



**DE HAVILLAND AIRCRAFT
OF CANADA LIMITED**

DHC-8 Series 400

AIRPORT PLANNING MANUAL

PSM 1-84-13

DE HAVILLAND AIRCRAFT OF CANADA LIMITED

**5800 EXPLORER DRIVE
MISSISSAUGA, ONTARIO, CANADA, L4W 5K9**

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**Initial Issue: Dec 21/1998
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AIRPORT PLANNING MANUAL

TRANSMITTAL LETTER

REVISION 7

This package contains Revision 7 to the Dash 8 Series 400 Airport Planning Manual (APM), PSM 1-84-13, dated Mar 05/2022.

This revision is a full issue of the Manual in its entirety, due to the word "Master" being removed from all pages of the manual.

Remove and replace all the pages in your manual with the Revision 7 package.

Using the List of Effective Pages (LEP) as a guide, the revised pages are shown with an asterisk (*) and have the Revision 7 date of Mar 05/2022.

It is recommended this Transmittal Letter be retained in the front of the manual for record purposes.

PSM 1-84-13
Effectivity: ** ALL

Transmittal Letter

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Mar 05/2022



**DE HAVILLAND AIRCRAFT
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DHC-8 Series 400

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PSM 1-84-13

DE HAVILLAND AIRCRAFT OF CANADA LIMITED

**123 GARRATT BLVD., TORONTO, ONTARIO
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AIRPORT PLANNING MANUAL

CHAPTER 1

PREFACE

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AIRPORT PLANNING MANUAL

Scope

1. Purpose

- A. This manual provides, in a standardized format, airport planning data for the Dash–8, Series 400 (Model 402). Because operational procedures are different for each airline and operator, the airport planner must coordinate specific data with the user airline before the design of facilities.
- B. The data contained in Chapter 3 (Aircraft Performance) is for reference only. Refer to the applicable Aircraft Flight Manual (AFM) for Model 402 operating–data.

2. Introduction

- A. The content of this document conforms to NAS 3601, Revision 6 (15 Jul/94). NAS 3601 is the result of agreements between representatives of the organizations that follow:
 - Aerospace industries
 - Airport operators
 - Air Transport Association of America
 - International Air Transport Association.
- B. This manual provides Model 402 data for airport planners and operators, airlines, architectural and engineering consultant organizations (as well as other interested industry agencies). The content of this manual will change as options and aircraft changes occur. The data contained in this manual represents the typical Dash–8 Series 400 (Model 402) aircraft.
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3. A Brief Description of the Dash–8 Series 400 (Model 402) Aircraft

- A. The Dash–8 Series 400 (Model 402) is a pressurized, commercial transport airplane that is designed to accommodate 50 to 90 passengers. This airplane establishes new standards in speed, comfort and efficiency. A new feature of the Dash–8 series is the Noise and Vibration Suppression (NVS) system, which dramatically reduces cabin noise in flight.

AIRPORT PLANNING MANUAL

- B. The aircraft is powered by two Pratt and Whitney PW150A turboprop engines. Large diameter, slow-turning, six-bladed Dowty R408 propellers provide high thrust efficiency and low noise levels.
- C. The Dash-8 Series 400 is capable of economic operations over a broad range of applications. These are:
- Scheduled airline operations
 - Resource and regional development work
 - Corporate and military transport roles.
- D. The aircraft is capable of operation in ambient temperatures of between -65 °F (-54 °C) and 122 °F and (50 °C), unless otherwise specified. Transfer from one climate to another can be done without penalties or extensive modifications or adjustment.
- E. Significant features of interest to the airport planner include the items that follow:
- The engines are located high and on the wing
 - The horizontal stabilizer is located on top of the fin
 - The aircraft has a self-contained airstair entry-door at the forward end of the cabin
 - Connections for single-point and overwing gravity refueling are provided
 - All servicing can be accomplished with standard ground equipment
 - High exhaust outlets produce modest pressure and temperature profiles.



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CHAPTER 2

AIRCRAFT DESCRIPTION

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General Information

1. General

The Model 402 has a maximum take-off weight of up to 64,500 lb (29,257 kg). Other maximum weight parameters such as taxi weight (also known as ramp weight), landing weight and zero fuel weight are set accordingly.

2. Contents of Chapter

This chapter contains the items that follow:

- A. General airplane characteristics and dimensions are shown in Figure 2-1 and Figure 2-2.
- B. Ground clearances are shown in Figure 2-3, Figure 2-4, Figure 2-5, Figure 2-6 and Figure 2-7.
- C. Interior configurations are shown in Figure 2-8, Figure 2-9, Figure 2-10, and Figure 2-11.
- D. A cross-section of the passenger compartment is shown in Figure 2-12.
- E. A floor loading diagram is shown in Figure 2-13.
- F. Dimensions of the forward and aft baggage compartments are shown in Figure 2-14, Figure 2-15, and Figure 2-16.
- G. Nets and tiedowns of the aft baggage compartment are shown in Figure 2-17 and Figure 2-18.
- H. Spider nets installed in the aft cargo compartment for the cargo combi configuration are shown in and Figure 2-19.
- I. Clearances for the passenger, the service, the baggage and the forward type I emergency exit doors are shown in Figure 2-20, Figure 2-21, Figure 2-22, Figure 2-23, and Figure 2-24.
- J. External handles of the various doors are shown in Figure 2-25.
- K. Horizontal clearances between the fuselage and nacelles are shown in Figure 2-26.
- L. Vertical dimensions of a typical aft baggage compartment is shown in Figure 2-27.
- M. Ground clearances of empennage and sill of aft baggage door is shown in Figure 2-28.

3. Definitions

The definitions that follow are used throughout this manual (refer to Figure 2-1):

A. Maximum Design Taxi Weight (MTW)

This is the maximum weight at which an aircraft can move safely on the ground. It includes the fuel for those displacements and the takeoff run.



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B. Maximum Design Landing Weight (MLW)

This is the maximum approved weight at which an aircraft can land.

C. Maximum Design Take-off Weight (MTOW)

This is the maximum approved weight at which an aircraft can start a take-off run.

D. Operational Weight Empty (OWE)

This is the weight of structure, power plant, furnishings, systems, unusable fuel and other items of equipment that are a necessary part of an aircraft configuration. The OWE also includes certain standard items, personnel, equipment and supplies required for full operations, but does not include usable fuel or payload.

E. Maximum Design Zero Fuel Weight (MZFW)

This is the maximum weight of an aircraft before the usable fuel is loaded on the aircraft.

F. Maximum Payload

This is the weight you get when you subtract the OWE from the MZFW.

G. Maximum Seating Capacity

This is the maximum number of passengers specifically certified or anticipated for certification.

H. Maximum Cargo Volume

This is the maximum space available for cargo.

I. Usable Fuel

This is the fuel available for the aircraft engines.



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| DESCRIPTION | BASIC GROSS WEIGHT | INTERMEDIATE GROSS WEIGHT | HIGH GROSS WEIGHT |
|---------------------------------|--------------------------|---------------------------|--------------------------|
| MAXIMUM DESIGN TAXI WEIGHT | 61,900 lb (28,077 kg) | 64,130 lb (29,089 kg) | 64,700 lb (29,347 kg) |
| MAXIMUM DESIGN TAKE-OFF WEIGHT | 61,700 lb (27,987 kg) | 63,930 lb (28,998 kg) | 64,500 lb (29,257 kg) |
| MAXIMUM DESIGN LANDING WEIGHT | 60,500 lb (27,442 kg) | 61,750 lb (28,009 kg) | 61,750 lb (28,009 kg) |
| MAXIMUM DESIGN ZERO FUEL WEIGHT | 55,500 lb (25,174 kg) | 57,000 lb (25,855 kg) | 57,000 lb (25,855 kg) |

| POWERPLANT | |
|---|------------------------|
| DESCRIPTION | WEIGHT (PER SIDE) |
| ENGINE (PWC 150 A, DRESSED, INCLUDING EXHAUST NOZZLE) | 1925 lb (873.1 kg) |
| EXHAUST ONLY (JET PIPE) | 169.5 lb (76.9 kg) |
| PROPELLERS (DOWTY R408, SIX-BLADE, INCLUDES BETA TUBE UNIT AND SPINNER) | 555.4 lb (251.9 kg) |

| APU | |
|-------------------|-----------------------|
| DESCRIPTION | WEIGHT (PER SIDE) |
| APU WET | 139.0 lb (63.0 kg) |
| STARTER/GENERATOR | 40.4 lb (18.3 kg) |

| TANK CAPACITY - USABLE FUEL | | | | |
|-----------------------------|---------|------------------|--------|-----------------|
| STANDARD TANKS | US GALS | LBS ¹ | LITRES | KG ¹ |
| LEFT | 862 | 5862 | 3263 | 2659 |
| RIGHT | 862 | 5862 | 3263 | 2659 |
| TOTAL | 1724 | 11724 | 6526 | 5318 |

NOTE
¹ BASED ON : 6.8 lb /U.S. GALLON (0.775 kg/l)

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GENERAL AIRPLANE CHARACTERISTICS (Sheet 1 of 2)

Figure 2 - 1

AIRPORT PLANNING MANUAL

POWER PLANT WEIGHT BREAKDOWN DETAILS

| DRESSED POWERPLANT WEIGHT: 1808.6 lb | |
|---|-----------------------------|
| DESCRIPTION | WEIGHT PER SIDE (lb) |
| ENGINE (DRY, WITH DRAIN SYSTEM INSTALLED) | 1573.0 |
| DC STARTER GENERATOR | 39.3 |
| AC GENERATOR | 47.0 |
| FUEL ITEMS | 2.1 |
| ENGINE HYDRAULIC DRIVE PUMP | 12.0 |
| P2.7 HBOV DUCT | 2.1 |
| P2.2 HBOV DUCT | 1.7 |
| INTAKE ADAPTER AND V-BAND CLAMP | 11.0 |
| ENGINE MOUNTS SYSTEM | 76.6 |
| EXHAUST NOZZLE ASSEMBLY | 8.1 |
| PCU | 16.9 |
| OVERSPEED GOVERNOR | 8.9 |
| BRUSH BLOCK BRACKET | 3.7 |
| AUX PUMP UNIT | 6.2 |

NOTES

1. Power plant shipping crate dimensions are 46 in. W x 108 in. L x 54 in. (+ 7 in. Pallet=61 in.) H.
2. Assembly wheel weighs 248.48 lb per side (124.24 lb each).
3. Brake carbon weighs 138.4 lb per side (69.2 lb each set).

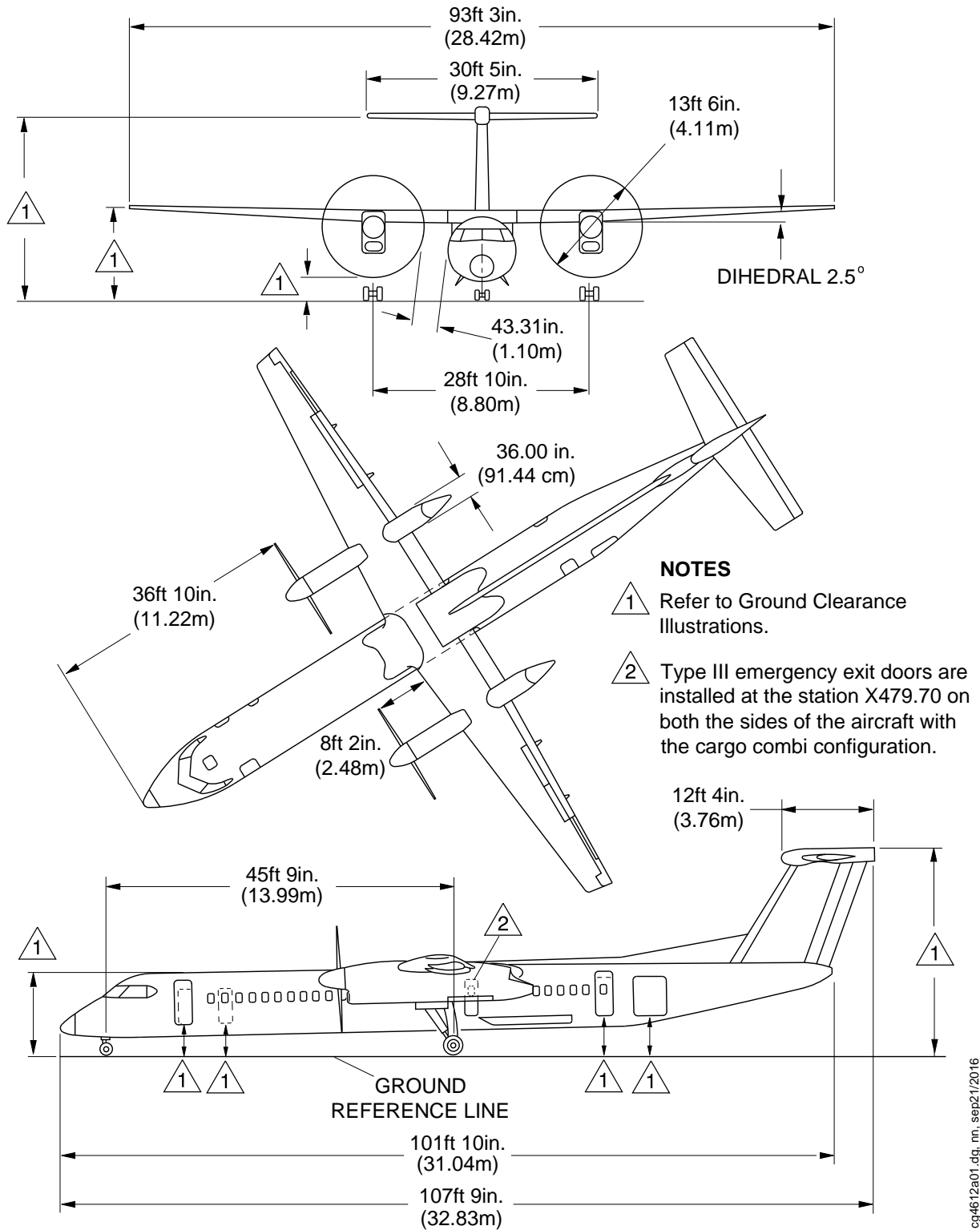
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GENERAL AIRPLANE CHARACTERISTICS (Sheet 2 of 2)

Figure 2 – 1



AIRPORT PLANNING MANUAL

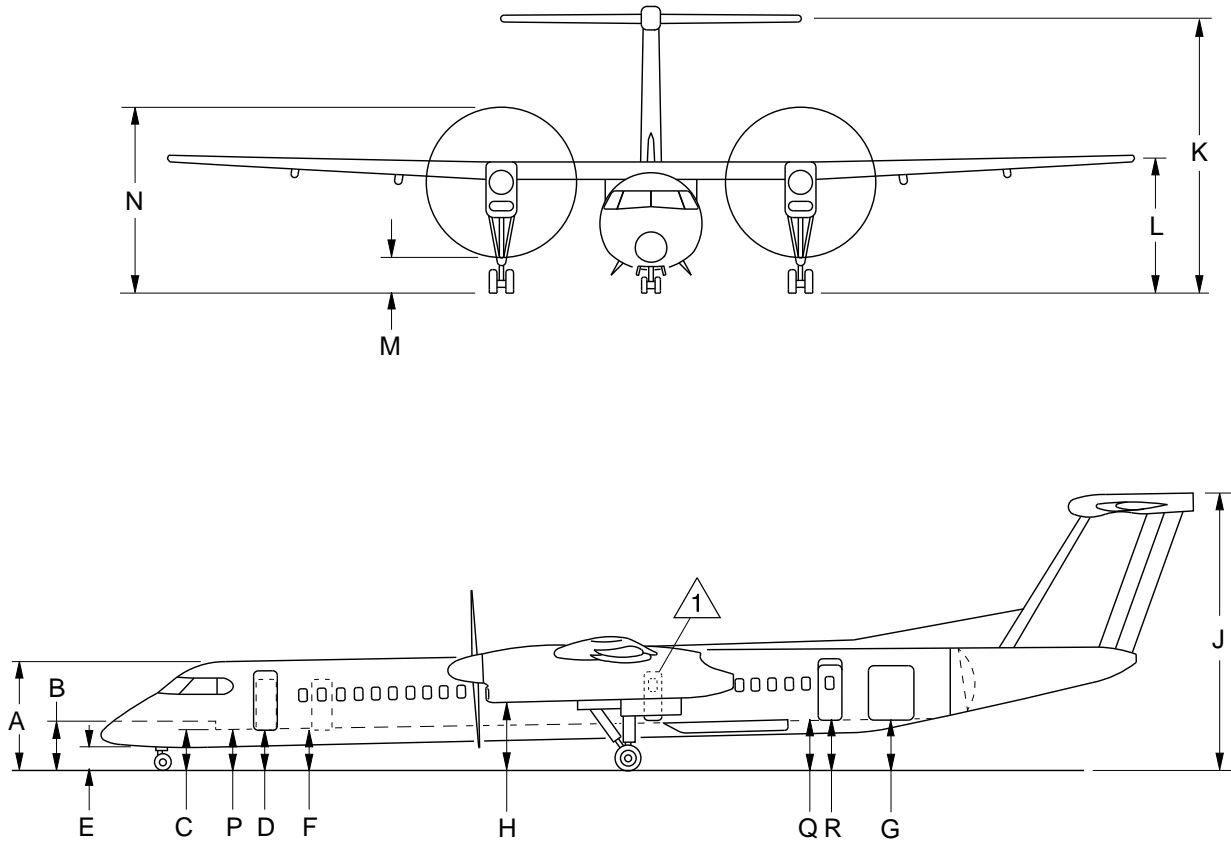


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AIRCRAFT DIMENSIONS

Figure 2 – 2

AIRPORT PLANNING MANUAL



NOTE

1 Type III emergency exit doors are installed at the station X479.70 on both the sides of the aircraft with the cargo combi configuration.

cg4835a01.dg, mn, aug19/2016

GROUND CLEARANCES – GENERAL ARRANGEMENT

Figure 2 – 3



AIRPORT PLANNING MANUAL

| | | MAXIMUM GROUND CLEARANCE | |
|------|---|--------------------------|-----------------------|
| | | WEIGHT : | 35,387 lb (16,085 kg) |
| | | C.G. : | STA. X 387.160 |
| | | WT ON NLG : | 3743 lb (1701 kg) |
| ITEM | HEIGHT | FEET | METERS |
| A | TOP OF FUSELAGE | 11.29 | 3.44 |
| B | FLIGHT DECK | 5.36 | 1.63 |
| C | CABIN FLOOR | 4.45 | 1.36 |
| D | SILL OF AIRSTAIR DOOR | 4.39 | 1.34 |
| E | FUSELAGE GROUND CLEARANCE | 2.86 | 0.87 |
| F | SILL OF TYPE II/III EXIT | 4.59 | 1.40 |
| G | SILL OF AFT BAGGAGE DOOR | 5.16 | 1.57 |
| H | NACELLE LOWER SURFACE | 7.10 | 2.16 |
| J | VERTICAL STABILIZER | 27.23 | 8.30 |
| K | HORIZONTAL STABILIZER | 25.95 | 7.91 |
| L | WING TIP | 13.11 | 4.00 |
| M | PROP GROUND CLEARANCE | 3.65 | 1.11 |
| N | PROP HEIGHT CLEARANCE | 17.14 | 5.22 |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR | 4.51 | 1.37 |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT | 5.32 | 1.62 |
| R | SILL OF AFT PAX DOOR TYPE I EXIT | 5.20 | 1.58 |
| | | MAXIMUM GROUND CLEARANCE | |
| | | WEIGHT : | 35,387 lb (16,085 kg) |
| | | C.G. : | STA. X 410.980 |
| | | WT ON NLG : | 2190 lb (995 kg) |
| ITEM | HEIGHT | FEET | METERS |
| A | TOP OF FUSELAGE | 11.47 | 3.49 |
| B | FLIGHT DECK | 5.58 | 1.70 |
| C | CABIN FLOOR | 4.64 | 1.41 |
| D | SILL OF AIRSTAIR DOOR | 4.55 | 1.39 |
| E | FUSELAGE GROUND CLEARANCE | 3.05 | 0.93 |
| F | SILL OF TYPE II/III EXIT | 4.73 | 1.44 |
| G | SILL OF AFT BAGGAGE DOOR | 5.01 | 1.53 |
| H | NACELLE LOWER SURFACE | 7.14 | 2.18 |
| J | VERTICAL STABILIZER | 26.92 | 8.21 |
| K | HORIZONTAL STABILIZER | 25.67 | 7.83 |
| L | WING TIP | 13.11 | 3.99 |
| M | PROP GROUND CLEARANCE | 3.71 | 1.13 |
| N | PROP HEIGHT CLEARANCE | 17.19 | 5.24 |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR | 4.67 | 1.42 |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT | 5.20 | 1.58 |
| R | SILL OF AFT PAX DOOR TYPE I EXIT | 5.08 | 1.55 |

NOTES

- Nose Wheel Tires 22 x 6.5 – 10, inflated to 89 psi (614 kPa) loaded.
- Main Wheel Tires are 32 x 8.8 – 16, inflated to 227 psi (1565 kPa) loaded.
- Tire pressures shown are for calculation purposes only. Refer to AMM Ch. 12 for service pressures.
- Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.
- Forward type I emergency exit door is installed only on aircraft with extra capacity and the cargo combi configuration.
- Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
- Aft passenger door is de-activated for the cargo combi configuration.

cg3631a01.dg, cs/mn, apr19/2016


MAXIMUM GROUND CLEARANCES–STANDARD MLG TIRES

Figure 2 – 4







AIRPORT PLANNING MANUAL

| | | MINIMUM GROUND CLEARANCE | |
|------|---|--------------------------|-----------------------|
| | | WEIGHT : | 64,700 lb (29,347 kg) |
| | | C.G. : | STA. X 398.280 |
| | | WT ON NLG : | 6100 lb (2772 kg) |
| ITEM | HEIGHT | FEET | METERS |
| A | TOP OF FUSELAGE | 10.94 | 3.33 |
| B | FLIGHT DECK | 4.97 | 1.52 |
| C | CABIN FLOOR | 4.07 | 1.24 |
| D | SILL OF AIRSTAIR DOOR | 4.02 | 1.22 |
| E | FUSELAGE GROUND CLEARANCE | 2.48 | 0.76 |
| F | SILL OF TYPE II/III EXIT  | 4.24 | 1.29 |
| G | SILL OF AFT BAGGAGE DOOR | 4.95 | 1.51 |
| H | NACELLE LOWER SURFACE | 6.79 | 2.07 |
| J | VERTICAL STABILIZER | 27.09 | 8.26 |
| K | HORIZONTAL STABILIZER | 25.79 | 7.86 |
| L | WING TIP | 12.82 | 3.91 |
| M | PROP GROUND CLEARANCE | 3.34 | 1.02 |
| N | PROP HEIGHT CLEARANCE | 16.82 | 5.13 |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR  | 4.14 | 1.26 |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT  | 5.09 | 1.55 |
| R | SILL OF AFT PAX DOOR TYPE I EXIT  | 4.97 | 1.52 |

| | | MINIMUM GROUND CLEARANCE | |
|------|---|--------------------------|-----------------------|
| | | WEIGHT : | 64,700 lb (29,347 kg) |
| | | C.G. : | STA. X 410.980 |
| | | WT ON NLG : | 3920 lb (1782 kg) |
| ITEM | HEIGHT | FEET | METERS |
| A | TOP OF FUSELAGE | 11.18 | 3.41 |
| B | FLIGHT DECK | 5.27 | 1.61 |
| C | CABIN FLOOR | 4.33 | 1.32 |
| D | SILL OF AIRSTAIR DOOR | 4.25 | 1.29 |
| E | FUSELAGE GROUND CLEARANCE | 2.75 | 0.84 |
| F | SILL OF TYPE II/III EXIT  | 4.43 | 1.35 |
| G | SILL OF AFT BAGGAGE DOOR | 4.75 | 1.45 |
| H | NACELLE LOWER SURFACE | 6.86 | 2.09 |
| J | VERTICAL STABILIZER | 26.69 | 8.14 |
| K | HORIZONTAL STABILIZER | 24.94 | 7.60 |
| L | WING TIP | 12.86 | 3.92 |
| M | PROP GROUND CLEARANCE | 3.42 | 1.04 |
| N | PROP HEIGHT CLEARANCE | 16.91 | 5.15 |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR  | 4.37 | 1.33 |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT  | 4.94 | 1.51 |
| R | SILL OF AFT PAX DOOR TYPE I EXIT  | 4.82 | 1.47 |

NOTES

1. Nose Wheel Tires 22 x 6.5 – 10, inflated to 89 psi (614 kPa) loaded.
2. Main Wheel Tires are 32 x 8.8 –16, inflated to 227 psi (1565 kPa) loaded.
3. Tire pressures shown are for calculation purposes only. Refer to AMM Ch. 12 for service pressures.
-  Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.
-  Forward type I emergency exit door is installed only on aircraft with extra capacity and the cargo combi configuration.
-  Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
-  Aft passenger door is de-activated for the cargo combi configuration.

cg3532a01.dwg, cs/mn, aug/19/2016

MINIMUM GROUND CLEARANCES–STANDARD MLG TIRES

Figure 2 – 5



AIRPORT PLANNING MANUAL

| | | | | MAXIMUM GROUND CLEARANCE | |
|------|---|-------------|-----------------------|--------------------------|--|
| | | WEIGHT : | 35,387 lb (16,085 kg) | | |
| | | C.G. : | STA. X 387.160 | | |
| | | WT ON NLG : | 3743 lb (1701 kg) | | |
| ITEM | HEIGHT | FEET | METERS | | |
| A | TOP OF FUSELAGE | 11.31 | 3.45 | | |
| B | FLIGHT DECK | 5.36 | 1.63 | | |
| C | CABIN FLOOR | 4.47 | 1.36 | | |
| D | SILL OF AIRSTAIR DOOR | 4.41 | 1.34 | | |
| E | FUSELAGE GROUND CLEARANCE | 2.87 | 0.87 | | |
| F | SILL OF TYPE II/III EXIT | 4.63 | 1.41 | | |
| G | SILL OF AFT BAGGAGE DOOR | 5.35 | 1.63 | | |
| H | NACELLE LOWER SURFACE | 7.18 | 2.19 | | |
| J | VERTICAL STABILIZER | 27.49 | 8.38 | | |
| K | HORIZONTAL STABILIZER | 26.19 | 7.98 | | |
| L | WING TIP | 13.22 | 4.03 | | |
| M | PROP GROUND CLEARANCE | 3.74 | 1.14 | | |
| N | PROP HEIGHT CLEARANCE | 17.22 | 5.25 | | |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR | 4.53 | 1.38 | | |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT | 5.49 | 1.67 | | |
| R | SILL OF AFT PAX DOOR TYPE I EXIT | 5.37 | 1.64 | | |

| | | | | MAXIMUM GROUND CLEARANCE | |
|------|---|-------------|-----------------------|--------------------------|--|
| | | WEIGHT : | 35,387 lb (16,085 kg) | | |
| | | C.G. : | STA. X 410.960 | | |
| | | WT ON NLG : | 2190 lb (995 kg) | | |
| ITEM | HEIGHT | FEET | METERS | | |
| A | TOP OF FUSELAGE | 11.49 | 3.50 | | |
| B | FLIGHT DECK | 5.58 | 1.70 | | |
| C | CABIN FLOOR | 4.65 | 1.42 | | |
| D | SILL OF AIRSTAIR DOOR | 4.58 | 1.39 | | |
| E | FUSELAGE GROUND CLEARANCE | 3.07 | 0.94 | | |
| F | SILL OF TYPE II/III EXIT | 4.77 | 1.45 | | |
| G | SILL OF AFT BAGGAGE DOOR | 5.20 | 1.58 | | |
| H | NACELLE LOWER SURFACE | 7.23 | 2.20 | | |
| J | VERTICAL STABILIZER | 27.18 | 8.28 | | |
| K | HORIZONTAL STABILIZER | 25.92 | 7.90 | | |
| L | WING TIP | 13.22 | 4.03 | | |
| M | PROP GROUND CLEARANCE | 3.79 | 1.15 | | |
| N | PROP HEIGHT CLEARANCE | 17.28 | 5.27 | | |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR | 4.70 | 1.43 | | |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT | 5.37 | 1.64 | | |
| R | SILL OF AFT PAX DOOR TYPE I EXIT | 5.25 | 1.60 | | |

NOTES

- Nose Wheel Tires 22 x 6.5 – 10, inflated to 89 psi (614 kPa) loaded.
- Main Wheel Tires are 34 x 10.75 –16, inflated to 141 psi (972 kPa) loaded.
- Tire pressures shown are for calculation purposes only. Refer to AMM Ch. 12 for service pressures.
- Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.
- Forward type I emergency exit door is installed only on aircraft with extra capacity and the cargo combi configuration.
- Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
- Aft passenger door is de-activated for the cargo combi configuration.

cg3533a01.dwg, cs/mn., sep21/2016

MAXIMUM GROUND CLEARANCES–OPTIONAL MLG TIRES





Figure 2 – 6



AIRPORT PLANNING MANUAL

| | | | | MINIMUM GROUND CLEARANCE | |
|------|---|-------------|-----------------------|---------------------------------|--|
| | | WEIGHT : | 64,700 lb (29,347 kg) | | |
| | | C.G. : | STA. X 398.280 | | |
| | | WT ON NLG : | 6100 lb (2772 kg) | | |
| ITEM | HEIGHT | FEET | METERS | | |
| A | TOP OF FUSELAGE | 10.93 | 3.33 | | |
| B | FLIGHT DECK | 4.97 | 1.52 | | |
| C | CABIN FLOOR | 4.08 | 1.24 | | |
| D | SILL OF AIRSTAIR DOOR | 4.04 | 1.23 | | |
| E | FUSELAGE GROUND CLEARANCE | 2.49 | 0.76 | | |
| F | SILL OF TYPE II/III EXIT  | 4.27 | 1.30 | | |
| G | SILL OF AFT BAGGAGE DOOR | 5.10 | 1.55 | | |
| H | NACELLE LOWER SURFACE | 6.86 | 2.09 | | |
| J | VERTICAL STABILIZER | 27.31 | 8.33 | | |
| K | HORIZONTAL STABILIZER | 25.99 | 7.92 | | |
| L | WING TIP | 12.92 | 3.94 | | |
| M | PROP GROUND CLEARANCE | 3.41 | 1.04 | | |
| N | PROP HEIGHT CLEARANCE | 16.89 | 5.15 | | |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR  | 4.16 | 1.27 | | |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT  | 5.23 | 1.59 | | |
| R | SILL OF AFT PAX DOOR TYPE I EXIT  | 5.11 | 1.56 | | |
| | | | | MINIMUM GROUND CLEARANCE | |
| | | WEIGHT : | 64,700 lb (29,347 kg) | | |
| | | C.G. : | STA. X 410.980 | | |
| | | WT ON NLG : | 3920 lb (1782 kg) | | |
| ITEM | HEIGHT | FEET | METERS | | |
| A | TOP OF FUSELAGE | 11.20 | 3.41 | | |
| B | FLIGHT DECK | 5.27 | 1.61 | | |
| C | CABIN FLOOR | 4.34 | 1.32 | | |
| D | SILL OF AIRSTAIR DOOR | 4.27 | 1.30 | | |
| E | FUSELAGE GROUND CLEARANCE | 2.85 | 0.87 | | |
| F | SILL OF TYPE II/III EXIT  | 4.46 | 1.36 | | |
| G | SILL OF AFT BAGGAGE DOOR | 4.91 | 1.50 | | |
| H | NACELLE LOWER SURFACE | 6.97 | 2.13 | | |
| J | VERTICAL STABILIZER | 26.90 | 8.20 | | |
| K | HORIZONTAL STABILIZER | 25.64 | 7.82 | | |
| L | WING TIP | 12.92 | 3.94 | | |
| M | PROP GROUND CLEARANCE | 3.49 | 1.06 | | |
| N | PROP HEIGHT CLEARANCE | 16.97 | 5.17 | | |
| P | SILL OF FWD BAGGAGE DOOR/ FORWARD TYPE I EXIT DOOR  | 4.39 | 1.34 | | |
| Q | SILL OF SERVICE DOOR/TYPE I EXIT  | 5.08 | 1.55 | | |
| R | SILL OF AFT PAX DOOR TYPE I EXIT  | 4.96 | 1.51 | | |

NOTES

1. Nose Wheel Tires 22 x 6.5 – 10, inflated to 89 psi (614 kPa) loaded.
2. Main Wheel Tires are 34 x 10.75 –16, inflated to 141 psi (972 kPa) loaded.
3. Tire pressures shown are for calculation purposes only. Refer to AMM Ch. 12 for service pressures.
-  Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.
-  Forward type I emergency exit door is installed only on aircraft with extra capacity and the cargo combi configuration.
-  Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
-  Aft passenger door is de-activated for the cargo combi configuration.

cg3534a01.dwg, cs/mn, sep21/2016

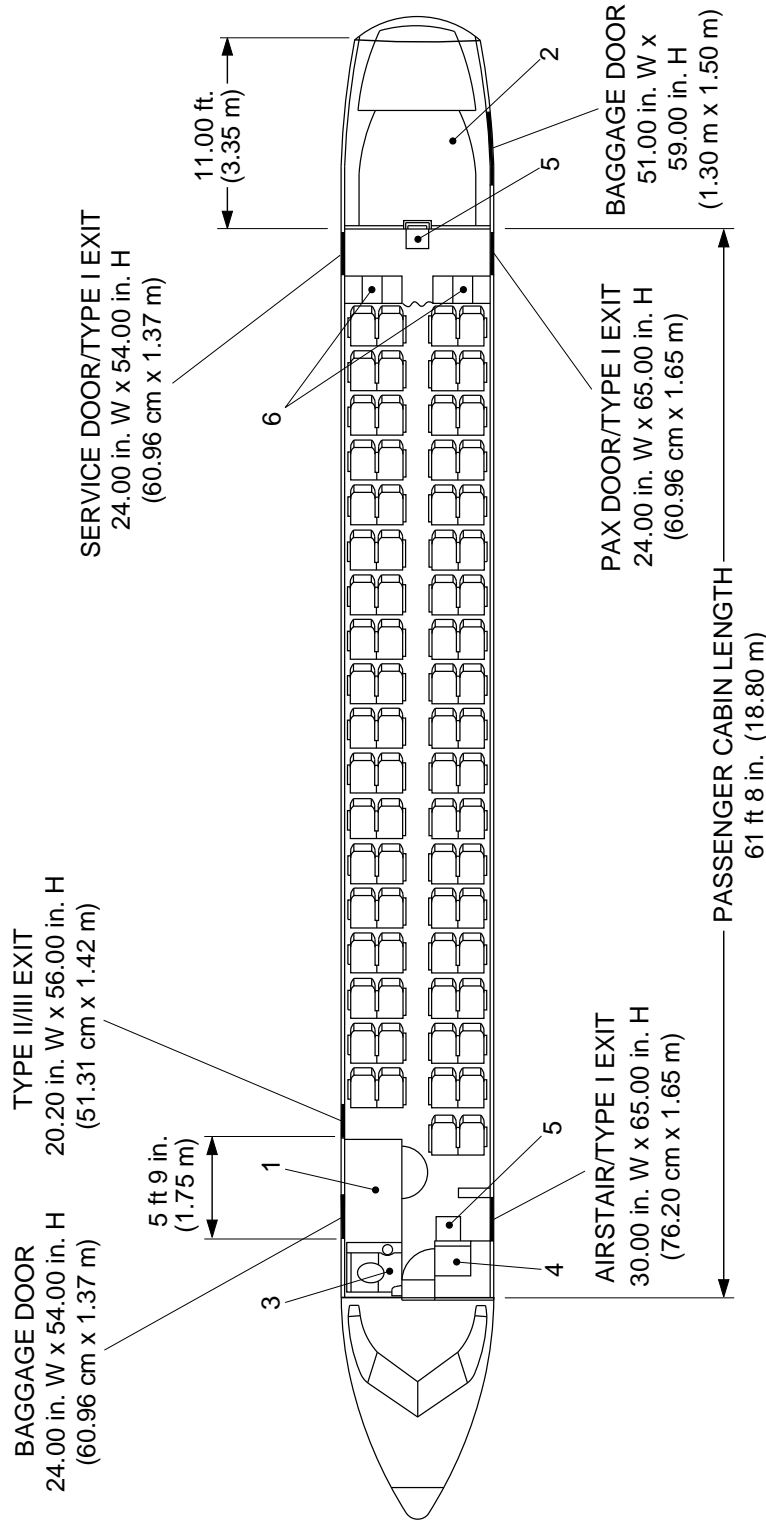
MINIMUM GROUND CLEARANCES–OPTIONAL MLG TIRES

Figure 2 – 7



AIRPORT PLANNING MANUAL

**SERIES 400 (TYPE SPECIFICATION MODEL 402) INTERIOR CONFIGURATION
74 SEATS AT 31 INCH (78.74 cm) PITCH**



LEGEND

1. Forward baggage compartment
91.00 ft³ (2.58 m³).
2. Rear baggage compartment
411.00 ft³ (11.64 m³).
3. Lavatory.
4. Wardrobe.
5. Flight attendant.
6. Galley.

NOTE

Standard configuration shown.
Layout may vary with optional configurations.

br195a01.dg, gg/gw, aug5/2008

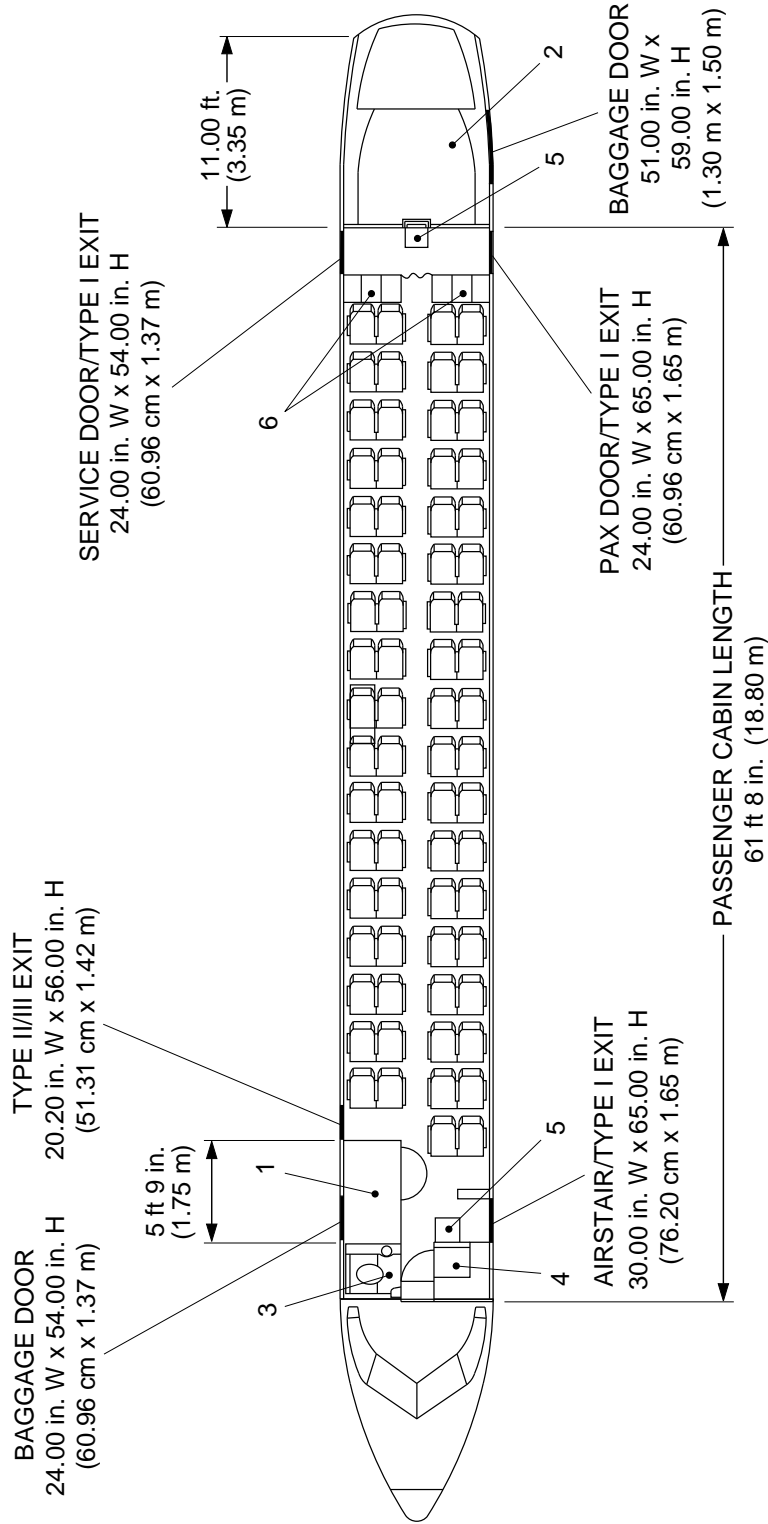
SERIES 400 STANDARD INTERIOR CONFIGURATIONS (Sheet 1 of 2)

Figure 2 – 8



AIRPORT PLANNING MANUAL

**SERIES 400 (TYPE SPECIFICATION MODEL 401) INTERIOR CONFIGURATION
70 SEATS AT 33 INCH (83.82 cm) PITCH**



LEGEND

1. Forward baggage compartment
2. Rear baggage compartment
3. Lavatory.
4. Wardrobe.
5. Flight attendant.
6. Galley.

NOTE

Standard configuration shown.
Layout may vary with optional configurations.

br195a02.dg, gg/gw, aug5/2008

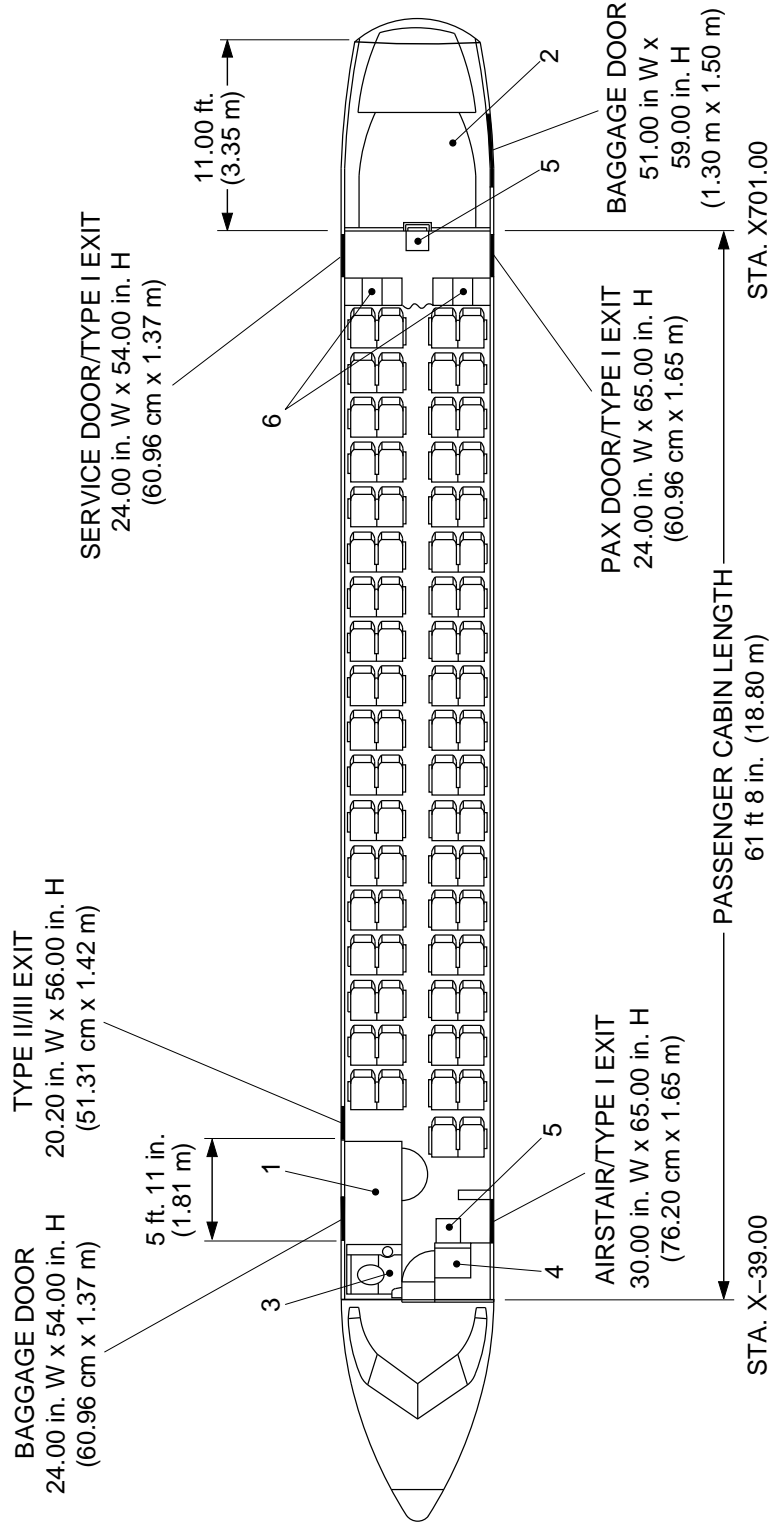
SERIES 400 STANDARD INTERIOR CONFIGURATIONS (Sheet 2 of 2)

Figure 2 – 8



AIRPORT PLANNING MANUAL

SERIES 400 (MODEL 402) STANDARD INTERIOR CONFIGURATION
74 SEATS AT 31 INCH PITCH (78.74 cm)



LEGEND

1. Forward baggage compartment
91.00 ft³ (2.58 m³).
2. Rear baggage compartment
411.00 ft³ (11.64 m³).
3. Lavatory.
4. Wardrobe.
5. Flight attendant.
6. Galley.

