) TO APPROX 840 FT (255 M)
- 100 MPH (161 KMPH) TO APPROX 375 FT (114 M)
6.1.12 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS
MODEL 767-200, -200ER, -300 (CF6-80A, -80A2 ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL  
  * STANDARD DAY  
  * ZERO WIND  
  * STATIC AIRPLANE  
  * 48,000 LB (21,772 KG) THRUST PER ENGINE  
  * TWO ENGINES OPERATING

11 FT (3.3 M)  
767-200/200ER  
767-300  
250 MPH (402 KMPH)  
200 MPH (322 KMPH)  
150 MPH (241 KMPH)  
35 MPH (56 KMPH) TO APPROX 1,200 FT (366 M)  
50 MPH (80 KMPH) TO APPROX 800 FT (244 M)  
100 MPH (161 KMPH)  

AXIAL DISTANCE BEHIND AIRPLANE - FEET
0 50 100 150 200 250 300 350

AXIAL DISTANCE BEHIND AIRPLANE - METERS
0 10 20 30 40 50 60 70 80 90 100 110

DISTANCE FROM AIRPLANE CENTERLINE - FEET
0 5 10 15 20 25 30

DISTANCE FROM AIRPLANE CENTERLINE - METERS
0 5 10 15 20 25
6.1.13 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS - TAKEOFF THRUST
MODEL 767-300ER, -300 FREIGHTER (PW4056, CF6-80C2 ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND   * STATIC AIRPLANE
  * OVER 66,000 LB (25,401 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING

- 250 MPH (402 KMPH)
- 200 MPH (322 KMPH)
- 150 MPH (241 KMPH)
- 35 MPH (56 KMPH) TO APPROX 1,650 FT (503 M)
- 50 MPH (80 KMPH) TO APPROX 1,100 FT (335 M)
- 100 MPH (161 KMPH) TO APPROX 490 FT (149 M)

HEIGHT ABOVE GROUND - FEET
AXIAL DISTANCE BEHIND AIRPLANE - FEET
DISTANCE FROM AIRPLANE CENTERLINE - METERS
CENTERLINE OF AIRPLANE
6.1.14 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS - TAKEOFF THRUST
MODEL 767-300, -300ER, -300 FREIGHTER (RB211-524 ENGINES)
6.1.15 PREDICTED JET ENGINE EXHAUST VELOCITY CONTOURS

- TAKEOFF THRUST

MODEL 767-400ER (ALL ENGINES)

NOTE:

* CONDITIONS:
  * SEA LEVEL
  * STANDARD DAY
  * ZERO WIND
  * STATIC AIRPLANE
  * 56,000 LB (25,400 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING

- 250 MPH (402 KMPH)
- 200 MPH (322 KMPH)
- 150 MPH (240 KMPH)
- 100 MPH (160 KMPH)
- 50 MPH (80 KMPH)
- 35 MPH (56 KMPH)

TO APPROX

1640 FT (500 M)
1090 FT (332 M)
480 FT (146 M)

HEIGHT ABOVE GROUND - METERS

GROUND PLANE

AXIAL DISTANCE BEHIND AIRPLANE - FEET

0 50 100 150 200 250 300 350

0 10 20 30 40 50 60 70 80 90 100 110

AXIAL DISTANCE BEHIND AIRPLANE - METERS

DISTANCE FROM AIRPLANE CENTERLINE - FEET

DISTANCE FROM AIRPLANE CENTERLINE - METERS

CENTERLINE OF AIRPLANE
6.1.16 PREDICTED JET ENGINE EXHAUST TEMPERATURE CONTOURS - IDLE THRUST
MODEL 767—200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER (ALL ENGINES)
6.1.17 PREDICTED JET ENGINE EXHAUST TEMPERATURE CONTOURS - BREAKAWAY THRUST

*MODEL 767—200, -200ER, -300, -300ER, -300 FREIGHTER, -400ER (ALL ENGINES)*
6.1.18 PREDICTED JET ENGINE EXHAUST TEMPERATURE CONTOURS - TAKEOFF THRUST

MODEL 767-200, -200ER, -300 (JT9D-7R4E, -7R4E ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL
  * STANDARD DAY
  * ZERO WIND
  * STATIC AIRPLANE
  * 48,000 LB (21,772 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING

HEIGHT ABOVE GROUND - METERS

11 FT (3.5 M)

767-200/200ER
767-300

140°F (60°C)
100°F (38°C)

GROUND PLANE

AXIAL DISTANCE BEHIND AIRPLANE - FEET

0  50  100  150  200  250  300  350

AXIAL DISTANCE BEHIND AIRPLANE - METERS

0  10  20  30  40  50  60  70  80  90  100  110

DISTANCE FROM AIRPLANE CENTERLINE - FEET

140°F (60°C)
100°F (38°C)

DISTANCE FROM AIRPLANE CENTERLINE - METERS

0  5  10  15  20  25  30  35  40  45  50
6.1.19 PREDICTED JET ENGINE EXHAUST TEMPERATURE CONTOURS - TAKEOFF THRUST

MODEL 767-200, -200ER, -300 (CF6-80A, -80A2 ENGINES)

NOTES:
- CONDITIONS:
  - SEA LEVEL
  - ZERO WIND
  - STATIC AIRPLANE
  - 48,000 LB (21,772 KG) THRUST PER ENGINE
  - TWO ENGINES OPERATING

- 11 FT (3.5 M)
- 140°F (60°C)
- 100°F (38°C)

HEIGHT ABOVE GROUND - FEET

GROUND PLANE

AXIAL DISTANCE BEHIND AIRPLANE - FEET

AXIAL DISTANCE BEHIND AIRPLANE - METERS

DISTANCE FROM AIRPLANE CENTERLINE - FEET

CENTERLINE OF AIRPLANE

DISTANCE FROM AIRPLANE CENTERLINE - METERS
6.1.20 PREDICTED JET ENGINE EXHAUST TEMPERATURE CONTOURS

MODEL 767-300ER, 300 FREIGHTER (PW4000, CF6-80C2 ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL
  * STANDARD DAY
  * ZERO WIND
  * STATIC AIRPLANE
  * OVER 56,000 LB (25,401 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING
6.1.21 PREDICTED JET ENGINE EXHAUST TEMPERATURE CONTOURS
- TAKEOFF THRUST

MODEL 767-300, -300ER, -300 FREIGHTER (RB211-524 ENGINES)
6.1.22 PREDICTED JET ENGINE EXHAUST TEMPERATURE CONTOURS

MODEL 767-400ER (ALL ENGINES)

NOTES:
* CONDITIONS:
  * SEA LEVEL  * STANDARD DAY
  * ZERO WIND   * STATIC AIRPLANE
  * 2500 LB (1130 KG) THRUST PER ENGINE
  * TWO ENGINES OPERATING

AXIAL DISTANCE BEHIND AIRPLANE — FEET

HEIGHT ABOVE GROUND — METERS

DISTANCE FROM AIRPLANE CENTERLINE — FEET

CENTERLINE OF AIRPLANE

GROUND PLANE

140° F (60° C)
100° F (38° C)
6.2 Airport and Community Noise

Airport noise is of major concern to the airport and community planner. The airport is a major element in the community's transportation system and, as such, is vital to its growth. However, the airport must also be a good neighbor, and this can be accomplished only with proper planning. Since aircraft noise extends beyond the boundaries of the airport, it is vital to consider the impact on surrounding communities. Many means have been devised to provide the planner with a tool to estimate the impact of airport operations. Too often they oversimplify noise to the point where the results become erroneous. Noise is not a simple subject; therefore, there are no simple answers.

