A220

## Master

# Aircraft characteristics publication ACP

**BD500-3AB48-13800-00**
**Issue No. 004**

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Manufacturer:

AIRBUS

Airbus Canada Limited Partnership
Customer Services
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Canada J7N 3C6

Applicable to: All

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# Highlights

## *Issue 004*

The listed changes are introduced in Issue 004, dated 2024-06-20, of this publication.

| Data module code | Reason for change |
|---|---|
| BD500-A-J10-16-01-01AAA-912A-A | Changed Data Module<br>To change procedure. |

Applicable to: All

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# Technical Publications Comment form

AIRBUS A220

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## Publication information

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| *Aircraft type: | | *Aircraft model: | *Publication Module Code (PMC): |
| *Publication title/Issue: | *Media Type: ☐ Paper ☐ Web | *Data Module Code (DMC): | *DMC issue date: |
| Data module title: | | Originator's reference number: | |

*Comments:

Reason for change:

Reference data provided: ☐ Yes ☐ No Description:

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# Change record

Make sure that the previous issues have been incorporated.

Incorporated issues must be recorded with the date of incorporation and a signature.

| Issue | Incorporated date | by (signature) | Issue | Incorporated date | by (signature) |
|---|---|---|---|---|---|
| 001 | Oct 19/2023 | Signature on file | 000 | | |
| 002 | Nov 16/2023 | Signature on file | 000 | | |
| 2-01 | Nov 30/2023 | Signature on file | 000 | | |
| 003 | Dec 14/2023 | Signature on file | 000 | | |
| 3-01 | May 23/2024 | Signature on file | 000 | | |
| 004 | Jun 20/2024 | Signature on file | 000 | | |
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# List of effective data modules

The listed documents are included in Issue 004, dated 2024-06-20, of this publication.

C = Changed data module
N = New data module

| Document title | Data module code | Issue date | No. of pages | Applicable to |
|---|---|---|---|---|
| A220-100 Aircraft Charact eristics - Introduction | BD500-A-J00-00-00-20AAA-018A-A | 2023-09-15 | 3 | 50001-54999 |
| A220-300 Aircraft Charact eristics - Introduction | BD500-A-J00-00-00-20AAB-018A-A | 2023-09-15 | 3 | 55001-59999 |
| Aircraft charact eristics - Technical data | BD500-A-J00-00-00-00AAA-030A-A | 2023-09-12 | 3 | 50001-54999, 55001-59999 |
| A220 Aircraft Charact eristics - Introduction | BD500-A-J00-00-00-09AAA-018A-A | 2023-09-15 | 2 | 50001-54999, 55001-59999 |
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| Aircraft dimensions - Technical data | BD500-A-J06-10-00-00AAA-030A-A | 2023-11-01 | 13 | 50001-54999, 55001-59999 |
| Nacelle and pylon stations - Technical data | BD500-A-J06-20-03-01AAA-030A-A | 2014-11-13 | 3 | 50001-54999, 55001-59999 |
| Slinging and hoisting - Function, data for plans and description | BD500-A-J07-30-00-00AAA-000A-A | 2019-10-21 | 1 | 50001-54999, 55001-59999 |
| Aircraft grounding - General maintenance procedure | BD500-A-J10-10-02-01AAA-913A-A | 2017-08-08 | 5 | 50001-54999, 55001-59999 |
| Forward cargo compartment volume, weight and maximum item dimensions - Technical data | BD500-A-J14-20-00-01AAA-030A-A | 2023-03-23 | 12 | 50001-54999, 55001-59999 |
| Aft cargo compartment volume, weight and maximum item dimensions - Technical data | BD500-A-J14-20-00-02AAA-030A-A | 2023-03-23 | 12 | 50001-54999, 55001-59999 |
| Aircraft touch and no-touch zones - Technical data | BD500-A-J15-30-00-00AAA-030A-A | 2019-10-21 | 5 | 50001-54999, 55001-59999 |
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| Wheel chocks - Handling procedure | BD500-A-J10-16-01-01AAA-912A-A | C | 2024-05-15 | 6 | 50001-54999, 55001-59999 |
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| Fire-fighting - Fire-fighting and rescue | BD500-A-J15-41-00-02AAA-989A-A | 2014-11-07 | 6 | 50001-54999, 55001-59999 |

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| A220-300 Aircraft Characteristics - Introduction | BD500-A-J00-00-00-20AAB-018A-A | 2023-09-15 | 55001-59999 |
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| Aircraft description - Technical data | BD500-A-J00-00-00-12AAB-030A-A | 2023-11-27 | 55001-59999 |
| Aircraft dimensions - Technical data | BD500-A-J06-10-00-00AAA-030A-A | 2023-11-01 | 50001-54999, 55001-59999 |
| Nacelle and pylon stations - Technical data | BD500-A-J06-20-03-01AAA-030A-A | 2014-11-13 | 50001-54999, 55001-59999 |
| Slinging and hoisting - Function, data for plans and description | BD500-A-J07-30-00-00AAA-000A-A | 2019-10-21 | 50001-54999, 55001-59999 |
| Aircraft grounding - General maintenance procedure | BD500-A-J10-10-02-01AAA-913A-A | 2017-08-08 | 50001-54999, 55001-59999 |
| Forward cargo compartment volume, weight and maximum item dimensions - Technical data | BD500-A-J14-20-00-01AAA-030A-A | 2023-03-23 | 50001-54999, 55001-59999 |
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| Refueling - rate and time - Technical data | BD500-A-J12-10-28-01AAB-030A-A | 2017-01-16 | 55001-59999 |
| Deicing/Anti-icing - Remove ice | BD500-A-J12-31-00-00AAA-261A-A | 2023-03-10 | 50001-54999, 55001-59999 |
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# Chapter 1: Scope

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# A220-100 Aircraft Characteristics - Introduction

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| None | |

## *Description*

## 1 Scope of the publication

The A220-100 Aircraft Characteristics , prepared by Airbus, contains general data on the airport facilities, ramp, and runway areas necessary to operate the Airbus commercial aircraft model BD-500-1A10 (A220-100).

Since operational practices vary among airlines, specific data should be coordinated with the user airlines prior to facility design. For additional information, please contact Airbus.

The content of this publication will change as options and aircraft changes occur. Make sure that you refer to the latest release of this publication.

If there is a difference between the data contained in this publication and that given by the local regulatory authority, the data from the local regulatory authority must be obeyed.

## 2 Publication organization

This publication is divided into eight sections:

- Aircraft description
- Aircraft performance
- Ground maneuvering

- Terminal servicing
- Operating conditions
- Pavement data
- Derivative aircraft
- Scaled drawings

## 3 Dimensions and weight

Linear dimensions given in this publication are in inches. The metric equivalents are given in parentheses ( ).

Weight measures is given in pound (lb) with the metric equivalent in parentheses ( ).

## 4 Correspondence

The publications change request form is available online and is used to request technical changes to rectify any errors, omissions, or procedural inconsistencies (if applicable), etc. using the Airbus A220 Interactive Electronic Technical Publication (IETP) viewer.

## 5 Translation of publication

If all or part of this publication is translated, the official version is the English language version by Airbus.

## 6 Standard term definitions

| | |
|---|---|
| **Maximum design Taxi Weight (MTW)** | Maximum weight at which an aircraft can move safely on the ground. This includes the fuel for these displacements and the takeoff run. |
| **Maximum design Landing Weight (MLW)** | Maximum weight for landing as limited by aircraft strength and airworthiness requirement. |
| **Maximum design Take-Off Weight (MTOW)** | Maximum weight for take off as limited by aircraft strength and airworthiness requirements. This includes weight of fuel for taxi and run-up. |
| **Operational Weight Empty (OWE)** | Weight of structure, power plant, furnishings, systems, unusable fuel and other items of equipment that are a necessary part of a particular aircraft configuration. Also included are certain standard items, personnel, equipment and supplies necessary for full operations, but does not include usable fuel or payload. |
| **Maximum design Zero Fuel Weight (MZFW)** | Maximum weight permitted before usable fuel and other usable agents must be loaded in defined sections of the aircraft, as limited by strength and airworthiness requirements. |
| **Maximum cargo volume** | The maximum space available for cargo. |

| | |
|---|---|
| **Maximum seating capacity** | The maximum number of passengers permitted based on certification requirements. |
| **Usable fuel** | Fuel available for aircraft propulsion and the Auxiliary Power Unit (APU). |

## 7 Acronyms

The first time an acronym is used it will be defined, and all subsequent uses will be in blue. When you mouse over the acronym the definition will appear. Acronyms are not plural in this publication.

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# A220-300 Aircraft Characteristics - Introduction

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*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Scope of the publication

The A220-300 Aircraft Characteristics prepared by Airbus, contains general data on the airport facilities, ramp, and runway areas necessary to operate the Airbus BD-500-1A11 (A220-300).

Since operational practices vary among airlines, specific data should be coordinated with the user airlines prior to facility design. For additional information, please contact Airbus.

The content of this publication will change as options and aircraft changes occur. Make sure that you refer to the latest release of this publication.

If there is a difference between the data contained in this publication and that given by the local regulatory authority, the data from the local regulatory authority must be obeyed.

## 2 Publication organization

This publication is divided into eight sections:

- Aircraft description
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|---|---|
| **Maximum design Taxi Weight (MTW)** | Maximum weight at which an aircraft can move safely on the ground. This includes the fuel for these displacements and the takeoff run. |
| **Maximum design Landing Weight (MLW)** | Maximum weight for landing as limited by aircraft strength and airworthiness requirement. |
| **Maximum design Take-Off Weight (MTOW)** | Maximum weight for take off as limited by aircraft strength and airworthiness requirements. This includes weight of fuel for taxi and run-up. |
| **Operational Weight Empty (OWE)** | Weight of structure, power plant, furnishings, systems, unusable fuel and other items of equipment that are a necessary part of a particular aircraft configuration. Also included are certain standard items, personnel, equipment and supplies necessary for full operations, but does not include usable fuel or payload. |
| **Maximum design Zero Fuel Weight (MZFW)** | Maximum weight permitted before usable fuel and other usable agents must be loaded in defined sections of the aircraft, as limited by strength and airworthiness requirements. |
| **Maximum cargo volume** | The maximum space available for cargo. |
| **Maximum seating capacity** | The maximum number of passengers permitted based on certification requirements. |

**Usable fuel** Fuel available for aircraft propulsion and the Auxiliary Power Unit (APU).

## 7 Acronyms

The first time an acronym is used it will be defined, and all subsequent uses will be in blue. When you mouse over the acronym the definition will appear. Acronyms are not plural in this publication.

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# Chapter 2: Aircraft description

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# Aircraft characteristics - Technical data

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
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| None | |

## *Description*

## 1 Introduction

This data module contains general data about the BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300) aircraft characteristics. The structural weight limits, such as maximum ramp weight, and zero fuel weight are dependent on configuration. Refer to each aircraft's specified Weight and Balance Manual (WBM BD500-A-J00-00-00-00AAA-030A-A) and weight and balance report for structural limits and other weight information.

Refer to Table 2 for the aircraft characteristics.

Refer to Table 3 for the system fluid capacities.

Refer to Table 4 for the service fluid capacities.

## 2 Aircraft characteristics

*Table 2 Aircraft characteristics*

| Description | BD-500-1A10 (A220-100) | BD-500-1A11 (A220-300) |
|---|---|---|
| Engines | QTY: 2 Pure Power™ PW1519G | QTY: 2 Pure Power™ PW1521G |
| Mode | Passenger | Passenger |

| Description | BD-500-1A10 (A220-100) | BD-500-1A11 (A220-300) |
|---|---|---|
| Standard seating capacity | 120 | 140 |
| Maximum Ramp Weight (MRW) | 135,000 lb (61 235 kg) | 150,000 lb (68 039 kg) |
| Maximum Take-Off Weight (MTOW) | 134,000 lb (60 781 kg) | 149,000 lb (67 585 kg) |
| Maximum Landing Weight (MLW) | 115,500 lb (52 390 kg) | 129,500 lb (58 740 kg) |
| Operating Weight Empty (OWE) | 77,650 lb (35 221 kg) | 81,750 lb (37 081 kg) |
| Maximum Zero Fuel Weight (MZFW) | 111,000 lb (50 349 kg) | 123,000 lb (55 792 kg) |
| Maximum fuel tank capacity | 5,790 USG (21 918 L) | 5,790 USG (21 918 L) |
| Unusable fuel | 240 lb (109 kg) | 240 lb (109 kg) |
| Maximum wet cargo volume - Aft cargo compartment | 474 cu. ft (13,4 cu. m) | 627 cu. ft (17,75 cu. m) |
| Maximum wet cargo volume - Fwd cargo compartment | 349 cu. ft (9,88 cu. m) | 473 cu. ft (13,39 cu. m) |
| Maximum cargo volume - Overhead bins | 280 cu. ft (7,93 cu. m) | 332 cu. ft (9,40 cu. m) |

## 3 System fluid capacities

*Table 3 System fluid capacities*

| Description | Volume | Weight |
|---|---|---|
| Engine fluids calculated with 7.7 lb/US gal (0,920 kg/L) | | |
| Engines oil tank at 60 °F | 12.9 US gal (49,0 L) | 99 lb (44,9 kg) |
| Lines and internal engine oil | 3.3 US gal (12,6 L) | 26 lb (11,8 kg) |
| Total | 16.2 US gal (61,6 L) | 125 lb (56,7 kg) |
| APU fluids calculated with 7.7 lb/US gal (0,920 kg/L) | | |
| APU | 3.3 US gal (12,3 L) | 25 lb (11,3 kg) |
| Hydraulic fluids at 77°F (25 °C) low density 8.43 lb/US gal (1,01 kg/L) | | |
| System 1 reservoir | 4.98 US gal (18.85 L) | 41.98 lb (19.04 kg) |
| System 2 reservoir | 4.33 US gal (16.39 L) | 36.50 lb (16.55 kg) |
| System 3 reservoir | 3.46 US gal (13.10 L) | 29.17 lb (13.23 kg) |
| Total | 12.77 US gal (48.34 L) | 107.65 lb (48.82 kg) |

| Description | Volume | Weight |
|---|---|---|
| Hydraulic fluids at 77°F (25 °C) high density 8.86 lb/US gal (1,06 kg/L) | | |
| System 1 reservoir | 4.98 US gal (18.85 L) | 44.12 lb (20.01 kg) |
| System 2 reservoir | 4.33 US gal (16.39 L) | 38.36 lb (17.40 kg) |
| System 3 reservoir | 3.46 US gal (13.10 L) | 30.65 lb (13.90 kg) |
| Total | 12.77 US gal (48.34 L) | 113.13 lb (51.31 kg) |

## 4 Service fluid capacities

*Table 4 Service fluid capacities*

| Description | Volume | Weight |
|---|---|---|
| Potable water at 60 °F (15,5 °C) | | |
| Galley/Lavatory tank | 42.0 US gal (159,0 L) | 350.5 lb (159.0 kg) |
| Chemical toilet fluid at 60 °F (15,5 °C) | | |
| Waste tank | 42.0 US gal (159,1 L) | 350 lb (158,8 kg) |

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# A220 Aircraft Characteristics - Introduction

Applicability: 50001-54999, 55001-59999

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| None | |

## *Description*

## 1 General

The A220 Aircraft Characteristics, prepared by Airbus, contains information necessary to support the Airbus aircraft models BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300) during ramp operations. The information provided here includes aircraft dimensions, servicing access, emergency access and equipments, routine fluid replenishment procedure and general servicing of the aircraft.

This publication agrees with the international specification for technical publications (S1000D) issue 4.0.1 dated 2009-05-12 and is written in simplified technical english.

The content of this publication will change as options and aircraft changes occur. Make sure that you refer to the latest release of this publication.

If there is a difference between the data contained in this publication and that given by the local regulatory authority, the data from the local regulatory authority must be obeyed.

All the procedures in the A220 Aircraft Characteristics can be performed by Aircraft Maintenance Engineers (AME). However, ramp personnel may be authorized to perform (RSP) procedures, if they are trained and certified by the operator.

## 2 Dimensions and weight

Linear dimensions given in this publication are in inches or feet with the metric equivalence in parentheses.

Weight measures is given in pounds with the metric equivalence in parentheses.

## 3 Correspondence

Send all correspondence about this publication to:

AIRBUS

CUSTOMER SUPPORT

13100 HENRI-FABRE BLVD, MIRABEL, QUEBEC

CANADA J7N 3C6

## 4 Translation of publication

If all or part of this publication is translated, the official version is the English language version produced by Airbus.

## 5 Acronyms

The first time an acronym is used it will be defined, and all subsequent uses will be in blue. When you mouse over the acronym, the definition will appear. Acronyms are not plural in this publication.

# Aircraft description - Technical data

Applicability: 50001-54999

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| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

# 1 Aircraft characteristics

## 1.1 Introduction

This data module contains general data about the Airbus model BD-500-1A10 (A220-100) characteristics. The structural weight limits, such as maximum ramp weight, and zero fuel weight are dependent on configuration. Refer to each aircraft's specified Weight and Balance Manual (WBM) BD500-3AB48-22100-00 and weight and balance report for structural limits and other weight information.

Refer to Table 2 and Table 3 for the aircraft characteristics.

Refer to Table 4 for the system fluid capacities.

Refer to Table 5 for the service fluid capacities.

## 1.2 Aircraft characteristics

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 2 Aircraft characteristics*

| Description | A220-100 |
|---|---|
| Engines | 2 Pure Power™ PW1519G[1] |

| Description | A220-100 |
|---|---|
| Mode | Passenger |
| Standard seating capacity | 120 |
| Maximum Ramp Weight (MRW) | 141,500 lb (64,183 kg) |
| Maximum Take-Off Weight (MTOW) | 140,500 lb (63,730 kg) |
| Maximum Landing Weight (MLW) | 120,500 lb (54,658 kg) |
| Maximum Zero Fuel Weight (MZFW) | 116,000 lb (52,617 kg) |
| Minimum Flight Weight (MFW) | 77,000 lb (34,927 kg) |
| Maximum fuel tank capacity | 5,756 US gal (21 805 L) |
| Unusable fuel | 220.5 lb (100 kg) |
| Maximum cargo volume - Overhead bins | 280 ft³ (7,93 m³) |
| 1 Optional engine models: PW1521G and PW1524G | |

**Applicability:** 50062, 50066-50067, 50069, 50071, 50078

*Table 3 Aircraft characteristics*

| Description | A220-100 |
|---|---|
| Engines | 2 Pure Power™ PW1519G[1] |
| Mode | Passenger |
| Maximum Ramp Weight (MRW) | 135,000 lb (64,183 kg) |
| Maximum Take-Off Weight (MTOW) | 134,000 lb (60,781 kg) |
| Maximum Landing Weight (MLW) | 112,500 lb (51,029 kg) |
| Maximum Zero Fuel Weight (MZFW) | 108,000 lb (48,987 kg) |
| Minimum Flight Weight (MFW) | 77,000 lb (34,927 kg) |
| 1 Optional engine models: PW1521G and PW1524G | |

## 1.3 System fluid capacities

*Table 4 System fluid capacities*

| Description | Volume | Weight |
|---|---|---|
| **Engine fluids calculated with 8.24 lb/US gal (0,987 kg/L)** | | |
| Engine oil tank at 60 °F | 6.5 US gal (24.4 L) | 53.1 lb (24.1 kg) |
| Lines and internal engine oil | 7.7 US gal (29.2 L) | 63.5 lb (28.8 kg) |

| Description | Volume | Weight |
|---|---|---|
| **APU fluids calculated with 7.98 lb/US gal (0.956 kg/L)** | | |
| APU oil tank | 1.94 US gal (7.3 L) | 15.4 lb (7.0 kg) |
| APU lines and internal oil | 0.84 US gal (3.2 L) | 6.7 lb (3.0 kg) |
| **Hydraulic fluids at 77 °F (25 °C) low density 8.20 lb/US gal (0.983 kg/L)** | | |
| System No. 1 reservoir | 5.0 US gal (18.8 L) | 40.8 lb (18.5 kg) |
| System No. 2 reservoir | 4.33 US gal (16.4 L) | 35.50 lb (16.1 kg) |
| System No. 3 reservoir | 4.33 US gal (16.4 L) | 35.50 lb (16.1 kg) |
| Systems and lines | 34.6 US gal (131.0 L) | 283.8 lb (128.7 kg) |

### 1.4 Service fluid capacities

*Table 5 Service fluid capacities*

| Description | Volume | Weight |
|---|---|---|
| **Potable water at 60 °F (15,5 °C)** | | |
| Galley/Lavatory tank level 100% | 41.9 US gal (158.8 L) | 350.0 lb (158.8 kg) |
| **Chemical toilet fluid at 60 °F (15,5 °C)** | | |
| Waste tank level 100% | 38 US gal (143.8 L) | 317.1 lb (143.8 kg) |

## 2 Aircraft dimensions

### 2.1 General aircraft dimensions

This section contains general data about the aircraft dimensions.

ICN-BD500-A-J000000-A-3AB48-22469-A-002-01

*Figure 1 General aircraft dimensions - (Sheet 1 of 2)*

ICN-BD500-A-J000000-A-3AB48-22470-A-003-01

*Figure 1 General aircraft dimensions - (Sheet 2 of 2)*

## 2.2 General aircraft area

*Table 6 General aircraft area*

| Description | A220-100 |
|---|---|
| ESDU wing area (including ailerons, flaps, spoilers and area within the fuselage) | 1209 ft² (112.3 m²) |
| Total horizontal stabilizer area (horizontal tail area and elevator area) | 395 ft² (36.6 m²) |
| Total vertical stabilizer area (vertical tail area and rudder area) | 304 ft² (28.2 m²) |

# 3 Ground clearances

This section gives the height of various points of the aircraft, above the ground.

Dimensions in the tables are approximate and will vary with tire type, weight and balance and other special conditions.

## 3.1 Ground clearances

*Table 7 Ground clearances*

| Locator | Description | Minimum | Maximum |
|---|---|---|---|
| A | Fuselage top | 209.3 in. (531.62 cm) | 214.4 in. (544.58 cm) |
| B | Pilot escape hatch | 188.2 in. (478.02 cm) | 193.4 in. (491.24 cm) |
| C | Forward avionic equipment bay door | 63.2 in. (160.53 cm) | 67.7 in. (171.96 cm) |
| D | Forward service door (RHS) | 117.5 in . (298.45 cm) | 122.6 in. (311.40 cm) |
| E | Forward passenger door (LHS) | 117.8 in. (299.21 cm) | 122.8 in. (311.91 cm) |
| F | Forward cargo compartment door (RHS) | 66.8 in. (169.67 cm) | 71.7 in. (182.12 cm) |
| G | Nacelle | 19.7 in. (50.04 cm) | 24.0 in. (60.96 cm) |
| H | Overwing emergency exit (LHS & RHS) | 138.6 in. (352.04 cm) | 143.1 in. (363.48 cm) |
| J | Mid avionic equipment bay door | 56.2 in. (142.75 cm) | 61.6 in. (156.46 cm) |
| K | Aft cargo compartment door (RHS) | 72.9 in. (185.17 cm) | 79.8 in. (202.70 cm) |
| L | Wing tip (No deflection) | 229.2 in. (582.17 cm) | 236.2 in. (600.20 cm) |

| Locator | Description | Minimum | Maximum |
|---|---|---|---|
| M | Aft service door (RHS) | 126.2 in (320.55 cm) | 134.7 in. (342.14 cm) |
| N | Aft passenger door (LHS) | 126.2 in. (320.55 cm) | 134.7 in. (342.14 cm) |
| P | Aft avionic equipment door | 111.7 in. (283.72 cm) | 121.3 in. (308.10 cm) |
| Q | APU door | 140.4 in. (356.62 cm) | 151.2 in. (384.05 cm) |
| R | Tail | 452.7 in. (1149.86 cm) | 463.8 in. (1178.05 cm) |
| S | Winglet | 168 in. (426.72 cm) | 176.4 in. (448.06 cm) |

**Note**

Vertical clearances shown are the greatest possible variations in attitude due to the variation of aircraft weight and center of gravity.

ICN-BD500-A-J000000-A-3AB48-21709-A-004-01

*Figure 2 Ground clearances*

## 3.2 Ground clearances for evacuation slides

This section gives ground clearances for evacuation slides. Refer to Table 8 and Fig. 3 .

*Table 8 Ground clearances for evacuation slides*

| Description | Dimensions |
|---|---|
| Forward Passenger Door (FPD) Slide | 240 in. (6096 mm) |
| Forward Service Door (FSD) Slide | 240 in. (6096 mm) |
| Aft Passenger Door (APD) Slide | 200 in. (5080 mm) |
| Aft Service Door (ASD) Slide | 200 in. (5080 mm) |
| Overwing Emergency Exit Door (OWEED) Slides (Left & Right sides) | 119 in. (3022.60 mm) |

**NOTE**

1 Emergency evacuation ground area.

ICN-BD500-A-J000000-C-3AB48-52580-A-001-01

*Figure 3 Ground clearances for evacuation slides*

# 4 Layout of passenger compartment accommodation

The passenger compartment includes the galley area, lavatory, and passenger seating area. The galleys and utility areas are isolated from the passenger area by partitions and curtains. Refer to Fig. 4 .

ICN-BD500-A-J061200-A-3AB48-00007-A-001-01

*Figure 4 Layout Of Passenger Accommodation (LOPA)*

# 5 Passenger cross-section

ICN-BD500-A-J061200-A-3AB48-00010-A-001-01

*Figure 5 Passenger cross-section (economy class)*

ICN-BD500-A-J061200-A-3AB48-00011-A-001-01

*Figure 6 Passenger cross-section (optional business class)*

ICN-BD500-A-J061200-A-3AB48-00012-A-001-01

*Figure 7 Overhead stowage bins*

# 6 Cargo compartment

Two under-floor cargo compartments are provided, each with a dedicated outward-opening access door. The forward compartment is positioned between the forward equipment compartment and the Environmental Control System (ECS) distribution bay. The aft compartment is positioned between the mid equipment compartment and the water system bay. Refer to Fig. 8 .

Both compartments are furnished with heavy duty floor panels and sidewall linings and are sealed to meet the requirements of a Class C compartment. Decompression and ventilation panels are provided as well. The compartment linings also incorporate provisions for compartment lighting, smoke detector, and fire extinguish.

The combined maximum weight loading of the cargo compartment is 8,290 lb (3 760 kg).

## 6.1 Cargo door nets

Protective nets are provided at the door area of each cargo compartment to prevent baggage from fouling the door due to in-flight shifting of the loads. Refer to Fig. 9 .

## 6.2 Volumes – Cargo compartment

The estimated volume of the cargo compartments is based on geometric volume and accounts for the unusable area in the vicinity of the cargo doors. Table 9 lists the estimated wet volume of the cargo compartments.

*Table 9 Cargo compartment volumes*

| Description | Usable Volume | | Maximum load | |
|---|---|---|---|---|
| | $ft^3$ | $m^3$ | lb | kg |
| Fwd cargo compartment | 311 | 8.80 | 3742 | 1697 |
| Aft cargo compartment | 422 | 11.95 | 4548 | 2063 |

ICN-BD500-A-J084305-A-3AB48-10441-A-001-01

*Figure 8 Aircraft cargo side view - (Sheet 1 of 3)*

**A-A**

ICN-BD500-A-J084305-A-3AB48-10438-A-001-01

*Figure 8 Aircraft cargo side view - (Sheet 2 of 3)*

ICN-BD500-A-J084305-A-3AB48-10440-A-001-01

*Figure 8 Aircraft cargo side view - (Sheet 3 of 3)*

A

B

ICN-BD500-A-J502200-C-3AB48-17798-A-001-01

*Figure 9 Cargo nets - (Sheet 1 of 2)*

ICN-BD500-A-J502200-C-3AB48-17809-A-001-01

*Figure 9 Cargo nets - (Sheet 2 of 2)*

# 7 Door clearances and clear opening dimensions

A general description of the doors is as follows:

## 7.1 Passenger/Crew

Two semi-plug type doors on the left side of the aircraft provide access for passengers and crew. Door 1L is considered the primary entrance while door 2L provides a secondary entrance available for passenger loading/unloading as well as ground servicing.

Each door is classified as a type C floor level exit. Due to the sill height, every door incorporates an emergency evacuation slide system. In addition each one translates outwards from closed position, supported by a hinged arm to rest in open position.

Every door is operable from the exterior and interior of the aircraft and features an inspection window to allow verification of the outside conditions from the interior. The exterior operating handle has a linear motion and is interconnected to a vent flap system to provide pressure equalization between the aircraft and the ambient air prior to be opened.

Each door is fully lined and insulated to meet thermal and noise performance requirements.

For Passenger/Crew doors distance from the nose, refer to Fig. 11Fig. 12 . For aft passenger door opening and clearances, refer to Fig. 13 .

## 7.2 Emergency exit

The over-wing emergency exits are type III semi-plug type doors.

The exits are provided with an operating handle with removable cover and are fitted with a standard sized passenger compartment window. Each door is fully lined and insulated to meet thermal and noise performance requirements.

The door rotates upwards from the closed position, supported by a hinged arm to rest in open position. The door opening sequence is automatically supported by the energy stored in its own mechanism.

For emergency access to the passenger compartment, the doors may be opened from an exterior handle.

Due to the exit path height from the ground, an off-wing evacuation slide system is provided.

For over-wing emergency exits distance from the nose, refer to Fig. 11 . For doors dimensions, refer to Table 10 .

## 7.3 Flight compartment emergency exit

The flight compartment is outfitted with a single, inward-opening overhead escape hatch.

## 7.4 Cargo doors

Access doors are provided to allow cargo compartment loading and unloading.

The semi-plug forward and aft cargo doors are identical components, each hinged along the top edge of its frame.

Each door incorporates an exterior lock/unlock handle with linear motion that is interconnected to a vent flap system and provide pressure equalization between the aircraft and the ambient air prior to be opened.

An electrical actuation system with a switch panel, installed on the fuselage near each door, is provided to open and close the door.

Each door is fully lined and insulated to meet thermal and noise performance requirements.

For cargo doors distance from the nose, refer to Fig. 11 . For doors dimensions, refer to Table 10 . For forward cargo door opening and clearances, refer to Fig. 14 . For aft cargo door opening and clearances, refer to Fig. 15 .

## 7.5 Service doors

Two semi-plug type doors are provided on the right side of the aircraft to provide access for the forward (door 1R) and aft (door 2R) galley service areas.

Each door is classified as a type C floor level exit. Due to the sill height, each door incorporates an emergency evacuation slide system.

Each door translates outwards from the closed position, supported by a hinged arm and stabilizing system, to rest parallel to the fuselage in the open position.

Each door is operable from the exterior and interior of the aircraft and features an inspection window to allow verification of the outside conditions from the interior. The exterior operating handle has a linear motion and is interconnected to a vent flap system to provide pressure equalization between the aircraft and the ambient air prior to be opened.

Each door is fully lined and insulated to meet thermal and noise performance requirements.

For service doors distance from the nose, refer to Fig. 11 . For service doors dimensions, refer to Table 10 . For forward service door opening and clearances, refer to Fig. 16 . For aft service door opening and clearances, refer to Fig. 17 .

## 7.6 Forward avionics bay door

A plug-type door is provided in the forward fuselage to gain access to the pressurized forward equipment compartment. The door is fitted with a stowable operating handle.

For forward equipment compartment door distance from the nose, refer to Fig. 11 . For dimensions, refer to Table 10 .

## 7.7 Mid avionics bay door

A plug-type door is provided in the mid fuselage to gain access to the pressurized mid equipment compartment. The door is fitted with a stowable operating handle.

For mid equipment compartment door distance from the nose, refer to Fig. 11 . For dimensions, refer to Table 10 .

## 7.8 Aft equipment bay door

A door is provided in the aft fuselage to gain access to the unpressurized aft equipment compartment.

For aft equipment compartment door distance from the nose, refer to Fig. 11 . For dimensions, refer to Table 10 .

## 7.9 Doors identification

This section shows a general overview of the doors

ICN-BD500-A-J000000-A-3AB48-23216-A-001-01

*Figure 10 General door location*

## 7.10 Access and exit doors dimensions

*Table 10 Access and exit doors dimensions*

| Door | Height | Width |
|---|---|---|
| Main entrance door - Type C exit (door 1L) | 6 ft 3 in. (1,9 m) | 2 ft 6 in. (0,8 m) |
| Service door - Type C exit (door 1R) | 5 ft 0 in. (1,5 m) | 2 ft 6 in. (0,8 m) |
| Aft entrance door - Type C exit (door 2L) | 6 ft 0 in. (1,8 m) | 2 ft 6 in. (0,8 m) |
| Service door - Type C exit (door 2R) | 5 ft 0 in. (1,5 m) | 2 ft 6 in. (0,8 m) |
| Forward avionics bay door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Mid avionics bay door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Aft equipment bay door | 3 ft 6 in. (1,08 m) | 1 ft 11 in. (0,6 m) |
| Forward cargo compartment door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Aft cargo compartment door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Over-wing emergency exit | 3 ft 6 in. (1,08 m) | 1 ft 11 in. (0,59 m) |
| Flight compartment emergency exit | 22 in. (0,559 m) | 20 in. (0,508 m) |

## 7.11 Door distance from nose

| Dimensions | A220-100 |
|---|---|
| A | 102 ft 4 in. (31.2 m) |
| B | 93 ft 10 in. (28.6 m) |
| C | 84 ft 4 in. (25.7 m) |
| D | 69 ft 4 in. (21.1 m) |
| E | 58 ft 0 in. (17.7 m) |
| F | 43 ft 0 in. (13.11 m) |
| G | 21 ft 4 in. (6.5 m) |
| H | 15 ft 10 in. (4.8 m) |
| J | 15 ft 0 in. (4.6 m) |
| K | 14 ft 3 in. (4.3 m) |
| L | 9 ft 2 in. (2.8 m) |

**NOTE**

The values shown are the greatest possible variations in attitude due to the variation of aircraft weight and gravity.

ICN-BD500-A-J000000-A-3AB48-21712-A-003-01

*Figure 11 Door distance from nose*

## 7.12 Door opening and clearance

ICN-BD500-A-J061100-A-3AB48-00103-A-003-01

*Figure 12 Forward passenger door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00104-A-003-01

*Figure 13 Aft passenger door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00102-A-002-01

*Figure 14 Forward cargo compartment door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00101-A-002-01

*Figure 15 Aft cargo compartment door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00106-A-002-01

*Figure 16 Forward service door opening and clearance*

**VIEW LOOKING DOWN**

A

ICN-BD500-A-J061100-A-3AB48-00105-A-002-01

*Figure 17 Aft service door opening and clearances*

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# Aircraft description - Technical data

Applicability: 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

# 1 Aircraft characteristics

## 1.1 Introduction

This data module contains general data about the Airbus model BD-500-1A11 (A220-300) characteristics. The structural weight limits, such as maximum ramp weight, and zero fuel weight are dependent on configuration. Refer to each aircraft's specified Weight and Balance Manual (WBM) BD500-3AB48-32100-00 and weight and balance report for structural limits and other weight information.

Refer to Table 5 for general aircraft dimension.

Refer to Table 2 for the aircraft characteristics.

Refer to Table 3 for the system fluid capacities.

Refer to Table 4 for the service fluid capacities.

## 1.2 Aircraft characteristics

*Table 2 Aircraft characteristics*

| Description | A220-300 |
|---|---|
| Engines | 2 Pure Power™ PW1521G[1] |
| Mode | Passenger |

| Description | A220-300 |
|---|---|
| Standard seating capacity | 140 |
| Maximum Ramp Weight (MRW) | 157,000 lb (71,214 kg) |
| Maximum Take-Off Weight (MTOW) | 156,300 lb (70,896 kg) |
| Maximum Landing Weight (MLW) | 134,500 lb (61,008 kg) |
| Maximum Zero Fuel Weight (MZFW) | 128,000 lb (58,060 kg) |
| Minimum Flight Weight (MFW) | 80,000 lb (36,287 kg) |
| Maximum fuel tank capacity | 5,681 US gal (21 508 L) |
| Unusable fuel | 220.5 lb (100 kg) |
| Maximum cargo volume - Overhead bins | 332 ft³ (9,40 m³) |
| 1 Optional engine model: PW1524G | |

## 1.3 System fluid capacities

*Table 3 System fluid capacities*

| Description | Volume | Weight |
|---|---|---|
| **Engine fluids calculated with 8.24 lb/US gal (0.987 kg/L)** | | |
| Engine oil tank at 60 °F | 6.5 US gal (24.4 L) | 53.1 lb (24.1 kg) |
| Engine lines and internal engine oil | 7.7 US gal (29.2 L) | 63.5 lb (28.8 kg) |
| **APU fluids calculated with 7.98 lb/US gal (0.956 kg/L)** | | |
| APU oil tank | 1.94 US gal (7.3 L) | 15.4 lb (7.0 kg) |
| APU lines and internal oil | 0.84 US gal (3.2 L) | 6.7 lb (3.0 kg) |
| **Hydraulic fluids at 77 °F (25 °C) low density 8.20 lb/US gal (0.983 kg/L)** | | |
| System No. 1 reservoir | 5.0 US gal (18.8 L) | 40.8 lb (18.5 kg) |
| System No. 2 reservoir | 4.3 US gal (16.4 L) | 35.5 lb (16.55 kg) |
| System No. 3 reservoir | 4.3 US gal (16.4 L) | 35.5 lb (16.55 kg) |
| Systems and lines | 39.8 US gal (150.6 L) | 326.2 lb (147.9 kg) |

## 1.4 Service fluid capacities

*Table 4 Service fluid capacities*

| Description | Volume | Weight |
|---|---|---|
| **Potable water at 60 °F (15,5 °C)** | | |

| Description | Volume | Weight |
|---|---|---|
| Galley/Lavatory tank | 42.0 US gal (159,0 L) | 350.5 lb (159.0 kg) |
| **Chemical toilet fluid at 60 °F (15,5 °C)** | | |
| Waste tank | 38 US gal (143.84 L) | 316.54 lb (143.58 kg) |

# 2 Aircraft dimensions

## 2.1 General aircraft dimensions

This section contains general data about the aircraft dimensions.

*Table 5 General aircraft dimensions (A220-300)*

| Locator (refer to Fig. 1 ) | Value<br>in.<br>(cm) |
|---|---|
| A | 1523.2<br>38689.28 |
| B | 146.500<br>(372.11) |
| C | 461.900<br>(1173.23) |
| D | 482.800<br>(1226.31) |
| E | Baseline 1377.300<br>(3498.34) |
| | Fuel loaded 1381.300<br>(3508.50) |
| F | 961.4<br>(2441.96) |
| G | 857.9<br>(2179.06) |
| H | 1489.2<br>(3782.57) |
| J | 783.2<br>(1989.33) |
| K | 479.0 |

| Locator (refer to Fig. 1 ) | Value<br>in.<br>(cm) |
|---|---|
| | (1216.66) |
| L | 172.4<br>(437.90) |
| M | 513.3<br>(1303.78) |
| P | 263.000<br>(668.02) |
| Q | 96.500<br>(245.11) |
| R | 162.2<br>(411.99) |
| S | 198.5<br>(504.19) |
| T | 267.900<br>(680.47) |
| U | 97.7<br>(248.16) |
| V | 194.6<br>(494.28) |
| W | 133.4<br>(338.83) |
| X | 27.200<br>(69.09) |
| Y | 265.000<br>(673.10) |
| Z | 602.6<br>(1530.60) |
| AA | 0.477 Deg<br>Nose down |
| BB | 138.000 |

| Locator (refer to Fig. 1 ) | Value<br>in.<br>(cm) |
|---|---|
| | (350.52) |

This data module contains data on the landing gear footprint.

**Note**

The values given change due to the variation of aircraft weight and gravity.

ICN-BD500-A-J061000-A-3AB48-00005-A-001-01

*Figure 1 General aircraft dimensions - (Sheet 1 of 2)*

ICN-BD500-A-J061000-A-3AB48-00004-A-003-01

*Figure 1 General aircraft dimensions - (Sheet 2 of 2)*

## 2.2 General aircraft area

*Table 6 General aircraft area*

| Description | A220-300 |
|---|---|
| ESDU wing area (including ailerons, flaps, spoilers and area within the fuselage) | 1209 ft² (112.3 m²) |
| Total horizontal stabilizer area (horizontal tail area and elevator area) | 395 ft² (36.6 m²) |
| Total vertical stabilizer area (vertical tail area and rudder area) | 304 ft² (28.2 m²) |

# 3 Ground clearances

This section gives the height of various points of the aircraft, above the ground.

Dimensions in the tables are approximate and will vary with tire type, weight and balance and other special conditions.

## 3.1 Ground clearances

*Table 7 Ground clearances*

| Locator | Description | Minimum | Maximum |
|---|---|---|---|
| A | Fuselage top | 212.0 in. (538.48 cm) | 215.7 in. (547.88 cm) |
| B | Pilot escape hatch | 191.2 in. (485.65 cm) | 195.1 in. (495.55 cm) |
| C | Forward avionic equipment bay door | 65.3 in. (165.86 cm) | 69.1 in. (175.51 cm) |
| D | Forward service door (RHS) | 121.4 in . (308.36 cm) | 125.2 in. (318.01 cm) |
| E | Forward passenger door (LHS) | 121.5 in. (308.61 cm) | 125.3 in. (318.26 cm) |
| F | Forward cargo compartment door (RHS) | 69.2 in. (175.77 cm) | 72.8 in. (184.91 cm) |
| G | Nacelle | 22.9 in. (58.17 cm) | 25.9 in. (665.79 cm) |
| H | Overwing emergency exit (LHS & RHS) | 140.9 in. (357.89 cm) | 143.8 in. (365.25 cm) |
| J | Mid avionic equipment bay door | 58.5 in. (148.59 cm) | 61.8 in. (156.97 cm) |
| K | Aft cargo compartment door (RHS) | 75.7 in. (192.28 cm) | 79.9 in. (202.95 cm) |
| L | Wing tip (No deflection) | 230.4 in. (585.22 cm) | 234.3 in. (595.12 cm) |

| Locator | Description | Minimum | Maximum |
|---|---|---|---|
| M | Aft service door (RHS) | 128.1 in (325.37cm) | 133 in. (337.82 cm) |
| N | Aft passenger door (LHS) | 128.1 in. (325.37 cm) | 133 in. (337.82 cm) |
| P | Aft avionic equipment door | 114.6 in. (291.08 cm) | 119.9 in. (304.55 cm) |
| Q | APU door | 142.2 in. (361.19 cm) | 148.0 in. (375.92 cm) |
| R | Tail | 455.8 in. (1157.73 cm) | 461.9 in. (1173.23 cm) |
| S | Winglet | 168 in. (426.72 cm) | 176.4 in. (448.06 cm) |

**Note**

Vertical clearances shown are the greatest possible variations in attitude due to the variation of aircraft weight and center of gravity.

ICN-BD500-A-J000000-A-3AB48-21710-A-004-01

*Figure 2 Ground clearances*

## 3.2 Ground clearances for evacuation slides

This section gives ground clearances for evacuation slides. Refer to Table 8 and Fig. 3 .

*Table 8 Ground clearances for evacuation slides*

| Description | Dimensions |
|---|---|
| Forward Passenger Door (FPD) Slide | 240 in. (6096 mm) |
| Forward Service Door (FSD) Slide | 240 in. (6096 mm) |
| Aft Passenger Door (APD) Slide | 200 in. (5080 mm) |
| Aft Service Door (ASD) Slide | 200 in. (5080 mm) |
| Overwing Emergency Exit Door (OWEED) Single Lane Slides (Left & Right sides) | 119 in. (3022.60 mm) |
| OWEED Dual Lane Slides (Left & Right sides) | 139 in. (3530.60 mm) |

**(Sheet) Applicability:** 55001-55002, 55010-55015, 55017-55033, 55035-55037, 55040, 55044-55049, 55058-55063, 55067-55070, 55074-55085, 55087-55093, 55096-55113, 55115-55120, 55122-55125, 55128, 55130, 55132, 55135-55138, 55142-55145, 55147-55148, 55150-55153, 55156, 55158, 55160-55161, 55164, 55166-55167, 55169-55170, 55172, 55175, 55178-55179, 55181, 55184, 55186, 55188-55190, 55192, 55194-55195, 55199, 55201-55209, 55211-55212, 55214, 55217, 55220, 55222, 55225-55226, 55228, 55231, 55234, 55236-55237, 55239, 55241, 55246, 55249-55254, 55256-55263, 55265-55269, 55271-55274, 55276-55277, 55279-55280, 55282, 55284-55285, 55287-55289, 55292-55298, 55300-55301, 55303, 55306-55307, 55309-55310, 55312-55316, 55318-55322, 55325-55326, 55328, 55331-55337, 55339-55343, 55345, 55348-55349, 55351-55352, 55354-55356, 55359-55362, 55364-55366, 55369, 55372-55373 and 55056-55057, 55065-55066, 55072-55073 PRE BD500-256002

**NOTE**

1 Emergency evacuation ground area.

ICN-BD500-A-J000000-C-3AB48-52580-A-001-01

*Figure 3 Ground clearances for evacuation slides - (Sheet 1 of 2)*

**(Sheet) Applicability:** 55086, 55094-55095, 55114, 55121, 55126-55127, 55129, 55131, 55133-55134, 55139-55141, 55146, 55149, 55154-55155, 55157, 55159, 55162-55163, 55165, 55168, 55171, 55173-55174, 55176-55177, 55180, 55182-55183, 55185, 55187, 55191, 55193, 55196-55198, 55200, 55210, 55213, 55215-55216, 55218-55219, 55221, 55223-55224, 55227, 55229-55230, 55232-55233, 55235, 55238, 55240, 55242-55245, 55247-55248, 55255, 55264, 55270, 55275, 55278, 55281, 55283, 55286, 55290-55291, 55299, 55302, 55304-55305, 55308, 55311, 55317, 55323-55324, 55327, 55329-55330, 55338, 55344, 55346-55347, 55350, 55353, 55357-55358, 55363, 55367-55368, 55375 and 55003-55009, 55016, 55034, 55038-55039, 55041-55043, 55050-55057, 55064-55066, 55071-55073 POST BD500-256002

**NOTE**

1 Emergency evacuation ground area.

ICN-BD500-A-J000000-C-3AB48-73481-A-001-01

*Figure 3 Ground clearances for evacuation slides - (Sheet 2 of 2)*

# 4 Layout of passenger compartment accommodation

The passenger compartment includes the galley area, lavatory, and passenger seating area. The galleys and utility areas are isolated from the passenger area by partitions and curtains. Refer to Fig. 4 .

ICN-BD500-A-J061200-A-3AB48-00008-A-001-01

*Figure 4 Layout Of Passenger Accommodation (LOPA)*

# 5 Passenger cross-section

ICN-BD500-A-J061200-A-3AB48-00010-A-001-01

*Figure 5 Passenger cross-section (economy class)*

ICN-BD500-A-J061200-A-3AB48-00011-A-001-01

*Figure 6 Passenger cross-section (optional business class)*

ICN-BD500-A-J061200-A-3AB48-00012-A-001-01

*Figure 7 Overhead stowage bins*

# 6 Cargo compartment

Two under-floor cargo compartments are provided, each with a dedicated outward-opening access door. The forward compartment is positioned between the forward equipment compartment and the Environmental Control System (ECS) distribution bay. The aft compartment is positioned between the mid equipment compartment and the water system bay. Refer to Fig. 8

Both compartments are furnished with heavy duty floor panels and sidewall linings and are sealed to meet the requirements of a Class C compartment. Decompression and ventilation panels are provided as well. The compartment linings also incorporate provisions for compartment lighting, smoke detector, and fire extinguish.

The combined maximum weight loading of the cargo compartment is 11 139 lb (5052 kg).

## 6.1 Cargo door nets

Protective nets are provided at the door area of each cargo compartment to prevent baggage from fouling the door due to in-flight shifting of the loads. Refer to Fig. 9 .

## 6.2 Volumes – Cargo compartment

The estimated volume of the cargo compartments is based on geometric volume and accounts for the unusable area in the vicinity of the cargo doors. Table 9 lists the estimated wet volume of the cargo compartments.

*Table 9 Cargo compartment volumes*

| Description | Usable Volume | | Maximum load | |
|---|---|---|---|---|
| | $ft^3$ | $m^3$ | lb | kg |
| Fwd cargo compartment | 447 | 12.65 | 5393 | 2446 |
| Aft cargo compartment | 523 | 14.81 | 5746 | 2606 |

ICN-BD500-A-J000000-A-3AB48-23352-A-001-01

*Figure 8 Aircraft cargo side view - (Sheet 1 of 3)*

ICN-BD500-A-J084305-A-3AB48-24366-A-001-01

*Figure 8 Aircraft cargo side view - (Sheet 2 of 3)*

ICN-BD500-A-J084305-A-3AB48-24372-A-001-01

*Figure 8 Aircraft cargo side view - (Sheet 3 of 3)*

ICN-BD500-A-J084305-A-3AB48-24368-A-001-01

*Figure 9 Cargo nets - (Sheet 1 of 3)*

ICN-BD500-A-J084305-A-3AB48-24371-A-001-01

*Figure 9 Cargo nets - (Sheet 2 of 3)*

ICN-BD500-A-J502200-C-3AB48-17809-A-001-01

*Figure 9 Cargo nets - (Sheet 3 of 3)*

# 7 Door clearances and clear opening dimensions

A general description of the doors is as follows:

## 7.1 Passenger/Crew

Two semi-plug type doors on the left side of the aircraft provide access for passengers and crew. Door 1L is considered the primary entrance while door 2L provides a secondary entrance available for passenger loading/unloading as well as ground servicing.

Each door is classified as a type C floor level exit. Due to the sill height, every door incorporates an emergency evacuation slide system. In addition each one translates outwards from closed position, supported by a hinged arm to rest in open position.

Every door is operable from the exterior and interior of the aircraft and features an inspection window to allow verification of the outside conditions from the interior. The exterior operating handle has a linear motion and is interconnected to a vent flap system to provide pressure equalization between the aircraft and the ambient air prior to be opened.

Each door is fully lined and insulated to meet thermal and noise performance requirements.

For Passenger/Crew doors distance from the nose, refer to Fig. 11Fig. 12 . For aft passenger door opening and clearances, refer to Fig. 13 .

## 7.2 Emergency exit

The over-wing emergency exits are type III semi-plug type doors.

The exits are provided with an operating handle with removable cover and are fitted with a standard sized passenger compartment window. Each door is fully lined and insulated to meet thermal and noise performance requirements.

The door rotates upwards from the closed position, supported by a hinged arm to rest in open position. The door opening sequence is automatically supported by the energy stored in its own mechanism.

For emergency access to the passenger compartment, the doors may be opened from an exterior handle.

Due to the exit path height from the ground, an off-wing evacuation slide system is provided.

For over-wing emergency exits distance from the nose, refer to Fig. 11 . For doors dimensions, refer to Table 10 .

## 7.3 Flight compartment emergency exit

The flight compartment is outfitted with a single, inward-opening overhead escape hatch.

## 7.4 Cargo doors

Access doors are provided to allow cargo compartment loading and unloading.