NOTE

Standard configuration shown.
Layout may vary with optional configurations.

br307a01.dwg, pt/kmw, aug08/2008

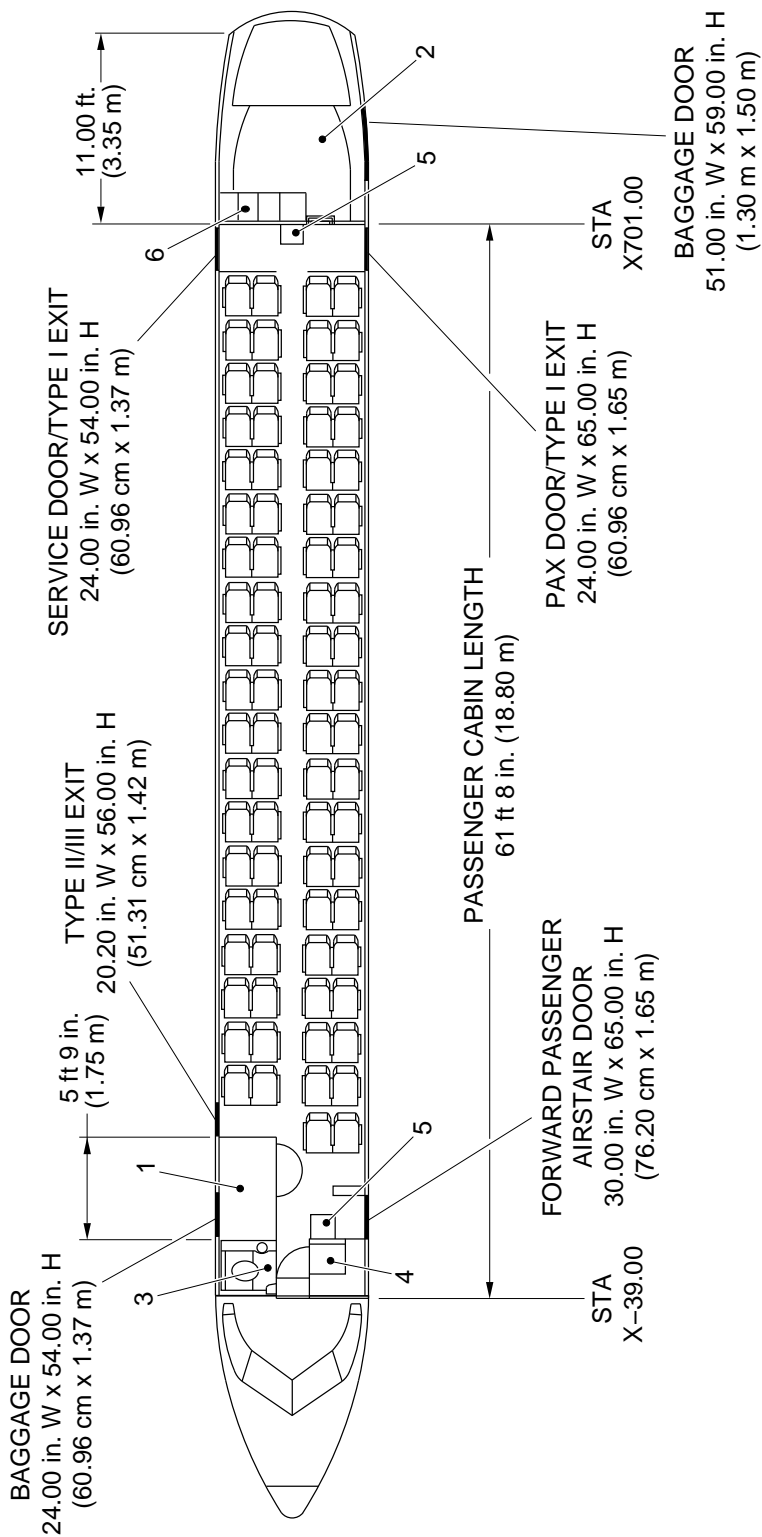
SERIES 400 (MODEL 402) STANDARD INTERIOR CONFIGURATION

Figure 2 – 9



AIRPORT PLANNING MANUAL

**SERIES 400 (MODEL 402) INTERIOR CONFIGURATION
78 SEATS AT 30 INCH (76.2 cm) PITCH**



LEGEND

1. Forward baggage compartment
91.00 ft³ (2.58 m³).
2. Rear baggage compartment
365.00 ft³ (10.33 m³).
3. Lavatory.
4. Wardrobe.
5. Flight attendant.
6. Galley.

NOTE
Layout may vary with optional configurations.

cg3535a01.dwg, cs, aug06/2014

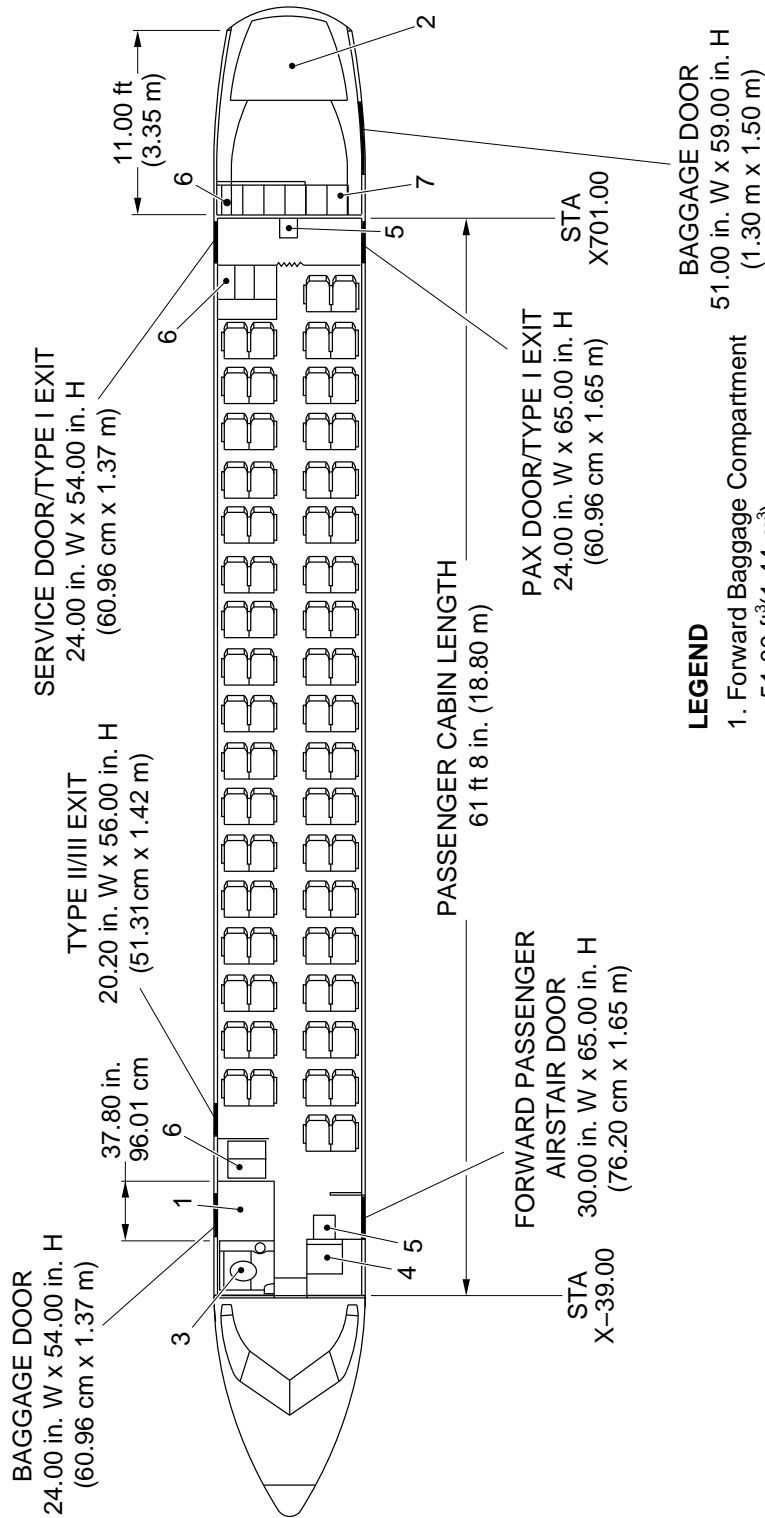
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 1 of 7)

Figure 2 – 10



AIRPORT PLANNING MANUAL

**SERIES 400 (MODEL 402) INTERIOR CONFIGURATION
72 SEATS AT 32 INCH (81.28 cm) PITCH**



LEGEND

1. Forward Baggage Compartment
51.00 ft³ (1.44 m³).
2. Rear baggage compartment
365.00 ft³ (10.33 m³).
3. Lavatory.
4. Wardrobe.
5. Flight attendant Seat.
6. Galley.
7. Cart storage.

NOTE

Layout may vary with optional configurations.

cg3535a02.dwg, cs, aug06/2014

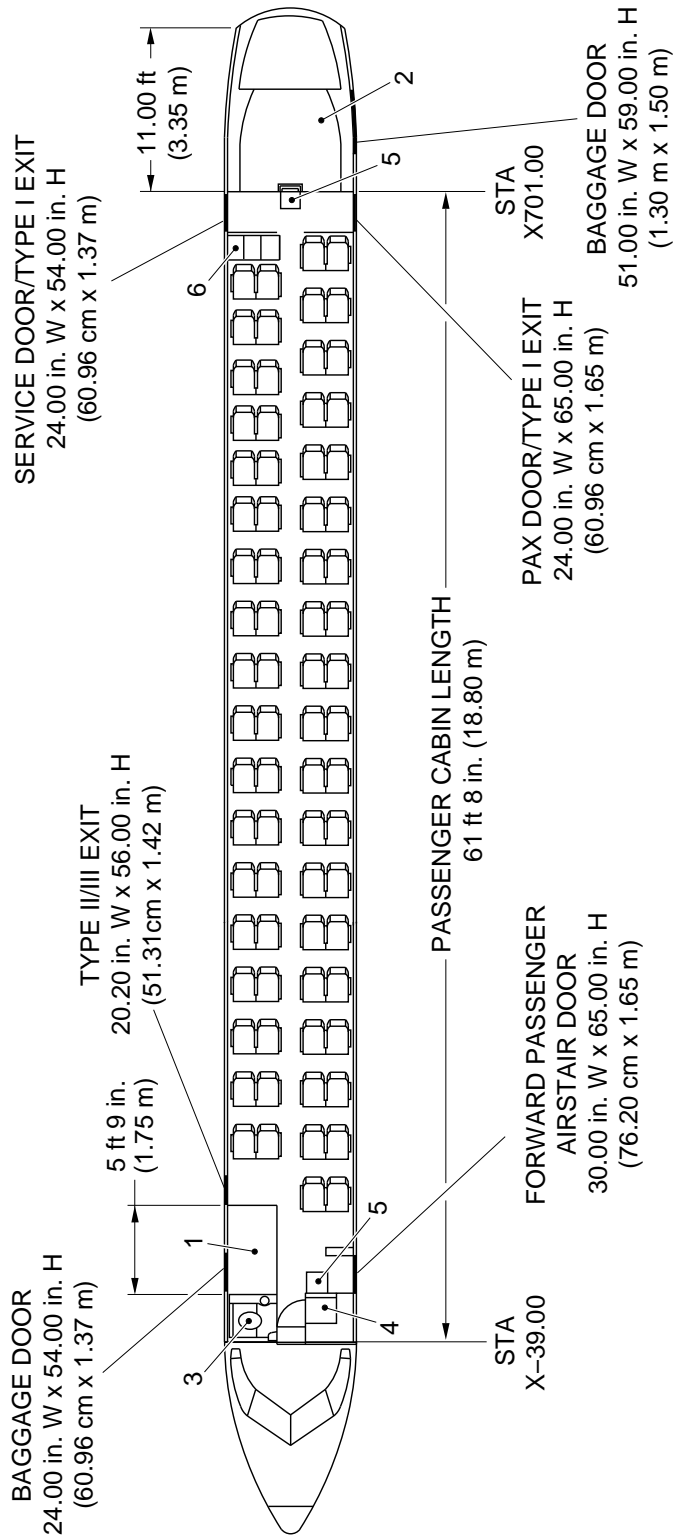
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 2 of 7)

Figure 2 – 10



AIRPORT PLANNING MANUAL

**SERIES 400 (MODEL 402) INTERIOR CONFIGURATION
66 SEATS AT 31 in. (78.74 cm) PITCH AND 8 SEATS AT 34 in. (86.36 cm) PITCH**



LEGEND

1. Forward baggage compartment
91.00 ft³ (2.58 m³).
2. Rear baggage compartment
365.00 ft³ (10.33 m³).
3. Lavatory.
4. Wardrobe.
5. Flight attendant.
6. Galley.

NOTE

Layout may vary with optional configuration.

cg3535a03.dwg, cs, aug06/2014

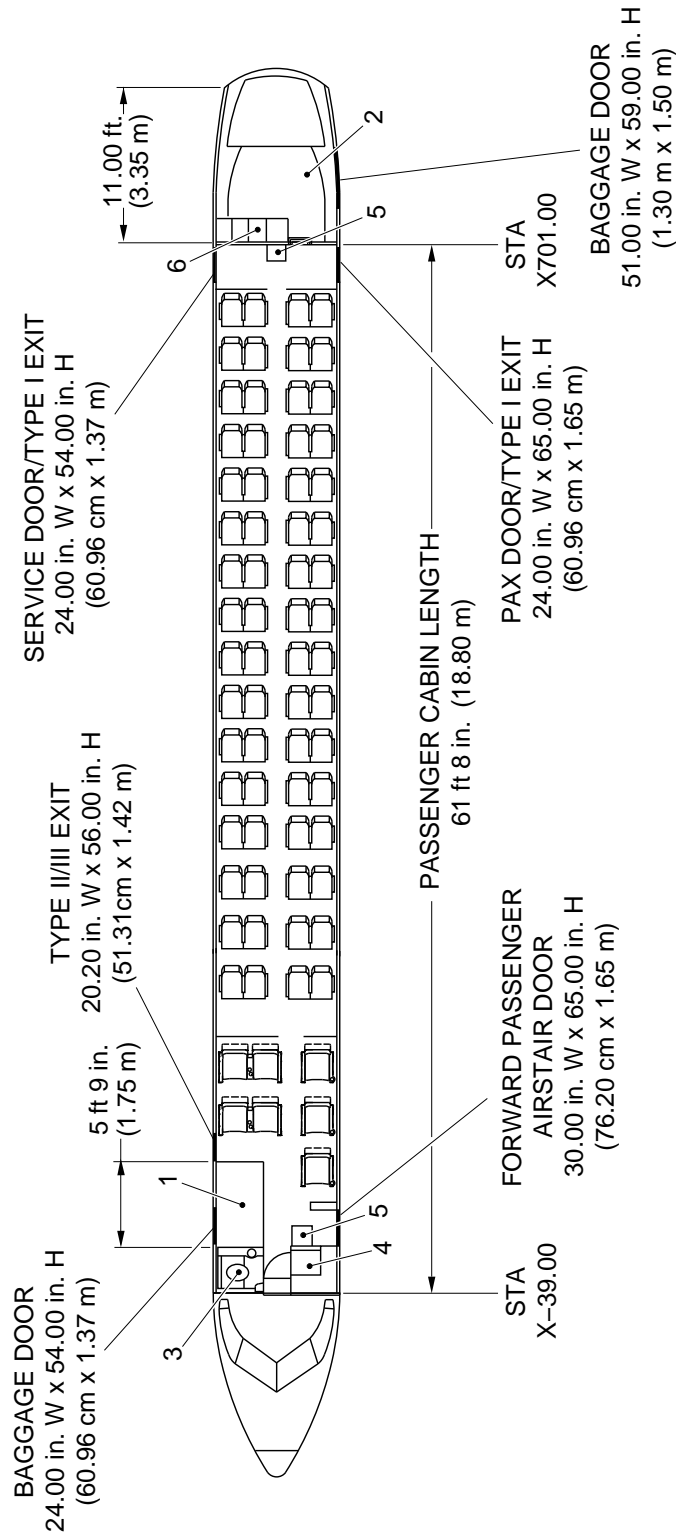
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 3 of 7)

Figure 2 – 10



AIRPORT PLANNING MANUAL

**SERIES 400 (MODEL 402) THREE-ABREAST TRIPLE CLASS INTERIOR CONFIGURATION
7 SEATS AT 36 in. (91.44 cm) PITCH, 10 SEATS AT 34 in. (86.36 cm) PITCH AND 54 SEATS AT 30 in. (76.20 cm) PITCH**



LEGEND

1. Forward baggage compartment
91.00 ft³(2.58 m³).
2. Rear baggage compartment
365.00 ft³(10.33 m³).
3. Lavatory.
4. Wardrobe.
5. Flight attendant.
6. Galley.

NOTE

Layout may vary with optional configuration.

cg3636a04.dg, cs, aug06/2014

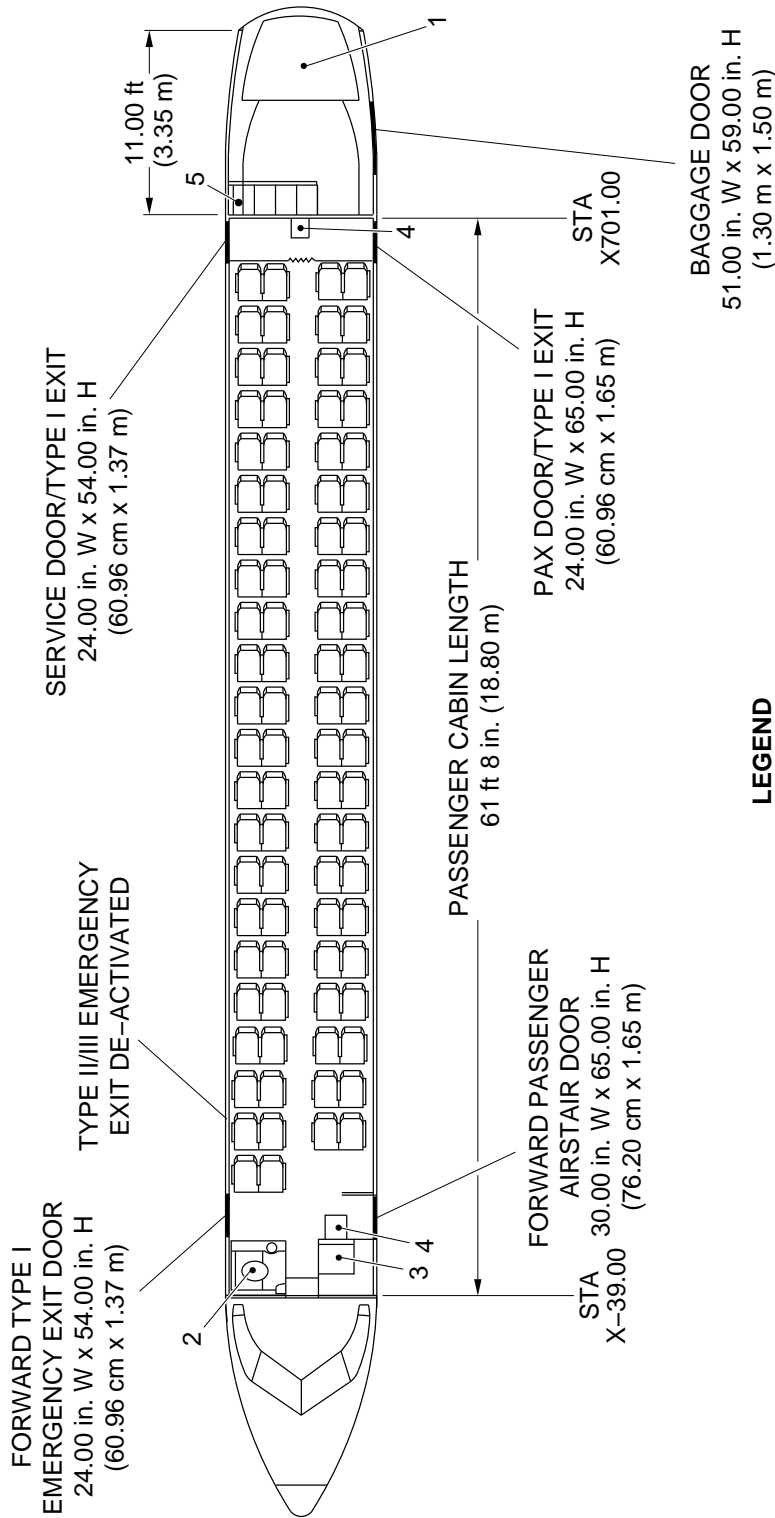
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 4 of 7)

Figure 2 – 10



AIRPORT PLANNING MANUAL

**SERIES 400 (MODEL 402) EXTRA CAPACITY INTERIOR CONFIGURATION
86 SEATS AT 29 INCH (73.66 cm) PITCH**



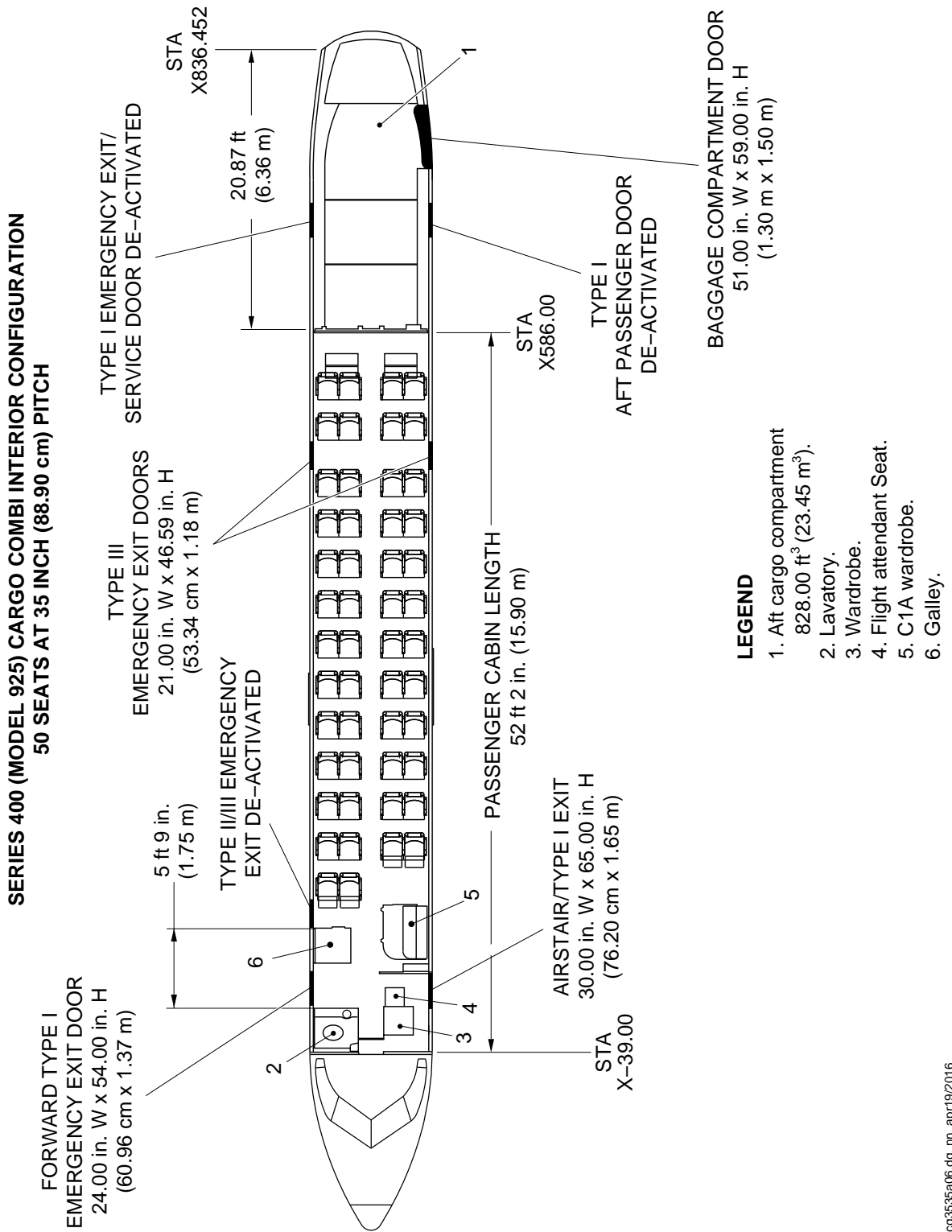
NOTE
Layout may vary with optional configurations.

cg3535a05.dwg, cs, aug06/2014

SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 5 of 7)

Figure 2 – 10

AIRPORT PLANNING MANUAL



cg3535a06.dwg, m, apr19/2016

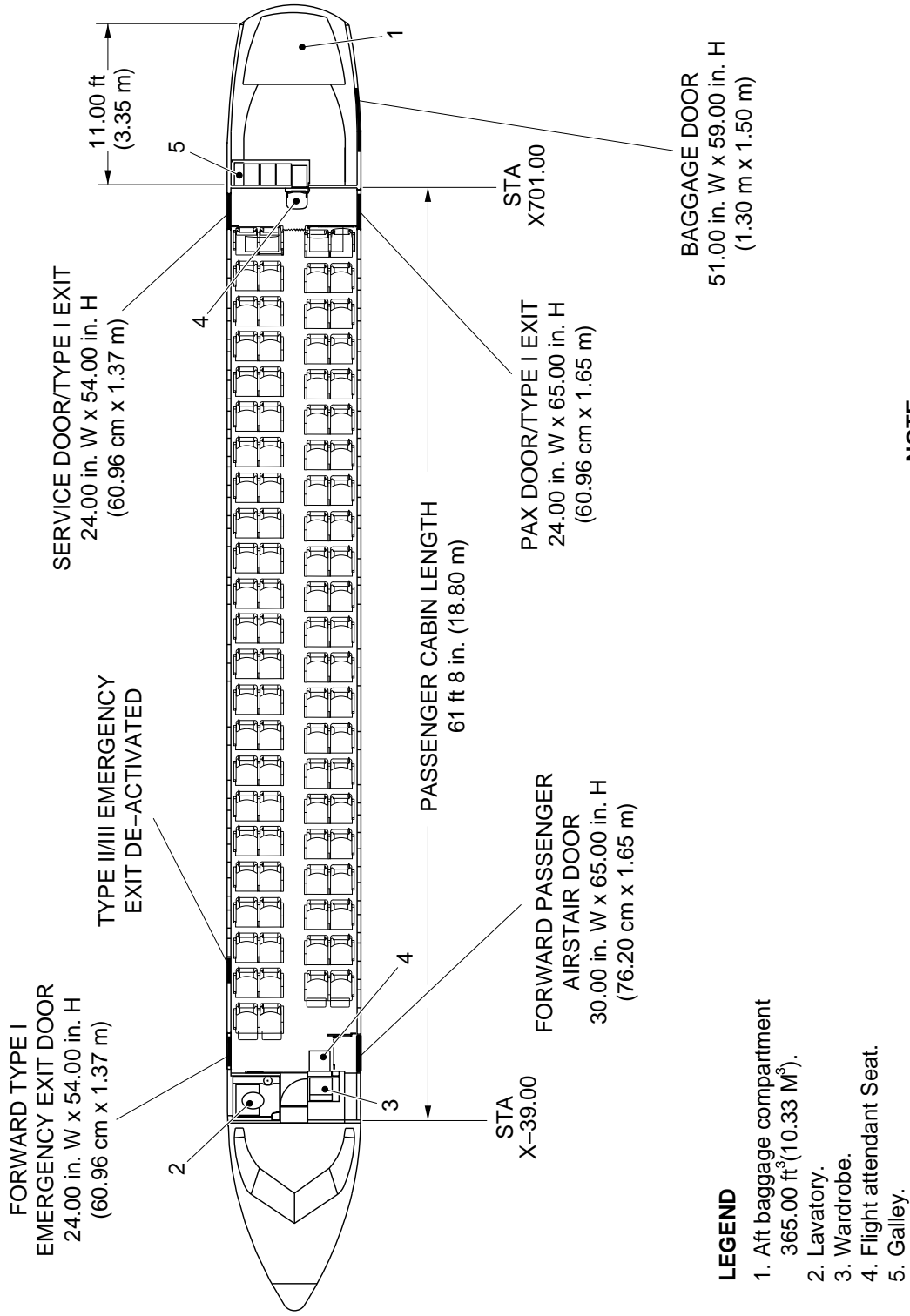
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 6 of 7)

Figure 2 – 10



AIRPORT PLANNING MANUAL

**SERIES 400 (MODEL 402) EXTRA CAPACITY INTERIOR CONFIGURATION
90 SEATS AT 28 INCH (71.12 cm) PITCH**



NOTE
Layout may vary with optional configurations.

- LEGEND**
1. Aft baggage compartment
365.00 ft³ (10.33 M³).
 2. Lavatory.
 3. Wardrobe.
 4. Flight attendant Seat.
 5. Galley.

cg3535a07.dg, ss, oct29/2018

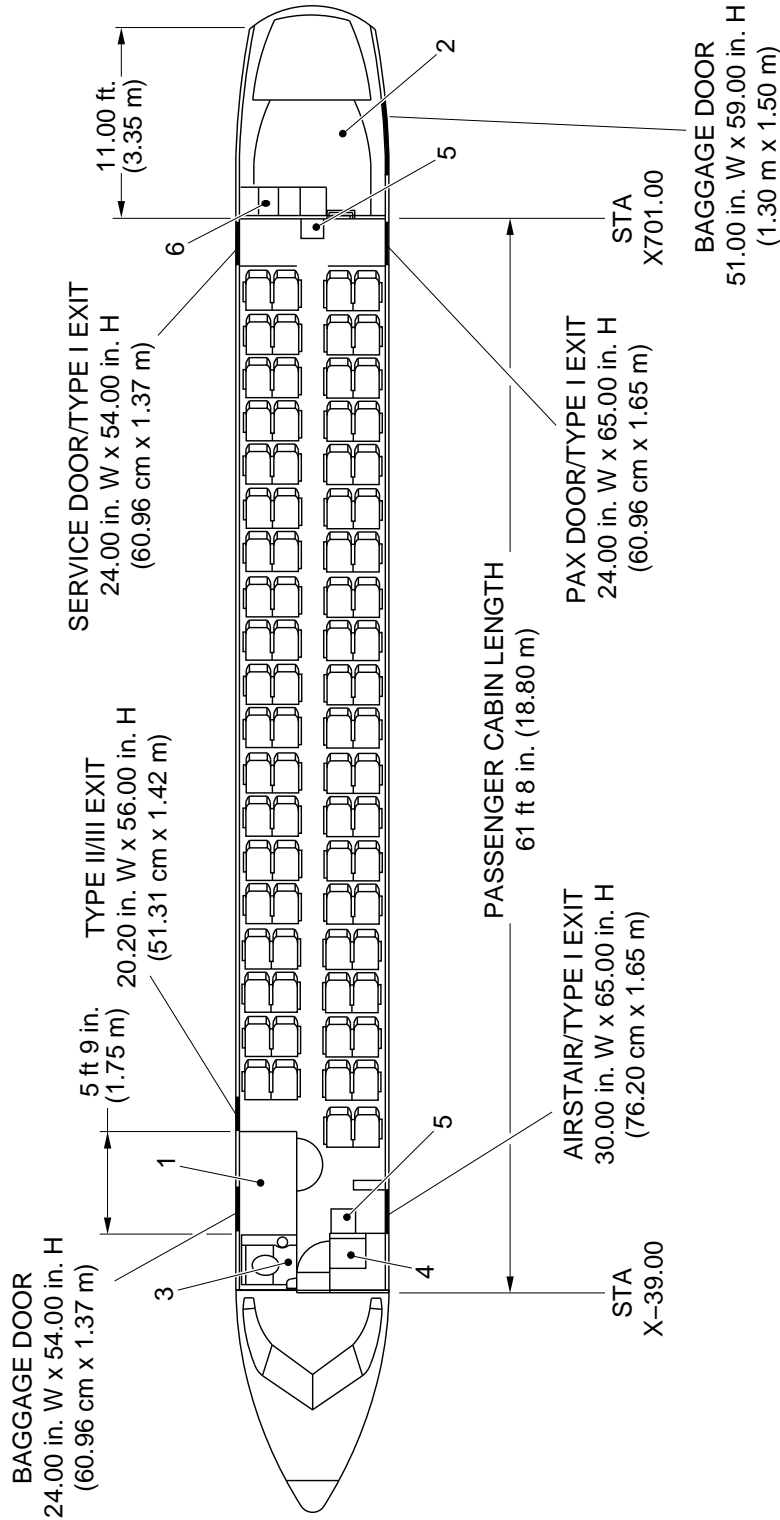
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 7 of 7)

Figure 2 – 10



AIRPORT PLANNING MANUAL

**SERIES 400 (MODEL 402) INTERIOR CONFIGURATION
78 SEATS AT 30 & 32 INCH (76.20 & 81.28 cm) PITCH**



LEGEND

- 1. Forward baggage compartment
91.00 ft³ (2.58 m³).
- 2. Rear baggage compartment
365.00 ft³ (10.33 m³).
- 3. Lavatory.
- 4. Wardrobe.
- 5. Flight attendant seat.
- 6. Galley.

NOTE
Layout may vary with optional configurations.

cg4734a01.dwg, ss, jju11/2016

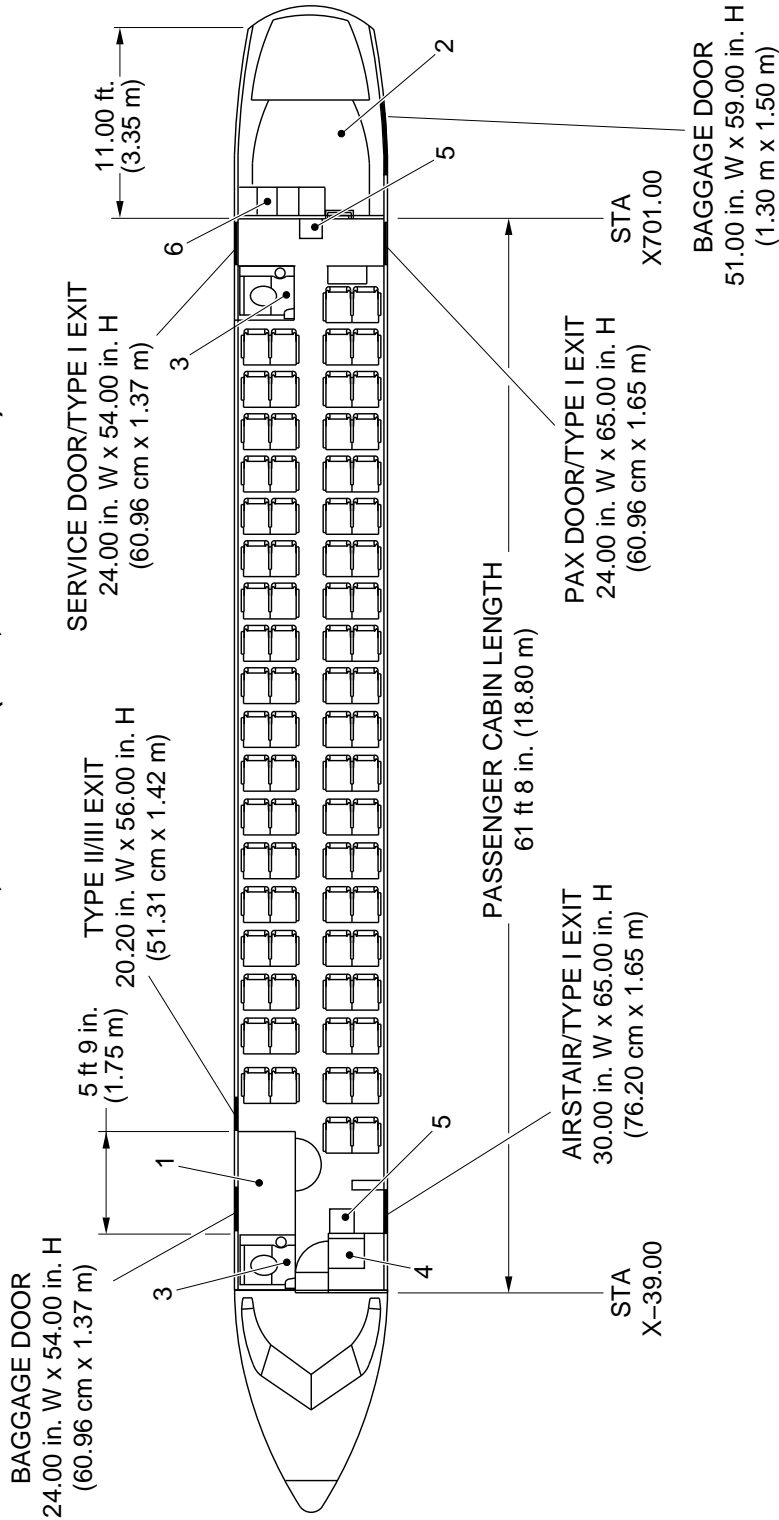
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 1 of 2)

Figure 2 – 11



AIRPORT PLANNING MANUAL

SERIES 400 (MODEL 402) INTERIOR CONFIGURATION
76 SEATS AT 34, 30 & 29 INCH (86.36, 76.20 & 73.66 cm) PITCH



LEGEND

- 1. Forward baggage compartment
91.00 ft³ (2.58 m³).
- 2. Rear baggage compartment
365.00 ft³ (10.33 m³).
- 3. Lavatory.
- 4. Wardrobe.
- 5. Flight attendant seat.
- 6. Galley.

NOTE
Layout may vary with optional configurations.