The cumulative noise contour is an effective tool. However, care must be exercised to ensure that the contours, used correctly, estimate the noise resulting from aircraft operations conducted at an airport.

The size and shape of the single-event contours, which are inputs into the cumulative noise contours, are dependent upon numerous factors. They include the following:

1. **Operational Factors**

   (a) **Aircraft Weight** - Aircraft weight is dependent on distance to be traveled, en route winds, payload, and anticipated aircraft delay upon reaching the destination.

   (b) **Engine Power Settings** - The rates of ascent and descent and the noise levels emitted at the source are influenced by the power setting used.

   (c) **Airport Altitude** - Higher airport altitude will affect engine performance and thus can influence noise.
2. **Atmospheric Conditions-Sound Propagation**

   (a) **Wind** - With stronger headwinds, the aircraft can take off and climb more rapidly relative to the ground. Also, winds can influence the distribution of noise in surrounding communities.

   (b) **Temperature and Relative Humidity** - The absorption of noise in the atmosphere along the transmission path between the aircraft and the ground observer varies with both temperature and relative humidity.

3. **Surface Condition-Shielding, Extra Ground Attenuation (EGA)**

   (a) **Terrain** - If the ground slopes down after takeoff or up before landing, noise will be reduced since the aircraft will be at a higher altitude above ground. Additionally, hills, shrubs, trees, and large buildings can act as sound buffers.
All these factors can alter the shape and size of the contours appreciably. To demonstrate the effect of some of these factors, estimated noise level contours for two different operating conditions are shown below. These contours reflect a given noise level upon a ground level plane at runway elevation.

**Condition 1**

<table>
<thead>
<tr>
<th>Landing</th>
<th>Takeoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Structural Landing Weight</td>
<td>Maximum Gross Takeoff Weight</td>
</tr>
<tr>
<td>10-knot Headwind</td>
<td>Zero Wind</td>
</tr>
<tr>
<td>3° Approach</td>
<td>84 °F</td>
</tr>
<tr>
<td>84 °F</td>
<td>Humidity 15%</td>
</tr>
<tr>
<td>Humidity 15%</td>
<td></td>
</tr>
</tbody>
</table>

**Condition 2**

<table>
<thead>
<tr>
<th>Landing</th>
<th>Takeoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>85% of Maximum Structural Landing Weight</td>
<td>80% of Maximum Gross Takeoff Weight</td>
</tr>
<tr>
<td>10-knot Headwind</td>
<td>10-knot Headwind</td>
</tr>
<tr>
<td>3° Approach</td>
<td>59 °F</td>
</tr>
<tr>
<td>59 °F</td>
<td>Humidity 70%</td>
</tr>
<tr>
<td>Humidity 70%</td>
<td></td>
</tr>
</tbody>
</table>
As indicated from these data, the contour size varies substantially with operating and atmospheric conditions. Most aircraft operations are, of course, conducted at less than maximum gross weights because average flight distances are much shorter than maximum aircraft range capability and average load factors are less than 100%. Therefore, in developing cumulative contours for planning purposes, it is recommended that the airlines serving a particular city be contacted to provide operational information.

In addition, there are no universally accepted methods for developing aircraft noise contours or for relating the acceptability of specific zones to specific land uses. It is therefore expected that noise contour data for particular aircraft and the impact assessment methodology will be changing. To ensure that the best currently available information of this type is used in any planning study, it is recommended that it be obtained directly from the Office of Environmental Quality in the Federal Aviation Administration in Washington, D.C.

It should be noted that the contours shown herein are only for illustrating the impact of operating and atmospheric conditions and do not represent the single-event contour of the family of aircraft described in this document. It is expected that the cumulative contours will be developed as required by planners using the data and methodology applicable to their specific study.
7.0 PAVEMENT DATA

7.1 General Information
7.2 Landing Gear Footprint
7.3 Maximum Pavement Loads
7.4 Landing Gear Loading on Pavement
7.5 Flexible Pavement Requirements - U.S. Army Corps of Engineers Method S-77-1
7.6 Flexible Pavement Requirements - LCN Conversion
7.7 Rigid Pavement Requirements - Portland Cement Association Design Method
7.8 Rigid Pavement Requirements - LCN Conversion
7.9 Rigid Pavement Requirements - FAA Method
7.10 ACN/PCN Reporting System - Flexible and Rigid Pavements
7.0 PAVEMENT DATA

7.1 General Information

A brief description of the pavement charts that follow will help in their use for airport planning. Each airplane configuration is depicted with a minimum range of six loads imposed on the main landing gear to aid in interpolation between the discrete values shown. All curves for any single chart represent data based on rated loads and tire pressures considered normal and acceptable by current aircraft tire manufacturer's standards. Tire pressures, where specifically designated on tables and charts, are at values obtained under loaded conditions as certificated for commercial use.

Section 7.2 presents basic data on the landing gear footprint configuration, maximum design taxi loads, and tire sizes and pressures.

Maximum pavement loads for certain critical conditions at the tire-to-ground interface are shown in Section 7.3, with the tires having equal loads on the struts.

Pavement requirements for commercial airplanes are customarily derived from the static analysis of loads imposed on the main landing gear struts. The chart in Section 7.4 is provided in order to determine these loads throughout the stability limits of the airplane at rest on the pavement. These main landing gear loads are used as the point of entry to the pavement design charts, interpolating load values where necessary.

The flexible pavement design curves (Section 7.5) are based on procedures set forth in Instruction Report No. S-77-1, "Procedures for Development of CBR Design Curves," dated June 1977, and as modified according to the methods described in ICAO Aerodrome Design Manual, Part 3, Pavements, 2nd Edition, 1983, Section 1.1 (The ACN-PCN Method), and utilizing the alpha factors approved by ICAO in October 2007. Instruction Report No. S-77-1 was prepared by the U.S. Army Corps of Engineers Waterways Experiment Station, Soils and Pavements Laboratory, Vicksburg, Mississippi. The line showing 10,000 coverages is used to calculate Aircraft Classification Number (ACN).
The following procedure is used to develop the curves, such as shown in Section 7.5:

1. Having established the scale for pavement depth at the bottom and the scale for CBR at the top, an arbitrary line is drawn representing 6,000 annual departures.

2. Values of the aircraft gross weight are then plotted.

3. Additional annual departure lines are drawn based on the load lines of the aircraft gross weights already established.

4. An additional line representing 10,000 coverages (used to calculate the flexible pavement Aircraft Classification Number) is also placed.

All Load Classification Number (LCN) curves (Sections 7.6 and 7.8) have been developed from a computer program based on data provided in International Civil Aviation Organization (ICAO) document 9157-AN/901, Aerodrome Design Manual Part 3, “Pavements”, First Edition, 1977. LCN values are shown directly for parameters of weight on main landing gear, tire pressure, and radius of relative stiffness (t) for rigid pavement or pavement thickness or depth factor (h) for flexible pavement.