The semi-plug forward and aft cargo doors are identical components, each hinged along the top edge of its frame.

Each door incorporates an exterior lock/unlock handle with linear motion that is interconnected to a vent flap system and provide pressure equalization between the aircraft and the ambient air prior to be opened.

An electrical actuation system with a switch panel, installed on the fuselage near each door, is provided to open and close the door.

Each door is fully lined and insulated to meet thermal and noise performance requirements.

For cargo doors distance from the nose, refer to Fig. 11 . For doors dimensions, refer to Table 10 . For forward cargo door opening and clearances, refer to Fig. 14 . For aft cargo door opening and clearances, refer to Fig. 15 .

## 7.5 Service doors

Two semi-plug type doors are provided on the right side of the aircraft to provide access for the forward (door 1R) and aft (door 2R) galley service areas.

Each door is classified as a type C floor level exit. Due to the sill height, each door incorporates an emergency evacuation slide system.

Each door translates outwards from the closed position, supported by a hinged arm and stabilizing system, to rest parallel to the fuselage in the open position.

Each door is operable from the exterior and interior of the aircraft and features an inspection window to allow verification of the outside conditions from the interior. The exterior operating handle has a linear motion and is interconnected to a vent flap system to provide pressure equalization between the aircraft and the ambient air prior to be opened.

Each door is fully lined and insulated to meet thermal and noise performance requirements.

For service doors distance from the nose, refer to Fig. 11 . For service doors dimensions, refer to Table 10 . For forward service door opening and clearances, refer to Fig. 16 . For aft service door opening and clearances, refer to Fig. 17 .

## 7.6 Forward avionics bay door

A plug-type door is provided in the forward fuselage to gain access to the pressurized forward equipment compartment. The door is fitted with a stowable operating handle.

For forward equipment compartment door distance from the nose, refer to and Fig. 11 . For dimensions, refer to Table 10 .

## 7.7 Mid avionics bay door

A plug-type door is provided in the mid fuselage to gain access to the pressurized mid equipment compartment. The door is fitted with a stowable operating handle.

For mid equipment compartment door distance from the nose, refer to Fig. 11 . For dimensions, refer to Table 10 .

## 7.8 Aft equipment bay door

A door is provided in the aft fuselage to gain access to the unpressurized aft equipment compartment.

For aft equipment compartment door distance from the nose, refer to Fig. 11 . For dimensions, refer to Table 10 .

## 7.9 Doors identification

This section shows a general overview of the doors

ICN-BD500-A-J000000-A-3AB48-23217-A-001-01

*Figure 10 General door location*

## 7.10 Access and exit doors dimensions

*Table 10 Access and exit doors dimensions*

| Door | Height | Width |
|---|---|---|
| Main entrance door - Type C exit (door 1L) | 6 ft 3 in. (1,9 m) | 2 ft 6 in. (0,8 m) |
| Service door - Type C exit (door 1R) | 5 ft 0 in. (1,5 m) | 2 ft 6 in. (0,8 m) |
| Aft entrance door - Type C exit (door 2L) | 6 ft 0 in. (1,8 m) | 2 ft 6 in. (0,8 m) |
| Service door - Type C exit (door 2R) | 5 ft 0 in. (1,5 m) | 2 ft 6 in. (0,8 m) |
| Forward avionics bay door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Mid avionics bay door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Aft equipment bay door | 3 ft 6 in. (1,08 m) | 1 ft 11 in. (0,6 m) |
| Forward cargo compartment door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Aft cargo compartment door | 2 ft 8 in. (0,81 m) | 3 ft 8 in. (1,1 m) |
| Over-wing emergency exit | 3 ft 6 in. (1,08 m) | 1 ft 11 in. (0,59 m) |
| Flight compartment emergency exit | 22 in. (0,559 m) | 20 in. (0,508 m) |

## 7.11 Door distance from nose

| Dimensions | A220-300 |
|---|---|
| A | 114 ft 4 in. (34,85 m) |
| B | 106 ft 1 in. (32,33 m) |
| C | 96 ft 8 in. (29,46 m) |
| D | 81 ft 7 in. (24,86 m) |
| E | 64 ft 9 in. (19,74 m) |
| F | 50 ft 1 in. (15,26 m) |
| G | 21 ft 4 in. (6,5 m) |
| H | 15 ft 10 in. (4,8 m) |
| J | 15 ft 0 in. (4,6 m) |
| K | 14 ft 3 in. (4,3 m) |
| L | 9 ft 2 in. (2,8 m) |

**NOTE**

The values shown are the greatest possible variations in attitude due to the variation of aircraft weight and gravity.

ICN-BD500-A-J000000-A-3AB48-21713-A-003-01

*Figure 11 Door distance from nose*

## 7.12 Door opening and clearance

ICN-BD500-A-J061100-A-3AB48-00103-A-003-01

*Figure 12 Forward passenger door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00104-A-003-01

*Figure 13 Aft passenger door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00102-A-002-01

*Figure 14 Forward cargo compartment door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00101-A-002-01

*Figure 15 Aft cargo compartment door opening and clearances*

ICN-BD500-A-J061100-A-3AB48-00106-A-002-01

*Figure 16 Forward service door opening and clearance*

**VIEW LOOKING DOWN**

A

ICN-BD500-A-J061100-A-3AB48-00105-A-002-01

*Figure 17 Aft service door opening and clearances*

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# Aircraft dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains general data about the aircraft dimensions and clearances. The structural weight limits, such as maximum ramp weight, landing weight and zero fuel weight are dependent on configuration. Refer to Weight and Balance Manual (WBM) BD500-3AB48-22100-00 (A220-100), BD500-3AB48-22100-00 (A220-300) and weight and balance report for structural limits and other weight information.

## 2 General aircraft dimensions

**Applicability:** 50001-54999

*Table 2 General aircraft dimensions (A220-100)*

| Locator (refer to Fig. 1 ) | Value<br>in.<br>(cm) |
|---|---|
| A | 1377.000<br>(3497.58) |
| B | 146.500<br>(372.11) |
| C | Minimum 452.700<br>(1149.86) |
| | Maximum 463.800<br>(1178.05) |
| D | 482.850<br>(1226.44) |
| E | Baseline 1377.320<br>(3498.39) |
| | Fuel loaded 1381.320<br>(3508.55) |
| F | 873.500<br>(2218.69) |
| G | 773.200<br>(1963.93) |
| H | 1341.000<br>(3406.14) |
| J | 698.900<br>(1775.21) |
| K | 395.000<br>(1003.30) |
| L | 87.800<br>(223.01) |

| Locator (refer to Fig. 1 ) | Value in. (cm) |
|---|---|
| M | 429.400 (1090.68) |
| P | 263.000 (668.02) |
| Q | 96.500 (245.11) |
| R | 103.800 (263.65) |
| S | 134.900 (342.65) |
| T | 267.900 (680.47) |
| U | 98.300 (249.68) |
| V | 193.500 (490.22) |
| W | 135.200 (33.41) |
| X | 27.200 (69.09) |
| Y | 265.000 (673.10) |
| Z | 515.700 (1309.88) |
| AA | 0.38 Deg Nose down |
| BB | 138.000 (350.52) |

**Note**

The values given change due to the variation of aircraft weight and gravity.

**Applicability:** 55001-59999

*Table 3 General aircraft dimensions (A220-300)*

| Locator (refer to Fig. 1 ) | Value in. (cm) |
|---|---|
| A | 1523.200 (3868.93) |
| B | 146.500 (372.11) |
| C | minimum 455.800 (1157.73) |
| | Maximum 461.900 (1173.23) |
| D | 482.800 (1226.31) |
| E | Baseline 1377.320 (3498.39) |
| | Fuel loaded 1381.320 (3508.55) |
| F | 961.400 (2441.96) |
| G | 857.900 (2179.07) |
| H | 1489.200 (3782.57) |
| J | 783.200 (1989.33) |
| K | 479.000 (1216.66) |
| L | 172.400 |

| Locator (refer to Fig. 1 ) | Value in. (cm) |
|---|---|
| | (437.90) |
| M | 513.300 (1303.78) |
| P | 262.900 (667.77) |
| Q | 96.500 (245.11) |
| R | 162.200 (411.99) |
| S | 198.500 (504.19) |
| T | 268.000 (680.72) |
| U | 97.700 (248.16) |
| V | 194.600 (494.28) |
| W | 133.920 (340.16) |
| X | 27.200 (69.09) |
| Y | 265.000 (673.10) |
| Z | 599.700 (1523.24) |
| AA | 0.477 Deg Nose down |
| BB | 138.000 (350.52) |

This data module contains data on the landing gear footprint.

**Note**

The values given change due to the variation of aircraft weight and gravity.

ICN-BD500-A-J061000-A-3AB48-00005-A-001-01

*Figure 1 General aircraft dimensions - (Sheet 1 of 2)*

ICN-BD500-A-J061000-A-3AB48-00004-A-003-01

*Figure 1 General aircraft dimensions - (Sheet 2 of 2)*

# 3 Landing gear footprint dimensions

This data module contains data on the landing gear footprint.

**Applicability:** 50001-54999

*Table 4 Landing gear footprint dimensions (A220-100)*

| Locator | Value<br>in.<br>(cm) |
|---|---|
| A | 18.571<br>(47.17) |
| B | 35.000<br>(88.90) |
| C | 265.000<br>(673.10) |
| D | 515.700<br>(1309.88) |

**Applicability:** 55001-59999

*Table 5 Landing gear footprint dimensions (A220-300)*

| Locator | Value<br>in.<br>(cm) |
|---|---|
| A | 18.571<br>(47.17) |
| B | 35.000<br>(88.90) |
| C | 265.000<br>(673.10) |
| D | 599.700<br>(1523.24) |

**NOTE**

Not to scale.

ICN-BD500-A-J061032-A-3AB48-00118-A-001-01

*Figure 2 Landing gear footprint dimensions*

# 4 General aircraft area

*Table 6 General aircraft area*

| Description | Value<br>sq. ft.<br>(sq. m) |
|---|---|
| ESDU wing area (including ailerons, flaps, spoilers and area within the fuselage) | 1208.880<br>(112.31) |
| Total horizontal stabilizer area (horizontal tail area and elevator area) | 313.500<br>(29.13) |
| Total vertical stabilizer area (vertical tail area and rudder area) | 223.600<br>(20.77) |

# 5 Pressure refueling and pilots eye position

**Applicability:** 50001-54999

*Table 7 Pilots eye position (A220-100)*

| Locator (refer to Fig. 3 ) | Value<br>in.<br>(cm) |
|---|---|
| A | FS = 354.000<br>(899.16)<br>BL ± 20.000<br>(50.80)<br>WL = 196.000<br>(497.80) |
| D | 29.20° |
| E | 17.10° |

**Applicability:** 50001-54999

*Table 8 Pressure refueling connection position (A220-100)*

| Locator (refer to Fig. 3 ) | Value<br>in.<br>(cm) |
|---|---|
| B | 615.900 |

| Locator (refer to Fig. 3 ) | Value<br>in.<br>(cm) |
|---|---|
| | (1564.39) |
| C | 600.210<br>(1524.53) |

**Applicability:** 55001-59999

*Table 9 Pilots eye position (A220-300)*

| Locator (refer to Fig. 3 ) | Value<br>in.<br>(cm) |
|---|---|
| A | FS = 270.000<br>(685.80)<br>BL ± 20.000<br>(50.80)<br>WL = 196.000<br>(497.80) |
| D | 29.20° |
| E | 17.10° |

**Applicability:** 55001-59999

*Table 10 Pressure refueling connection position (A220-300)*

| Locator (refer to Fig. 3 ) | Value<br>in.<br>(cm) |
|---|---|
| B | 615.900<br>(1564.39) |
| C | 684.210<br>(1737.89) |

ICN-BD500-A-J061000-A-3AB48-10809-A-001-01

*Figure 3 Pressure refueling and pilots eye position*

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# Nacelle and pylon stations - Technical data

Applicability: 50001-54999, 55001-59999

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2 Nacelle stations..... 3

## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 General

- This section shows the stations along the pylon and the nacelle.

## 2 Pylon stations

- Fig. 2 shows the pylon with reference to the Fuselage Station (FS).
- The FS references in this manual are used to measure or specify distances along the pylon.

## 3 Nacelle stations

- Fig. 1 shows the nacelle with reference to the FS.
- The FS references in this manual are used to measure or specify distances along the nacelle.

ICN-BD500-A-J062003-A-3AB48-11221-A-001-01

*Figure 1 Pylon stations*

ICN-BD500-A-J062003-A-3AB48-11220-A-001-01

*Figure 2 Nacelle stations*

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A220

# Slinging and hoisting - Function, data for plans and description

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 General

This data module gives the information to sling and hoist the procedures to lift the BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300).

### 1.1 Slinging and hoisting

For slinging and hoisting procedures please refer to the latest revision of the Aircraft Recovery Publication (ARP), BD500-3AB48-10400-00.

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# Aircraft grounding - General maintenance procedure

Applicability: 50001-54999, 55001-59999

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1 Landing gears grounding points..... 4

## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J24-00-00-01AAA-913G-A | Electrical/Electronic safety precautions - General maintenance safety procedure |
| BD500-A-J24-00-00-02AAA-913G-A | Electrostatic discharge safety precautions - General maintenance safety procedure |

## *Common information*

This data module gives the procedure to ground the aircraft. The grounding points are located on the landing gears.

## *Preliminary requirements*

### Production maintenance data

| | | |
|---|---|---|
| **Zones** | 711 | Nose landing gear |
| | 731 | Main landing gear, left side |
| | 741 | Main landing gear, right side |

## Required conditions

*Table 2 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| Obey all the electrical/electronic safety precautions. | BD500-A-J24-00-00-01AAA-913G-A |
| Obey all the electrostatic discharge safety precautions. | BD500-A-J24-00-00-02AAA-913G-A |

## Support equipment

*Table 3 Support equipment*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Consumables, materials, and expendables

*Table 4 Consumables, materials, and expendables*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Spares

*Table 5 Spares*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Safety conditions

None

## *Procedure*

### WARNINGS

- **When the aircraft is parked for maintenance or during bad weather, make sure that it is grounded. Static electrical charges in the aircraft can cause injury to persons and/or damage to equipment.**

  **It is not mandatory to ground the aircraft if you do not do maintenance, there is no bad weather and the tires are in direct contact with the ground. Some airports can apply non-conductive coating on the ramp, which can prevent release of the static charges to the ground. In such conditions, you must ground the aircraft.**

- **Ground the aircraft before you connect the external electrical power. If you do not do this, you can cause injuries to persons and/or damage the equipment.**

1 To ground the aircraft do as follows:

Refer to Fig. 1 .

1.1 Attach the alligator clamp to one of the grounding points located on the Nose Landing Gear (NLG) or the Main Landing Gear (MLG).

1.2 Attach the other end of the wire to a ground point off of the aircraft.

ICN-BD500-A-J000000-A-3AB48-22049-A-002-01

*Figure 1 Landing gears grounding points*

## *Requirements after job completion*

### Required conditions

*Table 6 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| None | |

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A220

# Forward cargo compartment volume, weight and maximum item dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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5 Standard day (40 °C (104 °F) Outside Air Temperature (OAT) at sea level) operations ... 4


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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J14-20-00-03AAA-030A-A | Cargo nets and tie-downs - Technical data |
| BD500-A-J52-30-00-01AAA-540A-A | Cargo compartment door - Open for access procedure |
| BD500-A-J52-30-00-01AAA-740A-A | Cargo compartment door - Close after access procedure |

# Description

## 1 Information

This data module gives the volume, the weight and the maximum item dimensions for the forward cargo compartment.

## 2 Cargo door operation

Refer to BD500-A-J52-30-00-01AAA-540A-A, BD500-A-J52-30-00-01AAA-740A-A to open and close the cargo door.

## 4 Cargo compartment volume and weight

The forward cargo floor structure has a maximum load of 235 lb/ft (350 kg/m).

Refer to Table 2 and Table 3 for the estimate wet volume and weight of the forward cargo compartment.

**Applicability:** 50001-54999

*Table 2 Cargo compartment volumes*

| Description | Usable Volume | | Maximum load | |
|---|---|---|---|---|
| | $ft^3$ | $m^3$ | lb | kg |
| Fwd cargo compartment | 311 | 8.80 | 3742 | 1697 |

**Applicability:** 55001-59999

*Table 3 Cargo compartment volumes*

| Description | Usable Volume | | Maximum load | |
|---|---|---|---|---|
| | $ft^3$ | $m^3$ | lb | kg |
| Fwd cargo compartment | 447 | 12.65 | 5393 | 2446 |

**Applicability:** 50001-54999

## 5 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAA-030A-A.

**Note**

There must be no item near the cargo compartment door.

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ placard. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the forward cargo compartment.

**Applicability:** 55001-59999

# 6 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAB-030A-A.

**Note**

There must be no item near the cargo compartment door.

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ placard. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the forward cargo compartment.

# 7 Maximum live animal and dry ice

## 7.1 Live animal

**CAUTION**

**Animal cages/boxes have to be located near to an cargo air supply and the dry Ice container near to the cargo air exhaust in order to ensure animal receive enough air to breathe adequately.**

*Table 4 Standard day (15 °C (59 °F) Outside Air Temperature (OAT) at sea level) operations*

| Aircraft | Maximum number of chicks | Maximum mass of chicks lbs (kg) | Maximum mass of dogs lbs (kg) |
|---|---|---|---|
| A220-100 | 3229 | 427<br>(194) | 597<br>(271) |
| A220-300 | 5417 | 716<br>(325) | 1349<br>(612) |

*Table 5 Standard day (40 °C (104 °F) Outside Air Temperature (OAT) at sea level) operations*

| Aircraft | Maximum number of chicks | Maximum mass of chicks lbs (kg) | Maximum mass of dogs lbs (kg) |
|---|---|---|---|
| A220-100 | 1208 | 158<br>(72) | 299<br>(136) |
| A220-300 | 2291 | 302<br>(137) | 328<br>(149) |

The mass of chicks and dogs are exclusive, ie carry 302 lbs (137 kg) of chicks OR 328 lbs (149 kg) of dogs

It is allowed to carry mix baby chicks and dogs provided respecting the weight ration, e.g. 110 lbs (50 kg) of chicks plus 207 lbs (94 kg) of dogs.

## 7.2 Dry ice

For health and safety of ground handling personnel and all parties involved in dry ice handling, the access to any compartments which carry dry ice shall not be granted before sufficient venting has been performed by means of air supply equipment such as air conditioning packs, ground support equipment, opening the respective compartment door, etc. Alternatively, or in addition, the use of portable breathing equipment, oxygen masks and/or equivalent devices are recommended.

While occupants are on board, it is considered that all air conditioning packs or equivalent equipment are operating permanently (both air conditioning packs ON) during the transportation of dry ice. It is understood that aircraft ventilation may be reduced during aircraft de-icing. It is strongly recommended that this reduced ventilation period be minimized.

Avoid Pack-Off Take-Off (POTO). It is recommended to dispatch in dual bleed and dual pack configuration.

1000 lbs (453 kg) of dry ice can be carried in the forward cargo compartment, provided that no live animal carried in the forward cargo compartment.

700 lbs (317 kg) of dry ice can be carried in the forward cargo in addition to the live animal shown in Table 4 and Table 5 .

The FWD CARGO VENT switch must not be selected OFF when dry ice is carried in the forward cargo compartment. Refer to Fig.3Sheet. 4 .

## 7.3 Combined maximum dry ice load in cargo with maximum passengers

Refer to Fig. 1 for the maximum allowed amount of dry ice loaded in the aircraft cargo compartments assuming that the cabin is occupied with the maximum number of occupants and the cockpit with 3 flight crew.

The curve on the graph shows the maximum allowed concentration of $CO_2$ in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dispatched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

| Subl. Rate (% weight /hour) | Dry Ice Mass (lbs) |
|---|---|
| 0.50% | 4000 |
| 1.00% | 2000 |
| 1.50% | 1333 |
| 2.00% | 1000 |
| 3.00% | 667 |
| 4.00% | 500 |
| 5.00% | 400 |
| 6.00% | 333 |
| 7.00% | 286 |
| 8.00% | 250 |

ICN-BD500-A-J142000-A-3AB48-67632-A-001-01

*Figure 1 Combined maximum dry ice load in cargo with maximum passengers*

**Note**

The Fig. 1 represents the combined loading of both forward and aft cargo compartments. The individual limit of each cargo bay is 50% of this value.

If live animals are transported in the forward cargo, the forward cargo compartment limit becomes 35% of the value represented in Fig. 1 .

The FWD CARGO VENT switch must not be selected OFF when dry ice is carried in the forward cargo compartment. Refer to Fig.3Sheet. 4 .

Even with ventilation ON, $CO_2$ concentration in cargo could raise above 0.5%. Precaution should be taken prior to cargo access.

## 7.4 Supplemental dry ice load with reduced occupants (less than 15 occupants)

In addition to the cargo capacity shown in Fig. 1 , dry ice transport allowance can be increased when operating with reduced number of occupants and maintaining less than 0.5% $CO_2$ concentration in the cabin.

Refer to Fig. 2 for the supplemental dry ice capacity that may be transported with equal or less than 15 occupants in the cabin and 3 flight crew in the cockpit. The curve on the graph shows the maximum allowed concentration of $CO_2$ in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dispatched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

| Subl. Rate (% weight /hour) | Dry Ice Mass | |
|---|---|---|
| | A220-100 (lbs) | A220-300 (lbs) |
| 0.50% | 1336 | 1758 |
| 1.00% | 668 | 879 |
| 1.50% | 445 | 586 |
| 2.00% | 334 | 439 |
| 3.00% | 223 | 293 |
| 4.00% | 167 | 220 |
| 5.00% | 134 | 176 |
| 6.00% | 111 | 146 |
| 7.00% | 95 | 126 |
| 8.00% | 84 | 110 |

ICN-BD500-A-J142000-A-3AB48-67633-A-001-01

*Figure 2 Supplemental dry ice load with reduced occupants (less than 15 occupants)*

**Note**

The Fig. 2 represents the supplemental dry ice mass that can be transported in addition to the normal cargo loading (2) when operating with less than 15 occupants in the cabin.

The Fig. 2 represents the combined loading of the cabin, forward cargo and aft cargo compartments. No restriction applies regarding the distribution of this supplemental loading, except when transporting live animals. In this case, supplemental dry ice in the forward cargo compartment may be limited.

ICN-BD500-A-J142000-A-3AB48-31017-A-001-01

*Figure 3 Forward cargo compartment - clearances - (Sheet 1 of 4)*

ICN-BD500-A-J142000-A-3AB48-31127-A-002-01

*Figure 3 Forward cargo compartment - clearances - (Sheet 2 of 4)*

**D-D**

**E**

**NOTES**

1 Max Clear opening 46.4 in. x 32.6 in. (1.18 m x 0.83 m).

2. Max box length that can fit in cargo compartment: 155.00 in. (3.94 m).

ICN-BD500-A-J142000-A-3AB48-31128-A-001-01

*Figure 3 Forward cargo compartment - clearances - (Sheet 3 of 4)*

**AIR PANEL**

A

ICN-BD500-A-J210000-C-3AB48-06682-A-003-01

*Figure 3 Forward cargo compartment - clearances - (Sheet 4 of 4)*

# Aft cargo compartment volume, weight and maximum item dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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3 Aft cargo compartment – clearances..... 9


## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J14-20-00-03AAA-030A-A | Cargo nets and tie-downs - Technical data |
| BD500-A-J52-30-00-01AAA-540A-A | Cargo compartment door - Open for access procedure |
| BD500-A-J52-30-00-01AAA-740A-A | Cargo compartment door - Close after access procedure |

## *Description*

## 1 Information

This data module gives the volume, the weight and the maximum item dimensions for the aft cargo compartment.

## 2 Cargo door operation

Refer to BD500-A-J52-30-00-01AAA-540A-A, BD500-A-J52-30-00-01AAA-740A-A to open and close the cargo door.

## 4 Cargo compartment volume and weight

The aft cargo floor structure has a maximum load of 235lb/ft (350 kg/m).

Refer to Table 2 and Table 3 for the estimate wet volume and weight of the aft cargo compartment.

**Applicability:** 50001-54999

*Table 2 Cargo compartment volumes*

| Description | Usable Volume | | Maximum load | |
|---|---|---|---|---|
| | $ft^3$ | $m^3$ | lb | kg |
| Aft cargo compartment | 422 | 11.95 | 4548 | 2063 |

**Applicability:** 55001-59999

*Table 3 Cargo compartment volumes*

| Description | Usable Volume | | Maximum load | |
|---|---|---|---|---|
| | $ft^3$ | $m^3$ | lb | kg |
| Aft cargo compartment | 523 | 14.81 | 5746 | 2606 |

**Applicability:** 50001-54999

## 5 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAA-030A-A.

**Note**

There must be no item near the cargo compartment door.

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ PLACARD. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the aft cargo compartment.

**Applicability:** 55001-59999

## 6 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAB-030A-A.

**Note**

There must be no item near the cargo compartment door.

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ PLACARD. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the aft cargo compartment.

## 7 Maximum dry ice

For health and safety of ground handling personnel and all parties involved in dry ice handling, the access to any compartments which carry dry ice shall not be granted before sufficient venting has been performed by means of air supply equipment such as air conditioning packs, ground support equipment, opening the respective compartment door, etc. Alternatively, or in addition, the use of portable breathing equipment, oxygen masks and/or equivalent devices are recommended.

While occupants are on board, it is considered that all air conditioning packs or equivalent equipment are operating permanently (both air conditioning packs ON) during the transportation of dry ice. It is understood that aircraft ventilation may be reduced during aircraft de-icing. It is strongly recommended that this reduced ventilation period be minimized.

Avoid Pack-Off Take-Off (POTO). It is recommended to dispatch in dual bleed and dual pack configuration.

1000 lbs (453 kg) of dry ice can be carried in the aft cargo compartment.

AFT CARGO VENT switch must not be selected OFF when dry ice is carried in the aft cargo compartment. Refer to Fig.3Sheet. 4

## 8 Combined maximum dry ice load in cargo with maximum passengers

Refer to Fig. 1 for the maximum allowed amount of dry ice loaded in the aircraft cargo compartments assuming that the cabin is occupied with the maximum number of occupants and the cockpit with 3 flight crew.

The curve on the graph shows the maximum allowed concentration of $CO_2$ in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dis-

patched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

| Subl. Rate (% weight /hour) | Dry Ice Mass (lbs) |
|---|---|
| 0.50% | 4000 |
| 1.00% | 2000 |
| 1.50% | 1333 |
| 2.00% | 1000 |
| 3.00% | 667 |
| 4.00% | 500 |
| 5.00% | 400 |
| 6.00% | 333 |
| 7.00% | 286 |
| 8.00% | 250 |

ICN-BD500-A-J142000-A-3AB48-67632-A-001-01

*Figure 1 Combined maximum dry ice load in cargo with maximum passengers*

**Note**

The Fig. 1 represents the combined loading of both forward and aft cargo compartments. The individual limit of each cargo bay is 50% of this value.

If live animals are transported in the forward cargo, the forward cargo compartment limit becomes 35% of the value represented in Fig. 1 .

The FWD CARGO VENT switch must not be selected OFF when dry ice is carried in the forward cargo compartment. Refer to Fig.3Sheet. 4 .

Even with ventilation ON, $CO_2$ concentration in cargo could raise above 0.5%. Precaution should be taken prior to cargo access.

## 9 Supplemental dry ice load with reduced occupants (less than 15 occupants)

In addition to the cargo capacity shown in Fig. 1 , dry ice transport allowance can be increased when operating with reduced number of occupants and maintaining less than 0.5% $CO_2$ concentration in the cabin.

Refer to Fig. 2 for the supplemental dry ice capacity that may be transported with equal or less than 15 occupants in the cabin and 3 flight crew in the cockpit. The curve on the graph shows the maximum allowed concentration of $CO_2$ in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dispatched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

| Subl. Rate (% weight /hour) | Dry Ice Mass | |
|---|---|---|
| | A220-100 (lbs) | A220-300 (lbs) |
| 0.50% | 1336 | 1758 |
| 1.00% | 668 | 879 |
| 1.50% | 445 | 586 |
| 2.00% | 334 | 439 |
| 3.00% | 223 | 293 |
| 4.00% | 167 | 220 |
| 5.00% | 134 | 176 |
| 6.00% | 111 | 146 |
| 7.00% | 95 | 126 |
| 8.00% | 84 | 110 |

ICN-BD500-A-J142000-A-3AB48-67633-A-001-01

*Figure 2 Supplemental dry ice load with reduced occupants (less than 15 occupants)*

**Note**

The Fig. 2 represents the supplemental dry ice mass that can be transported in addition to the normal cargo loading (2) when operating with less than 15 occupants in the cabin.

The Fig. 2 represents the combined loading of the cabin, forward cargo and aft cargo compartments. No restriction applies regarding the distribution of this supplemental loading, except when transporting live animals. In this case, supplemental dry ice in the forward cargo compartment may be limited.

ICN-BD500-A-J142000-A-3AB48-31018-A-001-01

*Figure 3 Aft cargo compartment – clearances - (Sheet 1 of 4)*

ICN-BD500-A-J142000-A-3AB48-31129-A-002-01

*Figure 3 Aft cargo compartment – clearances - (Sheet 2 of 4)*

**D-D**

**NOTES**

1. Max Clear opening 46.4 in. x 32.6 in. (1.18 m x 0.83 m).
2. Max box length that can fit in cargo compartment FWD: 157.00 in. (3.99 m).
3. Max box length that can fit in cargo compartment AFT: 175.00 in. (4.45 m).

ICN-BD500-A-J142000-A-3AB48-31130-A-001-01

*Figure 3 Aft cargo compartment – clearances - (Sheet 3 of 4)*

**AIR PANEL**

A

ICN-BD500-A-J210000-C-3AB48-06682-A-003-01

*Figure 3 Aft cargo compartment – clearances - (Sheet 4 of 4)*

# Aircraft touch and no-touch zones - Technical data

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Information

This data module gives, to the crew, the clear opening, the touch and the no-touch zones, the ground clearances and the distances from the aircraft nose for these aircraft doors:

Forward Passenger Door (FPD) and the Aft Passenger Door (APD).

Forward Service Door (FSD) and the Aft Service Door (ASD).

Forward Cargo Door (FCD) and the Aft Cargo Door (ACD).

For A220-100 refer to Table 2 and to Fig. 1 .

For A220-300 refer to Table 3 and to Fig. 1 .

## 2 Doors ground clearances and distances from the aircraft nose

**Note**

Vertical clearances shown are more than differences in attitude because of the difference of aircraft weight and the center of gravity.

*Table 2 A220-100 Doors ground clearances and distances from the aircraft nose*

| Locator | Description | Minimum |
|---|---|---|
| A | From the nose to the end of pilot side window | 126.25 in.<br>(3,207 m) |
| B | From the nose to the forward fuselage frame of the forward passenger door | 191 in.<br>(4,851 m) |
| C | From the nose to the forward fuselage frame of the aft passenger door | 1,013 in.<br>25,730 m |
| D | From the nose to the forward fuselage frame of the forward cargo compartment door | 256 in.<br>(6,502 m) |
| E | From the nose to the forward fuselage frame of the aft cargo compartment door | 832 in.<br>(21,132 m) |
| F | From the nose to the forward fuselage frame of the aft service door | 1,013 in.<br>25,730 m |
| G | From the ground to the bottom of the forward passenger door | 117 in.<br>(2,971 m) |
| H | From the ground to the bottom of the aft passenger door | 126 in.<br>(3,200 m) |
| J | From the ground to the bottom of the forward service door | 117 in.<br>(2,971 m) |
| K | From the ground to the bottom of the forward cargo compartment door | 66 in.<br>(1,677 m) |
| L | From the ground to the bottom of the aft cargo compartment door | 73 in.<br>(1,854 m) |
| M | From the ground to the bottom of the aft service door | 126 in.<br>(3,200 m) |

*Table 3 A220-300 Doors ground clearances and distances from the aircraft nose*

| Locator | Description | Minimum |
|---|---|---|
| A | From the nose to the end of pilot side window | 126.25 in.<br>(3,207 m) |
| B | From the nose to the forward fuselage frame of the forward passenger door | 191 in.<br>(4,851 m) |

| Locator | Description | Minimum |
|---|---|---|
| C | From the nose to the forward fuselage frame of the aft passenger door | 1,160 in.<br>(29,464 m) |
| D | From the nose to the forward fuselage frame of the forward cargo compartment door | 256 in.<br>(6,502 m) |
| E | From the nose to the forward fuselage frame of the aft cargo compartment door | 979 in.<br>(24,866 m) |
| F | From the nose to the forward fuselage frame of the aft service door | 1,160 in.<br>25,730 m |
| G | From the ground to the bottom of the forward passenger door | 117 in.<br>(2,971 m) |
| H | From the ground to the bottom of the aft passenger door | 126 in.<br>(3,200 m) |
| J | From the ground to the bottom of the forward service door | 117 in.<br>(2,971 m) |
| K | From the ground to the bottom of the forward cargo compartment door | 66 in.<br>(1,677 m) |
| L | From the ground to the bottom of the aft cargo compartment door | 73 in.<br>(1,854 m) |
| M | From the ground to the bottom of the aft service door | 126 in.<br>(3,200 m) |

## 3 Touch and no-touch zones

Composite structures are sensitive to damage caused by the hails, the bird strikes and the ground vehicles. There are small damages on the external aircraft surface which do not show all possible internal surface damages.

**Note**

The damage on the composite structures are not easily find as the damages on the metal structures. Record all the incident to the aircraft terminal. Refer to Fig. 2 for the location of composite material.

ICN-BD500-A-J153000-A-3AB48-31025-A-001-01

*Figure 1 Door ground clearances and distances from the aircraft nose*

**LEGEND**

Composite.

ICN-BD500-A-J079500-C-3AB48-24022-A-001-01

*Figure 2 Composite materials*

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# Chapter 3: Aircraft performance

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# Aircraft performance - Technical data

Applicability: 50001-54999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module gives data about:

- Payload/Range
- Takeoff field length requirements
- Landing field length requirements
- Landing reference speed

The table below provides standard day temperature for pressure altitudes.

*Table 2 Standard day temperature chart*

| Altitude | | Standard day temperature | |
|---|---|---|---|
| Feet (ft.) | Meters (m) | ºF | ºC |
| 0 | 0 | 59 | 15 |
| 2000 | 610 | 51.9 | 11 |
| 4000 | 1220 | 44.7 | 7.1 |
| 6000 | 1830 | 37.6 | 3.1 |
| 8000 | 2440 | 30.5 | -0.8 |
| 10000 | 3050 | 23.3 | -4.8 |

## 2 Payload/Range

This section gives information about the payload/range at ISA conditions.

ICN-BD500-A-J000000-A-3AB48-23899-A-002-01

*Figure 1 Zero Fuel Weight (ZFW) vs Range ISA*

# 3 Takeoff field length requirements

For more information about aircraft performance, refer to the Aircraft Flight Manual (AFM) BD500–3AB48–22200-00.

For aircraft performance and field length requirements refer to:

- Fig. 2 for the takeoff field length ISA - PW1519G.
- Fig. 3 for the takeoff field length ISA +15°C - PW1519G.
- Fig. 4 for the takeoff field length ISA - PW1521G.
- Fig. 5 for the takeoff field length ISA +15°C - PW1521G.
- Fig. 6 for the takeoff field length ISA - PW1524G.
- Fig. 7 for the takeoff field length ISA +15°C - PW1524G.

ICN-BD500-A-J000000-A-3AB48-01753-A-002-01

*Figure 2 Takeoff field length - ISA - PW1519G*

ICN-BD500-A-J000000-A-3AB48-01754-A-002-01

*Figure 3 Takeoff field length ISA +15°C - PW1519G*

ICN-BD500-A-J000000-A-3AB48-29045-A-001-01

*Figure 4 Takeoff field length ISA - PW1521G*

ICN-BD500-A-J000000-A-3AB48-29046-A-001-01

*Figure 5 Takeoff field length ISA +15°C - PW1521G*

ICN-BD500-A-J000000-A-3AB48-29047-A-001-01

*Figure 6 Takeoff field length ISA - PW1524G*

ICN-BD500-A-J000000-A-3AB48-29048-A-001-01

*Figure 7 Takeoff field length ISA +15°C - PW1524G*

# 4 Landing field length requirements

For more information about landing field, refer to the AFM BD500-3AB48-22200-00.

For landing field length requirements refer to Fig. 8 .

ICN-BD500-A-J000000-A-3AB48-01757-A-002-01

*Figure 8 Landing field length - Dry runway*

# 5 Landing reference speed

This section gives information about the landing reference speed.

ICN-BD500-A-J000000-A-3AB48-23901-A-002-01

*Figure 9 Landing reference speed*

# Aircraft performance - Technical data

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*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This section gives data about:

- Payload/Range
- Takeoff field length requirements
- Landing field length requirements
- Landing reference speed

The table below provides standard day temperature for pressure altitudes.

*Table 2 Standard day temperature chart*

| Altitude | | Standard day temperature | |
|---|---|---|---|
| Feet (ft.) | Meters (m) | ºF | ºC |
| 0 | 0 | 59 | 15 |
| 2000 | 610 | 51.9 | 11 |
| 4000 | 1220 | 44.7 | 7.1 |
| 6000 | 1830 | 37.6 | 3.1 |
| 8000 | 2440 | 30.5 | -0.8 |
| 10000 | 3050 | 23.3 | -4.8 |

## 2 Payload/Range

This section gives information about the payload/range at ISA conditions.

ICN-BD500-A-J000000-A-3AB48-25637-A-002-01

*Figure 1 Zero Fuel Weight (ZFW) vs Range ISA*

# 3 Takeoff field length requirements

For more information about aircraft performance, refer to the Aircraft Flight Manual (AFM) BD500–3AB48–32200-00.

For aircraft performance and field length requirements refer to:

- Fig. 2 for the takeoff field length ISA - PW1521G.
- Fig. 3 for the takeoff field length ISA +015°C - PW1521G.
- Fig. 4 for the takeoff field length ISA - PW1524G.
- Fig. 5 for the takeoff field length ISA +015°C - PW1524G.

ICN-BD500-A-J000000-A-3AB48-01752-A-002-01

*Figure 2 Takeoff field length ISA - PW1521G*

ICN-BD500-A-J000000-A-3AB48-01751-A-002-01

*Figure 3 Takeoff field length ISA +15°C - PW1521G*

ICN-BD500-A-J000000-A-3AB48-25638-A-001-01

*Figure 4 Takeoff field length ISA - PW1524G*

ICN-BD500-A-J000000-A-3AB48-01750-A-002-01

*Figure 5 Takeoff field length ISA +15°C - PW1524G*

# 4 Landing field length requirements

For more information about landing field, refer to the AFM BD500-3AB48-32200-00.

For landing field length requirements refer to Fig. 6 .

ICN-BD500-A-J000000-A-3AB48-01756-A-002-01

*Figure 6 Landing field length - Dry runway*

# 5 Landing reference speed

This section gives information about the landing reference speed.

ICN-BD500-A-J000000-A-3AB48-25639-A-002-01

*Figure 7 Landing reference speed*

# Chapter 4: Ground maneuvering

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# Operating conditions - Technical data

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5 Exhaust plume velocity profile / Maximum take-off at sea level static..... 7
6 Exhaust plume temperature profile / Maximum take-off at sea level static..... 8
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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J71-00-00-00AAA-012A-A | Power plant - General warnings and cautions and related safety data |

## *Description*

## 1 Introduction

This data module gives data on the engine noise levels and the intake and exhaust dangerous areas during normal operations. This section is divided into the subsections that follow:

- Engine dangerous areas
- Engine exhaust velocities and temperatures
- Auxiliary Power Unit (APU)

- Engine noise levels

Aircraft operating conditions and noise are important to airport and community planners. While an airport is a major element in a community transportation system and is vital to it's growth, it must be a good neighbor. This can only be accomplished with proper planning. Because aircraft noise extends beyond the boundaries of the airport, it is vital to consider the impact on surroundings communities.

## 2 Engine dangerous areas

This section contains information about the danger areas of engines during a ground run up. Refer to BD500-A-J71-00-00-00AAA-012A-A for danger areas of engines.

## 3 Engine exhaust velocities and temperatures

This section shows the estimated engine exhaust plume velocity and temperature profiles during idle, breakaway, and maximum takeoff conditions.

The exhaust plume profiles are provided from the engine nozzle exit plane, assuming sea level, static, ISA condition, without any wind and bleed extraction. They do not take into account an engine-to-engine variation or engine deterioration and do not account for interaction with the fuselage, ground or other engine plume. Refer to Fig. 1 thru Fig. 6 .

ICN-BD500-A-J000000-A-3AB48-27915-A-001-01

*Figure 1 Exhaust plume velocity profile / A220-100 Break-away thrust 2970 lbf*

ICN-BD500-A-J000000-A-3AB48-27917-A-001-01

*Figure 2 Exhaust plume temperature profile / A220-100 Break-away thrust 2970 lbf*

ICN-BD500-A-J000000-A-3AB48-27919-A-001-01

*Figure 3 Exhaust plume velocity profile / Ground idle*

ICN-BD500-A-J000000-A-3AB48-27920-A-001-01

*Figure 4 Exhaust plume temperature profile / Ground idle*

ICN-BD500-A-J000000-A-3AB48-27921-A-001-01

*Figure 5 Exhaust plume velocity profile / Maximum take-off at sea level static*

ICN-BD500-A-J000000-A-3AB48-27922-A-001-01

*Figure 6 Exhaust plume temperature profile / Maximum take-off at sea level static*

# 4 Auxiliary Power Unit (APU)

This section contains information about the danger areas of the APU when operated on the ground. Refer to Fig. 7 and Fig. 8 for danger areas and the exhaust plume temperature of the APU.

ICN-BD500-A-J000000-A-3AB48-47400-A-001-01

*Figure 7 APU exhaust plume temperature*

ICN-BD500-A-J000000-A-3AB48-47401-A-001-01

*Figure 8 APU danger areas*

# 5 Engine noise levels

The community noise levels must agree with FAR 36 Stage 3, ICAO Annex 16, Chapter 4, Chapter 516.

Refer to Table 2 for the demonstrated Effective Perceived Noise levels (EPNdB), limits, and the relative difference (margin of compliance) for the engines.

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 2 Engine noise levels*

| Engine <option code> | Weights | | Measurement Points | | | Margins (EPNdB) | Margin Requirement (EPNdB) |
|---|---|---|---|---|---|---|---|
| | MTOW <option code> | MLW <option code> | Description | Noise Limit (EPNdB) | Measured Level (EPNdB) | | |
| PW1524G <72210003> | 134,000 lb (60,781 kg) <13000170> | 115,500 lb (52,390 kg) <1300270> | Approach | 99.9 | 91.9 | 8.0 | 0 |
| | | | Lateral | 96.0 | 87.9 | 8.1 | 0 |
| | | | Flyover | 90.4 | 79.0 | 11.4 | 0 |
| | | | Sum of smallest two individual margins: | | | 16.1 | 2 |
| | | | Sum of all individual margins: | | | 27.5 | 10 |

**Applicability:** 50069, 50071, 50078, 50085-50086

*Table 3 Engine noise levels*

| Engine <option code> | Weights | | Measurement Points | | | Margins (EPNdB) | Margin Requirement (EPNdB) |
|---|---|---|---|---|---|---|---|
| | MTOW <option code> | MLW <option code> | Description | Noise Limit (EPNdB) | Measured Level (EPNdB) | | |
| PW1524G <72210003> | 138,000 lb (62,595 kg) <13000040> | 112,500 lb (51,029 kg) <13000230> | Approach | 99.9 | 91.9 | 8.0 | 0 |
| | | | Lateral | 96.0 | 87.9 | 8.1 | 0 |
| | | | Flyover | 90.4 | 79.0 | 11.4 | 0 |
| | | | Sum of smallest two individual margins: | | | 16.1 | 2 |
| | | | Sum of all individual margins: | | | 27.5 | 10 |

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# Operating conditions - Technical data

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
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## *Description*

## 1 Introduction

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## 3 Engine exhaust velocities and temperatures

This section shows the estimated engine exhaust plume velocity and temperature profiles during idle, breakaway, and maximum takeoff conditions.

The exhaust plume profiles are provided from the engine nozzle exit plane, assuming sea level, static, ISA condition, without any wind and bleed extraction. They do not take into account an engine-to-engine variation or engine deterioration and do not account for interaction with the fuselage, ground or other engine plume. Refer to Fig. 1 thru Fig. 6 .

ICN-BD500-A-J000000-A-3AB48-27916-A-001-01

*Figure 1 Exhaust plume velocity profile / A220-300 Break-away thrust 3300 lbf*

ICN-BD500-A-J000000-A-3AB48-27918-A-001-01

*Figure 2 Exhaust plume temperature profile / A220-300 Break-away thrust 3300 lbf*

ICN-BD500-A-J000000-A-3AB48-27919-A-001-01

*Figure 3 Exhaust plume velocity profile / Ground idle*

ICN-BD500-A-J000000-A-3AB48-27920-A-001-01

*Figure 4 Exhaust plume temperature profile / Ground idle*

ICN-BD500-A-J000000-A-3AB48-27921-A-001-01

*Figure 5 Exhaust plume velocity profile / Maximum take-off at sea level static*

ICN-BD500-A-J000000-A-3AB48-27922-A-001-01

*Figure 6 Exhaust plume temperature profile / Maximum take-off at sea level static*

# 4 Auxiliary Power Unit (APU)

This section contains information about the danger areas of the APU when operated on the ground. Refer to Fig. 7 and Fig. 8 for danger areas and the exhaust plume temperature of the APU.

ICN-BD500-A-J000000-A-3AB48-47400-A-001-01

*Figure 7 APU exhaust plume temperature*

ICN-BD500-A-J000000-A-3AB48-47401-A-001-01

*Figure 8 APU danger areas*

# 5 Engine noise levels

The community noise levels must agree with FAR 36 Stage 3, ICAO Annex 16, Chapter 4, Chapter 516.

Refer to Table 2 for the demonstrated Effective Perceived Noise levels (EPNdB), limits, and the relative difference (margin of compliance) for the engines.

*Table 2 Engine noise levels*

| Engine <option code> | Weights | | Measurement Points | | | Margins (EPNdB) | Margin Requirement (EPNdB) |
|---|---|---|---|---|---|---|---|
| | MTOW <option code> | MLW <option code> | Description | Noise Limit (EPNdB) | Measured Level (EPNdB) | | |
| PW1524G <72210003> | 149,000 lb (67,585 kg) <13000170> | 129,500 lb (58,740 kg) <1300270> | Approach | 99.9 | 91.9 | 8.0 | 0 |
| | | | Lateral | 96.0 | 87.9 | 8.1 | 0 |
| | | | Flyover | 90.4 | 79.0 | 11.4 | 0 |
| | | | Sum of smallest two individual margins: | | | 16.1 | 2 |
| | | | Sum of all individual margins: | | | 27.5 | 10 |

# Ground maneuvering - Technical data

Applicability: 50001-54999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

# 1 Turning radii

## 1.1 Introduction

This data module contains data about the aircraft turning capability and maneuvering characteristics on the ground. The data is based on aircraft performance in good conditions of operation.

Thus, the values must be considered theoretical and used only as an aid. Refer to Table 2 for the values to use with Fig. 1 for the turn radii with 3 degree slip angle.

## 1.2 Landing gear turning radii, including minimum turning radii

*Table 2 A220-100 turning radii for various nose wheel angles*

| Turning angle (in degrees) with 3 degree tire slip | Turning center to aircraft center line (D) | Nose tip (R1) | Nose gear outside face (R2) | Main gear outside face (R3) | Wing tip (R4) | Empennage tip (R5) | Minimum theoretical pavement width for 180 degrees turn (Tw= R2+R3) |
|---|---|---|---|---|---|---|---|
| 17 | 1686.8 in.<br>(42844.72 mm) | 1807.5 in.<br>(45910.50 mm) | 1776.3 in.<br>(45118.02 mm) | 1845.6 in.<br>(46878.24 mm) | 2385.4 in.<br>(60589.16 mm) | 2046.7 in.<br>(51986.18 mm) | 3621.9 in.<br>(91996.26 mm) |
| 27 | 1012.1 in.<br>(25707.34 mm) | 1202.7 in.<br>(30548.58 mm) | 1148.4 in.<br>(29169.36 mm) | 1171 in.<br>(29743.40 mm) | 1715 in.<br>(43561 mm) | 1430.1 in.<br>(36324.54 mm) | 2319.4 in<br>(58912.76 mm) |
| 37 | 684.4 in.<br>(17383.76 mm) | 943.6 in<br>(23967.44 mm) | 869.3 in.<br>(22080.22 mm) | 843.2 in.<br>(21417.28 mm) | 1390.8 in.<br>(35326.32 mm) | 1154.2 in.<br>(29316.68 mm) | 1712.6 in.<br>(43500.04 mm) |
| 47 | 480.9 in.<br>(12214.86 mm) | 808.3 in<br>(20530.82 mm) | 717.6 in.<br>(18227.04 mm) | 639.8 in.<br>(16250.92 mm) | 1190.6 in.<br>(30241.24 mm) | 998.9 in.<br>(25372.06 mm) | 1357.3 in.<br>(34475.42 mm) |
| 57 | 334.9 in.<br>(8506.46 mm) | 730.9 in.<br>(18564.86 mm) | 627.9 in.<br>(15948.66 mm) | 493.2 in.<br>(12527.28 mm) | 1047.6 in.<br>(26609.04 mm) | 899.3 in.<br>(22842.22 mm) | 1121.1 in.<br>(28475.94 mm) |
| 67 | 218.9 in.<br>(5560.06 mm) | 685.5 in.<br>(17411.70 mm) | 572.7 in.<br>(14546.58 mm) | 377.8 in.<br>(9596.12 mm) | 934.7 in.<br>(23741.38 mm) | 830.1 in.<br>(21084.54 mm) | 950.4 in.<br>(24140.16 mm) |
| 77 | 119.1 in.<br>(3025.14 mm) | 660.4 in.<br>(16774.16 mm) | 541.7 in.<br>(13759.18 mm) | 277.9 in.<br>(7058.66 mm) | 838.2 in.<br>(21290.28 mm) | 779.4 in.<br>(19796.76 mm) | 819.6 in.<br>(20817.84 mm) |

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ICN-BD500-A-J092001-A-3AB48-00068-A-001-01

*Figure 1 Turn radii*

## 2 Visibility from cockpit in static position

This section contains data about the visibility from cockpit in static position.

To see the diagram, refer to Fig. 2 .

**VISUAL ANGLES IN VERTICAL PLANE THROUGH PILOT'S EYE POSITION**

**VISUAL ANGLES IN HORIZONTAL PLANE THROUGH PILOT'S EYE POSITION**

**VISUAL ANGLE IN A PLANE PERPEDNDICULAR TO LONGITUDINAL AXIS THROUGH PILOT'S EYE POSITION**

**NOTES**

1. Not to be used for landing approach visibility.
2. Not scale.

ICN-BD500-A-J000000-A-3AB48-22579-A-001-01

*Figure 2 Visibility from cockpit in static position*

## 2.1 Clear areas of vision

To see the diagram, refer to Fig. 3 and Fig. 4 .