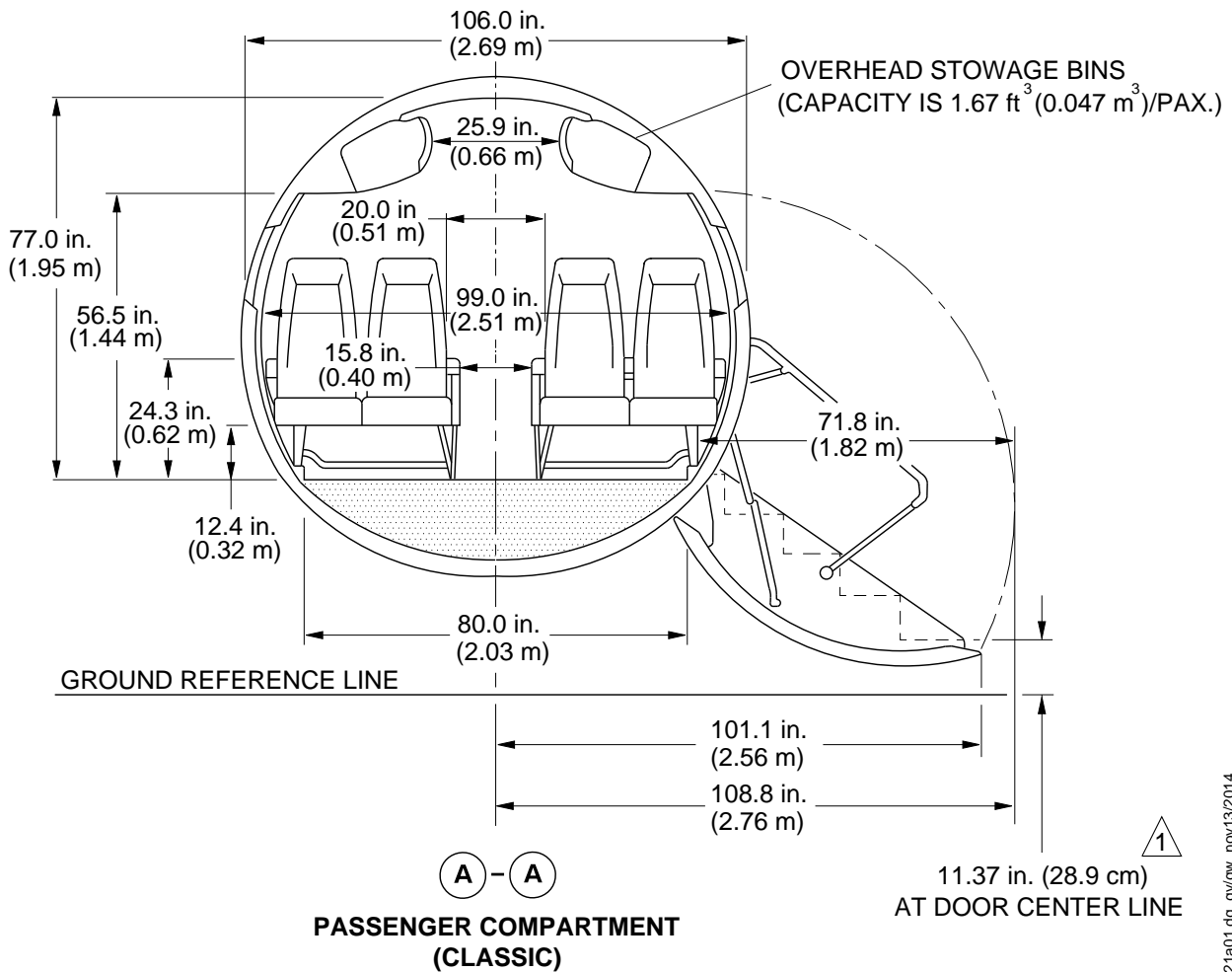
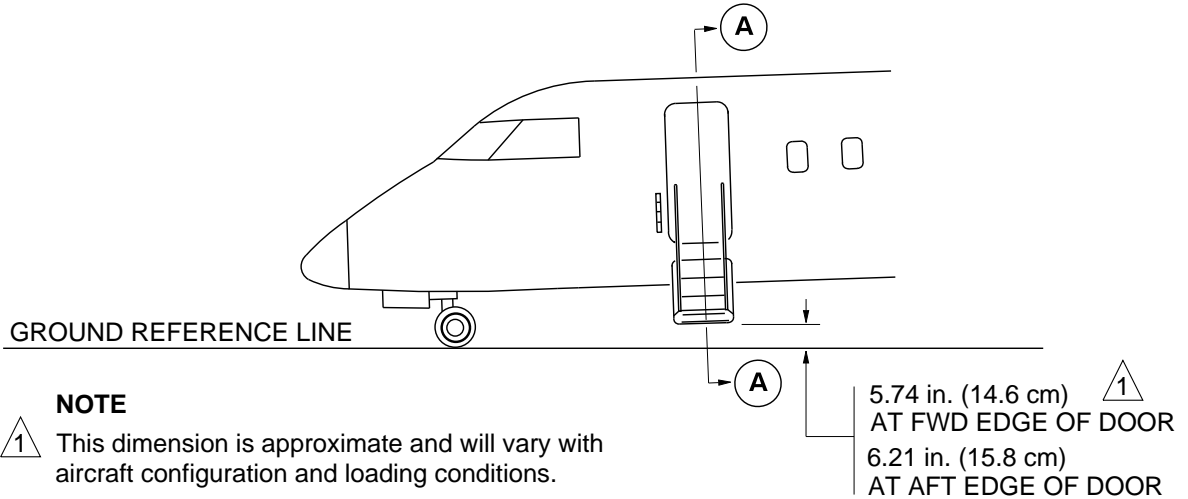
cg4734a02.dwg, ss, jult11/2016

SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 2 of 2)

Figure 2 – 11



AIRPORT PLANNING MANUAL

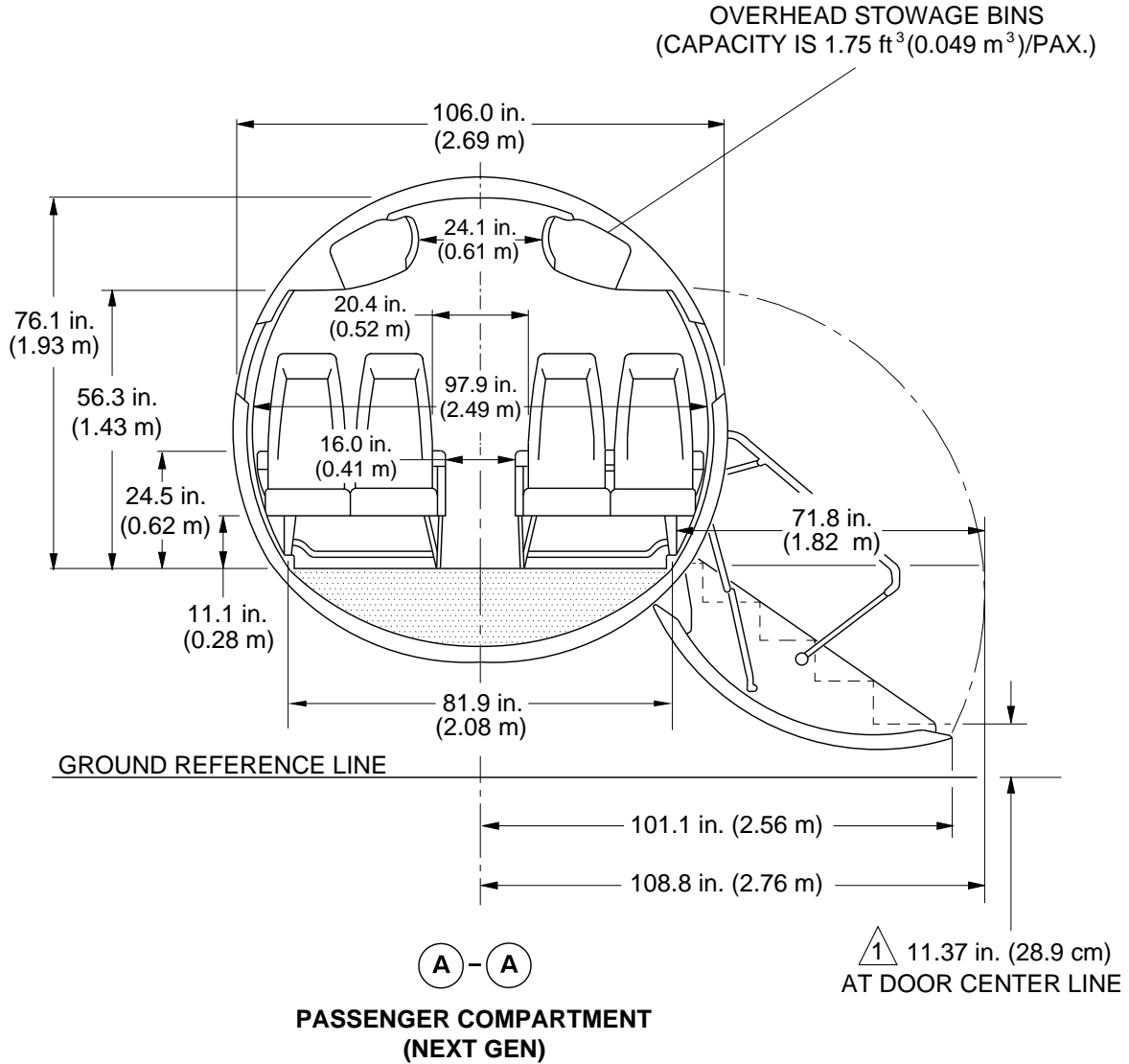


PASSENGER COMPARTMENT CROSS SECTION (Sheet 1 of 2)

Figure 2 – 12



AIRPORT PLANNING MANUAL



NOTE

1 This dimension is approximate and will vary with aircraft configuration and loading conditions.

br721a02.dg, gw, nov13/2014

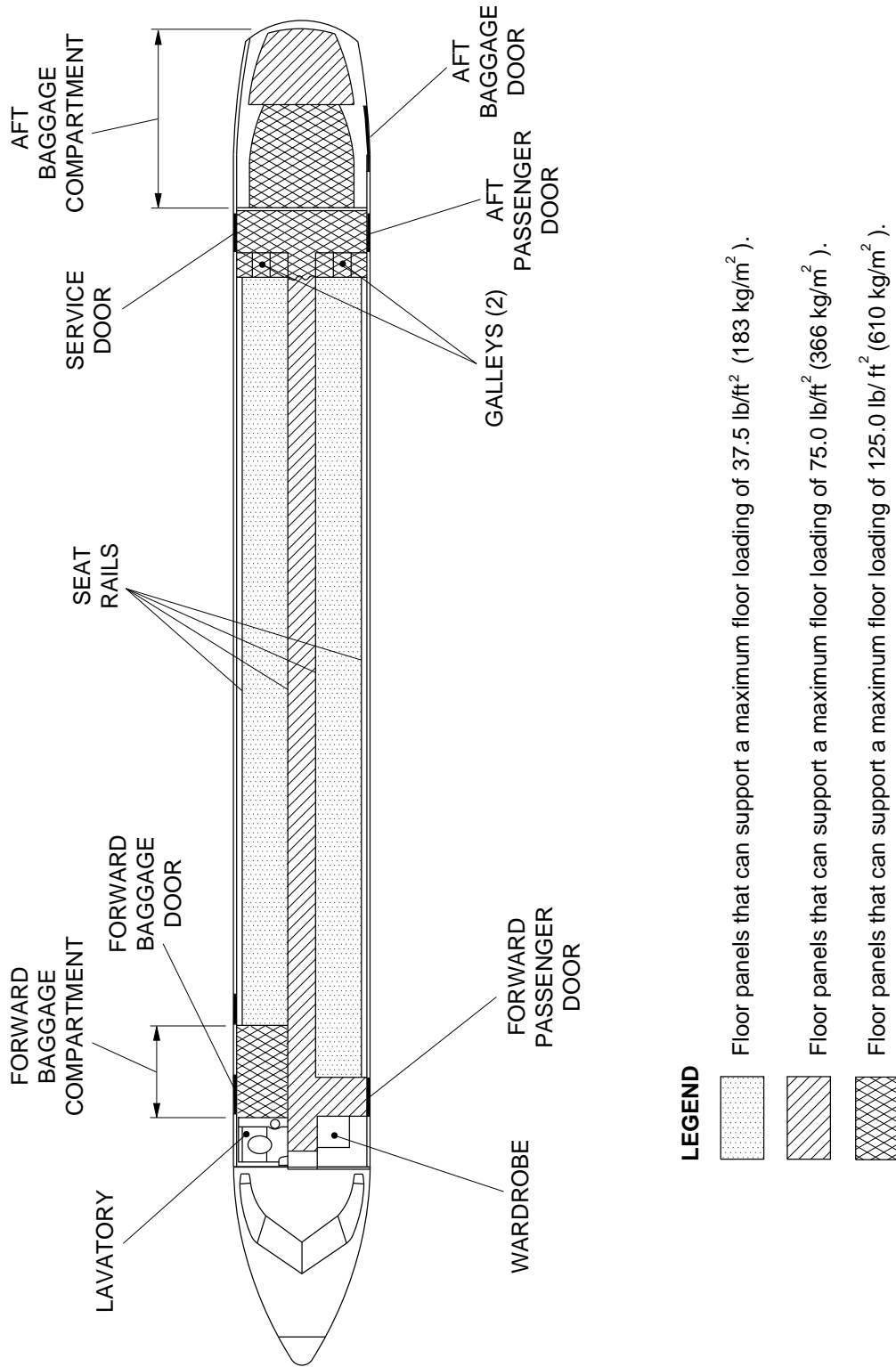
PASSENGER COMPARTMENT CROSS SECTION (Sheet 2 of 2)

Figure 2 – 12



AIRPORT PLANNING MANUAL

70 TO 78 SEATS CONFIGURATION—SERIES 400



FLOOR LOADING DIAGRAM (Sheet 1 of 3)

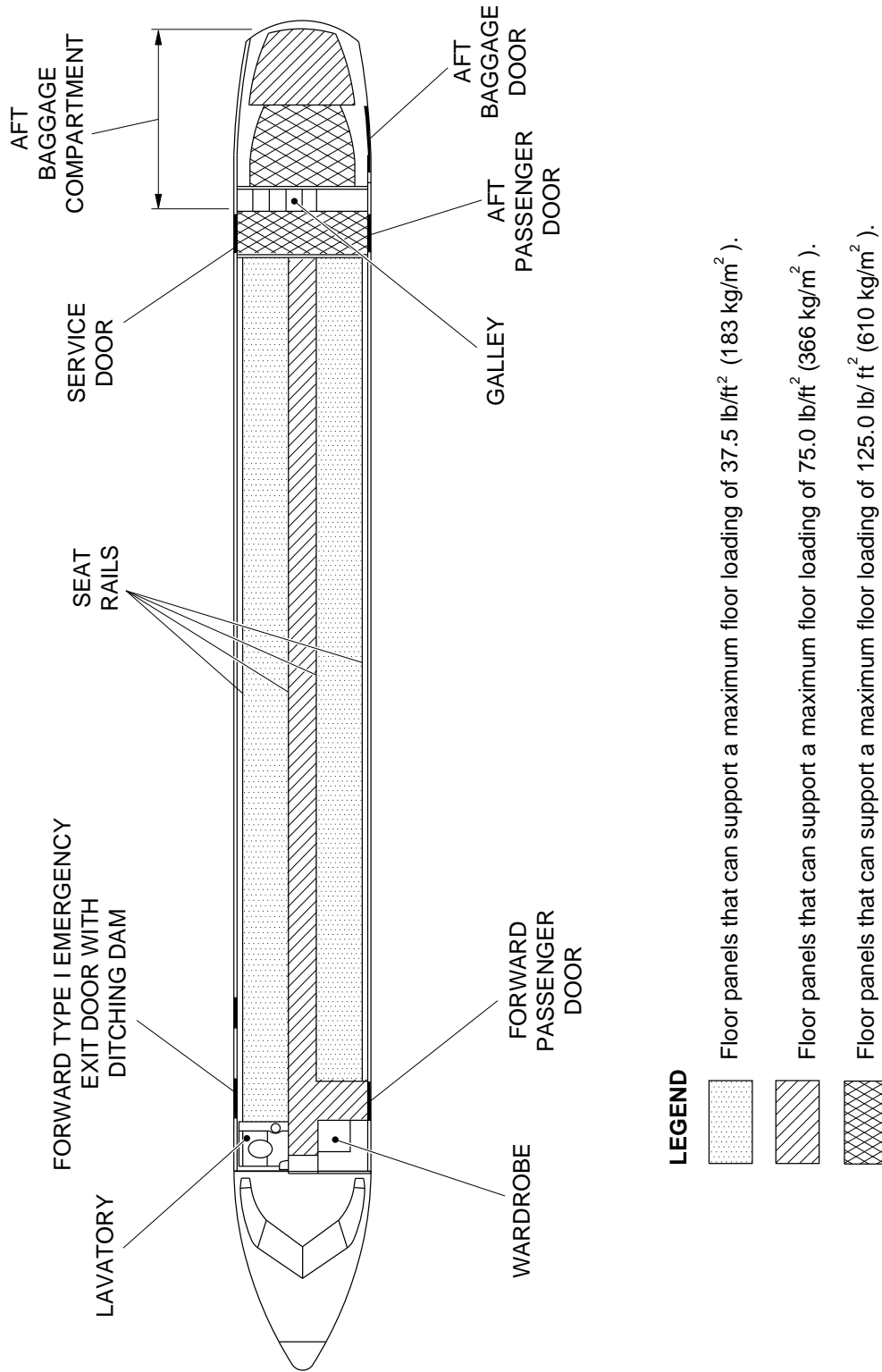
Figure 2 – 13

b1297a01.dg, pl/cr, jul29/2014



AIRPORT PLANNING MANUAL

86 AND 90 SEATS EXTRA CAPACITY INTERIOR CONFIGURATION—SERIES 400



br297a02.dg, cs/ss, oct27/2018

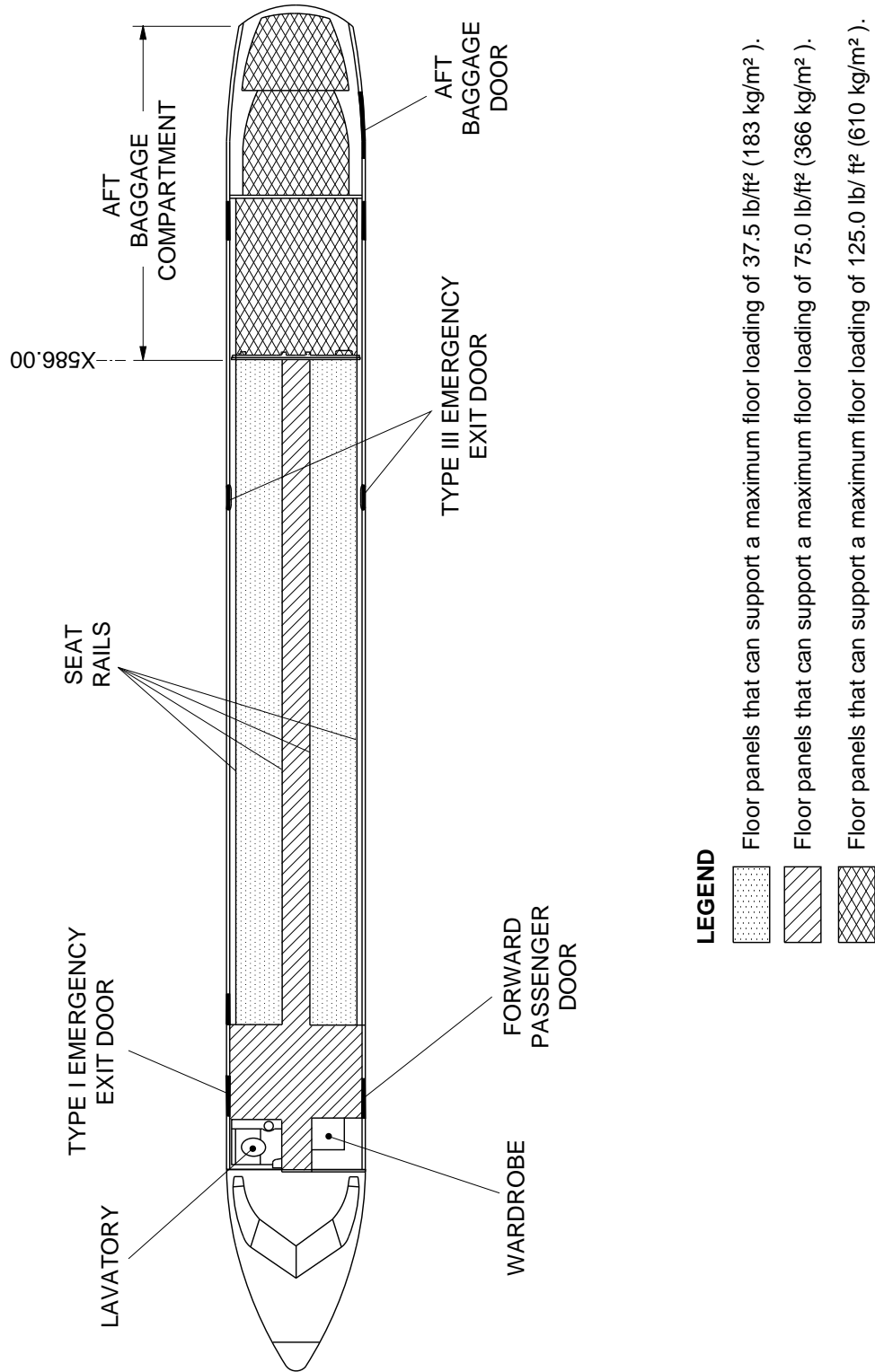
FLOOR LOADING DIAGRAM (Sheet 2 of 3)

Figure 2 – 13






AIRPORT PLANNING MANUAL

50 SEATS CARGO COMBI INTERIOR CONFIGURATION—SERIES 400



LEGEND

-  Floor panels that can support a maximum floor loading of 37.5 lb/ft² (183 kg/m²).
-  Floor panels that can support a maximum floor loading of 75.0 lb/ft² (366 kg/m²).
-  Floor panels that can support a maximum floor loading of 125.0 lb/ft² (610 kg/m²).

FLOOR LOADING DIAGRAM (Sheet 3 of 3)

Figure 2 – 13

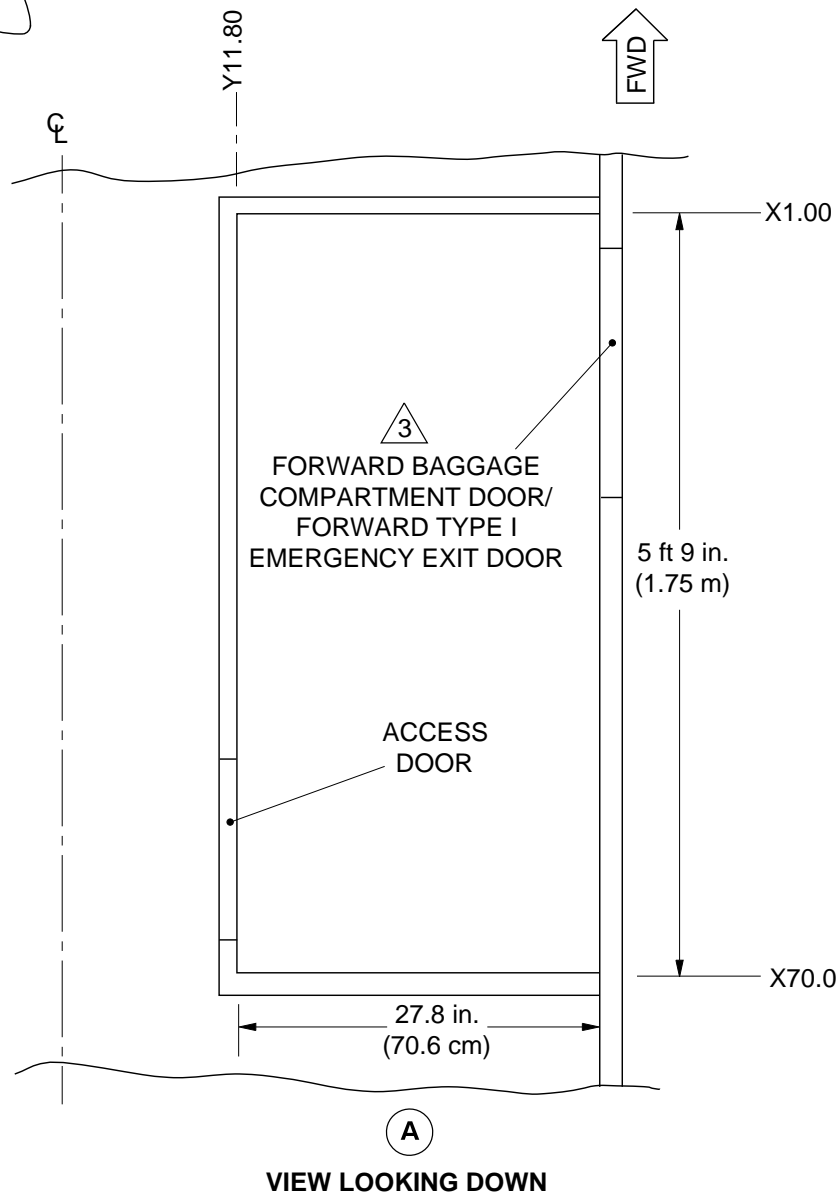
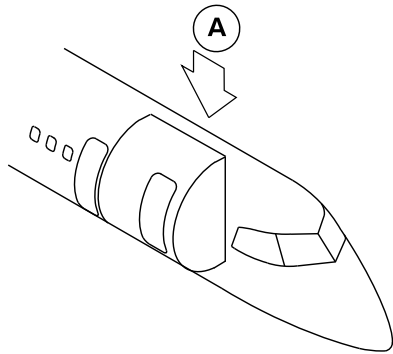
b/297a03.dg, nn, sep21/2016



AIRPORT PLANNING MANUAL

NOTES

- 1. The dimensions shown are measured at floor level.
- 2. Forward baggage compartment and forward baggage door is removed for the extra capacity and cargo combi configuration.
- 3. Type I emergency exit door is installed in forward RH side for the extra capacity and cargo combi configuration.



cg4836a01.dg, mn, aug19/2016

FWD BAGGAGE – COMPARTMENT DIMENSIONS (STANDARD INTERIOR CONFIGURATION)

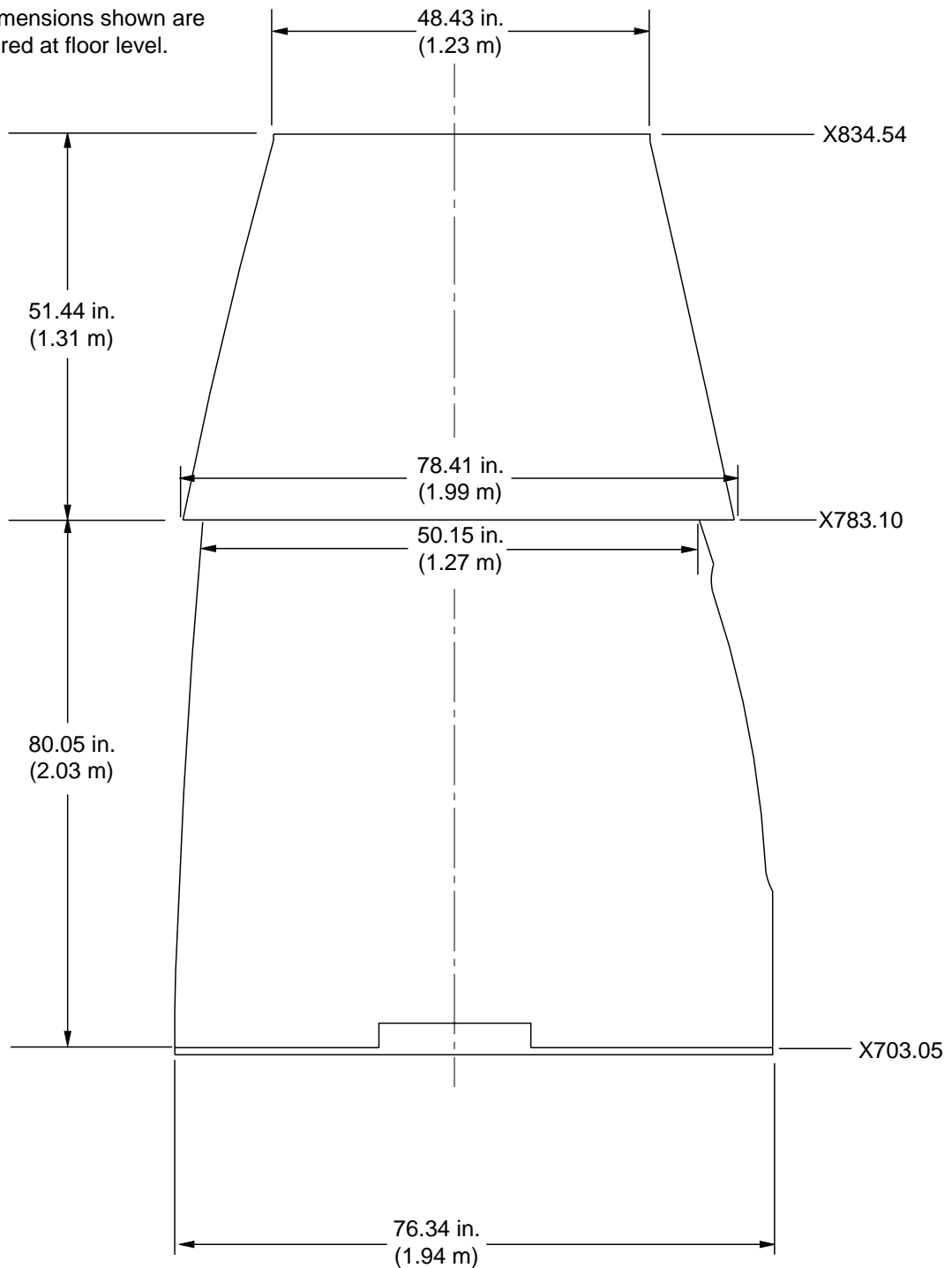
Figure 2 – 14



AIRPORT PLANNING MANUAL

NOTE

The dimensions shown are measured at floor level.



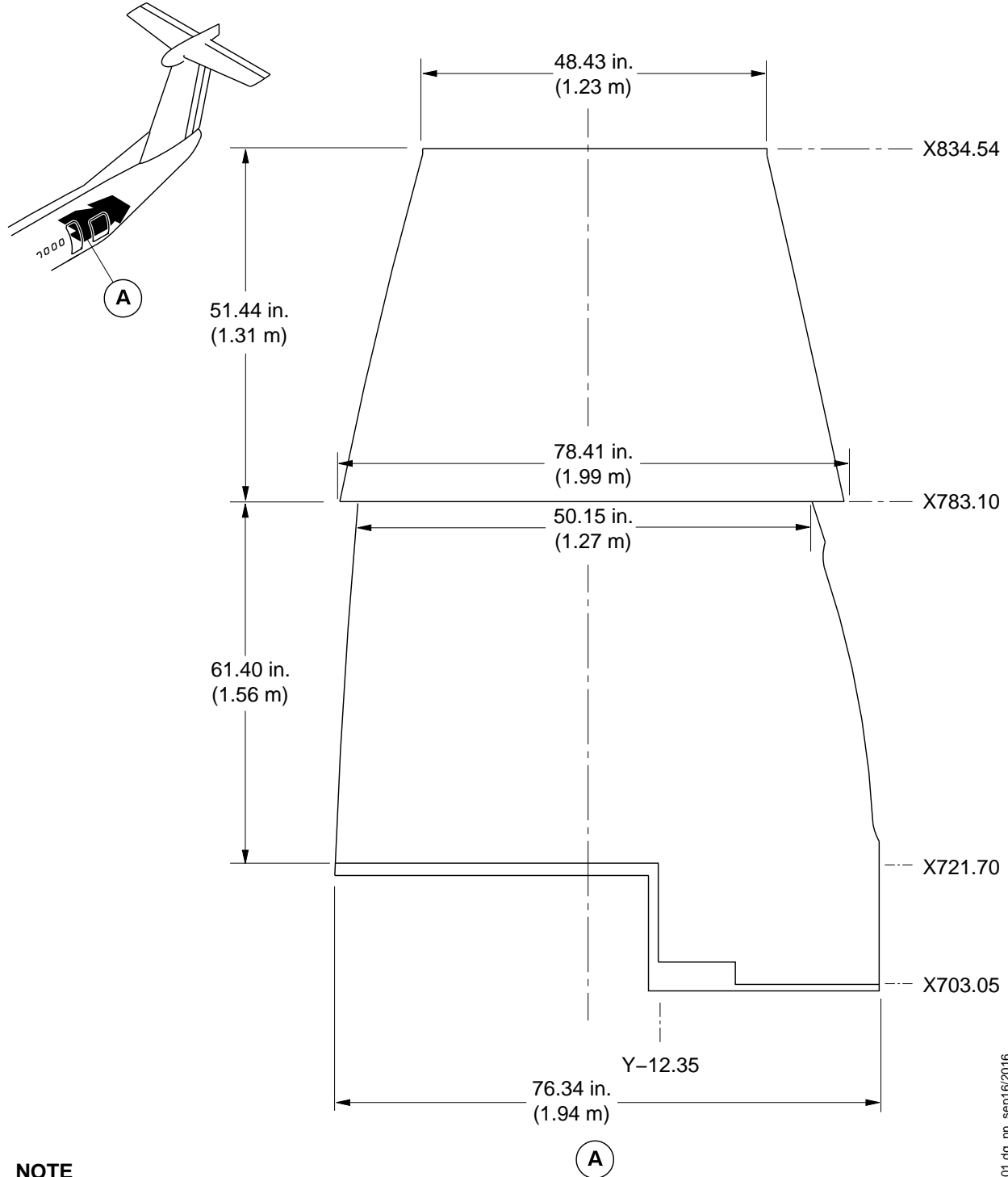
br758a01.dwg, sw, 08/04/98

AFT BAGGAGE COMPARTMENT DIMENSIONS (STANDARD INTERIOR CONFIGURATION)

Figure 2 – 15



AIRPORT PLANNING MANUAL



NOTE

The dimensions shown are measured at floor level.

AFT BAGGAGE COMPARTMENT DIMENSIONS (OPTIONAL INTERIOR CONFIGURATION)

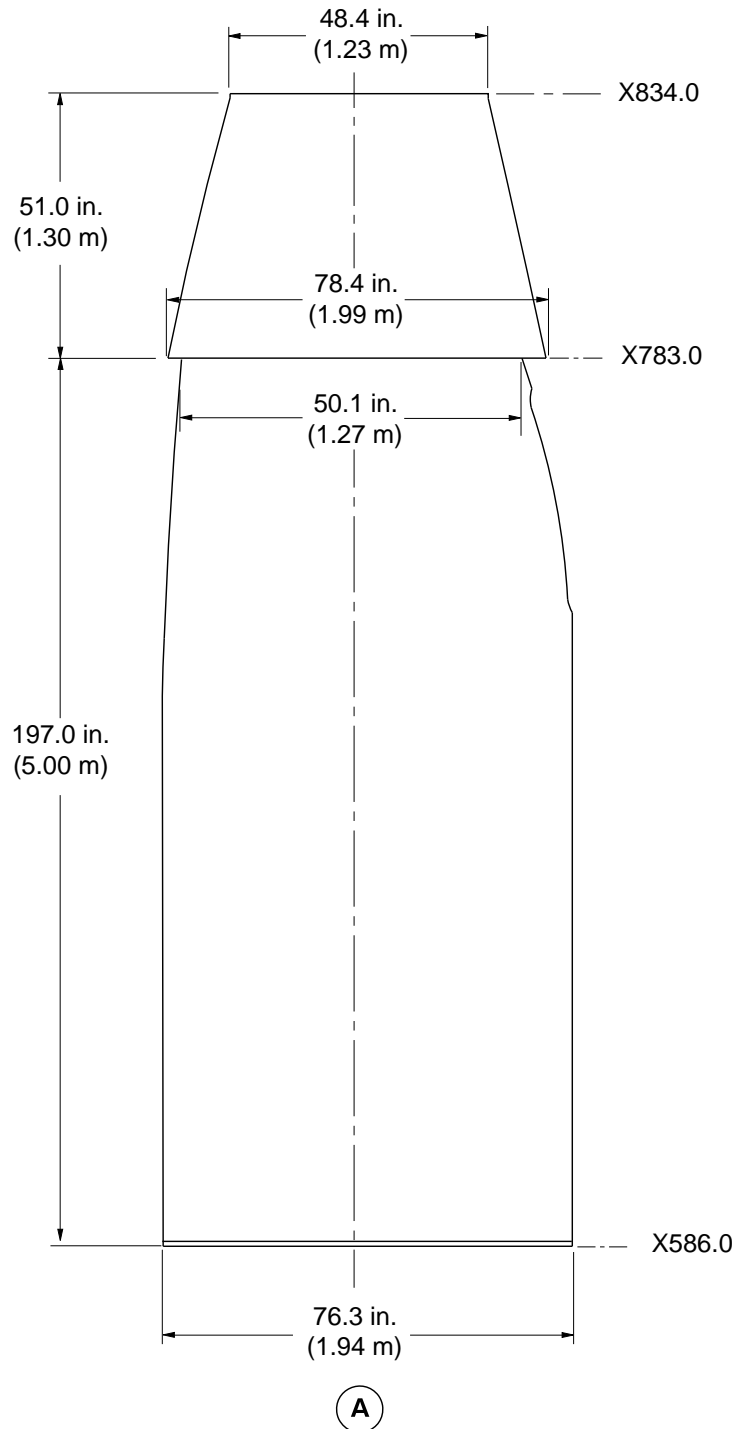
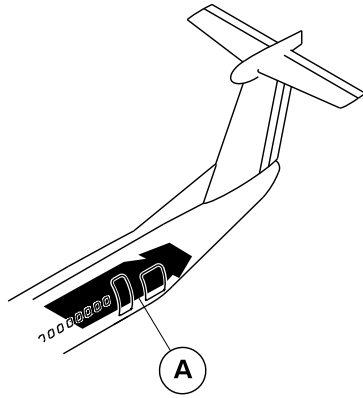
(Sheet 1 of 2)

Figure 2 – 16

cg4837a01.dg, mn, sept16/2016



AIRPORT PLANNING MANUAL



NOTE

The dimensions shown are measured at floor level.

CARGO COMBI CONFIGURATION

AFT BAGGAGE COMPARTMENT DIMENSIONS (OPTIONAL INTERIOR CONFIGURATION)

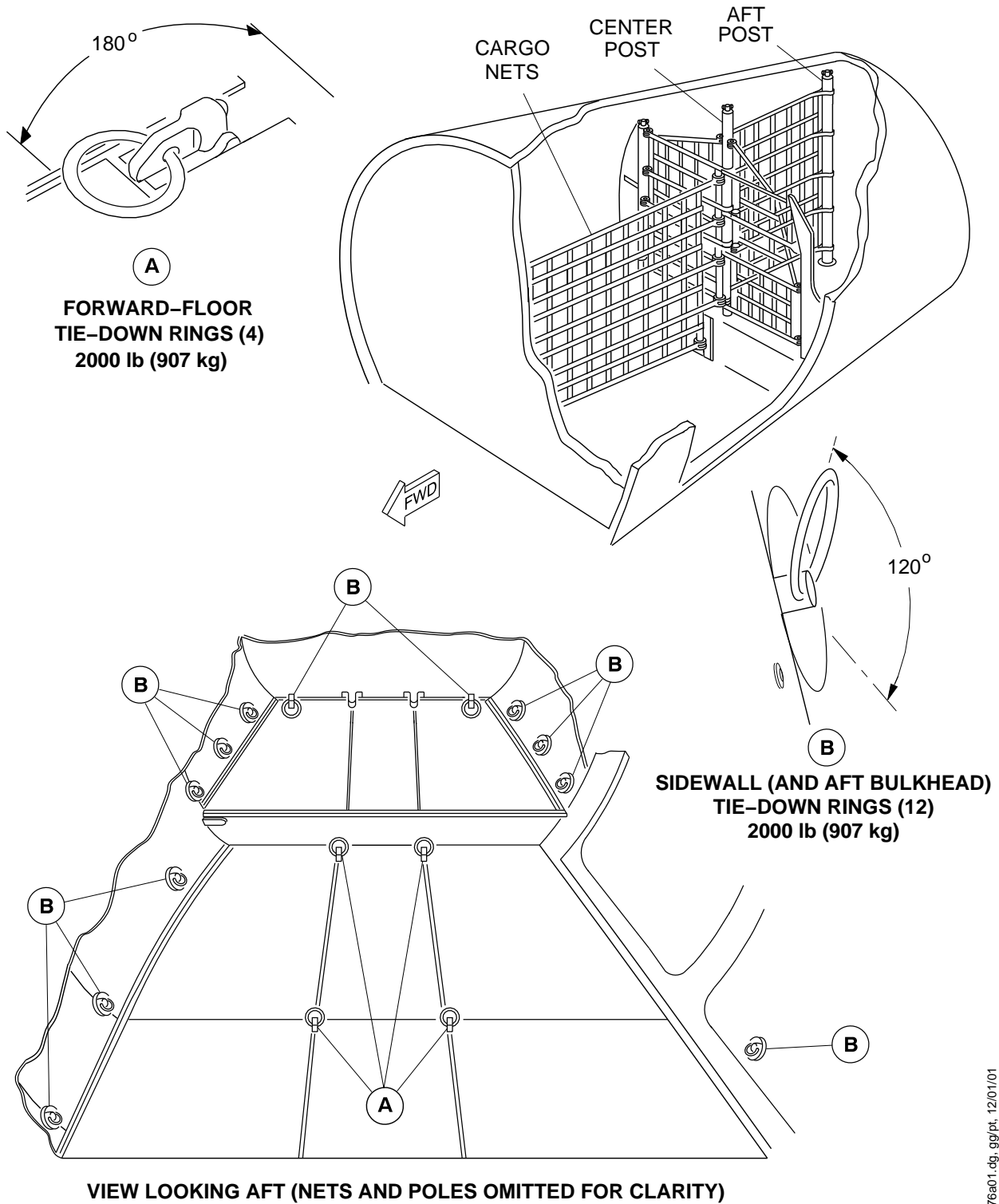
(Sheet 2 of 2)

Figure 2 – 16

cg4837a02.dwg, mm/gw, nov10/2016



AIRPORT PLANNING MANUAL



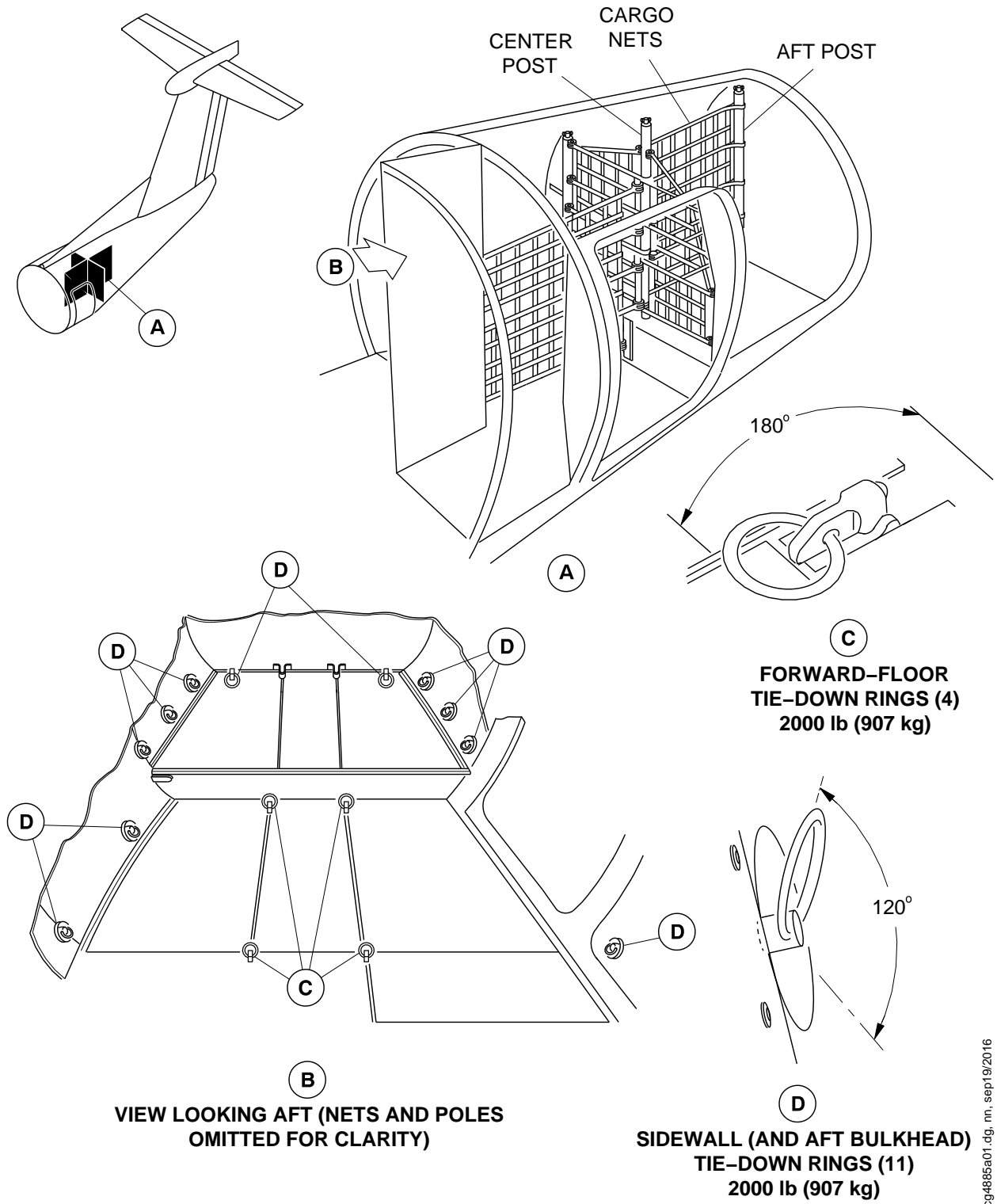
NETS AND TIE-DOWNS (DETAIL SPEC. CONFIGURATION)

Figure 2 – 17

br876a01.dwg, gg/pt, 12/01/01



AIRPORT PLANNING MANUAL



cg4885a01.dwg, m, sep19/2016

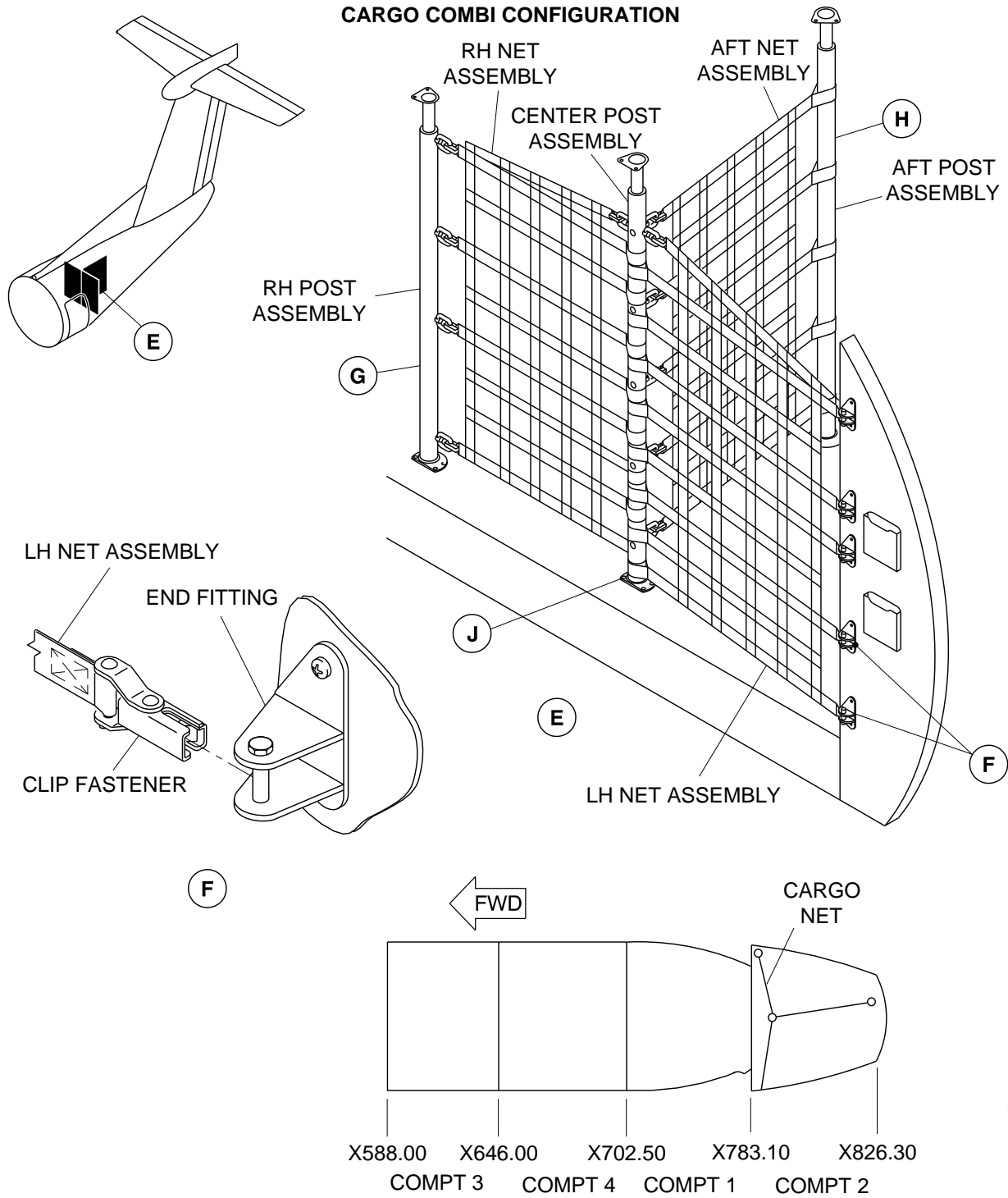
NETS AND TIE-DOWNS (G3 GALLEY) (Sheet 1 of 3)