Rigid pavement design curves (Section 7.7) have been prepared with the Westergaard equation in general accordance with the procedures outlined in the Design of Concrete Airport Pavement (1955 edition) by Robert G. Packard, published by the American Concrete Pavement Association, 3800 North Wilke Road, Arlington Heights, Illinois 60004-1268. These curves are modified to the format described in the Portland Cement Association publication XP6705-2, Computer Program for Airport Pavement Design (Program PDILB), 1968, by Robert G. Packard.

The following procedure is used to develop the rigid pavement design curves shown in Section 7.7:

1. Having established the scale for pavement thickness to the left and the scale for allowable working stress to the right, an arbitrary load line is drawn representing the main landing gear maximum weight to be shown.

2. Values of the subgrade modulus (k) are then plotted.

3. Additional load lines for the incremental values of weight on the main landing gear are drawn on the basis of the curve for k = 300, already established.
The ACN/PCN system (Section 7.10) as referenced in ICAO Annex 14, "Aerodromes," First Edition, July 1990, provides a standardized international airplane/pavement rating system replacing the various S, T, TT, LCN, AUW, ISWL, etc., rating systems used throughout the world. ACN is the Aircraft Classification Number and PCN is the Pavement Classification Number. An aircraft having an ACN equal to or less than the PCN can operate on the pavement subject to any limitation on the tire pressure. Numerically, the ACN is two times the derived single-wheel load expressed in thousands of kilograms, where the derived single wheel load is defined as the load on a single tire inflated to 181 psi (1.25 MPa) that would have the same pavement requirements as the aircraft. Computationally, the ACN/PCN system uses the PCA program PDILB for rigid pavements and S-77-1 for flexible pavements to calculate ACN values. The method of pavement evaluation is left up to the airport with the results of their evaluation presented as follows:

<table>
<thead>
<tr>
<th>PCN TYPE</th>
<th>PAVEMENT TYPE</th>
<th>SUBGRADE CATEGORY</th>
<th>TIRE PRESSURE CATEGORY</th>
<th>EVALUATION METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>R = Rigid</td>
<td>F = Flexible</td>
<td>A = High</td>
<td>W = No Limit</td>
<td>T = Technical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B = Medium</td>
<td>X = To 254 psi (1.75 MPa)</td>
<td>U = Using Aircraft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C = Low</td>
<td>Y = To 181 psi (1.25 MPa)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D = Ultra Low</td>
<td>Z = To 73 psi (0.5 MPa)</td>
<td></td>
</tr>
</tbody>
</table>

Section 7.10.1 shows the aircraft ACN values for flexible pavements. The four subgrade categories are:

- Code A - High Strength - CBR 15
- Code B - Medium Strength - CBR 10
- Code C - Low Strength - CBR 6
- Code D - Ultra Low Strength - CBR 3

Section 7.10.2 shows the aircraft ACN values for rigid pavements. The four subgrade categories are:

- Code A - High Strength, k = 550 pci (150 MN/m³)
- Code B - Medium Strength, k = 300 pci (80 MN/m³)
- Code C - Low Strength, k = 150 pci (40 MN/m³)
- Code D - Ultra Low Strength, k = 75 pci (20 MN/m³)
<table>
<thead>
<tr>
<th>UNITS</th>
<th>MODEL 767-200</th>
<th>MODEL 767-200ER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM DESIGN TAXI WEIGHT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>284,000 – 317,000</td>
<td>337,000 – 347,000</td>
</tr>
<tr>
<td>KG</td>
<td>128,820 – 143,788</td>
<td>152,861 – 157,397</td>
</tr>
<tr>
<td>PERCENT OF WEIGHT ON MAIN GEAR</td>
<td>SEE SECTION 7.4.1</td>
<td>SEE SECTION 7.4.2</td>
</tr>
<tr>
<td>NOSE GEAR SIZE</td>
<td>H37 x 14-15 22PR</td>
<td>H37 x 14-15 22PR</td>
</tr>
<tr>
<td>NOSE GEAR PRESSURE</td>
<td>PSI</td>
<td>145</td>
</tr>
<tr>
<td></td>
<td>KG/CM²</td>
<td>10.19</td>
</tr>
<tr>
<td>MAIN GEAR SIZE</td>
<td>H45 x 17-20 26PR (1)</td>
<td>H46 x 18-20 28PR</td>
</tr>
<tr>
<td>MAIN GEAR PRESSURE</td>
<td>PSI</td>
<td>190 (1)</td>
</tr>
<tr>
<td></td>
<td>KG/CM²</td>
<td>13.36 (1)</td>
</tr>
</tbody>
</table>

NOTES:

(1) OPTIONAL TIRE: H46 x 18-20 26PR AT 175 PSI (12.30 KG/SQ CM) OR H46 x 18-20 26PR H/D AT 155 PSI (10.9 KG/SQ CM) OR 175 PSI (12.30 KG/SQ CM)

(2) OPTIONAL TIRE PRESSURE: 190 PSI (13.36 KG/SQ CM)

7.2.1 LANDING GEAR FOOTPRINT
MODEL 767-200, -200ER
74 FT 8 IN (22.76 M)

25 IN (0.64 M)

35 FT 9 IN (10.90 M)

30 FT 6 IN (9.30 M)

45 IN (1.14 M) (TYPICAL)

56 IN (1.42 M) (TYPICAL)

<table>
<thead>
<tr>
<th>UNITS</th>
<th>MODEL 767-300</th>
<th>MODEL 767-300ER</th>
<th>MODEL 767-300ER, -300 FREIGHTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM DESIGN TAXI WEIGHT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LB</td>
<td>317,000 - 340,000</td>
<td>352,000</td>
<td>381,000</td>
</tr>
<tr>
<td>PERCENT OF WEIGHT ON MAIN GEAR</td>
<td>SEE SECTION 7.4.4</td>
<td>SEE SECTION 7.4.5</td>
<td>SEE SECTION 7.4.6</td>
</tr>
<tr>
<td>NOSE GEAR TIRE SIZE</td>
<td>H37 x 14-15 22PR</td>
<td>H37 x 14-15 22PR</td>
<td>H37 x 14-15 22PR</td>
</tr>
<tr>
<td>NOSE GEAR TIRE PRESSURE</td>
<td>PSI</td>
<td>150</td>
<td>145</td>
</tr>
<tr>
<td></td>
<td>KG/CM²</td>
<td>10.55</td>
<td>10.19</td>
</tr>
<tr>
<td>MAIN GEAR TIRE SIZE</td>
<td>H46 x 18-20 28PR</td>
<td>H46 x 18-20 28PR</td>
<td>H46 x 18-20 32PR</td>
</tr>
<tr>
<td>MAIN GEAR TIRE PRESSURE</td>
<td>PSI</td>
<td>175 (1)</td>
<td>195</td>
</tr>
<tr>
<td></td>
<td>KG/CM²</td>
<td>12.30 (1)</td>
<td>13.71</td>
</tr>
</tbody>
</table>

NOTES:
(1) OPTIONAL TIRE PRESSURE: 190 PSI (13.36 KG/SQ CM)