ICN-BD500-A-J092001-A-3AB48-00119-A-001-01

*Figure 3 Clear areas of vision*

ICN-BD500-A-J000000-A-3AB48-45615-A-001-01

*Figure 4 A220 Clear areas of vision*

# 3 Runways and taxiways turn paths

This section contains data about the runways and taxiways turn paths.

## 3.1 More than 90° turn - Runway to taxiway - Cockpit over centerline method

To see the diagram, refer to Fig. 5 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22068-A-001-01

*Figure 5 More than 90° turn - Runway to taxiway - Cockpit over centerline method*

## 3.2 More than 90° turn - Runway to taxiway - Oversteering method

To see the diagram, refer to Fig. 6 .

**LEGEND**

-·-·- Nose gear.
- - - - Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22553-A-001-01

*Figure 6 More than 90° turn - Runway to taxiway - Oversteering method*

## 3.3 90° turn - Runway to taxiway - Cockpit over centerline method

To see the diagram, refer to Fig. 7 .

**LEGEND**

-·-·-·- Nose gear.
------- Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22065-A-001-01

*Figure 7 90° turn - Runway to taxiway - Cockpit over centerline method*

## 3.4 90° turn - Runway to taxiway - Oversteering method

To see the diagram, refer to Fig. 8 .

**LEGEND**

-·-·-·- Nose gear.
------- Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22555-A-001-01

*Figure 8 90° turn - Runway to taxiway - Oversteering method*

## 3.5 More than 90° turn - Taxiway to taxiway - Cockpit over centerline method

To see the diagram, refer to Fig. 9 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22069-A-001-01

*Figure 9 More than 90° turn - Taxiway to taxiway - Cockpit over centerline method*

## 3.6 More than 90° turn - Taxiway to taxiway - Oversteering method

To see the diagram, refer to Fig. 10 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22552-A-001-01

*Figure 10 More than 90° turn - Taxiway to taxiway - Oversteering method*

## 3.7 90° turn - Taxiway to taxiway - Cockpit over centerline method

To see the diagram, refer to Fig. 11 .

**LEGEND**

-·-·-·- Nose gear.
------- Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22066-A-001-01

*Figure 11 90° turn - Taxiway to taxiway - Cockpit over centerline method*

## 3.8 90° turn - Taxiway to taxiway - Oversteering method

To see the diagram, refer to Fig. 12

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22554-A-001-01

*Figure 12 90° turn - Taxiway to taxiway - Oversteering method*

## 3.9 Runway holding bay (Apron)

To see the diagram, refer to Fig. 13 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-22067-A-001-01

*Figure 13 Runway holding bay (Apron)*

## 3.10 Hammerhead Turnaround

To see the diagrams, refer to Fig. 14 and Fig. 15 .

**NOTE**

Follow turnaround steering guidance cues if available.

ICN-BD500-A-J000000-A-3AB48-45728-A-001-01

*Figure 14 Techniques when using a Hammerhead Turnaround*

**NOTE**

Follow turnaround steering guidance cues if available.

ICN-BD500-A-J000000-A-3AB48-45729-A-001-01

*Figure 15 Techniques when using a Hammerhead Turnaround*

## 3.11 180 Degree (Pivot) Turns in Less than 147.6 feet (45 m)

To see the diagram, refer to Fig. 16 .

**NOTE**

Follow turnaround steering guidance cues if available.

ICN-BD500-A-J000000-A-3AB48-45730-A-001-01

*Figure 16 180 Degree (Pivot) Turns in Less than 147.6 feet / 45 m*

# Ground maneuvering - Technical data

Applicability: 55001-59999

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| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

# 1 Turning radii

## 1.1 Introduction

This data module contains data about the aircraft turning capability and maneuvering characteristics on the ground. The data is based on aircraft performance in good conditions of operation.

Thus, the values must be considered theoretical and used only as an aid. Refer to Table 2 for the values to use with Fig. 1 for the turn radii with 3 degree slip angle.

## 1.2 Landing gear turning radii, including minimum turning radii

*Table 2 A220-300 turning radii for various nose wheel angles*

| Turning angle (in degrees) with 3 degree tire slip | Turning center to aircraft center line (D) | Nose tip (R1) | Nose gear outside face (R2) | Main gear outside face (R3) | Wing tip (R4) | Empennage tip (R5) | Minimum theoretical pavement width for 180 degrees turn (Tw= R2+R3) |
|---|---|---|---|---|---|---|---|
| 17 | 1961.5 in.<br>(49822.10 mm) | 2094.2 in.<br>(53192.68 mm | 2063.6 in.<br>(52415.44 mm | 2120.4 in.<br>(53858.16 mm) | 2659 in.<br>(67538.60 mm) | 2307.1 in.<br>(58600.34 mm | 4148 in.<br>(105359.20 mm) |
| 27 | 1177 in.<br>(29895.80 mm) | 1386.9 in.<br>(35227.26 mm | 1333.4 in.<br>(33868.36 mm) | 1335.8 in.<br>(33929.32 mm) | 1878.6 in.<br>(47716.44 mm) | 1576.4 in.<br>(40040.56 mm | 2669.2 in<br>(67797.68 mm) |
| 37 | 795.8 in.<br>(20213.32 mm) | 1082.4 in.<br>(27492.96 mm | 1008.9 in.<br>(25626.06 mm) | 954.7 in.<br>(24249.38 mm) | 1500.9 in.<br>(38122.86 mm) | 1245.2 in.<br>(31628.08 mm | 1963.6 in.<br>(49875.44 mm) |
| 47 | 559.2 in.<br>(14203.68 mm) | 922.5 in.<br>(23431.5 mm) | 832.4 in.<br>(21142.96 mm) | 718.1 in.<br>(18239.74 mm) | 1267.5 in.<br>(32194.50 mm) | 1056.8 in.<br>(26842.72 mm | 1550.5 in.<br>(39382.70 mm) |
| 57 | 389.4 in.<br>(9890.76 mm) | 830.6 in.<br>(21097.24 mm | 727.5 in.<br>(18478.50 mm) | 548.3 in.<br>(13926.82 mm) | 1100.9 in.<br>(27962.86 mm) | 935.1 in.<br>(23751.54 mm | 1275.8 in.<br>(32405.32 mm) |
| 67 | 254.6 in.<br>(6466.84 mm) | 776.5 in.<br>(19723.10 mm) | 663.9 in.<br>(16863.06 mm) | 413.4 in.<br>(10500.36 mm) | 969.4 in.<br>(24622.76 mm) | 850.3 in.<br>(21597.60 mm) | 1077.4 in.<br>(27365.96 mm) |
| 77 | 138.5 in.<br>(3517.90 mm) | 746.6 in.<br>(18963.64 mm | 627.9 in.<br>(15948.66 mm | 297.3 in.<br>(7551.42 mm) | 856.9 in.<br>(21765.26 mm) | 788.5 in.<br>(20027.90 mm) | 925.4 in.<br>(23505.16 mm) |

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ICN-BD500-A-J092001-A-3AB48-00068-A-001-01

*Figure 1 Turn radii*

## 2 Visibility from cockpit in static position

This section contains data about the visibility from cockpit in static position for.

To see the diagram, refer to Fig. 3 .

**VISUAL ANGLES IN VERTICAL PLANE THROUGH PILOT'S EYE POSITION**

**VISUAL ANGLES IN HORIZONTAL PLANE THROUGH PILOT'S EYE POSITION**

**VISUAL ANGLE IN A PLANE PERPEDNDICULAR TO LONGITUDINAL AXIS THROUGH PILOT'S EYE POSITION**

**NOTES**

1. Not to be used for landing approach visibility.
2. Not scale.

ICN-BD500-A-J000000-A-3AB48-22579-A-001-01

*Figure 2 Visibility from cockpit in static position*

## 2.1 Clear areas of vision

To see the diagram, refer to Fig. 2 and Fig. 4 .

ICN-BD500-A-J092001-A-3AB48-00119-A-001-01

*Figure 3 Clear areas of vision*

ICN-BD500-A-J000000-A-3AB48-45615-A-001-01

*Figure 4 A220 Clear areas of vision*

# 3 Runways and taxiways turn paths

This section contains data about the runways and taxiways turn paths.

## 3.1 More than 90° turn - Runway to taxiway - Cockpit over centerline method

To see the diagram, refer to Fig. 5 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25563-A-001-01

*Figure 5 More than 90° turn - Runway to taxiway - Cockpit over centerline method*

## 3.2 More than 90° turn - Runway to taxiway - Oversteering method

To see the diagram, refer to Fig. 6 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25564-A-001-01

*Figure 6 More than 90° turn - Runway to taxiway - Oversteering method*

## 3.3 90° turn - Runway to taxiway - Cockpit over centerline method

To see diagram, refer to Fig. 7 .

**LEGEND**

-·-·-·- Nose gear.
------- Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25565-A-001-01

*Figure 7 90° turn - Runway to taxiway - Cockpit over centerline method*

## 3.4 90° turn - Runway to taxiway - Oversteering method

To see the diagram, refer to Fig. 8 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25566-A-001-01

*Figure 8 90° turn - Runway to taxiway - Oversteering method*

## 3.5 More than 90° turn - Taxiway to taxiway - Cockpit over centerline method

To see the diagram, refer to Fig. 9 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25567-A-001-01

*Figure 9 More than 90° turn - Taxiway to taxiway - Cockpit over centerline method*

## 3.6 More than 90° turn - Taxiway to taxiway - Oversteering method

To see the diagram, refer to Fig. 10 .

**LEGEND**

Nose gear.
Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25568-A-001-01

*Figure 10 More than 90° turn - Taxiway to taxiway - Oversteering method*

## 3.7 90° turn - Taxiway to taxiway - Cockpit over centerline method

To see the diagram, refer to Fig. 11 .

**LEGEND**

-·-·-·- Nose gear.
------- Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25569-A-001-01

*Figure 11 90° turn - Taxiway to taxiway - Cockpit over centerline method*

## 3.8 90° turn - Taxiway to taxiway - Oversteering method

To see the diagram, refer to Fig. 12 .

**LEGEND**

-·-·-·- Nose gear.
------- Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25570-A-001-01

*Figure 12 90° turn - Taxiway to taxiway - Oversteering method*

## 3.9 Runway holding bay (Apron)

To see the diagram, refer to Fig. 13

**LEGEND**

-·-·-·- Nose gear.
------- Main gear.

**NOTE**

Coordinate with airline operator for the specific planned operating procedure.

ICN-BD500-A-J000000-A-3AB48-25571-A-001-01

*Figure 13 Runway holding bay (Apron)*

## 3.10 Hammerhead Turnaround

To see the diagrams, refer to Fig. 14 and Fig. 15 .

**NOTE**

Follow turnaround steering guidance cues if available.

ICN-BD500-A-J000000-A-3AB48-45728-A-001-01

*Figure 14 Techniques when using a Hammerhead Turnaround*

**NOTE**

Follow turnaround steering guidance cues if available.

ICN-BD500-A-J000000-A-3AB48-45729-A-001-01

*Figure 15 Techniques when using a Hammerhead Turnaround*

## 3.11 180 Degree (Pivot) Turns in Less than 147.6 feet (45 m)

To see the diagram, refer to Fig. 16 .

**NOTE**

Follow turnaround steering guidance cues if available.

ICN-BD500-A-J000000-A-3AB48-45730-A-001-01

*Figure 16 180 Degree (Pivot) Turns in Less than 147.6 feet / 45 m*

# Ground maneuvering, turning radii - Technical data

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains data about the aircraft turning capability and maneuvering characteristics on the ground. The data is based on aircraft performance in good conditions of operation. Thus, the values must be considered theoretical and used only as an aid. Refer to Table 2 and Table 3 for the values to use with Fig. 1 for the turn radii with 3 degree slip angle.

## 2 Landing gear turning radii, including minimum turning radii

**Applicability:** 50001-54999

*Table 2 Turning radii for various nose wheel angles*

| Turning angle (in degrees) with 3 degree tire slip | Turning center to aircraft center line (D) | Nose tip (R1) | Nose gear outside face (R2) | Main gear outside face (R3) | Wing tip (R4) | Empennage tip (R5) | Minimum theoretical pavement width for 180 degrees turn (Tw= R2+ R3) |
|---|---|---|---|---|---|---|---|
| 17 | 1686.8 in. (4284.47 cm) | 1807.5 in. (4591.05 cm) | 1776.3 in. (4511.80 cm) | 1845.6 in. (4687.82 cm) | 2385.4 in. (6058.91 cm) | 2046.7 in. (5198.61 cm) | 3621.9 in. (9199.62 cm) |
| 27 | 1012.1 in. (2570.73 cm) | 1202.7 in. (3054.85 cm) | 1148.4 in. (2916.93 cm) | 1171.0 in. (2974.34 cm) | 1715.0 in. (4356.1 cm) | 1430.1 in. (3632.45 cm) | 2319.4 in. (5891.27 cm) |
| 37 | 684.4 in. (1738.37 cm) | 943.6 in. (2396.74 cm) | 869.3 in. (2208.02 cm) | 843.2 in. (2141.72 cm) | 1390.8 in. (3532.63 cm) | 1154.2 in. (2931.66 cm) | 1712.6 in. (4350.00 cm) |
| 47 | 480.9 in. (1221.48 cm) | 808.3 in. (2053.08 cm) | 717.6 in. (1822.70 cm) | 639.8 in. (1625.09 cm) | 1190.6 in. (3024.12 cm) | 998.9 in. (2537.20 cm) | 1357.3 in. (3447.54 cm) |
| 57 | 334.9 in. (850.64 cm) | 730.9 in. (1856.48 cm) | 627.9 in. (1594.86 cm) | 493.2 in. (1252.72 cm) | 1047.6 in. (2660.90 cm) | 899.3 in. (2284.22 cm) | 1121.1 in. (2847.59 cm) |
| 67 | 218.9 in. (556.00 cm) | 685.5 in. (1741.17 cm) | 572.7 in. (1454.65 cm) | 377.8 in. (959.61 cm) | 934.7 in. (2374.13 cm) | 830.1 in. (2108.45 cm) | 950.4 in. (2414.01 cm) |
| 77 | 119.1 in. (302.51 cm) | 660.04 in. (1667.41 cm) | 541.7 in. (1375.91 cm) | 277.9 in. (705.86 cm) | 838.2 in. (2129.02 cm) | 779.4 in. (1979.67 cm) | 819.6 in. (2081.78 cm) |

**Applicability:** 55001-59999

*Table 3 Turning radii for various nose wheel angles*

| Turning angle (in degrees) with 3 degree tire slip | Turning center to aircraft center line (D) | Nose tip (R1) | Nose gear outside face (R2) | Main gear outside face (R3) | Wing tip (R4) | Empennage tip (R5) | Minimum theoretical pavement width for 180 degrees turn (Tw= R2+ R3) |
|---|---|---|---|---|---|---|---|
| 17 | 1961.5 in. (4982.21 cm) | 2094.2 in. (5319.26 cm) | 2063.6 in. (5241.54 cm) | 2120.4 in. (5385.81 cm) | 2659.0 in. (6753.86 cm) | 2307.1 in. (5860.03 cm) | 4148.0 in. (10535.92 cm) |

| Turning angle (in degrees) with 3 degree tire slip | Turning center to aircraft center line (D) | Nose tip (R1) | Nose gear outside face (R2) | Main gear outside face (R3) | Wing tip (R4) | Empennage tip (R5) | Minimum theoretical pavement width for 180 degrees turn (Tw= R2+ R3) |
|---|---|---|---|---|---|---|---|
| 27 | 1177.0 in. (2989.58 cm) | 1386.9 in. (3522.72 cm) | 1333.4 in. (3386.83 cm) | 1335.8 in. (3392.93 cm) | 1878.6 in. (4771.64 cm) | 1576.4 in. (4004.05 cm) | 2669.2 in. (6779.76 cm) |
| 37 | 795.8 in. (2021.33 cm) | 1082.4 in. (2749.29 cm) | 1008.9 in. (2562.60 cm) | 954.7 in. (2424.93 cm) | 1500.9 in. (3812.28 cm) | 1245.2 in. (3162.80 cm) | 1963.6 in. (4987.54 cm) |
| 47 | 559.2 in. (1420.36 cm) | 922.5 in. (2343.15 cm) | 832.4 in. (2114.29 cm) | 718.1 in. (1823.97 cm) | 1267.5 in. (3219.45 cm) | 1056.8 in. (2684.27 cm) | 1550.5 in. (3938.27 cm) |
| 57 | 389.4 in. (989.07 cm) | 830.6 in. (2109.72 cm) | 727.5 in. (1847.85 cm) | 548.3 in. (1392.68 cm) | 1100.9 in. (2796.28 cm) | 935.1 in. (2375.15 cm) | 1275.8 in. (3240.53 cm) |
| 67 | 254.6 in. (646.68 cm) | 776.5 in. (1971.04 cm) | 663.9 in. (1686.30 cm) | 413.4 in. (1050.03 cm) | 969.4 in. (2462.27 cm) | 850.3 in. (2159.76 cm) | 1077.4 in. (2736.59 cm) |
| 77 | 138.5 in. (351.79 cm) | 746.6 in. (1896.36 cm) | 627.9 in. (1594.86 cm) | 297.3 in. (755.14 cm) | 856.9 in. (2176.52 cm) | 788.5 in. (2002.79 cm) | 925.2 in. (2350.00 cm) |

ICN-BD500-A-J092001-C-3AB48-45815-A-001-01

*Figure 1 Ground maneuvering, turning radii - Technical data*

A220

# Ground maneuvering, visibility from flight compartment - Technical data

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains data about the visibility from the flight compartment.

## 2 Clear areas of vision

To see the diagram, refer to Fig. 1

## 3 Visibility from cockpit in static position

This section contains data about the visibility from cockpit in static position. Refer toFig. 2

ICN-BD500-A-J092001-A-3AB48-00119-A-001-01

*Figure 1 Clear areas of vision*

**VISUAL ANGLES IN VERTICAL PLANE THROUGH PILOT'S EYE POSITION**

**VISUAL ANGLES IN HORIZONTAL PLANE THROUGH PILOT'S EYE POSITION**

**VISUAL ANGLE IN A PLANE PERPEDNDICULAR TO LONGITUDINAL AXIS THROUGH PILOT'S EYE POSITION**

**NOTES**

1. Not to be used for landing approach visibility.
2. Not scale.

ICN-BD500-A-J000000-A-3AB48-22579-A-001-01

*Figure 2 Visibility from cockpit in static position*

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# Wheel chocks - Handling procedure

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J12-30-32-02AAA-913A-A | Apply park brake - General maintenance procedure |
| BD500-A-J10-20-00-02AAA-030A-A | Parking and mooring gust limits - Technical data |

## *Common information*

This data module gives general information about the placement of the wheel chocks (59603, Pt. No. 99-9028-6000) for different aircraft conditions.

**Note**

The operator can use these guidelines and his experience and knowledge of the local regulations to make decision.

## *Preliminary requirements*

### Production maintenance data

| | | |
|---|---|---|
| **Zones** | 711 | Nose landing gear |
| | 731 | Main landing gear, left side |

| | | |
|---|---|---|
| | 741 | Main landing gear, right side |

## Required conditions

*Table 2 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| Make sure that the aircraft is safe for maintenance. | |
| Make sure that the parking brake is on. | BD500-A-J12-30-32-02AAA-913A-A |
| Make sure that the beacon lights are off. | |
| Make sure that all the engines are stopped. | |

## Support equipment

*Table 3 Support equipment*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| Wheel chocks | 99-9028-6000 | AR | Or equivalent |

## Consumables, materials, and expendables

*Table 4 Consumables, materials, and expendables*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Spares

*Table 5 Spares*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Safety conditions

**WARNING**

**Obey these safety precautions during movement of the aircraft (Towing, Push-back, Taxiing). Make sure that:**

- **The path of the aircraft is clear of persons, equipment and other obstacles.**
- **No persons go near the tow tractor, tow bar, landing gears, engine nacelles or below the aircraft fuselage.**
- **Only qualified persons are in the tractor and no persons sit or stand on the tow bar.**
- **No persons go near the aircraft before it is fully stopped.**

**There is a risk of injury or death if you do not obey these instructions.**

## *Procedure*

1 Put the wheel chocks (59603, Pt. No. 99-9028-6000) as follows:

Refer to Fig. 1 .

1.1 If the aircraft is in flight-ready condition and the wind speed is below 25 Knots, do as follows:

1.1.1 Put the wheel chocks (59603, Pt. No. 99-9028-6000) in front of and rear of the inboard tires of the right and left Main Landing Gear (MLG).

1.1.2 Make sure that the wheel chocks do not touch the tires (59603, Pt. No. 99-9028-6000) .

**Note**

Weight changes can have an effect on the wheelbase, which can cause the tires to catch the chocks.

If you put wheel chock(s) at the Nose Landing Gear (NLG) because of the local regulations, make sure that they do not touch the tires.

1.1.3 If the aircraft is parked on a slope, do as follows:

1.1.3.1 Additionally, put the wheel chocks (59603, Pt. No. 99-9028-6000) on the down-slope side of the inboard tires of each of the MLG .

1.1.4 Make sure that the down-slope chocks touch the tires and the up-slope chocks do not touch the tires.

**Note**

On slippery surfaces, use more wheel chocks

On slippery surfaces, apply the parking brake.

1.2 If the aircraft is in flight-ready condition and the wind speed is 25 Knots or above, or the aircraft is parked, or the aircraft is in storage condition, do as follows:

When high winds are expected for the time that the aircraft is parked on an open area, do as follows:

1.2.1 Check parking/mooring wind and gust limits. Refer to BD500-A-J10-20-00-02AAA-030A-A.

1.2.2 Put the wheel chocks (59603, Pt. No. 99-9028-6000) in the front and rear side of the NLG and the MLG tires.

1.2.3 Make sure that the wheel chocks do not touch the tires (59603, Pt. No. 99-9028-6000) .

**Note**

Weight changes can have an effect on the wheelbase, which can cause the tires to catch the chocks.

1.2.4 If the aircraft is parked on a slope, put the wheel chocks (59603, Pt. No. 99-9028-6000) against the down-slope tires.

**Note**

On slippery surfaces or strong wind conditions, apply the parking brake. Refer to BD500-A-J12-30-32-02AAA-913A-A.

**AIRCRAFT IN FLIGHT READY CONDITION, WIND SPEED LESS THAN 25 KNOTS**

**AIRCRAFT IN FLIGHT READY CONDITION, WIND SPEED MORE THAN 25 KNOTS OR AIRCRAFT IN PARKED OR IN THE STORAGE CONDITION**

ICN-BD500-A-J101601-C-3AB48-92845-A-002-01

*Figure 1 Wheel chocks on aircraft – Location*

## *Requirements after job completion*

### Required conditions

*Table 6 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| None | |

# Chapter 5: Terminal servicing

Intentionally left blank

# Terminal servicing - Technical data

Applicability: 50001-54999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

# 1 Introduction

This data module contains data related to the preparation of an aircraft for flight from a terminal. This data is provided to show the general types of tasks involved in terminal operations. Each airline has different operating conditions and practices, which can result in changes in the operating procedures and time intervals to do the tasks specified. Because of this, requirements for ground operations should be approved with the specified airline(s) before ramp planning is started. This section presents the following topics:

- Aircraft servicing arrangement
- Terminal operations
- Ground servicing connections
- Ground electrical power requirements
- Ground pneumatic power requirements – Engine starting
- Preconditioned airflow requirements – Air conditioning
- Ground towing requirements.

**Note**

*All applicable procedures and limitations are provided in the Aircraft Maintenance Publication (AMP) BD500-3AB48-10200-00.*

## 1.1 Aircraft servicing arrangement

Refer to Fig. 1 for the aircraft servicing arrangement.

ICN-BD500-A-J000000-A-3AB48-21739-A-001-01

*Figure 1 Aircraft servicing arrangement*

## 1.2 Terminal operations

Refer to Fig. 2 for the turnaround station operations.

The turnaround time analysis is based on the following parameters:

- 100% Pax/baggage exchange
- 94 passengers (85% load factor) / 1 class / 1 door
- 2 Galley service trucks
- Water/Waste servicing is sequential
- Cabin servicing during available time
- Passenger deplane rate is 18 per minute per door
- Passenger boarding rate is 12 per minute per door
- 2 bulk-loading belt-loaders
- 45 bags forward, 67 bags aft (1.2 x 4 $ft^3$ (1.2 X 0.11 $m^3$) per passenger)
- Bag loading/unloading rates are 10 and 15 bags per minute
- Fuel loaded via one refuel/defuel adapter
- Refuel adapter rate at 50 psi (344.74 kPa) is as follows:

  1. When refueling tree (3) tanks simultaneously (the center tank and two wing tanks), the refuel rate is 260 gpm (984 L/min).
  2. When refueling two (2) wing tanks, the refuel rate is 140 gpm (530 L/min).
  3. When refueling the center tank only, the refuel rate is 140 gpm (530 L/min).

- Mission range is 1200 NM (2222.4 km)
- Refueling performed while deplaning/boarding.

**Note**

*All equipment is assumed to function properly and weather condition to be normal. This data is provided to illustrate the general scope and type of operations involved in a terminal gate environment. Varying operating practices and circumstances may result in different task sequences and durations.*

ICN-BD500-A-J000005-A-3AB48-00066-A-001-01

*Figure 2 Turnaround time analysis*

## 1.3 Ground servicing connections

Refer to Fig. 3 for the ground servicing connection points. For servicing procedures, refer to the AMP.

All servicing points are designed and positioned to consider accessibility and compatibility with industry standard vehicles and other Ground Support Equipment (GSE). All applicable procedures and limitations are provided in the AMP.

ICN-BD500-A-J000000-A-3AB48-21914-A-001-01

*Figure 3 Ground servicing connections*

*Table 2 Hydraulic system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| System # 1 Access door 195CB | 60.96 (18.58) | - | 3.93 (8.20) | 5.82 (1.77) |
| System # 2 Access door 195AB | 58.543 (17.84) | 2.795 (0.85) | - | 5.57 (1.70) |
| System # 3 Aft equipment bay door | 95.12 (28.99) | On centerline of the aircraft | | 8.77 (2.67) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Nominal pressure: 3000 psi (206.84 bar)
- Fitting connectors
  - Fitting dimension: Draining: 4 in. (10.16 cm)
  - Fitting dimension: Rinsing: 1 in. (2.54 cm)

ICN-BD500-A-J000000-A-3AB48-23353-A-001-01

*Figure 4 Ground servicing system*

*Table 3 Hydraulic system - Accumulator charging*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Aft equipment bay door | 95.12 (28.99) | On centerline of the aircraft | | 8.77 (2.67) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Operating pressure: 3000 psig (206.84 bar)
- Accumulator pressure gauge range: 0 to 5000 psig (344.74 bar)
- Gauge accuracy: ±75 psig (5.17 bar)

ICN-BD500-A-J000000-A-3AB48-22071-A-001-01

*Figure 5 Accumulator charging valves*

*Table 4 Waste system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 146BR | 86.80 (26.46) | - | 1.21 (0.37) | 7.14 (2.18) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Usable volume: 38 U.S. gal (143.85 L)
- Fitting connectors
  - Fitting dimension: Draining: 4 in. (10.16 cm)
  - Fitting dimension: Rinsing: 1 in. (2.54 cm)

**WASTE ACCESS PANEL**

**A**

ICN-BD500-A-J000000-A-3AB48-22008-A-001-01

*Figure 6 Waste system access panel*

*Table 5 Potable water system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 146CR | 84.75 (25.83) | 3.661 (1.11) | - | 7.75 (2.36) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Usable volume: 42 U.S. gal (158.99 L)
- Fitting dimension: Filling/Draining: 3/4 in. (1.905 cm)

**POTABLE WATER SERVICE PANEL**

**A**

ICN-BD500-A-J000000-A-3AB48-22007-A-001-01

*Figure 7 Potable water system service panel*

*Table 6 Pneumatic system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Low Pressure Ground Connection (LPGC) Access door 191BB | 37.76 (11.51) | - | 4.33 (1.32) | 5.30 (1.61) |
| High Pressure Ground Connection (HPGC) Access door 191AB | 37.38 (11.39) | - | 1.30 (0.40) | 4.62 (1.41) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- **LPGC Spec**
  - Discharge pressure range: 0.7 to 1.0 psig maximum (0.05 to 0.07 bar maximum)
  - Temp range: 41 to 122 °F maximum (5 to 50 °C maximum)
  - Max airflow: 125 lb/min
  - Fitting dimension: 8 in. (20.32 cm)
  - LP Ground Cart Standard pneumatic connection per ISO 1034 or MS 33562
- **HPGC Spec**
  - Bleed pressure range: 30 to 45 psig maximum (2.07 to 3.10 bar maximum)
  - Bleed temperature range: 338 to 450 °F (170 to 232 °C)
  - Airflow range: 100 to 140 lb/min
  - Fitting dimension: 3 in. (7.62 cm)
  - HP Ground Cart Standard pneumatic connection per ISO 2026 or MS 33740

ICN-BD500-A-J212100-C-3AB48-19016-A-002-01

*Figure 8 Low pressure ground system*

ICN-BD500-A-J361500-C-3AB48-15114-A-001-01

*Figure 9 High pressure ground system*

*Table 7 Electrical System*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 115DL | 11.71 (3.57) | - | 2.68 (0.82) | 6.37 (1.94) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Power supply: 115 V Alternating Current (AC) External Power Receptacle

**Note**

*For more specification about the electrical system, refer to Para. 1.4 .*

**ELECTRICAL/TOWING SERVICE PANEL**

B

ICN-BD500-A-J000000-A-3AB48-22070-A-001-01

*Figure 10 Electrical service panel*

*Table 8 Oxygen system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 115CL | 10.20 (3.11) | - | 2.60 (0.79) | 6.44 (1.96) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Nominal working pressure: 1850 psig (128 bar)
- Capacity: 77 ft³ (2180 L)

ICN-BD500-A-J351100-C-3AB48-20623-A-002-01

*Figure 11 Crew oxygen system*

*Table 9 Grounding points*

| Access | Aft of nose ft (m) | Position from aircraft Centerline RH side ft (m) | Mean height from ground ft (m) | LH side ft (m) |
|---|---|---|---|---|
| Nose Landing Gear (NLG) leg | 11.73 (3.58) | On aircraft centerline | 5.00 (1.51) | |
| Left Main Landing Gear (MLG) leg | 53.23 (16.23) | - | 10.75 (3.27) | 2.85 (0.87) |
| Right MLG leg | 53.23 (16.23) | 10.75 (3.27) | - | 2.85 (0.87) |
| Right MLG leg | 53.23 (16.23) | 10.75 (3.27) | - | 2.85 (0.87) |
| LH Refuel/Defuel Access door 621FB (Optional) | 51.32 (15.64) | - | 27.31 (8.32) | 10.93 (3.33) |
| RH Refuel/Defuel Access door 521FB Fig. 13 | 51.32 (15.64) | 27.31 (8.32) | - | 10.93 (3.33) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

ICN-BD500-A-J000000-A-3AB48-22049-A-002-01

*Figure 12 Landing gears grounding points*

*Table 10 Fuel system Refuel/Defuel adapter*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| LH Refuel/Defuel Access door 621FB (Optional) | 51.32 (15.64) | - | 27.31 (8.32) | 10.93 (3.33) |
| RH Refuel/Defuel Access door 521FB | 51.32 (15.64) | 27.31 (8.32) | - | 10.93 (3.33) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**NOTES**

1. Refuel adapter is optional on the left side.

ICN-BD500-A-J000000-A-3AB48-22099-A-002-01

*Figure 13 Refuel adapter and grounding point*

*Table 11 Fuel system control panel*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 192AB | 35.76 (10.9) | 4.98 (1.52) | - | 6.12 (1.86) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

A

**REFUEL/DEFUEL CONTROL PANEL**

B

ICN-BD500-A-J282300-C-3AB48-12260-A-001-01

*Figure 14 Refuel/Defuel system*

*Table 12 Oil system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Engine Oil Filling Cap<br>Access door<br>(LH) 475CR<br>(RH) 485CR | 35.76<br>(10.9) | 19.60<br>(5.97) | 16.16<br>(4.93) | 5.50<br>(1.68) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Oil tank capacity: 6.8 U.S. gal (25.7 L)

ICN-BD500-A-J791100-C-3AB48-09787-A-001-01

*Figure 15 Oil storage system*

## 1.4 Ground electrical power requirements

The external power system is used to connect AC electrical power from a ground cart. There are no provisions to connect DC power from an external ground cart. External AC can be used to power the complete AC distribution system or only those buses that provide power to the passenger compartment.

**Note**

It is recommended to use ground cart standard 75 KVA and higher. Using ground cart 60 KVA standard can lead to the EICAS nuisance messages.

When the external AC power is connected to the aircraft, both the AVAIL light on the electrical panel and on the electrical/towing service panel illuminate. The Bus Power Control Unit (BPCU) 1 energizes the External Line Contactor (ELC) to connect external power to the aircraft when the EXT PWR PBA in the flight compartment electrical panel is selected ON. The BPCU 1 also provides protection features to protect aircraft systems from potential permanent damage. Following aircraft power-up, several critical systems (Fly-By-Wire, Electrical and others) run their Power-Up Built-In Test (PBIT). The main purpose of PBITis to reduce the complexity of systems on-aircraft testing and removed failure dormancy, thereby decreasing the overall maintenance cost and reducing reliance upon external (pattern-programmed) test equipment for the operators. Any power interruption (Ground Power Unit (GPU) going offline or GPU power quality not meeting requirements) occurring during this critical phase may cause PBIT interruption and latch system failures which will require maintenance actions to clear. Depending on the latched faults, these power interruption events may potentially cause lengthy delays or flight cancellations which can negatively impact operators.

Refer to Table 13 for the external AC power requirements data.

Refer to Table 14 for the external power quality limitations data.

Refer to Table 15 for overcurrent protection ampere versus time delay.

Refer to Table 16 for overvoltage protection versus time delay.

*Table 13 External AC power requirements*

| Voltage | Frequency |
|---|---|
| 115 ±5 V | 400 ±15 Hz |

*Table 14 External power quality limitations*

| Parameter | Setting limit | Response time |
|---|---|---|
| Overcurrent | Table 15 | |
| Overvoltage (highest phase) | Table 16 | |
| Redundant Overvoltage (highest phase) | 130 ±3.3 V | 0.75 ±0.055 sec |
| Undervoltage | 107 ±2.0 V (lowest phase) or 108.5 ±2.0 V (3-phase average) | 4.5 ±0.5 sec |
| Overfrequency | 418 ±2 Hz | 4.5 ±0.5 sec |

| Parameter | Setting limit | Response time |
|---|---|---|
| Underfrequency | 382 ±2 Hz | 4 ±0.5 sec |
| Phase sequence | A-B-C | 0.1 sec |
| Open sequence | Lowest phase 15 ±5 A and other phase greater than 30 ±5 A | 2.0 ±0.5 sec |

*Table 15 Overcurrent protection ampere versus time delay*

| Current (A) | Time (s) |
|---|---|
| 230 ±12 | 300 |
| 336 ±12 | 11.75 |
| 337 ±12 | 11.05 |
| 346 ±12 | 9.4 |
| 355 ±12 | 8.2 |
| 370 ±12 | 6.75 |
| 380 ±12 | 6.1 |

*Table 16 Overvoltage protection versus time delay*

| Voltage (V) | Time (s) |
|---|---|
| 123 | 0.6 |
| 124 | 0.5 |
| 132 | 0.3 |
| 141 | 0.14 |
| 146 | 0.1 |
| 151 | 0.05 |

## 1.5 Engine starting pneumatic power requirements

The ground air supply requirements for engine starting are shown in Table 17 .

Conditions:

- Time allowed during start (to starter cutout) is 90 seconds
- Time-to-IDLE on ground is 45 seconds minimum
- No bleed air extraction is permitted during start sequence

*Table 17 Ground pneumatic power requirements – Engine starting*

| ATS requirements | Inlet Pressure | Airflow |
|---|---|---|
| ISA day | 45 psig<br>45 psia | 150 lb/min<br>68.04 kg/min |

## 1.6 Ground pneumatic power requirements

### 1.6.1 Heating

This section provides the ground pneumatic power requirements for heating the cabin with specific conditions.

Refer to Fig. 16 for heating pull-up graphic.

*Table 18 Ground air supply requirements for heating (Pull up)*

| Requirements | Pressure | Airflow | Temperature |
|---|---|---|---|
| **To heat cabin to 69.8 °F (21 °C) in 30 minutes**<br>Conditions<br>- Outside air temperature: -40 °F (-40 °C)<br>- Initial cabin and cockpit temperature: -9.4 °F (-23 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Full Hot (86 °F (30 °C))<br>- Recirculation fan: On<br>- Trim air: On<br>- No passenger | 31 psig<br>(45.7 psia) | 203 lb/min<br>(92.1 kg/min) | 280 ºF<br>(138 ºC) |

ICN-BD500-A-J000000-A-3AB48-22378-A-002-01

*Figure 16 Ground pneumatic requirements - Heating*

*Table 19 Ground air supply requirements for heating at a steady state*

| Requirements | Pressure | Airflow | Temperature |
|---|---|---|---|
| Conditions<br><br>- Outside air temperature: -40 °F (-40 °C)<br>- Steady state Cockpit & Cabin temperature: 75.2 °F (24 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Mid selection (75.2 °F (24 °C))<br>- Recirculation fan: On<br>- Trim air: On<br>- 15 passengers | 25.4 psig<br>(40.1 psia) | 166 lb/min<br>(73.3 kg/min) | 253 ºF<br>(123 ºC) |

### 1.6.2 Cooling

This section provides the ground pneumatic power requirements for cooling the cabin with specific conditions.

Refer to Fig. 17 for the cooling pull-down graphic.

*Table 20 Ground air supply requirements for cooling (Pull down)*

| **Requirements** | **Pressure** | **Airflow** | **Temperature** |
|---|---|---|---|
| **To cool cabin to 80.6 °F (27 °C) in 30 minutes**<br>Conditions<br><br>- Outside air temperature: 104 °F (40 C)<br>- Initial cabin and cockpit temperature: 114.8 °F (46 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Full Cold (64.4 °F (18 °C))<br>- Recirculation fan: On<br>- Trim air: On<br>- No passenger | 38 psig<br>(52.7 psia) | 140 lb/min<br>(63.5 kg/min) | 437 ºF<br>(225 ºC) |

ICN-BD500-A-J000000-A-3AB48-22379-A-002-01

*Figure 17 Ground pneumatic requirements - Cooling*

*Table 21 Ground air supply requirements for cooling at a steady state*

| Requirements | Pressure | Airflow | Temperature |
|---|---|---|---|
| Conditions<br>- Outside air temperature: 104 °F (40 °C)<br>- Steady state Cockpit & Cabin temperature: 75.2 °F (24 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Mid selection (75.2 °F (24 °C))<br>- Recirculation fan: On<br>- Trim air: On<br>- 130 passengers | 31 psig<br>(45.7 psia) | 203 lb/min<br>(92.1 kg/min) | 280 ºF<br>(138 ºC) |

## 1.7 Preconditioned airflow requirements

The ground air supply requirements for air conditioning and airflow requirements are shown in Table 22 for the LPGC.

*Table 22 Preconditioned airflow requirements*

| Requirements | Pressure | Airflow | Temperature |
|---|---|---|---|
| **To cool cabin to 75.2 °F (24 °C)**<br>Conditions<br>- Outside air temperature is 104 °F (40 °C)<br>- Recirculation fan is on<br>- 130 passenger | 0.6 psig<br>(15.2 psia)<br>(4.1 kPa) | 125 lb/min<br>(54.4 kg/min) | 41 ºF<br>(5 ºC) |
| **To heat cabin to 75.2 °F (24 °C)**<br>Conditions<br>- Outside air temperature is -40 °F (-40 °C)<br>- Recirculation fan is on<br>- 15 passenger | 0.6 psig<br>(15.2 psia)<br>(4.1 kPa) | 125 lb/min<br>(54.4 kg/min) | 104 ºF<br>(40 ºC) |

## 1.8 Ground towing requirements

The aircraft is designed with means for conventional or towbarless towing. Information and procedures can be found for both in the Aircraft Maintenance Manual (AMM) 09.

Status on towbarless towing equipment qualification can be found in CS-SL-09-10-0001.

## 1.9 Aircraft

This section shows the chart to determine the draw bar pull and tow tractor mass requirement as a function of the following physical characteristics:

- Model: A220-100
- Number of engines at idle

- Slope

The chart is based on the engine type with the highest idle thrust level. Refer to Fig. 18 and Fig. 19 .

## 1.10 Towbar design guidelines

The towbar shall comply with the standards that follow:

- SAE AS 1614 - Main Line Aircraft Towbar Attach Fitting Interface
- ISO 8267-1 - Aircraft - Towbar Attachment Fitting - Interface Requirements - Part 1: Main Line Aircraft
- ISO 9667 - Aircraft Ground Support Equipment - Towbar
- SAE ARP 1915 - Aircraft Towbar

Recommended references

- IATA Airport Handling Manual AHM 958 - Functional Specification for an Aircraft Towbar
- EN 12312-7, Aircraft Ground Support Equipment - Specific Requirements - Part 7 Aircraft movement Equipment

A conventional type towbar is required which should be equipped with a damping system (to protect the nose gear against jerks) and with towing shear pins:

- A traction shear pin calibrated at 17,400 lbs (77 394 N),
- - A torsion pin calibrated at 59 940 In-lbs (6 772 N-m)

The towing head is designed according to SAE AS 1614, cat I.

For towing and pushing operations, controls are provided to accommodate the following conditions:

- Aircraft not powered (see note below):
  A control panel is provided on the left side of the aircraft by the nose NLG. A push-button on the control panel can be toggled to engage power to begin the towing sequence (Navigation lights are lit automatically). The parking brake can be deactivated by way of a switch located on this panel. Annunciation lights on the NLG indicate when the parking brake is deactivated and the aircraft is ready for towing.

  **Note**
  *Availability of the controls to facilitate towing the aircraft with the flight deck vacant does not constitute an approval to conduct such operations.*

- Aircraft powered, and flight deck occupied:
  Two separate controls, one to deactivate the nose wheel steering, and one to deactivate the parking brake, are located in both the flight deck and on the control panel located in the vicinity of the nose landing gear. Headset jacks are provided on this control panel to allow for communication between personnel on the flight deck and on the ground. Annunciation lights on the control panel indicate when the aircraft is ready for towing.
  With the torque links connected, towing up to ±130 degrees nose wheel angle is possible.
  The ground towing requirements are described in the illustration below.
  For more information related to towing, refer to the AMP.

**NOTES**

1. Unusual breakaway conditions not reflected.
2. Estimated for rubber - tired tow vehicles.
3. Coefficient of friction ( μ ) approximate.
4. Example: At an aircraft gross weight of 125000lbs ( 56699 Kg ), an uphill slope of 1.5%, with one engine ON and with a dry concrete surface, the corresponding draw bar pull or push required is 8000 ll ( 35.6 kN ) and the total tractor weight of approximately 10 500 lbs (4762 Kg ).

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*Figure 18 Ground towing requirements (imperial unit)*

**NOTES**

1. Unusual breakaway conditions not reflected.
2. Estimated for rubber - tired tow vehicles.
3. Coefficient of friction ( μ ) approximate.
4. Example: At an aircraft gross weight of 125000lbs ( 56699 Kg ), an uphill slope of 1.5%, with one engine ON and with a dry concrete surface, the corresponding draw bar pull or push required is 8000 lb ( 35.6 kN ) and the total tractor weight of approximately 10 500 lbs (4762 Kg ).

ICN-BD500-A-J000000-A-3AB48-22840-A-001-01

*Figure 19 Ground towing requirements (metric unit)*

# Terminal servicing - Technical data

Applicability: 55001-59999

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| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

# 1 Introduction

This data module contains data related to the preparation of an aircraft for flight from a terminal. This data is provided to show the general types of tasks involved in terminal operations. Each airline has different operating conditions and practices, which can result in changes in the operating procedures and time intervals to do the tasks specified. Because of this, requirements for ground operations should be approved with the specified airline(s) before ramp planning is started. This section presents the following topics:

- Aircraft servicing arrangement
- Terminal operations
- Ground servicing connections
- Ground electrical power requirements
- Ground pneumatic power requirements – Engine starting
- Preconditioned airflow requirements – Air conditioning
- Ground towing requirements.

**Note**

*All applicable procedures and limitations are provided in the Aircraft Maintenance Publication (AMP) BD500-3AB48-10200-00.*

## 1.1 Aircraft servicing arrangement

Refer to Fig. 1 for the aircraft servicing arrangement.

ICN-BD500-A-J000000-A-3AB48-21739-A-001-01

*Figure 1 Aircraft servicing arrangement*

## 1.2 Terminal operations

Refer to refer to Fig. 2 for the turnaround station operations.

The turnaround time analysis is based on the following parameters:

- 100% Pax/baggage exchange
- 115 passengers (A220-300) (85% load factor) / 1 class / 1 door
- 2 Galley service trucks
- Water/Waste servicing is sequential
- Cabin servicing during available time
- Passenger deplane rate is 18 per minute per door
- Passenger boarding rate is 12 per minute per door
- 2 bulk-loading belt-loaders
- 59 bags forward / 79 bags aft (1.2 x 4 $ft^3$ (1.2 X 0.11 $m^3$) per passenger)
- Bag loading/unloading rates are 10 and 15 bags per minute
- Fuel loaded via one refuel/defuel adapter
- Refuel adapter rate at 50 psi (344.74 kPa) is as follows:

  1. When refueling tree (3) tanks simultaneously (the center tank and two wing tanks), the refuel rate is 260 gpm (984 L/min).
  2. When refueling two (2) wing tanks, the refuel rate is 140 gpm (530 L/min).
  3. When refueling the center tank only, the refuel rate is 140 gpm (530 L/min).

- Mission range is 1200 NM (2222.4 km)
- Refueling performed while deplaning/boarding.

**Note**

*All equipment is assumed to function properly and weather condition to be normal. This data is provided to illustrate the general scope and type of operations involved in a terminal gate environment. Varying operating practices and circumstances may result in different task sequences and durations.*

ICN-BD500-A-J000005-A-3AB48-00067-A-001-01

*Figure 2 Turnaround time analysis*

## 1.3 Ground servicing connections

Refer to Fig. 3 for the ground servicing connection points. For servicing procedures, refer to the AMP.

All servicing points are designed and positioned to consider accessibility and compatibility with industry standard vehicles and other Ground Support Equipment (GSE). All applicable procedures and limitations are provided in the AMP.

**NOTE**

1 Optional.

ICN-BD500-A-J000000-A-3AB48-25644-A-001-01

*Figure 3 Ground servicing connections*

*Table 2 Hydraulic system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| System # 1 Access door 195CB | 67.96 (20.71) | - | 3.93 (8.20) | 5.82 (1.77) |
| System # 2 Access door 195AB | 65.543 (19.98) | 2.795 (0.85) | - | 5.57 (1.70) |
| System # 3 Aft equipment bay door | 107.42 (32.74) | On centerline of the aircraft | | 8.77 (2.67) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Nominal pressure: 3000 psig (206.84 bar)
- Fitting connectors
  - Fitting dimension: Draining: 4 in. (10.16 cm)
  - Fitting dimension: Rinsing: 1 in. (2.54 cm)

ICN-BD500-A-J291400-C-3AB48-15827-A-001-01

*Figure 4 Ground servicing system*

*Table 3 Hydraulic system - Accumulator charging*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Aft equipment bay door | 107.42 (32.74) | On centerline of the aircraft | | 8.77 (2.67) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Operating pressure: 3000 psig (206.84 bar)
- Accumulator pressure gauge range: 0 to 5000 psig (344.74 bar)
- Gauge accuracy: ±75 psig (5.17 bar)

ICN-BD500-A-J000000-A-3AB48-22071-A-001-01

*Figure 5 Accumulator charging valves*

*Table 4 Waste system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 146BR | 99.10 (30.21) | - | 1.21 (0.37) | 7.14 (2.18) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Usable volume: 38 U.S. gal (143.85 L)
- Fitting connectors
  - Fitting dimension: Draining: 4 in. (10.16 cm)
  - Fitting dimension: Rinsing: 1 in. (2.54 cm)

**WASTE ACCESS PANEL**

A

ICN-BD500-A-J000000-A-3AB48-22008-A-001-01

*Figure 6 Waste system access panel*

*Table 5 Potable water system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 146CR | 97.05 (29.58) | 3.661 (1.11) | - | 7.75 (2.36) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Usable volume: 42 U.S. gal (158.99 L)
- Fitting dimension: Filling/Draining: 3/4 in. (1.905 cm)

**POTABLE WATER SERVICE PANEL**

**A**

ICN-BD500-A-J000000-A-3AB48-22007-A-001-01

*Figure 7 Potable water system service panel*

*Table 6 Pneumatic system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| LPGC Access door 191BB | 44.76 (13.64) | - | 4.33 (1.32) | 5.30 (1.61) |
| HPGC Access door 191AB | 44.38 (13.53) | - | 1.30 (0.40) | 4.62 (1.41) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- **Low Pressure Ground Connection (LPGC) Spec**
  - Discharge pressure range: 0.7 to 1.0 psig maximum (0.05 to 0.07 bar maximum)
  - Temp range: 41 to 122 °F maximum (5 to 50 °C maximum)
  - Max airflow: 140 lb/min
  - Fitting dimension: 8 in. (20.32 cm)
  - LP Ground Cart Standard pneumatic connection per ISO 1034 or MS 33562
- **High Pressure Ground Connection (HPGC) Spec**
  - Bleed pressure range: 30 to 45 psig maximum (2.07 to 3.10 bar maximum)
  - Bleed temperature range: 338 to 450 °F (170 to 232 °C)
  - Airflow range: 100 to 140 lb/min
  - Fitting dimension: 3 in. (7.62 cm)
  - HP Ground Cart Standard pneumatic connection per ISO 2026 or MS 33740

ICN-BD500-A-J212100-C-3AB48-19016-A-001-01

*Figure 8 Low pressure ground system*

ICN-BD500-A-J361500-C-3AB48-15114-A-001-01

*Figure 9 High pressure ground system*

*Table 7 Electrical System*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door<br>Access door<br>115DL | 11.71<br>(3.57) | - | 2.68<br>(0.82) | 6.37<br>(1.94) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical specifications**

- Power supply: 115 V Alternating Current (AC) External Power Receptacle

**Note**

*For more specification about the electrical system, refer to Para. 1.4 .*

**ELECTRICAL/TOWING SERVICE PANEL**

B

ICN-BD500-A-J000000-A-3AB48-22070-A-001-01

*Figure 10 Electrical service panel*

*Table 8 Oxygen system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 115CL | 10.20 (3.11) | - | 2.60 (0.79) | 6.44 (1.96) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical Specifications**

- Nominal working pressure: 1850 psig (128 bar)
- Capacity: 77 ft³ (2180 L)

ICN-BD500-A-J351100-C-3AB48-20623-A-001-01

*Figure 11 Crew oxygen system*

*Table 9 Grounding points*

| Access | Aft of nose ft (m) | Position from aircraft Centerline RH side ft (m) | Mean height from ground ft (m) | LH side ft (m) |
|---|---|---|---|---|
| NLG leg | 11.73 (3.58) | On aircraft centerline | 5.00 (1.51) | |
| Left MLG leg | 60.23 (18.36) | - | 10.75 (3.27) | 2.85 (0.87) |
| Right MLG leg | 60.23 (18.36) | 10.75 (3.27) | - | 2.85 (0.87) |
| LH Refuel/Defuel Access door 621FB (Optional) | 58.32 (17.78) | - | 27.31 (8.32) | 10.93 (3.33) |
| RH Refuel/Defuel Access door 521FB Fig. 13 | 58.32 (17.78) | 27.31 (8.32) | - | 10.93 (3.33) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

ICN-BD500-A-J000000-A-3AB48-22049-A-001-01

*Figure 12 Landing gears grounding points*

*Table 10 Fuel system Refuel/Defuel adapter*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| LH Refuel/Defuel Access door 621FB (Optional) | 58.32 (17.78) | - | 27.31 (8.32) | 10.93 (3.33) |
| RH Refuel/Defuel Access door 521FB | 58.32 (17.78) | 27.31 (8.32) | - | 10.93 (3.33) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**NOTES**

1. Refuel adapter is optional on the left side.

ICN-BD500-A-J000000-A-3AB48-22099-A-002-01

*Figure 13 Refuel adapter*

*Table 11 Fuel system control panel*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Access door 192AB | 42.76 (13.03) | 4.98 (1.52) | - | 6.12 (1.86) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

A

**REFUEL/DEFUEL CONTROL PANEL**

B

ICN-BD500-A-J282300-C-3AB48-12260-A-001-01

*Figure 14 Refuel/Defuel system*

*Table 12 Oil system*

| Access | Aft of nose ft (m) | Position from aircraft Centerline | | Mean height from ground ft (m) |
|---|---|---|---|---|
| | | RH side ft (m) | LH side ft (m) | |
| Engine Oil Filling Cap<br>Access door<br>(LH) 475CR<br>(RH) 485CR | 42.76<br>(13.03) | 19.60<br>(5.97) | 16.16<br>(4.93) | 5.50<br>(1.68) |

**Note**

*All distances are approximate.*

*All height from ground distances are approximate and will vary with aircraft configuration and loading conditions.*

**Technical Specifications**

- Oil tank capacity: 6.8 U.S. gal (25.7 L)

ICN-BD500-A-J791100-C-3AB48-09787-A-001-01

*Figure 15 Oil storage system*

## 1.4 Ground electrical power requirements

The external power system is used to connect AC electrical power from a ground cart. There are no provisions to connect DC power from an external ground cart. External AC can be used to power the complete AC distribution system or only those buses that provide power to the passenger compartment.