Figure 2 – 18



AIRPORT PLANNING MANUAL

CARGO COMBI CONFIGURATION



VIEW LOOKING DOWN ON AFT BAGGAGE COMPARTMENT

NETS AND TIE-DOWNS (G3 GALLEY) (Sheet 2 of 3)

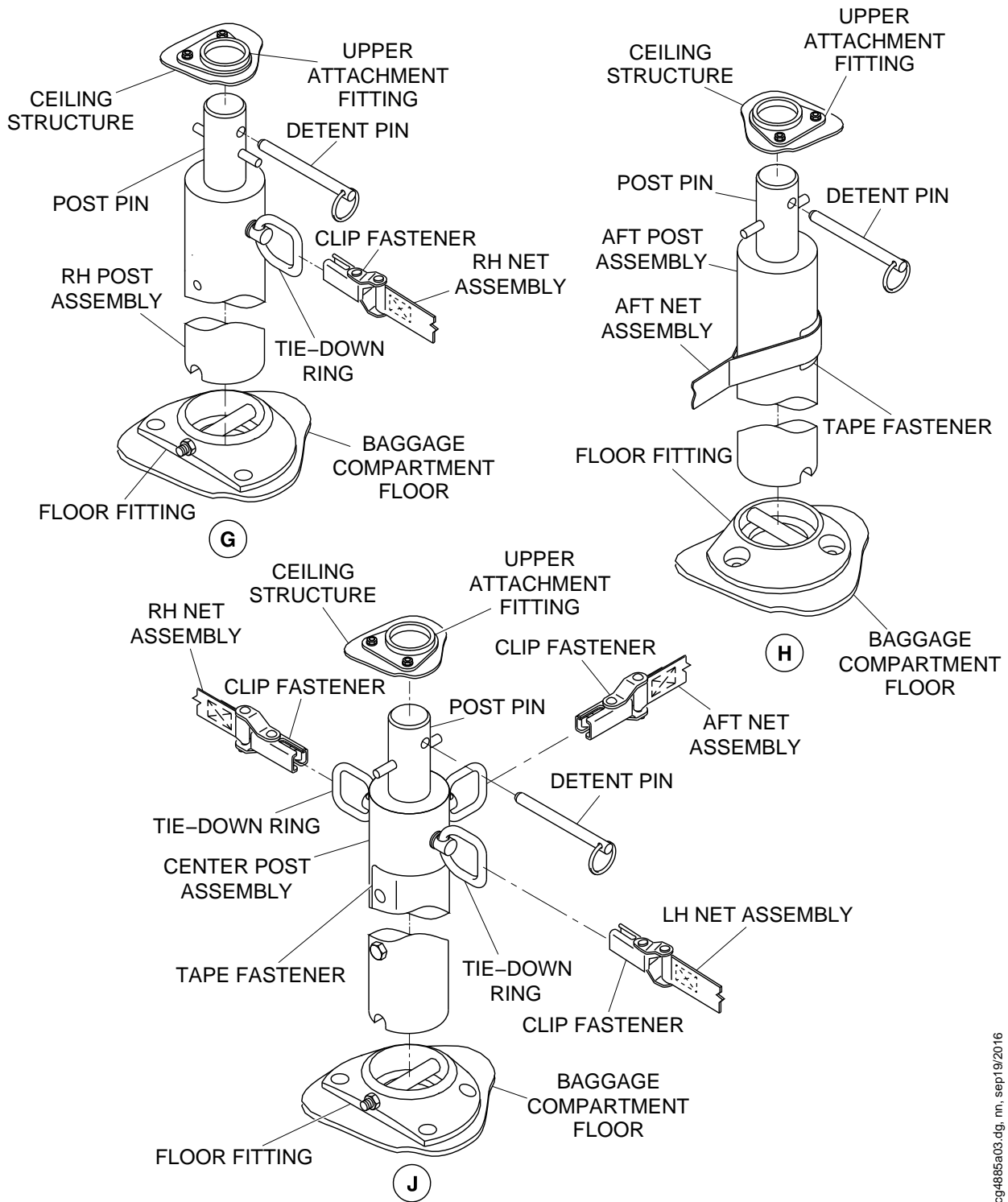
Figure 2 – 18

cg4885a02.dg, mn, sept19/2016



AIRPORT PLANNING MANUAL

CARGO COMBI CONFIGURATION

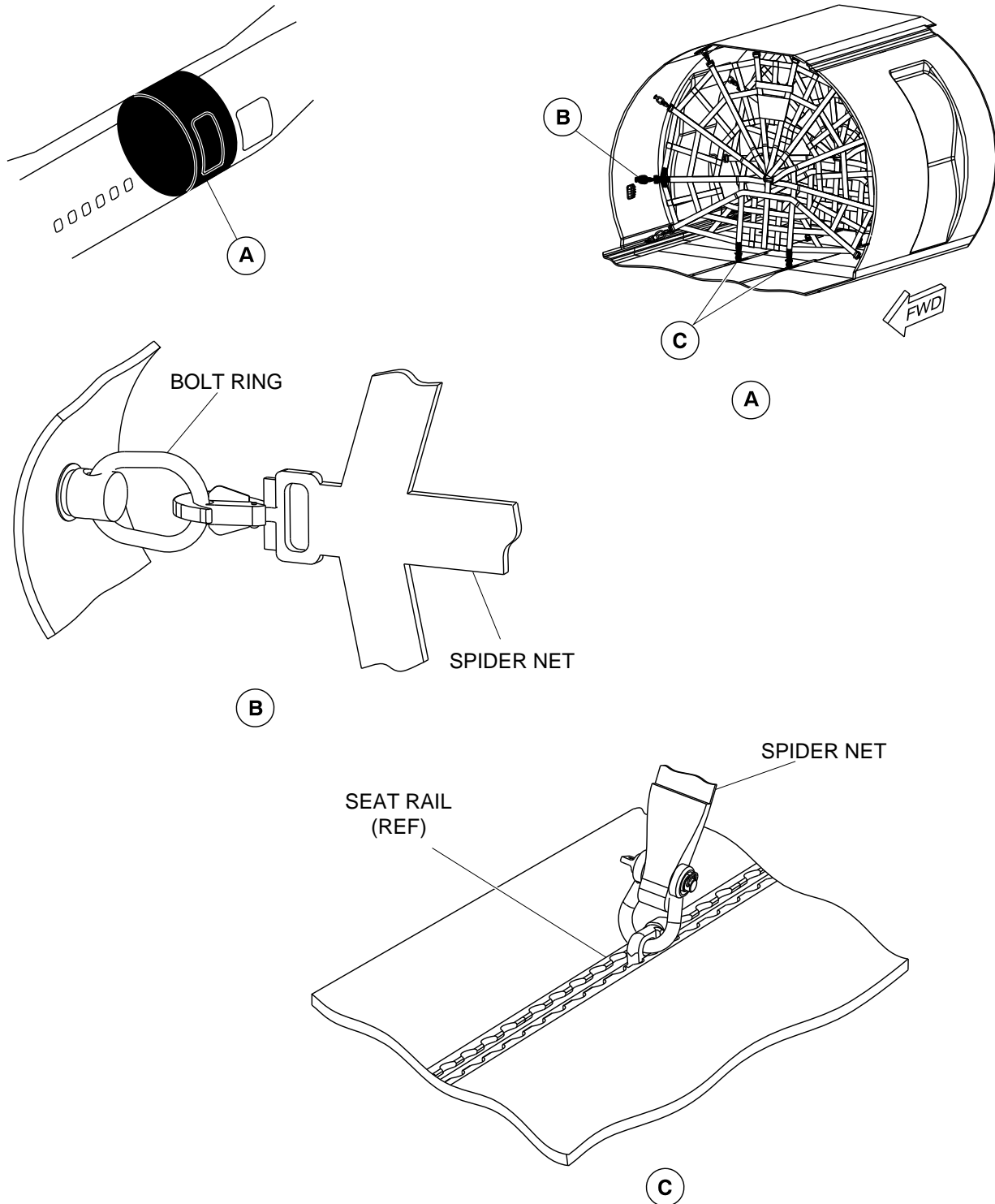


NETS AND TIE-DOWNS (G3 GALLEY) (Sheet 3 of 3)

Figure 2 – 18



AIRPORT PLANNING MANUAL



AFT CARGO COMPARTMENT – SPIDER NET ASSEMBLY

Figure 2 – 19



AIRPORT PLANNING MANUAL

Door Clearances

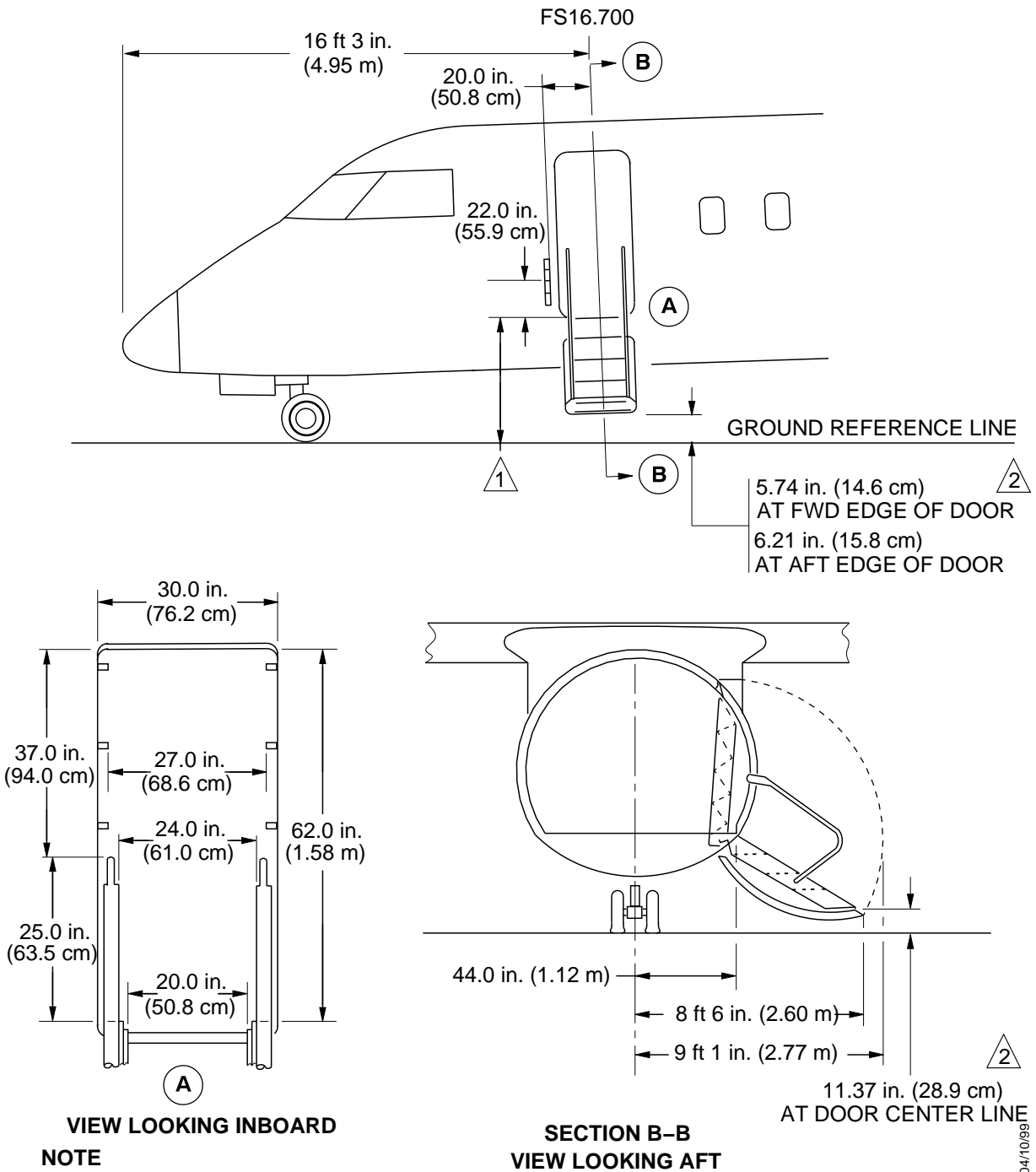
1. General

The door clearance sheets provide the door size and location of the passenger, service and baggage compartment doors.

2. The forward passenger (airstair) door opens outwards and downwards and is manually controlled from inside or outside the aircraft.
3. The aft passenger door/Type 1 exit opens inward and upwards, then moves outward and forward.
4. The aft service door/Type 1 exit opens inwards and upwards, then moves outwards and forward.
5. The forward baggage-compartment door opens inward and upward, then moves outwards and forward.
6. The aft baggage-compartment door opens outwards and upwards.
7. For the cargo combi configuration, type III emergency exit doors are installed at station X479.70 on both the sides of the aircraft. The doors are plug type which have to be removed completely for opening. The door is unlocked by the operation of the internal or external handle.



AIRPORT PLANNING MANUAL



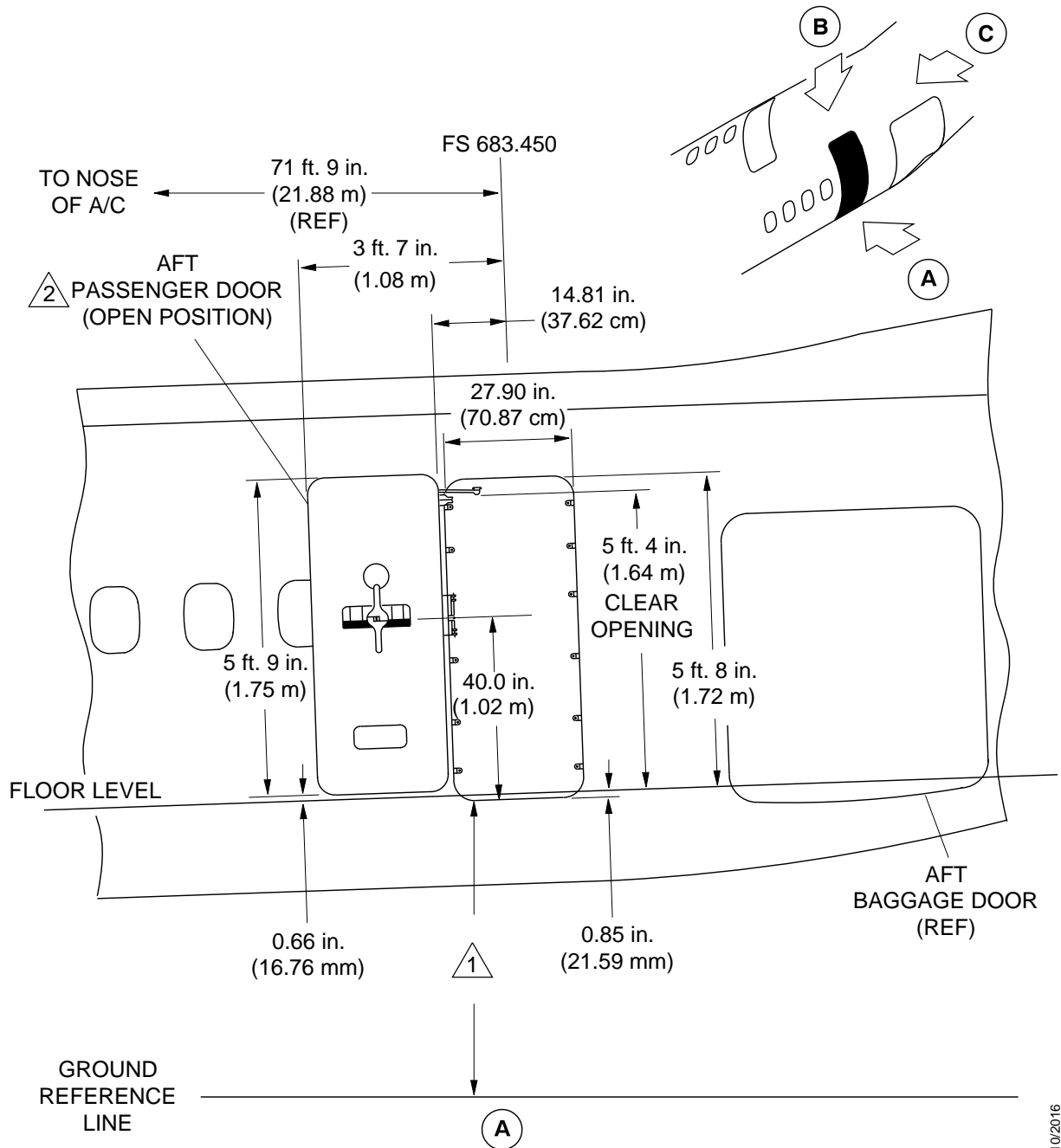
br540a01.dwg, gg/sw, 04/10/99

FORWARD PASSENGER – DOOR CLEARANCES

Figure 2 – 20



AIRPORT PLANNING MANUAL



VIEW LOOKING INBOARD ON LH SIDE

NOTES

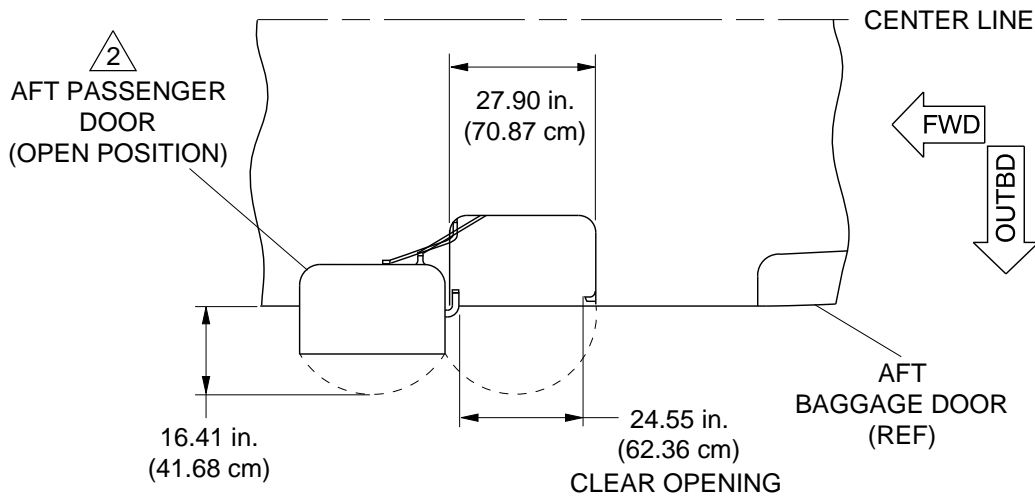
- 1 Refer to Ground Clearance illustrations.
- 2 Aft passenger door is de-activated for the cargo combi configuration.

AFT PASSENGER – DOOR CLEARANCES (Sheet 1 of 2)

Figure 2 – 21

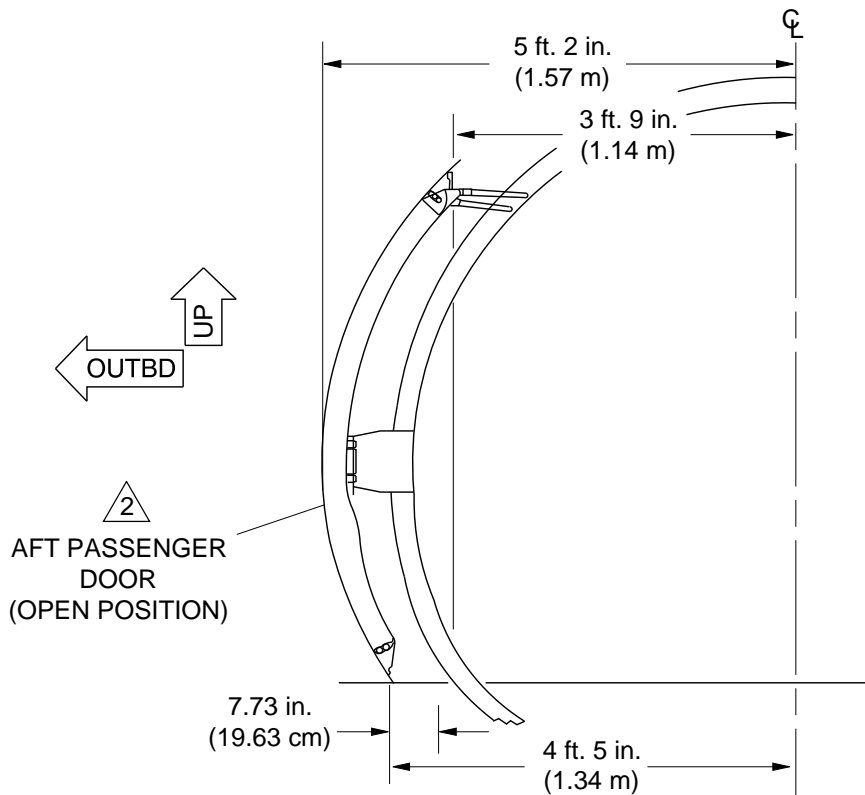


AIRPORT PLANNING MANUAL



(B)

VIEW LOOKING DOWN ON LH SIDE



(C)

VIEW LOOKING FORWARD

NOTE

△ Aft passenger door is de-activated for the cargo combi configuration.

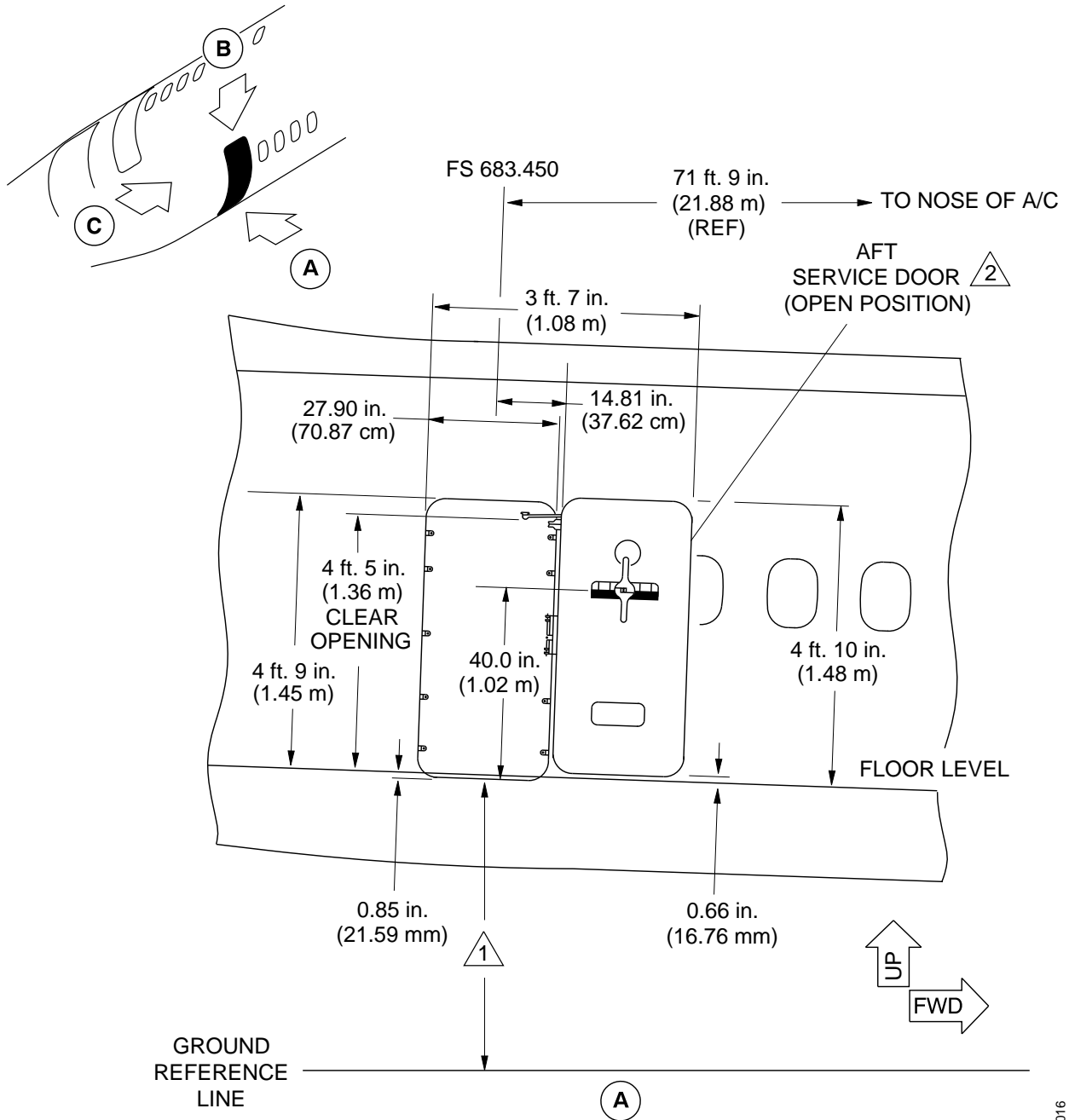
cg4838a02.dg, mn/gw, nov10/2016

AFT PASSENGER – DOOR CLEARANCES (Sheet 2 of 2)

Figure 2 – 21



AIRPORT PLANNING MANUAL



VIEW LOOKING INBOARD ON RH SIDE

NOTES

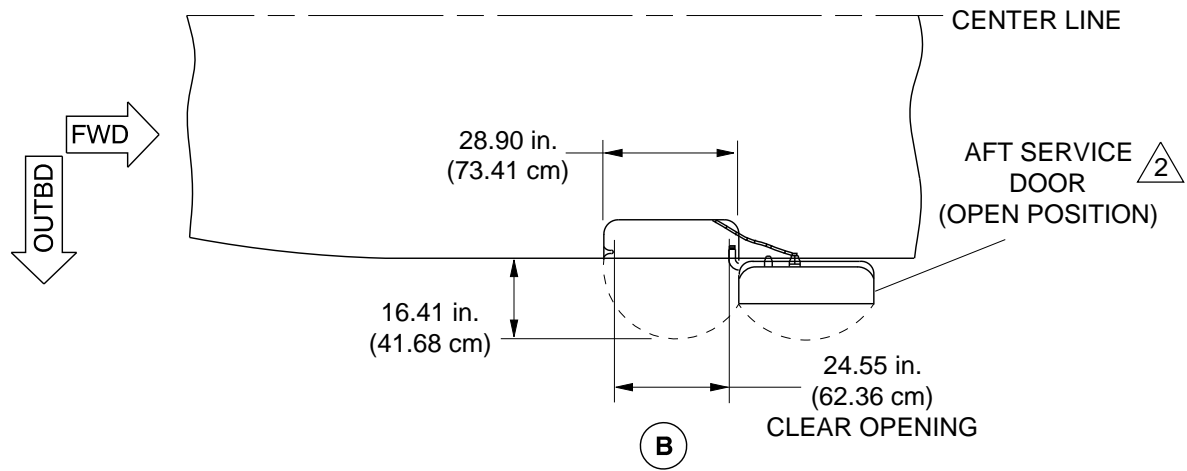
- 1 Refer to Ground Clearance illustrations.
- 2 Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.

AFT SERVICE – DOOR CLEARANCES (Sheet 1 of 2)

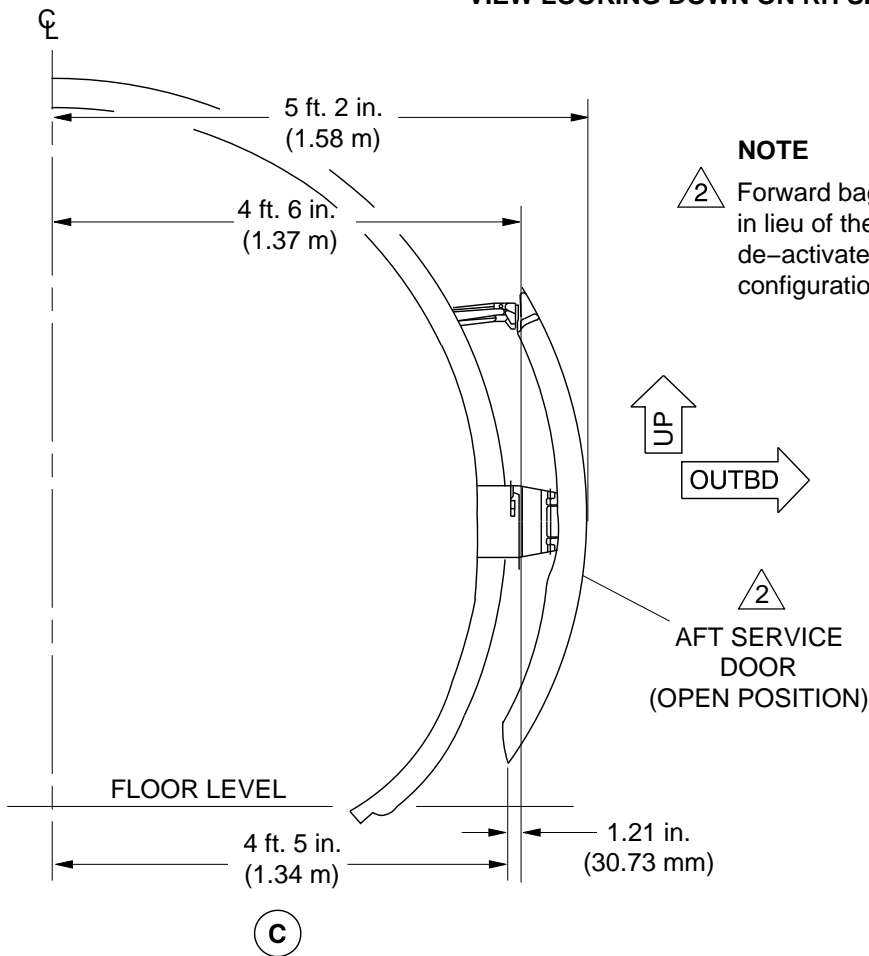
Figure 2 – 22



AIRPORT PLANNING MANUAL



VIEW LOOKING DOWN ON RH SIDE



VIEW LOOKING FORWARD

NOTE

Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.

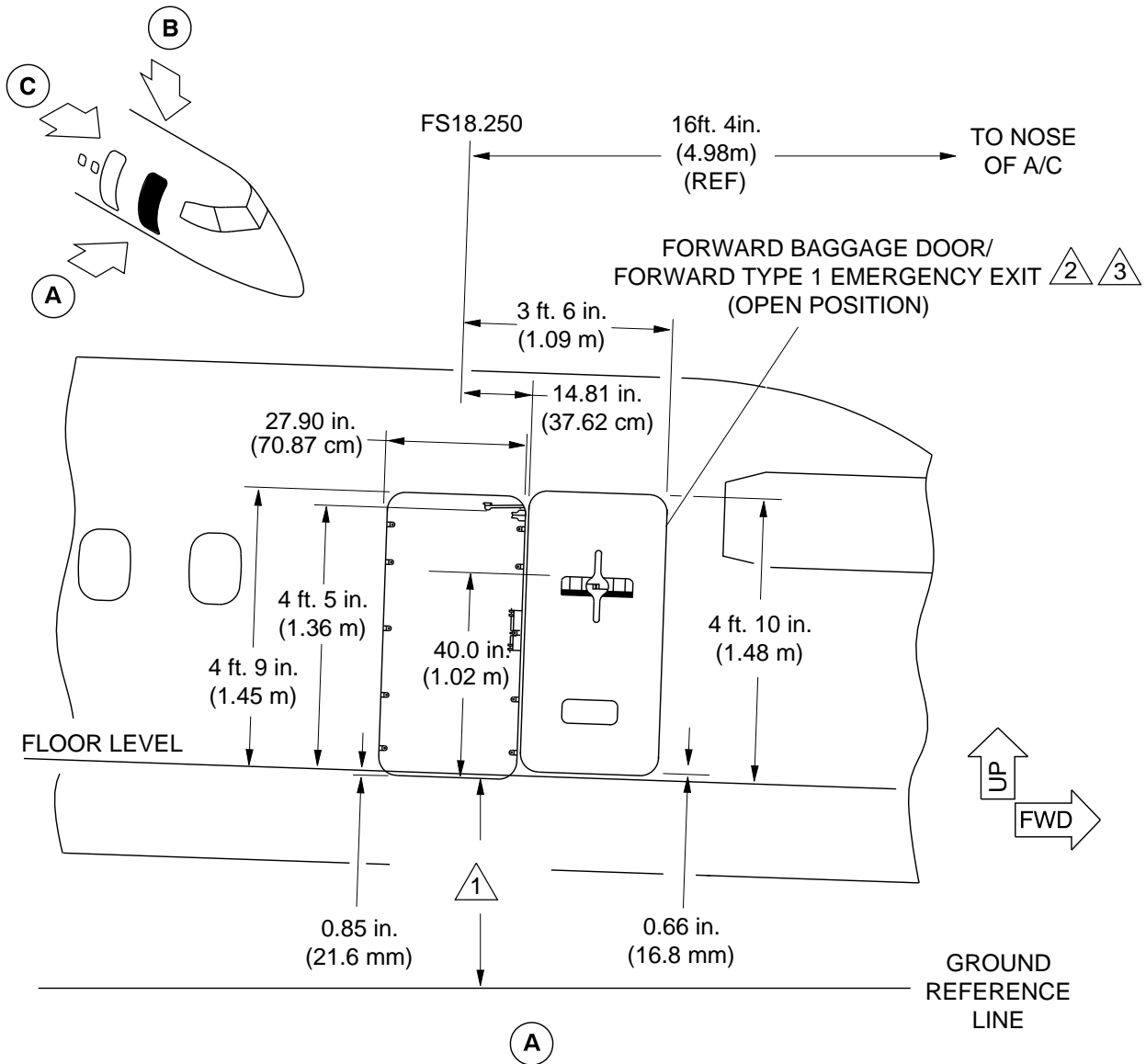
AFT SERVICE – DOOR CLEARANCES (Sheet 2 of 2)

Figure 2 – 22

cg4839a02.dg, mn/gw, nov10/2016



AIRPORT PLANNING MANUAL



VIEW LOOKING INBOARD ON RH SIDE

NOTES

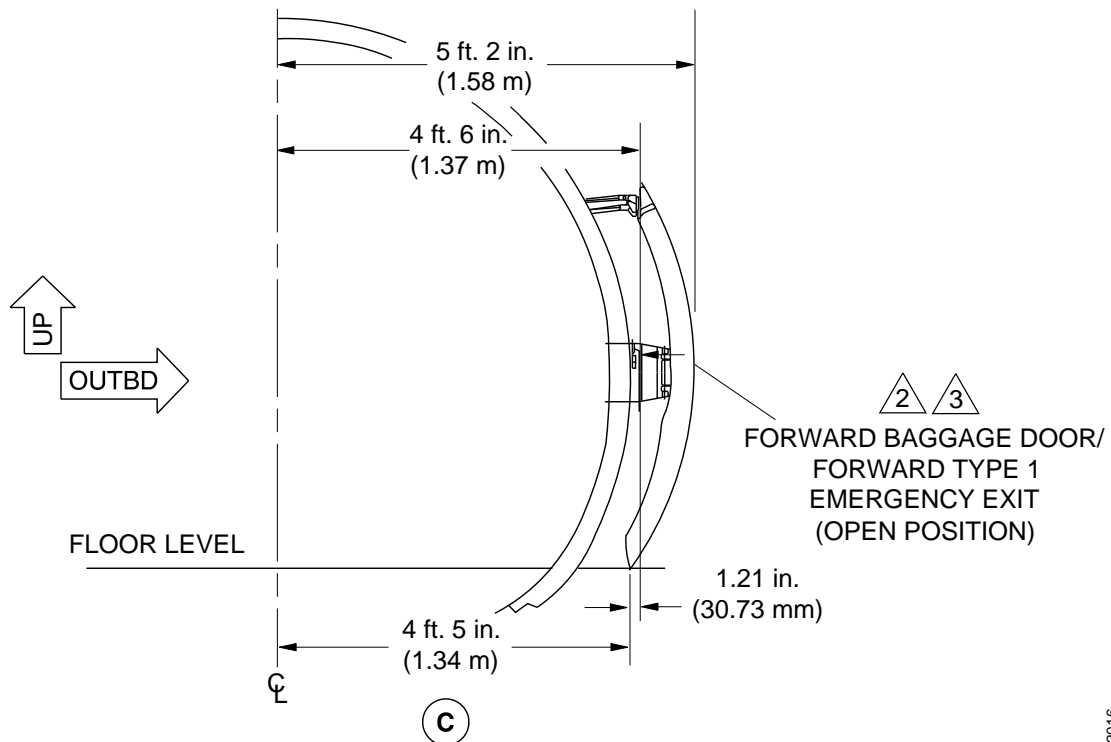
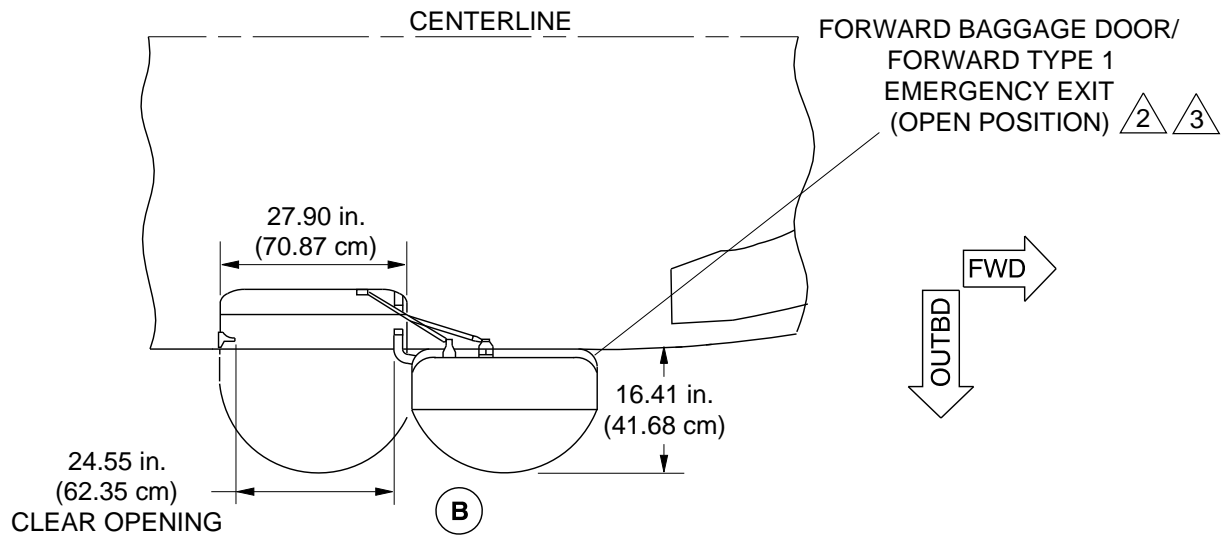
- 1 Refer to Ground Clearance illustrations.
- 2 Forward baggage compartment and forward baggage door is removed for the extra capacity and the cargo combi configuration.
- 3 Forward type I emergency exit door is installed in lieu of forward baggage compartment door for the extra capacity and the cargo combi configuration.

FORWARD BAGGAGE COMPARTMENT/FORWARD TYPE 1 EMERGENCY EXIT – DOOR CLEARANCES (Sheet 1 of 2)

Figure 2 – 23



AIRPORT PLANNING MANUAL



NOTES

- 2 Forward baggage compartment and forward baggage door is removed for the extra capacity and the cargo combi configuration.
- 3 Forward type I emergency exit door is installed in lieu of forward baggage compartment door for the extra capacity and the cargo combi configuration.