7.2.2 LANDING GEAR FOOTPRINT
MODEL 767-300, -300ER, -300 FREIGHTER
### 7.2.3 LANDING GEAR FOOTPRINT

**MODEL 767-400ER**

<table>
<thead>
<tr>
<th>Units</th>
<th>Description</th>
<th>767-400ER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM DESIGN TAXI WEIGHT</td>
<td>LB</td>
<td>451,000</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>204,570</td>
</tr>
<tr>
<td>PERCENT OF WEIGHT ON MAIN GEAR</td>
<td></td>
<td>SEE SECTION 7.4</td>
</tr>
<tr>
<td>NOSE GEAR TIRE SIZE</td>
<td>IN.</td>
<td>H37 x 14 - 15 24PR</td>
</tr>
<tr>
<td>NOSE GEAR TIRE PRESSURE</td>
<td>PSI</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>KG/CM²</td>
<td>13.01</td>
</tr>
<tr>
<td>MAIN GEAR TIRE SIZE</td>
<td>IN.</td>
<td>50 x 20 R22 32 PR</td>
</tr>
<tr>
<td>MAIN GEAR TIRE PRESSURE</td>
<td>PSI</td>
<td>215</td>
</tr>
<tr>
<td></td>
<td>KG/CM²</td>
<td>15.11</td>
</tr>
</tbody>
</table>
V (NG) = MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CENTER OF GRAVITY
V (MG) = MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CENTER OF GRAVITY
H = MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM DESIGN TAXI WEIGHT

<table>
<thead>
<tr>
<th>MODEL</th>
<th>UNIT</th>
<th>MAXIMUM DESIGN TAXI WEIGHT</th>
<th>V (NG) STATIC AT MOST FWD C.G.</th>
<th>V (NG) STATIC + BRAKING 10 FT/SEC² DECEL</th>
<th>V (MG) MAX LOAD AT STATIC AFT C.G.</th>
<th>H MAX LOAD AT AT INSTANTANEOUS BRAKING (U= 0.8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>767-200</td>
<td>LB</td>
<td>284,000</td>
<td>39,100</td>
<td>56,500</td>
<td>133,300</td>
<td>44,100</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>128,821</td>
<td>17,736</td>
<td>25,628</td>
<td>60,464</td>
<td>20,003</td>
</tr>
<tr>
<td>767-200ER</td>
<td>LB</td>
<td>302,000</td>
<td>39,900</td>
<td>58,600</td>
<td>141,700</td>
<td>46,900</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>136,985</td>
<td>18,098</td>
<td>26,581</td>
<td>64,274</td>
<td>21,274</td>
</tr>
<tr>
<td>767-200</td>
<td>LB</td>
<td>312,000</td>
<td>40,200</td>
<td>59,700</td>
<td>146,400</td>
<td>48,400</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>141,521</td>
<td>18,234</td>
<td>27,080</td>
<td>66,406</td>
<td>21,954</td>
</tr>
<tr>
<td>767-200</td>
<td>LB</td>
<td>317,000</td>
<td>40,600</td>
<td>60,400</td>
<td>146,300</td>
<td>49,200</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>143,789</td>
<td>18,416</td>
<td>27,397</td>
<td>66,361</td>
<td>22,317</td>
</tr>
<tr>
<td>767-200ER</td>
<td>LB</td>
<td>337,000</td>
<td>42,700</td>
<td>63,800</td>
<td>158,100</td>
<td>52,300</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>152,861</td>
<td>19,368</td>
<td>28,939</td>
<td>71,713</td>
<td>23,723</td>
</tr>
<tr>
<td>767-200ER</td>
<td>LB</td>
<td>347,000</td>
<td>43,200</td>
<td>65,200</td>
<td>160,700</td>
<td>53,900</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>157,397</td>
<td>19,595</td>
<td>29,574</td>
<td>72,892</td>
<td>24,449</td>
</tr>
<tr>
<td>767-200ER</td>
<td>LB</td>
<td>352,200</td>
<td>43,300</td>
<td>65,600</td>
<td>162,200</td>
<td>54,700</td>
</tr>
<tr>
<td></td>
<td>KG</td>
<td>159,756</td>
<td>19,641</td>
<td>29,429</td>
<td>73,573</td>
<td>24,812</td>
</tr>
<tr>
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7.3.1 MAXIMUM PAVEMENT LOADS
MODEL 767-200, -200ER
\[ V_{(NG)} = \text{MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CENTER OF GRAVITY} \]
\[ V_{(MG)} = \text{MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CENTER OF GRAVITY} \]
\[ H = \text{MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING} \]

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM DESIGN TAXI WEIGHT

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<th>UNIT</th>
<th>MAXIMUM DESIGN TAXI WEIGHT</th>
<th>( V_{(NG)} )</th>
<th>( V_{(MG)} ) PER STRUT</th>
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7.3.2 MAXIMUM PAVEMENT LOADS
MODEL 767-300, -300ER, -300 FREIGHTER
\[ V_{(NG)} = \text{MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CENTER OF GRAVITY} \]
\[ V_{(MG)} = \text{MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CENTER OF GRAVITY} \]
\[ H = \text{MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING} \]

**NOTE:** ALL LOADS CALCULATED USING AIRPLANE MAXIMUM DESIGN TAXI WEIGHT

<table>
<thead>
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<th>MODEL</th>
<th>UNIT</th>
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<th>( V_{(MG)} ) PER STRUT</th>
<th>( H ) PER STRUT</th>
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**7.3.3 MAXIMUM PAVEMENT LOADS**

MODEL 767-400ER

767-400ER LB 451,000 37,600 59,650 211,850 70,050 169,500
767-400ER KG 204,570 17,055 27,057 96,093 31,774 76,884
7.4.1 LANDING GEAR LOADING ON PAVEMENT

MODEL 767-200 AT 284,000 TO 317,000 LB (128,820 TO 143,789 KG) MTW
7.4.2 LANDING GEAR LOADING ON PAVEMENT

MODEL 767-200, -200ER AT 337,000 TO 352,200 LB (152,860 TO 159,755 KG) MTW

D6-58328
7.4.3 LANDING GEAR LOADING ON PAVEMENT
MODEL 767-200ER AT 381,000 TO 396,000 LB (172,819 TO 179,623 KG) MTW
7.4.4 LANDING GEAR LOADING ON PAVEMENT
MODEL 767-300 AT 317,200 TO 352,000 LB (143,890 TO 159,665 KG) MTW
7.4.5 LANDING GEAR LOADING ON PAVEMENT
MODEL 767-300ER AT 381,000 TO 388,000 LB (172,819 TO 175,994 KG) MTW
7.4.6 LANDING GEAR LOADING ON PAVEMENT

MODEL 767-300ER, -300 FREIGHTER AT 401,000 TO 413,000 LB (181,908 TO 187,334 KG) MTW
7.4.7 LANDING GEAR LOADING ON PAVEMENT
MODEL 767-400ER
7.5 Flexible Pavement Requirements - U.S. Army Corps of Engineers Method
(S-77-1)

The following flexible-pavement design chart presents the data of six incremental main-gear loads at
the minimum tire pressure required at the maximum design taxi weight.