**Note**

It is recommended to use ground cart standard 75 KVA and higher. Using ground cart 60 KVA standard can lead to the EICAS nuisance messages.

**Note**

When the external AC power is connected to the aircraft, both the AVAIL light on the electrical panel and on the electrical/towing service panel illuminate. The Bus Power Control Unit (BPCU) 1 energizes the External Line Contactor (ELC) to connect external power to the aircraft when the EXT PWR PBA in the flight compartment electrical panel is selected ON. The BPCU 1 also provides protection features to protect aircraft systems from potential permanent damage. Following aircraft power-up, several critical systems (Fly-By-Wire, Electrical and others) run their Power-Up Built-In Test (PBIT). The main purpose of PBITis to reduce the complexity of systems on-aircraft testing and removed failure dormancy, thereby decreasing the overall maintenance cost and reducing reliance upon external (pattern-programmed) test equipment for the operators. Any power interruption (Ground Power Unit (GPU) going offline or GPU power quality not meeting requirements) occurring during this critical phase may cause PBIT interruption and latch system failures which will require maintenance actions to clear. Depending on the latched faults, these power interruption events may potentially cause lengthy delays or flight cancellations which can negatively impact operators.

Refer to Table 13 for the external AC power requirements data.

Refer to Table 14 for the external power quality limitations data.

Refer to Table 15 for overcurrent protection ampere versus time delay.

Refer to Table 16 for overvoltage protection versus time delay.

*Table 13 External AC power requirements*

| Voltage | Frequency |
|---|---|
| 115 ±5 V | 400 ±15 Hz |

*Table 14 External power quality limitations*

| Parameter | Setting limit | Response time |
|---|---|---|
| Overcurrent | Table 15 | |
| Overvoltage (highest phase) | Table 16 | |
| Redundant Overvoltage (highest phase) | 130 ±3.3 V | 0.75 ±0.055 sec |
| Undervoltage | 107 ±2.0 V (lowest phase) or 108.5 ±2.0 V (3-phase average) | 4.5 ±0.5 sec |

| Parameter | Setting limit | Response time |
|---|---|---|
| Overfrequency | 418 ±2 Hz | 4.5 ±0.5 sec |
| Underfrequency | 382 ±2 Hz | 4 ±0.5 sec |
| Phase sequence | A-B-C | 0.1 sec |
| Open sequence | Lowest phase 15 ±5 A and other phase greater than 30 ±5 A | 2.0 ±0.5 sec |

*Table 15 Overcurrent protection ampere versus time delay*

| Current (A) | Time (s) |
|---|---|
| 230 ±12 | 300 |
| 336 ±12 | 11.75 |
| 337 ±12 | 11.05 |
| 346 ±12 | 9.4 |
| 355 ±12 | 8.2 |
| 370 ±12 | 6.75 |
| 380 ±12 | 6.1 |

*Table 16 Overvoltage protection versus time delay*

| Voltage (V) | Time (s) |
|---|---|
| 123 | 0.6 |
| 124 | 0.5 |
| 132 | 0.3 |
| 141 | 0.14 |
| 146 | 0.1 |
| 151 | 0.05 |

## 1.5 Engine starting pneumatic power requirements

The ground air supply requirements for engine starting are shown in Table 17 .

Conditions:

- Time allowed during start (to starter cutout) is 90 seconds
- Time-to-IDLE on ground is 45 seconds minimum
- No bleed air extraction is permitted during start sequence

*Table 17 Ground pneumatic power requirements – Engine starting*

| ATS requirements | Inlet Pressure | Airflow |
|---|---|---|
| ISA day | 45 psig<br>45 psia | 150 lb/min<br>68.04 kg/min |

## 1.6 Ground pneumatic power requirements

### 1.6.1 Heating

This section provides the ground pneumatic power requirements for heating the cabin

Refer to Fig. 16 for heating pull-up graphic.

*Table 18 Ground air supply requirements for heating (Pull-up)*

| Requirements | Pressure | Airflow | Temperature |
|---|---|---|---|
| **To cool cabin to 69.8 °F (21 °C) after 30 minutes**<br>Conditions<br>- Outside air temperature: -104 °F (-40 °C)<br>- Initial cabin and cockpit temperature: -9.4 °F (-23 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Full Hot (86 °F (30 °C))<br>- Recirculation fan: On<br>- No passenger | 31 psig<br>(45.7 psia) | 203 lb/min<br>(92.1 kg/min) | 280 ºF<br>(138 ºC) |

ICN-BD500-A-J000000-A-3AB48-22775-A-002-01

*Figure 16 Ground pneumatic requirements - Heating*

*Table 19 Ground air supply requirements for heating at a steady state*

| Requirements | Pressure | Airflow | Temperature |
|---|---|---|---|
| Conditions<br>- Outside air temperature: -40 °F (-40 °C)<br>- Steady state Cockpit & Cabin temperature: 75.2 °F (24 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Mid selection (75.2 °F (24 °C))<br>- Recirculation fan: On<br>- Trim air: On<br>- 15 passengers | 25.4 psig<br>(40.1 psia) | 166 lb/min<br>(73.3 kg/min) | 253 ºF<br>(123 ºC) |

### 1.6.2 Cooling

This section provides the ground pneumatic power requirements for cooling the cabin

Refer to Fig. 17 for the cooling pull-down graphic.

*Table 20 Ground air supply requirements for cooling (Pull down)*

| **Requirements** | **Pressure** | **Airflow** | **Temperature** |
|---|---|---|---|
| **To cool cabin to 80.6 °F (27 °C) after 30 minutes**<br>Conditions<br>- Outside air temperature: 104 °F (40 °C)<br>- Initial cabin and cockpit temperature: 114.8 °F (46 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Full Cold (64.4 °F (18 °C))<br>- Recirculation fan: On<br>- No passenger | 38 psig<br>(52.7 psia) | 140 lb/min<br>(63.5 kg/min) | 437 ºF<br>(225 ºC) |

ICN-BD500-A-J000000-A-3AB48-22776-A-002-01

*Figure 17 Ground Pneumatic Requirements - Cooling*

*Table 21 Ground air supply requirements for cooling at a steady state*

| Requirements | Pressure | Airflow | Temperature |
|---|---|---|---|
| Conditions<br>- Outside air temperature: 104 °F (40 °C)<br>- Steady state Cockpit & Cabin temperature: 75.2 °F (24 °C)<br>- Cockpit, FWD & AFT CABIN Temp Selector: Mid selection (75.2 °F (24 °C))<br>- Recirculation fan: On<br>- Trim air: On<br>- 130 passengers | 31 psig<br>(45.7 psia) | 203 lb/min<br>(92.1 kg/min) | 280 ºF<br>(138 ºC) |

## 1.7 Preconditioned airflow requirements

The ground air supply requirements for air conditioning and airflow requirements are shown in Table 22 for the for the LPGC.

*Table 22 Preconditioned airflow requirements*

| **Requirements** | **Pressure** | **Airflow** | **Temperature** |
|---|---|---|---|
| To cool cabin to 75.2 °F (24 °C)<br>(recirculation fan on) | 0.6 psig<br>(4.1 kPa) | 135 lb/min<br>(61 kg/min) | 41 ºF<br>(5 ºC) |
| To heat cabin to 75.2 °F (24 °C)<br>(recirculation fan on) | 0.9 psig<br>(6.2 kPa) | 135 lb/min<br>(61 kg/min) | 104 ºF<br>(40 ºC) |

## 1.8 Ground towing requirements

The aircraft is designed with means for conventional or towbarless towing. Information and procedures can be found for both in the Aircraft Maintenance Manual (AMM) 09.

Status on towbarless towing equipment qualification can be found in CS-SL-09-10-0001.

## 1.9 Aircraft

This section shows the chart to determine the draw bar pull and tow tractor mass requirement as a function of the following physical characteristics:

- Model: A220-100
- Number of engines at idle
- Slope

The chart is based on the engine type with the highest idle thrust level. Refer to Fig. 18 and Fig. 19 .

## 1.10 Towbar design guidelines

The towbar shall comply with the standards that follow:

- SAE AS 1614 - Main Line Aircraft Towbar Attach Fitting Interface

- ISO 8267-1 - Aircraft - Towbar Attachment Fitting - Interface Requirements - Part 1: Main Line Aircraft
- ISO 9667 - Aircraft Ground Support Equipment - Towbar
- SAE ARP 1915 - Aircraft Towbar

Recommended references

- IATA Airport Handling Manual AHM 958 - Functional Specification for an Aircraft Towbar
- EN 12312-7, Aircraft Ground Support Equipment - Specific Requirements - Part 7 Aircraft movement Equipment

A conventional type towbar is required which should be equipped with a damping system (to protect the nose gear against jerks) and with towing shear pins:

- A traction shear pin calibrated at 17,400 lbs (77 394 N),
- - A torsion pin calibrated at 59 940 In-lbs (6 772 N-m)

The towing head is designed according to SAE AS 1614, cat I.

For towing and pushing operations, controls are provided to accommodate the following conditions:

- Aircraft not powered (see note below):
  A control panel is provided on the left side of the aircraft by the nose Nose Landing Gear (NLG). A push-button on the control panel can be toggled to engage power to begin the towing sequence (Navigation lights are lit automatically). The parking brake can be deactivated by way of a switch located on this panel. Annunciation lights on the NLG indicate when the parking brake is deactivated and the aircraft is ready for towing.

  **Note**
  *Availability of the controls to facilitate towing the aircraft with the flight deck vacant does not constitute an approval to conduct such operations.*

- Aircraft powered, and flight deck occupied:
  Two separate controls, one to deactivate the nose wheel steering, and one to deactivate the parking brake, are located in both the flight deck and on the control panel located in the vicinity of the nose landing gear. Headset jacks are provided on this control panel to allow for communication between personnel on the flight deck and on the ground. Annunciation lights on the control panel indicate when the aircraft is ready for towing.
  With the torque links connected, towing up to ±130 degrees nose wheel angle is possible.
  The ground towing requirements are described in the illustration below.
  For more information related to towing, refer to the AMP.

**NOTES**

1. Unusual breakaway conditions not reflected.
2. Estimated for rubber - tired tow vehicles.
3. Coefficient of friction ( μ ) approximate.
4. Example: At an aircraft gross weight of 125000lbs ( 56699 Kg ), an uphill slope of 1.5%, with one engine ON and with a dry concrete surface, the corresponding draw bar pull or push required is 8000 ll ( 35.6 kN ) and the total tractor weight of approximately 10 500 lbs (4762 Kg ).

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*Figure 18 Ground towing requirements (imperial unit)*

**NOTES**

1. Unusual breakaway conditions not reflected.
2. Estimated for rubber - tired tow vehicles.
3. Coefficient of friction ( μ ) approximate.
4. Example: At an aircraft gross weight of 125000lbs ( 56699 Kg ), an uphill slope of 1.5%, with one engine ON and with a dry concrete surface, the corresponding draw bar pull or push required is 8000 lb ( 35.6 kN ) and the total tractor weight of approximately 10 500 lbs (4762 Kg ).

ICN-BD500-A-J000000-A-3AB48-22840-A-001-01

*Figure 19 Ground towing requirements (metric unit)*

# Refueling - rate and time - Technical data

Applicability: 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J12-10-28-02AAA-211A-A | Automatic - Refuel |
| BD500-A-J12-10-28-01AAA-211A-A | Manual - Refuel |

## *Description*

This data module shows the estimated refuel rate and time in graphic information to support the automatic refueling procedure, refer to BD500-A-J12-10-28-02AAA-211A-A and manual refueling procedure, refer to BD500-A-J12-10-28-01AAA-211A-A.

This data module shows the estimated refueling time in specific conditions and the graphics take into account the assumptions that follow:

- 70 F° fuel temperature
- 50 psig available at the refuel adaptor
- A fuel density of 0.803 kg/l. (0.803 kg/l = 0.029010215 lbs/in3)
- No head pressure effect considered on the fuel
- The maximum fuel quantities are based on 17 646 Kg. (17 646 Kg x 2.2046 lb/kg = 38,902 lbs) Could be different than the current Airport Flight Manual.

**Note**

Data presented in these graphs are based on the test data collected with the mentioned conditions listed above. Varying conditions such as the hose length, the diameter, the pressure drop, the gauge location and the fuel density, not measuring the nozzle pressure

during the flowing conditions and atmospheric conditions can all impact the results. Use of these graphs are for REFERENCE ONLY as the actual results may vary.

The first graphic shows the estimation of the refueling time and the evolution of the fuel quantity when the refuel starts with a fuel reserve of 1,850 lbs in each of the wing tank for a total fuel reserve of 3,700 lbs at the time of 0 second. Refer to Fig. 1

The second graphic shows the refueling time estimated from 1,850 lbs of fuel reserve in each of the wing tank to full fuel in all three tanks using various refuel pressures at the refuel adaptor. Refer to Fig. 2

The third graphic shows the estimation of the refueling time and the evolution of the fuel quantity when the refuel starts from empty in all three tanks. Refer to Fig. 3

The fourth graphic shows the refueling time estimated from empty to full using various refueling pressures at the refuel adaptor. Refer to Fig. 4 .

ICN-BD500-A-J121028-A-3AB48-40429-A-002-01

*Figure 1 1,850 lbs per wing to full - Refueling time versus quantity*

ICN-BD500-A-J121028-A-3AB48-40430-A-002-01

*Figure 2 1,850 lbs per wing to full - Refueling time versus refueling nozzle pressure*

ICN-BD500-A-J121028-A-3AB48-40431-A-003-01

*Figure 3 0 lbs per wing to full - Refueling time versus quantity*

ICN-BD500-A-J121028-A-3AB48-40773-A-001-01

*Figure 4 0 lbs - Refueling time versus refueling nozzle pressure*

# Deicing/Anti-icing - Remove ice

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
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| None | |

# Common information

## GENERAL

This data module gives the procedure for the deicing of the aircraft before takeoff.

Deicing is the removal of snow, ice or frost from the airplane critical surfaces by mechanical means, hot water or a hot mixture of water and deicing/anti-icing fluid. Anti-icing is the procedure to apply deicing/anti-icing fluid with holdover time sufficient to prevent that snow, ice or frost stays on airplane surfaces after deicing, before the takeoff.

**Note**

Removal of contaminants on runway surfaces, taxiways, aprons, holding bays and other areas, is the responsibility of the administration of the airports concerned, based on flight safety and schedule considerations.

The pilot-in-command is ultimately responsible to make sure that the airplane is in a safe condition for flight. Use the Automatic Terminal Information Service (ATIS) or other means to acquire accurate ambient temperature and other pertinent meteorological conditions. Outside Air Temperature (OAT) or Total Air Temperature (TAT) does not read accurately on the ground due to probe heating.

The procedures described in this document ensures an aerodynamically clean airplane before takeoff.

When operating in such conditions, these procedures account for operational hazards associated with frozen contamination. In all cases, it is assumed that the decision to operate is based on the general rules of good airmanship applicable in cold weather operations and on the assurance that the operational and system limitations will not be exceeded. Under these provisions, the procedures given in this data module have been provided to supplement the normal operating procedures with the goal of enhancing flight safety and assisting in obtaining maximum performance from the airplane. In no circumstances, however, do they warrant operations in conditions imposing demands beyond the capabilities of the airplane or its flight crew.

**DEFINITIONS:**

1 *Cold weather operations*
Cold weather operations refers to ground handling, takeoffs, and landings conducted on surface conditions where frozen moisture is present or conditions are conducive to moisture freezing. These conditions are commonly encountered when the surface temperature is at or below 0°C (32°F), although frozen moisture can be present and stay for a significant time at higher temperatures.

2 *Critical surfaces*
The critical surfaces of the airplane are defined as the wings, horizontal stabilizer, vertical stabilizer, control surfaces and engine inlets. If the upper surface of the fuselage is contaminated with ice, snow, or frost, and surface features and markings cannot be distinguished, the surface must be cleaned or deiced.
The fuselage is not considered a critical surface, but snow and ice on such a large surface could have considerable effect on drag and weight. Due diligence is required and consideration should be given to snow clearing and/or deicing the fuselage.

3 *Holdover time*
Holdover time is the published estimated time that an application of an approved deicing/anti-icing fluid is effective in preventing frost, ice, or snow from adhering to treated surfaces. Holdover time begins at the start of the final application of an approved deicing fluid, after

this time the fluid is no longer effective. After the holdover time is exceeded the aircraft must be re-inspected and another deice procedure may be required.
The tables presented in this document are extracted from: *Transport Canada Holdover Time (HOT) Guidelines*. These tables do not account for all factors that influence holdover time. Diverse and individually variable factors such as fluid temperature, relative humidity, wind direction and speed, can significantly shorten the holdover times shown in these tables.

4 *Contaminants*

4.1 Slush: is snow saturated with water which displaces with a splatter when stepped on firmly. It is encountered at temperatures up to 5°C (41°F).

4.2 Wet snow: it will easily stick together and tends to form a snowball if compacted by hand.

4.3 Dry snow: is loose and can easily be blown. If compacted by hand, it will readily fall apart again.

4.4 Frost: it forms from the slow deposition of ice crystals on cold surfaces, directly from water vapor in the air.
The frost forming surface must be below freezing temperatures for frost to form even though the ambient temperature may be above freezing. Frost appears as a white crystalline deposit that usually develops uniformly on exposed surfaces during below-freezing, calm and cloudless nights with a high ambient dewpoint. The deposit is thin enough for surface features underneath, such as paint lines, markings and lettering, to be distinguished.

4.5 Ice: two types of ice, rime ice and clear ice, commonly affect airplane operations:

- Rime ice
  Although rime ice is more commonly found in flight, it may occur on the ground when conditions are favorable. Rime ice may occur on the ground in low temperatures with a low concentration of small super-cooled water droplets and moderate winds. It appears as an opaque and rough ice surface that adheres to surfaces exposed to wind. It can easily be detected and is easily removed by application of deicing/anti-icing fluids.
- Clear ice
  Clear ice can occur in flight or on the ground. It forms at temperatures at or just below 0°C (32°F) with a high concentration of large super-cooled water droplets. Clear ice is hard, and appears as a smooth and glassy coating that can be very difficult to detect without a tactile inspection. Clear ice may not be seen during a walkaround, particularly if the wing is wet or during night time operations. Clear ice adheres firmly to surfaces and is difficult to remove, requiring special care during deicing/anti-icing.

4.6 Dehydrated deicing/anti-icing fluids: if deicing/anti-icing fluid is allowed to dry on airplane surfaces, this same fluid can become a contaminant.
Deicing, and especially anti-icing fluids are designed to adhere to airplane surfaces and shear off at speeds approaching takeoff speeds. If left on airplane surfaces for long periods of time (overnight), they may dehydrate and form a gel or dried deposit that will not shear off, even at high speeds. This contaminant will severely affect airplane performance and lift.

**Note**

Only approved personnel must do the deicing procedure to make sure that local regulations are followed.

These procedures are available for the deicing procedure:

- **Mechanical removal of loose contamination**
  If a significant amount of loose snow is on the airplane, the expenditure of a relatively large amount of deicing fluid can be avoided if the snow is removed mechanically. Using the wing broom to remove contamination does not always mean that the wing surface is clean and safe for flight. Every time a broom is used to remove contamination, a tactile inspection must be performed. Subject to the results of an inspection as outlined below (*Removal of loose contamination*), this may achieve complete deicing of the airplane.
- **One-step deicing/anti-icing**
  Fluid is applied in one step to remove frozen contamination and apply limited anti-ice protection. In this process, the residual fluid film, regardless of the type of fluid used, will provide only a very limited duration of anti-ice protection.
- **Two-step deicing/anti-icing**
  The two-step procedure is accomplished by first applying deicing fluid, consisting of heated pure water or a heated mixture of water and *Type I* fluid, and then applying undiluted *Type I* fluid. This method ensures extended anti-icing holdover time is available.

  1. The freezing point of a fluid used for the first step must not be more than 3°C above ambient temperature. The freezing point of an SAE *Type I* fluid used for a one-step process, or as the second step of a two-step.
     The freezing point of an SAE *Type I* fluid used for a one-step process, or as the second step of a two-step operation, must be at least 10°C (50 °F) below the ambient temperature. The second step is to be performed before the first step freezes, typically within 3 minutes. This time may be higher than 3 minutes in some conditions, but potentially lower in heavy precipitation, colder temperatures, or for critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area. When deicing fluid is used in one-step deicing/anti-icing, the application of the second step fluid will flush away the first step fluid and leave a film of anti-icing fluid, which is designed to be of adequate thickness. If freezing of the deicing fluid has occurred, one-step deicing/anti-icing must be repeated. This short period makes it necessary to deice/anti-ice relatively small areas of the airplane successively.
  2. Considering the nature of the precipitation present and the likely duration of the delay between the completion of the anti-icing step and takeoff, use the tables provided in this document.

**DEICING FLUIDS:**

The application of deicing/anti-icing fluid is the most common means of ground deicing and anti-ice protection. Anti-icing fluids are similar in composition except that they also contain polymeric thickeners. They are formulated to prevent formation of unabsorbed frozen contamination for a longer period of time than deicing fluids; however, the protection is still for a limited period of time. Although *Type I* fluids may be used for anti- icing, *Type II, III* and *Type IV* fluids are typically used in the anti-icing role because they can last for a significantly longer period of time than the *Type I* fluids.

The acceptable fluids are water/glycol solutions, classified as *Type I, II, III* and *Type IV*. The operator is ultimately responsible for ensuring that only fluids tested to SAE AMS 1424 or SAE AMS 1428 are applied when the HOT Guidelines will be utilized operationally. The Transport Canada Holdover Time Guidelines document, published on an annual basis, contains lists of

fluids that have been tested with respect to anti-icing performance (SAE AMS 1424 or SAE AMS 1428) and aerodynamic acceptance (SAE AMS 1424 or SAE AMS 1428) only.

- **Type I fluid:**
  In concentrated form, these fluids contain glycols to a minimum concentration of 80%, but with no thickening agents. Their resulting low viscosity and very short holdover times provide very limited anti-icing protection.
  It is apparent, that except for the case of frost or freezing fog, the duration of anti-icing protection provided by *Type I* fluid is inadequate unless takeoff can be made almost immediately after deicing. Therefore, if conditions require effective ground anti-icing, it is imperative that *Type II, III* and *Type IV* fluids.
- **Type II, III, and IV fluids:**
  Anti-icing fluids are similar in composition except that they also contain polymeric thickeners. They are formulated to prevent formation of unabsorbed frozen contamination for a longer period of time than deicing fluids; however, the protection is still for a limited period of time. Although *Type I* fluids may be used for anti- icing, *Type II, III* and *Type IV* fluids are typically used in the anti-icing role because they can last for a significantly longer period of time than the *Type I* fluids.

**AIRFRAME CONTAMINATION:**

Clean airplane concept

The clean airplane concept (aerodynamically clean) prohibits takeoff when frost, ice, snow, or other contaminants are present on the airplanes critical surfaces. The performance data for this airplane are based on the clean airplane concept. This means that all performance values are based on the airplane being aerodynamically clean prior to takeoff. Failure to remove contaminants will result in adverse effects on airplane performance and flight characteristics. These adverse effects can include the following:

- Decreased thrust
- Decreased lift
- Increased drag
- Increased stall speeds
- Trim changes
- Altered stall characteristics
- Altered handling qualities.

The removal procedures for frost, ice and snow from the surfaces of the airplane prior to takeoff, as described herein, depend upon the deicing facilities, methods and types of fluid available at the airports involved. Deicing must be accomplished at the last possible time prior to takeoff to maximize the time that will be able to provide protection (holdover time).

The general rule for ground icing procedures is that the deicing and anti-icing processes must be done symmetrically. That is, whatever final treatment (i.e. same brand name fluid) is administered on one wing must be applied to the other wing for aerodynamic symmetry reasons.

1 General precautions to be observed in cold weather operations:

1.1 It must never be assumed that an apparently dry and loose form of frozen moisture, for example, dry snow, will be removed by the slipstream during the initial takeoff roll. For instance, on an airplane removed from a warm hangar, a dry snowfall that remains free and uncompacted on the ground may melt and later refreeze to form ice that sticks to the surface of the airplane.

1.2 Before each flight, a thorough inspection of critical surfaces must be made to determine the extent of contamination on them. This inspection must be made by the pilot-in-command or by other trained and approved personnel qualified to report its results directly to the pilot-in-command. Deicing is part of flight operations and remains under the authority of the pilot-in-command.

1.3 After deicing, another inspection, subject to the same qualifications mentioned in paragraph above, must be made to confirm that all contamination is removed.

1.4 If during the period between the completion of deicing and takeoff there is the possibility that the airplane may again be contaminated, re-application of deicing *Type I* fluid must be provided. The period of effective anti-icing, known as holdover time, must be longer than the period between deicing and takeoff.
Holdover times start at the beginning of the deicing procedure.

1.5 If during the conditions described in paragraph above, takeoff cannot be started prior to the expiration of the holdover time; the airplane must again be inspected and deiced again if necessary, before attempting takeoff. If ice, snow or frost is found on the airplane, accomplishing a one-step deicing procedure will remove the contamination and provide limited anti-ice protection. When visible precipitation continues to fall, additional deicing application will be required. In such cases, the application of deicing fluid must be accomplished in two separate steps which will provide adequate protection in most environmental conditions.

2 Wet airplane and temperatures greater than 0°C (32°F) but less than 5°C (41°F)
Consideration of the following should be made as to whether a wet airplane should be deiced:

2.1 Conditions such as wind and forecast temperature. If temperatures are dropping or are forecast to drop, treatment with *Type I* fluid should be considered.

2.2 When an airplane is wet due to light rain or mist and the POP icing definition of visible moisture and less than 5°C (41°F) is satisfied. In such a situation, the airplane must be deiced before takeoff.

2.3 If the airplane is wet because it has been cleaned with hot water but there is no visible moisture in the air, then the wing is at the same risk of being contaminated as if the aircraft was taxiing in slush or pooled water on taxiways/runways. The use of wing deicing fluid is required for such conditions.

3 Clear ice due to cold fuel
Crew must be aware of the effect that cold fuel in the tanks may have on moisture present on the wing upper and lower surfaces. If fuel temperature is 0°C (32°F) or below, it is possible to have clear ice on the wing with the outside air temperature above freezing. If center tank fuel quantity exceeds 9525 kg (21000 lbs), or left or right wing fuel quantity exceeds 907 kg (2000 lbs), the fuel will be in contact with the upper wing skin.
If the fuel temperature is 0°C (32°F) or below and a high humidity condition exists or visible moisture in any form is present, pilots must ensure that the wing upper and lower surfaces are free of clear ice by means of a tactile check. Clear ice must be removed.

4 Frost due to cold soaked fuel
Wing frost caused by cold soaked fuel can form on the upper and lower surfaces of the wing even at outside air temperatures significantly above freezing. Frost on the upper and lower surfaces of the wing must be removed.

**ENGINE CONTAMINATION:**

Pre-flight considerations

A thorough and vigilant pre-flight inspection of the engines is required during cold weather operations. Engine cowl covers and inlet plugs should be used to protect from ice, sleet and snow contamination. While the use of covers and plugs is recommended, this equipment does not totally eliminate contamination of the engine inlet. Seepage from ice or snow melting on a warm but otherwise protected engine can cause contamination to form inside the inlet or on the fan blades once the ambient temperature causes the water to freeze again. The procedures that follow are designed to complement both regulatory and operational procedures during cold weather operations.

A thorough pre-flight should also include examination of the ramp conditions and whether or not deicing procedures are in effect. The flight crew should determine if ramp conditions permit engine starting while parked (at the gate) or during push back.

**Note**

Free fan rotation must be confirmed before engine start (manual rotation of the fan or engine dry motoring). Water may freeze in the area of the lower intake, jamming the adjacent fan blades. Only heated air shall be used to remove ice from the spinner, fan, inlet or other engine components.

Under no circumstance is it permissible to use deicing fluid to remove frozen precipitation from the spinner, fan, inlet or other engine components.

Do not remove ice and snow by chipping and scraping. The only acceptable practice is the use of heated air on engine components or deicing fluid on the exterior engine cowling only.

**Note**

Deicing/anti-icing fluids that are ingested into the engine can have a corrosive and contaminating effect. This effect may degrade fan blade lubricants (causing increased Nf vibrations), resulting in increased maintenance costs. Other potential effects include impeding the correct operation of bleed valves by forming a sticky residue, clogging engine probes and creating noxious fumes. Care should be exercised when applying deicing fluid in the vicinity of the engine inlet. Consideration should be given to reducing engine water (compressor) wash intervals during cold weather operations.

Should deicing/anti-icing be inadvertently applied into the engine inlet area, it should be communicated to Pratt and Whitney prior to engine start. If the engine was running when the fluid was sprayed directly into the inlet, the engine should be shut down normally.

For ice removal on other engine surfaces, for personal safety, engines should not be operating. However, if necessary, this may be accomplished with the engines operating at IDLE speed using a low pressure stream of glycol-based deicing fluid exercising care to avoid spraying fluids directly into the engine inlet (use indirect method).

## *Preliminary requirements*

## Required conditions

*Table 2 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| Make sure that all protective covers are removed. | |

## Support equipment

*Table 3 Support equipment*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Consumables, materials, and expendables

*Table 4 Consumables, materials, and expendables*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Spares

*Table 5 Spares*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Safety conditions

None

# *Procedure*

## CAUTIONS

- **Deicing with the APU operating is not recommended. Ingestion of fluid can contaminate the air conditioning system and cause fumes and odors to go into the airplane. This can cause throat irritation to personnel and irregular operation and possible damage to the APU.**

- **On flight control surfaces, always apply fluid from the leading edge to the trailing edge and from the outer panels to the inner panels. The spray can push contamination not melted into hinge mechanisms and below the control shrouds. This contamination can refreeze in these areas.**

- **Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

1 **Removal of loose contamination:**

If significant amounts of loose snow are on the airplane.

1.1 Keep the slats/flaps lever (Fig. 4 ) in the current position.

**Note**

If you move the slats/flaps it can contaminate the actuators.

**Note**

Remove the snow for a clear view of the areas to be examined.

**Note**

During snowfall, freezing rain and drifting snow, it is possible for snow and melting ice to penetrate into hinges, operating linkages, drainage openings and vents, and then refreeze. The mentioned areas should be checked with diligence.

1.2 Examine the areas that follow for adherence ice, frost or snow:

- Wings - leading edges, upper and lower surfaces, winglets
- Upper fuselage
- Vertical and horizontal stabilizers - leading edges, upper/lower surfaces, and side panels
- Flaps, flap tracks, and flap drives
- Slats, slat tracks, and slat drives
- Ailerons, elevators, rudder, spoilers
- Air data probes/sensors, Angle of Attack (AOA) vanes and surrounding areas within a distance of 61 cm (2 ft.)
- Antennas
- Fuel drains and National Advisory Committee for Aeronautics (NACA) vent scoops
- Engine and Auxiliary Power Unit (APU) intakes, APU exhaust
- Landing gear and landing gear bays
- Windshield, wipers, windows, door sills, and surrounds.

1.3 Touch the surfaces with bare hands to make sure that there is no ice formation (tactile check).

1.4 Do the one-step, or two-steps, deicing/anti-icing procedure if you find frozen contamination in critical surfaces.

2 **Preparation for deicing/anti-icing:**

2.1 Before fluid is applied:

2.1.1 Accomplish all items in the “After start procedure“, except **DO NOT** extend flaps or check flight controls.

2.1.2 Park the airplane with the nose into the wind, if possible.

2.1.3 Set the park brake (Fig. 1 ) to the ON position.

2.1.4 Put the thrust levers (Fig. 4 ) in idle position.

**Note**

It is recommended that the application of deicing fluid be carried out with the engines and APU OFF. If not possible, the APU and engine bleed shutoff valves must be closed.

Make sure that the personnel that apply the deicing fluid know the location of the APU air intake to prevent contamination by the fluid.

2.1.5 Set the engine run switches (Fig. 6 ) to the OFF position (for engines off).
2.1.5.1 If engines are on, close the engines shutoff valves.
2.1.6 Set the APU switch to the OFF position, if required.
2.1.6.1 If the APU is on, close the APU shutoff valve.
2.1.7 Make sure that the APU door is closed (if APU is off).
2.1.8 On the air control panel, set the systems below to the OFF position:

- Left (side) (L) pack
- Right (side) (R) pack
- L bleed
- R bleed
- APU bleed.

2.1.9 On the anti-ice control panel, set the systems below to the OFF position:

- L cowl
- Wing
- R cowl.

2.1.10 Set the wipers (Fig. 2 ) to the OFF position.
2.1.11 Stab trim - set to 5 units.
2.1.12 Set the slats/flaps (Fig. 4 ) in released position.

3 **Deicing/anti-icing:**

**CAUTION**

**If ice pellet precipitation occurs after the application of deicing fluid, the deicing fluid dilutes and cause wing contamination.**

3.1 Do not apply the deicing fluid jet directly on these areas:
Refer to Fig. 8 , Fig. 9 , and Fig. 10.

- Windshields, Flight Crew Emergency Escape (FCEE) hatch, side windows, and cabin windows
- Smart probes and TAT probes
- AOA vanes
- Engine air intake (to prevent ingestion), engine exhaust, engine thrust reverser, engine bleed ducts
- APU inlet and APU exhaust (Especially important with APU ON)
- Antennas
- Vents and drains
- Wheels and brakes.

3.2 Application of fluid should follow the sequence below:

1 Vertical stabilizer

2 Horizontal stabilizer

3 Top of fuselage

4 Wings.

4 **After deicing spraying:**

4.1 Inspect the areas listed below, to confirm complete deicing:

- Wings - upper and lower surfaces, pay particular attention to the leading edges
- Upper fuselage
- Vertical and horizontal stabilizers - leading edges, upper/lower surfaces, and side panels
- Flaps, flap tracks, and flap drives
- Slats, slat tracks, and slat drives
- Ailerons, elevators, rudder, spoilers
- Air data probes/sensors, AOA vanes and surrounding areas within a distance of 2 feet
- Antennas
- Fuel drains and NACA vent scoops
- Engine and APU intakes, APU exhaust
- Landing gear and landing gear bays
- Windshields, windows, door sills, and surrounds.

4.2 At least 1 minute following deicing:

4.2.1 On the air control panel, set the systems below to the AUTO position:

- L bleed
- R bleed
- APU bleed.

4.2.2 Set wipers as required. Refer to Fig. 2 .

4.2.3 Check flight controls.

4.2.4 Set SLAT/FLAP lever (Fig. 4 ) for takeoff configuration.

4.2.5 Set STAB TRIM for takeoff configuration.

4.3 At least 3 minutes following deicing:

4.3.1 Start the APU (or confirm it is ON), as applicable. Refer to Fig. 3 .

4.3.2 On the air control panel, set the systems below to the AUTO position:

- L pac
- R pack.

4.3.3 On the anti-ice control panel, set the systems below as required:

- L cowl
- Wing
- R cowl.

4.3.4 Check for takeoff configuration.

4.3.5 Complete the “Before Takeoff Check“.

5 **Tables:**

*Table 6 Active frost - Holdover guidelines for fluid Type I*

| **Outside air temperature [1, 2] °C (°F)** | **Approximate holdover times (hours:minutes)** |
|---|---|
| | **Active frost** |
| | **Type I** |
| -1 (30) and above | 0:45 (0:35) [3] |
| below -1 (30) to -3 (27) | |
| below -3 (27) to -10 (14) | |
| below -10 (14) to -14 (7) | |
| below -14 (7) to -21 (-6) | |
| below -21 (-6) to LOUT | |

**CAUTION**

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10°C (18°F) below outside air temperature.

2 Ensure that the Lowest Operational Use Temperature (LOUT) is respected.

3 Value in parenthesis is for composite surfaces

*Table 7 Active frost - Holdover guidelines for fluid Type II, Type III, and Type IV*

| **Outside air temperature [1] °C (°F)** | **Concentration neat fluid/water (Volume % / %)** | **Approximate holdover times (hours:minutes)** | | |
|---|---|---|---|---|
| | | **Active frost** | | |
| | | **Type II** | **Type III** | **Type IV** |
| -1 (30) and above | 100/0 | 8:00 | 2:00 | 12:00 |
| | 75/25 | 5:00 | 1:00 | 5:00 |
| | 50/50 | 3:00 | 0:30 | 3:00 |
| below -1 (30) and -3 (27) | 100/0 | 8:00 | 2:00 | 12:00 |

| Outside air temperature [1] °C (°F) | Concentration neat fluid/water (Volume % / %) | Approximate holdover times (hours:minutes) | | |
|---|---|---|---|---|
| | | Active frost | | |
| | | Type II | Type III | Type IV |
| | 75/25 | 5:00 | 1:00 | 5:00 |
| | 50/50 | 1:30 | 0:30 | 3:00 |
| below -3 (27) and -10 (14) | 100/0 | 8:00 | 2:00 | 10:00 |
| | 75/25 | 5:00 | 1:00 | 5:00 |
| below -10 (14) and -14 (7) | 100/0 | 6:00 | 2:00 | 6:00 |
| | 75/25 | 1:00 | 1:00 | 1:00 |
| below -14 (7) and -21 (-6) | 100/0 | 6:00 | 2:00 | 6:00 |
| below -21 (-6) and -25 (-13) | 100/0 | 2:00 | 2:00 | 4:00 |
| below -25 (-13) | 100/0 | No holdover time guidelines exist | | |

**CAUTION**

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

1 Ensure that the LOUT is respected.

*Table 8 SAE TYPE I - Fluid holdover guidelines on critical aircraft surfaces composed predominantly of aluminum [1]*

**This table applies to aircraft with critical surfaces constructed predominantly or entirely of aluminum materials that have demonstrated satisfactory use of these holdover times.**

| Outside air temperature [2] °C (°F) | Approximate holdover times under various weather conditions (minutes) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Freezing fog or ice crystals | Snow, snow grains or snow pellets [3] | | | Freezing drizzle [4] | Light freezing rain | Rain on cold soaked wing [5] | Other [6] |
| | | Very light [7] | Light [8] | Moderate | | | | |
| -3 (27) and above | 11 - 17 | 18 | 11 - 18 | 6 - 11 | 9 - 13 | 4 - 6 | 2 - 5 | |
| below -3 (27) to -6 (21) | 8 - 13 | 14 | 8 - 14 | 5 - 8 | 5 - 9 | 4 - 6 | **CAUTION:** No holdover time guidelines exist | |
| below -6 (21) to -10 (14) | 6 - 10 | 11 | 6 - 11 | 4 - 6 | 4 - 7 | 2 - 5 | | |
| below -10 (14) | 5 - 9 | 7 | 4 - 7 | 2 - 4 | | | | |

**CAUTION**

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

**Note**

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10°C (18°F) below outside air temperature.

2 Ensure that the LOUT is respected.

3 To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12 ) is required.

4 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.

5 No holdover time guidelines exist for this condition for 0°C (32°F) and below.

6 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

7 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.

8 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.

*Table 9 SAE TYPE I - Fluid holdover guidelines on composite wing surfaces [1]*

**These holdover times apply to newer aircraft with critical surfaces constructed predominantly or entirely of composite materials.**

| Outside air temperature [2] °C (°F) | Approximate holdover times under various weather conditions (minutes) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Freezing fog or ice crystals | Snow, snow grains or snow pellets [3] | | | Freezing drizzle [4] | Light freezing rain | Rain on cold soaked wing [5] | Other [6] |
| | | Very light [7] | Light [7] | Moderate | | | | |
| -3 (27) and above | 9 - 16 | 12 | 6 - 12 | 3 - 6 | 8 - 13 | 4 - 6 | 1 - 5 | |
| below -3 (27) to -6 (21) | 6 - 8 | 11 | 5 - 11 | 2 - 5 | 5 - 9 | 4 - 6 | **CAUTION:** No holdover time guidelines exist | |
| below -6 (21) to -10 (14) | 4 - 8 | 9 | 5 - 9 | 2 - 5 | 4 - 7 | 2 - 5 | | |
| below -10 (14) | 4 - 7 | 7 | 4 - 7 | 2 - 4 | | | | |

## CAUTION

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

**Note**

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10°C (18°F) below outside air temperature.

2 Ensure that the LOUT is respected.

3 To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12 ) is required.

4 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.

5 No holdover time guidelines exist for this condition for 0°C (32°F) and below.

6 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

7 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.

*Table 10 SAE TYPE I - Deicing / anti-icing fluid application procedures*

<table>
<tr><th colspan="4">Guidelines for the application of SAE Type I fluid mixtures at minimum concentrations for the prevailing outside air temperature (OAT)</th></tr>
<tr><th rowspan="2">OAT [1]<br>°C (°F)</th><th rowspan="2">One-step procedure deicing/anti-icing</th><th colspan="2">Two-step procedure</th></tr>
<tr><th>First step: Deicing</th><th>Second step: Anti-icing [2]</th></tr>
<tr><td>-3 (27) and above</td><td rowspan="2">Heated mix of fluid and water with a freezing point of at least 10°C (18°F) below OAT</td><td>Heated water or heated mix of fluid and water</td><td rowspan="2">Heated mix of fluid and water with a freezing point of at least 10°C (18°F) below OAT</td></tr>
<tr><td>below -3 (27)</td><td>Freezing point of heated fluid mixture shall not be more than 3°C (5°F) above OAT</td></tr>
<tr><td colspan="4">Note<br>Temperature of water or fluid/water mixtures shall be at least 60°C (140°F) at the nozzle. Upper temperature limit shall not exceed fluid and aircraft manufactures' recommendations.<br>Note<br>To use Type I holdover time guidelines in all conditions including active frost, at least 1 litre/m² (2 gal / 100 sq.ft.) shall be applied to the deiced surface.<br>Note<br>This table is applicable for the use of Type I holdover time guidelines in all conditions including active frost. If holdover times are not required, a temperature of 60°C (140°F) at the nozzle is desirable.<br>Note<br>The LOUT for given Type II/III/IV fluid is higher of:<br>a) The lowest temperature at which the fluid meets the aerodynamic acceptance test for a given aircraft type; or<br>b) The actual freezing point of the fluid plus its freezing point buffer of 7°C (13°F).<br>Note<br>Wing skin temperatures may differ and, in some conditions, can be below the OAT. Use a stronger fluid mixture (more glycol) in this condition.</td></tr>
<tr><td colspan="4">1 Fluids must be used at temperatures below their LOUT<br>2 To be applied before first step fluid freezes, typically within 3 minutes. (this time may be higher than 3 minutes in some conditions, but potentially lower in heavy precipitation, colder temperatures, or critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area.)</td></tr>
</table>

*Table 11 SAE TYPE II, TYPE III and TYPE IV - Deicing / anti-icing fluid application procedures*

| Guidelines for the application of SAE Type II, III and IV fluid mixtures at minimum concentrations for the prevailing outside air temperature (OAT) | | | |
|---|---|---|---|
| **OAT [1] °C (°F)** | **One-step procedure deicing/anti-icing** | **Two-step procedure** | |
| | | **First step: Deicing** | **Second step: Anti-icing [2]** |
| -3 (27) and above | 50/50 Heated[3] Type II/III/IV | Heated water or heated mix of Type I, II, III or IV with water | 50/50 Type II/III/IV |
| -14 (7) and above | 75/25 Heated[3] Type II/III/IV | Heated suitable mix of Type I, Type II/III/IV and water with FP not more than 3°C (5°F) above actual OAT. | 75/25 Type II/III/IV |
| -25 (13) and above | 100/0 Heated[3] Type II/III/IV | Heated suitable mix of Type I, Type II/III/IV and water with FP not more than 3°C (5°F) above actual OAT. | 100/0 Type II/III/IV |
| below -25 (13) | Type II/III/IV fluid may be used below -25°C (-13°F) provided that the OAT is at or above the LOUT. Consider the use of Type I when Type II/III/IV fluid cannot be used. | | |

| Guidelines for the application of SAE Type II, III and IV fluid mixtures at minimum concentrations for the prevailing outside air temperature (OAT) | | | |
|---|---|---|---|
| **OAT [1] °C (°F)** | **One-step procedure deicing/anti-icing** | **Two-step procedure** | |
| | | **First step: Deicing** | **Second step: Anti-icing [2]** |
| **Note**<br>For heated fluids, a fluid temperature not less than 60°C (140°F) at the nozzle is desirable. When the first step is performed using a fluid/water mix with a freezing point above OAT, the temperature at the nozzle shall be at least 60°C and at least 1 litre/m² (2 gal / 100 sq.ft.) shall be applied to the surfaces to be deiced. For fluids which require a heated application to obtain holdover times (this is stated in the applicable holdover time table), the temperature at the nozzle shall be at least 60°C and at least 1 litre/m² (2 gal / 100 sq.ft.) shall be applied.<br>**Note**<br>Upper temperature limit shall not exceed fluid and aircraft manufactures' recommendations.<br>**Note**<br>The LOUT for given Type II/III/IV fluid is higher of:<br>a) The lowest temperature at which the fluid meets the aerodynamic acceptance test for a given aircraft type; or<br>b) The actual freezing point of the fluid plus its freezing point buffer of 7°C (13°F).<br>**Note**<br>Wing skin temperatures may differ and, in some conditions, can be below the OAT. Use a stronger fluid mixture (more glycol) in this condition.<br>**Note**<br>Whenever frost or ice occurs on the lower surface of the wing in the area of the fuel tank, indicating a cold soaked wing, the 50/50 dilution of Type II, III or IV shall not be used for the anti-icing step because fluid freezing may occur.<br>**Note**<br>An insufficient amount of anti-icing fluid, especially in the second step of a two-step procedure, may cause a substantial loss of holdover time. This is particularly true when using a Type I fluid for the first step. | | | |
| 1 Fluids must be used at temperatures below their LOUT<br>2 To be applied before first step fluid freezes, typically within 3 minutes. (this time may be higher than 3 minutes in some conditions, but potentially lower in heavy precipitation, colder temperatures, or critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area.)<br>3 Clean aircraft may be anti-iced with unheated fluid, unless the related holdover time table requires a heated application to obtain holdover times. | | | |

*Table 12 Visibility in snow vs. snowfall intensity chart*

| Lighting | Temperature range | Visibility in snow (statute miles) | | | |
|---|---|---|---|---|---|
| | °C (°F) | Heavy | Moderate | Light | Very light |
| Darkness | -1 (30) and above | = 1 | > 1 to 2½ | > 2½ to 4 | > 4 |

| | | | | | |
|---|---|---|---|---|---|
| | Below -1 (30) | = 3/4 | > 3/4 to 1½ | > 1½ to 3 | > 3 |
| Daylight | -1 (30) and above | = 1/2 | >½ to 1½ | > 1½ to 3 | > 3 |
| | Below -1 (30) | = 3/8 | > 3/8 to 7/8 | > 7/8 to 2 | > 2 |
| **HOW TO READ THE TABLE:** Assume that the daytime visibility in snowfall is 1 statute mile and the temperature is -7°C. Based on these conditions, the snowfall intensity is light. This snowfall intensity is used to determine which holdover time guideline value is appropriate for the fluid in use. | | | | | |

*Table 13 SAE TYPE II - Fluid holdover time guidelines*

| **Outside air temperature [1] °C (°F)** | **Type II fluid concentration neat Fluid/Water Volume %/ Volume %** | **Approximate holdover times under various weather conditions (hours:minutes)** | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Freezing fog or ice crystals** | **Snow, snow grains or snow pellets [2, 3]** | **Freezing drizzle [4]** | **Light freezing rain** | **Rain on cold soaked wing [5]** | **Other [6]** |
| -3 (27) and above | 100/0 | 0:35 - 1:30 | 0:20 - 0:45 | 0:30 - 1:00 | 0:15 - 0:30 | 0:07 - 0:40 | |
| | 75/25 | 0:25 - 1:00 | 0:15 - 0:30 | 0:20 - 0:45 | 0:10 - 0:25 | 0:05 - 0:25 | |
| | 50/50 | 0:15 - 0:30 | 0:05 - 0:15 | 0:10 - 0:20 | 0:05 - 0:10 | **CAUTION:** No holdover time guidelines exist | |
| below -3 (27) to -14 (7) | 100/0 | 0:20 - 1:05 | 0:15 - 0:30 | 0:20 - 0:45 [7] | 0:10 - 0:20 [7] | | |
| | 75/25 | 0:25 - 0:50 | 0:08 - 0:20 | 0:15 - 0:30 [7] | 0:08 - 0:15 [7] | | |
| below -14 (7) to LOUT | 100/0 | 0:15 - 0:35 [8] | 0:15 - 0:30 [8] | | | | |

| Outside air temperature [1] °C (°F) | Type II fluid concentration neat Fluid/Water Volume %/ Volume % | Approximate holdover times under various weather conditions (hours:minutes) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Freezing fog or ice crystals | Snow, snow grains or snow pellets [2, 3] | Freezing drizzle [4] | Light freezing rain | Rain on cold soaked wing [5] | Other [6] |

**CAUTION**

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

**Note**

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1 Ensure that the LOUT is respected.