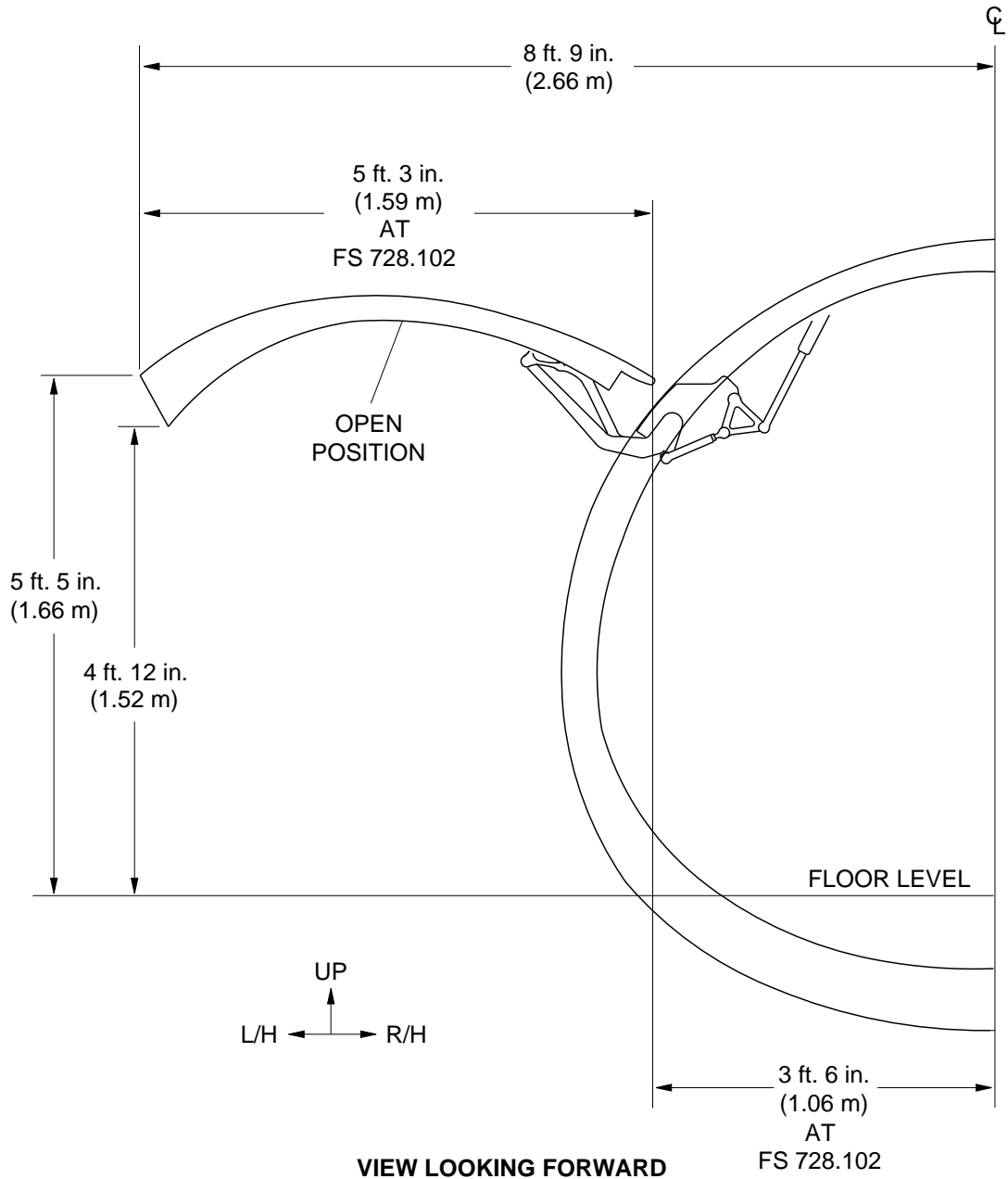
FORWARD BAGGAGE COMPARTMENT/FORWARD TYPE 1 EMERGENCY EXIT – DOOR CLEARANCES (Sheet 2 of 2)

Figure 2 – 23

cg3536a02.dg, cs/gw, nov10/2016



AIRPORT PLANNING MANUAL



br412a01.dg, pt. 13/05/98

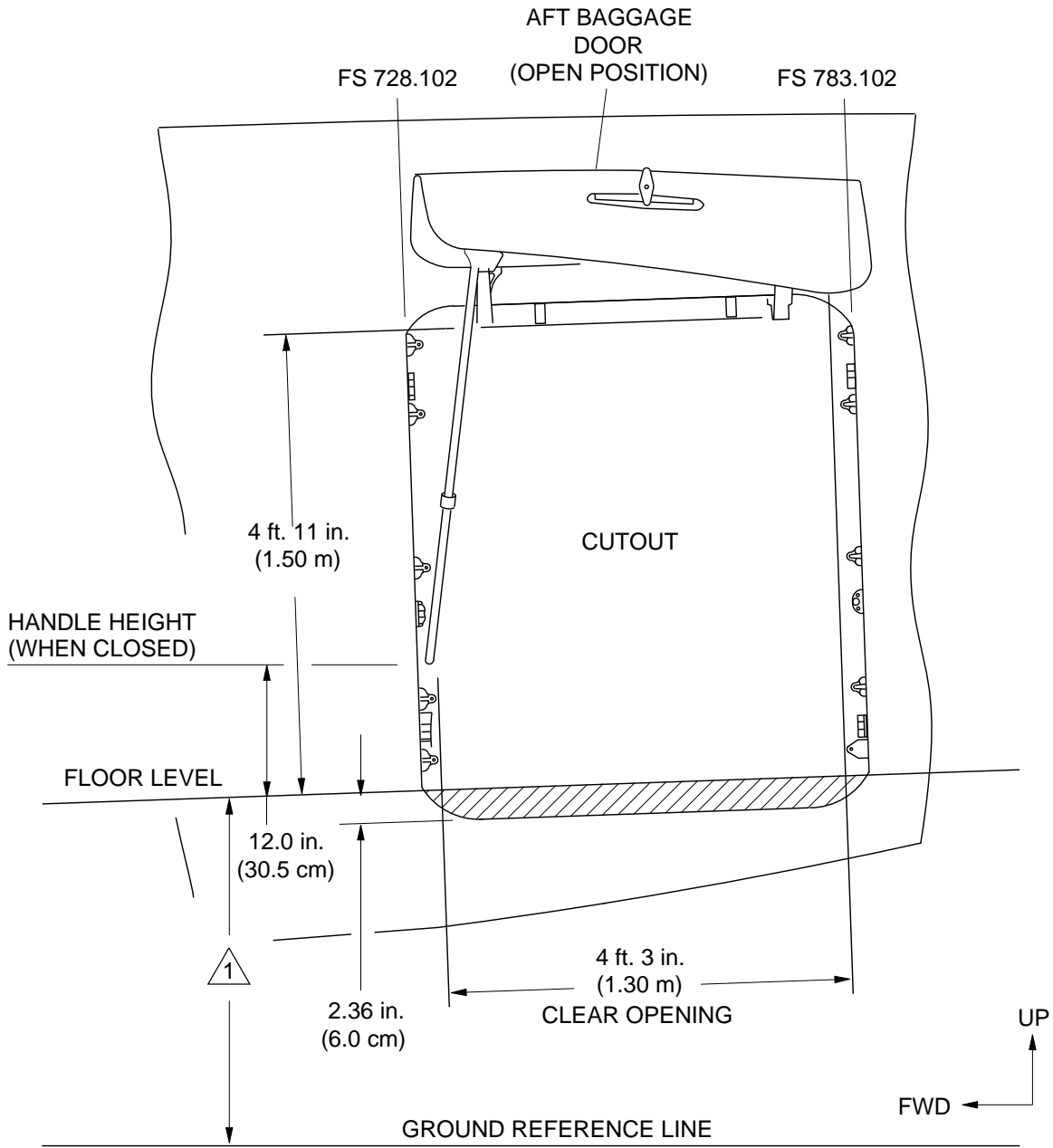
AFT BAGGAGE-COMPARTMENT – DOOR CLEARANCES (Sheet 1 of 2)

Figure 2 – 24

PSM 1-84-13
DHC-8 Series 400



AIRPORT PLANNING MANUAL



VIEW LOOKING INBOARD ON L/H SIDE

NOTE

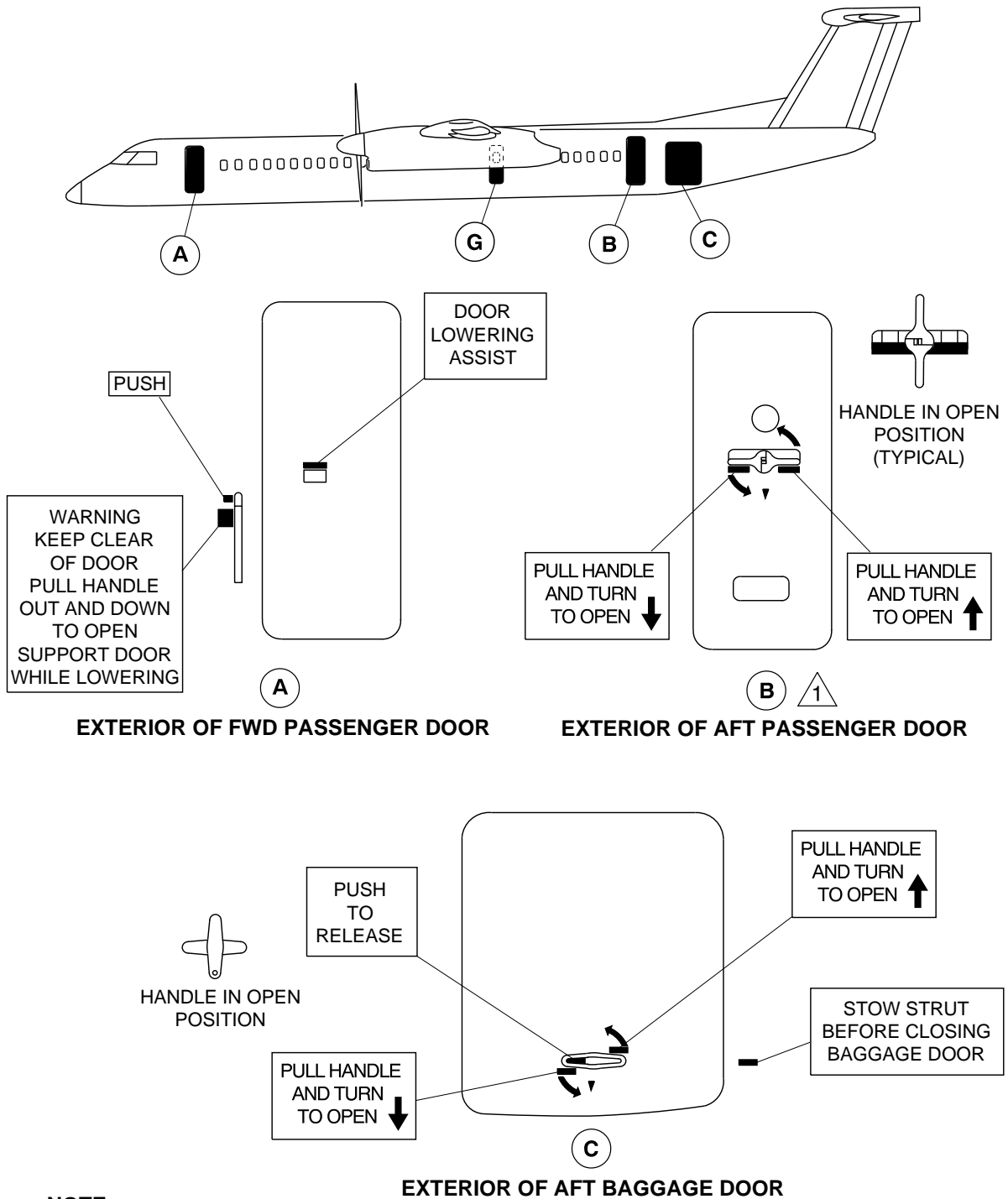
1 Refer to Ground Clearance illustrations.

AFT BAGGAGE-COMPARTMENT - DOOR CLEARANCES (Sheet 2 of 2)

Figure 2 - 24



AIRPORT PLANNING MANUAL



NOTE

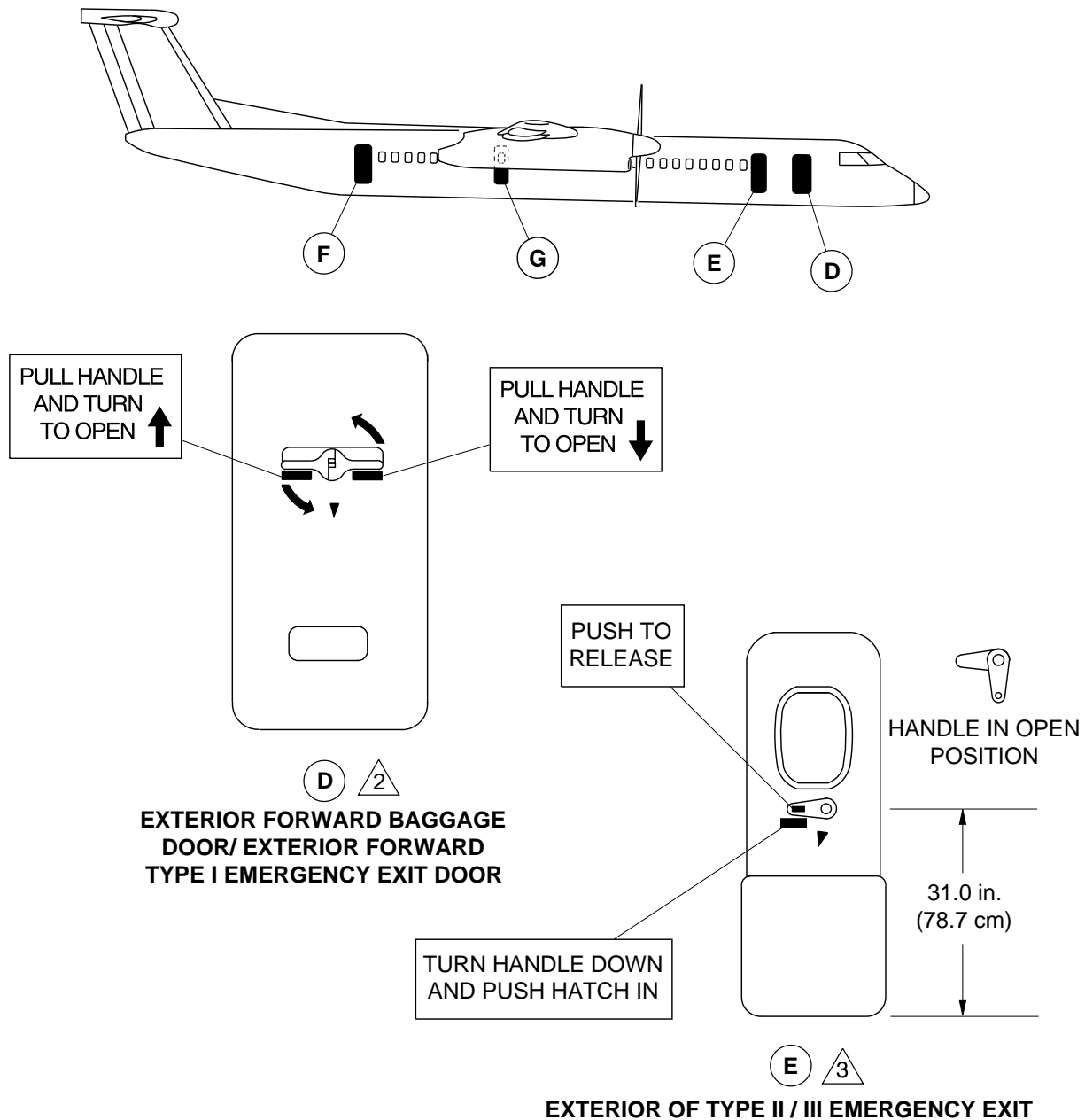
1 Aft passenger door is de-activated for the cargo combi configuration.

cg3538a01.dg, cs/mn, sep21/2016

EXTERIOR HANDLES (Sheet 1 of 3)

Figure 2 – 25

AIRPORT PLANNING MANUAL



NOTES

- 2** Forward type I emergency exit door is installed only on aircraft with extra capacity and the cargo combi configuration.
- 3** Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.

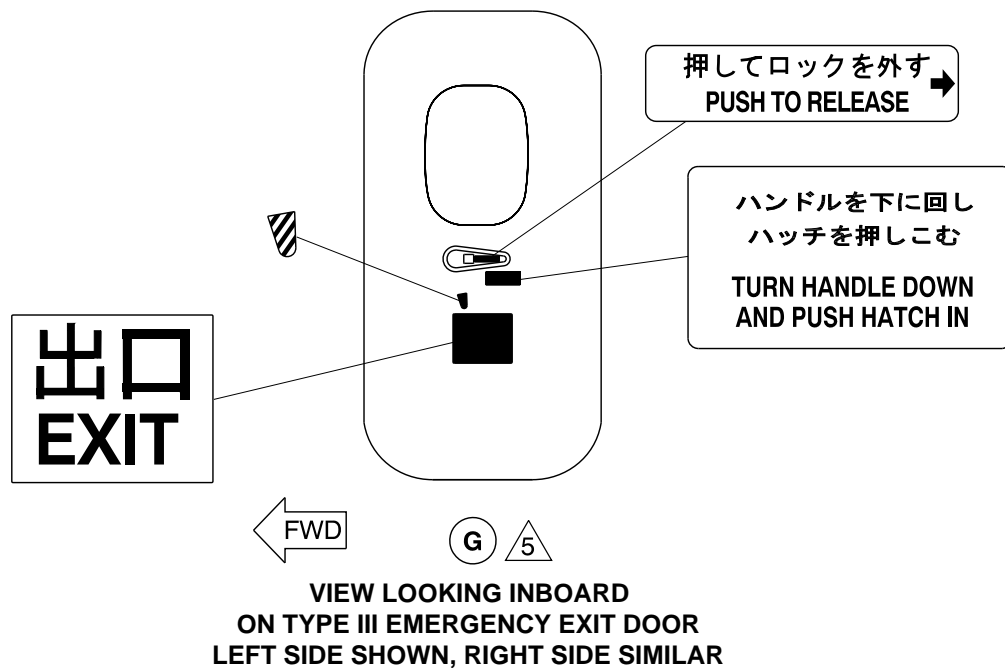
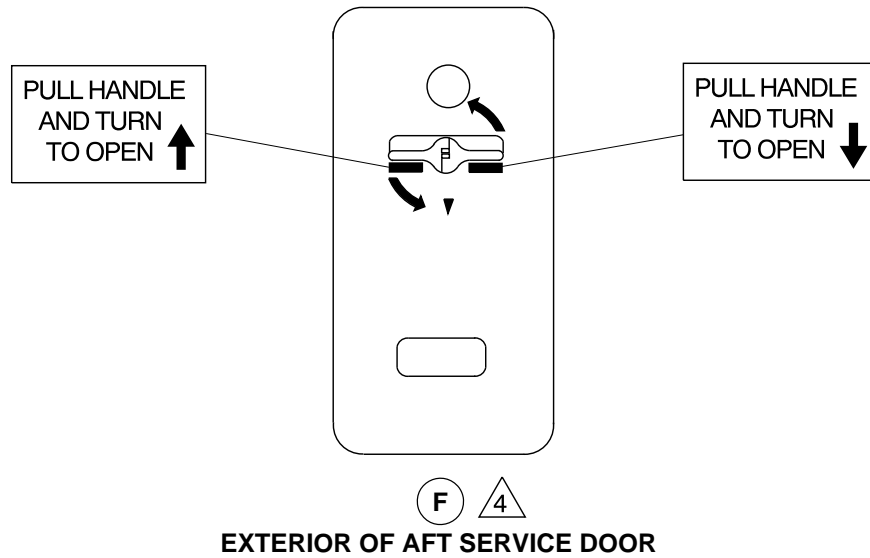
cg3538a02.dg; cs/cs; nov25/2016

EXTERIOR HANDLES (Sheet 2 of 3)

Figure 2 – 25



AIRPORT PLANNING MANUAL



NOTES

- 4 Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
- 5 Type III emergency exit doors are installed at the station X479.70 on both the sides of the aircraft with the cargo combi configuration.

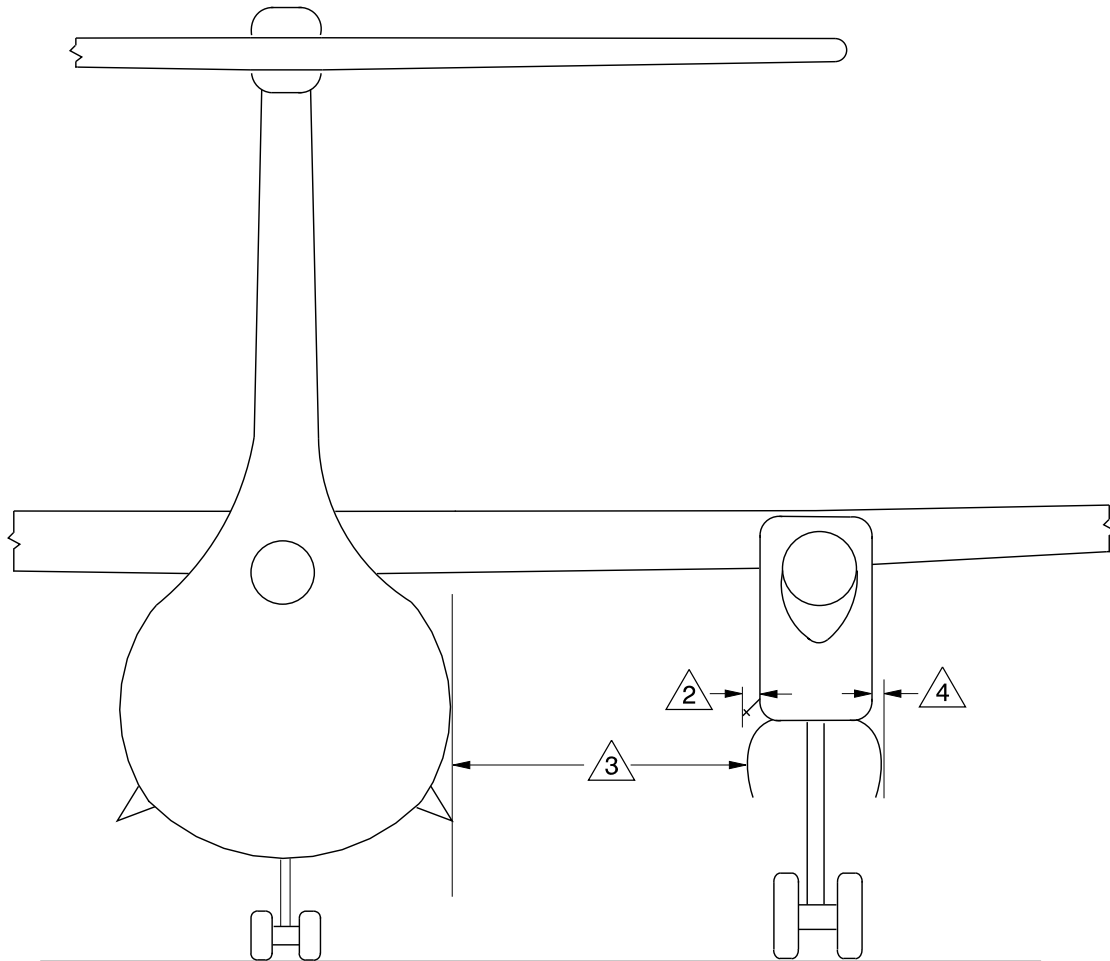
cg3538a03.dg, m, sep21/2016

EXTERIOR HANDLES (Sheet 3 of 3)

Figure 2 – 25



AIRPORT PLANNING MANUAL



NOTES

1. Right side of aircraft is shown, left side is identical.
2. Drain mast on left side of each nacelle (viewed from behind the aircraft) protrudes approx. 4 in. (10.2 cm).
3. The minimum clearance between the nacelle (aft MLG doors) and the fuselage is 96 in. (2.44 m). Right side of the aircraft is shown, left side is identical.
4. Aft MLG doors protrude approx. 6 in. (15.2 cm) from both sides of the nacelles.

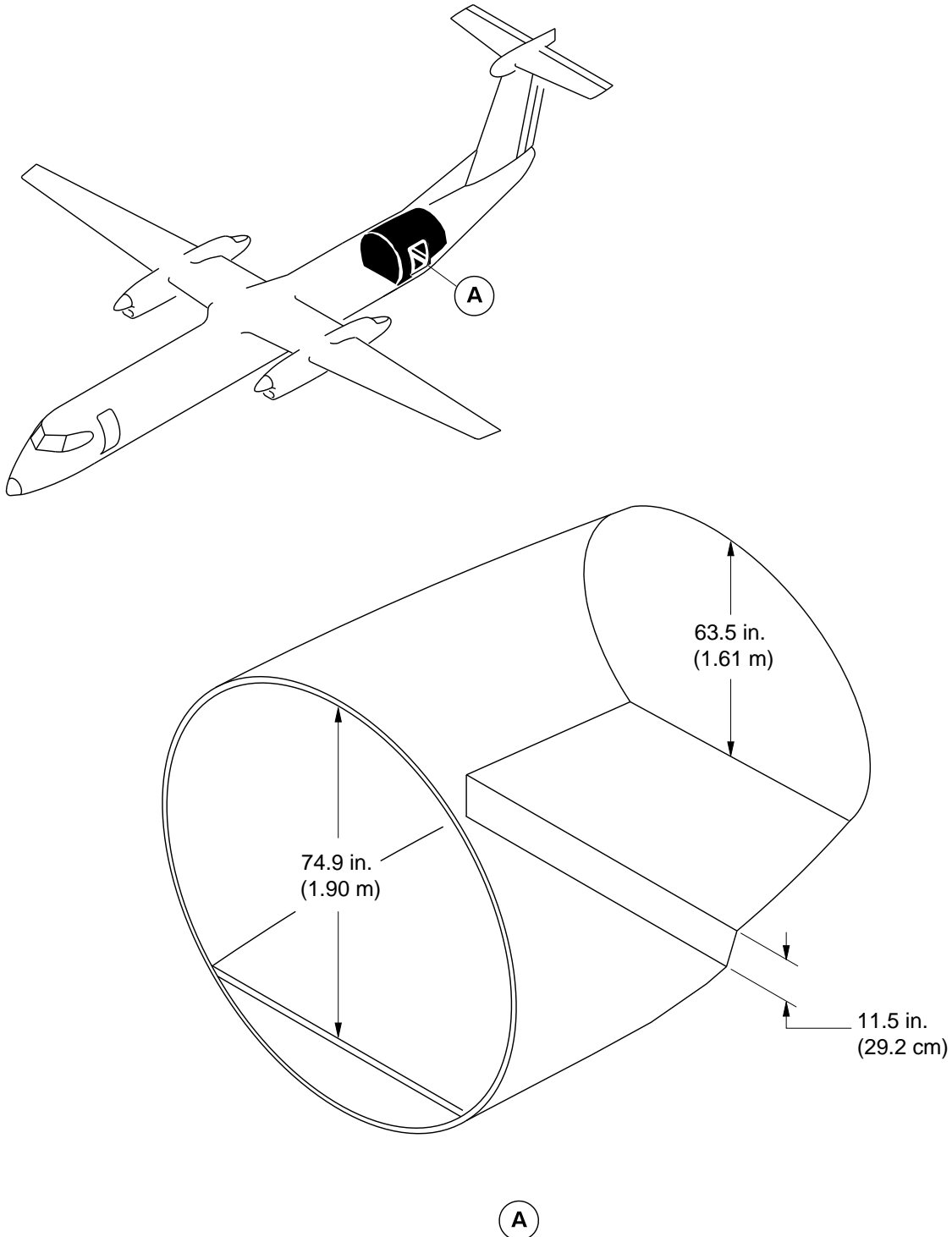
braa8a01.dg, ab, 26/08/01

MINIMUM CLEARANCE BETWEEN NACELLES AND FUSELAGE

Figure 2 – 26



AIRPORT PLANNING MANUAL

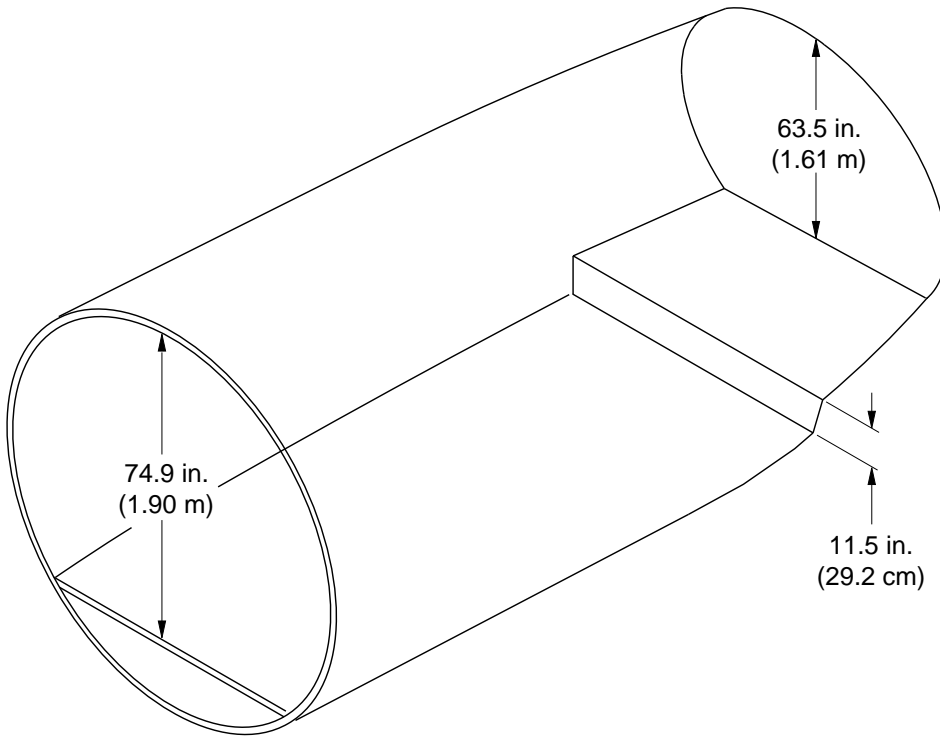
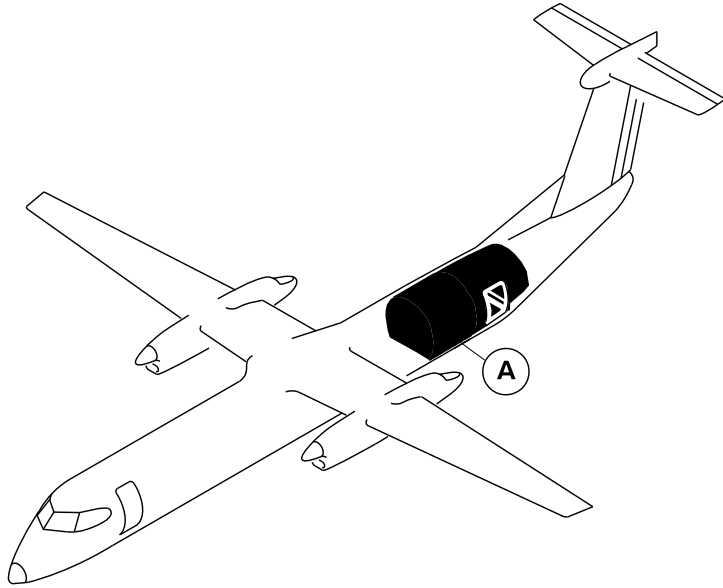


braa7a01.dg, ab/gw, nov10/2016

AFT BAGGAGE COMPARTMENT VERTICAL DIMENSIONS (TYPICAL CONFIGURATION)
(Sheet 1 of 2)
Figure 2 – 27



AIRPORT PLANNING MANUAL



(A)

CARGO COMBI CONFIGURATION

braa7a02.dg, nn, aug19/2016

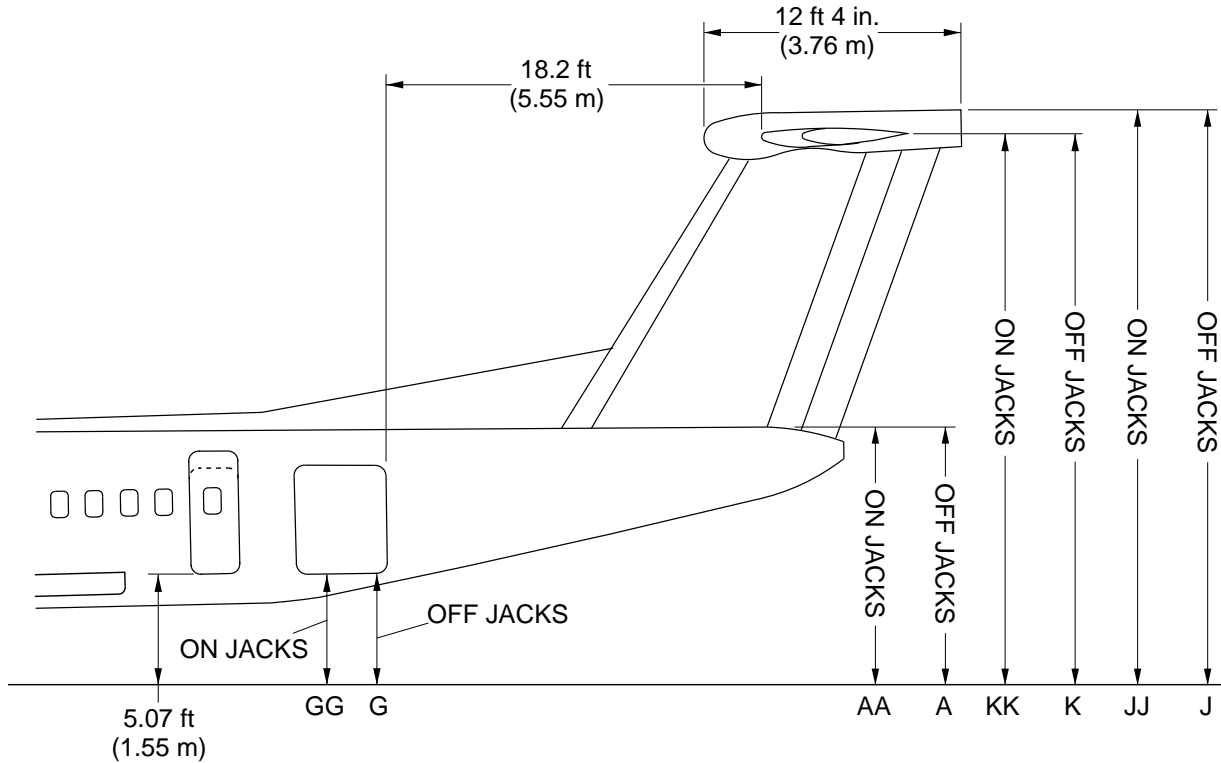
AFT BAGGAGE COMPARTMENT VERTICAL DIMENSIONS (TYPICAL CONFIGURATION)

(Sheet 2 of 2)

Figure 2 – 27



AIRPORT PLANNING MANUAL



| ITEM | HEIGHT | FEET (ft) | METERS (m) |
|------|--------------------------------------|-------------|-------------|
| J | VERTICAL STABILIZER (OFF JACKS) | 26.7 – 27.2 | 8.13 – 8.30 |
| JJ | VERTICAL STABILIZER (ON JACKS) | 27.2 | 8.30 |
| K | HORIZONTAL STABILIZER (OFF JACKS) | 25 – 26 | 7.62 – 7.92 |
| KK | HORIZONTAL STABILIZER (ON JACKS) | 26.7 | 8.13 |
| A | TAIL (OFF JACKS) | 11.8 | 3.60 |
| AA | TAIL (ON JACKS) | 13 – 13.9 | 3.96 – 4.24 |
| G | SILL OF AFT BAGGAGE DOOR (OFF JACKS) | 5.06 | 1.54 |
| GG | SILL OF AFT BAGGAGE DOOR (ON JACKS) | 5.7 | 1.74 |

NOTES

1. K and KK values are through C/L of horizontal stabilizer.
2. Dimensions are approximate and will vary with aircraft configuration and loading conditions.

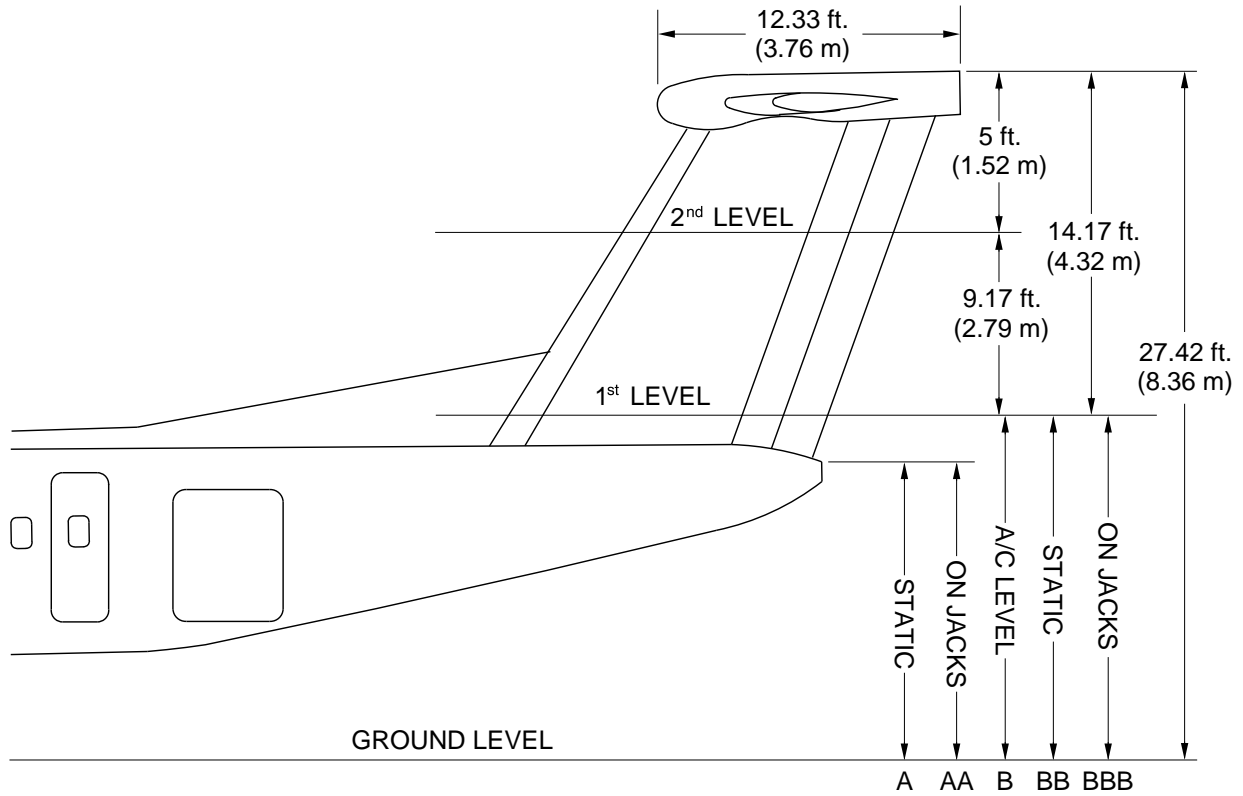
cg2886a01.dwg, m/kmw, sep19/2013

AIRCRAFT DIMENSIONS (Sheet 1 of 3)

Figure 2 – 28



AIRPORT PLANNING MANUAL



| ITEM | FEET (ft) | METERS (m) |
|------|-----------|------------|
| A | 9.83 | 3.00 |
| AA | 10.67 | 3.25 |
| B | 11.17 | 3.40 |
| BB | 12.42 | 3.79 |
| BBB | 13.25 | 4.04 |

AIRCRAFT EMPENNAGE – PLATFORM WORKING HEIGHTS

NOTE

Dimensions are approximate and will vary with A/C configuration and loading conditions.

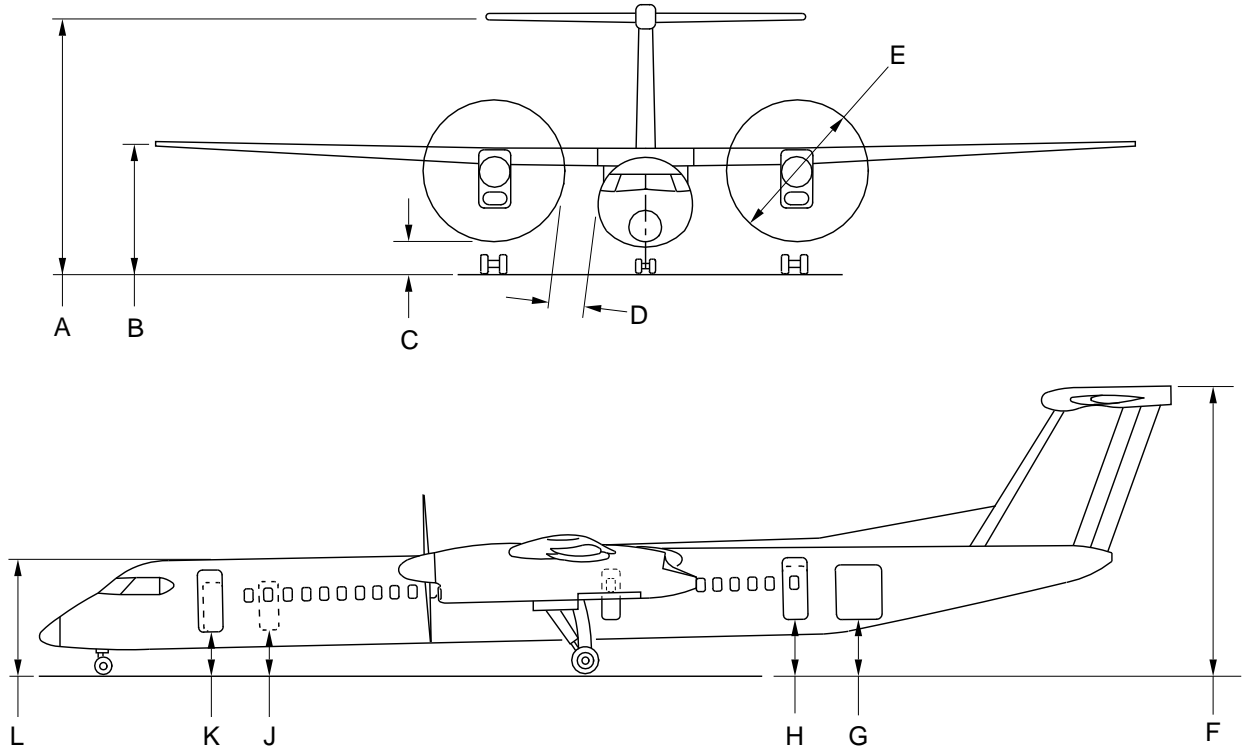
cg2886a02.dwg, kh, nov12/2013

AIRCRAFT DIMENSIONS (Sheet 2 of 3)

Figure 2 – 28



AIRPORT PLANNING MANUAL



| ITEM | FEET (ft) | METERS (m) |
|------|-----------|------------|
| A | 25.67 | 7.82 |
| B | 12.83 | 3.91 |
| C | 3.22 | 0.98 |
| D | 3.61 | 1.10 |
| E | 13.5 | 4.11 |
| F | 27.33 | 8.33 |
| G | 5.07 | 1.55 |
| H | 5.07 | 1.55 |
| J | 4.08 | 1.24 |
| K | 3.82 | 1.16 |
| L | 10.75 | 3.28 |

EMERGENCY EXIT LOCATIONS AND ELEVATIONS

AIRCRAFT DIMENSIONS (Sheet 3 of 3)

Figure 2 – 28

cg2886a03dg, cs/mn, aug19/2016

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AIRPORT PLANNING MANUAL

CHAPTER 3

AIRCRAFT PERFORMANCE

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AIRPORT PLANNING MANUAL

General Information

1. General

This chapter contains the performance data of the Dash-8 Series 400 (Model 402) aircraft as required for airport planning purposes. This data reflects the performance levels of the Dash-8 Series 400, Performance Data (July 1999).

2. The various definitions used in this Chapter are as follows:

A. Maximum Structural Weights

As found in the July 1999 Performance Data, the maximum structural take-off weight is 63,750 lbs (28,916 kg), and the maximum landing weight is 61,250 lbs (27,782 kg).

B. WAT Limits

The maximum permissible take-off weight (refer to Figure 3-2, Figure 3-3 and Figure 3-4) and landing weight (refer to Figure 3-8, Figure 3-9 and Figure 3-10) are based on the climb requirements of FAR 25 (one engine inoperative).

C. Take-off Runway Length

The take-off runway length shown in Figure 3-5, Figure 3-6 and Figure 3-7 is the longest of:

- - The accelerate-stop distance
- - The take-off distance to 35 feet altitude with one engine inoperative at V1
- - 1.15 times the all engine-operating take-off distance to 35 feet altitude.

D. Landing Runway Length

The landing runway length required in Figure 3-14 is the unfactored landing distance (refer to Figure 3-11, Figure 3-12 and Figure 3-13) multiplied by an operational factor of 1.67 (or 1/0.6) or 1.43 (or 1/0.7). The unfactored landing distance is based on an approach speed of 1.3 Vs and a screen height of 50 feet.

E. Retardation Devices

The retardation devices that follow are used:

(1) Accelerate-Stop

- (a) Maximum main-wheel anti-skid braking.
- (b) One propeller in the DISC position, the other one is feathered.
- (c) Roll spoilers are extended.

(2) Landing



AIRPORT PLANNING MANUAL

- (a) Maximum main-wheel anti-skid braking.
- (b) One propeller in the DISC position, the other one is feathered.
- (c) Roll spoilers are extended.

F. Standard Day Temperatures

The table that follows shows the standard day temperatures that are used in this Chapter.