In the example shown in 7.5.1, for a CBR of 30 and an annual departure level of 3,000, the required
flexible pavement thickness for an airplane with a main gear loading of 376,300 pounds is 12.0 inches.

The line showing 10,000 coverages is used for ACN calculations (see Section 7.10).

The FAA design method uses a similar procedure using total airplane weight instead of weight on the
main landing gears. The equivalent main gear loads for a given airplane weight could be calculated
from Section 7.4.
7.5.1 FLEXIBLE PAVEMENT REQUIREMENTS - U.S. ARMY CORPS OF ENGINEERS DESIGN METHOD (S-77-1)
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER
7.5.2 FLEXIBLE PAVEMENT REQUIREMENTS - U.S. ARMY CORPS OF ENGINEERS DESIGN METHOD (S-77-1) 
MODEL 767-400ER

F6-58328

200 SEPTEMBER 2005
7.6 Flexible Pavement Requirements - LCN Method

To determine the airplane weight that can be accommodated on a particular flexible pavement, both the Load Classification Number (LCN) of the pavement and the thickness must be known.

In the example shown in 7.6.1, flexible pavement thickness is shown at 30 in. with an LCN of 75. For these conditions, the apparent maximum allowable weight permissible on the main landing gear is 250,000 lb for an airplane with 200-psi main gear tires.

Note: If the resultant aircraft LCN is not more than 10% above the published pavement LCN, the bearing strength of the pavement can be considered sufficient for unlimited use by the airplane. The figure 10% has been chosen as representing the lowest degree of variation in LCN that is significant (reference: ICAO Aerodrome Manual, Part 2, "Aerodrome Physical Characteristics," Chapter 4, Paragraph 4.1.5.7v, 2nd Edition dated 1965).
7.6.1 FLEXIBLE PAVEMENT REQUIREMENTS - LCN METHOD

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER
7.6.2 FLEXIBLE PAVEMENT REQUIREMENTS - LCN METHOD

MODEL 767-400ER

NOTES:
* TIRES - 50 X 20 R22 - 32PR
  AT 215 PSI (15.11 KG/SQ CM)
* EQUIVALENT SINGLE-WHEEL LOADS ARE DERIVED FROM
  ICAO AERODROME MANUAL, PART 2 PAR. 4.1.3

MAXIMUM POSSIBLE MAIN GEAR
LOAD AT MAXIMUM DESIGN TAXI
WEIGHT AND AFT CG (451,000 LB)

WEIGHT ON MAIN
LANDING GEAR
(SEE SEC 7.4)

<table>
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<tr>
<th>LB</th>
<th>KG</th>
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</thead>
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<td>300,000</td>
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<td>250,000</td>
<td>113,398</td>
</tr>
<tr>
<td>200,000</td>
<td>90,716</td>
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</tbody>
</table>

EQUIVALENT SINGLE-WHEEL LOAD

(10,000 POUNDS)

INCHES

FLEXIBLE PAVEMENT THICKNESS, h

CENTIMETERS

LOAD CLASSIFICATION NUMBER (LCN)
7.7  Rigid Pavement Requirements - Portland Cement Association Design Method


The following rigid pavement design chart presents the data for six incremental main gear loads at the minimum tire pressure required at the maximum design taxi weight.

In the example shown in 7.7.1, for an allowable working stress of 550 psi, a main gear load of 300,000 lb, and a subgrade strength (k) of 300, the required rigid pavement thickness is 9.4 in.
7.7.1 RIGID PAVEMENT REQUIREMENTS - PORTLAND CEMENT ASSOCIATION DESIGN METHOD

*MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER*

NOTES: TRES - H46 X 18-20 - 52PR
PRESSURE CONSTANT AT 200 PSI (14.06 KG/SQ CM)

MAXIMUM POSSIBLE MAIN GEAR LOAD
AT MAXIMUM DESIGN TAXI WEIGHT
AND AFT C.G. (413,000 LB MTW)
WEIGHT ON MAIN
LANDING GEAR
(SEE SEC 7.4)
LB KG
381,600 173,091
350,000 158,758
300,000 136,078
250,000 113,398
200,000 90,719
175,000 79,379

NOTE:
The values obtained by using the maximum load reference line and any value of k are exact. For loads less than maximum, the curves are exact for k = 500 but deviate slightly for other values of k.

REFERENCES:
"DESIGN OF CONCRETE AIRPORT PAVEMENT" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN — PROGRAM POLIS" PORTLAND CEMENT ASSOCIATION.
7.7.2 RIGID PAVEMENT REQUIREMENTS - PORTLAND CEMENT ASSOCIATION DESIGN METHOD

MODEL 767-400ER

NOTE: TIRES - 50 X 20 R22 - 32PR

MAXIMUM POSSIBLE MAIN GEAR LOAD
AT MAXIMUM DESIGN TAXI WEIGHT
AND AT FT.C.G. (451,000 LB MTW)

WEIGHT ON MAIN
LANDING GEAR
SEE SEC 7.4

LB
KG
423,670
192,173
400,000
181,457
350,000
156,757
300,000
136,077
250,000
113,398
200,000
90,718

NOTE: THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUE OF k ARE EXACT. FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 300 BUT DEViate SLIGHTLY FOR OTHER VALUES OF k.

REFERENCES: "DESIGN OF CONCRETE AIRPORT PAVEMENT" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDIB" PORTLAND CEMENT ASSOCIATION.
7.8 Rigid Pavement Requirements - LCN Conversion

To determine the airplane weight that can be accommodated on a particular rigid pavement, both the LCN of the pavement and the radius of relative stiffness (I) of the pavement must be known.

In the example shown in 7.8.2, for a rigid pavement with a radius of relative stiffness of 60 with an LCN of 80, the apparent maximum allowable weight permissible on the main landing gear is 250,000 lb for an airplane with 200-psi main tires.

Note: If the resultant aircraft LCN is not more than 10% above the published pavement LCN, the bearing strength of the pavement can be considered sufficient for unlimited use by the airplane. The figure 10% has been chosen as representing the lowest degree of variation in LCN that is significant (reference: ICAO Aerodrome Manual Part 2, "Aerodrome Physical Characteristics," Chapter 4, Paragraph 4.1.5.7v, 2nd Edition dated 1965).
### RADIUS OF RELATIVE STIFFNESS (\( l \))

VALUES IN INCHES

\[
l = \sqrt[4]{\frac{E d^3}{12(1-\mu^2)k}} = 24.1652 \sqrt[4]{\frac{d^3}{k}}
\]

WHERE:
- \( E \) = YOUNG'S MODULUS OF ELASTICITY = 4 x 10^6 psi
- \( k \) = SUBGRADE MODULUS, LB PER CU IN
- \( d \) = RIGID PAVEMENT THICKNESS, IN
- \( \mu \) = POISSON'S RATIO = 0.15

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<td>65.89</td>
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<td>64.91</td>
<td>62.46</td>
<td>60.41</td>
<td>57.13</td>
<td>55.78</td>
</tr>
</tbody>
</table>

### 7.8.1 RADIUS OF RELATIVE STIFFNESS

(REFERENCE: PORTLAND CEMENT ASSOCIATION)
7.8.2 RIGID PAVEMENT REQUIREMENTS - LCN CONVERSION
MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER

NOTES:
- TIRES - H46 X 18-20 28PR OR 32PR
- EQUIVALENT SINGLE-WHEEL LOADS ARE DERIVED FROM
  ICAO AERODROME MANUAL, PART 2 PAR 4.1.3, DATED 1965.