2 To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12 ) is required.

3 Use light freezing rain holdover times in condition of very light or light snow mixed with light rain.

4 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.

5 No holdover time guidelines exist for this condition for 0°C (32°F) and below.

6 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

7 No holdover time guidelines exist for this condition below -10°C (14°F).

8 If the LOUT is unknown, no holdover time guidelines exist below -25°C (-13°F).

*Table 14 SAE TYPE IV - Fluid holdover time guidelines*

| Outside air temperature [1] °C (°F) | Type II fluid concentration neat Fluid/Water Volume %/ Volume % | Approximate holdover times under various weather conditions (hours:minutes) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Freezing fog or ice crystals | Snow, snow grains or snow pellets [2, 3] | Freezing drizzle [4] | Light freezing rain | Rain on cold soaked wing [5] | Other [6] |
| -3 (27) and above | 100/0 | 1:30 - 2:25 | 0:35 - 1:10 | 0:50 - 1:30 | 0:35 - 0:50 | 0:10 - 1:25 | |
| | 75/25 | 1:25 - 2:40 | 0:30 - 1:05 | 0:50 - 1:15 | 0:30 - 0:45 | 0:09 - 1:15 | |
| | 50/50 | 0:25 - 0:40 | 0:09 - 0:15 | 0:15 - 0:25 | 0:09 - 0:15 | CAUTION: No holdover time guidelines exist | |
| below -3 (27) to -14 (7) | 100/0 | 0:20 - 1:20 | 0:25 - 0:50 | 0:25 - 1:10 [7] | 0:15 - 0:25 [7] | | |
| | 75/25 | 0:25 - 0:50 [8] | 0:20 - 0:40 [8] | 0:15 - 1:05 [, 8] | 0:15 - 0:25 [, 8] | | |
| below -14 (7) to LOUT | 100/0 | 0:15 - 0:40 [9] | 0:15 - 0:30 [9] | | | | |

**CAUTION**

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

**Note**

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1 Ensure that the LOUT is respected.

2 To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12 ) is required.

3 Use light freezing rain holdover times in condition of very light or light snow mixed with light rain.

| | |
|---|---|
| 4 | Use light freezing rain holdover times if positive identification of freezing drizzle is not possible. |
| 5 | No holdover time guidelines exist for this condition for 0°C (32°F) and below. |
| 6 | Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail. |
| 7 | No holdover time guidelines exist for this condition below -10°C (14°F). |
| 8 | If the LOUT is unknown, no holdover time guidelines exist below -5.5°C (-22.1°F). |
| 9 | If the LOUT is unknown, no holdover time guidelines exist below -23.5°C (-10.3°F). |

*Table 15 SAE TYPE III - Fluid ice pellet and small hail allowance times*

**This table is for use with SAE Type III undiluted (100/0) fluids applied unheated only1**

| **Precipitation type** | **Outside Air Temperature** | | |
|---|---|---|---|
| | **-5°C and above** | **Below -5 to -10°C** | **Below -10°C** 2 |
| **Light ice pellets** | **10 minutes** | **10 minutes** | |
| Moderate ice pellets or small hail 3 | 5 minutes | 5 minutes | |
| Light ice pellets mixed with light or moderate freezing drizzle | 7 minutes | 5 minutes | |
| Light ice pellets mixed with light rain | 7 minutes 4 | **CAUTION:** No allowance times currently exist | |
| Light ice pellets mixed with moderate rain | | | |
| Light ice pellets mixed with light snow | 10 minutes | 10 minutes | |
| Light ice pellets mixed with moderate snow | 10 minutes | 10 minutes | |

## CAUTION

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

**Note**

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

| | |
|---|---|
| 1 | No allowance times exist for AllClear AeroClear MAX. |
| 2 | Ensure that the lowest operational use temperature (LOUT) is respected. |

| | |
|---|---|
| 3 | If no intensity is reported with small hail, moderate ice pellets allowance times apply. However, if an intensity is reported with small hail, the ice pellet condition with the equivalent intensity can be used, e.g. light small hail = light ice pellets, moderate small hail = moderate ice pellets. |
| 4 | No allowance times exist in this condition for temperatures below 0°C; consider use of light ice pellets mixed with light freezing rain. |

*Table 16 SAE TYPE IV - Fluid ice pellet and small hail allowance times*

**This table is for use with SAE Type IV undiluted (100/0) fluids only. All Type IV fluids are propylene glycol based with the exception of Dow EG106 and LNT Solutions E450 which are ethylene glycol based.**

| **Precipitation type** | **Outside Air Temperature** | | |
|---|---|---|---|
| | **-5°C and above** | **Below -5 to -10°C** | **Below -10°C** 1 |
| **Light ice pellets** | **50 minutes** | **30 minutes** | **30 minutes** 2 |
| Moderate ice pellets or small hail 3 | 25 minutes 4 | 10 minutes | 10 minutes 2, 5 |
| Light ice pellets mixed with light or moderate freezing drizzle | 25 minutes | 10 minutes | |
| Light ice pellets mixed with light freezing rain | 25 minutes | 10 minutes | |
| Light ice pellets mixed with light rain | 25 minutes 6 | **CAUTION:** No allowance times currently exist | |
| Light ice pellets mixed with moderate rain | 25 minutes 7 | | |
| Light ice pellets mixed with light snow | 25 minutes | 15 minutes | |
| Light ice pellets mixed with moderate snow | 10 minutes | 7 minutes | |

**CAUTION**

**Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

**Note**

Allowance time cannot be extended by an inspection of the aircraft critical surfaces.

**Note**

Takeoff is allowed up to 90 minutes after start of fluid application if the precipitation stops at or before the allowance time expires and does not restart. The OAT must not decrease during the 90 minutes to use this guidance in conditions of light ice pellets mixed with either: light or moderate freezing drizzle, light freezing rain, light rain, or moderate rain.

| | |
|---|---|
| 1 | Ensure that the lowest operational use temperature (LOUT) is respected. |
| 2 | No allowance times exist for propylene glycol (PG) fluids when used on aircraft with rotation speeds less than 115 knots. (For these aircraft, if the fluid type is not known, assume zero allowance time.) |
| 3 | If no intensity is reported with small hail, moderate ice pellets allowance times apply. However, if an intensity is reported with small hail, the ice pellet condition with the equivalent intensity can be used, e.g. light small hail = light ice pellets, moderate small hail = moderate ice pellets. |
| 4 | Allowance time is 15 minutes for propylene glycol (PG) fluids or when the fluid type is unknown. |
| 5 | No allowance times exist for propylene glycol (PG) fluids in this condition for temperatures below -16°C. |
| 6 | No allowance times exist in this condition for temperatures below 0°C; consider use of light ice pellets mixed with light freezing rain. |
| 7 | No allowance times exist in this condition for temperatures below 0°C. |

**PARKING BRAKE PANEL**

**A**

ICN-BD500-A-J320000-C-3AB48-06936-A-001-01

*Figure 1 Park break panel*

**WIPER PANEL**

**A**

**WIPER PANEL**

**B**

**WIPER SWITCH**

**C**

ICN-BD500-A-J300000-C-3AB48-06163-A-003-01

*Figure 2 Wiper control switch*

**APU AND TAWS CONTROL PANEL**

**A**

**APU SWITCH**

**B**

ICN-BD500-A-J490000-C-3AB48-06181-A-002-01

*Figure 3 APU control panel*

**SLAT/FLAP CONTROL PANEL**

A

ICN-BD500-A-J270000-C-3AB48-07501-A-003-01

*Figure 4 Slats/flaps panel*

A

**THROTTLE QUADRANT**

B

ICN-BD500-A-J761100-C-3AB48-16517-A-001-01

*Figure 5 Throttle control system*

**THROTTLE QUADRANT ASSEMBLY**
**CONTROL PANEL**

**A**

**B**

ICN-BD500-A-J740000-C-3AB48-09873-A-002-01

*Figure 6 Ignition system*

**LEGEND**

Composite.

ICN-BD500-A-J079500-C-3AB48-24022-A-001-01

*Figure 7 Composite materials*

**LEGEND**

Deicing Fluid Application Areas.

Deicing Fluid Non-Application Areas.

ICN-BD500-A-J123100-C-3AB48-58710-A-001-01

*Figure 8 Deicing/Anti- icing fluids application and non-application areas - (Sheet 1 of 2)*

**LEGEND**

Anti-icing Fluid Application Areas.

Anti-icing Fluid Non-Application Areas.

ICN-BD500-A-J123100-C-3AB48-58711-A-001-01

*Figure 8 Deicing/Anti- icing fluids application and non-application areas - (Sheet 2 of 2)*

ICN-BD500-A-J560000-C-3AB48-18090-A-001-01

*Figure 9 Deicing fluids non-application areas*

ICN-BD500-A-J123100-C-3AB48-58605-A-001-01

*Figure 10 Deicing fluids non-application areas - (Sheet 1 of 7)*

ICN-BD500-A-J123100-C-3AB48-58606-A-001-01

*Figure 10 Deicing fluids non-application areas - (Sheet 2 of 7)*

ICN-BD500-A-J123100-C-3AB48-58607-A-001-01

*Figure 10 Deicing fluids non-application areas - (Sheet 3 of 7)*

H

ICN-BD500-A-J123100-C-3AB48-58608-A-001-01

*Figure 10 Deicing fluids non-application areas - (Sheet 4 of 7)*

ICN-BD500-A-J123100-C-3AB48-58609-A-001-01

*Figure 10 Deicing fluids non-application areas - (Sheet 5 of 7)*

ICN-BD500-A-J123100-C-3AB48-58610-A-002-01

*Figure 10 Deicing fluids non-application areas - (Sheet 6 of 7)*

ICN-BD500-A-J123100-C-3AB48-58611-A-001-01

*Figure 10 Deicing fluids non-application areas - (Sheet 7 of 7)*

## *Requirements after job completion*

### Required conditions

*Table 17 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| None | |

# Chapter 6: Operating conditions

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A220

# Crew safety precautions - dangerous areas - Technical data

Applicability: 50001-54999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J71-00-00-00AAA-012A-A | Power plant - General warnings and cautions and related safety data |

## *Description*

## 1 Information

This data module identifies, for the crew, the aircraft dangerous areas around the weather radar, the engine intake and the engine exhaust.

## 2 Weather radar dangerous area

**WARNING**

**Make sure the Weather Radar is in STBY at all times when Ground mapping or WXMode is not required. Make sure non-personnel are within scan radius of antenna when the Weather Radar is ON and not in STBY or TEST. Transmission of microwave radiation can be harmful to personnel and potential fire hazards (for flammable materials) up to 3 ft. (1 m) from antenna array.**

Refer to Fig. 1 .

# 3 Engine intake and engine exhaust dangerous areas

**WARNINGS**

- **Stay away from the exhaust nozzle of the engine. When an engine operates, the engine exhaust is hot and of sufficiently high velocity to cause injury. Immediately after the engine is stopped, the engine exhaust parts are hot and can cause burns.**

- **Stay away from the engine exhaust area when the engine starts or operates. Do not breathe the exhaust gas or let the exhaust gas go into the eyes. The exhaust gas can injure the lungs and eyes in areas of high concentration.**

Do not operate engine with persons, vehicles, other aircraft or buildings in engine exhaust (jet wake) dangerous area. Refer to BD500-A-J71-00-00-00AAA-012A-A.

Do not go near an operating engine without ear protection. Be aware of engine noise dangerous areas.

1 Loud noise from a jet engine can cause temporary or permanent damage to a person's ability to hear. This damage can occur in a very short time, if ears are not protected, and results in hearing loss decreased sense of balance.

2 Risk of ear damage increases with nearness to engine when ears are not protected.

ICN-BD500-A-J153010-A-3AB48-31148-A-002-01

*Figure 1 Weather radar area*

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# Chapter 7: Pavement data

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# Pavement data - Technical data

Applicability: 50001-54999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains data related to the pavement design specifications, including aircraft footprints, pavement loading during standard operations, and aircraft/pavement rating systems. Also given are the flotation classification for different weights, fixed tire pressure, and aft Center of Gravity (CG), with the Aircraft Classification Number (ACN) methods.

This section is divided into the subsections that follow:

- ACN
- Landing gear footprint
- Maximum pavement load
- Landing gear loading on pavement

**Note**

*Runway strength data shown in this publication is derived from available information and is a realistic estimate of capability at an average level of activity. It is not intended as a*

*maximum allowable weight or as an operating limitation. Many airport pavements are capable of supporting limited operations with gross weights in excess of published figures. Permissible operating weight, insofar as runway strengths are concerned, are a matter of agreement between the owner and user.*

*For more information about the Pavement Classification Number (PCN), please contact the concerned airport authority.*

## 1.1 Aircraft Classification Number (ACN) / Pavement Classification Number (PCN) Introduction

### 1.1.1 Aircraft Classification Number (ACN)

The ACN value is a number which expresses the relative structural effect of an aircraft on different pavement types for specified standard subgrade strengths in terms of a standard single wheel load.

An aircraft will have eight (8) ACN numbers for any given aircraft weight and tire pressure: four (4) for flexible pavement and four (4) for rigid pavement.

### 1.1.2 Pavement Classification Number (PCN)

The PCN value is a number which expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load.

An airport determined and published PCN can be compared with an aircraft's ACN. An aircraft that has an ACN equal to or less than the PCN of a given pavement can operate without restriction on the pavement. (Ref. International Civil Aviation Organization (ICAO) State Letter AN411.1.17−8019. Ref. US FAA Advisory Circular 150153355 15/06/83).

For example, if the published airport PCN is 52/R/B/Y/T, it means that the aircraft ACN must be less than 52 for rigid pavement type, with medium subgrade strenght, and the tire pressure of the aircraft must be less than 145 psi (1.0 MPa). The PCN also shows that the value was arrived at through a technical review.

*Table 2 Airport method to show Pavement Classification Number (PCN).*

| Pavement type | Pavement type | Tire pressure category psi (MPa) | Evaluation |
|---|---|---|---|
| R = Rigid<br>F = Flexible | A = High<br>B = Medium<br>C = Low<br>D = Ultra Low | W = No limit<br>X = To 254 (1.75)<br>Y = To 181 (1.25)<br>Z = To 73 (0.5) | T = Technical<br>U = Using aircraft |

*Table 3 Subgrade strength categories*

| Subgrade categories | Flexible pavement | | Rigid pavement | |
|---|---|---|---|---|
| | Characterization | CBR range | Characterization | k-Value Range |
| A | CBR 15 | Above 13 | k = 150MN/ m3 (550 pci) | Above 120MN/ m3 (442pci) |

| Sub-grade cate-gories | Flexible pavement | | Rigid pavement | |
|---|---|---|---|---|
| B | CBR 10 | From 8 to 13 | k = 80MN/m3 (300 pci) | From 60 to 120 MN/ m3 (221 to 442pci) |
| C | CBR 6 | From 4 to 8 | k = 80MN/m3 (300 pci) | From 25 to 60 MN/ m3 (92 to 221pci) |
| D | CBR 3 | Below 4 | k=20MN/m3 (75pci) | Below 25 MN/ m3 (92pci) |

### 1.1.3 Load Classification Number (LCN)

The Load Classification Number (LCN) is a method of flotation analysis by the ICAO.

An aircraft will have two (2) LCN numbers for any given aircraft weight and tire pressure: one (1) for rigid pavement usually concrete and second (2) for flexible pavement usually layered asphalt.

## 2 Aircraft Classification Number (ACN) results for most aft C.G. position

Refer to Table 4 for tabular format and Fig. 1 for graphical format for the ACN results for rigid pavement and Table 7 for tabular format and Fig. 2 for graphical format for the ACN results for flexible pavement.

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 4 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/ m3 | ACN Medium Strength K=80 MN/ m3 | ACN Low Strength K=40 MN/ m3 | ACN Ultra-Low Strength K=20 MN/ m3 |
|---|---|---|---|---|---|---|---|
| 141500 | 64183 | 131518 | 59655 | 37 | 39 | 41 | 43 |
| 140500 | 63729 | 130750 | 59307 | 37 | 39 | 41 | 43 |
| 140000 | 63502 | 130406 | 59151 | 37 | 39 | 41 | 43 |
| 139000 | 63049 | 129719 | 58839 | 37 | 39 | 41 | 42 |
| 138000 | 62595 | 129031 | 58527 | 36 | 38 | 40 | 42 |
| 137000 | 62142 | 128343 | 58215 | 36 | 38 | 40 | 42 |
| 136000 | 61688 | 127655 | 57903 | 36 | 38 | 40 | 42 |
| 135000 | 61234 | 126967 | 57591 | 36 | 38 | 40 | 41 |
| 134000 | 60781 | 126280 | 57279 | 35 | 37 | 39 | 41 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 133000 | 60327 | 125592 | 56967 | 35 | 37 | 39 | 41 |
| 132000 | 59874 | 124904 | 56655 | 35 | 37 | 39 | 41 |
| 131000 | 59420 | 124216 | 56343 | 35 | 37 | 39 | 40 |
| 130000 | 58967 | 123528 | 56031 | 34 | 36 | 38 | 40 |
| 129000 | 58513 | 122840 | 55719 | 34 | 36 | 38 | 40 |
| 128000 | 58059 | 122153 | 55407 | 34 | 36 | 38 | 40 |
| 127000 | 57606 | 121465 | 55095 | 34 | 36 | 38 | 39 |
| 126000 | 57152 | 120777 | 54783 | 34 | 36 | 37 | 39 |
| 125000 | 56699 | 120089 | 54471 | 33 | 35 | 37 | 39 |
| 124000 | 56245 | 119401 | 54159 | 33 | 35 | 37 | 38 |
| 123000 | 55791 | 118713 | 53847 | 33 | 35 | 37 | 38 |
| 122000 | 55338 | 118026 | 53535 | 33 | 35 | 36 | 38 |
| 121000 | 54884 | 117338 | 53223 | 32 | 34 | 36 | 38 |
| 120500 | 54657 | 116994 | 53067 | 32 | 34 | 36 | 38 |
| 120000 | 54431 | 116539 | 52861 | 32 | 34 | 36 | 37 |
| 119000 | 53977 | 115629 | 52448 | 32 | 34 | 36 | 37 |
| 118000 | 53523 | 114720 | 52036 | 32 | 33 | 35 | 37 |
| 117000 | 53070 | 113810 | 51623 | 31 | 33 | 35 | 36 |
| 116000 | 52616 | 112901 | 51210 | 31 | 33 | 35 | 36 |
| 115000 | 52163 | 111828 | 50724 | 31 | 32 | 34 | 36 |
| 114000 | 51709 | 110756 | 50238 | 30 | 32 | 34 | 35 |
| 113000 | 51255 | 109683 | 49751 | 30 | 32 | 33 | 35 |
| 112000 | 50802 | 108610 | 49264 | 30 | 31 | 33 | 35 |
| 111000 | 50348 | 107538 | 48778 | 29 | 31 | 33 | 34 |
| 110000 | 49895 | 106465 | 48291 | 29 | 31 | 32 | 34 |
| 109000 | 49441 | 105393 | 47805 | 29 | 30 | 32 | 33 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 108000 | 48987 | 104320 | 47318 | 28 | 30 | 32 | 33 |
| 107000 | 48534 | 103248 | 46832 | 28 | 30 | 31 | 33 |
| 106000 | 48080 | 102175 | 46345 | 28 | 29 | 31 | 32 |
| 105000 | 47627 | 101103 | 45859 | 27 | 29 | 31 | 32 |
| 104000 | 47173 | 100030 | 45372 | 27 | 29 | 30 | 32 |
| 103000 | 46720 | 98958 | 44886 | 27 | 28 | 30 | 31 |
| 102000 | 46266 | 97885 | 44399 | 26 | 28 | 29 | 31 |
| 101000 | 45812 | 96813 | 43913 | 26 | 28 | 29 | 30 |
| 100000 | 45359 | 95740 | 43426 | 26 | 27 | 29 | 30 |
| 99000 | 44905 | 94668 | 42940 | 25 | 27 | 28 | 30 |
| 98000 | 44452 | 93595 | 42453 | 25 | 26 | 28 | 29 |
| 97000 | 43998 | 92523 | 41967 | 25 | 26 | 28 | 29 |
| 96000 | 43544 | 91450 | 41480 | 24 | 26 | 27 | 28 |
| 95000 | 43091 | 90378 | 40994 | 24 | 25 | 27 | 28 |
| 94000 | 42637 | 89305 | 40508 | 24 | 25 | 26 | 28 |
| 93000 | 42184 | 88232 | 40021 | 23 | 25 | 26 | 27 |
| 92000 | 41730 | 87160 | 39535 | 23 | 24 | 26 | 27 |
| 91000 | 41276 | 86087 | 39048 | 23 | 24 | 25 | 27 |
| 90000 | 40823 | 85015 | 38562 | 22 | 24 | 25 | 26 |
| 89000 | 40369 | 83942 | 38075 | 22 | 23 | 25 | 26 |
| 88000 | 39916 | 82870 | 37589 | 22 | 23 | 24 | 25 |
| 87000 | 39462 | 81797 | 37102 | 21 | 23 | 24 | 25 |
| 86000 | 39008 | 80725 | 36616 | 21 | 22 | 24 | 25 |
| 85000 | 38555 | 79652 | 36129 | 21 | 22 | 23 | 24 |
| 84000 | 38101 | 78580 | 35643 | 20 | 22 | 23 | 24 |
| 83000 | 37648 | 77507 | 35156 | 20 | 21 | 22 | 23 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 82000 | 37194 | 76435 | 34670 | 20 | 21 | 22 | 23 |
| 81000 | 36740 | 75362 | 34183 | 19 | 21 | 22 | 23 |
| 80000 | 36287 | 74290 | 33697 | 19 | 20 | 21 | 22 |
| 79000 | 35833 | 73217 | 33210 | 19 | 20 | 21 | 22 |
| 78000 | 35380 | 72145 | 32724 | 18 | 19 | 21 | 22 |
| 77000 | 34926 | 71072 | 32237 | 18 | 19 | 20 | 21 |

**Applicability:** 50010-50017, 50020-50065, 50067

*Table 5 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 135000 | 61234 | 126967 | 57591 | 36 | 38 | 40 | 41 |
| 134000 | 60781 | 126280 | 57279 | 35 | 37 | 39 | 41 |
| 133000 | 60327 | 125592 | 56967 | 35 | 37 | 39 | 41 |
| 132000 | 59874 | 124904 | 56655 | 35 | 37 | 39 | 41 |
| 131000 | 59420 | 124216 | 56343 | 35 | 37 | 39 | 40 |
| 130000 | 58967 | 123528 | 56031 | 34 | 36 | 38 | 40 |
| 129000 | 58513 | 122840 | 55719 | 34 | 36 | 38 | 40 |
| 128000 | 58059 | 122153 | 55407 | 34 | 36 | 38 | 40 |
| 127000 | 57606 | 121465 | 55095 | 34 | 36 | 38 | 39 |
| 126000 | 57152 | 120777 | 54783 | 34 | 36 | 37 | 39 |
| 125000 | 56699 | 120089 | 54471 | 33 | 35 | 37 | 39 |
| 124000 | 56245 | 119401 | 54159 | 33 | 35 | 37 | 38 |
| 123000 | 55791 | 118713 | 53847 | 33 | 35 | 37 | 38 |
| 122000 | 55338 | 118026 | 53535 | 33 | 35 | 36 | 38 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 121000 | 54884 | 117338 | 53223 | 32 | 34 | 36 | 38 |
| 120500 | 54657 | 116994 | 53067 | 32 | 34 | 36 | 38 |
| 120000 | 54431 | 116539 | 52861 | 32 | 34 | 36 | 37 |
| 119000 | 53977 | 115629 | 52448 | 32 | 34 | 36 | 37 |
| 118000 | 53523 | 114720 | 52036 | 32 | 33 | 35 | 37 |
| 117000 | 53070 | 113810 | 51623 | 31 | 33 | 35 | 36 |
| 116000 | 52616 | 112901 | 51210 | 31 | 33 | 35 | 36 |
| 115000 | 52163 | 111828 | 50724 | 31 | 32 | 34 | 36 |
| 114000 | 51709 | 110756 | 50238 | 30 | 32 | 34 | 35 |
| 113000 | 51255 | 109683 | 49751 | 30 | 32 | 33 | 35 |
| 112000 | 50802 | 108610 | 49264 | 30 | 31 | 33 | 35 |
| 111000 | 50348 | 107538 | 48778 | 29 | 31 | 33 | 34 |
| 110000 | 49895 | 106465 | 48291 | 29 | 31 | 32 | 34 |
| 109000 | 49441 | 105393 | 47805 | 29 | 30 | 32 | 33 |
| 108000 | 48987 | 104320 | 47318 | 28 | 30 | 32 | 33 |
| 107000 | 48534 | 103248 | 46832 | 28 | 30 | 31 | 33 |
| 106000 | 48080 | 102175 | 46345 | 28 | 29 | 31 | 32 |
| 105000 | 47627 | 101103 | 45859 | 27 | 29 | 31 | 32 |
| 104000 | 47173 | 100030 | 45372 | 27 | 29 | 30 | 32 |
| 103000 | 46720 | 98958 | 44886 | 27 | 28 | 30 | 31 |
| 102000 | 46266 | 97885 | 44399 | 26 | 28 | 29 | 31 |
| 101000 | 45812 | 96813 | 43913 | 26 | 28 | 29 | 30 |
| 100000 | 45359 | 95740 | 43426 | 26 | 27 | 29 | 30 |
| 99000 | 44905 | 94668 | 42940 | 25 | 27 | 28 | 30 |
| 98000 | 44452 | 93595 | 42453 | 25 | 26 | 28 | 29 |
| 97000 | 43998 | 92523 | 41967 | 25 | 26 | 28 | 29 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 96000 | 43544 | 91450 | 41480 | 24 | 26 | 27 | 28 |
| 95000 | 43091 | 90378 | 40994 | 24 | 25 | 27 | 28 |
| 94000 | 42637 | 89305 | 40508 | 24 | 25 | 26 | 28 |
| 93000 | 42184 | 88232 | 40021 | 23 | 25 | 26 | 27 |
| 92000 | 41730 | 87160 | 39535 | 23 | 24 | 26 | 27 |
| 91000 | 41276 | 86087 | 39048 | 23 | 24 | 25 | 27 |
| 90000 | 40823 | 85015 | 38562 | 22 | 24 | 25 | 26 |
| 89000 | 40369 | 83942 | 38075 | 22 | 23 | 25 | 26 |
| 88000 | 39916 | 82870 | 37589 | 22 | 23 | 24 | 25 |
| 87000 | 39462 | 81797 | 37102 | 21 | 23 | 24 | 25 |
| 86000 | 39008 | 80725 | 36616 | 21 | 22 | 24 | 25 |
| 85000 | 38555 | 79652 | 36129 | 21 | 22 | 23 | 24 |
| 84000 | 38101 | 78580 | 35643 | 20 | 22 | 23 | 24 |
| 83000 | 37648 | 77507 | 35156 | 20 | 21 | 22 | 23 |
| 82000 | 37194 | 76435 | 34670 | 20 | 21 | 22 | 23 |
| 81000 | 36740 | 75362 | 34183 | 19 | 21 | 22 | 23 |
| 80000 | 36287 | 74290 | 33697 | 19 | 20 | 21 | 22 |
| 79000 | 35833 | 73217 | 33210 | 19 | 20 | 21 | 22 |
| 78000 | 35380 | 72145 | 32724 | 18 | 19 | 21 | 22 |
| 77000 | 34926 | 71072 | 32237 | 18 | 19 | 20 | 21 |

**Applicability:** 50069, 50071, 50078, 50085-50086

*Table 6 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 139000 | 63049 | 129719 | 58839 | 37 | 39 | 41 | 42 |
| 138000 | 62595 | 129031 | 58527 | 36 | 38 | 40 | 42 |
| 137000 | 62142 | 128343 | 58215 | 36 | 38 | 40 | 42 |
| 136000 | 61688 | 127655 | 57903 | 36 | 38 | 40 | 42 |
| 135000 | 61234 | 126967 | 57591 | 36 | 38 | 40 | 41 |
| 134000 | 60781 | 126280 | 57279 | 35 | 37 | 39 | 41 |
| 133000 | 60327 | 125592 | 56967 | 35 | 37 | 39 | 41 |
| 132000 | 59874 | 124904 | 56655 | 35 | 37 | 39 | 41 |
| 131000 | 59420 | 124216 | 56343 | 35 | 37 | 39 | 40 |
| 130000 | 58967 | 123528 | 56031 | 34 | 36 | 38 | 40 |
| 129000 | 58513 | 122840 | 55719 | 34 | 36 | 38 | 40 |
| 128000 | 58059 | 122153 | 55407 | 34 | 36 | 38 | 40 |
| 127000 | 57606 | 121465 | 55095 | 34 | 36 | 38 | 39 |
| 126000 | 57152 | 120777 | 54783 | 34 | 36 | 37 | 39 |
| 125000 | 56699 | 120089 | 54471 | 33 | 35 | 37 | 39 |
| 124000 | 56245 | 119401 | 54159 | 33 | 35 | 37 | 38 |
| 123000 | 55791 | 118713 | 53847 | 33 | 35 | 37 | 38 |
| 122000 | 55338 | 118026 | 53535 | 33 | 35 | 36 | 38 |
| 121000 | 54884 | 117338 | 53223 | 32 | 34 | 36 | 38 |
| 120500 | 54657 | 116994 | 53067 | 32 | 34 | 36 | 38 |
| 120000 | 54431 | 116539 | 52861 | 32 | 34 | 36 | 37 |
| 119000 | 53977 | 115629 | 52448 | 32 | 34 | 36 | 37 |
| 118000 | 53523 | 114720 | 52036 | 32 | 33 | 35 | 37 |
| 117000 | 53070 | 113810 | 51623 | 31 | 33 | 35 | 36 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 116000 | 52616 | 112901 | 51210 | 31 | 33 | 35 | 36 |
| 115000 | 52163 | 111828 | 50724 | 31 | 32 | 34 | 36 |
| 114000 | 51709 | 110756 | 50238 | 30 | 32 | 34 | 35 |
| 113000 | 51255 | 109683 | 49751 | 30 | 32 | 33 | 35 |
| 112000 | 50802 | 108610 | 49264 | 30 | 31 | 33 | 35 |
| 111000 | 50348 | 107538 | 48778 | 29 | 31 | 33 | 34 |
| 110000 | 49895 | 106465 | 48291 | 29 | 31 | 32 | 34 |
| 109000 | 49441 | 105393 | 47805 | 29 | 30 | 32 | 33 |
| 108000 | 48987 | 104320 | 47318 | 28 | 30 | 32 | 33 |
| 107000 | 48534 | 103248 | 46832 | 28 | 30 | 31 | 33 |
| 106000 | 48080 | 102175 | 46345 | 28 | 29 | 31 | 32 |
| 105000 | 47627 | 101103 | 45859 | 27 | 29 | 31 | 32 |
| 104000 | 47173 | 100030 | 45372 | 27 | 29 | 30 | 32 |
| 103000 | 46720 | 98958 | 44886 | 27 | 28 | 30 | 31 |
| 102000 | 46266 | 97885 | 44399 | 26 | 28 | 29 | 31 |
| 101000 | 45812 | 96813 | 43913 | 26 | 28 | 29 | 30 |
| 100000 | 45359 | 95740 | 43426 | 26 | 27 | 29 | 30 |
| 99000 | 44905 | 94668 | 42940 | 25 | 27 | 28 | 30 |
| 98000 | 44452 | 93595 | 42453 | 25 | 26 | 28 | 29 |
| 97000 | 43998 | 92523 | 41967 | 25 | 26 | 28 | 29 |
| 96000 | 43544 | 91450 | 41480 | 24 | 26 | 27 | 28 |
| 95000 | 43091 | 90378 | 40994 | 24 | 25 | 27 | 28 |
| 94000 | 42637 | 89305 | 40508 | 24 | 25 | 26 | 28 |
| 93000 | 42184 | 88232 | 40021 | 23 | 25 | 26 | 27 |
| 92000 | 41730 | 87160 | 39535 | 23 | 24 | 26 | 27 |
| 91000 | 41276 | 86087 | 39048 | 23 | 24 | 25 | 27 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 90000 | 40823 | 85015 | 38562 | 22 | 24 | 25 | 26 |
| 89000 | 40369 | 83942 | 38075 | 22 | 23 | 25 | 26 |
| 88000 | 39916 | 82870 | 37589 | 22 | 23 | 24 | 25 |
| 87000 | 39462 | 81797 | 37102 | 21 | 23 | 24 | 25 |
| 86000 | 39008 | 80725 | 36616 | 21 | 22 | 24 | 25 |
| 85000 | 38555 | 79652 | 36129 | 21 | 22 | 23 | 24 |
| 84000 | 38101 | 78580 | 35643 | 20 | 22 | 23 | 24 |
| 83000 | 37648 | 77507 | 35156 | 20 | 21 | 22 | 23 |
| 82000 | 37194 | 76435 | 34670 | 20 | 21 | 22 | 23 |
| 81000 | 36740 | 75362 | 34183 | 19 | 21 | 22 | 23 |
| 80000 | 36287 | 74290 | 33697 | 19 | 20 | 21 | 22 |
| 79000 | 35833 | 73217 | 33210 | 19 | 20 | 21 | 22 |
| 78000 | 35380 | 72145 | 32724 | 18 | 19 | 21 | 22 |
| 77000 | 34926 | 71072 | 32237 | 18 | 19 | 20 | 21 |

**LEGEND**

- Ultra low strength k=20 mn/m³.
- Low strength k=40 mn/m³.
- Medium strength k=80 mn/m³.
- High strength k=150 mn/m³.

ICN-BD500-A-J000000-C-3AB48-57663-A-003-01

*Figure 1 ACN results - Rigid pavement*

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 7 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 141500 | 64183 | 131518 | 59655 | 33 | 34 | 38 | 43 |
| 140500 | 63729 | 130750 | 59307 | 33 | 34 | 37 | 43 |
| 140000 | 63502 | 130406 | 59151 | 33 | 34 | 37 | 42 |
| 139000 | 63049 | 129719 | 58839 | 32 | 33 | 37 | 42 |
| 138000 | 62595 | 129031 | 58527 | 32 | 33 | 37 | 42 |
| 137000 | 62142 | 128343 | 58215 | 32 | 33 | 36 | 42 |
| 136000 | 61688 | 127655 | 57903 | 32 | 33 | 36 | 41 |
| 135000 | 61234 | 126967 | 57591 | 32 | 33 | 36 | 41 |
| 134000 | 60781 | 126280 | 57279 | 31 | 32 | 36 | 41 |
| 133000 | 60327 | 125592 | 56967 | 31 | 32 | 35 | 41 |
| 132000 | 59874 | 124904 | 56655 | 31 | 32 | 35 | 40 |
| 131000 | 59420 | 124216 | 56343 | 31 | 32 | 35 | 40 |
| 130000 | 58967 | 123528 | 56031 | 31 | 32 | 35 | 40 |
| 129000 | 58513 | 122840 | 55719 | 30 | 31 | 34 | 40 |
| 128000 | 58059 | 122153 | 55407 | 30 | 31 | 34 | 39 |
| 127000 | 57606 | 121465 | 55095 | 30 | 31 | 34 | 39 |
| 126000 | 57152 | 120777 | 54783 | 30 | 31 | 34 | 39 |
| 125000 | 56699 | 120089 | 54471 | 30 | 31 | 33 | 38 |
| 124000 | 56245 | 119401 | 54159 | 29 | 30 | 33 | 38 |
| 123000 | 55791 | 118713 | 53847 | 29 | 30 | 33 | 38 |
| 122000 | 55338 | 118026 | 53535 | 29 | 30 | 33 | 38 |
| 121000 | 54884 | 117338 | 53223 | 29 | 30 | 33 | 37 |
| 120500 | 54657 | 116994 | 53067 | 29 | 30 | 32 | 37 |
| 120000 | 54431 | 116539 | 52861 | 28 | 30 | 32 | 37 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 119000 | 53977 | 115629 | 52448 | 28 | 29 | 32 | 37 |
| 118000 | 53523 | 114720 | 52036 | 28 | 29 | 32 | 36 |
| 117000 | 53070 | 113810 | 51623 | 28 | 29 | 31 | 36 |
| 116000 | 52616 | 112901 | 51210 | 27 | 29 | 31 | 36 |
| 115000 | 52163 | 111828 | 50724 | 27 | 28 | 31 | 35 |
| 114000 | 51709 | 110756 | 50238 | 27 | 28 | 30 | 35 |
| 113000 | 51255 | 109683 | 49751 | 27 | 28 | 30 | 35 |
| 112000 | 50802 | 108610 | 49264 | 26 | 27 | 30 | 34 |
| 111000 | 50348 | 107538 | 48778 | 26 | 27 | 29 | 34 |
| 110000 | 49895 | 106465 | 48291 | 26 | 27 | 29 | 33 |
| 109000 | 49441 | 105393 | 47805 | 25 | 26 | 29 | 33 |
| 108000 | 48987 | 104320 | 47318 | 25 | 26 | 28 | 33 |
| 107000 | 48534 | 103248 | 46832 | 25 | 26 | 28 | 32 |
| 106000 | 48080 | 102175 | 46345 | 25 | 25 | 28 | 32 |
| 105000 | 47627 | 101103 | 45859 | 24 | 25 | 27 | 31 |
| 104000 | 47173 | 100030 | 45372 | 24 | 25 | 27 | 31 |
| 103000 | 46720 | 98958 | 44886 | 24 | 25 | 27 | 31 |
| 102000 | 46266 | 97885 | 44399 | 23 | 24 | 26 | 30 |
| 101000 | 45812 | 96813 | 43913 | 23 | 24 | 26 | 30 |
| 100000 | 45359 | 95740 | 43426 | 23 | 24 | 26 | 29 |
| 99000 | 44905 | 94668 | 42940 | 23 | 23 | 25 | 29 |
| 98000 | 44452 | 93595 | 42453 | 22 | 23 | 25 | 29 |
| 97000 | 43998 | 92523 | 41967 | 22 | 23 | 25 | 28 |
| 96000 | 43544 | 91450 | 41480 | 22 | 22 | 24 | 28 |
| 95000 | 43091 | 90378 | 40994 | 21 | 22 | 24 | 27 |
| 94000 | 42637 | 89305 | 40508 | 21 | 22 | 23 | 27 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 93000 | 42184 | 88232 | 40021 | 21 | 21 | 23 | 27 |
| 92000 | 41730 | 87160 | 39535 | 21 | 21 | 23 | 26 |
| 91000 | 41276 | 86087 | 39048 | 20 | 21 | 22 | 26 |
| 90000 | 40823 | 85015 | 38562 | 20 | 21 | 22 | 25 |
| 89000 | 40369 | 83942 | 38075 | 20 | 20 | 22 | 25 |
| 88000 | 39916 | 82870 | 37589 | 20 | 20 | 21 | 25 |
| 87000 | 39462 | 81797 | 37102 | 19 | 20 | 21 | 24 |
| 86000 | 39008 | 80725 | 36616 | 19 | 19 | 21 | 24 |
| 85000 | 38555 | 79652 | 36129 | 19 | 19 | 20 | 23 |
| 84000 | 38101 | 78580 | 35643 | 18 | 19 | 20 | 23 |
| 83000 | 37648 | 77507 | 35156 | 18 | 18 | 20 | 23 |
| 82000 | 37194 | 76435 | 34670 | 18 | 18 | 19 | 22 |
| 81000 | 36740 | 75362 | 34183 | 18 | 18 | 19 | 22 |
| 80000 | 36287 | 74290 | 33697 | 17 | 17 | 19 | 21 |
| 79000 | 35833 | 73217 | 33210 | 17 | 17 | 18 | 21 |
| 78000 | 35380 | 72145 | 32724 | 17 | 17 | 18 | 21 |
| 77000 | 34926 | 71072 | 32237 | 16 | 17 | 18 | 20 |

**Applicability:** 50010-50017, 50020-50065, 50067

*Table 8 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 135000 | 61234 | 126967 | 57591 | 32 | 33 | 36 | 41 |
| 134000 | 60781 | 126280 | 57279 | 31 | 32 | 36 | 41 |
| 133000 | 60327 | 125592 | 56967 | 31 | 32 | 35 | 41 |
| 132000 | 59874 | 124904 | 56655 | 31 | 32 | 35 | 40 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 131000 | 59420 | 124216 | 56343 | 31 | 32 | 35 | 40 |
| 130000 | 58967 | 123528 | 56031 | 31 | 32 | 35 | 40 |
| 129000 | 58513 | 122840 | 55719 | 30 | 31 | 34 | 40 |
| 128000 | 58059 | 122153 | 55407 | 30 | 31 | 34 | 39 |
| 127000 | 57606 | 121465 | 55095 | 30 | 31 | 34 | 39 |
| 126000 | 57152 | 120777 | 54783 | 30 | 31 | 34 | 39 |
| 125000 | 56699 | 120089 | 54471 | 30 | 31 | 33 | 38 |
| 124000 | 56245 | 119401 | 54159 | 29 | 30 | 33 | 38 |
| 123000 | 55791 | 118713 | 53847 | 29 | 30 | 33 | 38 |
| 122000 | 55338 | 118026 | 53535 | 29 | 30 | 33 | 38 |
| 121000 | 54884 | 117338 | 53223 | 29 | 30 | 33 | 37 |
| 120500 | 54657 | 116994 | 53067 | 29 | 30 | 32 | 37 |
| 120000 | 54431 | 116539 | 52861 | 28 | 30 | 32 | 37 |
| 119000 | 53977 | 115629 | 52448 | 28 | 29 | 32 | 37 |
| 118000 | 53523 | 114720 | 52036 | 28 | 29 | 32 | 36 |
| 117000 | 53070 | 113810 | 51623 | 28 | 29 | 31 | 36 |
| 116000 | 52616 | 112901 | 51210 | 27 | 29 | 31 | 36 |
| 115000 | 52163 | 111828 | 50724 | 27 | 28 | 31 | 35 |
| 114000 | 51709 | 110756 | 50238 | 27 | 28 | 30 | 35 |
| 113000 | 51255 | 109683 | 49751 | 27 | 28 | 30 | 35 |
| 112000 | 50802 | 108610 | 49264 | 26 | 27 | 30 | 34 |
| 111000 | 50348 | 107538 | 48778 | 26 | 27 | 29 | 34 |
| 110000 | 49895 | 106465 | 48291 | 26 | 27 | 29 | 33 |
| 109000 | 49441 | 105393 | 47805 | 25 | 26 | 29 | 33 |
| 108000 | 48987 | 104320 | 47318 | 25 | 26 | 28 | 33 |
| 107000 | 48534 | 103248 | 46832 | 25 | 26 | 28 | 32 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 106000 | 48080 | 102175 | 46345 | 25 | 25 | 28 | 32 |
| 105000 | 47627 | 101103 | 45859 | 24 | 25 | 27 | 31 |
| 104000 | 47173 | 100030 | 45372 | 24 | 25 | 27 | 31 |
| 103000 | 46720 | 98958 | 44886 | 24 | 25 | 27 | 31 |
| 102000 | 46266 | 97885 | 44399 | 23 | 24 | 26 | 30 |
| 101000 | 45812 | 96813 | 43913 | 23 | 24 | 26 | 30 |
| 100000 | 45359 | 95740 | 43426 | 23 | 24 | 26 | 29 |
| 99000 | 44905 | 94668 | 42940 | 23 | 23 | 25 | 29 |
| 98000 | 44452 | 93595 | 42453 | 22 | 23 | 25 | 29 |
| 97000 | 43998 | 92523 | 41967 | 22 | 23 | 25 | 28 |
| 96000 | 43544 | 91450 | 41480 | 22 | 22 | 24 | 28 |
| 95000 | 43091 | 90378 | 40994 | 21 | 22 | 24 | 27 |
| 94000 | 42637 | 89305 | 40508 | 21 | 22 | 23 | 27 |
| 93000 | 42184 | 88232 | 40021 | 21 | 21 | 23 | 27 |
| 92000 | 41730 | 87160 | 39535 | 21 | 21 | 23 | 26 |
| 91000 | 41276 | 86087 | 39048 | 20 | 21 | 22 | 26 |
| 90000 | 40823 | 85015 | 38562 | 20 | 21 | 22 | 25 |
| 89000 | 40369 | 83942 | 38075 | 20 | 20 | 22 | 25 |
| 88000 | 39916 | 82870 | 37589 | 20 | 20 | 21 | 25 |
| 87000 | 39462 | 81797 | 37102 | 19 | 20 | 21 | 24 |
| 86000 | 39008 | 80725 | 36616 | 19 | 19 | 21 | 24 |
| 85000 | 38555 | 79652 | 36129 | 19 | 19 | 20 | 23 |
| 84000 | 38101 | 78580 | 35643 | 18 | 19 | 20 | 23 |
| 83000 | 37648 | 77507 | 35156 | 18 | 18 | 20 | 23 |
| 82000 | 37194 | 76435 | 34670 | 18 | 18 | 19 | 22 |
| 81000 | 36740 | 75362 | 34183 | 18 | 18 | 19 | 22 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 80000 | 36287 | 74290 | 33697 | 17 | 17 | 19 | 21 |
| 79000 | 35833 | 73217 | 33210 | 17 | 17 | 18 | 21 |
| 78000 | 35380 | 72145 | 32724 | 17 | 17 | 18 | 21 |
| 77000 | 34926 | 71072 | 32237 | 16 | 17 | 18 | 20 |

**Applicability:** 50069, 50071, 50078, 50085-50086

*Table 9 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 139000 | 63049 | 129719 | 58839 | 32 | 33 | 37 | 42 |
| 138000 | 62595 | 129031 | 58527 | 32 | 33 | 37 | 42 |
| 137000 | 62142 | 128343 | 58215 | 32 | 33 | 36 | 42 |
| 136000 | 61688 | 127655 | 57903 | 32 | 33 | 36 | 41 |
| 135000 | 61234 | 126967 | 57591 | 32 | 33 | 36 | 41 |
| 134000 | 60781 | 126280 | 57279 | 31 | 32 | 36 | 41 |
| 133000 | 60327 | 125592 | 56967 | 31 | 32 | 35 | 41 |
| 132000 | 59874 | 124904 | 56655 | 31 | 32 | 35 | 40 |
| 131000 | 59420 | 124216 | 56343 | 31 | 32 | 35 | 40 |
| 130000 | 58967 | 123528 | 56031 | 31 | 32 | 35 | 40 |
| 129000 | 58513 | 122840 | 55719 | 30 | 31 | 34 | 40 |
| 128000 | 58059 | 122153 | 55407 | 30 | 31 | 34 | 39 |
| 127000 | 57606 | 121465 | 55095 | 30 | 31 | 34 | 39 |
| 126000 | 57152 | 120777 | 54783 | 30 | 31 | 34 | 39 |
| 125000 | 56699 | 120089 | 54471 | 30 | 31 | 33 | 38 |
| 124000 | 56245 | 119401 | 54159 | 29 | 30 | 33 | 38 |
| 123000 | 55791 | 118713 | 53847 | 29 | 30 | 33 | 38 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 122000 | 55338 | 118026 | 53535 | 29 | 30 | 33 | 38 |
| 121000 | 54884 | 117338 | 53223 | 29 | 30 | 33 | 37 |
| 120500 | 54657 | 116994 | 53067 | 29 | 30 | 32 | 37 |
| 120000 | 54431 | 116539 | 52861 | 28 | 30 | 32 | 37 |
| 119000 | 53977 | 115629 | 52448 | 28 | 29 | 32 | 37 |
| 118000 | 53523 | 114720 | 52036 | 28 | 29 | 32 | 36 |
| 117000 | 53070 | 113810 | 51623 | 28 | 29 | 31 | 36 |
| 116000 | 52616 | 112901 | 51210 | 27 | 29 | 31 | 36 |
| 115000 | 52163 | 111828 | 50724 | 27 | 28 | 31 | 35 |
| 114000 | 51709 | 110756 | 50238 | 27 | 28 | 30 | 35 |
| 113000 | 51255 | 109683 | 49751 | 27 | 28 | 30 | 35 |
| 112000 | 50802 | 108610 | 49264 | 26 | 27 | 30 | 34 |
| 111000 | 50348 | 107538 | 48778 | 26 | 27 | 29 | 34 |
| 110000 | 49895 | 106465 | 48291 | 26 | 27 | 29 | 33 |
| 109000 | 49441 | 105393 | 47805 | 25 | 26 | 29 | 33 |
| 108000 | 48987 | 104320 | 47318 | 25 | 26 | 28 | 33 |
| 107000 | 48534 | 103248 | 46832 | 25 | 26 | 28 | 32 |
| 106000 | 48080 | 102175 | 46345 | 25 | 25 | 28 | 32 |
| 105000 | 47627 | 101103 | 45859 | 24 | 25 | 27 | 31 |
| 104000 | 47173 | 100030 | 45372 | 24 | 25 | 27 | 31 |
| 103000 | 46720 | 98958 | 44886 | 24 | 25 | 27 | 31 |
| 102000 | 46266 | 97885 | 44399 | 23 | 24 | 26 | 30 |
| 101000 | 45812 | 96813 | 43913 | 23 | 24 | 26 | 30 |
| 100000 | 45359 | 95740 | 43426 | 23 | 24 | 26 | 29 |
| 99000 | 44905 | 94668 | 42940 | 23 | 23 | 25 | 29 |
| 98000 | 44452 | 93595 | 42453 | 22 | 23 | 25 | 29 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 97000 | 43998 | 92523 | 41967 | 22 | 23 | 25 | 28 |
| 96000 | 43544 | 91450 | 41480 | 22 | 22 | 24 | 28 |
| 95000 | 43091 | 90378 | 40994 | 21 | 22 | 24 | 27 |
| 94000 | 42637 | 89305 | 40508 | 21 | 22 | 23 | 27 |
| 93000 | 42184 | 88232 | 40021 | 21 | 21 | 23 | 27 |
| 92000 | 41730 | 87160 | 39535 | 21 | 21 | 23 | 26 |
| 91000 | 41276 | 86087 | 39048 | 20 | 21 | 22 | 26 |
| 90000 | 40823 | 85015 | 38562 | 20 | 21 | 22 | 25 |
| 89000 | 40369 | 83942 | 38075 | 20 | 20 | 22 | 25 |
| 88000 | 39916 | 82870 | 37589 | 20 | 20 | 21 | 25 |
| 87000 | 39462 | 81797 | 37102 | 19 | 20 | 21 | 24 |
| 86000 | 39008 | 80725 | 36616 | 19 | 19 | 21 | 24 |
| 85000 | 38555 | 79652 | 36129 | 19 | 19 | 20 | 23 |
| 84000 | 38101 | 78580 | 35643 | 18 | 19 | 20 | 23 |
| 83000 | 37648 | 77507 | 35156 | 18 | 18 | 20 | 23 |
| 82000 | 37194 | 76435 | 34670 | 18 | 18 | 19 | 22 |
| 81000 | 36740 | 75362 | 34183 | 18 | 18 | 19 | 22 |
| 80000 | 36287 | 74290 | 33697 | 17 | 17 | 19 | 21 |
| 79000 | 35833 | 73217 | 33210 | 17 | 17 | 18 | 21 |
| 78000 | 35380 | 72145 | 32724 | 17 | 17 | 18 | 21 |
| 77000 | 34926 | 71072 | 32237 | 16 | 17 | 18 | 20 |

**LEGEND**

- Ultra low strength california bearing ratio=3.
- Low strength california bearing ratio=6.
- Medium strength california bearing ratio=10.
- High strength california bearing ratio=15.