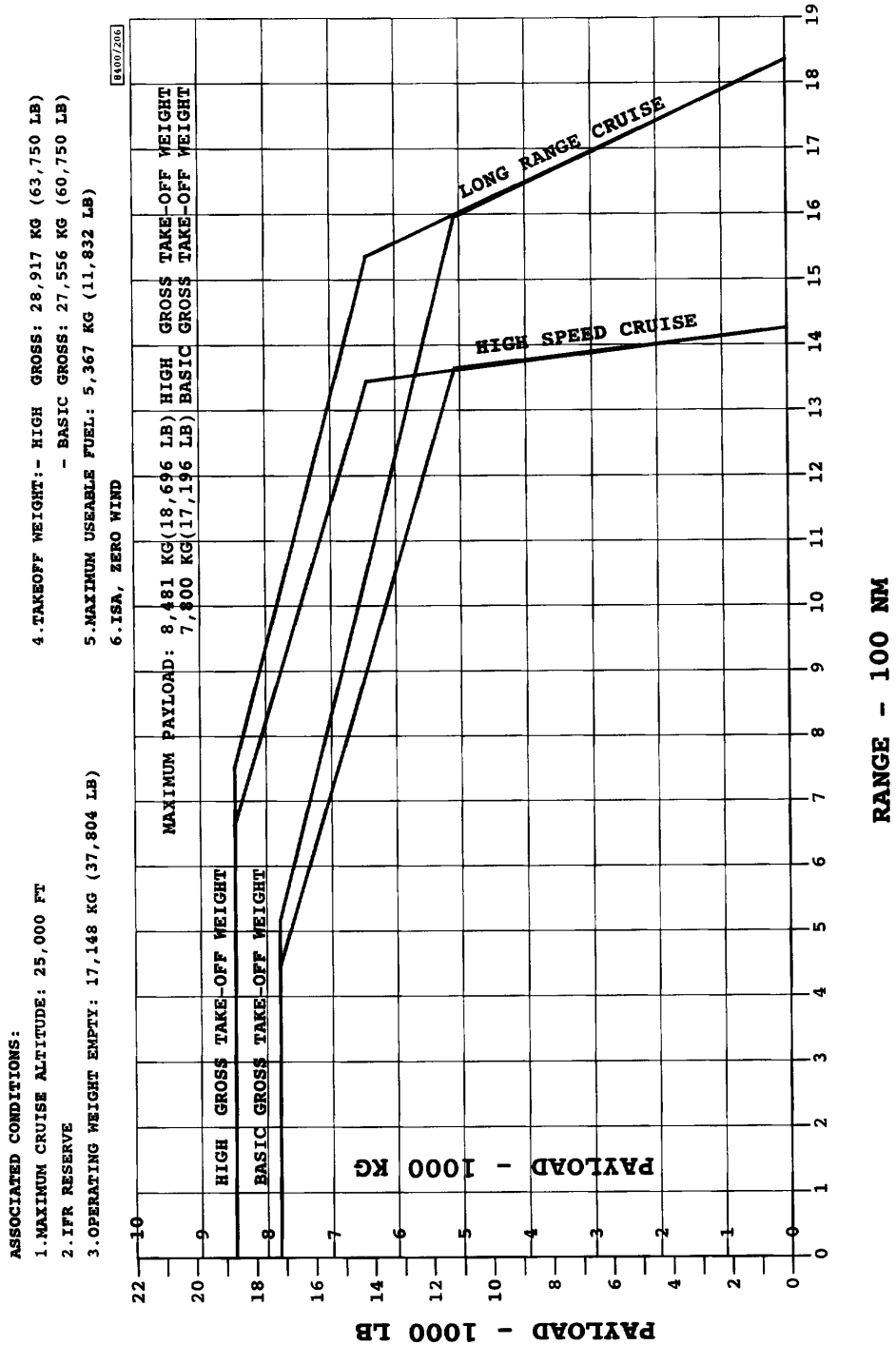
STANDARD DAY TEMPERATURES

| ELEVATION | | STANDARD DAY TEMPERATURE | |
|-----------|--------|--------------------------|------|
| FEET | METERS | °F | °C |
| 0 | 0 | 59 | 15 |
| 2000 | 610 | 51.9 | 11.1 |
| 4000 | 1220 | 44.7 | 7.1 |
| 6000 | 1830 | 37.6 | 3.1 |
| 8000 | 2440 | 30.5 | -0.8 |
| 10,000 | 3050 | 23.3 | -4.8 |



AIRPORT PLANNING MANUAL

PAYLOAD-RANGE AT HIGH SPEED CRUISE AND LONG RANGE CRUISE



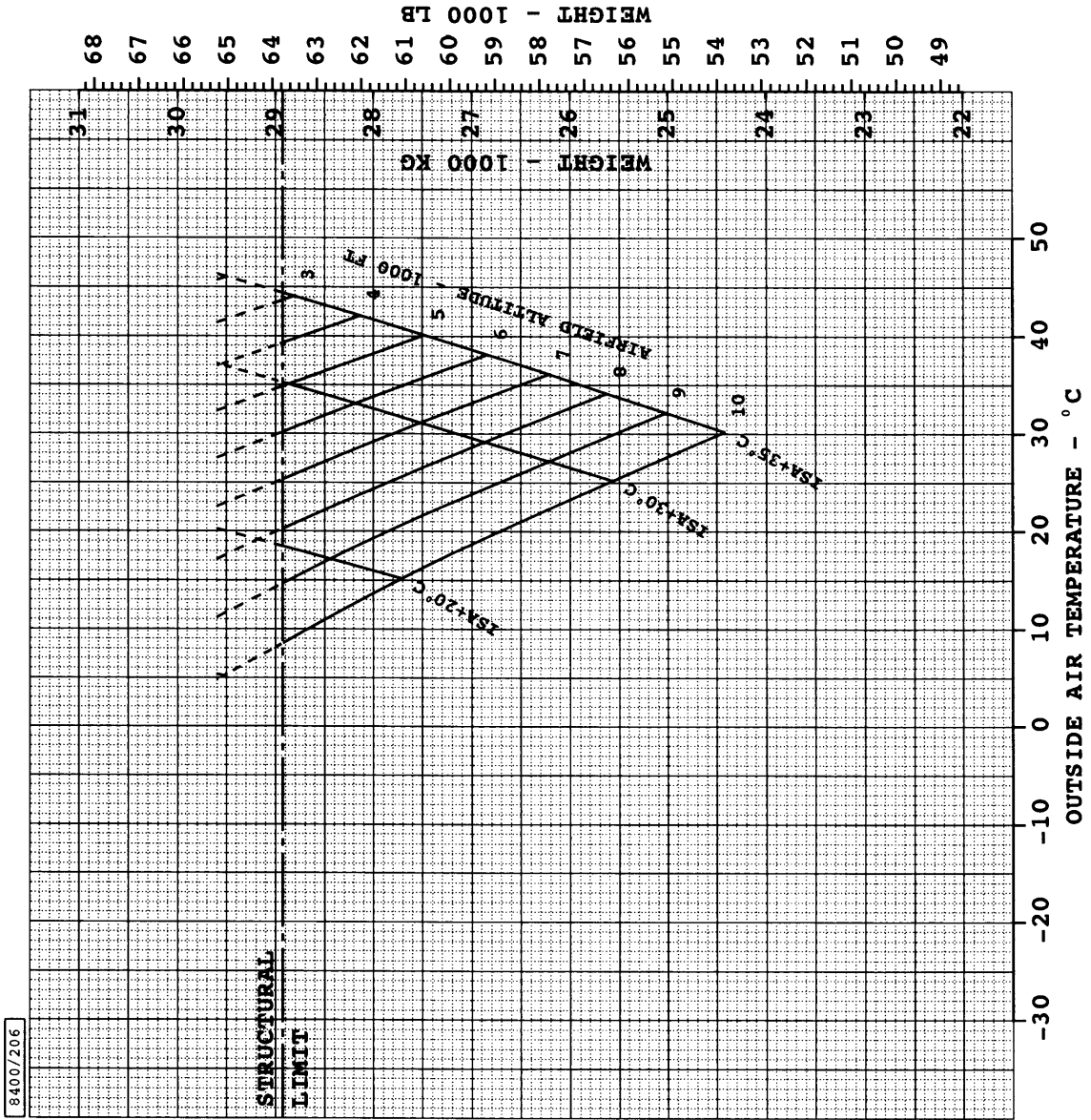
PAYLOAD/RANGE AT MAXIMUM CRUISE RATING AND LONG RANGE CRUISE

Figure 3 - 1



AIRPORT PLANNING MANUAL

**MAXIMUM PERMISSIBLE TAKE-OFF WEIGHT (WAT LIMIT)
TAKE-OFF FLAP 5°**

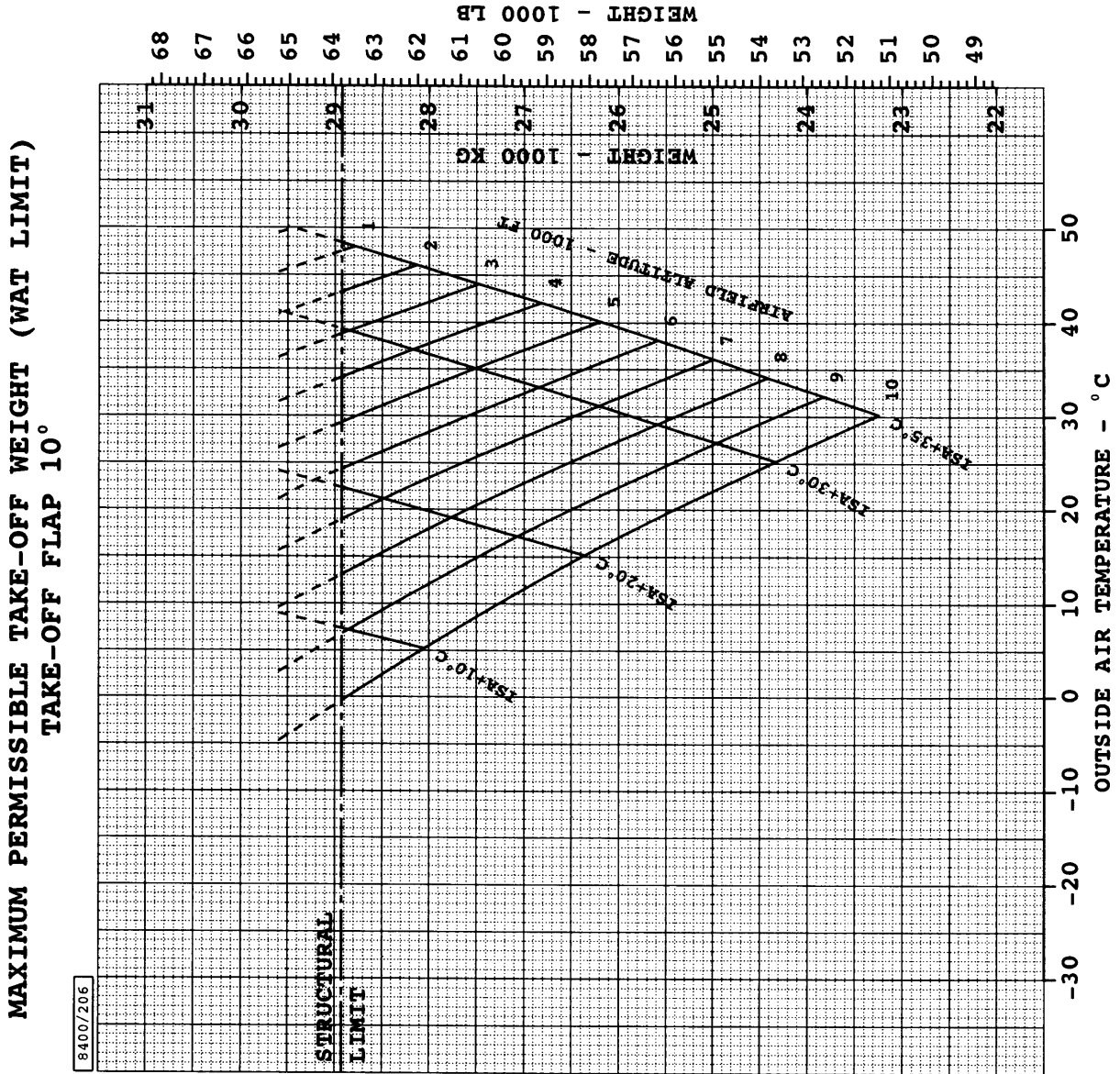


MAXIMUM PERMISSIBLE TAKE-OFF WEIGHT (WAT LIMIT) – FLAPS 5 DEGREES

Figure 3 – 2



AIRPORT PLANNING MANUAL



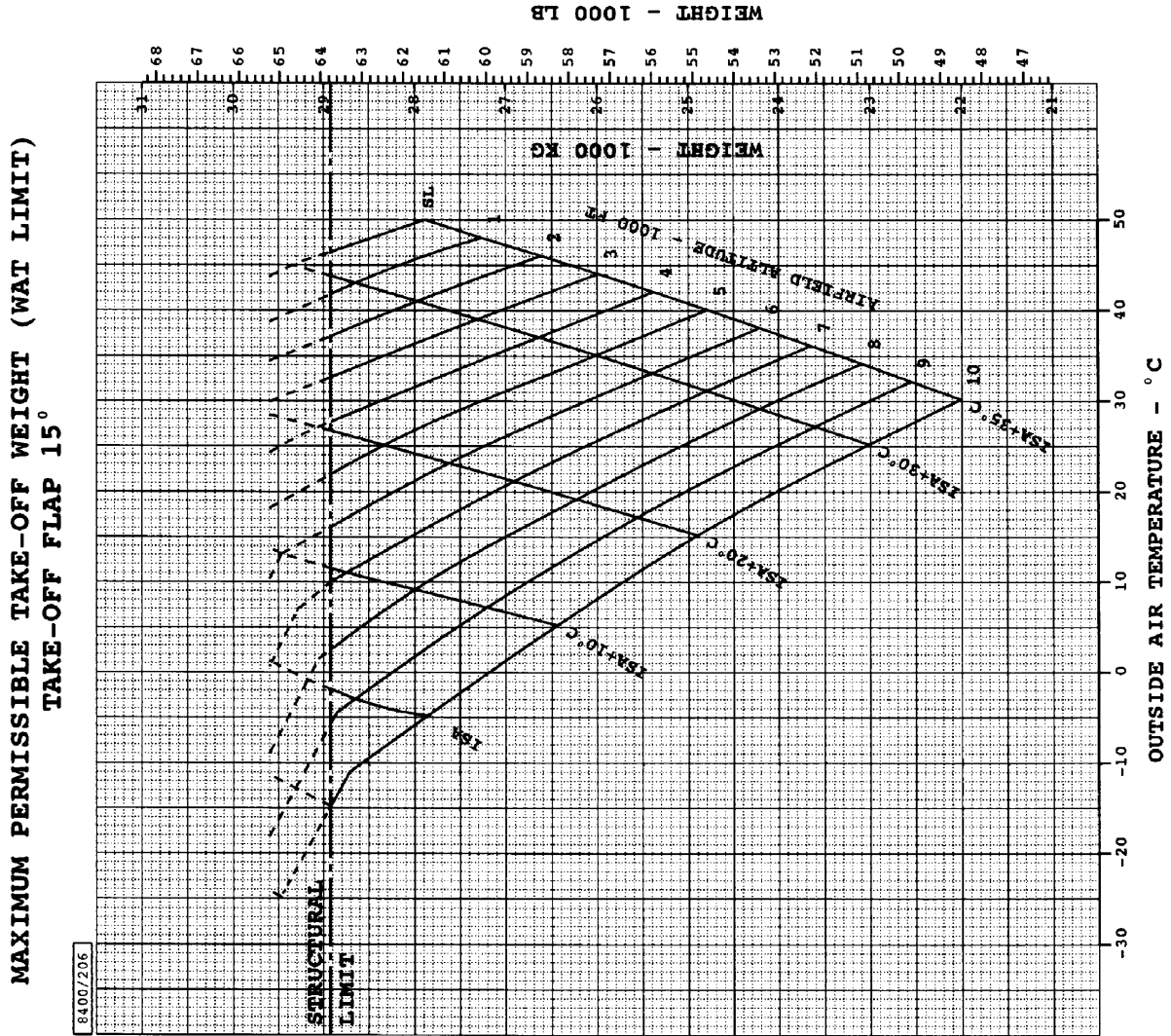
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MAXIMUM PERMISSIBLE TAKE-OFF WEIGHT (WAT LIMIT) – FLAPS 10 DEGREES

Figure 3 – 3



AIRPORT PLANNING MANUAL



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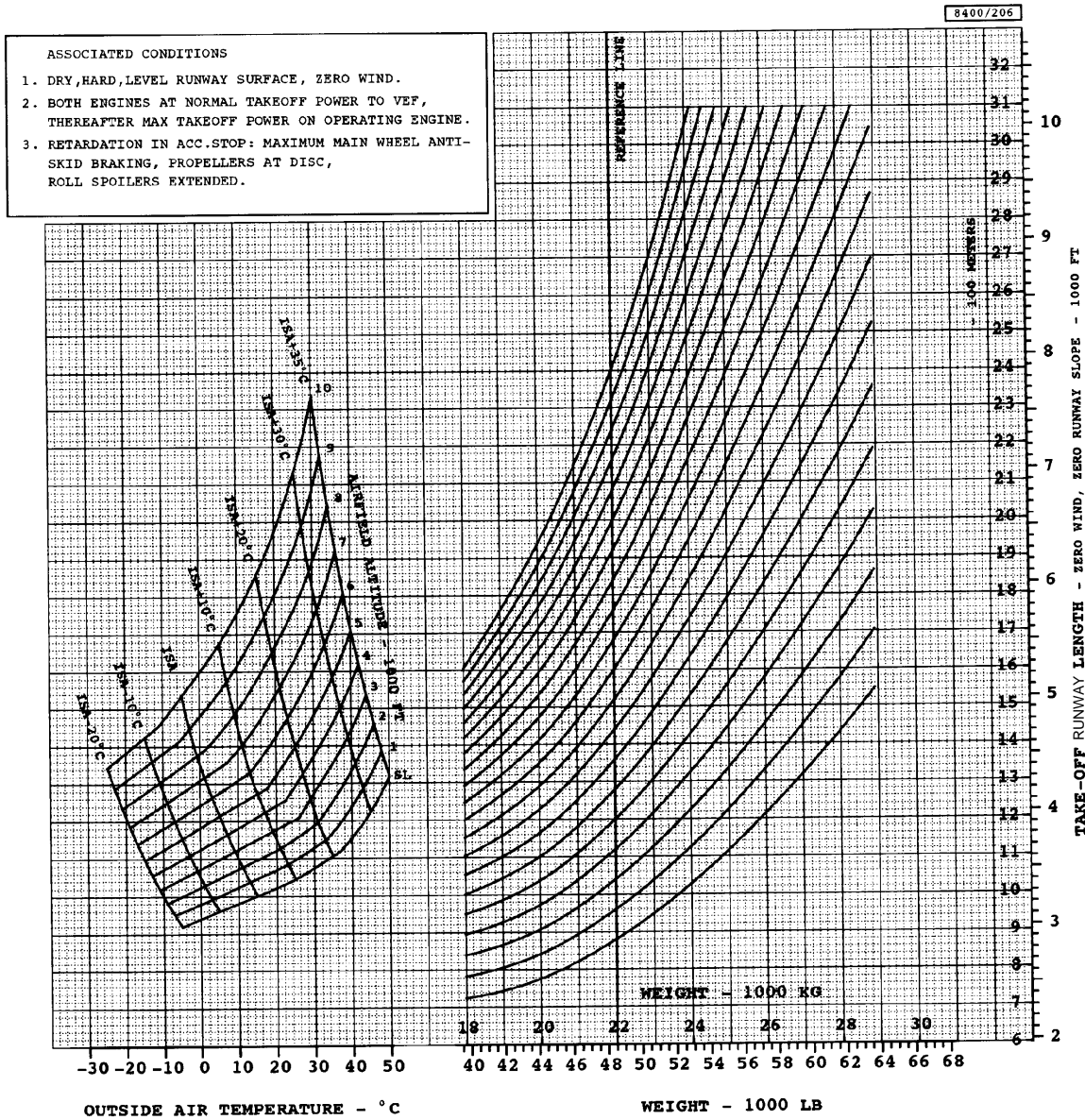
MAXIMUM PERMISSIBLE TAKE-OFF WEIGHT (WAT LIMIT) – FLAPS 15 DEGREES

Figure 3 – 4



AIRPORT PLANNING MANUAL

TAKE-OFF FIELD LENGTH - FLAP 5°



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TAKE-OFF RUNWAY LENGTH REQUIREMENTS - FLAPS 5 DEGREES

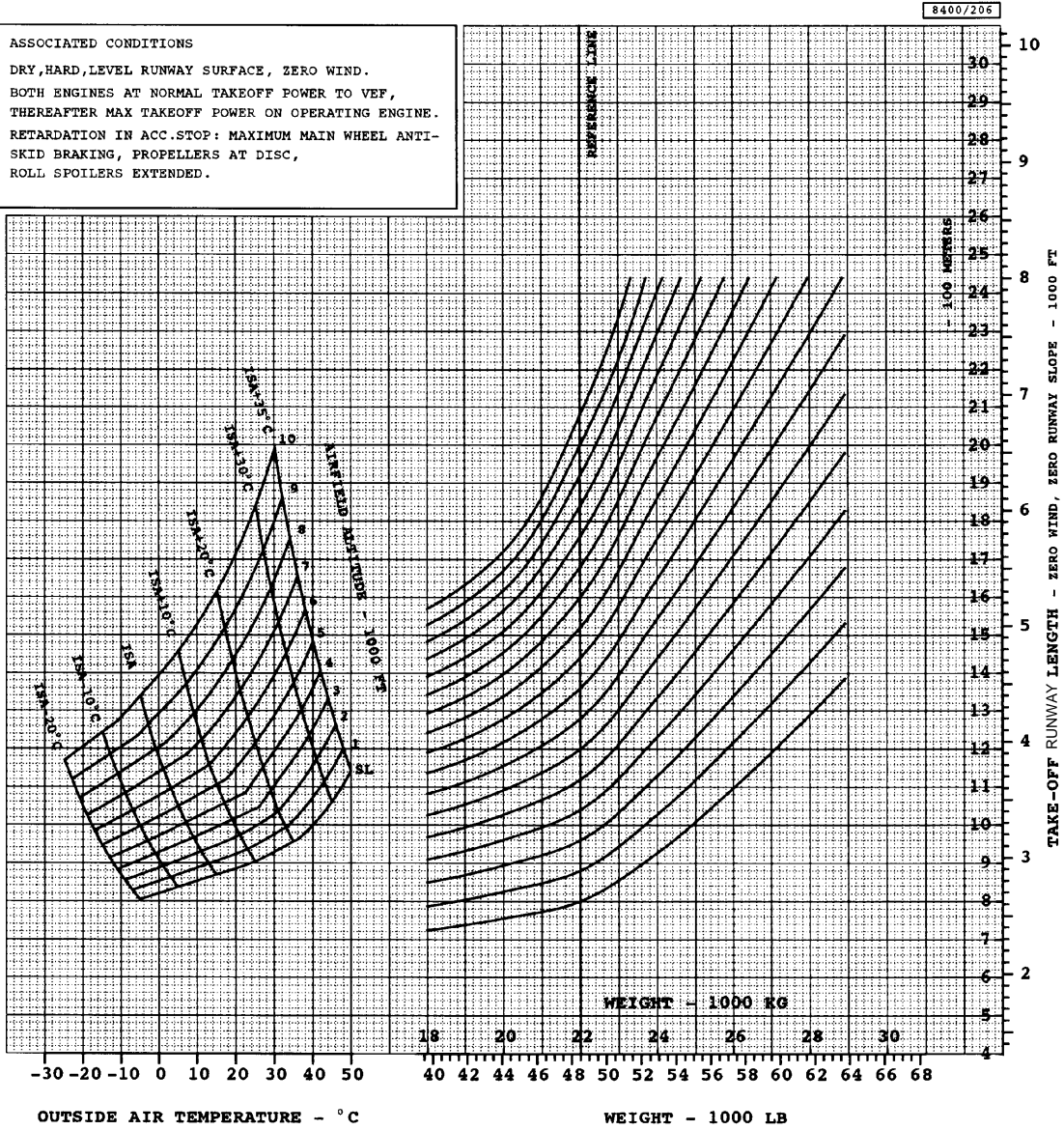
Figure 3 - 5



AIRPORT PLANNING MANUAL

TAKE-OFF FIELD LENGTH - FLAP 10°

- ASSOCIATED CONDITIONS
1. DRY, HARD, LEVEL RUNWAY SURFACE, ZERO WIND.
 2. BOTH ENGINES AT NORMAL TAKEOFF POWER TO VEF, THEREAFTER MAX TAKEOFF POWER ON OPERATING ENGINE.
 3. RETARDATION IN ACC.STOP: MAXIMUM MAIN WHEEL ANTI-SKID BRAKING, PROPELLERS AT DISC, ROLL SPOILERS EXTENDED.



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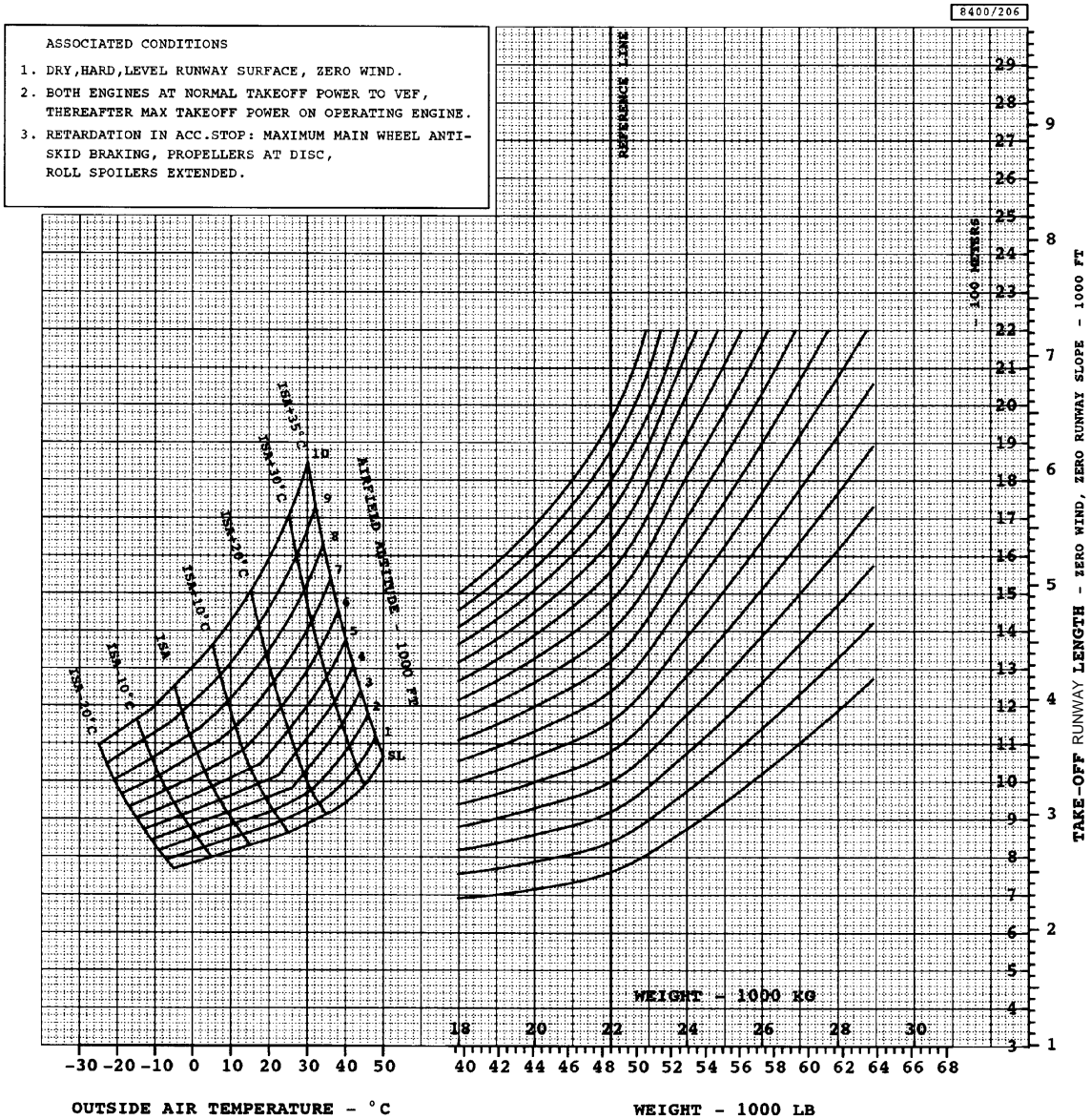
TAKE-OFF RUNWAY LENGTH REQUIREMENTS - FLAPS 10 DEGREES

Figure 3 - 6



AIRPORT PLANNING MANUAL

TAKE-OFF FIELD LENGTH - FLAP 15°



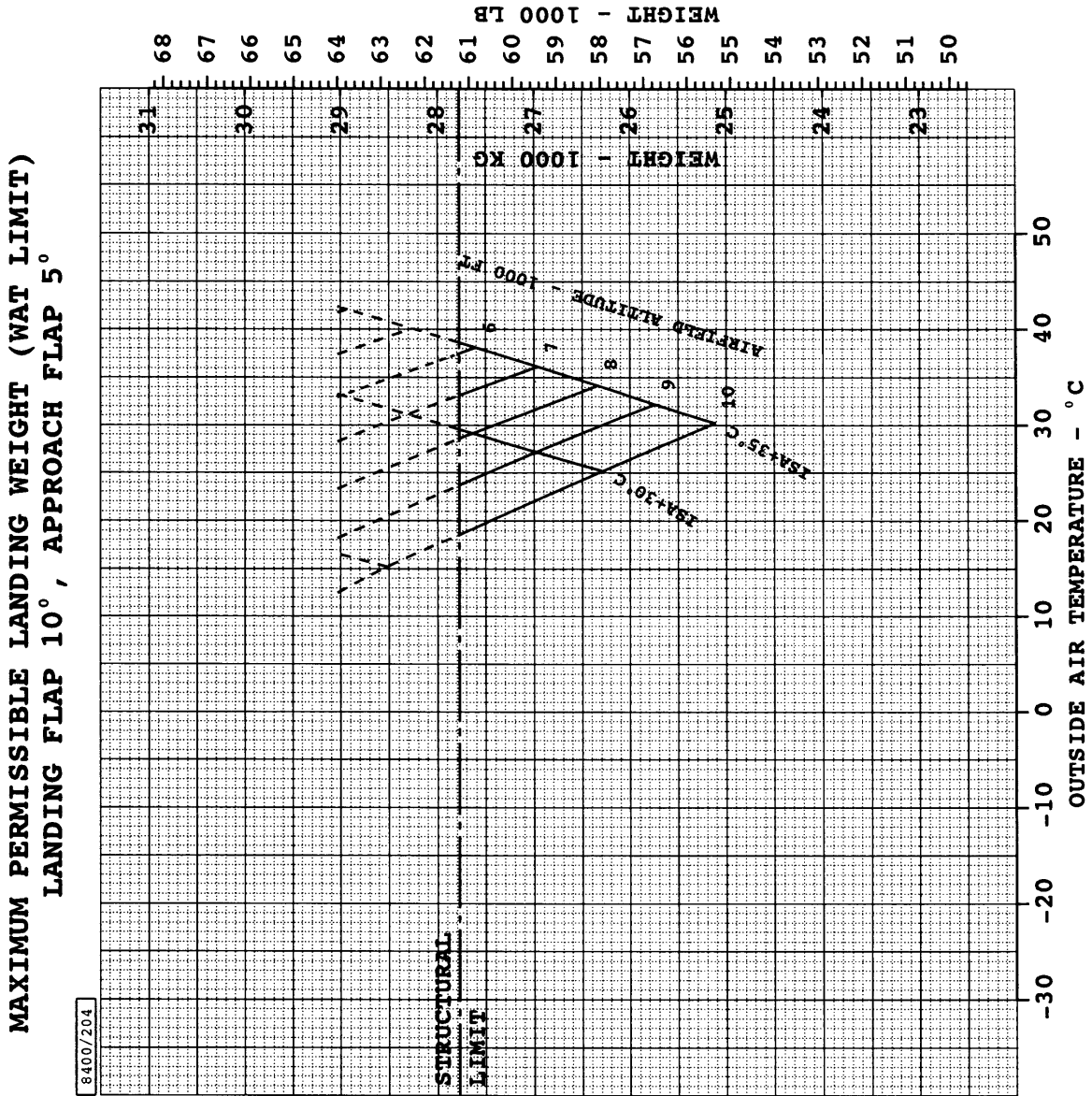
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TAKE-OFF RUNWAY LENGTH REQUIREMENTS - FLAPS 15 DEGREES

Figure 3 - 7



AIRPORT PLANNING MANUAL



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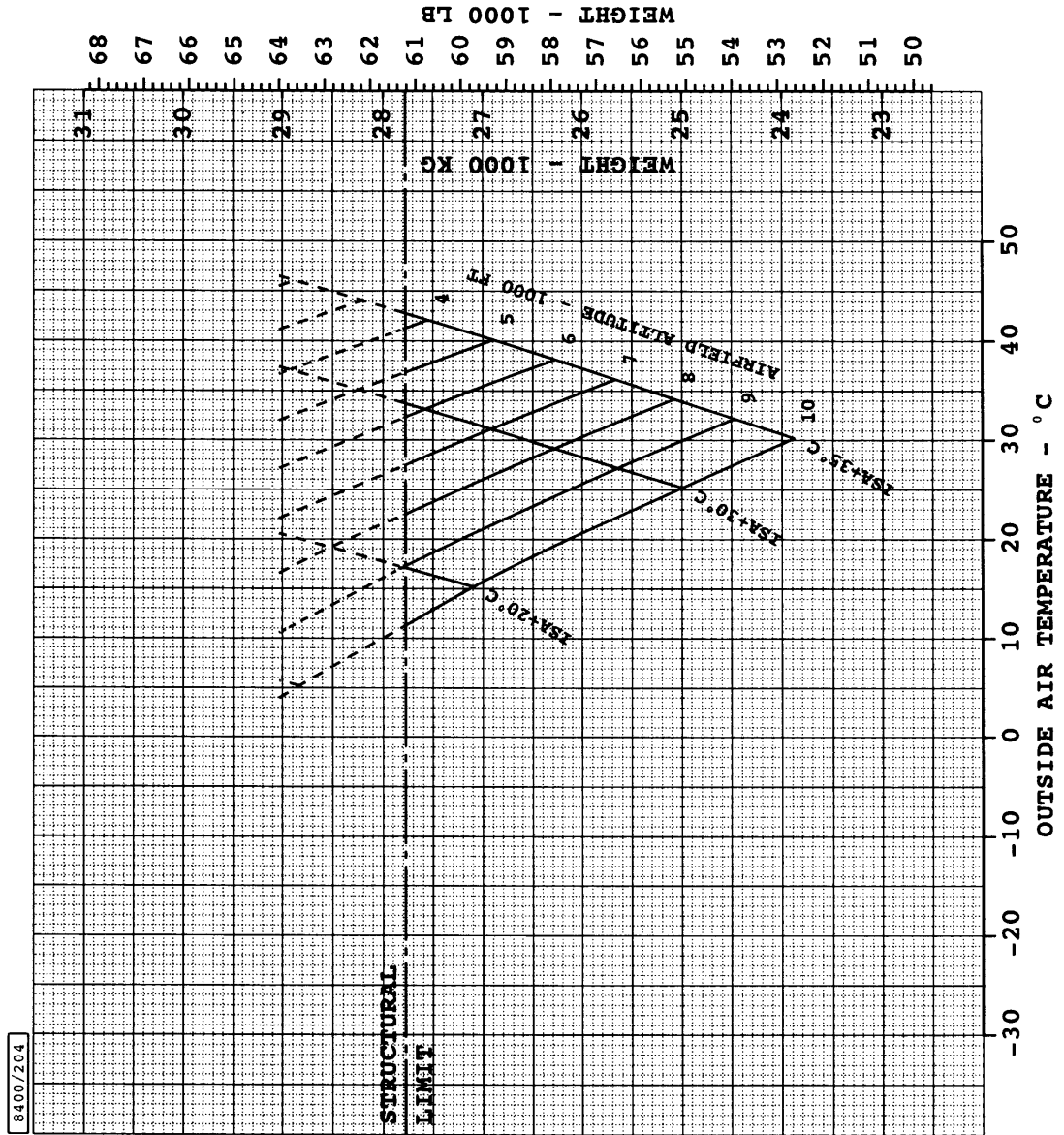
MAX. LANDING WEIGHT – LANDING FLAPS 10 AND APPROACH FLAPS 5 DEGREES

Figure 3 – 8



AIRPORT PLANNING MANUAL

MAXIMUM PERMISSIBLE LANDING WEIGHT (WAT LIMIT)
LANDING FLAP 15°, APPROACH FLAP 10°



S400/204

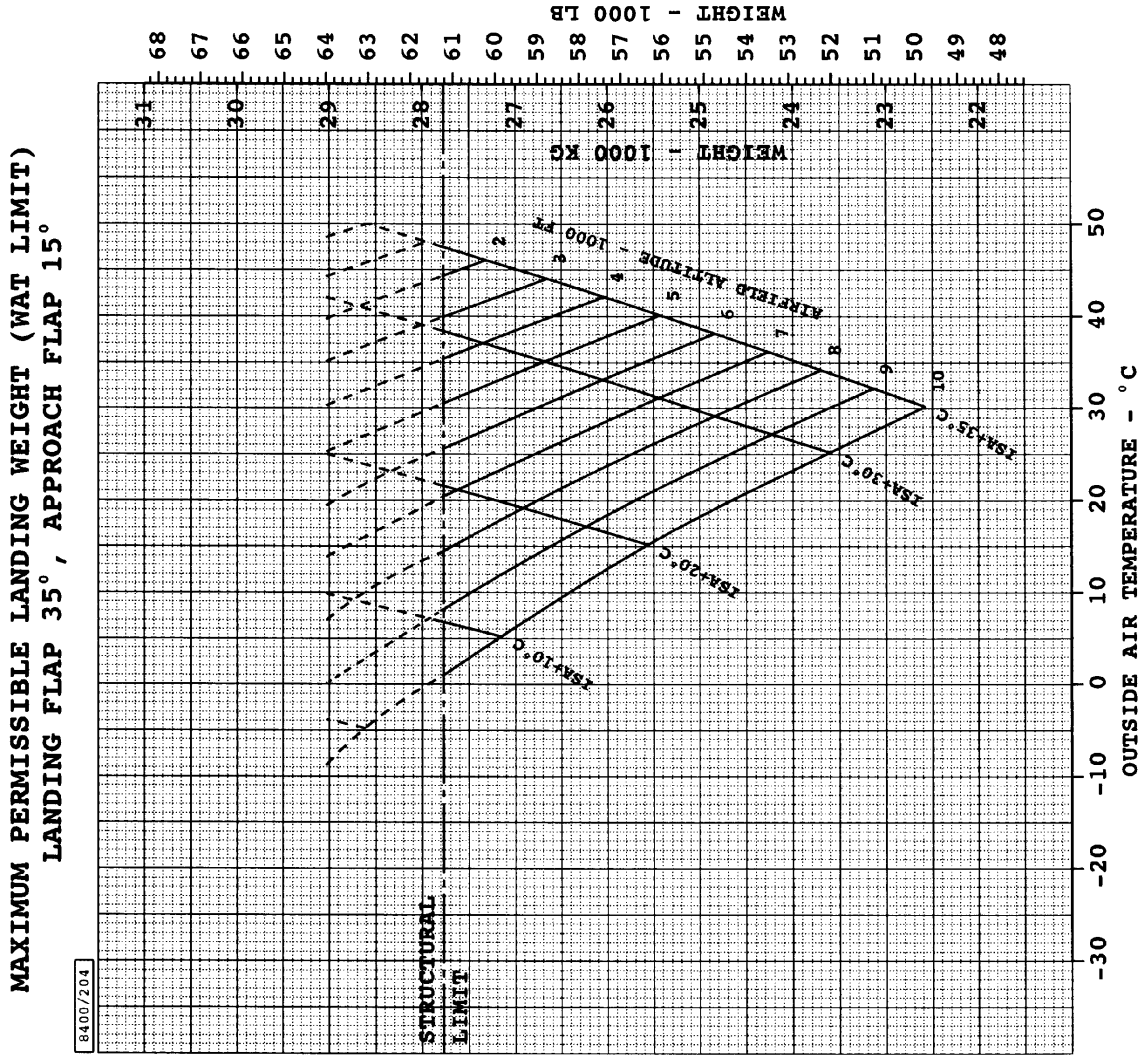
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MAX. LANDING WEIGHT – LANDING FLAPS 15 AND APPROACH FLAPS 10 DEGREES

Figure 3 – 9



AIRPORT PLANNING MANUAL



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MAX. LANDING WEIGHT – LANDING FLAPS 35 AND APPROACH FLAPS 15 DEGREES