GRAPHIC SHOWING RELATIONSHIP BETWEEN ETC (1,000 KILOGRAMS), EQUIVALENT SINGLE-WHEEL LOAD, WEIGHT ON MAIN LANDING GEAR (SEE SEC 7.4) LB (KG), INCHES, CENTIMETERS, AND LOAD CLASSIFICATION NUMBER (LCN).

MAXIMUM POSSIBLE MAIN GEAR LOAD AT MAX DESIGN TAXI WT AND AFT CG (413,000 LB MTW)

WEIGHT ON MAIN LANDING GEAR (SEE SEC 7.4) LB (KG):
- 381,600 (173,091)
- 550,000 (158,758)
- 500,000 (136,078)
- 250,000 (113,398)
- 200,000 (90,719)
- 175,000 (75,379)

TIRES PRESSURE:
- 175 (12.30)
- 200 (14.06)

LOAD CLASSIFICATION NUMBER (LCN)
7.8.3 RIGID PAVEMENT REQUIREMENTS - LCN CONVERSION

MODEL 767-400ER

NOTES:

* TIRES - 50 X 20 R22 - 32PR AT 215 PSI (15.11 KG/SQ CM)

* EQUIVALENT SINGLE-WHEEL LOADS ARE DERIVED FROM ICAO AERODROME MANUAL, PART 2 PAR 4.1.3, DATED 1965.

\[
\text{MAXIMUM POSSIBLE MAIN GEAR LOAD AT MAX DESIGN TAXI WT AND AFT CG (431,000 LB MTW)}
\]

\[
\text{WEIGHT ON MAIN LANDING GEAR (SEE SEC 7.4) LB (KG)}
\]

- 423,670 (192,173)
- 400,000 (181,437)
- 350,000 (158,757)
- 300,000 (136,077)
- 250,000 (113,398)
- 200,000 (90,718)

\[
\text{INCHES (CENTIMETERS)}
\]

\[
\text{LOAD CLASSIFICATION NUMBER (LCN)}
\]

\[
\text{RADIUS OF RELATIVE STIFFNESS, } f
\]
7.9 Rigid Pavement Requirements - FAA Design Method

The following rigid-pavement design chart presents data on six incremental main gear loads at the minimum tire pressure required at the maximum design taxi weight.

In the example shown in 7.9.1, the pavement flexural strength is shown at 700 psi, the subgrade strength is shown at \( k = 300 \), and the annual departure level is 6,000. For these conditions, the required rigid pavement thickness for an airplane with a main gear loading of 350,000 pounds is 12.4 inches.
7.9.1 RIGID PAVEMENT REQUIREMENTS - FAA METHOD

MODEL 767-200, -200ER, -300, -300ER, -300 FREIGHTER
NOTE: ALL TIRES - ALL CONTACT AREA CONSTANT AT 246 SQ IN (0.159 SQ M)

WEIGHT ON MAIN LANDING GEAR (SEE SEC 7.4)

LB (KG)
423,670 (192,173)
400,000 (181,437)
350,000 (158,757)
300,000 (136,077)
250,000 (113,398)
200,000 (90,716)

ANNUAL DEPARTURES
1,200
3,000
6,000
18,000
25,000

NOTE: 20-YR PAVEMENT LIFE

FLEXURAL STRENGTH (KIP/IN², CM)

INCHES (CENTIMETERS)
PAVEMENT THICKNESS
7.10 ACN/PCN Reporting System - Flexible and Rigid Pavements

To determine the ACN of an aircraft on flexible or rigid pavement, both the aircraft gross weight and the subgrade strength category must be known. In the chart in 7.10.1, for an aircraft with gross weight of 260,000 lb on a low subgrade strength (Code C), the flexible pavement ACN is 32.4. Referring to 7.10.6, the same aircraft, the same gross weight, and on a low subgrade rigid pavement has an ACN of 35.5.

Note: An aircraft with an ACN equal to or less that the reported PCN can operate on that pavement subject to any limitations on the tire pressure. (Ref.: Amendment 35 to ICAO Annex 14 Aerodrome, Eighth Edition, March 1983.)

The following table provides ACN data in tabular format similar to the one used by ICAO in the “Aerodrome Design Manual Part 3, Pavements.” If the ACN for an intermediate weight between taxi weight and empty fuel weight of the aircraft is required, Figures 7.10.1 through 7.10.10 should be consulted.

<table>
<thead>
<tr>
<th>AIRCRAFT TYPE</th>
<th>MAXIMUM TAXI WEIGHT (LB)</th>
<th>MINIMUM WEIGHT (L)</th>
<th>LOAD ON ONE MAIN GEAR LEG (%)</th>
<th>TIRE PRESSURE PSI (MPA)</th>
<th>HIGH 150</th>
<th>MEDIUM 80</th>
<th>LOW 40</th>
<th>ULTRA LOW 20</th>
<th>HIGH 15</th>
<th>MEDIUM 10</th>
<th>LOW 6</th>
<th>ULTRA LOW 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>767-200</td>
<td>317,000(143,787)</td>
<td>181,000(82,100)</td>
<td>46.15</td>
<td>190 (1.31)</td>
<td>39</td>
<td>45</td>
<td>55</td>
<td>63</td>
<td>40</td>
<td>46</td>
<td>52</td>
<td>71</td>
</tr>
<tr>
<td>767-200ER</td>
<td>396,000(179,623)</td>
<td>182,000(82,600)</td>
<td>45.41</td>
<td>190 (1.31)</td>
<td>44</td>
<td>52</td>
<td>62</td>
<td>71</td>
<td>45</td>
<td>50</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>767-300</td>
<td>352,000(159,665)</td>
<td>190,000(86,200)</td>
<td>46.14</td>
<td>195(1.34)</td>
<td>40</td>
<td>47</td>
<td>57</td>
<td>66</td>
<td>42</td>
<td>46</td>
<td>55</td>
<td>75</td>
</tr>
<tr>
<td>767-300ER</td>
<td>413,000(187,334)</td>
<td>198,000(89,811)</td>
<td>46.2</td>
<td>200(1.38)</td>
<td>40</td>
<td>47</td>
<td>57</td>
<td>66</td>
<td>42</td>
<td>46</td>
<td>55</td>
<td>75</td>
</tr>
<tr>
<td>767-400ER</td>
<td>451,000(204,570)</td>
<td>229,000(103,900)</td>
<td>46.98</td>
<td>215(1.48)</td>
<td>58</td>
<td>68</td>
<td>80</td>
<td>91</td>
<td>56</td>
<td>63</td>
<td>77</td>
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</tr>
</tbody>
</table>

(1) Minimum weight used solely as a baseline for ACN curve generation.
7.10.1 AIRCRAFT CLASSIFICATION NUMBER - FLEXIBLE PAVEMENT