ICN-BD500-A-J000000-C-3AB48-57664-A-003-01

*Figure 2 ACN results - Flexible pavement*

# 3 Aircraft Classification Number (ACN) results for most forward C.G. positions

Refer to Table 10 for tabular format and Fig. 3 for graphical format for the ACN results for rigid pavement and Table 13 for tabular format and Fig. 4 for graphical format for the ACN results for flexible pavement.

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 10 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 141500 | 64183 | 128471 | 58273 | 36 | 38 | 40 | 42 |
| 140500 | 63729 | 127450 | 57810 | 36 | 38 | 40 | 42 |
| 140000 | 63502 | 127008 | 57609 | 36 | 38 | 40 | 41 |
| 139000 | 63049 | 126123 | 57208 | 35 | 37 | 39 | 41 |
| 138000 | 62595 | 125238 | 56806 | 35 | 37 | 39 | 41 |
| 137000 | 62142 | 124353 | 56405 | 35 | 37 | 39 | 40 |
| 136000 | 61688 | 123469 | 56004 | 34 | 36 | 38 | 40 |
| 135000 | 61234 | 122584 | 55603 | 34 | 36 | 38 | 40 |
| 134000 | 60781 | 121699 | 55201 | 34 | 36 | 38 | 39 |
| 133000 | 60327 | 120814 | 54800 | 34 | 36 | 37 | 39 |
| 132000 | 59874 | 119929 | 54398 | 33 | 35 | 37 | 39 |
| 131000 | 59420 | 119044 | 53997 | 33 | 35 | 37 | 38 |
| 130000 | 58967 | 118160 | 53596 | 33 | 35 | 36 | 38 |
| 129000 | 58513 | 117275 | 53195 | 32 | 34 | 36 | 38 |
| 128000 | 58059 | 116390 | 52793 | 32 | 34 | 36 | 37 |
| 127000 | 57606 | 115505 | 52392 | 32 | 34 | 36 | 37 |
| 126000 | 57152 | 114620 | 51990 | 32 | 33 | 35 | 37 |
| 125000 | 56699 | 113736 | 51589 | 31 | 33 | 35 | 36 |
| 124000 | 56245 | 112851 | 51188 | 31 | 33 | 35 | 36 |
| 123000 | 55791 | 111966 | 50786 | 31 | 32 | 34 | 36 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 122000 | 55338 | 111081 | 50385 | 30 | 32 | 34 | 35 |
| 121000 | 54884 | 110196 | 49984 | 30 | 32 | 34 | 35 |
| 120500 | 54657 | 109754 | 49783 | 30 | 32 | 34 | 35 |
| 120000 | 54431 | 109267 | 49562 | 30 | 32 | 33 | 35 |
| 119000 | 53977 | 108292 | 49120 | 30 | 31 | 33 | 34 |
| 118000 | 53523 | 107318 | 48678 | 29 | 31 | 33 | 34 |
| 117000 | 53070 | 106344 | 48236 | 29 | 31 | 32 | 34 |
| 116000 | 53070 | 105370 | 47794 | 29 | 30 | 32 | 33 |
| 115000 | 52616 | 104400 | 47355 | 28 | 30 | 32 | 33 |
| 114000 | 52163 | 103429 | 46914 | 28 | 30 | 31 | 33 |
| 113000 | 51255 | 102459 | 46474 | 28 | 29 | 31 | 32 |
| 112000 | 50802 | 101489 | 46034 | 27 | 29 | 31 | 32 |
| 111000 | 50348 | 100519 | 45594 | 27 | 29 | 30 | 32 |
| 110000 | 49895 | 99548 | 45154 | 27 | 28 | 30 | 31 |
| 109000 | 49441 | 98578 | 44714 | 27 | 28 | 30 | 31 |
| 108000 | 48987 | 97608 | 44274 | 26 | 28 | 29 | 31 |
| 107000 | 48534 | 96638 | 43834 | 26 | 27 | 29 | 30 |
| 106000 | 48080 | 95668 | 43394 | 26 | 27 | 29 | 30 |
| 105000 | 47627 | 94697 | 42953 | 25 | 27 | 28 | 30 |
| 104000 | 47173 | 93727 | 42513 | 25 | 27 | 28 | 29 |
| 103000 | 46720 | 92757 | 42073 | 25 | 26 | 28 | 29 |
| 102000 | 46266 | 91787 | 41633 | 24 | 26 | 27 | 29 |
| 101000 | 45812 | 90816 | 41193 | 24 | 26 | 27 | 28 |
| 100000 | 45359 | 89846 | 40753 | 24 | 25 | 27 | 28 |
| 99000 | 44905 | 88876 | 40313 | 24 | 25 | 26 | 28 |
| 98000 | 44452 | 87906 | 39873 | 23 | 25 | 26 | 27 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 97000 | 43998 | 86935 | 39433 | 23 | 24 | 26 | 27 |
| 96000 | 43544 | 85965 | 38993 | 23 | 24 | 25 | 26 |
| 95000 | 43091 | 84995 | 38553 | 22 | 24 | 25 | 26 |
| 94000 | 42637 | 84025 | 38113 | 22 | 23 | 25 | 26 |
| 93000 | 42184 | 83055 | 37673 | 22 | 23 | 24 | 25 |
| 92000 | 41730 | 82084 | 37232 | 21 | 23 | 24 | 25 |
| 91000 | 41276 | 81114 | 36792 | 21 | 22 | 24 | 25 |
| 90000 | 40823 | 80144 | 36352 | 21 | 22 | 23 | 24 |
| 89000 | 40369 | 79174 | 35912 | 21 | 22 | 23 | 24 |
| 88000 | 39916 | 78203 | 35472 | 20 | 21 | 23 | 24 |
| 87000 | 39462 | 77233 | 35032 | 20 | 21 | 22 | 23 |
| 86000 | 39008 | 76263 | 34592 | 20 | 21 | 22 | 23 |
| 85000 | 38555 | 75293 | 34152 | 19 | 21 | 22 | 23 |
| 84000 | 38101 | 74322 | 33711 | 19 | 20 | 21 | 22 |
| 83000 | 37648 | 73352 | 33271 | 19 | 20 | 21 | 22 |
| 82000 | 37194 | 72382 | 32831 | 18 | 20 | 21 | 22 |
| 81000 | 36740 | 71412 | 32391 | 18 | 19 | 20 | 21 |
| 80000 | 36287 | 70442 | 31951 | 18 | 19 | 20 | 21 |
| 79000 | 35833 | 69471 | 31511 | 18 | 19 | 20 | 21 |
| 78000 | 35380 | 68501 | 31071 | 17 | 18 | 19 | 20 |
| 77000 | 34926 | 67531 | 30631 | 17 | 18 | 19 | 20 |

**Applicability:** 50010-50017, 50020-50065, 50067

*Table 11 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 135000 | 61234 | 122584 | 55603 | 34 | 36 | 38 | 40 |
| 134000 | 60781 | 121699 | 55201 | 34 | 36 | 38 | 39 |
| 133000 | 60327 | 120814 | 54800 | 34 | 36 | 37 | 39 |
| 132000 | 59874 | 119929 | 54398 | 33 | 35 | 37 | 39 |
| 131000 | 59420 | 119044 | 53997 | 33 | 35 | 37 | 38 |
| 130000 | 58967 | 118160 | 53596 | 33 | 35 | 36 | 38 |
| 129000 | 58513 | 117275 | 53195 | 32 | 34 | 36 | 38 |
| 128000 | 58059 | 116390 | 52793 | 32 | 34 | 36 | 37 |
| 127000 | 57606 | 115505 | 52392 | 32 | 34 | 36 | 37 |
| 126000 | 57152 | 114620 | 51990 | 32 | 33 | 35 | 37 |
| 125000 | 56699 | 113736 | 51589 | 31 | 33 | 35 | 36 |
| 124000 | 56245 | 112851 | 51188 | 31 | 33 | 35 | 36 |
| 123000 | 55791 | 111966 | 50786 | 31 | 32 | 34 | 36 |
| 122000 | 55338 | 111081 | 50385 | 30 | 32 | 34 | 35 |
| 121000 | 54884 | 110196 | 49984 | 30 | 32 | 34 | 35 |
| 120500 | 54657 | 109754 | 49783 | 30 | 32 | 34 | 35 |
| 120000 | 54431 | 109267 | 49562 | 30 | 32 | 33 | 35 |
| 119000 | 53977 | 108292 | 49120 | 30 | 31 | 33 | 34 |
| 118000 | 53523 | 107318 | 48678 | 29 | 31 | 33 | 34 |
| 117000 | 53070 | 106344 | 48236 | 29 | 31 | 32 | 34 |
| 116000 | 53070 | 105370 | 47794 | 29 | 30 | 32 | 33 |
| 115000 | 52616 | 104400 | 47355 | 28 | 30 | 32 | 33 |
| 114000 | 52163 | 103429 | 46914 | 28 | 30 | 31 | 33 |
| 113000 | 51255 | 102459 | 46474 | 28 | 29 | 31 | 32 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 112000 | 50802 | 101489 | 46034 | 27 | 29 | 31 | 32 |
| 111000 | 50348 | 100519 | 45594 | 27 | 29 | 30 | 32 |
| 110000 | 49895 | 99548 | 45154 | 27 | 28 | 30 | 31 |
| 109000 | 49441 | 98578 | 44714 | 27 | 28 | 30 | 31 |
| 108000 | 48987 | 97608 | 44274 | 26 | 28 | 29 | 31 |
| 107000 | 48534 | 96638 | 43834 | 26 | 27 | 29 | 30 |
| 106000 | 48080 | 95668 | 43394 | 26 | 27 | 29 | 30 |
| 105000 | 47627 | 94697 | 42953 | 25 | 27 | 28 | 30 |
| 104000 | 47173 | 93727 | 42513 | 25 | 27 | 28 | 29 |
| 103000 | 46720 | 92757 | 42073 | 25 | 26 | 28 | 29 |
| 102000 | 46266 | 91787 | 41633 | 24 | 26 | 27 | 29 |
| 101000 | 45812 | 90816 | 41193 | 24 | 26 | 27 | 28 |
| 100000 | 45359 | 89846 | 40753 | 24 | 25 | 27 | 28 |
| 99000 | 44905 | 88876 | 40313 | 24 | 25 | 26 | 28 |
| 98000 | 44452 | 87906 | 39873 | 23 | 25 | 26 | 27 |
| 97000 | 43998 | 86935 | 39433 | 23 | 24 | 26 | 27 |
| 96000 | 43544 | 85965 | 38993 | 23 | 24 | 25 | 26 |
| 95000 | 43091 | 84995 | 38553 | 22 | 24 | 25 | 26 |
| 94000 | 42637 | 84025 | 38113 | 22 | 23 | 25 | 26 |
| 93000 | 42184 | 83055 | 37673 | 22 | 23 | 24 | 25 |
| 92000 | 41730 | 82084 | 37232 | 21 | 23 | 24 | 25 |
| 91000 | 41276 | 81114 | 36792 | 21 | 22 | 24 | 25 |
| 90000 | 40823 | 80144 | 36352 | 21 | 22 | 23 | 24 |
| 89000 | 40369 | 79174 | 35912 | 21 | 22 | 23 | 24 |
| 88000 | 39916 | 78203 | 35472 | 20 | 21 | 23 | 24 |
| 87000 | 39462 | 77233 | 35032 | 20 | 21 | 22 | 23 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 86000 | 39008 | 76263 | 34592 | 20 | 21 | 22 | 23 |
| 85000 | 38555 | 75293 | 34152 | 19 | 21 | 22 | 23 |
| 84000 | 38101 | 74322 | 33711 | 19 | 20 | 21 | 22 |
| 83000 | 37648 | 73352 | 33271 | 19 | 20 | 21 | 22 |
| 82000 | 37194 | 72382 | 32831 | 18 | 20 | 21 | 22 |
| 81000 | 36740 | 71412 | 32391 | 18 | 19 | 20 | 21 |
| 80000 | 36287 | 70442 | 31951 | 18 | 19 | 20 | 21 |
| 79000 | 35833 | 69471 | 31511 | 18 | 19 | 20 | 21 |
| 78000 | 35380 | 68501 | 31071 | 17 | 18 | 19 | 20 |
| 77000 | 34926 | 67531 | 30631 | 17 | 18 | 19 | 20 |

**Applicability:** 50069, 50071, 50078, 50085-50086

*Table 12 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 139000 | 63049 | 126123 | 57208 | 35 | 37 | 39 | 41 |
| 138000 | 62595 | 125238 | 56806 | 35 | 37 | 39 | 41 |
| 137000 | 62142 | 124353 | 56405 | 35 | 37 | 39 | 40 |
| 136000 | 61688 | 123469 | 56004 | 34 | 36 | 38 | 40 |
| 135000 | 61234 | 122584 | 55603 | 34 | 36 | 38 | 40 |
| 134000 | 60781 | 121699 | 55201 | 34 | 36 | 38 | 39 |
| 133000 | 60327 | 120814 | 54800 | 34 | 36 | 37 | 39 |
| 132000 | 59874 | 119929 | 54398 | 33 | 35 | 37 | 39 |
| 131000 | 59420 | 119044 | 53997 | 33 | 35 | 37 | 38 |
| 130000 | 58967 | 118160 | 53596 | 33 | 35 | 36 | 38 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 129000 | 58513 | 117275 | 53195 | 32 | 34 | 36 | 38 |
| 128000 | 58059 | 116390 | 52793 | 32 | 34 | 36 | 37 |
| 127000 | 57606 | 115505 | 52392 | 32 | 34 | 36 | 37 |
| 126000 | 57152 | 114620 | 51990 | 32 | 33 | 35 | 37 |
| 125000 | 56699 | 113736 | 51589 | 31 | 33 | 35 | 36 |
| 124000 | 56245 | 112851 | 51188 | 31 | 33 | 35 | 36 |
| 123000 | 55791 | 111966 | 50786 | 31 | 32 | 34 | 36 |
| 122000 | 55338 | 111081 | 50385 | 30 | 32 | 34 | 35 |
| 121000 | 54884 | 110196 | 49984 | 30 | 32 | 34 | 35 |
| 120500 | 54657 | 109754 | 49783 | 30 | 32 | 34 | 35 |
| 120000 | 54431 | 109267 | 49562 | 30 | 32 | 33 | 35 |
| 119000 | 53977 | 108292 | 49120 | 30 | 31 | 33 | 34 |
| 118000 | 53523 | 107318 | 48678 | 29 | 31 | 33 | 34 |
| 117000 | 53070 | 106344 | 48236 | 29 | 31 | 32 | 34 |
| 116000 | 53070 | 105370 | 47794 | 29 | 30 | 32 | 33 |
| 115000 | 52616 | 104400 | 47355 | 28 | 30 | 32 | 33 |
| 114000 | 52163 | 103429 | 46914 | 28 | 30 | 31 | 33 |
| 113000 | 51255 | 102459 | 46474 | 28 | 29 | 31 | 32 |
| 112000 | 50802 | 101489 | 46034 | 27 | 29 | 31 | 32 |
| 111000 | 50348 | 100519 | 45594 | 27 | 29 | 30 | 32 |
| 110000 | 49895 | 99548 | 45154 | 27 | 28 | 30 | 31 |
| 109000 | 49441 | 98578 | 44714 | 27 | 28 | 30 | 31 |
| 108000 | 48987 | 97608 | 44274 | 26 | 28 | 29 | 31 |
| 107000 | 48534 | 96638 | 43834 | 26 | 27 | 29 | 30 |
| 106000 | 48080 | 95668 | 43394 | 26 | 27 | 29 | 30 |
| 105000 | 47627 | 94697 | 42953 | 25 | 27 | 28 | 30 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 104000 | 47173 | 93727 | 42513 | 25 | 27 | 28 | 29 |
| 103000 | 46720 | 92757 | 42073 | 25 | 26 | 28 | 29 |
| 102000 | 46266 | 91787 | 41633 | 24 | 26 | 27 | 29 |
| 101000 | 45812 | 90816 | 41193 | 24 | 26 | 27 | 28 |
| 100000 | 45359 | 89846 | 40753 | 24 | 25 | 27 | 28 |
| 99000 | 44905 | 88876 | 40313 | 24 | 25 | 26 | 28 |
| 98000 | 44452 | 87906 | 39873 | 23 | 25 | 26 | 27 |
| 97000 | 43998 | 86935 | 39433 | 23 | 24 | 26 | 27 |
| 96000 | 43544 | 85965 | 38993 | 23 | 24 | 25 | 26 |
| 95000 | 43091 | 84995 | 38553 | 22 | 24 | 25 | 26 |
| 94000 | 42637 | 84025 | 38113 | 22 | 23 | 25 | 26 |
| 93000 | 42184 | 83055 | 37673 | 22 | 23 | 24 | 25 |
| 92000 | 41730 | 82084 | 37232 | 21 | 23 | 24 | 25 |
| 91000 | 41276 | 81114 | 36792 | 21 | 22 | 24 | 25 |
| 90000 | 40823 | 80144 | 36352 | 21 | 22 | 23 | 24 |
| 89000 | 40369 | 79174 | 35912 | 21 | 22 | 23 | 24 |
| 88000 | 39916 | 78203 | 35472 | 20 | 21 | 23 | 24 |
| 87000 | 39462 | 77233 | 35032 | 20 | 21 | 22 | 23 |
| 86000 | 39008 | 76263 | 34592 | 20 | 21 | 22 | 23 |
| 85000 | 38555 | 75293 | 34152 | 19 | 21 | 22 | 23 |
| 84000 | 38101 | 74322 | 33711 | 19 | 20 | 21 | 22 |
| 83000 | 37648 | 73352 | 33271 | 19 | 20 | 21 | 22 |
| 82000 | 37194 | 72382 | 32831 | 18 | 20 | 21 | 22 |
| 81000 | 36740 | 71412 | 32391 | 18 | 19 | 20 | 21 |
| 80000 | 36287 | 70442 | 31951 | 18 | 19 | 20 | 21 |
| 79000 | 35833 | 69471 | 31511 | 18 | 19 | 20 | 21 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 78000 | 35380 | 68501 | 31071 | 17 | 18 | 19 | 20 |
| 77000 | 34926 | 67531 | 30631 | 17 | 18 | 19 | 20 |

**LEGEND**

- Ultra low strength k=20 mn/m³.
- Low strength k=40 mn/m³.
- Medium strength k=80 mn/m³.
- High strength k=150 mn/m³.

ICN-BD500-A-J000000-C-3AB48-57665-A-003-01

*Figure 3 ACN results - Rigid pavement*

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 13 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 141500 | 64183 | 128471 | 58273 | 32 | 33 | 36 | 42 |
| 140500 | 63729 | 127450 | 57810 | 32 | 33 | 36 | 41 |
| 140000 | 63502 | 127008 | 57609 | 32 | 33 | 36 | 41 |
| 139000 | 63049 | 126123 | 57208 | 31 | 32 | 36 | 41 |
| 138000 | 62595 | 125238 | 56806 | 31 | 32 | 35 | 40 |
| 137000 | 62142 | 124353 | 56405 | 31 | 32 | 35 | 40 |
| 136000 | 61688 | 123469 | 56004 | 31 | 32 | 35 | 40 |
| 135000 | 61234 | 122584 | 55603 | 30 | 31 | 34 | 39 |
| 134000 | 60781 | 121699 | 55201 | 30 | 31 | 34 | 39 |
| 133000 | 60327 | 120814 | 54800 | 30 | 31 | 34 | 39 |
| 132000 | 59874 | 119929 | 54398 | 29 | 31 | 33 | 38 |
| 131000 | 59420 | 119044 | 53997 | 29 | 30 | 33 | 38 |
| 130000 | 58967 | 118160 | 53596 | 29 | 30 | 33 | 38 |
| 129000 | 58513 | 117275 | 53195 | 29 | 30 | 32 | 37 |
| 128000 | 58059 | 116390 | 52793 | 28 | 29 | 32 | 37 |
| 127000 | 57606 | 115505 | 52392 | 28 | 29 | 32 | 37 |
| 126000 | 57152 | 114620 | 51990 | 28 | 29 | 32 | 36 |
| 125000 | 56699 | 113736 | 51589 | 28 | 29 | 31 | 36 |
| 124000 | 56245 | 112851 | 51188 | 27 | 28 | 31 | 36 |
| 123000 | 55791 | 111966 | 50786 | 27 | 28 | 31 | 35 |
| 122000 | 55338 | 111081 | 50385 | 27 | 28 | 30 | 35 |
| 121000 | 54884 | 110196 | 49984 | 27 | 28 | 30 | 35 |
| 120500 | 54657 | 109754 | 49783 | 27 | 28 | 30 | 35 |
| 120000 | 54431 | 109267 | 49562 | 26 | 27 | 30 | 34 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 119000 | 54204 | 108292 | 49120 | 26 | 27 | 29 | 34 |
| 118000 | 53533 | 107318 | 48678 | 26 | 27 | 29 | 34 |
| 117000 | 53070 | 106344 | 48236 | 26 | 26 | 29 | 33 |
| 116000 | 52389 | 105370 | 47794 | 25 | 26 | 28 | 33 |
| 115000 | 52163 | 104400 | 47355 | 25 | 26 | 28 | 33 |
| 114000 | 51709 | 103429 | 46914 | 25 | 26 | 28 | 32 |
| 113000 | 51255 | 102459 | 46474 | 25 | 25 | 28 | 32 |
| 112000 | 50802 | 101489 | 46034 | 24 | 25 | 27 | 31 |
| 111000 | 50348 | 100519 | 45594 | 24 | 25 | 27 | 31 |
| 110000 | 49895 | 99548 | 45154 | 24 | 24 | 27 | 31 |
| 109000 | 49441 | 98578 | 44714 | 24 | 24 | 26 | 30 |
| 108000 | 48987 | 97608 | 44274 | 23 | 24 | 26 | 30 |
| 107000 | 48534 | 96638 | 43834 | 23 | 24 | 26 | 30 |
| 106000 | 48080 | 95668 | 43394 | 23 | 23 | 25 | 29 |
| 105000 | 47627 | 94697 | 42953 | 23 | 23 | 25 | 29 |
| 104000 | 47173 | 93727 | 42513 | 22 | 23 | 25 | 29 |
| 103000 | 46720 | 92757 | 42073 | 22 | 23 | 25 | 28 |
| 102000 | 46266 | 91787 | 41633 | 22 | 22 | 24 | 28 |
| 101000 | 45812 | 90816 | 41193 | 22 | 22 | 24 | 28 |
| 100000 | 45359 | 89846 | 40753 | 21 | 22 | 24 | 27 |
| 99000 | 44905 | 88876 | 40313 | 21 | 22 | 23 | 27 |
| 98000 | 44452 | 87906 | 39873 | 21 | 21 | 23 | 26 |
| 97000 | 43998 | 86935 | 39433 | 21 | 21 | 23 | 26 |
| 96000 | 43544 | 85965 | 38993 | 20 | 21 | 22 | 26 |
| 95000 | 43091 | 84995 | 38553 | 20 | 20 | 22 | 25 |
| 94000 | 42637 | 84025 | 38113 | 20 | 20 | 22 | 25 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 93000 | 42184 | 83055 | 37673 | 20 | 20 | 22 | 25 |
| 92000 | 41730 | 82084 | 37232 | 19 | 20 | 21 | 24 |
| 91000 | 41276 | 81114 | 36792 | 19 | 19 | 21 | 24 |
| 90000 | 40823 | 80144 | 36352 | 19 | 19 | 21 | 24 |
| 89000 | 40369 | 79174 | 35912 | 19 | 19 | 20 | 23 |
| 88000 | 39916 | 78203 | 35472 | 18 | 19 | 20 | 23 |
| 87000 | 39462 | 77233 | 35032 | 18 | 18 | 20 | 22 |
| 86000 | 39008 | 76263 | 34592 | 18 | 18 | 19 | 22 |
| 85000 | 38555 | 75293 | 34152 | 18 | 18 | 19 | 22 |
| 84000 | 38101 | 74322 | 33711 | 17 | 17 | 19 | 21 |
| 83000 | 37648 | 73352 | 33271 | 17 | 17 | 19 | 21 |
| 82000 | 37194 | 72382 | 32831 | 17 | 17 | 18 | 21 |
| 81000 | 36740 | 71412 | 32391 | 17 | 17 | 18 | 20 |
| 80000 | 36287 | 70442 | 31951 | 16 | 16 | 18 | 20 |
| 79000 | 35833 | 69471 | 31511 | 16 | 16 | 17 | 20 |
| 78000 | 35380 | 68501 | 31071 | 16 | 16 | 17 | 19 |
| 77000 | 34926 | 67531 | 30631 | 16 | 16 | 17 | 19 |

**Applicability:** 50010-50017, 50020-50065, 50067

*Table 14 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 135000 | 61234 | 122584 | 55603 | 30 | 31 | 34 | 39 |
| 134000 | 60781 | 121699 | 55201 | 30 | 31 | 34 | 39 |
| 133000 | 60327 | 120814 | 54800 | 30 | 31 | 34 | 39 |
| 132000 | 59874 | 119929 | 54398 | 29 | 31 | 33 | 38 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 131000 | 59420 | 119044 | 53997 | 29 | 30 | 33 | 38 |
| 130000 | 58967 | 118160 | 53596 | 29 | 30 | 33 | 38 |
| 129000 | 58513 | 117275 | 53195 | 29 | 30 | 32 | 37 |
| 128000 | 58059 | 116390 | 52793 | 28 | 29 | 32 | 37 |
| 127000 | 57606 | 115505 | 52392 | 28 | 29 | 32 | 37 |
| 126000 | 57152 | 114620 | 51990 | 28 | 29 | 32 | 36 |
| 125000 | 56699 | 113736 | 51589 | 28 | 29 | 31 | 36 |
| 124000 | 56245 | 112851 | 51188 | 27 | 28 | 31 | 36 |
| 123000 | 55791 | 111966 | 50786 | 27 | 28 | 31 | 35 |
| 122000 | 55338 | 111081 | 50385 | 27 | 28 | 30 | 35 |
| 121000 | 54884 | 110196 | 49984 | 27 | 28 | 30 | 35 |
| 120500 | 54657 | 109754 | 49783 | 27 | 28 | 30 | 35 |
| 120000 | 54431 | 109267 | 49562 | 26 | 27 | 30 | 34 |
| 119000 | 54204 | 108292 | 49120 | 26 | 27 | 29 | 34 |
| 118000 | 53533 | 107318 | 48678 | 26 | 27 | 29 | 34 |
| 117000 | 53070 | 106344 | 48236 | 26 | 26 | 29 | 33 |
| 116000 | 52389 | 105370 | 47794 | 25 | 26 | 28 | 33 |
| 115000 | 52163 | 104400 | 47355 | 25 | 26 | 28 | 33 |
| 114000 | 51709 | 103429 | 46914 | 25 | 26 | 28 | 32 |
| 113000 | 51255 | 102459 | 46474 | 25 | 25 | 28 | 32 |
| 112000 | 50802 | 101489 | 46034 | 24 | 25 | 27 | 31 |
| 111000 | 50348 | 100519 | 45594 | 24 | 25 | 27 | 31 |
| 110000 | 49895 | 99548 | 45154 | 24 | 24 | 27 | 31 |
| 109000 | 49441 | 98578 | 44714 | 24 | 24 | 26 | 30 |
| 108000 | 48987 | 97608 | 44274 | 23 | 24 | 26 | 30 |
| 107000 | 48534 | 96638 | 43834 | 23 | 24 | 26 | 30 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 106000 | 48080 | 95668 | 43394 | 23 | 23 | 25 | 29 |
| 105000 | 47627 | 94697 | 42953 | 23 | 23 | 25 | 29 |
| 104000 | 47173 | 93727 | 42513 | 22 | 23 | 25 | 29 |
| 103000 | 46720 | 92757 | 42073 | 22 | 23 | 25 | 28 |
| 102000 | 46266 | 91787 | 41633 | 22 | 22 | 24 | 28 |
| 101000 | 45812 | 90816 | 41193 | 22 | 22 | 24 | 28 |
| 100000 | 45359 | 89846 | 40753 | 21 | 22 | 24 | 27 |
| 99000 | 44905 | 88876 | 40313 | 21 | 22 | 23 | 27 |
| 98000 | 44452 | 87906 | 39873 | 21 | 21 | 23 | 26 |
| 97000 | 43998 | 86935 | 39433 | 21 | 21 | 23 | 26 |
| 96000 | 43544 | 85965 | 38993 | 20 | 21 | 22 | 26 |
| 95000 | 43091 | 84995 | 38553 | 20 | 20 | 22 | 25 |
| 94000 | 42637 | 84025 | 38113 | 20 | 20 | 22 | 25 |
| 93000 | 42184 | 83055 | 37673 | 20 | 20 | 22 | 25 |
| 92000 | 41730 | 82084 | 37232 | 19 | 20 | 21 | 24 |
| 91000 | 41276 | 81114 | 36792 | 19 | 19 | 21 | 24 |
| 90000 | 40823 | 80144 | 36352 | 19 | 19 | 21 | 24 |
| 89000 | 40369 | 79174 | 35912 | 19 | 19 | 20 | 23 |
| 88000 | 39916 | 78203 | 35472 | 18 | 19 | 20 | 23 |
| 87000 | 39462 | 77233 | 35032 | 18 | 18 | 20 | 22 |
| 86000 | 39008 | 76263 | 34592 | 18 | 18 | 19 | 22 |
| 85000 | 38555 | 75293 | 34152 | 18 | 18 | 19 | 22 |
| 84000 | 38101 | 74322 | 33711 | 17 | 17 | 19 | 21 |
| 83000 | 37648 | 73352 | 33271 | 17 | 17 | 19 | 21 |
| 82000 | 37194 | 72382 | 32831 | 17 | 17 | 18 | 21 |
| 81000 | 36740 | 71412 | 32391 | 17 | 17 | 18 | 20 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 80000 | 36287 | 70442 | 31951 | 16 | 16 | 18 | 20 |
| 79000 | 35833 | 69471 | 31511 | 16 | 16 | 17 | 20 |
| 78000 | 35380 | 68501 | 31071 | 16 | 16 | 17 | 19 |
| 77000 | 34926 | 67531 | 30631 | 16 | 16 | 17 | 19 |

**Applicability:** 50069, 50071, 50078, 50085-50086

*Table 15 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 139000 | 63049 | 126123 | 57208 | 31 | 32 | 36 | 41 |
| 138000 | 62595 | 125238 | 56806 | 31 | 32 | 35 | 40 |
| 137000 | 62142 | 124353 | 56405 | 31 | 32 | 35 | 40 |
| 136000 | 61688 | 123469 | 56004 | 31 | 32 | 35 | 40 |
| 135000 | 61234 | 122584 | 55603 | 30 | 31 | 34 | 39 |
| 134000 | 60781 | 121699 | 55201 | 30 | 31 | 34 | 39 |
| 133000 | 60327 | 120814 | 54800 | 30 | 31 | 34 | 39 |
| 132000 | 59874 | 119929 | 54398 | 29 | 31 | 33 | 38 |
| 131000 | 59420 | 119044 | 53997 | 29 | 30 | 33 | 38 |
| 130000 | 58967 | 118160 | 53596 | 29 | 30 | 33 | 38 |
| 129000 | 58513 | 117275 | 53195 | 29 | 30 | 32 | 37 |
| 128000 | 58059 | 116390 | 52793 | 28 | 29 | 32 | 37 |
| 127000 | 57606 | 115505 | 52392 | 28 | 29 | 32 | 37 |
| 126000 | 57152 | 114620 | 51990 | 28 | 29 | 32 | 36 |
| 125000 | 56699 | 113736 | 51589 | 28 | 29 | 31 | 36 |
| 124000 | 56245 | 112851 | 51188 | 27 | 28 | 31 | 36 |
| 123000 | 55791 | 111966 | 50786 | 27 | 28 | 31 | 35 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 122000 | 55338 | 111081 | 50385 | 27 | 28 | 30 | 35 |
| 121000 | 54884 | 110196 | 49984 | 27 | 28 | 30 | 35 |
| 120500 | 54657 | 109754 | 49783 | 27 | 28 | 30 | 35 |
| 120000 | 54431 | 109267 | 49562 | 26 | 27 | 30 | 34 |
| 119000 | 54204 | 108292 | 49120 | 26 | 27 | 29 | 34 |
| 118000 | 53533 | 107318 | 48678 | 26 | 27 | 29 | 34 |
| 117000 | 53070 | 106344 | 48236 | 26 | 26 | 29 | 33 |
| 116000 | 52389 | 105370 | 47794 | 25 | 26 | 28 | 33 |
| 115000 | 52163 | 104400 | 47355 | 25 | 26 | 28 | 33 |
| 114000 | 51709 | 103429 | 46914 | 25 | 26 | 28 | 32 |
| 113000 | 51255 | 102459 | 46474 | 25 | 25 | 28 | 32 |
| 112000 | 50802 | 101489 | 46034 | 24 | 25 | 27 | 31 |
| 111000 | 50348 | 100519 | 45594 | 24 | 25 | 27 | 31 |
| 110000 | 49895 | 99548 | 45154 | 24 | 24 | 27 | 31 |
| 109000 | 49441 | 98578 | 44714 | 24 | 24 | 26 | 30 |
| 108000 | 48987 | 97608 | 44274 | 23 | 24 | 26 | 30 |
| 107000 | 48534 | 96638 | 43834 | 23 | 24 | 26 | 30 |
| 106000 | 48080 | 95668 | 43394 | 23 | 23 | 25 | 29 |
| 105000 | 47627 | 94697 | 42953 | 23 | 23 | 25 | 29 |
| 104000 | 47173 | 93727 | 42513 | 22 | 23 | 25 | 29 |
| 103000 | 46720 | 92757 | 42073 | 22 | 23 | 25 | 28 |
| 102000 | 46266 | 91787 | 41633 | 22 | 22 | 24 | 28 |
| 101000 | 45812 | 90816 | 41193 | 22 | 22 | 24 | 28 |
| 100000 | 45359 | 89846 | 40753 | 21 | 22 | 24 | 27 |
| 99000 | 44905 | 88876 | 40313 | 21 | 22 | 23 | 27 |
| 98000 | 44452 | 87906 | 39873 | 21 | 21 | 23 | 26 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 97000 | 43998 | 86935 | 39433 | 21 | 21 | 23 | 26 |
| 96000 | 43544 | 85965 | 38993 | 20 | 21 | 22 | 26 |
| 95000 | 43091 | 84995 | 38553 | 20 | 20 | 22 | 25 |
| 94000 | 42637 | 84025 | 38113 | 20 | 20 | 22 | 25 |
| 93000 | 42184 | 83055 | 37673 | 20 | 20 | 22 | 25 |
| 92000 | 41730 | 82084 | 37232 | 19 | 20 | 21 | 24 |
| 91000 | 41276 | 81114 | 36792 | 19 | 19 | 21 | 24 |
| 90000 | 40823 | 80144 | 36352 | 19 | 19 | 21 | 24 |
| 89000 | 40369 | 79174 | 35912 | 19 | 19 | 20 | 23 |
| 88000 | 39916 | 78203 | 35472 | 18 | 19 | 20 | 23 |
| 87000 | 39462 | 77233 | 35032 | 18 | 18 | 20 | 22 |
| 86000 | 39008 | 76263 | 34592 | 18 | 18 | 19 | 22 |
| 85000 | 38555 | 75293 | 34152 | 18 | 18 | 19 | 22 |
| 84000 | 38101 | 74322 | 33711 | 17 | 17 | 19 | 21 |
| 83000 | 37648 | 73352 | 33271 | 17 | 17 | 19 | 21 |
| 82000 | 37194 | 72382 | 32831 | 17 | 17 | 18 | 21 |
| 81000 | 36740 | 71412 | 32391 | 17 | 17 | 18 | 20 |
| 80000 | 36287 | 70442 | 31951 | 16 | 16 | 18 | 20 |
| 79000 | 35833 | 69471 | 31511 | 16 | 16 | 17 | 20 |
| 78000 | 35380 | 68501 | 31071 | 16 | 16 | 17 | 19 |
| 77000 | 34926 | 67531 | 30631 | 16 | 16 | 17 | 19 |

**LEGEND**

- Ultra low strength california bearing ratio=3.
- Low strength california bearing ratio=6.
- Medium strength california bearing ratio=10.
- High strength california bearing ratio=15.

ICN-BD500-A-J000000-C-3AB48-57666-A-003-01

*Figure 4 ACN results - Flexible pavement*

# 4 Load Classification Number (LCN) results for most aft C.G. positions

Refer to Table 16 for tabular format and Fig. 5 for graphical format for the LCN results for rigid pavement and Table 19 for tabular format and Fig. 6 for graphical format for the LCN results for flexible pavement.

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 16 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 77000 | 34926 | 200 | 22634 | 38 | 23691 | 40 | 24850 | 43 |
| 78000 | 35380 | 200 | 23013 | 39 | 24081 | 41 | 25254 | 44 |
| 79000 | 35833 | 200 | 23391 | 39 | 24472 | 41 | 25659 | 44 |
| 80000 | 36287 | 200 | 23769 | 40 | 24863 | 42 | 26063 | 45 |
| 81000 | 36740 | 200 | 24147 | 40 | 25254 | 42 | 26467 | 45 |
| 82000 | 37194 | 200 | 24525 | 41 | 25645 | 43 | 26871 | 46 |
| 83000 | 37648 | 200 | 24904 | 42 | 26035 | 44 | 27275 | 47 |
| 84000 | 38101 | 200 | 25282 | 42 | 26426 | 44 | 27679 | 47 |
| 85000 | 38555 | 200 | 25660 | 43 | 26817 | 45 | 28083 | 48 |
| 86000 | 39008 | 200 | 26038 | 44 | 27208 | 46 | 28488 | 49 |
| 87000 | 39462 | 200 | 26416 | 44 | 27599 | 46 | 28892 | 49 |
| 88000 | 39916 | 200 | 26795 | 45 | 27989 | 47 | 29296 | 50 |
| 89000 | 40369 | 200 | 27173 | 45 | 28380 | 47 | 29700 | 50 |
| 90000 | 40823 | 200 | 27551 | 46 | 28771 | 48 | 30104 | 51 |
| 91000 | 41276 | 200 | 27929 | 47 | 29162 | 49 | 30508 | 52 |
| 92000 | 41730 | 200 | 28307 | 47 | 29552 | 49 | 30912 | 52 |
| 93000 | 42184 | 200 | 28686 | 48 | 29943 | 50 | 31317 | 53 |
| 94000 | 42637 | 200 | 29064 | 48 | 30334 | 50 | 31721 | 53 |
| 95000 | 43091 | 200 | 29442 | 49 | 30725 | 51 | 32125 | 54 |
| 96000 | 43544 | 200 | 29820 | 50 | 31116 | 52 | 32529 | 55 |
| 97000 | 43998 | 200 | 30198 | 50 | 31506 | 52 | 32933 | 55 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 98000 | 44452 | 200 | 30577 | 51 | 31897 | 53 | 33337 | 56 |
| 99000 | 44905 | 200 | 30955 | 52 | 32288 | 54 | 33741 | 57 |
| 100000 | 45359 | 200 | 31333 | 52 | 32679 | 54 | 34146 | 57 |
| 101000 | 45812 | 200 | 31711 | 53 | 33069 | 55 | 34550 | 58 |
| 102000 | 46266 | 200 | 32089 | 53 | 33460 | 55 | 34954 | 58 |
| 103000 | 46719 | 200 | 32468 | 54 | 33851 | 56 | 35358 | 59 |
| 104000 | 47173 | 200 | 32846 | 55 | 34242 | 57 | 35762 | 60 |
| 105000 | 47627 | 200 | 33224 | 55 | 34633 | 57 | 36166 | 60 |
| 106000 | 48080 | 200 | 33602 | 56 | 35023 | 58 | 36570 | 61 |
| 107000 | 48534 | 200 | 33980 | 56 | 35414 | 58 | 36974 | 61 |
| 108000 | 48987 | 200 | 34359 | 57 | 35805 | 59 | 37379 | 62 |
| 109000 | 49441 | 200 | 34737 | 58 | 36196 | 60 | 37783 | 63 |
| 110000 | 49895 | 200 | 35115 | 58 | 36587 | 60 | 38187 | 63 |
| 111000 | 50348 | 200 | 35493 | 59 | 36977 | 61 | 38591 | 64 |
| 112000 | 50802 | 200 | 35871 | 60 | 37368 | 62 | 38995 | 65 |
| 113000 | 51255 | 200 | 36250 | 60 | 37759 | 62 | 39399 | 65 |
| 114000 | 51709 | 200 | 36628 | 61 | 38150 | 63 | 39803 | 66 |
| 115000 | 52163 | 200 | 37006 | 61 | 38540 | 63 | 40208 | 66 |
| 116000 | 52616 | 200 | 37384 | 62 | 38931 | 64 | 40612 | 67 |
| 117000 | 53070 | 200 | 37686 | 62 | 39245 | 65 | 40939 | 67 |
| 118000 | 53523 | 200 | 37987 | 63 | 39559 | 65 | 41266 | 67 |
| 119000 | 53977 | 200 | 38288 | 63 | 39872 | 66 | 41593 | 68 |
| 120000 | 54431 | 200 | 38589 | 64 | 40186 | 67 | 41921 | 68 |
| 120500 | 54657 | 200 | 38740 | 64 | 40343 | 67 | 42084 | 68 |
| 121000 | 54884 | 200 | 38868 | 64 | 40477 | 67 | 42216 | 68 |
| 122000 | 55338 | 200 | 39125 | 65 | 40746 | 67 | 42481 | 69 |
| 123000 | 55791 | 200 | 39382 | 65 | 41015 | 68 | 42745 | 69 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 124000 | 56245 | 200 | 39639 | 65 | 41283 | 68 | 43010 | 69 |
| 125000 | 56699 | 200 | 39895 | 66 | 41552 | 68 | 43274 | 70 |
| 126000 | 57152 | 200 | 40152 | 66 | 41821 | 69 | 43539 | 70 |
| 127000 | 57606 | 200 | 40409 | 66 | 42089 | 69 | 43803 | 70 |
| 128000 | 58059 | 200 | 40666 | 67 | 42358 | 69 | 44068 | 71 |
| 129000 | 58513 | 200 | 40923 | 67 | 42627 | 70 | 44332 | 71 |
| 130000 | 58966 | 200 | 41179 | 67 | 42895 | 70 | 44596 | 71 |
| 131000 | 59420 | 200 | 41436 | 68 | 43164 | 70 | 44861 | 72 |
| 132000 | 59874 | 200 | 41693 | 68 | 43433 | 70 | 45125 | 72 |
| 133000 | 60327 | 200 | 41950 | 68 | 43702 | 71 | 45390 | 72 |
| 134000 | 60781 | 200 | 42207 | 69 | 43970 | 71 | 45654 | 73 |
| 135000 | 61234 | 200 | 42463 | 69 | 44239 | 71 | 45919 | 73 |
| 136000 | 61688 | 200 | 42720 | 69 | 44508 | 72 | 46183 | 73 |
| 137000 | 62142 | 200 | 42977 | 70 | 44776 | 72 | 46448 | 74 |
| 138000 | 62595 | 200 | 43234 | 70 | 45045 | 72 | 46712 | 74 |
| 139000 | 63049 | 200 | 43491 | 70 | 45314 | 73 | 46977 | 74 |
| 140000 | 63502 | 200 | 43748 | 71 | 45583 | 73 | 47241 | 75 |
| 140500 | 63729 | 200 | 43876 | 71 | 45717 | 73 | 47373 | 75 |
| 141500 | 64183 | 200 | 44134 | 71 | 45985 | 73 | 47651 | 75 |

**Applicability:** 50010-50017, 50020-50065, 50067

*Table 17 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 77000 | 34926 | 200 | 22634 | 38 | 23691 | 40 | 24850 | 43 |
| 78000 | 35380 | 200 | 23013 | 39 | 24081 | 41 | 25254 | 44 |
| 79000 | 35833 | 200 | 23391 | 39 | 24472 | 41 | 25659 | 44 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 80000 | 36287 | 200 | 23769 | 40 | 24863 | 42 | 26063 | 45 |
| 81000 | 36740 | 200 | 24147 | 40 | 25254 | 42 | 26467 | 45 |
| 82000 | 37194 | 200 | 24525 | 41 | 25645 | 43 | 26871 | 46 |
| 83000 | 37648 | 200 | 24904 | 42 | 26035 | 44 | 27275 | 47 |
| 84000 | 38101 | 200 | 25282 | 42 | 26426 | 44 | 27679 | 47 |
| 85000 | 38555 | 200 | 25660 | 43 | 26817 | 45 | 28083 | 48 |
| 86000 | 39008 | 200 | 26038 | 44 | 27208 | 46 | 28488 | 49 |
| 87000 | 39462 | 200 | 26416 | 44 | 27599 | 46 | 28892 | 49 |
| 88000 | 39916 | 200 | 26795 | 45 | 27989 | 47 | 29296 | 50 |
| 89000 | 40369 | 200 | 27173 | 45 | 28380 | 47 | 29700 | 50 |
| 90000 | 40823 | 200 | 27551 | 46 | 28771 | 48 | 30104 | 51 |
| 91000 | 41276 | 200 | 27929 | 47 | 29162 | 49 | 30508 | 52 |
| 92000 | 41730 | 200 | 28307 | 47 | 29552 | 49 | 30912 | 52 |
| 93000 | 42184 | 200 | 28686 | 48 | 29943 | 50 | 31317 | 53 |
| 94000 | 42637 | 200 | 29064 | 48 | 30334 | 50 | 31721 | 53 |
| 95000 | 43091 | 200 | 29442 | 49 | 30725 | 51 | 32125 | 54 |
| 96000 | 43544 | 200 | 29820 | 50 | 31116 | 52 | 32529 | 55 |
| 97000 | 43998 | 200 | 30198 | 50 | 31506 | 52 | 32933 | 55 |
| 98000 | 44452 | 200 | 30577 | 51 | 31897 | 53 | 33337 | 56 |
| 99000 | 44905 | 200 | 30955 | 52 | 32288 | 54 | 33741 | 57 |
| 100000 | 45359 | 200 | 31333 | 52 | 32679 | 54 | 34146 | 57 |
| 101000 | 45812 | 200 | 31711 | 53 | 33069 | 55 | 34550 | 58 |
| 102000 | 46266 | 200 | 32089 | 53 | 33460 | 55 | 34954 | 58 |
| 103000 | 46719 | 200 | 32468 | 54 | 33851 | 56 | 35358 | 59 |
| 104000 | 47173 | 200 | 32846 | 55 | 34242 | 57 | 35762 | 60 |
| 105000 | 47627 | 200 | 33224 | 55 | 34633 | 57 | 36166 | 60 |
| 106000 | 48080 | 200 | 33602 | 56 | 35023 | 58 | 36570 | 61 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 107000 | 48534 | 200 | 33980 | 56 | 35414 | 58 | 36974 | 61 |
| 108000 | 48987 | 200 | 34359 | 57 | 35805 | 59 | 37379 | 62 |
| 109000 | 49441 | 200 | 34737 | 58 | 36196 | 60 | 37783 | 63 |
| 110000 | 49895 | 200 | 35115 | 58 | 36587 | 60 | 38187 | 63 |
| 111000 | 50348 | 200 | 35493 | 59 | 36977 | 61 | 38591 | 64 |
| 112000 | 50802 | 200 | 35871 | 60 | 37368 | 62 | 38995 | 65 |
| 113000 | 51255 | 200 | 36250 | 60 | 37759 | 62 | 39399 | 65 |
| 114000 | 51709 | 200 | 36628 | 61 | 38150 | 63 | 39803 | 66 |
| 115000 | 52163 | 200 | 37006 | 61 | 38540 | 63 | 40208 | 66 |
| 116000 | 52616 | 200 | 37384 | 62 | 38931 | 64 | 40612 | 67 |
| 117000 | 53070 | 200 | 37686 | 62 | 39245 | 65 | 40939 | 67 |
| 118000 | 53523 | 200 | 37987 | 63 | 39559 | 65 | 41266 | 67 |
| 119000 | 53977 | 200 | 38288 | 63 | 39872 | 66 | 41593 | 68 |
| 120000 | 54431 | 200 | 38589 | 64 | 40186 | 67 | 41921 | 68 |
| 120500 | 54657 | 200 | 38740 | 64 | 40343 | 67 | 42084 | 68 |
| 121000 | 54884 | 200 | 38868 | 64 | 40477 | 67 | 42216 | 68 |
| 122000 | 55338 | 200 | 39125 | 65 | 40746 | 67 | 42481 | 69 |
| 123000 | 55791 | 200 | 39382 | 65 | 41015 | 68 | 42745 | 69 |
| 124000 | 56245 | 200 | 39639 | 65 | 41283 | 68 | 43010 | 69 |
| 125000 | 56699 | 200 | 39895 | 66 | 41552 | 68 | 43274 | 70 |
| 126000 | 57152 | 200 | 40152 | 66 | 41821 | 69 | 43539 | 70 |
| 127000 | 57606 | 200 | 40409 | 66 | 42089 | 69 | 43803 | 70 |
| 128000 | 58059 | 200 | 40666 | 67 | 42358 | 69 | 44068 | 71 |
| 129000 | 58513 | 200 | 40923 | 67 | 42627 | 70 | 44332 | 71 |
| 130000 | 58966 | 200 | 41179 | 67 | 42895 | 70 | 44596 | 71 |
| 131000 | 59420 | 200 | 41436 | 68 | 43164 | 70 | 44861 | 72 |
| 132000 | 59874 | 200 | 41693 | 68 | 43433 | 70 | 45125 | 72 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 133000 | 60327 | 200 | 41950 | 68 | 43702 | 71 | 45390 | 72 |
| 134000 | 60781 | 200 | 42207 | 69 | 43970 | 71 | 45654 | 73 |
| 135000 | 61234 | 200 | 42463 | 69 | 44239 | 71 | 45919 | 73 |

**Applicability:** 50069, 50071, 50078, 50085-50086

*Table 18 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 77000 | 34926 | 200 | 22634 | 38 | 23691 | 40 | 24850 | 43 |
| 78000 | 35380 | 200 | 23013 | 39 | 24081 | 41 | 25254 | 44 |
| 79000 | 35833 | 200 | 23391 | 39 | 24472 | 41 | 25659 | 44 |
| 80000 | 36287 | 200 | 23769 | 40 | 24863 | 42 | 26063 | 45 |
| 81000 | 36740 | 200 | 24147 | 40 | 25254 | 42 | 26467 | 45 |
| 82000 | 37194 | 200 | 24525 | 41 | 25645 | 43 | 26871 | 46 |
| 83000 | 37648 | 200 | 24904 | 42 | 26035 | 44 | 27275 | 47 |
| 84000 | 38101 | 200 | 25282 | 42 | 26426 | 44 | 27679 | 47 |
| 85000 | 38555 | 200 | 25660 | 43 | 26817 | 45 | 28083 | 48 |
| 86000 | 39008 | 200 | 26038 | 44 | 27208 | 46 | 28488 | 49 |
| 87000 | 39462 | 200 | 26416 | 44 | 27599 | 46 | 28892 | 49 |
| 88000 | 39916 | 200 | 26795 | 45 | 27989 | 47 | 29296 | 50 |
| 89000 | 40369 | 200 | 27173 | 45 | 28380 | 47 | 29700 | 50 |
| 90000 | 40823 | 200 | 27551 | 46 | 28771 | 48 | 30104 | 51 |
| 91000 | 41276 | 200 | 27929 | 47 | 29162 | 49 | 30508 | 52 |
| 92000 | 41730 | 200 | 28307 | 47 | 29552 | 49 | 30912 | 52 |
| 93000 | 42184 | 200 | 28686 | 48 | 29943 | 50 | 31317 | 53 |
| 94000 | 42637 | 200 | 29064 | 48 | 30334 | 50 | 31721 | 53 |
| 95000 | 43091 | 200 | 29442 | 49 | 30725 | 51 | 32125 | 54 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 96000 | 43544 | 200 | 29820 | 50 | 31116 | 52 | 32529 | 55 |
| 97000 | 43998 | 200 | 30198 | 50 | 31506 | 52 | 32933 | 55 |
| 98000 | 44452 | 200 | 30577 | 51 | 31897 | 53 | 33337 | 56 |
| 99000 | 44905 | 200 | 30955 | 52 | 32288 | 54 | 33741 | 57 |
| 100000 | 45359 | 200 | 31333 | 52 | 32679 | 54 | 34146 | 57 |
| 101000 | 45812 | 200 | 31711 | 53 | 33069 | 55 | 34550 | 58 |
| 102000 | 46266 | 200 | 32089 | 53 | 33460 | 55 | 34954 | 58 |
| 103000 | 46719 | 200 | 32468 | 54 | 33851 | 56 | 35358 | 59 |
| 104000 | 47173 | 200 | 32846 | 55 | 34242 | 57 | 35762 | 60 |
| 105000 | 47627 | 200 | 33224 | 55 | 34633 | 57 | 36166 | 60 |
| 106000 | 48080 | 200 | 33602 | 56 | 35023 | 58 | 36570 | 61 |
| 107000 | 48534 | 200 | 33980 | 56 | 35414 | 58 | 36974 | 61 |
| 108000 | 48987 | 200 | 34359 | 57 | 35805 | 59 | 37379 | 62 |
| 109000 | 49441 | 200 | 34737 | 58 | 36196 | 60 | 37783 | 63 |
| 110000 | 49895 | 200 | 35115 | 58 | 36587 | 60 | 38187 | 63 |
| 111000 | 50348 | 200 | 35493 | 59 | 36977 | 61 | 38591 | 64 |
| 112000 | 50802 | 200 | 35871 | 60 | 37368 | 62 | 38995 | 65 |
| 113000 | 51255 | 200 | 36250 | 60 | 37759 | 62 | 39399 | 65 |
| 114000 | 51709 | 200 | 36628 | 61 | 38150 | 63 | 39803 | 66 |
| 115000 | 52163 | 200 | 37006 | 61 | 38540 | 63 | 40208 | 66 |
| 116000 | 52616 | 200 | 37384 | 62 | 38931 | 64 | 40612 | 67 |
| 117000 | 53070 | 200 | 37686 | 62 | 39245 | 65 | 40939 | 67 |
| 118000 | 53523 | 200 | 37987 | 63 | 39559 | 65 | 41266 | 67 |
| 119000 | 53977 | 200 | 38288 | 63 | 39872 | 66 | 41593 | 68 |
| 120000 | 54431 | 200 | 38589 | 64 | 40186 | 67 | 41921 | 68 |
| 120500 | 54657 | 200 | 38740 | 64 | 40343 | 67 | 42084 | 68 |
| 121000 | 54884 | 200 | 38868 | 64 | 40477 | 67 | 42216 | 68 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 122000 | 55338 | 200 | 39125 | 65 | 40746 | 67 | 42481 | 69 |
| 123000 | 55791 | 200 | 39382 | 65 | 41015 | 68 | 42745 | 69 |
| 124000 | 56245 | 200 | 39639 | 65 | 41283 | 68 | 43010 | 69 |
| 125000 | 56699 | 200 | 39895 | 66 | 41552 | 68 | 43274 | 70 |
| 126000 | 57152 | 200 | 40152 | 66 | 41821 | 69 | 43539 | 70 |
| 127000 | 57606 | 200 | 40409 | 66 | 42089 | 69 | 43803 | 70 |
| 128000 | 58059 | 200 | 40666 | 67 | 42358 | 69 | 44068 | 71 |
| 129000 | 58513 | 200 | 40923 | 67 | 42627 | 70 | 44332 | 71 |
| 130000 | 58966 | 200 | 41179 | 67 | 42895 | 70 | 44596 | 71 |
| 131000 | 59420 | 200 | 41436 | 68 | 43164 | 70 | 44861 | 72 |
| 132000 | 59874 | 200 | 41693 | 68 | 43433 | 70 | 45125 | 72 |
| 133000 | 60327 | 200 | 41950 | 68 | 43702 | 71 | 45390 | 72 |
| 134000 | 60781 | 200 | 42207 | 69 | 43970 | 71 | 45654 | 73 |
| 135000 | 61234 | 200 | 42463 | 69 | 44239 | 71 | 45919 | 73 |
| 136000 | 61688 | 200 | 42720 | 69 | 44508 | 72 | 46183 | 73 |
| 137000 | 62142 | 200 | 42977 | 70 | 44776 | 72 | 46448 | 74 |
| 138000 | 62595 | 200 | 43234 | 70 | 45045 | 72 | 46712 | 74 |
| 139000 | 63049 | 200 | 43491 | 70 | 45314 | 73 | 46977 | 74 |

**LEGEND**

- Radius of relative stiffness L=50.00 in. (1270.00 mm).
- Radius of relative stiffness L=40.00 in. (1016.00 mm).
- Radius of relative stiffness L=30.00 in. (762.00 mm).