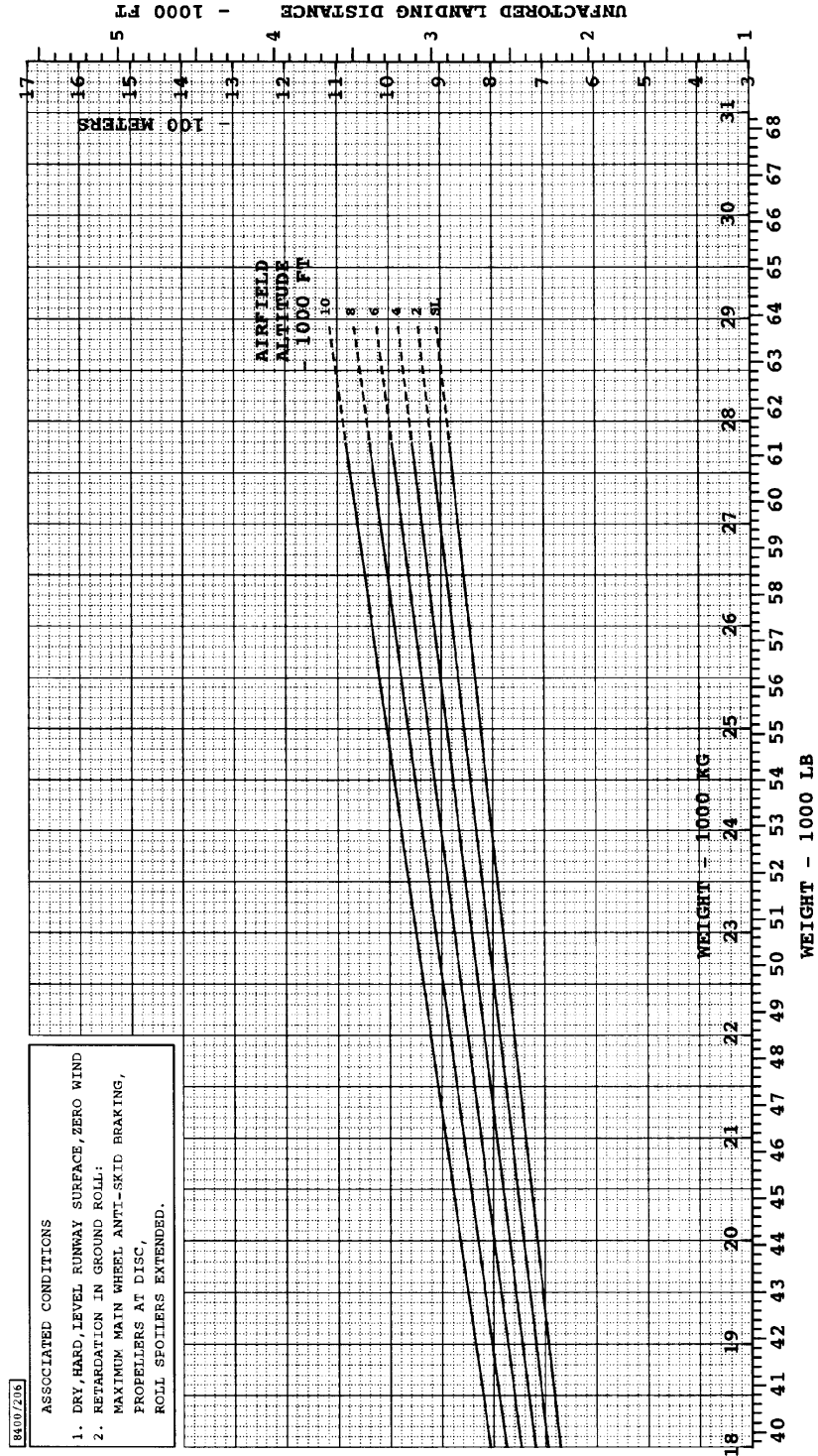
Figure 3 – 10



AIRPORT PLANNING MANUAL

UNFACTORED LANDING DISTANCE

FLAP 10°



UNFACTORED LANDING DISTANCE - FLAPS 10 DEGREES

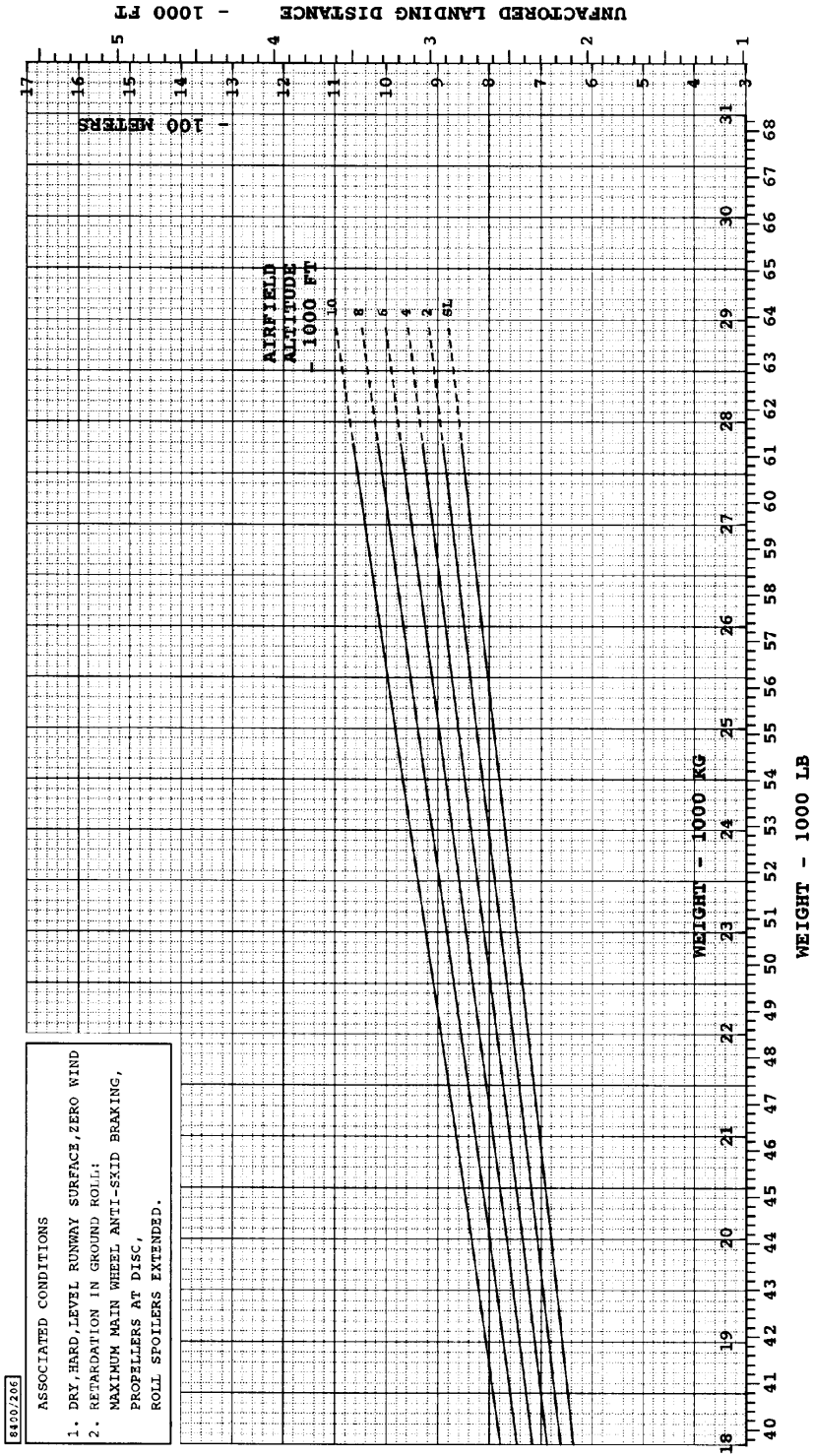
Figure 3 - 11



AIRPORT PLANNING MANUAL

UNFACTORED LANDING DISTANCE

FLAP 15°

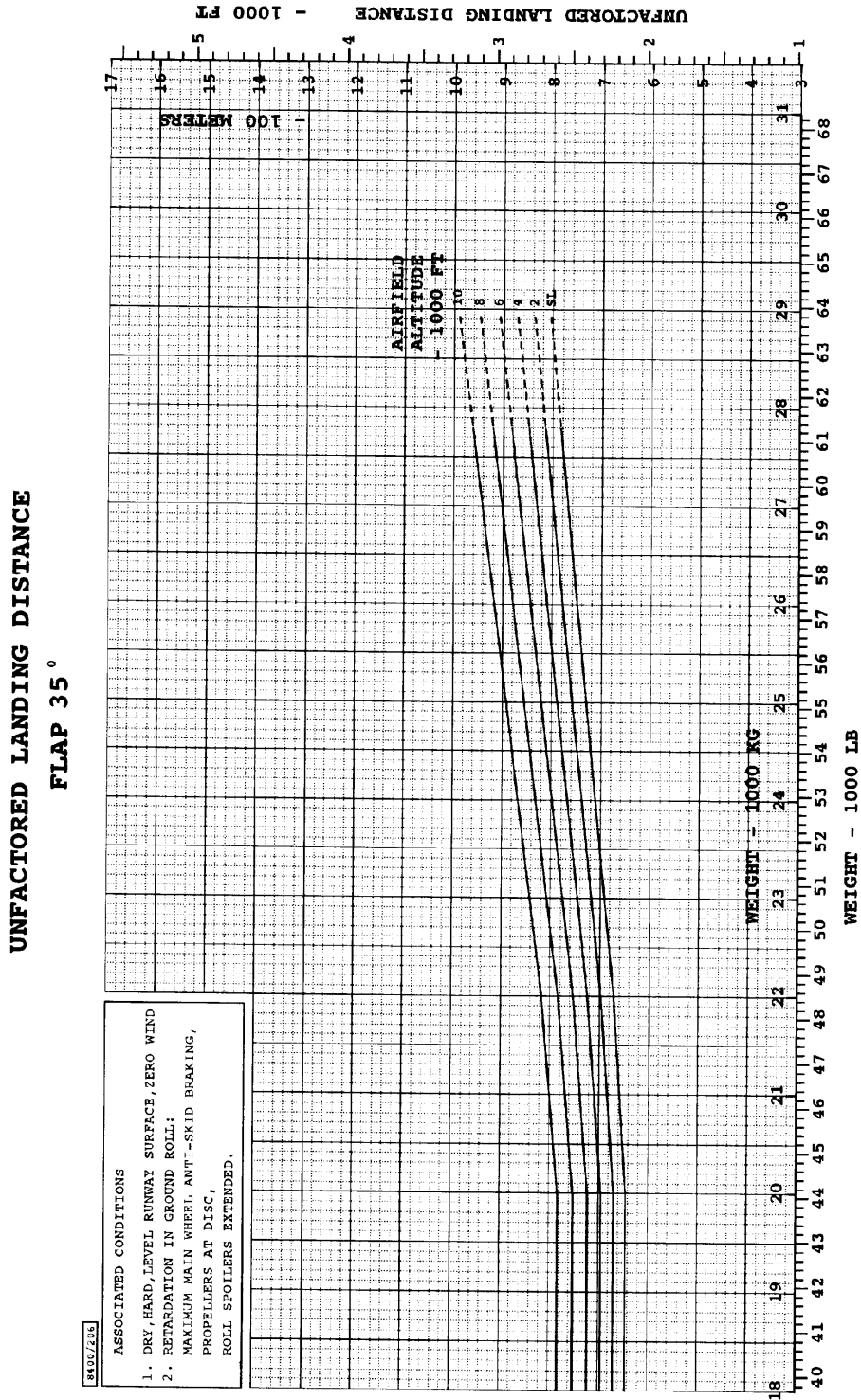


UNFACTORED LANDING DISTANCE – FLAPS 15 DEGREES

Figure 3 – 12



AIRPORT PLANNING MANUAL



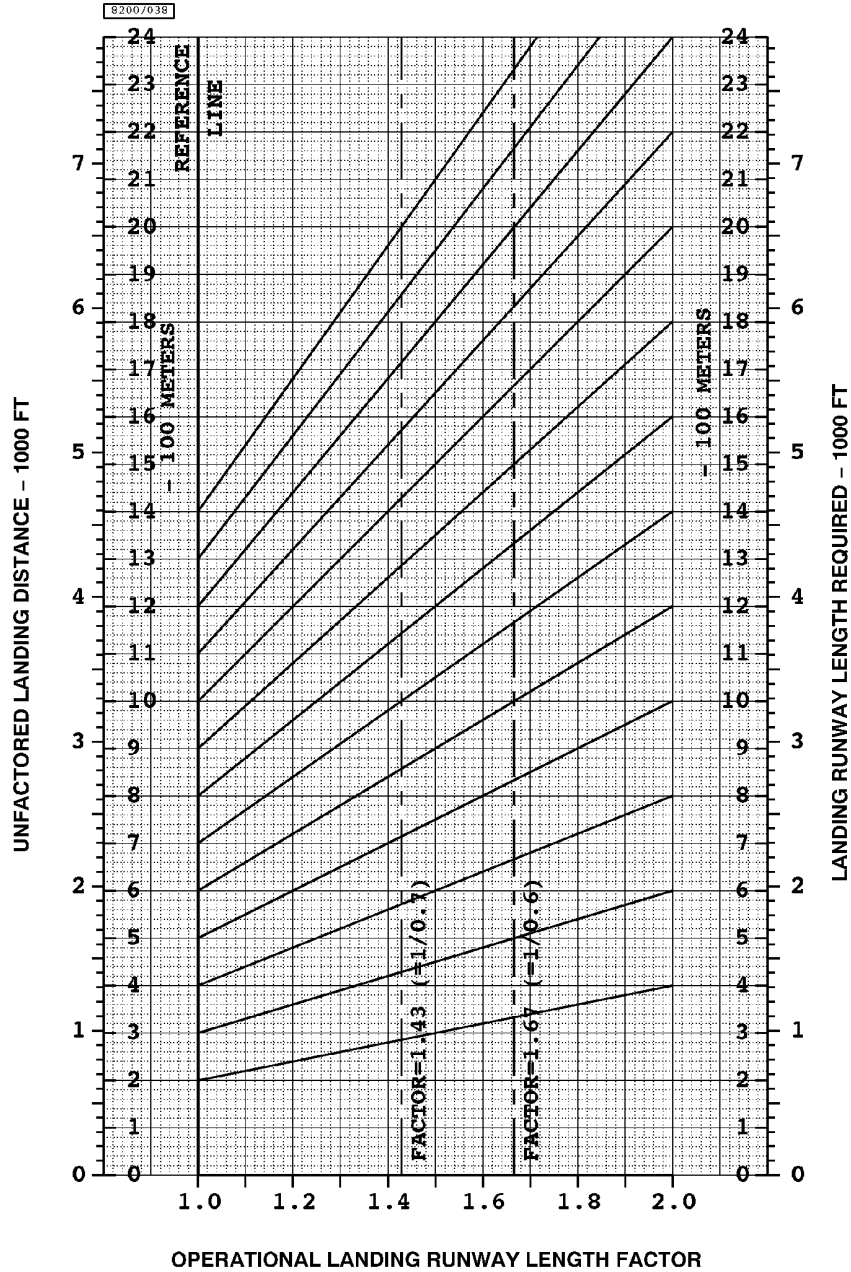
UNFACTORED LANDING DISTANCE - FLAPS 35 DEGREES

Figure 3 - 13



AIRPORT PLANNING MANUAL

LANDING RUNWAY LENGTH REQUIRED



LANDING – RUNWAY LENGTH REQUIRED

Figure 3 – 14



AIRPORT PLANNING MANUAL

CHAPTER 4

GROUND MANEUVERING

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AIRPORT PLANNING MANUAL

General Information

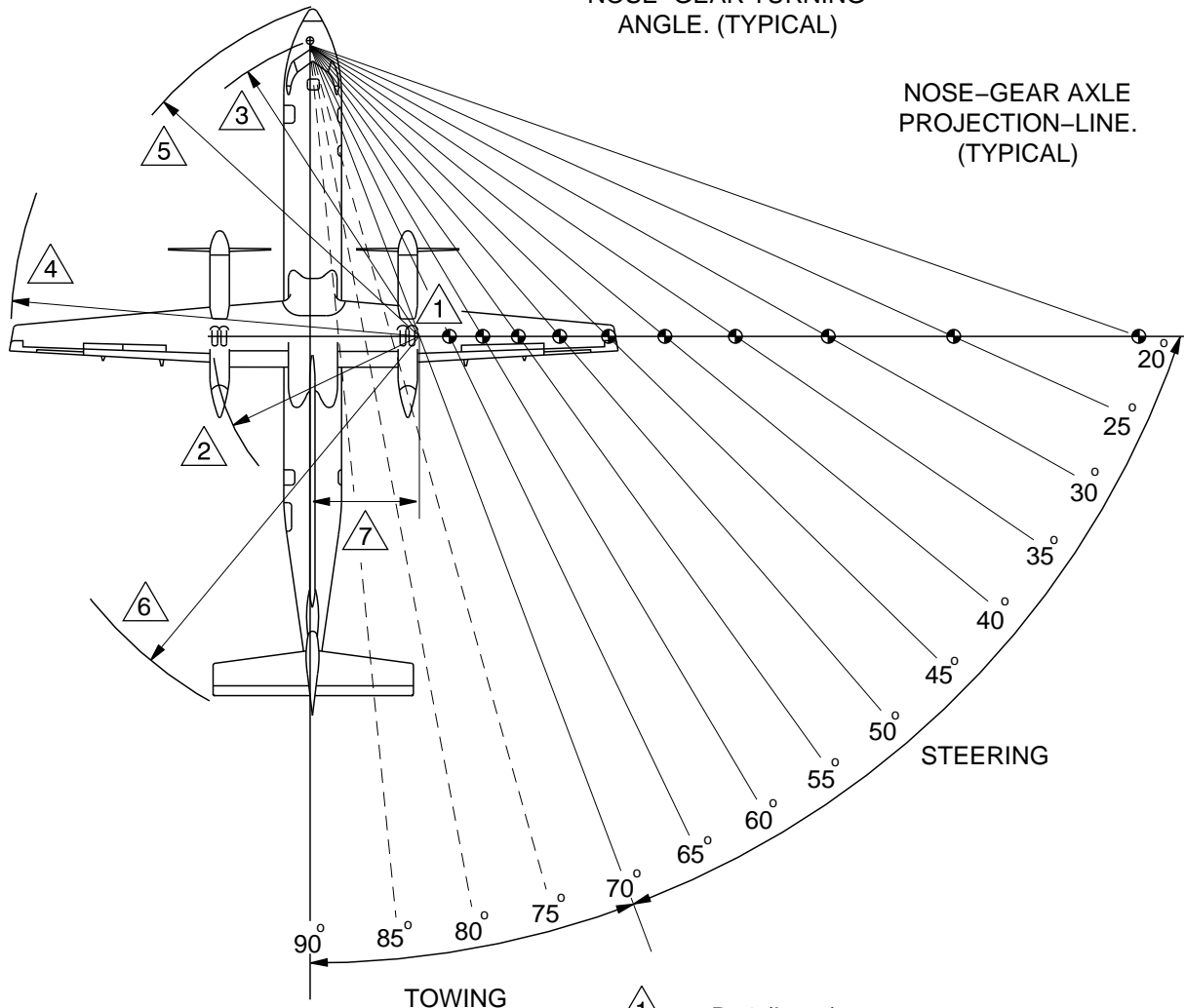
1. This Chapter supplies data on the items that follow:
 - Aircraft turning capability (refer to Figure 4–1, Figure 4–2 and Figure 4–3)
 - Visibility from cockpit (Note, this information is not available at this time)
 - Maneuvering characteristics (refer to Figure 4–4, Figure 4–5, Figure 4–6 and Figure 4–7)
 - Mooring data (refer to Figure 4–8).
2. This data has been determined from the theoretical limits imposed by the geometry of the aircraft and includes normal allowance for tire slippage (as indicated). The purpose of this Chapter is to show the turning capability of the aircraft in favorable operating conditions (without the use of reverse thrust or differential braking). Use this data only as a guideline.
3. It is possible that each airline will use more conservative turning procedures to avoid excessive tire wear and possible maintenance problems. The operating techniques of each airline will be different and may be modified because of these physical factors within the maneuvering area:
 - Adverse grades
 - Limited area
 - High risk of jet engine exhaust or propeller slipstream damage.
4. Because of these reasons the airport planner must coordinate the ground maneuvering data with the user airline for airport layout plan.



AIRPORT PLANNING MANUAL

TURNING CENTER FOR
NOSE-GEAR TURNING
ANGLE. (TYPICAL)

NOSE-GEAR AXLE
PROJECTION-LINE.
(TYPICAL)



- △ 1 R-1 (Inner).
- △ 2 R-2 (Outer Gear).
- △ 3 R-3 (Nose Gear).
- △ 4 R-4 (Wing Tip).
- △ 5 R-5 (Nose).
- △ 6 R-6 (Tail).
- △ 7 Dimension "C" Typical. Refer to table for distance of individual points from aircraft center line.

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TURNING RADII (NO SLIP ANGLE)

Figure 4 - 1



AIRPORT PLANNING MANUAL

| STEERING ANGLE (DEGREES) | R-1 INNER GEAR | | R-2 OUTER GEAR | | R-3 NOSE GEAR | | R-4 WING TIP | | R-5 NOSE | | R-6 TAIL | | DIMENSION "C" | |
|--------------------------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|
| | in. ft | m | in. ft | m | in. ft | m | in. ft | m | in. ft | m | in. ft | m | in. ft | m |
| 5 | 6083.87 507.00 | 154.50 | 6459.50 538.33 | 164.10 | 6306.70 525.58 | 160.20 | 6831.25 569.25 | 173.50 | 6301.95 525.17 | 160.07 | 6483.96 540.80 | 164.70 | 6721.27 560.00 | 170.70 |
| 10 | 2923.90 243.67 | 74.27 | 3299.53 275.00 | 74.27 | 3171.20 264.25 | 80.50 | 3671.29 305.25 | 93.25 | 3172.68 264.42 | 80.60 | 3353.99 279.50 | 85.20 | 3111.30 259.25 | 79.03 |
| 15 | 1859.64 155.00 | 47.23 | 2235.26 186.25 | 56.80 | 2131.73 177.67 | 54.14 | 2607.04 217.25 | 66.20 | 2139.17 217.25 | 54.30 | 2318.22 193.17 | 58.90 | 2047.03 170.58 | 52.00 |
| 20 | 1319.17 109.92 | 33.50 | 1694.80 141.25 | 43.05 | 1616.16 134.67 | 41.05 | 2066.59 172.25 | 52.50 | 1629.56 135.83 | 41.40 | 1804.96 150.42 | 45.85 | 1506.57 125.58 | 38.20 |
| 25 | 988.09 82.33 | 25.10 | 1363.71 113.67 | 34.60 | 1310.45 109.17 | 33.29 | 1735.52 144.67 | 44.10 | 1329.46 110.75 | 33.80 | 1500.02 125.00 | 38.10 | 1175.48 97.92 | 29.80 |
| 30 | 63.50 6.50 | 19.30 | 1137.16 94.75 | 28.90 | 1109.77 92.08 | 28.19 | 1428.22 119.00 | 36.28 | 1134.09 94.08 | 28.80 | 1298.74 108.25 | 33.00 | 949.93 79.08 | 24.10 |
| 35 | 594.53 49.58 | 15.10 | 970.15 80.83 | 24.60 | 969.26 80.75 | 24.62 | 1341.98 111.83 | 34.10 | 998.55 83.25 | 25.40 | 1156.38 96.33 | 29.40 | 781.93 65.17 | 20.00 |
| 40 | 464.56 38.75 | 11.80 | 840.19 70.00 | 21.30 | 866.51 72.25 | 22.00 | 1212.02 101.00 | 30.79 | 900.42 75.00 | 22.90 | 1050.63 87.58 | 26.70 | 651.96 54.33 | 16.56 |
| 45 | 359.08 29.92 | 9.12 | 734.71 61.25 | 18.70 | 789.14 65.75 | 20.04 | 1106.55 92.25 | 28.10 | 827.25 68.92 | 21.00 | 969.13 80.75 | 24.60 | 546.48 45.50 | 13.90 |
| 50 | 270.52 22.58 | 6.87 | 646.14 53.83 | 16.40 | 729.72 60.83 | 18.50 | 1018.00 84.83 | 25.90 | 771.61 64.33 | 19.60 | 904.55 75.42 | 23.00 | 457.91 38.17 | 11.60 |
| 55 | 194.02 16.17 | 4.93 | 569.64 47.50 | 14.50 | 683.57 57.00 | 17.36 | 941.51 78.50 | 23.90 | 728.82 60.75 | 18.50 | 852.24 71.00 | 21.60 | 381.41 31.75 | 9.69 |
| 60 | 126.30 10.50 | 3.21 | 501.93 41.83 | 12.75 | 647.62 54.00 | 16.45 | 873.81 72.83 | 22.19 | 695.78 58.00 | 17.67 | 809.15 67.42 | 20.60 | 313.70 26.17 | 7.97 |
| 65 | 65.06 5.42 | 1.65 | 440.68 36.75 | 11.19 | 619.70 51.67 | 15.70 | 812.57 67.75 | 20.60 | 670.40 55.83 | 17.03 | 773.23 64.42 | 19.60 | 252.45 21.00 | 6.41 |
| 70 | 8.57 0.75 | 0.22 | 384.19 32.00 | 9.75 | 598.61 49.92 | 15.20 | 756.09 63.00 | 19.20 | 651.23 54.25 | 16.50 | 743.03 61.92 | 18.90 | 195.96 16.33 | 5.00 |
| 75 | -44.48 -3.67 | -1.13 | 331.15 27.58 | 8.41 | 583.11 48.58 | 14.80 | 703.06 58.58 | 17.90 | 637.28 53.08 | 16.20 | 717.58 59.83 | 18.20 | 142.92 11.92 | 3.63 |
| 80 | -95.13 -7.92 | -2.41 | 280.49 23.00 | 4.50 | 572.60 47.75 | 14.50 | 652.42 54.33 | 16.60 | 627.87 52.33 | 15.90 | 696.18 58.00 | 17.70 | 92.26 7.67 | 2.34 |
| 85 | -144.29 -12.00 | -3.67 | 231.34 19.25 | 5.88 | 566.64 47.25 | 14.40 | 603.28 50.25 | 15.30 | 622.54 51.92 | 15.80 | 678.39 56.50 | 17.20 | 43.11 3.58 | 1.09 |
| 90 | -192.14 -16.00 | -4.90 | 182.88 15.25 | 4.65 | 565.00 47.08 | 14.35 | 554.84 46.25 | 14.10 | 621.07 51.75 | 15.78 | 663.97 55.33 | 16.90 | -5.35 -0.42 | -0.14 |

NOTE

The actual operating data will be greater than the values shown because tire slippage is not considered. The airport planner must consult with the user airline for specific operating procedures.

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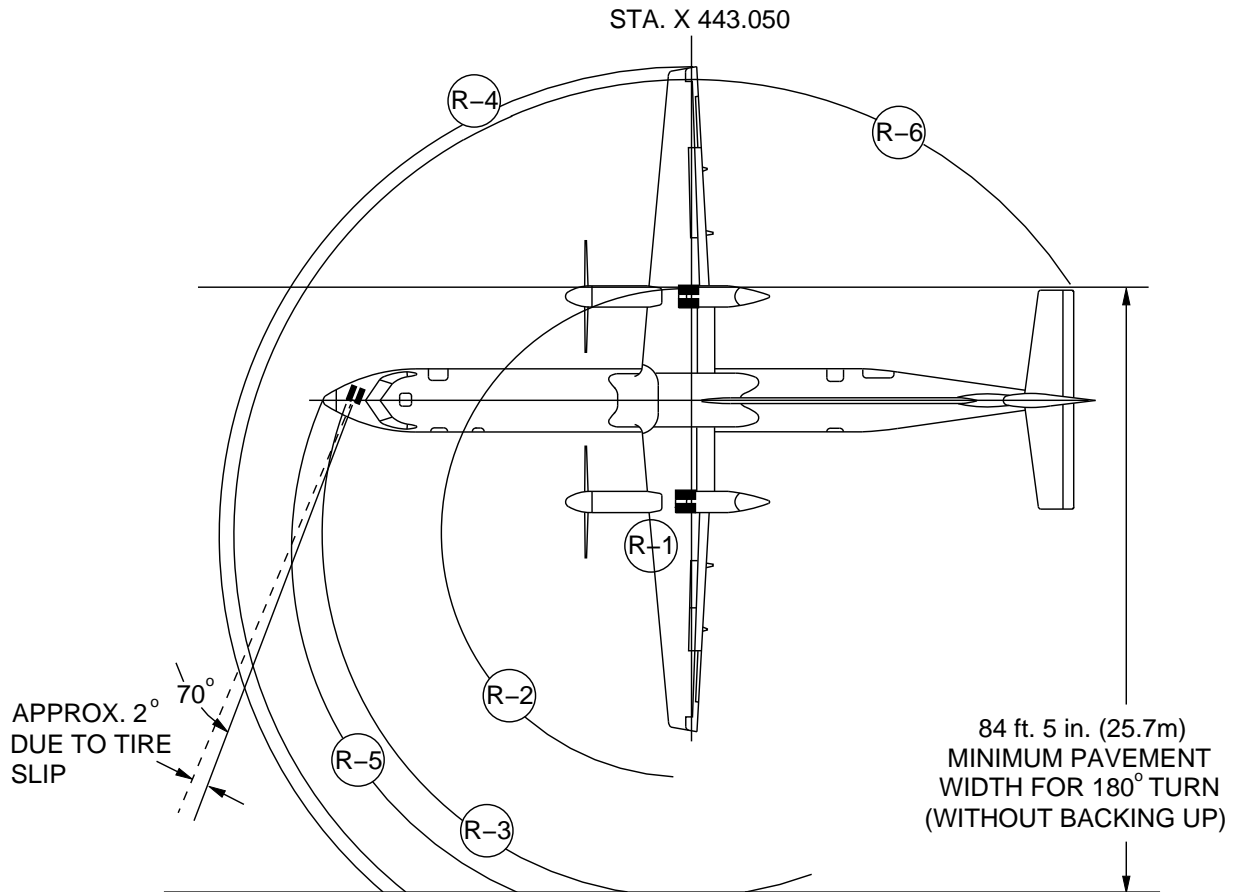
TURNING RADII DATA (NO SLIP ANGLE)

Figure 4 - 2



AIRPORT PLANNING MANUAL

MINIMUM TURNING CENTER ON MAIN-AXLE GEAR PROJECTION



| ITEM | RADIUS |
|------------------|-------------------------|
| R-1 INNER GEAR | 4 ft. 9 in. (1.52 m) |
| R-2 OUTER GEAR | 33 ft. 10 in. (10.32 m) |
| R-3 NOSE GEAR | 50 ft. 7 in. (15.41 m) |
| R-4 WING TIP | 64 ft. 9 in. (19.74 m) |
| R-5 NOSE | 54 ft. 10 in. (16.73 m) |
| R-6 ELEVATOR TIP | 62 ft. 9 in. (19.13 m) |

NOTES

1. Dimensions noted are for dry, hard, level surfaces at these tire pressures :
227 psi (loaded), 32 x 8.8-16 standard main-wheel tires, and 89 psi (loaded)
for 22 x 6.50-10 standard nose-wheel tires.
2. Nose gear steering limit is approximately 70° left and right.
3. Slip angle of 2° is approximate only and may vary with aircraft configuration, loading and tire wear.
4. Dimensions given for maneuvering clearance and turning radii are minimum recommended limits.
5. Tire pressures shown are for calculation purposes only.
Refer to AMM Ch. 12 for service pressures.

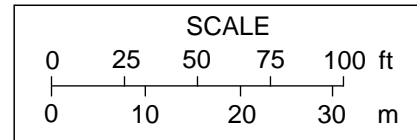
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TURNING RADIUS AT MINIMUM POWER

Figure 4 - 3

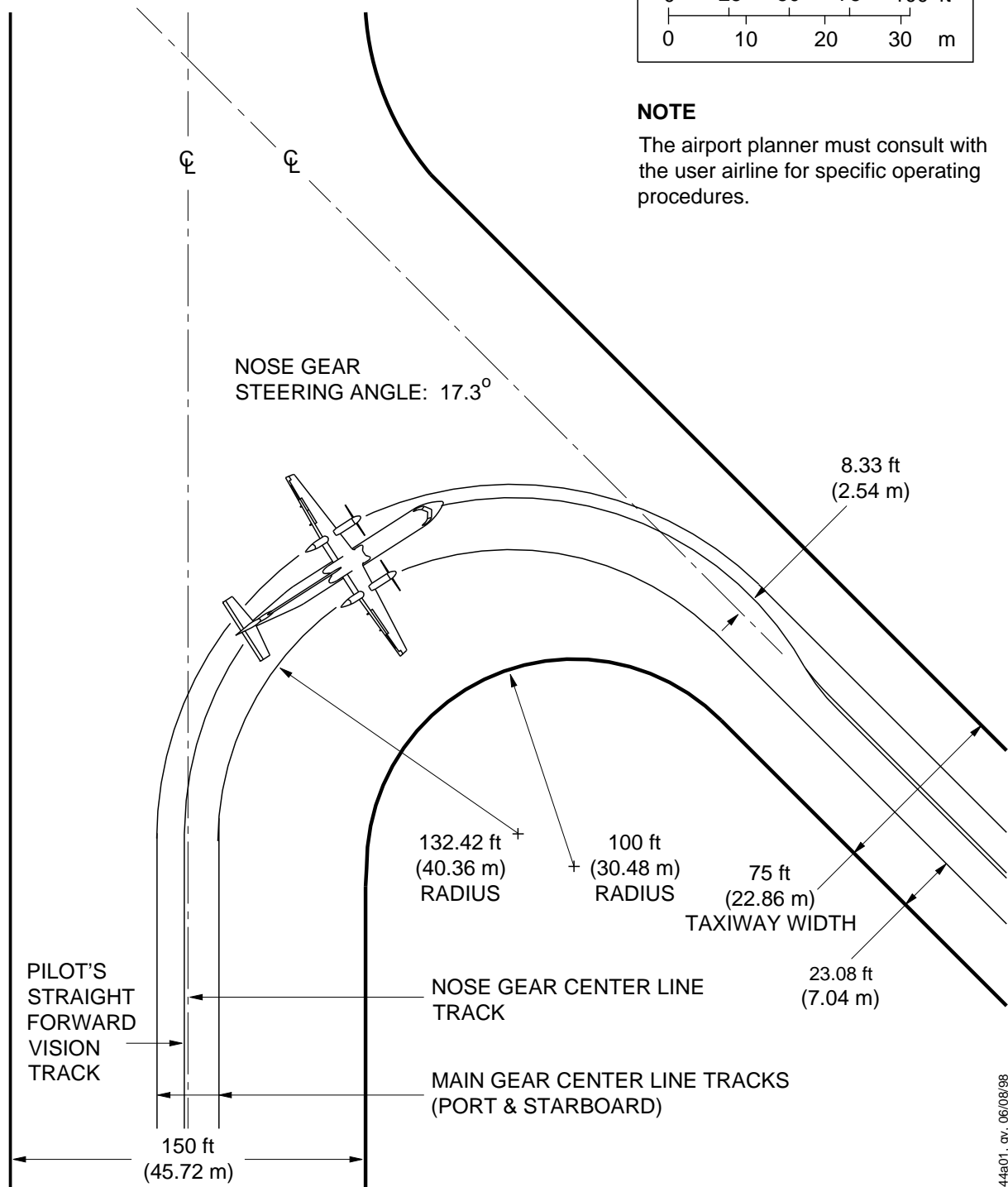


AIRPORT PLANNING MANUAL



NOTE

The airport planner must consult with the user airline for specific operating procedures.



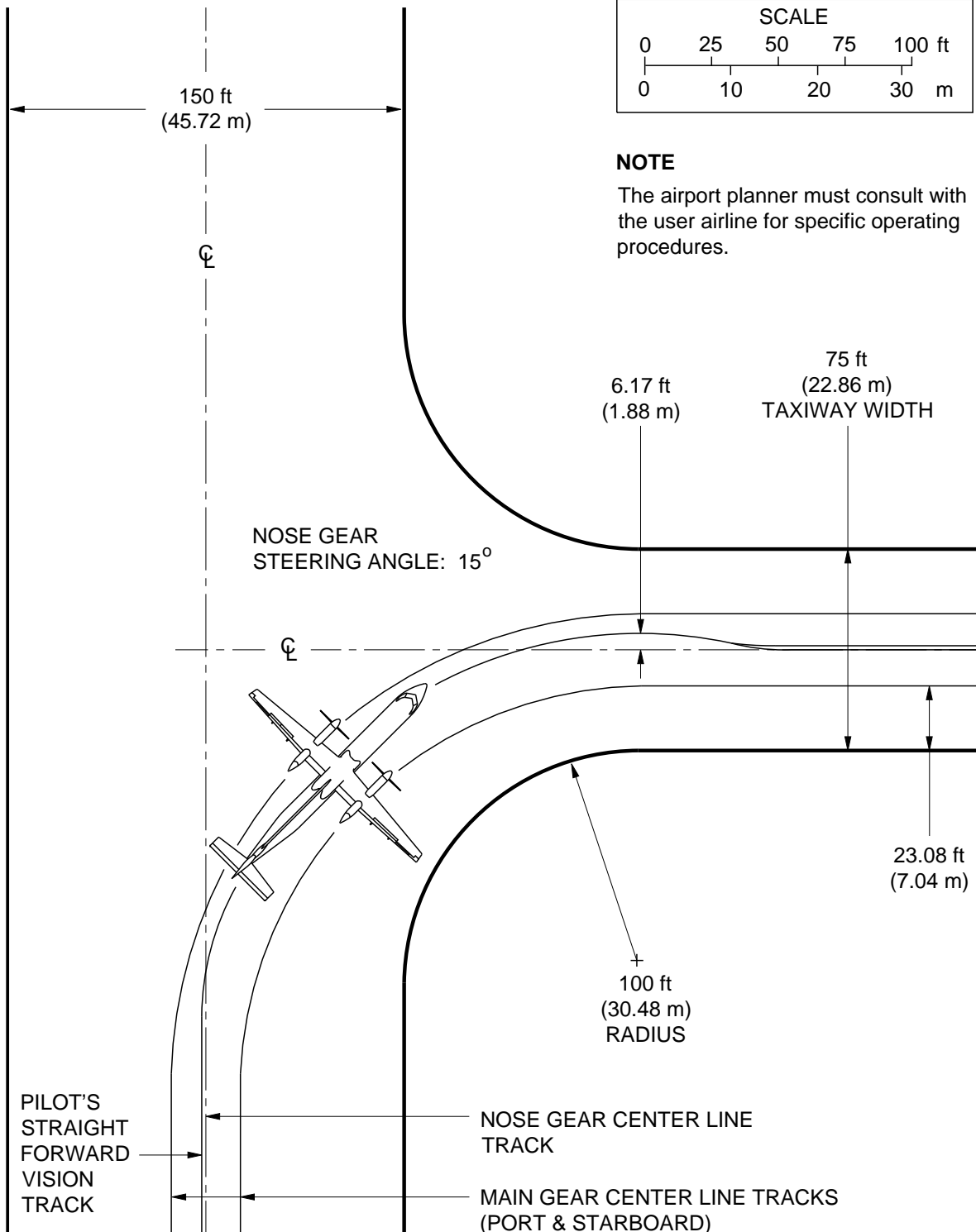
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GREATER THAN 90 DEGREE TURN – RUNWAY TO TAXIWAY WITH TRACKS

Figure 4 – 4



AIRPORT PLANNING MANUAL



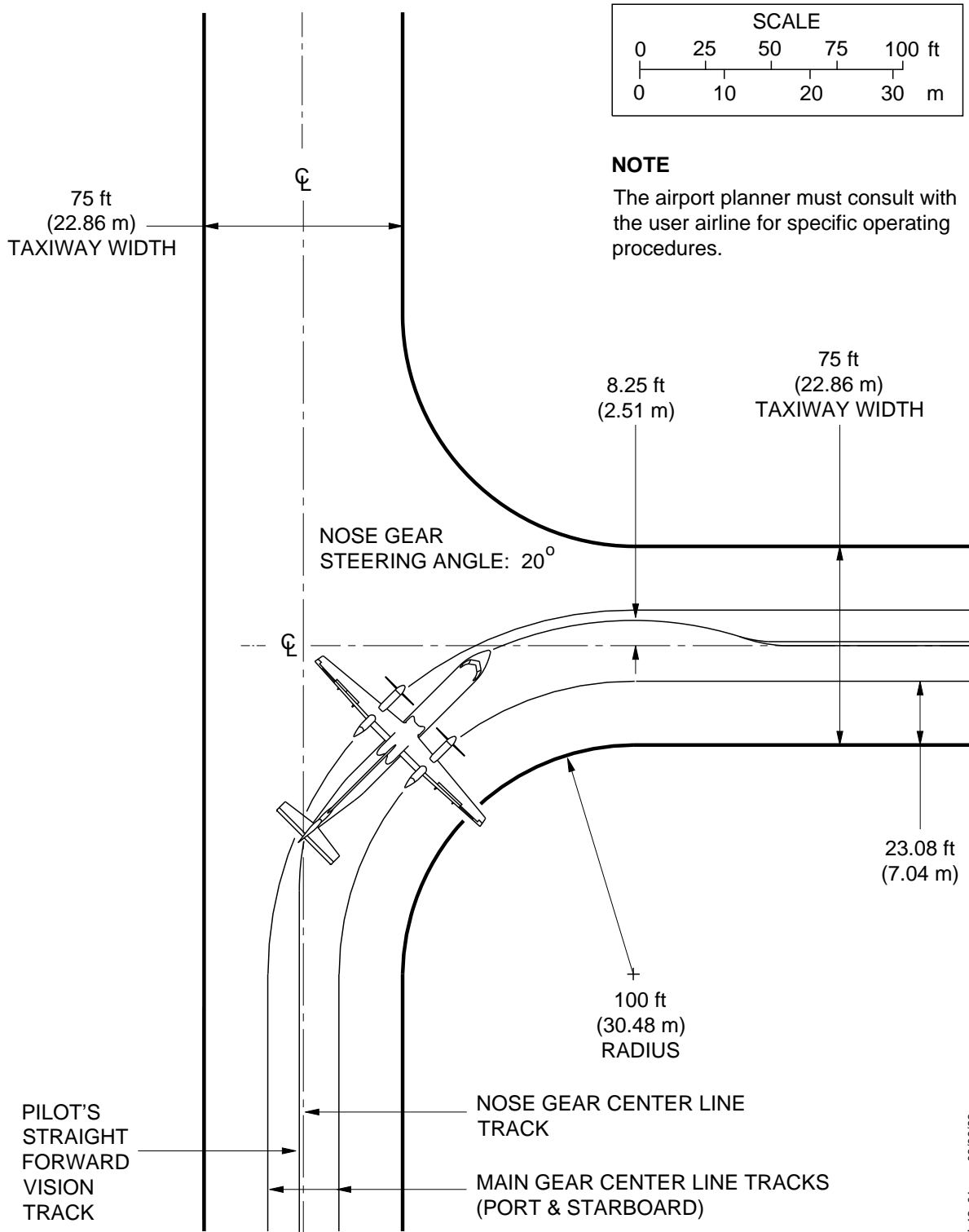
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90 DEGREE TURN – RUNWAY TO TAXIWAY WITH NOSE GEAR AND COCKPIT TRACKS

Figure 4 – 5



AIRPORT PLANNING MANUAL



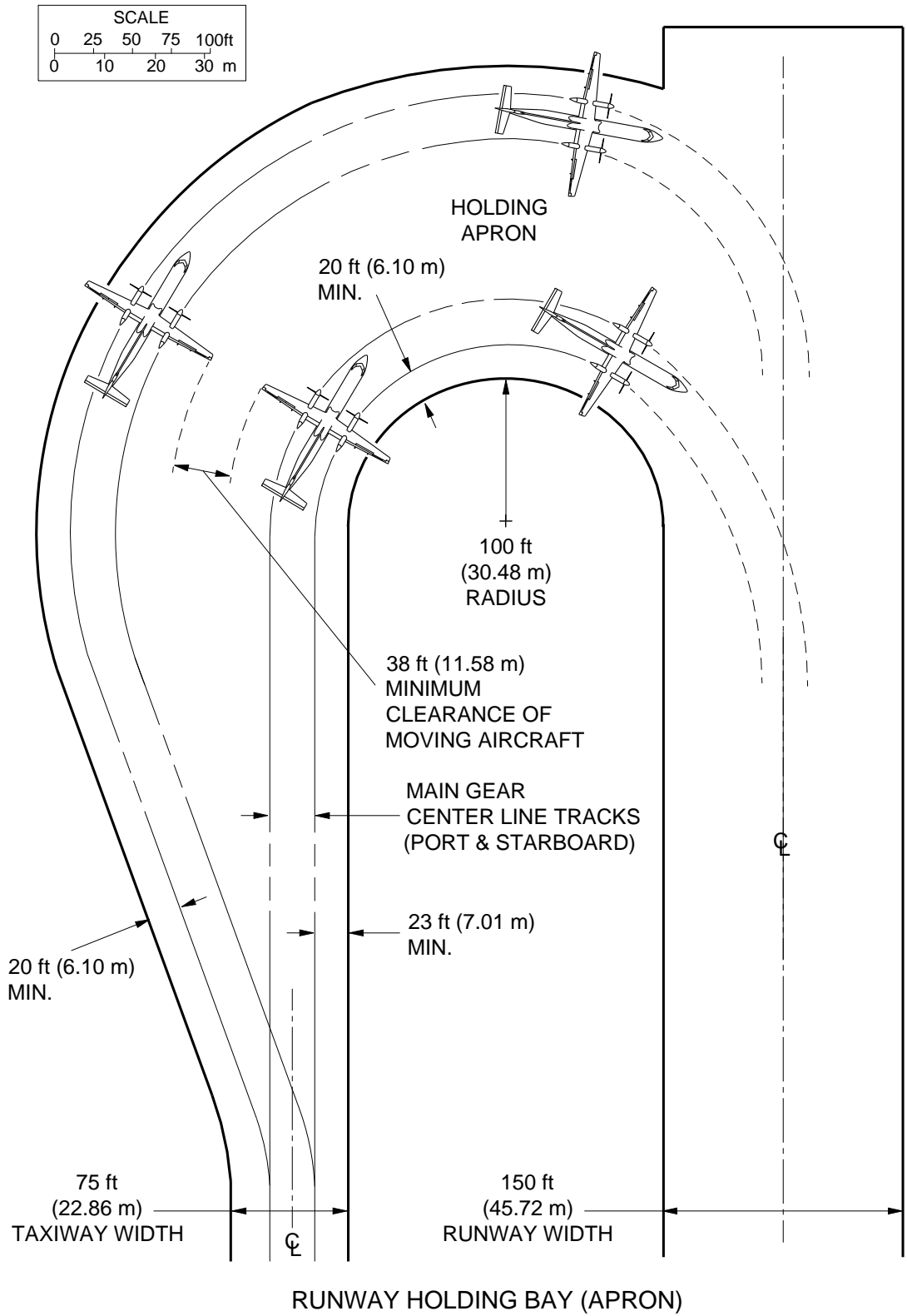
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90 DEGREE TURN – TAXIWAY TO TAXIWAY WITH NOSE GEAR AND COCKPIT TRACKS

Figure 4 – 6



AIRPORT PLANNING MANUAL

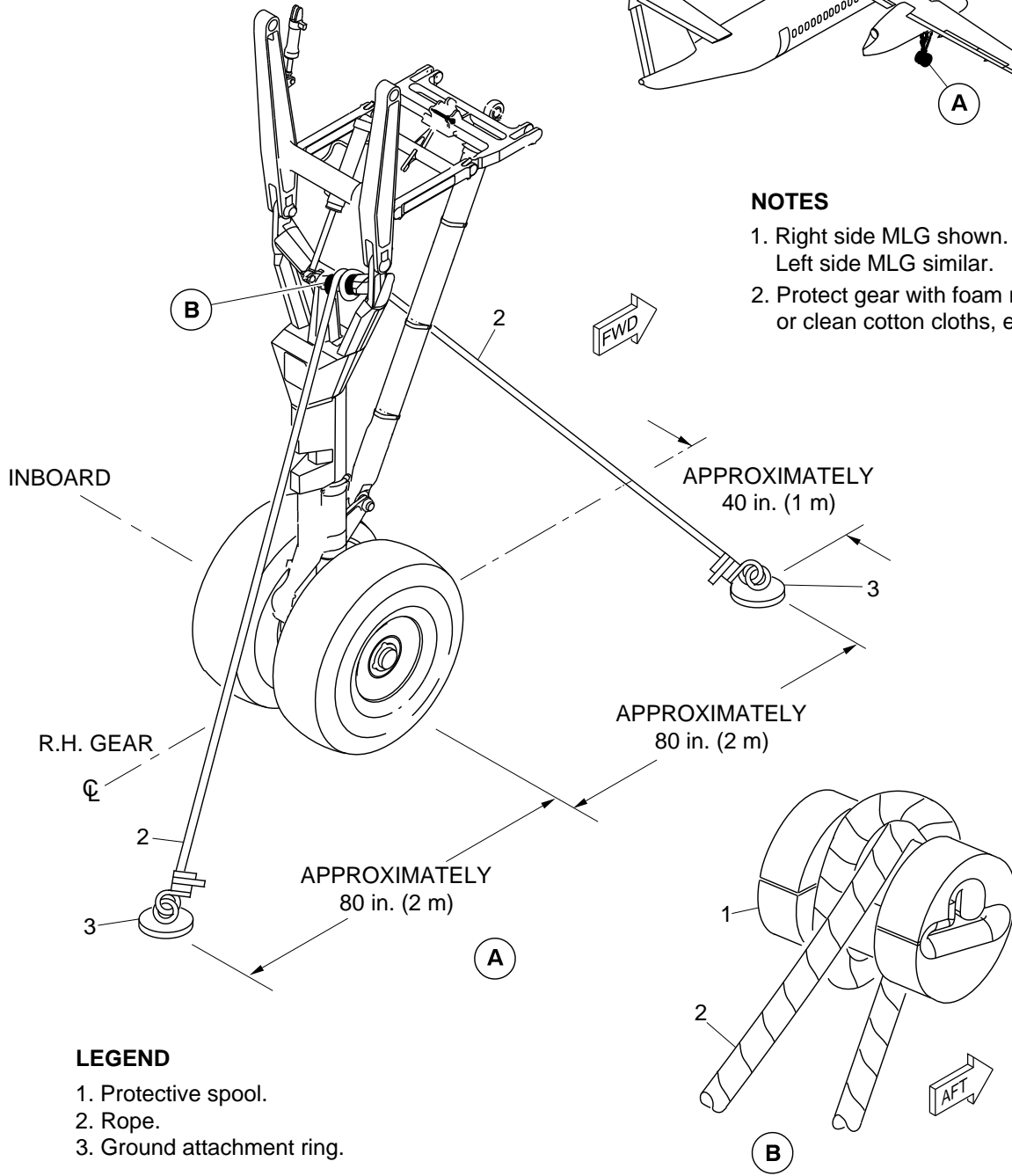
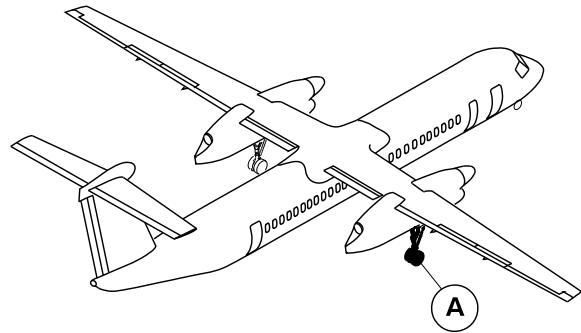


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Figure 4 - 7



AIRPORT PLANNING MANUAL



NOTES

- 1. Right side MLG shown. Left side MLG similar.
- 2. Protect gear with foam rubber or clean cotton cloths, etc.