MODEL 767-200

- CODE D = CBR 3 (ULTRA LOW)
- CODE C = CBR 6 (LOW)
- CODE B = CBR 10 (MEDIUM)
- CODE A = CBR 15 (HIGH)

NOTES:
1. TO DETERMINE MAIN LANDING GEAR LOADING.
   SEE SECTION 7.4.
2. PERCENT WEIGHT ON MAIN LANDING GEAR: 91.5%

PRESSURE = 190 PSI (13.36 KG/SQ CM)

H46 x 17-20 26 FT

AIRCRAFT CLASSIFICATION NUMBER (A-CN)

AIRCRAFT CROSS WEIGHT (1,000 LB)

AIRCRAFT CLASSIFICATION NUMBER (A-CN)

(1,000 KG)
7.10.2 AIRCRAFT CLASSIFICATION NUMBER - FLEXIBLE PAVEMENT

MODEL 767-200ER

CODE D = CBR 5 (ULTRA LOW)
CODE C = CBR 6 (LOW)
CODE B = CBR 10 (MEDIUM)
CODE A = CBR 15 (HIGH)

NOTES:
- H46 x 18-20 32 HR
- PRESSURE = 190 PSI (13.36 KG/SQ CH)

1. TO DETERMINE MAIN LANDING GEAR LOADING, SEE SECTION 7.4.
2. PERCENT WEIGHT ON MAIN LANDING GEAR: 90.8

AIRCRAFT CLASSIFICATION NUMBER (ACN)

AIRCRAFT GROSS WEIGHT

(1,000 LB)

(1,000 KG)
7.10.3 AIRCRAFT CLASSIFICATION NUMBER - FLEXIBLE PAVEMENT

MODEL 767-300

NOTES:

1. TO DETERMINE MAIN LANDING GEAR LOADING, SEE SECTION 7.4.

2. PERCENT WEIGHT ON MAIN LANDING GEAR: 94.9

CODE D = CBR 3 (ULTRA LOW)
CODE C = CBR 6 (LOW)
CODE B = CBR 10 (MEDIUM)
CODE A = CBR 13 (HIGH)

NOTES:

* H46 x 18-20 28 PR
* PRESSURE = 182 PSI (12.8 KG/SQ CM)
7.10.4 AIRCRAFT CLASSIFICATION NUMBER - FLEXIBLE PAVEMENT

MODEL 767-300ER, 300 FREIGHTER

NOTES:
1. TO DETERMINE MAIN LANDING GEAR LOADING, SEE SECTION 7.4.
2. PERCENT WEIGHT ON MAIN LANDING GEAR: 92.4

CODE D = CBR 3 (ULTRA LOW)
CODE C = CBR 6 (LOW)
CODE B = CBR 10 (MEDIUM)
CODE A = CBR 15 (HIGH)

* H46 x 18-20 S2PR
* PRESSURE = 200PSI (14.06 KG/SQ. CM)
NOTES:
* C-10 X 20 = 220. 520 PSN
* PRESSURE CONSTANT AT 218 PSI (15.33 KG/SQ CN)

CODE D = CBR 3 (Ultra Low)
CODE C = CBR 6 (Low)
CODE B = CBR 10 (Medium)
CODE A = CBR 15 (High)

1. TO DETERMINE MAIN LANDING GEAR LOADING, SEE SECTION 7.4.
2. PERCENT WEIGHT ON MAIN LANDING GEAR: 94.0
7.10.6 AIRCRAFT CLASSIFICATION NUMBER - RIGID PAVEMENT

NOTES:
- H45 X 17–20 26 PR
- PRESSURE = 190 PSI (13.38 KG/CW SQ)

CODE D,k = 75 (ULTRA LOW)
CODE C,k = 150 (LOW)
CODE B,k = 300 (MED/LW)
CODE A,k = 550 (HIGH)

NOTES:
1. ACN WAS DETERMINED AS REFERENCED IN AMENDMENT 35 TO ICAO ANNEX 14, "AERODROMES, "8TH EDITION, MARCH 1983
2. TO DETERMINE MAIN LANDING GEAR LOADING, SEE SECTION 7.A.
3. PERCENT WEIGHT ON MAIN LANDING GEAR: 92.3
7.10.8 AIRCRAFT CLASSIFICATION NUMBER - RIGID PAVEMENT

MODEL 767-300

NOTES:
* 146 X 18-20 28 PR
* PRESSURE = 195PSI (13.71 KG/CW SQ)

CODE Dₖ = 75 (ULTRA LOW)
CODE Cₖ = 150 (LOW)
CODE Bₖ = 300 (MEDIUM)
CODE Aₖ = 550 (HIGH)

NOTES:
1. ACN WAS DETERMINED AS REFERENCED IN AMENDMENT 35 TO ICAO ANNEX 14, "AERODROMES," 6TH EDITION, MARCH 1983.
2. TO DETERMINE MAIN LANDING GEAR LOADING, SEE SECTION 7.4.
3. PERCENT WEIGHT ON MAIN LANDING GEAR: 92.3
7.10.9 AIRCRAFT CLASSIFICATION NUMBER - RIGID PAVEMENT

MODEL 767-300ER, -300 FREIGHTER

NOTES:

1. ACN WAS DETERMINED AS REFERENCED IN AMENDMENT 35 TO ICAO ANNEX 14, "AERODROMES," 6TH EDITION, MARCH 1983
2. TO DETERMINE MAIN LANDING GEAR LOADING, SEE SECTION 7.4.
3. PERCENT WEIGHT ON MAIN LANDING GEAR: 92.4

CODE D,k = 75 (ULTRA LOW)
CODE C,k = 150 (LOW)
CODE B,k = 300 (MEDIUM)
CODE A,k = 550 (HIGH)

PRESSURE = 200PSI (14.06 KG/CW SQ)
7.10.10 AIRCRAFT CLASSIFICATION NUMBER - RIGID PAVEMENT

MODEL 767-400ER
8.0 FUTURE 767 DERIVATIVE AIRPLANES
8.0 FUTURE 767 DERIVATIVE AIRPLANES

Several derivatives are being studied to provide additional capabilities of the 767 family of airplanes. Future growth versions could require additional passenger or cargo capacity or increased range or both. Whether these growth versions could be built would depend entirely on airline requirements. In any event, impact on airport facilities will be a consideration in the configuration and design.
9.0 SCALED 767 DRAWINGS

9.1 – 9.5 Model 767-200, -200ER
9.6 – 9.10 Model 767-300, -300ER
9.11 – 9.15 Model 767-300 Freighter
9.16 – 9.20 Model 767-400ER
9.0 SCALED DRAWINGS

The drawings in the following pages show airplane plan view drawings, drawn to approximate scale as noted. The drawings may not come out to exact scale when printed or copied from this document. Printing scale should be adjusted when attempting to reproduce these drawings. Three-view drawing files of the 767-200, -200ER, -300, -300ER, -300 Freighter, -400ER, along with other Boeing airplane models, can be downloaded from the following website:

http://www.boeing.com/airports
9.1.1 SCALED DRAWING - 1 IN. = 32 FT
MODEL 767-200, -200ER

NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

LEGEND
A  CONDITIONED AIR
C  CARGO DOOR
E  ELECTRICAL
F  FUEL
G  GALLEY SERVICE DOOR
H  HYDRAULIC
H_2O  POTABLE WATER
L  LAVATORY
MLG  MAIN LANDING GEAR
NG  NOSE GEAR
P  PNEUMATIC
V  FUEL VENT
X  PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.1.2 SCALED DRAWING - 1 IN. = 32 FT

MODEL 767-200, -200ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.2.1 SCALED DRAWING - 1 IN. = 50 FT
MODEL 767-200, -200ER

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SEPTEMBER 2005  231
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.2.2 SCALED DRAWING - 1 IN. = 50 FT

MODEL 767-200, -200ER
NOTE:

SEE SEC 9.1.1
LOCATIONS AND IDENTIFICATIONS
OF SERVICE POINTS

LEGEND

A  CONDITIONED AIR
C  CARGO DOOR
E  ELECTRICAL
F  FUEL
G  GALLEY SERVICE DOOR
H  HYDRAULIC
H2O  POTABLE WATER
L  LAVATORY
MLC  MAIN LANDING GEAR
NG  NOSE GEAR
P  PNEUMATIC
V  FUEL VENT
X  PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3

NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.3.1 SCALED DRAWING - 1 IN = 100 FT
MODEL 767-200, -200ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.3.2 SCALED DRAWING - 1 IN = 100 FT

MODEL 767-200, -200ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.4.1 SCALED DRAWING - 1:500
MODEL 767-200, -200ER

LEGEND
A CONDITIONED AIR
C CARGO DOOR
E ELECTRICAL
F FUEL
G GALLEY SERVICE DOOR
H HYDRAULIC
H2O POTABLE WATER
L LAVATORY
MLG MAIN LANDING GEAR
NG NOSE GEAR
P PNEUMATIC
V FUEL VENT
X PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.4.2 SCALED DRAWING - 1:500
MODEL 767-200, -200ER
NOTE:

SEE SEC 9.1.1
LOCATIONS AND IDENTIFICATIONS
OF SERVICE POINTS

LEGEND

A  CONDITIONED AIR
C  CARGO DOOR
E  ELECTRICAL
F  FUEL
G  GALLEY SERVICE DOOR
H  HYDRAULIC
H2O  POTABLE WATER
L  LAVATORY
MLG  MAIN LANDING GEAR
NG  NOSE GEAR
P  PNEUMATIC
V  FUEL VENT
X  PASSENGER DOOR

NOTE:  FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3

NOTE:  WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.5.1  SCALED DRAWING - 1:1000
MODEL 767-200, -200ER

D6-58328

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NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.5.2 SCALED DRAWING - 1:1000
MODEL 767-200, -200ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.6.1 SCALED DRAWING - 1 IN. = 32 FT
MODEL 767-300, -300ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.6.2 SCALED DRAWING - 1 IN. = 32 FT

MODEL 767-300, -300ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.7.1 SCALED DRAWING - 1 IN. = 50 FT
MODEL 767-300, -300ER

LEGEND
A CONDITIONED AIR
C CARGO DOOR
E ELECTRICAL
F FUEL
G GALLEY SERVICE DOOR
H HYDRAULIC
H_2O POTABLE WATER
L LAVATORY
MLG MAIN LANDING GEAR
NG NOSE GEAR
P PNEUMATIC
V FUEL VENT
X PASSENGER DOOR

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.7.2 SCALED DRAWING - 1 IN. = 50 FT
MODEL MODEL 767-300, -300ER

D6-58328
NOTE:

SEE SEC 9.6.1
LOCATIONS AND IDENTIFICATIONS
OF SERVICE POINTS

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3

NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.8.2 SCALED DRAWING - 1 IN = 100 FT

MODEL 767-300, -300ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.9.2 SCALED DRAWING - 1:500
MODEL 767-300, -300ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.10.1 SCALED DRAWING - 1:1000
MODEL 767-300, -300ER

D6-58328

SEPTEMBER 2005   247
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.10.2 SCALED DRAWING - 1:1000
MODEL 767-300, -300ER

D6-58328
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.11.1 SCALED DRAWING - 1 IN. = 32 FT
MODEL 767-300 FREIGHTER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.11.2 SCALED DRAWING - 1 IN. = 32 FT
MODEL 767-300 FREIGHTER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.12.2 SCALED DRAWING - 1 IN. = 50 FT
MODEL 767-300 FREIGHTER
NOTE:

SEE SEC 9.11.1
LOCATIONS AND IDENTIFICATIONS
OF SERVICE POINTS

LEGEND

A CONDITIONED AIR
C CARGO DOOR
E ELECTRICAL
F FUEL
H HYDRAULIC
H₂O POTABLE WATER
L LAVATORY
M MAIN DECK CARGO DOOR
MLG MAIN LANDING GEAR
NG NOSE GEAR
P PNEUMATIC
V FUEL VENT
X CREW ENTRY DOOR

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3

NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.13.1 SCALED DRAWING - 1 IN = 100 FT
MODEL 767-300 FREIGHTER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.13.2 SCALED DRAWING - 1 IN = 100 FT
MODEL 767-300 FREIGHTER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.14.1 SCALED DRAWING - 1:500
MODEL 767-300 FREIGHTER

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NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.14.2 SCALED DRAWING - 1:500
MODEL 767-300 FREIGHTER
NOTE:

SEE SEC 9.11.1
LOCATIONS AND IDENTIFICATIONS
OF SERVICE POINTS

LEGEND

A  CONDITIONED AIR
C  CARGO DOOR
E  ELECTRICAL
F  FUEL
H  HYDRAULIC
H2O  POTABLE WATER
L  LAVATORY
M  MAIN DECK CARGO DOOR
MLG  MAIN LANDING GEAR
NG  NOSE GEAR
P  PNEUMATIC
V  FUEL VENT
X  CREW ENTRY DOOR

NOTE:  FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3

NOTE:  WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.15.1  SCALED DRAWING - 1:1000
MODEL 767-300 FREIGHTER

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NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.15.2 SCALED DRAWING - 1:1000
MODEL 767-300 FREIGHTER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.16.1 SCALED DRAWING - 1 IN. = 32 FT

MODEL 767-400ER

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.16.2 SCALED DRAWING - 1 IN. = 32 FT
MODEL 767-400ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.17.2 SCALED DRAWING - 1 IN. = 50 FT
MODEL 767-400ER
NOTE:

SEE SEC 9.16.1
LOCATIONS AND IDENTIFICATIONS
OF SERVICE POINTS

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3

9.18.1 SCALED DRAWING - 1 IN = 100 FT
MODEL 767-400ER

NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.18.2 SCALED DRAWING - 1 IN = 100 FT
MODEL 767-400ER
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.19.1 SCALED DRAWING - 1:500
MODEL 767-400ER

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NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.19.2 SCALED DRAWING - 1:500
MODEL 767-400ER
NOTE:

SEE SEC 9.16.1
LOCATIONS AND IDENTIFICATIONS
OF SERVICE POINTS

NOTE: FOR TURNING RADIUS DATA
SEE SECTIONS 4.2 AND 4.3

9.20.1 SCALED DRAWING - 1:1000
MODEL 767-400ER

NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING
NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING

9.20.2 SCALED DRAWING - 1:1000
MODEL 767-400ER