ICN-BD500-A-J000000-C-3AB48-57667-A-003-01

*Figure 5 LCN results - Rigid pavement*

**Applicability:** 50001-50061, 50063-50065, 50068, 50070, 50072-50077, 50079-54999

*Table 19 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 77000 | 34926 | 200 | 17768 | 31 | 18843 | 34 | 21213 | 39 | 25068 | 45 |
| 78000 | 35380 | 200 | 18036 | 31 | 19154 | 34 | 21557 | 40 | 25466 | 46 |
| 79000 | 35833 | 200 | 18304 | 32 | 19464 | 35 | 21901 | 40 | 25863 | 46 |
| 80000 | 36287 | 200 | 18572 | 32 | 19775 | 35 | 22246 | 41 | 26261 | 47 |
| 81000 | 36740 | 200 | 18841 | 33 | 20086 | 36 | 22590 | 41 | 26658 | 47 |
| 82000 | 37194 | 200 | 19109 | 33 | 20396 | 36 | 22934 | 42 | 27055 | 48 |
| 83000 | 37648 | 200 | 19377 | 34 | 20707 | 37 | 23278 | 42 | 27453 | 48 |
| 84000 | 38101 | 200 | 19645 | 34 | 21018 | 37 | 23622 | 43 | 27850 | 49 |
| 85000 | 38555 | 200 | 19913 | 35 | 21328 | 38 | 23966 | 43 | 28247 | 49 |
| 86000 | 39008 | 200 | 20181 | 35 | 21639 | 38 | 24310 | 44 | 28645 | 50 |
| 87000 | 39462 | 200 | 20449 | 36 | 21949 | 39 | 24654 | 44 | 29042 | 50 |
| 88000 | 39916 | 200 | 20717 | 36 | 22260 | 39 | 24998 | 45 | 29440 | 51 |
| 89000 | 40369 | 200 | 20986 | 37 | 22571 | 40 | 25342 | 45 | 29837 | 51 |
| 90000 | 40823 | 200 | 21254 | 37 | 22881 | 40 | 25687 | 46 | 30234 | 52 |
| 91000 | 41276 | 200 | 21522 | 37 | 23192 | 41 | 26031 | 46 | 30632 | 53 |
| 92000 | 41730 | 200 | 21790 | 38 | 23503 | 41 | 26375 | 47 | 31029 | 53 |
| 93000 | 42184 | 200 | 22058 | 38 | 23813 | 42 | 26719 | 47 | 31426 | 54 |
| 94000 | 42637 | 200 | 22326 | 39 | 24124 | 42 | 27063 | 48 | 31824 | 54 |
| 95000 | 43091 | 200 | 22594 | 39 | 24434 | 43 | 27407 | 48 | 32221 | 55 |
| 96000 | 43544 | 200 | 22863 | 40 | 24745 | 43 | 27751 | 49 | 32619 | 55 |
| 97000 | 43998 | 200 | 23131 | 40 | 25056 | 44 | 28095 | 49 | 33016 | 56 |
| 98000 | 44452 | 200 | 23399 | 41 | 25366 | 44 | 28439 | 50 | 33413 | 56 |
| 99000 | 44905 | 200 | 23667 | 41 | 25677 | 45 | 28783 | 50 | 33811 | 57 |
| 100000 | 45359 | 200 | 23935 | 42 | 25988 | 45 | 29128 | 51 | 34208 | 57 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 101000 | 45812 | 200 | 24203 | 42 | 26298 | 46 | 29472 | 51 | 34605 | 58 |
| 102000 | 46266 | 200 | 24471 | 43 | 26609 | 46 | 29816 | 52 | 35003 | 58 |
| 103000 | 46719 | 200 | 24739 | 43 | 26919 | 47 | 30160 | 52 | 35400 | 59 |
| 104000 | 47173 | 200 | 25008 | 43 | 27230 | 47 | 30504 | 53 | 35798 | 60 |
| 105000 | 47627 | 200 | 25276 | 44 | 27541 | 48 | 30848 | 53 | 36195 | 60 |
| 106000 | 48080 | 200 | 25544 | 44 | 27851 | 48 | 31192 | 54 | 36592 | 61 |
| 107000 | 48534 | 200 | 25812 | 45 | 28162 | 49 | 31536 | 54 | 36990 | 61 |
| 108000 | 48987 | 200 | 26080 | 45 | 28473 | 49 | 31880 | 55 | 37387 | 62 |
| 109000 | 49441 | 200 | 26348 | 46 | 28783 | 50 | 32224 | 55 | 37784 | 62 |
| 110000 | 49895 | 200 | 26616 | 46 | 29094 | 50 | 32568 | 56 | 38182 | 63 |
| 111000 | 50348 | 200 | 26884 | 47 | 29404 | 51 | 32913 | 56 | 38579 | 63 |
| 112000 | 50802 | 200 | 27153 | 47 | 29715 | 51 | 33257 | 57 | 38977 | 64 |
| 113000 | 51255 | 200 | 27421 | 48 | 30026 | 52 | 33601 | 57 | 39374 | 64 |
| 114000 | 51709 | 200 | 27689 | 48 | 30336 | 52 | 33945 | 58 | 39771 | 65 |
| 115000 | 52163 | 200 | 27957 | 49 | 30647 | 53 | 34289 | 58 | 40169 | 65 |
| 116000 | 52616 | 200 | 28225 | 49 | 30958 | 53 | 34633 | 59 | 40566 | 66 |
| 117000 | 53070 | 200 | 28453 | 49 | 31228 | 53 | 34931 | 59 | 40908 | 66 |
| 118000 | 53523 | 200 | 28680 | 49 | 31498 | 53 | 35229 | 60 | 41250 | 67 |
| 119000 | 53977 | 200 | 28907 | 50 | 31768 | 54 | 35527 | 60 | 41591 | 67 |
| 120000 | 54431 | 200 | 29135 | 50 | 32038 | 54 | 35825 | 61 | 41933 | 68 |
| 120500 | 54657 | 200 | 29248 | 50 | 32173 | 54 | 35974 | 61 | 42104 | 68 |
| 121000 | 54884 | 200 | 29334 | 50 | 32276 | 54 | 36087 | 61 | 42234 | 68 |
| 122000 | 55338 | 200 | 29506 | 50 | 32482 | 55 | 36314 | 61 | 42494 | 69 |
| 123000 | 55791 | 200 | 29678 | 51 | 32689 | 55 | 36541 | 62 | 42753 | 69 |
| 124000 | 56245 | 200 | 29850 | 51 | 32895 | 55 | 36768 | 62 | 43013 | 69 |
| 125000 | 56699 | 200 | 30022 | 51 | 33101 | 56 | 36995 | 62 | 43273 | 70 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 126000 | 57152 | 200 | 30194 | 52 | 33307 | 56 | 37222 | 62 | 43532 | 70 |
| 127000 | 57606 | 200 | 30366 | 52 | 33513 | 56 | 37448 | 63 | 43792 | 71 |
| 128000 | 58059 | 200 | 30538 | 52 | 33719 | 57 | 37675 | 63 | 44052 | 71 |
| 129000 | 58513 | 200 | 30710 | 53 | 33925 | 57 | 37902 | 63 | 44312 | 71 |
| 130000 | 58966 | 200 | 30882 | 53 | 34131 | 57 | 38129 | 63 | 44571 | 72 |
| 131000 | 59420 | 200 | 31054 | 53 | 34337 | 58 | 38356 | 64 | 44831 | 72 |
| 132000 | 59874 | 200 | 31226 | 53 | 34544 | 58 | 38583 | 64 | 45091 | 73 |
| 133000 | 60327 | 200 | 31398 | 54 | 34750 | 58 | 38810 | 64 | 45350 | 73 |
| 134000 | 60781 | 200 | 31570 | 54 | 34956 | 59 | 39037 | 64 | 45610 | 73 |
| 135000 | 61234 | 200 | 31742 | 54 | 35162 | 59 | 39264 | 65 | 45870 | 74 |
| 136000 | 61688 | 200 | 31914 | 55 | 35368 | 59 | 39491 | 65 | 46130 | 74 |
| 137000 | 62142 | 200 | 32086 | 55 | 35574 | 60 | 39717 | 65 | 46389 | 75 |
| 138000 | 62595 | 200 | 32258 | 55 | 35780 | 60 | 39944 | 65 | 46649 | 75 |
| 139000 | 63049 | 200 | 32430 | 56 | 35986 | 60 | 40171 | 66 | 46909 | 75 |
| 140000 | 63502 | 200 | 32602 | 56 | 36192 | 61 | 40398 | 66 | 47168 | 76 |
| 140500 | 63729 | 200 | 32688 | 56 | 36295 | 61 | 40512 | 66 | 47298 | 76 |
| 141500 | 64183 | 200 | 32880 | 56 | 36527 | 61 | 40766 | 66 | 47589 | 76 |

**Applicability:** 50010-50017, 50020-50065, 50067

*Table 20 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 77000 | 34926 | 200 | 17768 | 31 | 18843 | 34 | 21213 | 39 | 25068 | 45 |
| 78000 | 35380 | 200 | 18036 | 31 | 19154 | 34 | 21557 | 40 | 25466 | 46 |
| 79000 | 35833 | 200 | 18304 | 32 | 19464 | 35 | 21901 | 40 | 25863 | 46 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 80000 | 36287 | 200 | 18572 | 32 | 19775 | 35 | 22246 | 41 | 26261 | 47 |
| 81000 | 36740 | 200 | 18841 | 33 | 20086 | 36 | 22590 | 41 | 26658 | 47 |
| 82000 | 37194 | 200 | 19109 | 33 | 20396 | 36 | 22934 | 42 | 27055 | 48 |
| 83000 | 37648 | 200 | 19377 | 34 | 20707 | 37 | 23278 | 42 | 27453 | 48 |
| 84000 | 38101 | 200 | 19645 | 34 | 21018 | 37 | 23622 | 43 | 27850 | 49 |
| 85000 | 38555 | 200 | 19913 | 35 | 21328 | 38 | 23966 | 43 | 28247 | 49 |
| 86000 | 39008 | 200 | 20181 | 35 | 21639 | 38 | 24310 | 44 | 28645 | 50 |
| 87000 | 39462 | 200 | 20449 | 36 | 21949 | 39 | 24654 | 44 | 29042 | 50 |
| 88000 | 39916 | 200 | 20717 | 36 | 22260 | 39 | 24998 | 45 | 29440 | 51 |
| 89000 | 40369 | 200 | 20986 | 37 | 22571 | 40 | 25342 | 45 | 29837 | 51 |
| 90000 | 40823 | 200 | 21254 | 37 | 22881 | 40 | 25687 | 46 | 30234 | 52 |
| 91000 | 41276 | 200 | 21522 | 37 | 23192 | 41 | 26031 | 46 | 30632 | 53 |
| 92000 | 41730 | 200 | 21790 | 38 | 23503 | 41 | 26375 | 47 | 31029 | 53 |
| 93000 | 42184 | 200 | 22058 | 38 | 23813 | 42 | 26719 | 47 | 31426 | 54 |
| 94000 | 42637 | 200 | 22326 | 39 | 24124 | 42 | 27063 | 48 | 31824 | 54 |
| 95000 | 43091 | 200 | 22594 | 39 | 24434 | 43 | 27407 | 48 | 32221 | 55 |
| 96000 | 43544 | 200 | 22863 | 40 | 24745 | 43 | 27751 | 49 | 32619 | 55 |
| 97000 | 43998 | 200 | 23131 | 40 | 25056 | 44 | 28095 | 49 | 33016 | 56 |
| 98000 | 44452 | 200 | 23399 | 41 | 25366 | 44 | 28439 | 50 | 33413 | 56 |
| 99000 | 44905 | 200 | 23667 | 41 | 25677 | 45 | 28783 | 50 | 33811 | 57 |
| 100000 | 45359 | 200 | 23935 | 42 | 25988 | 45 | 29128 | 51 | 34208 | 57 |
| 101000 | 45812 | 200 | 24203 | 42 | 26298 | 46 | 29472 | 51 | 34605 | 58 |
| 102000 | 46266 | 200 | 24471 | 43 | 26609 | 46 | 29816 | 52 | 35003 | 58 |
| 103000 | 46719 | 200 | 24739 | 43 | 26919 | 47 | 30160 | 52 | 35400 | 59 |
| 104000 | 47173 | 200 | 25008 | 43 | 27230 | 47 | 30504 | 53 | 35798 | 60 |
| 105000 | 47627 | 200 | 25276 | 44 | 27541 | 48 | 30848 | 53 | 36195 | 60 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 106000 | 48080 | 200 | 25544 | 44 | 27851 | 48 | 31192 | 54 | 36592 | 61 |
| 107000 | 48534 | 200 | 25812 | 45 | 28162 | 49 | 31536 | 54 | 36990 | 61 |
| 108000 | 48987 | 200 | 26080 | 45 | 28473 | 49 | 31880 | 55 | 37387 | 62 |
| 109000 | 49441 | 200 | 26348 | 46 | 28783 | 50 | 32224 | 55 | 37784 | 62 |
| 110000 | 49895 | 200 | 26616 | 46 | 29094 | 50 | 32568 | 56 | 38182 | 63 |
| 111000 | 50348 | 200 | 26884 | 47 | 29404 | 51 | 32913 | 56 | 38579 | 63 |
| 112000 | 50802 | 200 | 27153 | 47 | 29715 | 51 | 33257 | 57 | 38977 | 64 |
| 113000 | 51255 | 200 | 27421 | 48 | 30026 | 52 | 33601 | 57 | 39374 | 64 |
| 114000 | 51709 | 200 | 27689 | 48 | 30336 | 52 | 33945 | 58 | 39771 | 65 |
| 115000 | 52163 | 200 | 27957 | 49 | 30647 | 53 | 34289 | 58 | 40169 | 65 |
| 116000 | 52616 | 200 | 28225 | 49 | 30958 | 53 | 34633 | 59 | 40566 | 66 |
| 117000 | 53070 | 200 | 28453 | 49 | 31228 | 53 | 34931 | 59 | 40908 | 66 |
| 118000 | 53523 | 200 | 28680 | 49 | 31498 | 53 | 35229 | 60 | 41250 | 67 |
| 119000 | 53977 | 200 | 28907 | 50 | 31768 | 54 | 35527 | 60 | 41591 | 67 |
| 120000 | 54431 | 200 | 29135 | 50 | 32038 | 54 | 35825 | 61 | 41933 | 68 |
| 120500 | 54657 | 200 | 29248 | 50 | 32173 | 54 | 35974 | 61 | 42104 | 68 |
| 121000 | 54884 | 200 | 29334 | 50 | 32276 | 54 | 36087 | 61 | 42234 | 68 |
| 122000 | 55338 | 200 | 29506 | 50 | 32482 | 55 | 36314 | 61 | 42494 | 69 |
| 123000 | 55791 | 200 | 29678 | 51 | 32689 | 55 | 36541 | 62 | 42753 | 69 |
| 124000 | 56245 | 200 | 29850 | 51 | 32895 | 55 | 36768 | 62 | 43013 | 69 |
| 125000 | 56699 | 200 | 30022 | 51 | 33101 | 56 | 36995 | 62 | 43273 | 70 |
| 126000 | 57152 | 200 | 30194 | 52 | 33307 | 56 | 37222 | 62 | 43532 | 70 |
| 127000 | 57606 | 200 | 30366 | 52 | 33513 | 56 | 37448 | 63 | 43792 | 71 |
| 128000 | 58059 | 200 | 30538 | 52 | 33719 | 57 | 37675 | 63 | 44052 | 71 |
| 129000 | 58513 | 200 | 30710 | 53 | 33925 | 57 | 37902 | 63 | 44312 | 71 |
| 130000 | 58966 | 200 | 30882 | 53 | 34131 | 57 | 38129 | 63 | 44571 | 72 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 131000 | 59420 | 200 | 31054 | 53 | 34337 | 58 | 38356 | 64 | 44831 | 72 |
| 132000 | 59874 | 200 | 31226 | 53 | 34544 | 58 | 38583 | 64 | 45091 | 73 |
| 133000 | 60327 | 200 | 31398 | 54 | 34750 | 58 | 38810 | 64 | 45350 | 73 |
| 134000 | 60781 | 200 | 31570 | 54 | 34956 | 59 | 39037 | 64 | 45610 | 73 |
| 135000 | 61234 | 200 | 31742 | 54 | 35162 | 59 | 39264 | 65 | 45870 | 74 |

**Applicability:** 50069, 50071, 50078, 50085-50086

*Table 21 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 77000 | 34926 | 200 | 17768 | 31 | 18843 | 34 | 21213 | 39 | 25068 | 45 |
| 78000 | 35380 | 200 | 18036 | 31 | 19154 | 34 | 21557 | 40 | 25466 | 46 |
| 79000 | 35833 | 200 | 18304 | 32 | 19464 | 35 | 21901 | 40 | 25863 | 46 |
| 80000 | 36287 | 200 | 18572 | 32 | 19775 | 35 | 22246 | 41 | 26261 | 47 |
| 81000 | 36740 | 200 | 18841 | 33 | 20086 | 36 | 22590 | 41 | 26658 | 47 |
| 82000 | 37194 | 200 | 19109 | 33 | 20396 | 36 | 22934 | 42 | 27055 | 48 |
| 83000 | 37648 | 200 | 19377 | 34 | 20707 | 37 | 23278 | 42 | 27453 | 48 |
| 84000 | 38101 | 200 | 19645 | 34 | 21018 | 37 | 23622 | 43 | 27850 | 49 |
| 85000 | 38555 | 200 | 19913 | 35 | 21328 | 38 | 23966 | 43 | 28247 | 49 |
| 86000 | 39008 | 200 | 20181 | 35 | 21639 | 38 | 24310 | 44 | 28645 | 50 |
| 87000 | 39462 | 200 | 20449 | 36 | 21949 | 39 | 24654 | 44 | 29042 | 50 |
| 88000 | 39916 | 200 | 20717 | 36 | 22260 | 39 | 24998 | 45 | 29440 | 51 |
| 89000 | 40369 | 200 | 20986 | 37 | 22571 | 40 | 25342 | 45 | 29837 | 51 |
| 90000 | 40823 | 200 | 21254 | 37 | 22881 | 40 | 25687 | 46 | 30234 | 52 |
| 91000 | 41276 | 200 | 21522 | 37 | 23192 | 41 | 26031 | 46 | 30632 | 53 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 92000 | 41730 | 200 | 21790 | 38 | 23503 | 41 | 26375 | 47 | 31029 | 53 |
| 93000 | 42184 | 200 | 22058 | 38 | 23813 | 42 | 26719 | 47 | 31426 | 54 |
| 94000 | 42637 | 200 | 22326 | 39 | 24124 | 42 | 27063 | 48 | 31824 | 54 |
| 95000 | 43091 | 200 | 22594 | 39 | 24434 | 43 | 27407 | 48 | 32221 | 55 |
| 96000 | 43544 | 200 | 22863 | 40 | 24745 | 43 | 27751 | 49 | 32619 | 55 |
| 97000 | 43998 | 200 | 23131 | 40 | 25056 | 44 | 28095 | 49 | 33016 | 56 |
| 98000 | 44452 | 200 | 23399 | 41 | 25366 | 44 | 28439 | 50 | 33413 | 56 |
| 99000 | 44905 | 200 | 23667 | 41 | 25677 | 45 | 28783 | 50 | 33811 | 57 |
| 100000 | 45359 | 200 | 23935 | 42 | 25988 | 45 | 29128 | 51 | 34208 | 57 |
| 101000 | 45812 | 200 | 24203 | 42 | 26298 | 46 | 29472 | 51 | 34605 | 58 |
| 102000 | 46266 | 200 | 24471 | 43 | 26609 | 46 | 29816 | 52 | 35003 | 58 |
| 103000 | 46719 | 200 | 24739 | 43 | 26919 | 47 | 30160 | 52 | 35400 | 59 |
| 104000 | 47173 | 200 | 25008 | 43 | 27230 | 47 | 30504 | 53 | 35798 | 60 |
| 105000 | 47627 | 200 | 25276 | 44 | 27541 | 48 | 30848 | 53 | 36195 | 60 |
| 106000 | 48080 | 200 | 25544 | 44 | 27851 | 48 | 31192 | 54 | 36592 | 61 |
| 107000 | 48534 | 200 | 25812 | 45 | 28162 | 49 | 31536 | 54 | 36990 | 61 |
| 108000 | 48987 | 200 | 26080 | 45 | 28473 | 49 | 31880 | 55 | 37387 | 62 |
| 109000 | 49441 | 200 | 26348 | 46 | 28783 | 50 | 32224 | 55 | 37784 | 62 |
| 110000 | 49895 | 200 | 26616 | 46 | 29094 | 50 | 32568 | 56 | 38182 | 63 |
| 111000 | 50348 | 200 | 26884 | 47 | 29404 | 51 | 32913 | 56 | 38579 | 63 |
| 112000 | 50802 | 200 | 27153 | 47 | 29715 | 51 | 33257 | 57 | 38977 | 64 |
| 113000 | 51255 | 200 | 27421 | 48 | 30026 | 52 | 33601 | 57 | 39374 | 64 |
| 114000 | 51709 | 200 | 27689 | 48 | 30336 | 52 | 33945 | 58 | 39771 | 65 |
| 115000 | 52163 | 200 | 27957 | 49 | 30647 | 53 | 34289 | 58 | 40169 | 65 |
| 116000 | 52616 | 200 | 28225 | 49 | 30958 | 53 | 34633 | 59 | 40566 | 66 |
| 117000 | 53070 | 200 | 28453 | 49 | 31228 | 53 | 34931 | 59 | 40908 | 66 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pres-sure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 118000 | 53523 | 200 | 28680 | 49 | 31498 | 53 | 35229 | 60 | 41250 | 67 |
| 119000 | 53977 | 200 | 28907 | 50 | 31768 | 54 | 35527 | 60 | 41591 | 67 |
| 120000 | 54431 | 200 | 29135 | 50 | 32038 | 54 | 35825 | 61 | 41933 | 68 |
| 120500 | 54657 | 200 | 29248 | 50 | 32173 | 54 | 35974 | 61 | 42104 | 68 |
| 121000 | 54884 | 200 | 29334 | 50 | 32276 | 54 | 36087 | 61 | 42234 | 68 |
| 122000 | 55338 | 200 | 29506 | 50 | 32482 | 55 | 36314 | 61 | 42494 | 69 |
| 123000 | 55791 | 200 | 29678 | 51 | 32689 | 55 | 36541 | 62 | 42753 | 69 |
| 124000 | 56245 | 200 | 29850 | 51 | 32895 | 55 | 36768 | 62 | 43013 | 69 |
| 125000 | 56699 | 200 | 30022 | 51 | 33101 | 56 | 36995 | 62 | 43273 | 70 |
| 126000 | 57152 | 200 | 30194 | 52 | 33307 | 56 | 37222 | 62 | 43532 | 70 |
| 127000 | 57606 | 200 | 30366 | 52 | 33513 | 56 | 37448 | 63 | 43792 | 71 |
| 128000 | 58059 | 200 | 30538 | 52 | 33719 | 57 | 37675 | 63 | 44052 | 71 |
| 129000 | 58513 | 200 | 30710 | 53 | 33925 | 57 | 37902 | 63 | 44312 | 71 |
| 130000 | 58966 | 200 | 30882 | 53 | 34131 | 57 | 38129 | 63 | 44571 | 72 |
| 131000 | 59420 | 200 | 31054 | 53 | 34337 | 58 | 38356 | 64 | 44831 | 72 |
| 132000 | 59874 | 200 | 31226 | 53 | 34544 | 58 | 38583 | 64 | 45091 | 73 |
| 133000 | 60327 | 200 | 31398 | 54 | 34750 | 58 | 38810 | 64 | 45350 | 73 |
| 134000 | 60781 | 200 | 31570 | 54 | 34956 | 59 | 39037 | 64 | 45610 | 73 |
| 135000 | 61234 | 200 | 31742 | 54 | 35162 | 59 | 39264 | 65 | 45870 | 74 |
| 136000 | 61688 | 200 | 31914 | 55 | 35368 | 59 | 39491 | 65 | 46130 | 74 |
| 137000 | 62142 | 200 | 32086 | 55 | 35574 | 60 | 39717 | 65 | 46389 | 75 |
| 138000 | 62595 | 200 | 32258 | 55 | 35780 | 60 | 39944 | 65 | 46649 | 75 |
| 139000 | 63049 | 200 | 32430 | 56 | 35986 | 60 | 40171 | 66 | 46909 | 75 |

**LEGEND**

- Radius of relative stiffness L=30.00 in. (762.00 mm).
- Radius of relative stiffness L=20.00 in. (508.00 mm).
- Radius of relative stiffness L=15.00 in. (381.00 mm).
- Radius of relative stiffness L=10.00 in. (254.00 mm).

ICN-BD500-A-J000000-C-3AB48-57668-A-003-01

*Figure 6 LCN results - Flexible pavement*

# 5 Required Pavement Thickness

An essential parameter to calculate the PCN is the required pavement thickness.Fig. 7 and Fig. 8. provide a graphical way to determine the required rigid or flexible pavement thickness based on the pavement strength, aircraft load applied to the pavement, and the annual departure rate. Normally, each airport calculates the PCN based on the different aircraft types which operate to and from that airport considering the number of annual departure for each aircraft type. Using the graphs in this section, one can conclude on the impact of annual departure on required pavement thickness. This material gives the user another mean to evaluate the considered airport for operating the A220 more realistically based on more realistic number of annual departure.

**Note**

Number of annual departure starts from 300 (close to 1 flight per day). In fact, this gives the reader a better idea about required pavement thickness on those small airports that might not have a very high usage rate.

**A220-100, AFT CENTER OF GRAVITY, REQUIRED FLEXIBLE PAVEMENT THICKNESS**

**SUBGRADE STRENGTH - CALIFORNIA BEARING RATIO**

**FLEXIBLE PAVEMENT THICKNESS (in.)**

ICN-BD500-A-J000000-C-3AB48-57669-A-003-01

*Figure 7 Flexible pavement required thickness*

ICN-BD500-A-J000000-C-3AB48-57670-A-003-01

*Figure 8 Rigid pavement required thickness*

# 6 Landing gear footprint

Refer to Fig. 9 for the landing gear footprint.

*Table 22 Landing gear footprint*

| | |
|---|---|
| Aircraft (A/C) code | A-B-C-D-E-F-G-H-I-J-K-L-M-N |
| Percentage of weight on main gear group | Refer to section 4 |
| Nose gear tire size | 27 x 8.5 R12 16 PR |
| Nose gear tire pressure | 146 PSIG (10 Bar) |
| Main gear tire size | H42 x 15.0 R21 26 PR |
| Main gear tire pressure | 189 PSIG (13.0 Bar) |

**NOTE**

Not to scale.

ICN-BD500-A-J000000-A-3AB48-21628-A-002-01

*Figure 9 Landing gear footprint*

# 7 Maximum pavement loads

The maximum pavement load is given at aircraft CG,weight on Main Landing Gear (MLG) and aircraft weight.

Refer to Fig. 10 for graphical format.

**LEGEND**

- - - - Aircraft center of gravity.

— — Aircraft weight.

——— A220-100 ground center of gravity envelope.

ICN-BD500-A-J000000-C-3AB48-58656-A-001-01

*Figure 10 Maximum Pavement Load*

# Pavement data - Technical data

Applicability: 55001-59999

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## References

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## Description

# 1 Introduction

This section contains data related to the pavement design specifications, including aircraft footprints, pavement loading during standard operations, and aircraft/pavement rating systems. Also given are the flotation classification for different weights, fixed tire pressure, and aft Center of Gravity (CG), with the Aircraft Classification Number (ACN) methods.

This section is divided into the subsections that follow:

- ACN
- Landing gear footprint
- Maximum pavement load
- Landing gear loading on pavement

**Note**

*Runway strength data shown in this publication is derived from available information and is a realistic estimate of capability at an average level of activity. It is not intended as a maximum allowable weight or as an operating limitation. Many airport pavements are capable of supporting limited operations with gross weights in excess of published figures. Permissible operating weight, insofar as runway strengths are concerned, are a matter of agreement between the owner and user.*

*For more information about the Pavement Classification Number (PCN), please contact the concerned airport authority.*

**Note**

*- If the aircraft take-off weight is less than or equal to 67 585 kg (149 000 lb), the aircraft is classified as code 3C as perInternational Civil Aviation Organization (ICAO) Aerodrome Reference Code*

*- If the aircraft take-off weight is more than 67 585 kg (149 000 lb), the aircraft is classified as code 4C as per ICAO Aerodrome Reference Code.*

## 1.1 Aircraft Classification Number (ACN) / Pavement Classification Number (PCN) Introduction

### 1.1.1 Aircraft Classification Number (ACN)

The ACN value is a number, which expresses the relative structural effect of an aircraft on different pavement types for specified standard subgrade strengths in terms of a standard single wheel load.

An aircraft will have eight (8) ACN numbers for any given aircraft weight and tire pressure: four (4) for flexible pavement and four (4) for rigid pavement.

### 1.1.2 Pavement Classification Number (PCN)

The PCN value is a number, which expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load.

An airport determined and published PCN can be compared with an aircraft's ACN. An aircraft that has an ACN equal to or less than the PCN of a given pavement can operated without restriction on the pavement. (Ref. ICAO State Letter AN411.1.17−8019. Ref. US FAA Advisory Circular 150153355 15/06/83).

For example, if the published airport PCN is 52/R/B/Y/T, it means that the aircraft ACN must be less than 52 for rigid pavement type, with medium subgrade strenght, and the tire pressure of the aircraft must be less than 145 psi (1.0 MPa). The PCN also shows that the value was arrived at through a technical review.

*Table 2 Airport method to show Pavement Classification Number (PCN)*

| Pavement type | Subgrade category | Tire pressure category psi (MPa) | Evaluation |
|---|---|---|---|
| R = Rigid<br>F = Flexible | A = High<br>B = Medium<br>C = Low<br>D = Ultra Low | W = No limit<br>X = To 254 (1.75)<br>Y = To 181 (1.25)<br>Z = To 73 (0.5) | T = Technical<br>U = Using aircraft |

*Table 3 Subgrade strength categories*

| Subgrade Categories | Flexible pavement | | Rigid pavement | |
|---|---|---|---|---|
| | Characterization | CBR range | Characterization | k-Value Range |
| A | CBR 15 | Above 13 | k = 150MN/m3 (550 pci) | Above 120MN/m3 (442pci) |
| B | CBR 10 | From 8 to 13 | k = 80MN/m3 (300 pci) | From 60 to 120 MN/m3 (221 to 442pci) |
| C | CBR 6 | From 4 to 8 | k = 80MN/m3 (300 pci) | From 25 to 60 MN/m3 (92 to 221pci) |
| D | CBR 3 | Below 4 | k=20MN/m3 (75pci) | Below 25 MN/m3 (92pci) |

### 1.1.3 Load Classification Number (LCN)

The Load Classification Number (LCN) is a method of flotation analysis by the ICAO.

An aircraft will have two (2) LCN numbers for any given aircraft weight and tire pressure: one (1) for rigid pavement usually concrete and second (2) for flexible pavement usually layered asphalt.

## 2 Aircraft Classification Number (ACN) results for most aft C.G. position

Refer to Table 4 for tabular format and Fig. 1 for graphical format for the ACN results for rigid pavement and Table 5 for tabular format and Fig. 2 for graphical format for the ACN results for flexible pavement.

*Table 4 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Medium Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 157000 | 71213 | 146872 | 66619 | 44 | 46 | 48 | 50 |
| 156300 | 70896 | 146853 | 66611 | 44 | 46 | 48 | 50 |
| 156000 | 70760 | 146640 | 66514 | 44 | 46 | 48 | 50 |
| 155000 | 70306 | 145929 | 66192 | 43 | 46 | 48 | 49 |
| 154000 | 69853 | 145219 | 65870 | 43 | 45 | 47 | 49 |
| 153000 | 69399 | 144509 | 65548 | 43 | 45 | 47 | 49 |
| 152000 | 68945 | 143798 | 65225 | 43 | 45 | 47 | 49 |
| 151000 | 68492 | 143088 | 64903 | 42 | 45 | 47 | 48 |
| 150000 | 68038 | 142378 | 64581 | 42 | 44 | 46 | 48 |
| 149000 | 67585 | 141667 | 64259 | 42 | 44 | 46 | 48 |
| 148000 | 67131 | 140957 | 63936 | 42 | 44 | 46 | 48 |
| 147000 | 66678 | 140247 | 63614 | 41 | 44 | 46 | 47 |
| 146000 | 66224 | 139537 | 63292 | 41 | 43 | 45 | 47 |
| 145000 | 65770 | 138826 | 62970 | 41 | 43 | 45 | 47 |
| 144000 | 65317 | 138116 | 62648 | 41 | 43 | 45 | 46 |
| 143000 | 64863 | 137406 | 62326 | 40 | 42 | 44 | 46 |
| 142000 | 64410 | 136695 | 62003 | 40 | 42 | 44 | 46 |

| A/C Gross Weight (lb) | A/C Gross weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Medium Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 141000 | 63956 | 135985 | 61681 | 40 | 42 | 44 | 46 |
| 140000 | 63502 | 135275 | 61359 | 40 | 42 | 44 | 45 |
| 139000 | 63049 | 134564 | 61037 | 39 | 41 | 43 | 45 |
| 138000 | 62595 | 133854 | 60715 | 39 | 41 | 43 | 45 |
| 137000 | 62142 | 133144 | 60393 | 39 | 41 | 43 | 44 |
| 136000 | 61688 | 132434 | 60071 | 39 | 41 | 43 | 44 |
| 135000 | 61234 | 131723 | 59748 | 38 | 40 | 42 | 44 |
| 134500 | 61008 | 131368 | 59587 | 38 | 40 | 42 | 44 |
| 134000 | 60781 | 130898 | 59374 | 38 | 40 | 42 | 44 |
| 133000 | 60327 | 129958 | 58947 | 38 | 40 | 42 | 43 |
| 132000 | 59874 | 129017 | 58521 | 37 | 39 | 41 | 43 |
| 131000 | 59420 | 128077 | 58094 | 37 | 39 | 41 | 43 |
| 130000 | 58966 | 127137 | 57668 | 37 | 39 | 41 | 42 |
| 129000 | 58513 | 126197 | 57241 | 37 | 38 | 40 | 42 |
| 128000 | 58059 | 125256 | 56815 | 36 | 38 | 40 | 42 |
| 127000 | 57606 | 124202 | 56337 | 36 | 38 | 40 | 41 |
| 126000 | 57152 | 123147 | 55858 | 36 | 37 | 39 | 41 |
| 125000 | 56699 | 122092 | 55379 | 35 | 37 | 39 | 40 |
| 124000 | 56245 | 121037 | 54901 | 35 | 37 | 38 | 40 |
| 123000 | 55791 | 119983 | 54423 | 34 | 36 | 38 | 40 |
| 122000 | 55338 | 118928 | 53944 | 34 | 36 | 38 | 39 |
| 121000 | 54884 | 117873 | 53466 | 34 | 36 | 37 | 39 |
| 120000 | 54431 | 116819 | 52988 | 33 | 35 | 37 | 38 |
| 119000 | 53977 | 115764 | 52509 | 33 | 35 | 37 | 38 |
| 118000 | 53523 | 114709 | 52031 | 33 | 34 | 36 | 38 |
| 117000 | 53070 | 113655 | 51552 | 32 | 34 | 36 | 37 |

| A/C Gross Weight (lb) | A/C Gross weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Medium Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 116000 | 52616 | 112600 | 51074 | 32 | 34 | 35 | 37 |
| 115000 | 52163 | 111545 | 50595 | 32 | 33 | 35 | 36 |
| 114000 | 51709 | 110490 | 50117 | 31 | 33 | 35 | 36 |
| 113000 | 51255 | 109436 | 49639 | 31 | 33 | 34 | 36 |
| 112000 | 50802 | 108381 | 49160 | 31 | 32 | 34 | 35 |
| 111000 | 50348 | 107326 | 48682 | 30 | 32 | 34 | 35 |
| 110000 | 49895 | 106272 | 48204 | 30 | 32 | 33 | 35 |
| 109000 | 49441 | 105217 | 47725 | 30 | 31 | 33 | 34 |
| 108000 | 48987 | 104162 | 47247 | 29 | 31 | 32 | 34 |
| 107000 | 48534 | 103107 | 46768 | 29 | 31 | 32 | 33 |
| 106000 | 48080 | 102053 | 46290 | 29 | 30 | 32 | 33 |
| 105000 | 47627 | 100998 | 45811 | 28 | 30 | 31 | 33 |
| 104000 | 47173 | 99943 | 45333 | 28 | 29 | 31 | 32 |
| 103000 | 46719 | 98889 | 44855 | 28 | 29 | 31 | 32 |
| 102000 | 46266 | 97834 | 44376 | 27 | 29 | 30 | 31 |
| 101000 | 45812 | 96779 | 43898 | 27 | 28 | 30 | 31 |
| 100000 | 45359 | 95725 | 43420 | 27 | 28 | 29 | 31 |
| 99000 | 44905 | 94670 | 42941 | 26 | 28 | 29 | 30 |
| 98000 | 44452 | 93615 | 42463 | 26 | 27 | 29 | 30 |
| 97000 | 43998 | 92560 | 41984 | 26 | 27 | 28 | 29 |
| 96000 | 43544 | 91506 | 41506 | 25 | 27 | 28 | 29 |
| 95000 | 43091 | 90451 | 41027 | 25 | 26 | 28 | 29 |
| 94000 | 42637 | 89396 | 40549 | 25 | 26 | 27 | 28 |
| 93000 | 42184 | 88342 | 40071 | 24 | 25 | 27 | 28 |
| 92000 | 41730 | 87287 | 39592 | 24 | 25 | 26 | 28 |
| 91000 | 41276 | 86232 | 39114 | 24 | 25 | 26 | 27 |

| A/C Gross Weight (lb) | A/C Gross weight (Kg) | MLG Load (lb) | MLG Load (Kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Medium Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 90000 | 40823 | 85177 | 38635 | 23 | 24 | 26 | 27 |
| 89000 | 40369 | 84123 | 38157 | 23 | 24 | 25 | 26 |
| 88000 | 39916 | 83068 | 37678 | 23 | 24 | 25 | 26 |
| 87000 | 39462 | 82013 | 37200 | 22 | 23 | 25 | 26 |
| 86000 | 39008 | 80959 | 36722 | 22 | 23 | 24 | 25 |
| 85000 | 38555 | 79904 | 36243 | 22 | 23 | 24 | 25 |
| 84000 | 38101 | 78849 | 35765 | 21 | 22 | 23 | 24 |
| 83000 | 37648 | 77795 | 35287 | 21 | 22 | 23 | 24 |
| 82000 | 37194 | 76740 | 34808 | 20 | 22 | 23 | 24 |
| 81000 | 36740 | 75685 | 34330 | 20 | 21 | 22 | 23 |
| 80000 | 36287 | 74630 | 33851 | 20 | 21 | 22 | 23 |

**LEGEND**

- Ultra low strength k=20 mn/m³.
- Low strength k=40 mn/m³.
- Medium strength k=80 mn/m³.
- High strength k=150 mn/m³.

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*Figure 1 ACN results - Rigid pavement*

*Table 5 Aircraft Classification Number (ACN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 157000 | 71213 | 146872 | 66619 | 38 | 40 | 43 | 49 |
| 156300 | 70896 | 146853 | 66611 | 38 | 40 | 43 | 49 |
| 156000 | 70760 | 146640 | 66514 | 38 | 39 | 43 | 49 |
| 155000 | 70306 | 145929 | 66192 | 38 | 39 | 43 | 48 |
| 154000 | 69853 | 145219 | 65870 | 37 | 39 | 43 | 48 |
| 153000 | 69399 | 144509 | 65548 | 37 | 39 | 42 | 48 |
| 152000 | 68945 | 143798 | 65225 | 37 | 39 | 42 | 48 |
| 151000 | 68492 | 143088 | 64903 | 37 | 38 | 42 | 47 |
| 150000 | 68038 | 142378 | 64581 | 36 | 38 | 42 | 47 |
| 149000 | 67585 | 141667 | 64259 | 36 | 38 | 41 | 47 |
| 148000 | 67131 | 140957 | 63936 | 36 | 38 | 41 | 46 |
| 147000 | 66678 | 140247 | 63614 | 36 | 37 | 41 | 46 |
| 146000 | 66224 | 139537 | 63292 | 36 | 37 | 41 | 46 |
| 145000 | 65770 | 138826 | 62970 | 35 | 37 | 40 | 46 |
| 144000 | 65317 | 138116 | 62648 | 35 | 37 | 40 | 45 |
| 143000 | 64863 | 137406 | 62326 | 35 | 37 | 40 | 45 |
| 142000 | 64410 | 136695 | 62003 | 35 | 36 | 40 | 45 |
| 141000 | 63956 | 135985 | 61681 | 35 | 36 | 39 | 45 |
| 140000 | 63502 | 135275 | 61359 | 34 | 36 | 39 | 44 |
| 139000 | 63049 | 134564 | 61037 | 34 | 36 | 39 | 44 |
| 138000 | 62595 | 133854 | 60715 | 34 | 35 | 39 | 44 |
| 137000 | 62142 | 133144 | 60393 | 34 | 35 | 38 | 44 |
| 136000 | 61688 | 132434 | 60071 | 34 | 35 | 38 | 43 |
| 135000 | 61234 | 131723 | 59748 | 33 | 35 | 38 | 43 |
| 134500 | 61008 | 131368 | 59587 | 33 | 35 | 38 | 43 |
| 134000 | 60781 | 130898 | 59374 | 33 | 34 | 37 | 43 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 133000 | 60327 | 129958 | 58947 | 33 | 34 | 37 | 42 |
| 132000 | 59874 | 129017 | 58521 | 33 | 34 | 37 | 42 |
| 131000 | 59420 | 128077 | 58094 | 32 | 34 | 36 | 42 |
| 130000 | 58966 | 127137 | 57668 | 32 | 33 | 36 | 41 |
| 129000 | 58513 | 126197 | 57241 | 32 | 33 | 36 | 41 |
| 128000 | 58059 | 125256 | 56815 | 31 | 33 | 35 | 41 |
| 127000 | 57606 | 124202 | 56337 | 31 | 32 | 35 | 40 |
| 126000 | 57152 | 123147 | 55858 | 31 | 32 | 35 | 40 |
| 125000 | 56699 | 122092 | 55379 | 31 | 32 | 34 | 39 |
| 124000 | 56245 | 121037 | 54901 | 30 | 31 | 34 | 39 |
| 123000 | 55791 | 119983 | 54423 | 30 | 31 | 34 | 39 |
| 122000 | 55338 | 118928 | 53944 | 30 | 31 | 33 | 38 |
| 121000 | 54884 | 117873 | 53466 | 29 | 31 | 33 | 38 |
| 120000 | 54431 | 116819 | 52988 | 29 | 30 | 33 | 37 |
| 119000 | 53977 | 115764 | 52509 | 29 | 30 | 32 | 37 |
| 118000 | 53523 | 114709 | 52031 | 29 | 30 | 32 | 37 |
| 117000 | 53070 | 113655 | 51552 | 28 | 29 | 32 | 36 |
| 116000 | 52616 | 112600 | 51074 | 28 | 29 | 31 | 36 |
| 115000 | 52163 | 111545 | 50595 | 28 | 29 | 31 | 35 |
| 114000 | 51709 | 110490 | 50117 | 27 | 28 | 31 | 35 |
| 113000 | 51255 | 109436 | 49639 | 27 | 28 | 30 | 35 |
| 112000 | 50802 | 108381 | 49160 | 27 | 28 | 30 | 34 |
| 111000 | 50348 | 107326 | 48682 | 26 | 27 | 30 | 34 |
| 110000 | 49895 | 106272 | 48204 | 26 | 27 | 29 | 33 |
| 109000 | 49441 | 105217 | 47725 | 26 | 27 | 29 | 33 |
| 108000 | 48987 | 104162 | 47247 | 26 | 26 | 29 | 33 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 107000 | 48534 | 103107 | 46768 | 25 | 26 | 28 | 32 |
| 106000 | 48080 | 102053 | 46290 | 25 | 26 | 28 | 32 |
| 105000 | 47627 | 100998 | 45811 | 25 | 26 | 27 | 31 |
| 104000 | 47173 | 99943 | 45333 | 24 | 25 | 27 | 31 |
| 103000 | 46719 | 98889 | 44855 | 24 | 25 | 27 | 31 |
| 102000 | 46266 | 97834 | 44376 | 24 | 25 | 26 | 30 |
| 101000 | 45812 | 96779 | 43898 | 24 | 24 | 26 | 30 |
| 100000 | 45359 | 95725 | 43420 | 23 | 24 | 26 | 29 |
| 99000 | 44905 | 94670 | 42941 | 23 | 24 | 25 | 29 |
| 98000 | 44452 | 93615 | 42463 | 23 | 23 | 25 | 29 |
| 97000 | 43998 | 92560 | 41984 | 22 | 23 | 25 | 28 |
| 96000 | 43544 | 91506 | 41506 | 22 | 23 | 24 | 28 |
| 95000 | 43091 | 90451 | 41027 | 22 | 22 | 24 | 27 |
| 94000 | 42637 | 89396 | 40549 | 22 | 22 | 24 | 27 |
| 93000 | 42184 | 88342 | 40071 | 21 | 22 | 23 | 27 |
| 92000 | 41730 | 87287 | 39592 | 21 | 22 | 23 | 26 |
| 91000 | 41276 | 86232 | 39114 | 21 | 21 | 23 | 26 |
| 90000 | 40823 | 85177 | 38635 | 20 | 21 | 22 | 25 |
| 89000 | 40369 | 84123 | 38157 | 20 | 21 | 22 | 25 |
| 88000 | 39916 | 83068 | 37678 | 20 | 20 | 22 | 25 |
| 87000 | 39462 | 82013 | 37200 | 20 | 20 | 21 | 24 |
| 86000 | 39008 | 80959 | 36722 | 19 | 20 | 21 | 24 |
| 85000 | 38555 | 79904 | 36243 | 19 | 19 | 21 | 23 |
| 84000 | 38101 | 78849 | 35765 | 19 | 19 | 20 | 23 |
| 83000 | 37648 | 77795 | 35287 | 18 | 19 | 20 | 23 |
| 82000 | 37194 | 76740 | 34808 | 18 | 18 | 20 | 22 |

| A/C Gross Weight (lb) | A/C Gross Weight (kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 81000 | 36740 | 75685 | 34330 | 18 | 18 | 19 | 22 |
| 80000 | 36287 | 74630 | 33851 | 18 | 18 | 19 | 22 |

**LEGEND**

- Ultra low strength california bearing ratio=3.
- Low strength california bearing ratio=6.
- Medium strength california bearing ratio=10.
- High strength california bearing ratio=15.

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*Figure 2 ACN results - Flexible pavement*

# 3 Aircraft Classification Number (ACN) results for most forward C.G. positions

Refer to Table 6 for tabular format and Fig. 3 for graphical format for the ACN results for rigid pavement and Table 7 for tabular format and Fig. 4 for graphical format for the ACN results for flexible pavement.

*Table 6 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. RIGID PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 157000 | 71213 | 144570 | 65575 | 43 | 45 | 47 | 49 |
| 156300 | 70896 | 143858 | 65252 | 43 | 45 | 47 | 49 |
| 156000 | 70760 | 143589 | 65130 | 43 | 45 | 47 | 48 |
| 155000 | 70306 | 142695 | 64725 | 42 | 44 | 46 | 48 |
| 154000 | 69853 | 141801 | 64319 | 42 | 44 | 46 | 48 |
| 153000 | 69399 | 140907 | 63914 | 42 | 44 | 46 | 47 |
| 152000 | 68945 | 140013 | 63508 | 41 | 43 | 45 | 47 |
| 151000 | 68492 | 139119 | 63103 | 41 | 43 | 45 | 47 |
| 150000 | 68038 | 138225 | 62697 | 41 | 43 | 45 | 46 |
| 149000 | 67585 | 137331 | 62292 | 40 | 42 | 44 | 46 |
| 148000 | 67131 | 136437 | 61886 | 40 | 42 | 44 | 46 |
| 147000 | 66678 | 135543 | 61481 | 40 | 42 | 44 | 45 |
| 146000 | 66224 | 134649 | 61075 | 39 | 41 | 43 | 45 |
| 145000 | 65770 | 133755 | 60670 | 39 | 41 | 43 | 45 |
| 144000 | 65317 | 132860 | 60264 | 39 | 41 | 43 | 44 |
| 143000 | 64863 | 131966 | 59858 | 39 | 41 | 42 | 44 |
| 142000 | 64410 | 131072 | 59453 | 38 | 40 | 42 | 44 |
| 141000 | 63956 | 130178 | 59047 | 38 | 40 | 42 | 43 |
| 140000 | 63502 | 129284 | 58642 | 38 | 40 | 41 | 43 |
| 139000 | 63049 | 128390 | 58236 | 37 | 39 | 41 | 43 |
| 138000 | 62595 | 127496 | 57831 | 37 | 39 | 41 | 42 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 137000 | 62142 | 126602 | 57425 | 37 | 39 | 40 | 42 |
| 136000 | 61688 | 125708 | 57020 | 36 | 38 | 40 | 42 |
| 135000 | 61234 | 124814 | 56614 | 36 | 38 | 40 | 41 |
| 134500 | 61008 | 124367 | 56411 | 36 | 38 | 40 | 41 |
| 134000 | 60781 | 123535 | 56034 | 36 | 37 | 39 | 41 |
| 133000 | 60327 | 122624 | 55621 | 35 | 37 | 39 | 40 |
| 132000 | 59874 | 121713 | 55208 | 35 | 37 | 39 | 40 |
| 131000 | 59420 | 120801 | 54794 | 35 | 36 | 38 | 40 |
| 130000 | 58966 | 119890 | 54381 | 34 | 36 | 38 | 39 |
| 129000 | 58513 | 118979 | 53967 | 34 | 36 | 38 | 39 |
| 128000 | 58059 | 118067 | 53554 | 34 | 36 | 37 | 39 |
| 127000 | 57606 | 117099 | 53115 | 33 | 35 | 37 | 38 |
| 126000 | 57152 | 116130 | 52675 | 33 | 35 | 37 | 38 |
| 125000 | 56699 | 115162 | 52236 | 33 | 35 | 36 | 38 |
| 124000 | 56245 | 114193 | 51797 | 33 | 34 | 36 | 37 |
| 123000 | 55791 | 113225 | 51357 | 32 | 34 | 36 | 37 |
| 122000 | 55338 | 112256 | 50918 | 32 | 34 | 35 | 37 |
| 121000 | 54884 | 111287 | 50478 | 32 | 33 | 35 | 36 |
| 120000 | 54431 | 110319 | 50039 | 31 | 33 | 35 | 36 |
| 119000 | 53977 | 109350 | 49600 | 31 | 33 | 34 | 36 |
| 118000 | 53523 | 108382 | 49161 | 31 | 32 | 34 | 35 |
| 117000 | 53070 | 107413 | 48721 | 30 | 32 | 34 | 35 |
| 116000 | 52616 | 106445 | 48282 | 30 | 32 | 33 | 35 |
| 115000 | 52163 | 105476 | 47843 | 30 | 31 | 33 | 34 |
| 114000 | 51709 | 104507 | 47403 | 29 | 31 | 33 | 34 |
| 113000 | 51255 | 103539 | 46964 | 29 | 31 | 32 | 33 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 112000 | 50802 | 102570 | 46524 | 29 | 30 | 32 | 33 |
| 111000 | 50348 | 101602 | 46085 | 29 | 30 | 31 | 33 |
| 110000 | 49895 | 100633 | 45646 | 28 | 30 | 31 | 32 |
| 109000 | 49441 | 99664 | 45206 | 28 | 29 | 31 | 32 |
| 108000 | 48987 | 98696 | 44767 | 28 | 29 | 30 | 32 |
| 107000 | 48534 | 97727 | 44328 | 27 | 29 | 30 | 31 |
| 106000 | 48080 | 96759 | 43889 | 27 | 28 | 30 | 31 |
| 105000 | 47627 | 95790 | 43449 | 27 | 28 | 29 | 31 |
| 104000 | 47173 | 94822 | 43010 | 26 | 28 | 29 | 30 |
| 103000 | 46719 | 93853 | 42570 | 26 | 27 | 29 | 30 |
| 102000 | 46266 | 92884 | 42131 | 26 | 27 | 28 | 30 |
| 101000 | 45812 | 91916 | 41692 | 25 | 27 | 28 | 29 |
| 100000 | 45359 | 90947 | 41252 | 25 | 26 | 28 | 29 |
| 99000 | 44905 | 89979 | 40813 | 25 | 26 | 27 | 29 |
| 98000 | 44452 | 89010 | 40374 | 24 | 26 | 27 | 28 |
| 97000 | 43998 | 88042 | 39935 | 24 | 25 | 27 | 28 |
| 96000 | 43544 | 87073 | 39495 | 24 | 25 | 26 | 28 |
| 95000 | 43091 | 86104 | 39056 | 24 | 25 | 26 | 27 |
| 94000 | 42637 | 85136 | 38617 | 23 | 24 | 26 | 27 |
| 93000 | 42184 | 84167 | 38177 | 23 | 24 | 25 | 26 |
| 92000 | 41730 | 83199 | 37738 | 23 | 24 | 25 | 26 |
| 91000 | 41276 | 82230 | 37298 | 22 | 23 | 25 | 26 |
| 90000 | 40823 | 81261 | 36859 | 22 | 23 | 24 | 25 |
| 89000 | 40369 | 80293 | 36420 | 22 | 23 | 24 | 25 |
| 88000 | 39916 | 79324 | 35980 | 21 | 23 | 24 | 25 |
| 87000 | 39462 | 78356 | 35541 | 21 | 22 | 23 | 24 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength K=150 MN/m3 | ACN Medium Strength K=80 MN/m3 | ACN Low Strength K=40 MN/m3 | ACN Ultra-Low Strength K=20 MN/m3 |
|---|---|---|---|---|---|---|---|
| 86000 | 39008 | 77387 | 35102 | 21 | 22 | 23 | 24 |
| 85000 | 38555 | 76419 | 34663 | 20 | 22 | 23 | 24 |
| 84000 | 38101 | 75450 | 34223 | 20 | 21 | 22 | 23 |
| 83000 | 37648 | 74481 | 33783 | 20 | 21 | 22 | 23 |
| 82000 | 37194 | 73513 | 33344 | 20 | 21 | 22 | 23 |
| 81000 | 36740 | 72544 | 32905 | 19 | 20 | 21 | 22 |
| 80000 | 36287 | 71576 | 32466 | 19 | 20 | 21 | 22 |

**LEGEND**

- Ultra low strength k=20 mn/m³.
- Low strength k=40 mn/m³.
- Medium strength k=80 mn/m³.
- High strength k=150 mn/m³.

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*Figure 3 ACN results - Rigid pavement*

*Table 7 Aircraft Classification Number (ACN) RESULTS FOR MOST FWD C.G. FLEXIBLE PAVEMENT*

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 157000 | 71213 | 144570 | 65575 | 37 | 39 | 43 | 48 |
| 156300 | 70896 | 143858 | 65252 | 37 | 39 | 42 | 48 |
| 156000 | 70760 | 143589 | 65130 | 37 | 38 | 42 | 47 |
| 155000 | 70306 | 142695 | 64725 | 37 | 38 | 42 | 47 |
| 154000 | 69853 | 141801 | 64319 | 36 | 38 | 41 | 47 |
| 153000 | 69399 | 140907 | 63914 | 36 | 38 | 41 | 46 |
| 152000 | 68945 | 140013 | 63508 | 36 | 37 | 41 | 46 |
| 151000 | 68492 | 139119 | 63103 | 36 | 37 | 40 | 46 |
| 150000 | 68038 | 138225 | 62697 | 35 | 37 | 40 | 45 |
| 149000 | 67585 | 137331 | 62292 | 35 | 36 | 40 | 45 |
| 148000 | 67131 | 136437 | 61886 | 35 | 36 | 39 | 45 |
| 147000 | 66678 | 135543 | 61481 | 34 | 36 | 39 | 44 |
| 146000 | 66224 | 134649 | 61075 | 34 | 36 | 39 | 44 |
| 145000 | 65770 | 133755 | 60670 | 34 | 35 | 39 | 44 |
| 144000 | 65317 | 132860 | 60264 | 34 | 35 | 38 | 43 |
| 143000 | 64863 | 131966 | 59858 | 33 | 35 | 38 | 43 |
| 142000 | 64410 | 131072 | 59453 | 33 | 34 | 38 | 43 |
| 141000 | 63956 | 130178 | 59047 | 33 | 34 | 37 | 42 |
| 140000 | 63502 | 129284 | 58642 | 33 | 34 | 37 | 42 |
| 139000 | 63049 | 128390 | 58236 | 32 | 34 | 37 | 42 |
| 138000 | 62595 | 127496 | 57831 | 32 | 33 | 36 | 41 |
| 137000 | 62142 | 126602 | 57425 | 32 | 33 | 36 | 41 |
| 136000 | 61688 | 125708 | 57020 | 32 | 33 | 36 | 41 |
| 135000 | 61234 | 124814 | 56614 | 31 | 33 | 35 | 40 |
| 134500 | 61008 | 124367 | 56411 | 31 | 32 | 35 | 40 |
| 134000 | 60781 | 123535 | 56034 | 31 | 32 | 35 | 40 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 133000 | 60327 | 122624 | 55621 | 31 | 32 | 35 | 40 |
| 132000 | 59874 | 121713 | 55208 | 30 | 32 | 34 | 39 |
| 131000 | 59420 | 120801 | 54794 | 30 | 31 | 34 | 39 |
| 130000 | 58966 | 119890 | 54381 | 30 | 31 | 34 | 38 |
| 129000 | 58513 | 118979 | 53967 | 30 | 31 | 33 | 38 |
| 128000 | 58059 | 118067 | 53554 | 29 | 31 | 33 | 38 |
| 127000 | 57606 | 117099 | 53115 | 29 | 30 | 33 | 37 |
| 126000 | 57152 | 116130 | 52675 | 29 | 30 | 32 | 37 |
| 125000 | 56699 | 115162 | 52236 | 29 | 30 | 32 | 37 |
| 124000 | 56245 | 114193 | 51797 | 28 | 29 | 32 | 36 |
| 123000 | 55791 | 113225 | 51357 | 28 | 29 | 31 | 36 |
| 122000 | 55338 | 112256 | 50918 | 28 | 29 | 31 | 36 |
| 121000 | 54884 | 111287 | 50478 | 28 | 29 | 31 | 35 |
| 120000 | 54431 | 110319 | 50039 | 27 | 28 | 30 | 35 |
| 119000 | 53977 | 109350 | 49600 | 27 | 28 | 30 | 35 |
| 118000 | 53523 | 108382 | 49161 | 27 | 28 | 30 | 34 |
| 117000 | 53070 | 107413 | 48721 | 26 | 27 | 29 | 34 |
| 116000 | 52616 | 106445 | 48282 | 26 | 27 | 29 | 33 |
| 115000 | 52163 | 105476 | 47843 | 26 | 27 | 29 | 33 |
| 114000 | 51709 | 104507 | 47403 | 26 | 27 | 29 | 33 |
| 113000 | 51255 | 103539 | 46964 | 25 | 26 | 28 | 32 |
| 112000 | 50802 | 102570 | 46524 | 25 | 26 | 28 | 32 |
| 111000 | 50348 | 101602 | 46085 | 25 | 26 | 28 | 32 |
| 110000 | 49895 | 100633 | 45646 | 25 | 25 | 27 | 31 |
| 109000 | 49441 | 99664 | 45206 | 24 | 25 | 27 | 31 |
| 108000 | 48987 | 98696 | 44767 | 24 | 25 | 27 | 31 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 107000 | 48534 | 97727 | 44328 | 24 | 25 | 26 | 30 |
| 106000 | 48080 | 96759 | 43889 | 24 | 24 | 26 | 30 |
| 105000 | 47627 | 95790 | 43449 | 23 | 24 | 26 | 29 |
| 104000 | 47173 | 94822 | 43010 | 23 | 24 | 25 | 29 |
| 103000 | 46719 | 93853 | 42570 | 23 | 23 | 25 | 29 |
| 102000 | 46266 | 92884 | 42131 | 23 | 23 | 25 | 28 |
| 101000 | 45812 | 91916 | 41692 | 22 | 23 | 25 | 28 |
| 100000 | 45359 | 90947 | 41252 | 22 | 23 | 24 | 28 |
| 99000 | 44905 | 89979 | 40813 | 22 | 22 | 24 | 27 |
| 98000 | 44452 | 89010 | 40374 | 21 | 22 | 24 | 27 |
| 97000 | 43998 | 88042 | 39935 | 21 | 22 | 23 | 27 |
| 96000 | 43544 | 87073 | 39495 | 21 | 21 | 23 | 26 |
| 95000 | 43091 | 86104 | 39056 | 21 | 21 | 23 | 26 |
| 94000 | 42637 | 85136 | 38617 | 20 | 21 | 22 | 25 |
| 93000 | 42184 | 84167 | 38177 | 20 | 21 | 22 | 25 |
| 92000 | 41730 | 83199 | 37738 | 20 | 20 | 22 | 25 |
| 91000 | 41276 | 82230 | 37298 | 20 | 20 | 21 | 24 |
| 90000 | 40823 | 81261 | 36859 | 19 | 20 | 21 | 24 |
| 89000 | 40369 | 80293 | 36420 | 19 | 19 | 21 | 24 |
| 88000 | 39916 | 79324 | 35980 | 19 | 19 | 20 | 23 |
| 87000 | 39462 | 78356 | 35541 | 19 | 19 | 20 | 23 |
| 86000 | 39008 | 77387 | 35102 | 18 | 19 | 20 | 23 |
| 85000 | 38555 | 76419 | 34663 | 18 | 18 | 20 | 22 |
| 84000 | 38101 | 75450 | 34223 | 18 | 18 | 19 | 22 |
| 83000 | 37648 | 74481 | 33783 | 17 | 18 | 19 | 21 |
| 82000 | 37194 | 73513 | 33344 | 17 | 17 | 19 | 21 |

| A/C Gross Weight (lb) | A/C Gross Weight (Kg) | MLG Load (lb) | MLG Load (kg) | ACN High Strength CBR=15 | ACN Medium Strength CBR=10 | ACN Low Strength CBR=6 | ACN Ultra-Low Strength CBR=3 |
|---|---|---|---|---|---|---|---|
| 81000 | 36740 | 72544 | 32905 | 17 | 17 | 18 | 21 |
| 80000 | 36287 | 71576 | 32466 | 17 | 17 | 18 | 20 |

**LEGEND**

- Ultra low strength california bearing ratio=3.
- Low strength california bearing ratio=6.
- Medium strength california bearing ratio=10.
- High strength california bearing ratio=15.

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*Figure 4 ACN results - Flexible pavement*

# 4 Load Classification Number (LCN) results for most aft C.G. positions

Refer to Table 8 for tabular format and Fig. 5 for graphical format for the LCN results for rigid pavement and Table 9 for tabular format and Fig. 6 for graphical format for the LCN results for flexible pavement.

*Table 8 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. RIGID PAVEMENT*

| Aircraft weight (Lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 80000 | 36287 | 223 | 23768 | 41 | 24877 | 43 | 26095 | 46 |
| 81000 | 36740 | 223 | 24131 | 42 | 25265 | 44 | 26490 | 47 |
| 82000 | 37194 | 223 | 24494 | 42 | 25652 | 44 | 26885 | 47 |
| 83000 | 37648 | 223 | 24857 | 43 | 26040 | 45 | 27280 | 48 |
| 84000 | 38101 | 223 | 25221 | 44 | 26428 | 46 | 27675 | 49 |
| 85000 | 38555 | 223 | 25584 | 44 | 26816 | 46 | 28070 | 49 |
| 86000 | 39008 | 223 | 25947 | 45 | 27204 | 47 | 28465 | 50 |
| 87000 | 39462 | 223 | 26310 | 46 | 27591 | 48 | 28860 | 51 |
| 88000 | 39916 | 223 | 26673 | 46 | 27979 | 48 | 29255 | 51 |
| 89000 | 40369 | 223 | 27037 | 47 | 28367 | 49 | 29650 | 52 |
| 90000 | 40823 | 223 | 27400 | 47 | 28755 | 50 | 30045 | 52 |
| 91000 | 41276 | 223 | 27763 | 48 | 29143 | 50 | 30440 | 53 |
| 92000 | 41730 | 223 | 28126 | 49 | 29531 | 51 | 30835 | 54 |
| 93000 | 42184 | 223 | 28490 | 49 | 29918 | 52 | 31230 | 54 |
| 94000 | 42637 | 223 | 28853 | 50 | 30306 | 52 | 31625 | 55 |
| 95000 | 43091 | 223 | 29216 | 51 | 30694 | 53 | 32020 | 56 |
| 96000 | 43544 | 223 | 29579 | 51 | 31082 | 54 | 32415 | 56 |
| 97000 | 43998 | 223 | 29943 | 52 | 31470 | 54 | 32810 | 57 |
| 98000 | 44452 | 223 | 30306 | 53 | 31857 | 55 | 33205 | 58 |
| 99000 | 44905 | 223 | 30669 | 53 | 32245 | 56 | 33600 | 58 |
| 100000 | 45359 | 223 | 31032 | 54 | 32633 | 56 | 33995 | 59 |
| 101000 | 45812 | 223 | 31395 | 55 | 33021 | 57 | 34390 | 60 |

| Aircraft weight (Lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 102000 | 46266 | 223 | 31759 | 55 | 33409 | 58 | 34785 | 60 |
| 103000 | 46719 | 223 | 32122 | 56 | 33796 | 58 | 35180 | 61 |
| 104000 | 47173 | 223 | 32485 | 57 | 34184 | 59 | 35575 | 62 |
| 105000 | 47627 | 223 | 32848 | 57 | 34572 | 60 | 35970 | 62 |
| 106000 | 48080 | 223 | 33212 | 58 | 34960 | 60 | 36365 | 63 |
| 107000 | 48534 | 223 | 33575 | 58 | 35348 | 61 | 36760 | 63 |
| 108000 | 48987 | 223 | 33938 | 59 | 35736 | 62 | 37156 | 64 |
| 109000 | 49441 | 223 | 34301 | 60 | 36123 | 62 | 37551 | 65 |
| 110000 | 49895 | 223 | 34665 | 60 | 36511 | 63 | 37946 | 65 |
| 111000 | 50348 | 223 | 35028 | 61 | 36899 | 64 | 38341 | 66 |
| 112000 | 50802 | 223 | 35391 | 62 | 37287 | 64 | 38736 | 67 |
| 113000 | 51255 | 223 | 35754 | 62 | 37675 | 65 | 39131 | 67 |
| 114000 | 51709 | 223 | 36117 | 63 | 38062 | 66 | 39526 | 68 |
| 115000 | 52163 | 223 | 36481 | 64 | 38450 | 66 | 39921 | 69 |
| 116000 | 52616 | 223 | 36844 | 64 | 38838 | 67 | 40316 | 69 |
| 117000 | 53070 | 223 | 37207 | 65 | 39226 | 68 | 40711 | 70 |
| 118000 | 53523 | 223 | 37570 | 66 | 39614 | 68 | 41106 | 71 |
| 119000 | 53977 | 223 | 37934 | 66 | 40001 | 69 | 41501 | 71 |
| 120000 | 54431 | 223 | 38297 | 67 | 40389 | 70 | 41896 | 72 |
| 121000 | 54884 | 223 | 38660 | 67 | 40777 | 70 | 42291 | 72 |
| 122000 | 55338 | 223 | 39023 | 68 | 41165 | 71 | 42686 | 73 |
| 123000 | 55791 | 223 | 39387 | 69 | 41553 | 72 | 43081 | 74 |
| 124000 | 56245 | 223 | 39750 | 69 | 41941 | 72 | 43476 | 74 |
| 125000 | 56699 | 223 | 40113 | 70 | 42328 | 73 | 43871 | 75 |
| 126000 | 57152 | 223 | 40476 | 71 | 42716 | 74 | 44266 | 76 |
| 127000 | 57606 | 223 | 40840 | 71 | 43104 | 74 | 44661 | 76 |
| 128000 | 58059 | 223 | 41203 | 72 | 43492 | 75 | 45056 | 77 |

| Aircraft weight (Lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 129000 | 58513 | 223 | 41601 | 72 | 43818 | 75 | 45447 | 77 |
| 130000 | 58966 | 223 | 41999 | 73 | 44145 | 76 | 45838 | 78 |
| 131000 | 59420 | 223 | 42397 | 73 | 44471 | 76 | 46229 | 78 |
| 132000 | 59874 | 223 | 42795 | 74 | 44798 | 77 | 46620 | 79 |
| 133000 | 60327 | 223 | 43192 | 74 | 45124 | 77 | 47011 | 79 |
| 134000 | 60781 | 223 | 43590 | 75 | 45451 | 78 | 47402 | 80 |
| 134500 | 61008 | 223 | 43789 | 75 | 45614 | 78 | 47597 | 80 |
| 136000 | 61688 | 223 | 44167 | 76 | 46033 | 79 | 48010 | 80 |
| 137000 | 62142 | 223 | 44419 | 76 | 46313 | 79 | 48285 | 81 |
| 138000 | 62595 | 223 | 44671 | 76 | 46592 | 79 | 48560 | 81 |
| 139000 | 63049 | 223 | 44923 | 77 | 46872 | 80 | 48835 | 81 |
| 140000 | 63502 | 223 | 45174 | 77 | 47152 | 80 | 49111 | 82 |
| 141000 | 63956 | 223 | 45426 | 78 | 47431 | 80 | 49386 | 82 |
| 142000 | 64410 | 223 | 45678 | 78 | 47711 | 81 | 49661 | 82 |
| 143000 | 64863 | 223 | 45930 | 79 | 47990 | 81 | 49936 | 83 |
| 144000 | 65317 | 223 | 46182 | 79 | 48270 | 81 | 50211 | 83 |
| 145000 | 65770 | 223 | 46434 | 79 | 48549 | 82 | 50486 | 83 |
| 146000 | 66224 | 223 | 46686 | 80 | 48829 | 82 | 50762 | 84 |
| 147000 | 66678 | 223 | 46937 | 80 | 49109 | 83 | 51037 | 84 |
| 148000 | 67131 | 223 | 47189 | 81 | 49388 | 83 | 51312 | 84 |
| 149000 | 67585 | 223 | 47441 | 81 | 49668 | 83 | 51587 | 85 |
| 150000 | 68038 | 223 | 47693 | 81 | 49947 | 84 | 51862 | 85 |
| 151000 | 68492 | 223 | 47945 | 82 | 50227 | 84 | 52137 | 85 |
| 152000 | 68945 | 223 | 48197 | 82 | 50507 | 84 | 52413 | 86 |
| 153000 | 69399 | 223 | 48448 | 83 | 50786 | 85 | 52688 | 86 |
| 154000 | 69853 | 223 | 48700 | 83 | 51066 | 85 | 52963 | 86 |
| 155000 | 70306 | 223 | 48952 | 83 | 51345 | 86 | 53238 | 87 |

| Aircraft weight (Lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | L = 30 inches | | L = 40 inches | | L = 50 inches | |
|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 156000 | 70760 | 223 | 49204 | 84 | 51625 | 86 | 53513 | 87 |
| 156300 | 70896 | 223 | 49279 | 84 | 51709 | 86 | 53596 | 87 |
| 157000 | 71213 | 223 | 49286 | 84 | 51715 | 86 | 53603 | 87 |

**LEGEND**

- Radius of relative stiffness L=50.00 in. (1270.00 mm).
- Radius of relative stiffness L=40.00 in. (1016.00 mm).
- Radius of relative stiffness L=30.00 in. (762.00 mm).

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*Figure 5 LCN results - Rigid pavement*

*Table 9 Load Classification Number (LCN) RESULTS FOR MOST AFT C.G. FLEXIBLE PAVEMENT*

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 80000 | 36287 | 223 | 18658 | 35 | 19711 | 36 | 22206 | 41 | 26268 | 49 |
| 81000 | 36740 | 223 | 18921 | 35 | 20015 | 37 | 22543 | 42 | 26658 | 50 |
| 82000 | 37194 | 223 | 19185 | 36 | 20320 | 37 | 22881 | 42 | 27048 | 50 |
| 83000 | 37648 | 223 | 19449 | 36 | 20624 | 38 | 23218 | 43 | 27438 | 51 |
| 84000 | 38101 | 223 | 19712 | 37 | 20929 | 38 | 23556 | 43 | 27828 | 51 |
| 85000 | 38555 | 223 | 19976 | 37 | 21234 | 39 | 23894 | 44 | 28219 | 52 |
| 86000 | 39008 | 223 | 20240 | 38 | 21538 | 39 | 24231 | 44 | 28609 | 53 |
| 87000 | 39462 | 223 | 20503 | 38 | 21843 | 40 | 24569 | 45 | 28999 | 53 |
| 88000 | 39916 | 223 | 20767 | 39 | 22147 | 40 | 24906 | 46 | 29389 | 54 |
| 89000 | 40369 | 223 | 21031 | 39 | 22452 | 41 | 25244 | 46 | 29779 | 54 |
| 90000 | 40823 | 223 | 21294 | 40 | 22757 | 41 | 25582 | 47 | 30169 | 55 |
| 91000 | 41276 | 223 | 21558 | 40 | 23061 | 42 | 25919 | 47 | 30560 | 55 |
| 92000 | 41730 | 223 | 21822 | 41 | 23366 | 43 | 26257 | 48 | 30950 | 56 |
| 93000 | 42184 | 223 | 22085 | 41 | 23670 | 43 | 26595 | 48 | 31340 | 57 |
| 94000 | 42637 | 223 | 22349 | 41 | 23975 | 44 | 26932 | 49 | 31730 | 57 |
| 95000 | 43091 | 223 | 22613 | 42 | 24280 | 44 | 27270 | 49 | 32120 | 58 |
| 96000 | 43544 | 223 | 22876 | 42 | 24584 | 45 | 27607 | 50 | 32510 | 58 |
| 97000 | 43998 | 223 | 23140 | 43 | 24889 | 45 | 27945 | 51 | 32901 | 59 |
| 98000 | 44452 | 223 | 23404 | 43 | 25193 | 46 | 28283 | 51 | 33291 | 60 |
| 99000 | 44905 | 223 | 23667 | 44 | 25498 | 46 | 28620 | 52 | 33681 | 60 |
| 100000 | 45359 | 223 | 23931 | 44 | 25803 | 47 | 28958 | 52 | 34071 | 61 |
| 101000 | 45812 | 223 | 24195 | 45 | 26107 | 47 | 29295 | 53 | 34461 | 61 |
| 102000 | 46266 | 223 | 24458 | 45 | 26412 | 48 | 29633 | 53 | 34851 | 62 |
| 103000 | 46719 | 223 | 24722 | 46 | 26717 | 48 | 29971 | 54 | 35242 | 62 |
| 104000 | 47173 | 223 | 24986 | 46 | 27021 | 49 | 30308 | 55 | 35632 | 63 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 105000 | 47627 | 223 | 25250 | 46 | 27326 | 50 | 30646 | 55 | 36022 | 64 |
| 106000 | 48080 | 223 | 25513 | 47 | 27630 | 50 | 30983 | 56 | 36412 | 64 |
| 107000 | 48534 | 223 | 25777 | 47 | 27935 | 51 | 31321 | 56 | 36802 | 65 |
| 108000 | 48987 | 223 | 26041 | 48 | 28240 | 51 | 31659 | 57 | 37192 | 65 |
| 109000 | 49441 | 223 | 26304 | 48 | 28544 | 52 | 31996 | 57 | 37582 | 66 |
| 110000 | 49895 | 223 | 26568 | 49 | 28849 | 52 | 32334 | 58 | 37973 | 67 |
| 111000 | 50348 | 223 | 26832 | 49 | 29153 | 53 | 32671 | 58 | 38363 | 67 |
| 112000 | 50802 | 223 | 27095 | 50 | 29458 | 53 | 33009 | 59 | 38753 | 68 |
| 113000 | 51255 | 223 | 27359 | 50 | 29763 | 54 | 33347 | 60 | 39143 | 68 |
| 114000 | 51709 | 223 | 27623 | 51 | 30067 | 54 | 33684 | 60 | 39533 | 69 |
| 115000 | 52163 | 223 | 27886 | 51 | 30372 | 55 | 34022 | 61 | 39923 | 69 |
| 116000 | 52616 | 223 | 28150 | 52 | 30676 | 56 | 34359 | 61 | 40314 | 70 |
| 117000 | 53070 | 223 | 28414 | 52 | 30981 | 56 | 34697 | 62 | 40704 | 71 |
| 118000 | 53523 | 223 | 28677 | 52 | 31286 | 57 | 35035 | 62 | 41094 | 71 |
| 119000 | 53977 | 223 | 28941 | 53 | 31590 | 57 | 35372 | 63 | 41484 | 72 |
| 120000 | 54431 | 223 | 29205 | 53 | 31895 | 58 | 35710 | 64 | 41874 | 72 |
| 121000 | 54884 | 223 | 29468 | 54 | 32199 | 58 | 36047 | 64 | 42264 | 73 |
| 122000 | 55338 | 223 | 29732 | 54 | 32504 | 59 | 36385 | 65 | 42655 | 74 |
| 123000 | 55791 | 223 | 29996 | 55 | 32809 | 59 | 36723 | 65 | 43045 | 74 |
| 124000 | 56245 | 223 | 30259 | 55 | 33113 | 60 | 37060 | 66 | 43435 | 75 |
| 125000 | 56699 | 223 | 30523 | 56 | 33418 | 60 | 37398 | 66 | 43825 | 75 |
| 126000 | 57152 | 223 | 30787 | 56 | 33722 | 61 | 37735 | 67 | 44215 | 76 |
| 127000 | 57606 | 223 | 31050 | 57 | 34027 | 61 | 38073 | 67 | 44605 | 76 |
| 128000 | 58059 | 223 | 31314 | 57 | 34332 | 62 | 38411 | 68 | 44996 | 77 |
| 129000 | 58513 | 223 | 31549 | 57 | 34611 | 62 | 38719 | 68 | 45349 | 77 |
| 130000 | 58966 | 223 | 31784 | 58 | 34890 | 63 | 39027 | 69 | 45702 | 78 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 131000 | 59420 | 223 | 32019 | 58 | 35170 | 63 | 39335 | 69 | 46056 | 78 |
| 132000 | 59874 | 223 | 32254 | 59 | 35449 | 64 | 39643 | 70 | 46409 | 79 |
| 133000 | 60327 | 223 | 32489 | 59 | 35728 | 64 | 39950 | 70 | 46762 | 79 |
| 134000 | 60781 | 223 | 32724 | 60 | 36007 | 65 | 40258 | 71 | 47115 | 80 |
| 134500 | 61008 | 223 | 32842 | 60 | 36147 | 65 | 40412 | 71 | 47292 | 80 |
| 135000 | 61234 | 223 | 32931 | 60 | 36254 | 65 | 40530 | 71 | 47426 | 80 |
| 136000 | 61688 | 223 | 33108 | 60 | 36467 | 65 | 40764 | 71 | 47695 | 80 |
| 137000 | 62142 | 223 | 33286 | 61 | 36680 | 66 | 40999 | 72 | 47963 | 81 |
| 138000 | 62595 | 223 | 33464 | 61 | 36893 | 66 | 41233 | 72 | 48231 | 81 |
| 139000 | 63049 | 223 | 33641 | 61 | 37106 | 66 | 41468 | 72 | 48500 | 81 |
| 140000 | 63502 | 223 | 33819 | 62 | 37319 | 67 | 41702 | 73 | 48768 | 82 |
| 141000 | 63956 | 223 | 33996 | 62 | 37532 | 67 | 41937 | 73 | 49036 | 82 |
| 142000 | 64410 | 223 | 34174 | 62 | 37745 | 67 | 42171 | 73 | 49305 | 82 |
| 143000 | 64863 | 223 | 34351 | 62 | 37958 | 68 | 42406 | 74 | 49573 | 82 |
| 144000 | 65317 | 223 | 34529 | 63 | 38171 | 68 | 42640 | 74 | 49841 | 83 |
| 145000 | 65770 | 223 | 34707 | 63 | 38384 | 68 | 42874 | 74 | 50110 | 83 |
| 146000 | 66224 | 223 | 34884 | 63 | 38597 | 69 | 43109 | 75 | 50378 | 83 |
| 147000 | 66678 | 223 | 35062 | 63 | 38810 | 69 | 43343 | 75 | 50646 | 83 |
| 148000 | 67131 | 223 | 35239 | 64 | 39023 | 69 | 43578 | 75 | 50915 | 84 |
| 149000 | 67585 | 223 | 35417 | 64 | 39236 | 70 | 43812 | 76 | 51183 | 84 |
| 150000 | 68038 | 223 | 35594 | 64 | 39449 | 70 | 44047 | 76 | 51451 | 84 |
| 151000 | 68492 | 223 | 35772 | 65 | 39662 | 70 | 44281 | 76 | 51720 | 85 |
| 152000 | 68945 | 223 | 35950 | 65 | 39875 | 71 | 44516 | 77 | 51988 | 85 |
| 153000 | 69399 | 223 | 36127 | 65 | 40088 | 71 | 44750 | 77 | 52256 | 85 |
| 154000 | 69853 | 223 | 36305 | 65 | 40301 | 71 | 44985 | 77 | 52525 | 85 |
| 155000 | 70306 | 223 | 36482 | 66 | 40514 | 72 | 45219 | 78 | 52793 | 86 |

| Aircraft Weight (lbs) | Aircraft Weight (Kg) | Tire Pressure (psi) | Pavement Thickness 10 inches | | Pavement Thickness 15 inches | | Pavement Thickness 20 inches | | Pavement Thickness 30 inches | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ESWL | LCN | ESWL | LCN | ESWL | LCN | ESWL | LCN |
| 156000 | 70760 | 223 | 36660 | 66 | 40727 | 72 | 45454 | 78 | 53061 | 86 |
| 156100 | 70805 | 223 | 36678 | 66 | 40749 | 72 | 45477 | 78 | 53088 | 86 |
| 156200 | 70851 | 223 | 36695 | 66 | 40770 | 72 | 45501 | 78 | 53115 | 86 |
| 156300 | 70896 | 223 | 36713 | 66 | 40791 | 72 | 45524 | 78 | 53142 | 86 |
| 157000 | 71213 | 223 | 36718 | 66 | 40797 | 72 | 45530 | 78 | 53149 | 86 |

**LEGEND**

- Radius of relative stiffness L=30.00 in. (762.00 mm).
- Radius of relative stiffness L=20.00 in. (508.00 mm).
- Radius of relative stiffness L=15.00 in. (381.00 mm).
- Radius of relative stiffness L=10.00 in. (254.00 mm).

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*Figure 6 LCN results - Flexible pavement*

# 5 Required Pavement Thickness

An essential parameter to calculate the PCN is the required pavement thickness.Fig. 7 and Fig. 8. provide a graphical way to determine the required rigid or flexible pavement thickness based on the pavement strength, aircraft load applied to the pavement, and the annual departure rate. Normally, each airport calculates the PCN based on the different aircraft types which operate to and from that airport considering the number of annual departure for each aircraft type. Using the graphs in this section, one can conclude on the impact of annual departure on required pavement thickness. This material gives the user another mean to evaluate the considered airport for operating the A220 more realistically based on more realistic number of annual departure.

**Note**

Number of annual departure starts from 300 (close to 1 flight per day). In fact, this gives the reader a better idea about required pavement thickness on those small airports that might not have a very high usage rate.

**A220-300, AFT CENTER OF GRAVITY, REQUIRED FLEXIBLE PAVEMENT THICKNESS**

**SUBGRADE STRENGTH - CALIFORNIA BEARING RATIO**

ICN-BD500-A-J000000-C-3AB48-57661-A-003-01

*Figure 7 Flexible pavement required thickness*

ICN-BD500-A-J000000-C-3AB48-57662-A-003-01

*Figure 8 Rigid pavement required thickness*

# 6 Landing gear footprint

Refer to Fig. 9 for the landing gear footprint.

*Table 10 Landing gear footprint*

| code | A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P |
|---|---|
| Percentage of weight on main gear group | Refer to section 4 |
| Nose gear tire size | 27 x 8.5 R12 16 PR |
| Nose gear tire pressure | 146 PSIG (10 Bar) |
| Main gear tire size | H42 x15.0 R21 26 PR |
| Main gear tire pressure | 213 PSIG (14.7 Bar) |

**NOTE**

Not to scale.

ICN-BD500-A-J000000-A-3AB48-21629-A-001-01

*Figure 9 Landing gear footprint*

# 7 Maximum pavement loads

The maximum pavement load is given at aircraft CG,weight on Main Landing Gear (MLG) and aircraft weight.

Refer to Fig. 10 for graphical format.

**LEGEND**

- - - - Aircraft center of gravity.

— — Aircraft weight.

——— A220-300 ground center of gravity envelope.

ICN-BD500-A-J000000-C-3AB48-58657-A-001-01

*Figure 10 Maximum pavement load*

# Principal dimensions, landing gear footprint - Technical data

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains data on the landing gear footprint.

**Applicability:** 50001-54999

*Table 2 Landing gear footprint dimensions*

| Locator | Value |
|---|---|
| A | 18.57 in. (47.17 cm) |
| B | 35.00 in (88.90 cm) |
| C | 22.08 ft. (6.73 m) |
| D | 42.98 ft (13.10 m) |

**Applicability:** 55001-59999

*Table 3 Landing gear footprint dimensions*

| Locator | Value |
|---|---|
| A | 18.57 in. (47.17 cm) |
| B | 35.00 in (88.90 cm) |
| C | 22.08 ft. (6.73 m) |
| D | 49.98 ft (15.23 m) |

**NOTE**

Not to scale.

ICN-BD500-A-J061032-A-3AB48-00118-A-001-01

*Figure 1 Landing gear footprint*

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# Chapter 8: Scaled drawing

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# Scaled drawings - Technical data

Applicability: 50001-54999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains the scaled drawings for the Airbus A220 BD500–1A10 (A220-100).

It can be used to plan and to verify runway, ramp, and maintenance facility layouts.

Refer to Fig. 1 for the scaled drawing.

**NOTES**

1. Scale: 1 in. = 25 ft (1 cm = 3 m)
2. When printing this illustration, make sure to adjust for proper scaling.

ICN-BD500-A-J000000-A-3AB48-23312-A-001-01

*Figure 1 Scaled drawing*

# Scaled drawings - Technical data

Applicability: 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains the scaled drawings for the Airbus BD500–1A11 (A220-300).

It can be used to plan and to verify runway, ramp, and maintenance facility layouts.

Refer to Fig. 1 for the scaled drawing.

NOTES

1. Scale: 1 in. = 25 ft (1 cm = 3 m)
2. When printing this illustration, make sure to adjust for proper scaling.

ICN-BD500-A-J000000-A-3AB48-23263-A-001-01

*Figure 1 Scaled drawing*

# Aircraft scaled down dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 Introduction

This data module contains the scaled drawing for the Airbus A220. It can be used to plan and to verify runway, ramp, and maintenance facility layouts.

Refer to Fig. 1 .

**(Sheet) Applicability:** 50001-54999

**NOTES**

1. Scale: 1 in. = 25 ft (1 cm = 3 m)
2. When printing this illustration, make sure to adjust for proper scaling.

ICN-BD500-A-J061000-A-3AB48-00006-A-001-01

*Figure 1 Scaled drawing - (Sheet 1 of 2)*

**(Sheet) Applicability:** 55001-59999

**NOTES**

1. Scale: 1 in. = 25 ft (1 cm = 3 m)
2. When printing this illustration, make sure to adjust for proper scaling.

ICN-BD500-A-J061000-A-3AB48-25078-A-001-01

*Figure 1 Scaled drawing - (Sheet 2 of 2)*

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# Chapter 10: Aircraft rescue and fire fighting

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# Emergency exits and evacuation - Technical data

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| None | |

## *Description*

## 1 General

This section contains general data about the BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300) aircraft emergency exits and evacuation procedures.

### 1.1 Emergency exits and evacuation

The emergency exits give the passengers and crew more exits which let them go out of the aircraft more quickly during an emergency. Seven exits are available if an emergency occurs, as follows

- Two passenger doors (front and aft, left side of the aircraft);
- Two service doors (front and aft, right side of the aircraft);
- Two Overwing Emergency Exit Door (OWEED) (one in each side of the aircraft);
- One Flight Crew Emergency Escape (FCEE) door (flight compartment).

Refer to Fig. 1 .

### 1.1.1 Passenger doors

Two semi-plug type doors on the left side of the aircraft give access to the passengers and the crew. Door 1L is the primary entrance while door 2L gives a secondary entrance available for passenger and ground servicing.

Each door is classified as a type C floor level exit. Because of the sill height, each door has an emergency evacuation slide system. The door moves out from the closed position, supported by a hinged arm to stay in the open position.

The door can be operated externally or internally and has an inspection window to let the crew examine the external condition. The external handle is connected to a vent flap system to equalize the pressure between the aircraft and the ambient air.

Door opening procedure (from the external side):

**Note**

Before you open the doors, make sure that you fully release the pressure from the aircraft. The CABIN PRESSURE warning light panel is installed in the door window.

1 Push the flap (Fig. 1 ) to hold the external handle (Fig. 1 ).

2 Pull the external handle (Fig. 1 ) up to lift the door.

3 Pull the door outwards in forward direction.

4 Make sure that the hold open mechanism locks the door in the open position.

### 1.1.2 Service doors

Two semi-plug type doors on the right side of the aircraft give access to the forward and aft galley servicing area.

Each door is classified as a type C floor level exit. Because of the sill height, each door has an emergency evacuation slide system. The door moves out from the closed position, supported by a hinged arm to stay in the open position.

The door can be operated externally or internally and has an inspection window to let the crew examine the external condition. The external handle is connected to a vent flap system to equalize the pressure between the aircraft and the ambient air.

Door opening procedure (from the external side):

**Note**

Before you open the doors, make sure that you fully release the pressure from the aircraft. The CABIN PRESSURE warning light panel is installed in the door window.

1 Push the flap (Fig. 1 ) to hold the external handle (Fig. 1 ).

2 Pull the external handle (Fig. 1 ) up to open the door.

3 Pull the door outwards in forward direction.

4 Make sure that the hold open mechanism locks the door in the open position.

### 1.1.3 Overwing Emergency Exit Door (OWEED)

The OWEED are type III semi-plug type doors.

The exits are provided with an operating handle with removable cover and are fitted with a standard sized passenger compartment window. Each door is fully lined and insulated to meet thermal and noise performance requirements.

The door opens out and up from the closed position, supported by a hinged arm to stay in the open position. An actuator automatically helps the door opening sequence.

For emergency access to the passenger compartment, the doors can be opened from the external side. Escape ropes are available to help the evacuation.

Because of the height from the ground, an emergency evacuation slide system is given.

**Note**

The evacuation slide system is automatically operated when the OWEED is opened from the external side. Remove all equipment and personnel from the area where the emergency evacuation slide will be open.

OWEED opening procedure (from the external side):

1 Push the flap (Fig. 1 ) to hold the external handle (Fig. 1 ).

2 Pull the external handle (Fig. 1 ) up to open the door.

3 Pull the door outwards.

4 Make sure that the hold open mechanism locks the door in the open position.

### 1.1.4 Flight Crew Emergency Escape (FCEE) door

The FCEE door is on the fuselage centerline at the top of the fuselage, forward of the flight compartment bulkhead. It is a plug type door that has two hook type hinges on the aft edge.

The FCEE door opens in and can be removed from its hinges when it is fully open. The door can be operated externally or internally through its inner and outer handles.. A escape rope is available in the area to help the evacuation.

FCEE door opening procedure (from the external side):

1 Push the flap (Fig. 1 ) to hold the external handle (Fig. 1 ).

2 Pull the external handle (Fig. 1 ) up to open the door.

3 Push the door in.

ICN-BD500-A-J154100-A-3AB48-24914-A-001-01

*Figure 1 Emergency exits and evacuation*

# Fire-fighting - Fire-fighting and rescue

Applicability: 50001-54999, 55001-59999

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## *References*

*Table 1 References*

| Data Module/Technical Publication | Title |
|---|---|
| BD500-A-J25-61-00-00AAA-010A-A | Emergency equipment location - General data |
| BD500-A-J15-41-00-01AAA-030A-A | Emergency exits and evacuation - Technical data |

## *Common information*

This data module gives the procedure to follow if the aircraft is on fire.

## *Preliminary requirements*

### Required conditions

*Table 2 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| None | |

## Support equipment

*Table 3 Support equipment*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Consumables, materials, and expendables

*Table 4 Consumables, materials, and expendables*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Spares

*Table 5 Spares*

| Name | Identification/Reference | Quantity | Remark |
|---|---|---|---|
| None | | | |

## Safety conditions

None

## *Procedure*

1 If the aircraft is on fire do as follow:

**WARNING**

**Only trained personnel must fight the fire. Fire-fighting is dangerous and can cause injury or death.**

1.1 Refer to Fig. 1 for:

- Flammable material location.
- Battery location
- Control switch location

1.2 Evacuate the aircraft, if applicable. For emergency exits and evacuation refer to BD500-A-J15-41-00-01AAA-030A-A.

1.3 If possible, move the aircraft to a safe area.

1.4 Get access to the emergency equipment available in the aircraft, if applicable. For emergency equipment location refer to BD500-A-J25-61-00-00AAA-010A-A.

1.5 In the flight deck control, use the control panels to extinguish fire in:

- Left engine
- Right engine
- Auxiliary Power Unit (APU)
- Cargo compartment

Refer to Fig. 1 .

**WARNING**

**The weakest area on a tire is the sides. Go near the tire by the front or rear to prevent injuries to personnel.**

1.6 If the brakes are hot, apply a water mist to decrease the temperature of the brakes. Refer to Fig. 2 .

1.7 Refer to table below for the complete list of recommended fire fight agents.

*Table 6 Recommended fire fighting agents*

| | |
|---|---|
| Engine fire | Clean agent or dry chemical |
| Exhaust nozzle fire | Clean agent or dry chemical |
| APU fire | Clean agent or dry chemical |
| Fuel fire | Dry chemical for leaking fuel and foam for ground spill area |
| Wheel and brake fire | Water or dry powder |
| Electrical fire | Clean agent or dry chemical |
| Flight compartment and cabin area fire | Clean agent 1211, or dry powder, or water extinguisher |
| Cargo compartment fire | Clean agent |
| Aft equipment compartment fire | Clean agent |

A

B

ICN-BD500-A-J154100-A-3AB48-25025-A-001-01

*Figure 1 Fire indication and control / Flammable material location*

ICN-BD500-A-J154100-A-3AB48-25142-A-001-01

*Figure 2 Fire-fighting*

## *Requirements after job completion*

### Required conditions

*Table 7 Required conditions*

| Action/Condition | Data Module/Technical publication |
|---|---|
| None | |