LEGEND

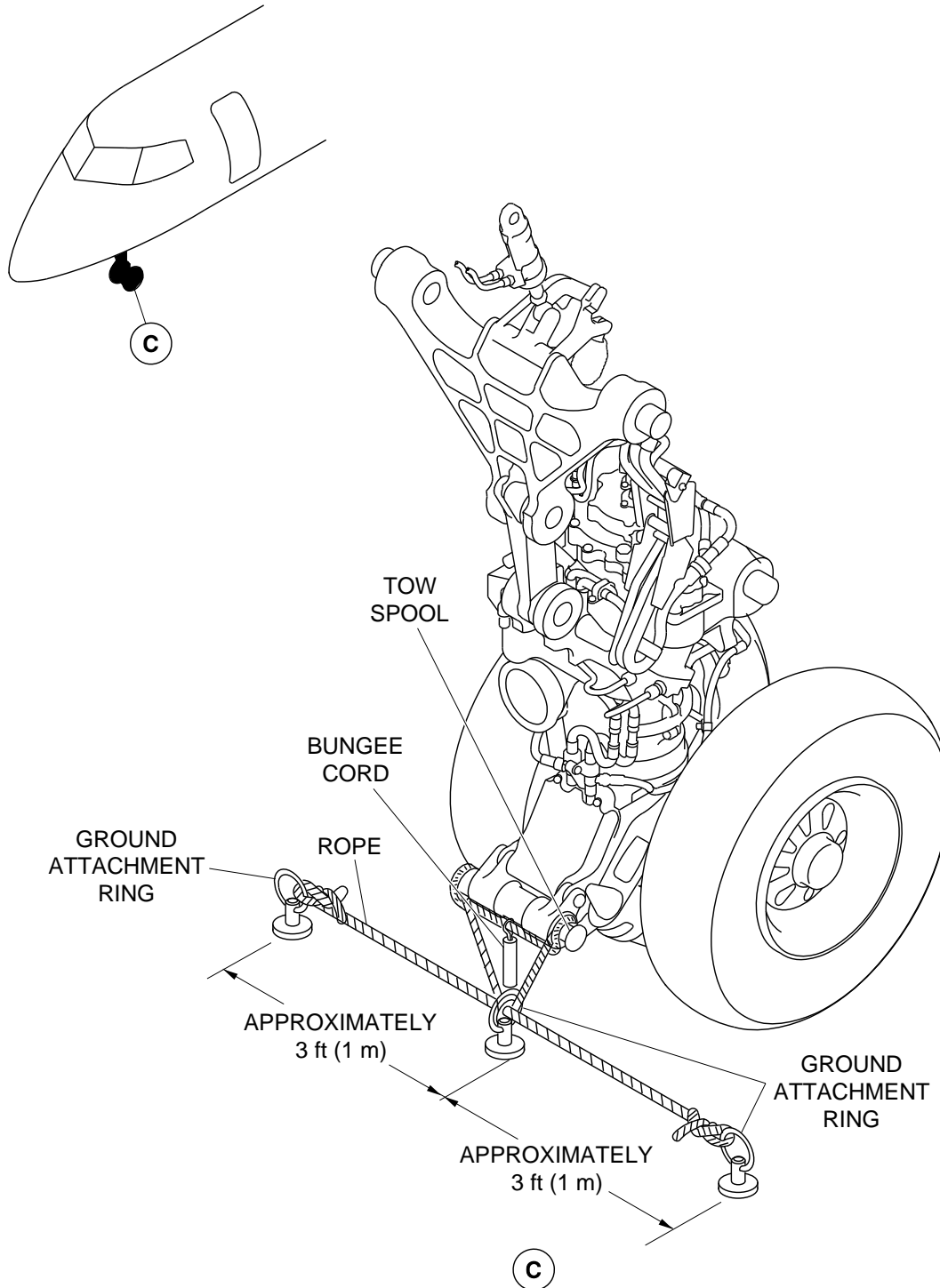
- 1. Protective spool.
- 2. Rope.
- 3. Ground attachment ring.

AIRCRAFT TIE DOWN PROVISIONS (Sheet 1 of 2)

Figure 4 – 8



AIRPORT PLANNING MANUAL



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AIRCRAFT TIE DOWN PROVISIONS (Sheet 2 of 2)

Figure 4 – 8



AIRPORT PLANNING MANUAL

CHAPTER 5

TERMINAL SERVICING

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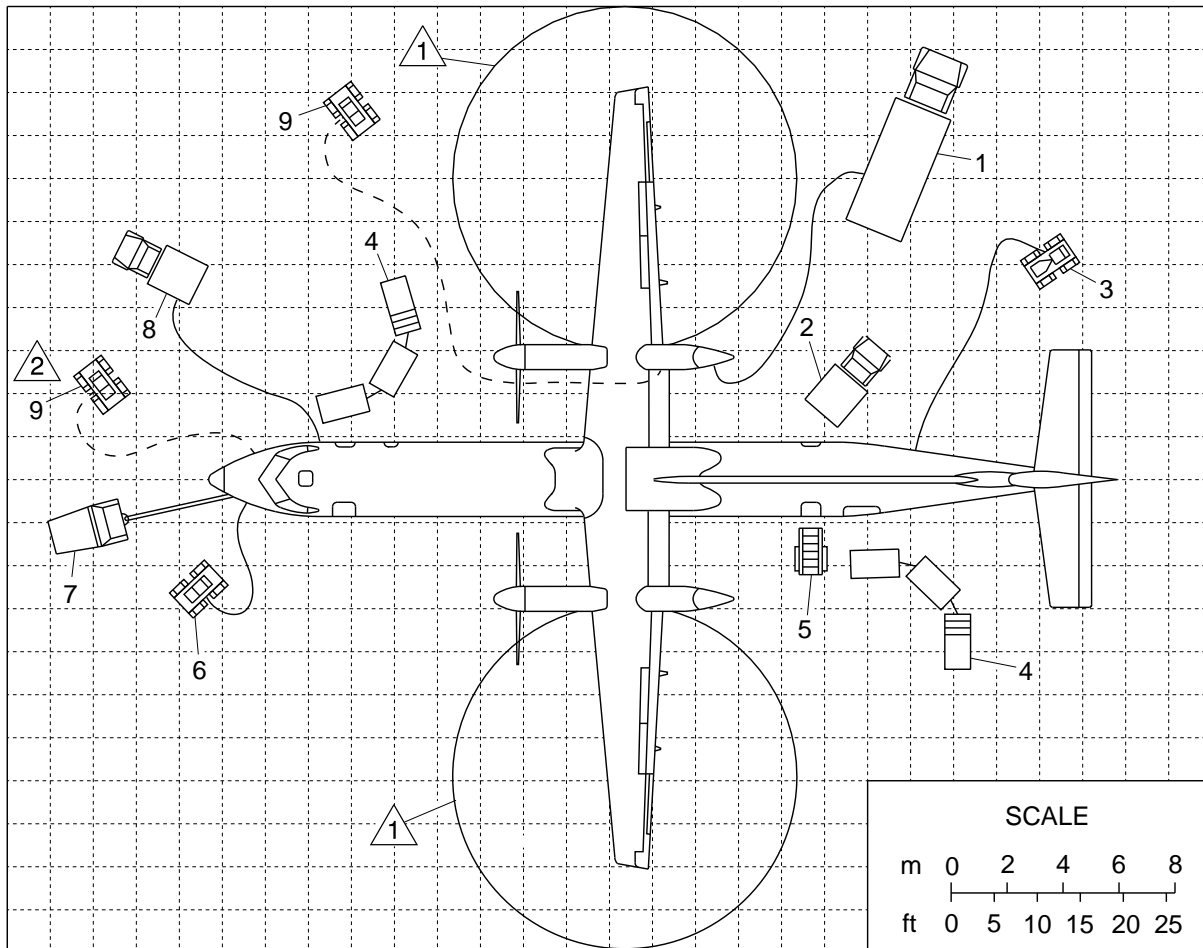
AIRPORT PLANNING MANUAL

General Information

1. This chapter supplies ground service information for the Dash-8 Series 400.
 - A. A typical servicing arrangement (no APU) is shown in Figure 5-1.
 - B. Terminal operations are shown in Figure 5-2 and Figure 5-3.
 - C. Locations of ground servicing points are shown in Figure 5-4.
 - D. Data about the ground service connections is shown in Figure 5-5.
 - E. The ground-power electrical requirements for engine starting are shown in Figure 5-6.
 - F. Ground towing requirements are shown in Figure 5-7.
 - G. Ground air conditioning requirements for pre conditioned airplane are shown in Figure 5-8.



AIRPORT PLANNING MANUAL



LEGEND

- 1. Fuel truck.
- 2. Cabin and buffet service vehicle.
- 3. Ground air-conditioning unit (not required, if optional APU is installed).
- 4. Tractor with baggage carts.
- 5. Portable stairway.
- 6. DC electrical-power unit.
- 7. Towing tractor (if required).
- 8. Toilet service vehicle.
- 9. AC electrical-power unit (if required, for maintenance activities).

NOTES

- 1 Zone around fuel vents – keep clear during refuelling.
- 2 For option 824CH00114, 824SO90105.

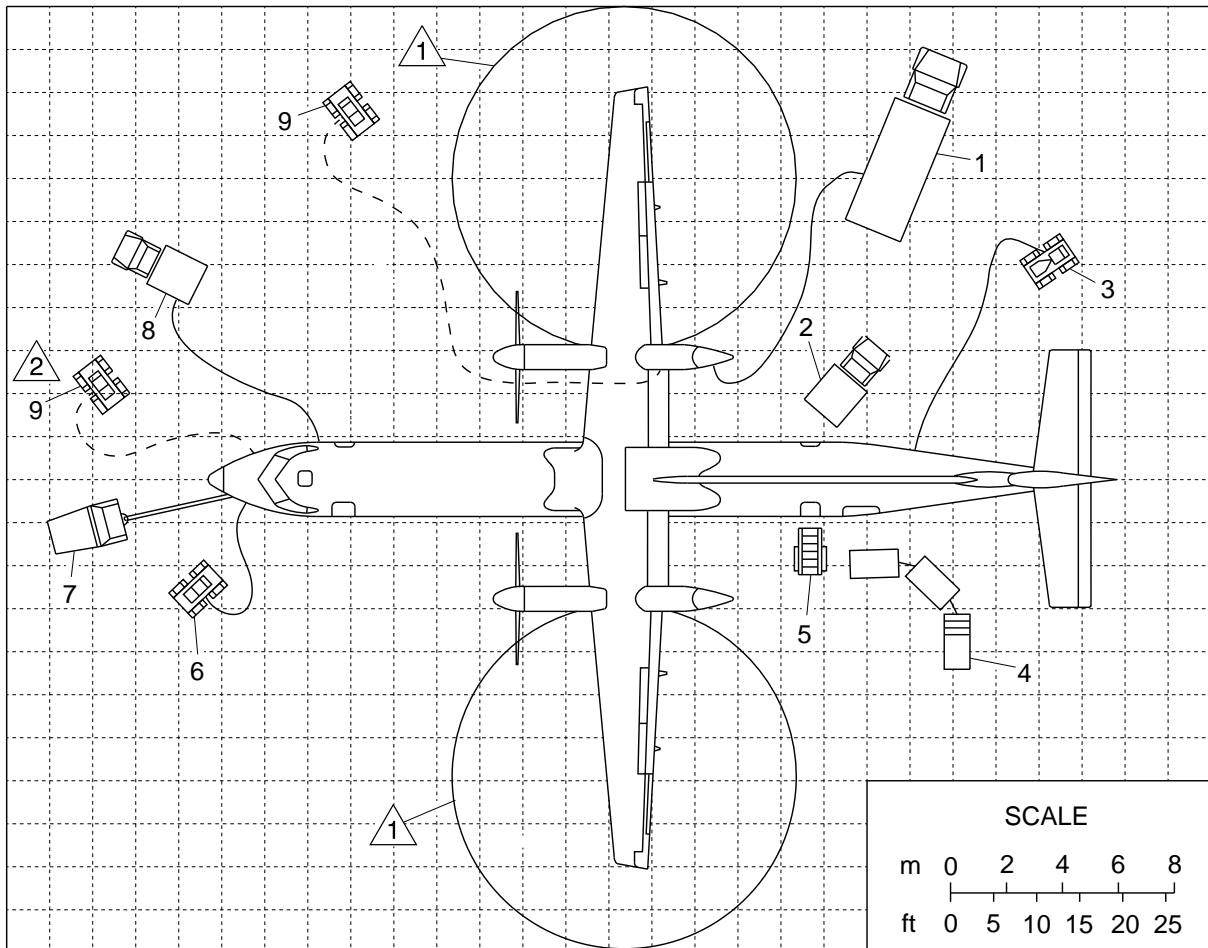
AIRCRAFT SERVICING ARRANGEMENT (STANDARD CONFIGURATION)

AIRCRAFT SERVICING ARRANGEMENT (TYPICAL – NO APU) (Sheet 1 of 4)

Figure 5 – 1



AIRPORT PLANNING MANUAL



LEGEND

- | | |
|--|--|
| 1. Fuel truck. | 6. DC electrical-power unit. |
| 2. Cabin and buffet service vehicle. | 7. Towing tractor (if required). |
| 3. Ground air-conditioning unit (not required, if optional APU is installed). | 8. Toilet service vehicle. |
| 4. Tractor with baggage carts. | 9. AC electrical-power unit. (if required, for maintenance activities). |
| 5. Portable stairway. | |

NOTES

- △ 1 Zone around fuel vents – keep clear during refuelling.
- △ 2 For option 824CH00114, 824SO90105.

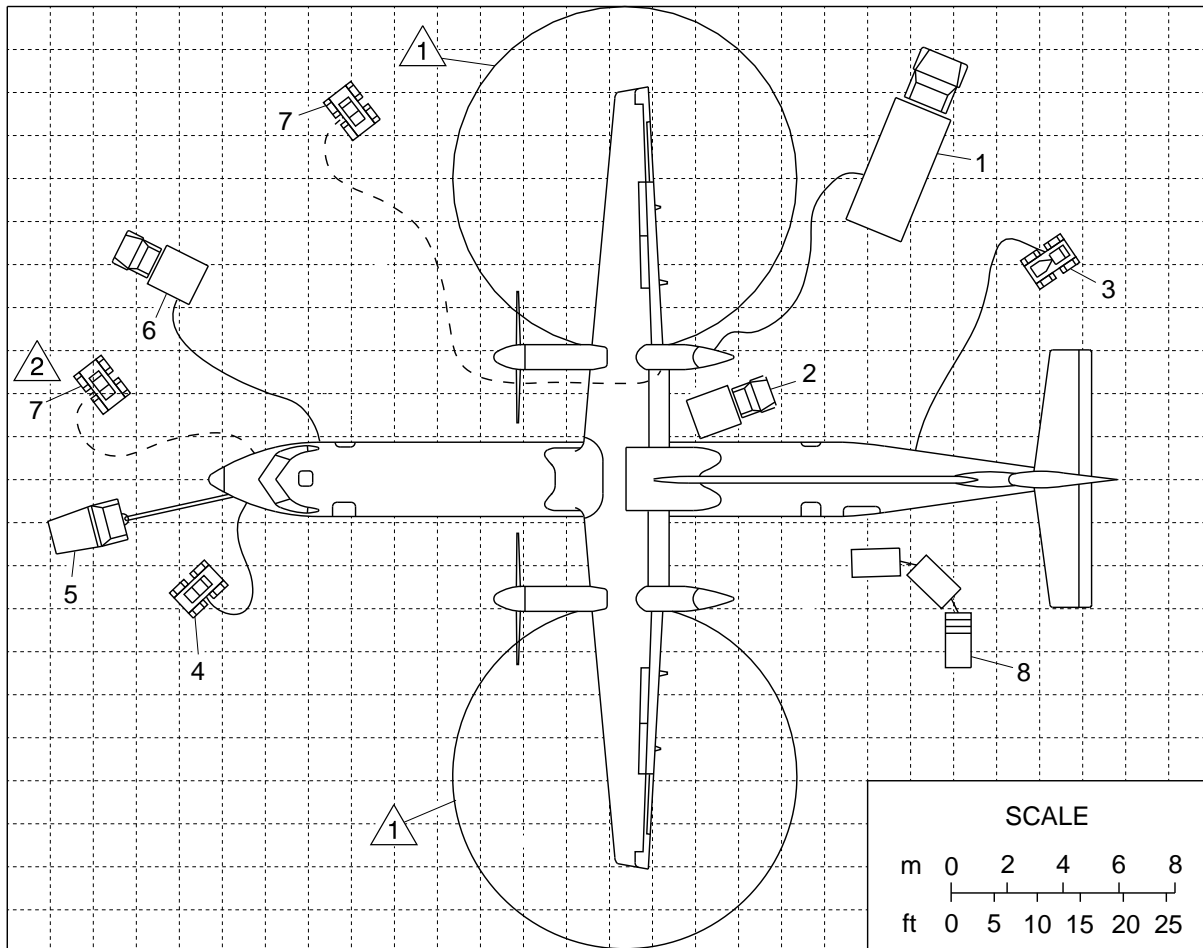
AIRCRAFT SERVICING ARRANGEMENT (EXTRA CAPACITY CONFIGURATION)

AIRCRAFT SERVICING ARRANGEMENT (TYPICAL – NO APU) (Sheet 2 of 4)

Figure 5 – 1



AIRPORT PLANNING MANUAL



LEGEND

- 1. Fuel truck.
- 2. Cabin and buffet service vehicle.
- 3. Ground air-conditioning unit (not required, if optional APU is installed).
- 4. DC electrical-power unit.
- 5. Towing tractor (if required).
- 6. Toilet service vehicle.
- 7. AC electrical-power unit (if required, for maintenance activities).
- 8. Tractor with baggage carts.

NOTES

- 1 Zone around fuel vents – keep clear during refuelling.
- 2 For option 824CH00114, 824SO90105.

AIRCRAFT SERVICING ARRANGEMENT (CARGO COMBI CONFIGURATION)

AIRCRAFT SERVICING ARRANGEMENT (TYPICAL – NO APU) (Sheet 3 of 4)

Figure 5 – 1



AIRPORT PLANNING MANUAL

| SYSTEM | ADAPTER |
|-------------------------|--|
| PRESSURE REFUELLING | MS 24484-2 |
| DC ELECTRICAL POWER | MS 3506-1 (AIRCRAFT CONNECTOR); MS 25488 (MATING GROUND CONNECTOR) |
| AC ELECTRICAL POWER | CANNON CE9310-10 (AIRCRAFT CONNECTOR) CE9183 (MATING GROUND CONNECTOR) |
| GROUND AIR CONDITIONING | MS 33562 8.00 in. (20.32 cm); RECEPTACLE (OPTIONAL INSTALLATION) |
| TOILET SERVICING | MS 2651-133 ROYLYN 'Y' DRAIN COUPLING PLUS STANDARD 1.00 in. (2.54 cm) FILLPORT |
| GROUND CREW INTERPHONE | 300 OHM IMPEDANCE THROAT MICROPHONE WITH SWITCH – AIRCRAFT CONNECTOR 72340012-001 (SWITCHCRAFT C-55B); MATING GROUND CONNECTOR PF051B (NATO 4-WAY JACK PLUG) |

HYDRAULIC SYSTEM

| DESCRIPTION | SIZE | EQUIPMENT INTERFACE DETAILS | | AIRCRAFT INTERFACE DETAILS | |
|--|------|-----------------------------|-----------------|----------------------------|----------|
| | | ADAPTER | PROTECTIVE PLUG | ADAPTER | DUST CAP |
| HYDRAULIC POWER UNIT (PRESSURE) | 8 | AE99111H | AE81618H | AE9110H | AE81617H |
| HYDRAULIC POWER UNIT (RETURN) | 10 | AE99140J | AE80660J | AE99139J | AE81724J |
| HYDRAULIC SERVICING/REPLENISHING DISPENSER | 4 | AE99140E | AE80660E | AE99149E | AE81724E |

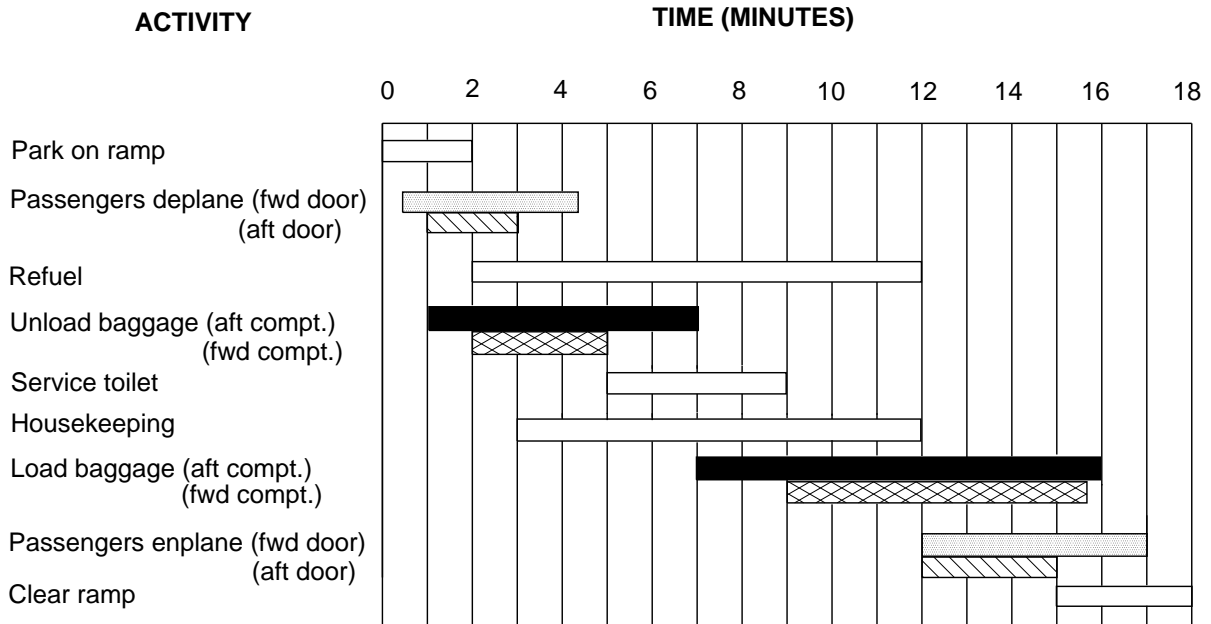
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AIRCRAFT SERVICING ARRANGEMENT (TYPICAL – NO APU) (Sheet 4 of 4)

Figure 5 – 1



AIRPORT PLANNING MANUAL



DEFINITION

DESCRIPTION

| | |
|-------------------|---|
| Park on ramp | Aircraft stops, propellers stop turning, insert chocks. Connect external power and cooling equipment or start APU. |
| Passenger deplane | Open forward passenger (airstair) door. Open aft passenger door and position stairs. Passenger use both doors to deplane with carry-on luggage. |
| Refuel | Add fuel for 4 X 200 sm stages. |
| Unload baggage | Remove 1.5 pieces per passenger. |
| Service toilet | Use standard external servicing-equipment. |
| Housekeeping | Tidy cabin, starting from rear. Service galley. |
| Load baggage | Load and stack 1.5 pieces per passenger. |
| Passenger enplane | Passenger stow carry-on baggage and are seated. Doors are closed. |
| Clear ramp | Disconnect ground, external power and cooling equipment. Start engines and remove chocks. |

NOTE

Forward baggage compartment and forward baggage door are removed for the extra capacity and cargo combi configuration.

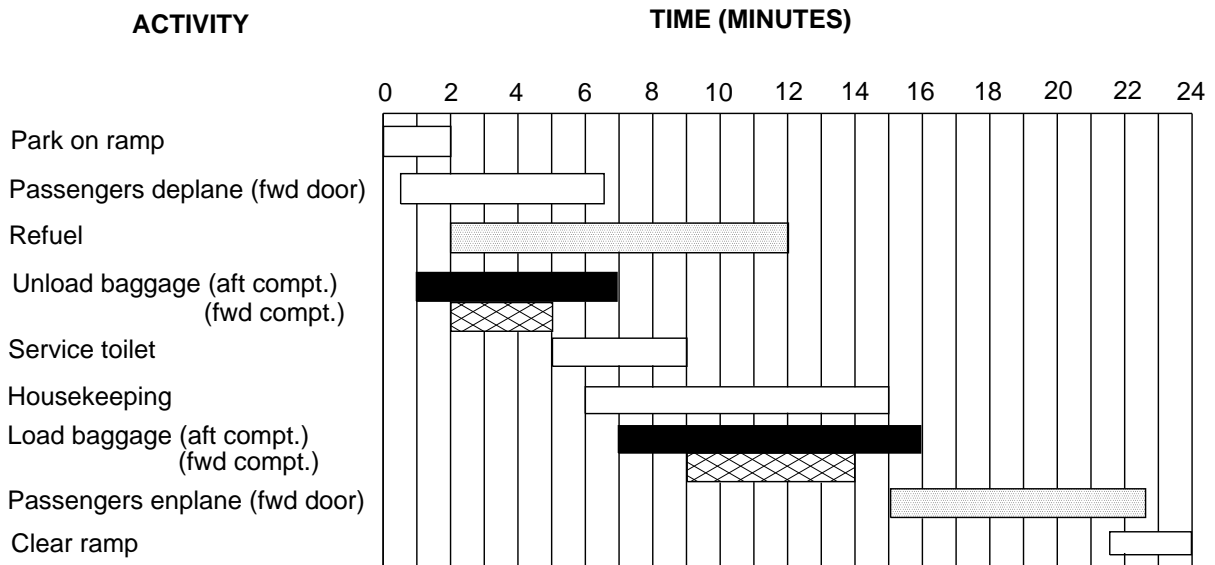
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RAPID TURNAROUND USING FORWARD AND AFT DOORS

Figure 5 – 2



AIRPORT PLANNING MANUAL



DEFINITION

DESCRIPTION

| | |
|-------------------|---|
| Park on ramp | Aircraft stops, propellers stop turning, insert chocks. Connect external power and cooling equipment or start APU. |
| Passenger deplane | Open forward passenger (airstair) door. Passenger use forward door to deplane with carry-on luggage. |
| Refuel | Add fuel for 4 X 200 sm stages. |
| Unload baggage | Remove 1.5 pieces per passenger. |
| Service toilet | Use standard external servicing-equipment. |
| Housekeeping | Tidy cabin, starting from rear. Service galley. |
| Load baggage | Load and stack 1.5 pieces per passenger. |
| Passenger enplane | Passenger stow carry-on baggage and are seated. Doors are closed. |
| Clear ramp | Disconnect ground, external power and cooling equipment. Start engines and remove chocks. |

NOTE

Forward baggage compartment and forward baggage door are removed for the extra capacity and cargo combi configuration.

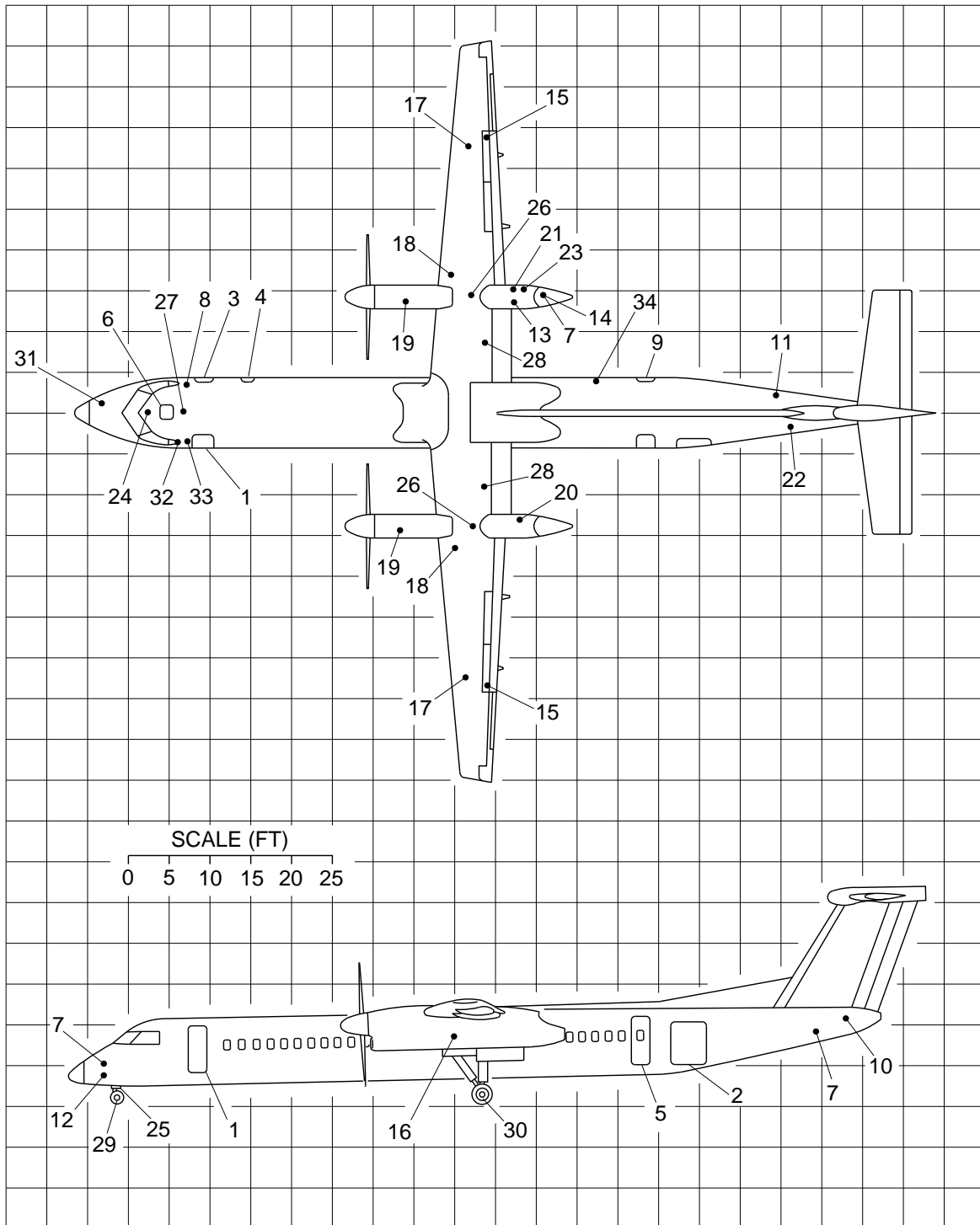
cg3545a01.dg, cs/mn, aug19/2016

RAPID TURNAROUND USING FORWARD DOOR ONLY

Figure 5 – 3



AIRPORT PLANNING MANUAL



GROUND SERVICING POINT LOCATIONS (STANDARD CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 1 of 6)

Figure 5 – 4

cg3539a01.dwg, cs, aug06/2014



AIRPORT PLANNING MANUAL

LEGEND

1. Forward passenger door.
2. Aft baggage door.
3. Forward baggage door.
4. Type II/III emergency exit.
5. Aft passenger door.
6. Flight compartment emergency exit.
7. Interphone connectors (3).
8. Lavatory service/ optional wash water service.
9. Galley service door/type I emergency exit.
10. Optional auxiliary power unit (APU).
11. Optional conditioned air connection.
12. Electrical DC power receptacle.
13. Electrical AC power receptacle (optional installation on right nose fuselage).
14. Pressure refueling panel and ground point.
15. Ground point (overwing–both sides).
16. Aircraft ground point (on undercarriage–both sides).
17. Gravity fuel filler (over wing–both sides).
18. Magnastick (fuel quantity–underwing–both sides).
19. Engine oil filler panel.
20. No.1 Hydraulic system.
21. No.2 Hydraulic system.
22. No.3 Hydraulic system.
23. Brake accumulator and hydraulic hand pump.
24. Emergency landing gear hydraulic reservoir and hand pump.
25. Nose landing gear shock strut charging point.
26. Main landing gear shock strut charging point (under nacelle–both sides).
27. Nose jacking point.
28. Wing jacking point (underwing–both sides).
29. Nose landing gear jacking point.
30. Main landing gear jacking point (both sides).
31. Crew oxygen supply.
32. Avionics bay.
33. Wardrobe.
34. Optional galley water service.

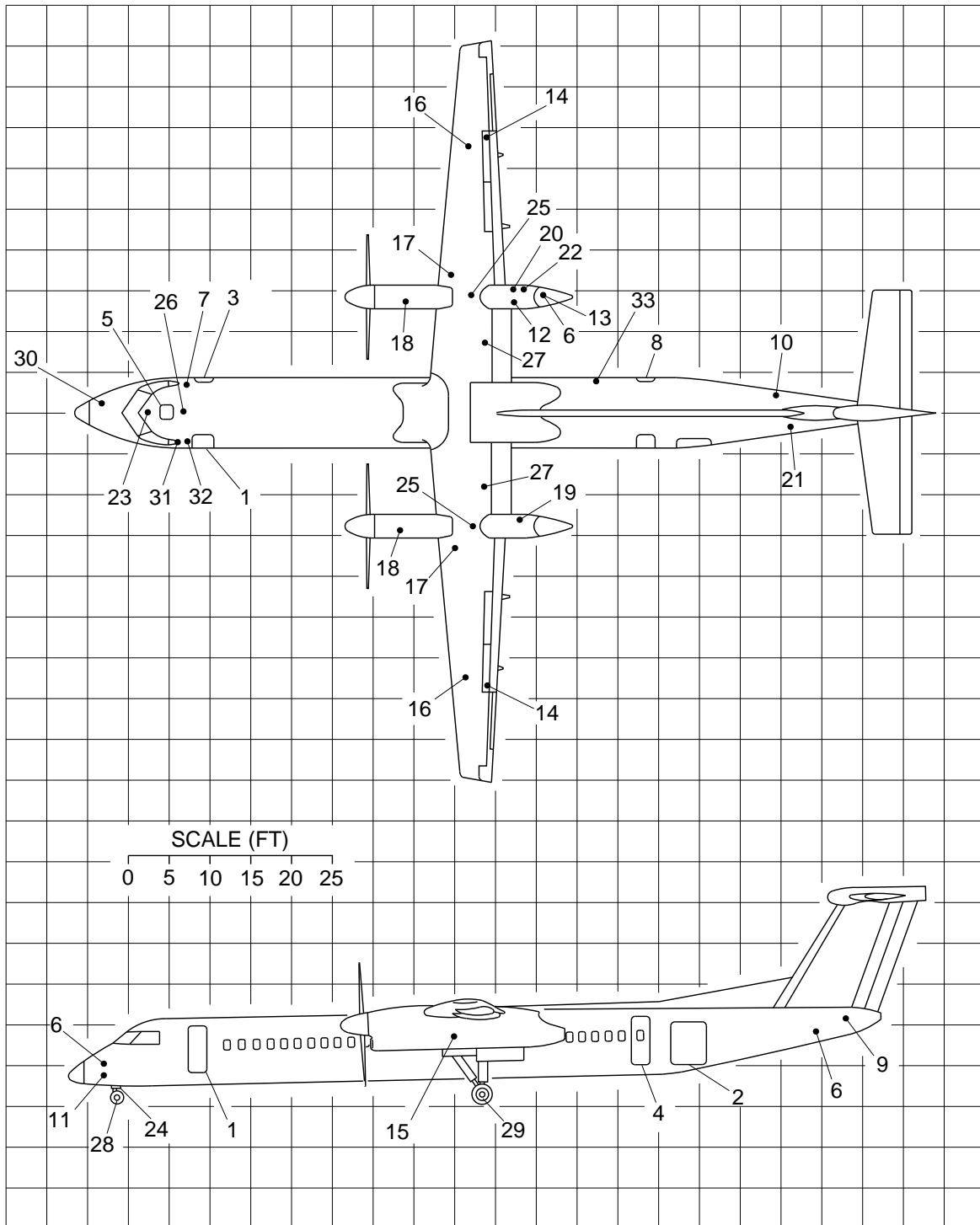
GROUND SERVICING POINT LOCATIONS (STANDARD CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 2 of 6)

Figure 5 – 4



AIRPORT PLANNING MANUAL



GROUND SERVICING POINT LOCATIONS (EXTRA CAPACITY CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 3 of 6)

Figure 5 - 4

cg3539a03.dg, cs/vk, sep21/2016



AIRPORT PLANNING MANUAL

LEGEND

1. Forward passenger door.
2. Aft baggage door.
3. Forward type I emergency exit door.
4. Aft passenger door.
5. Flight compartment emergency exit.
6. Interphone connectors (3).
7. Lavatory service/ optional wash water service..
8. Galley service door/type I emergency exit.
9. Optional auxiliary power unit (APU).
10. Optional conditioned air connection.
11. Electrical DC power receptacle.
12. Electrical AC power receptacle (optional installation on right nose fuselage).
13. Pressure refueling panel and ground point.
14. Ground point (overwing–both sides).
15. Aircraft ground point (on undercarriage–both sides).
16. Gravity fuel filler (over wing–both sides).
17. Magnastick (fuel quantity–underwing–both sides).
18. Engine oil filler panel.
19. No.1 Hydraulic system.
20. No.2 Hydraulic system.
21. No.3 Hydraulic system.
22. Brake accumulator and hydraulic hand pump.
23. Emergency landing gear hydraulic reservoir and hand pump.
24. Nose landing gear shock strut charging point.
25. Main landing gear shock strut charging point (under nacelle–both sides).
26. Nose jacking point.
27. Wing jacking point (underwing–both sides).
28. Nose landing gear jacking point.
29. Main landing gear jacking point (both sides).
30. Crew oxygen supply.
31. Avionics bay.
32. Wardrobe.
33. Optional galley water service.

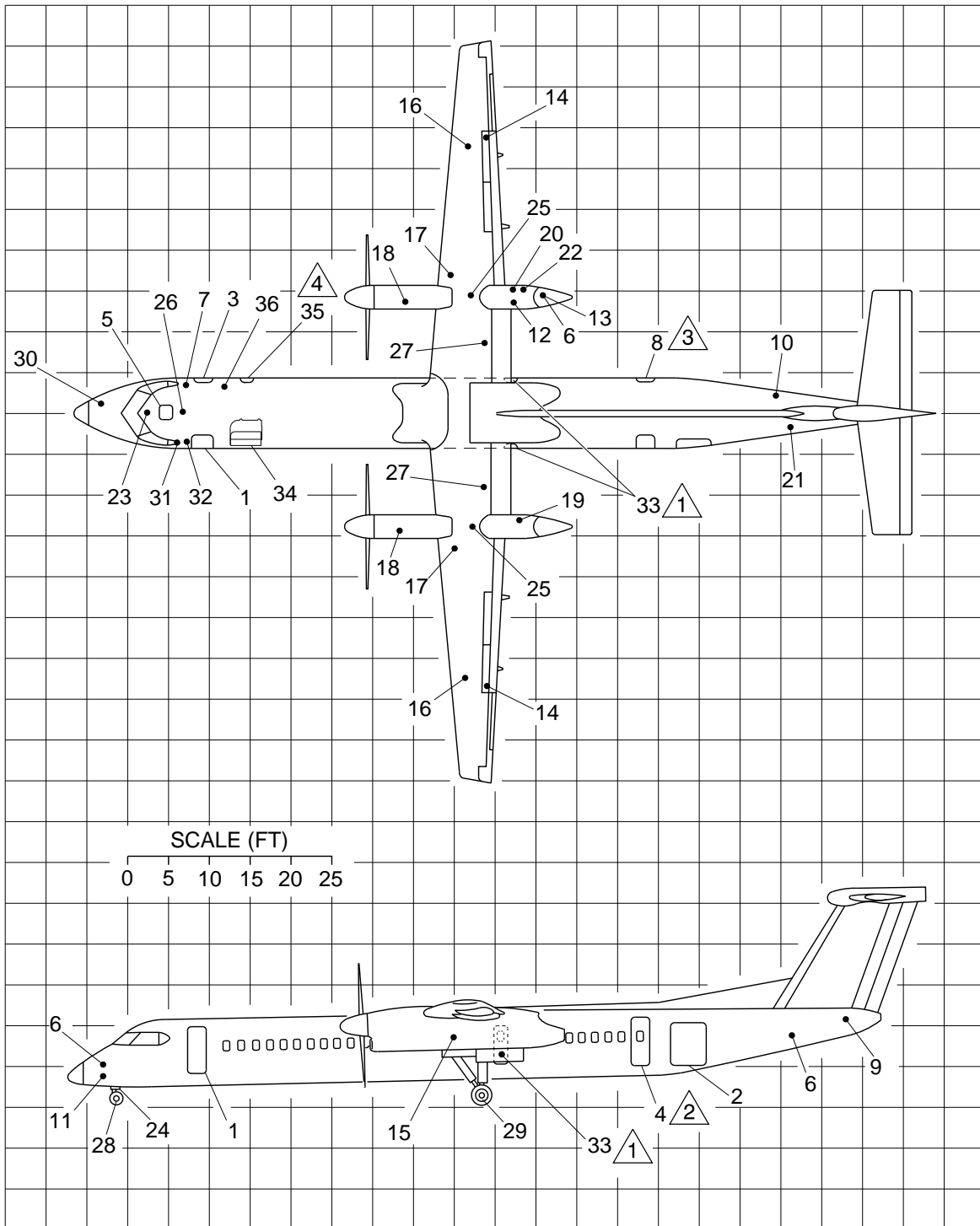
GROUND SERVICING POINT LOCATIONS (EXTRA CAPACITY CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 4 of 6)

Figure 5 – 4



AIRPORT PLANNING MANUAL



GROUND SERVICING POINT LOCATIONS (CARGO COMBI CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 5 of 6)

Figure 5 - 4

cg3539a05.dwg, nn, aug19/2016



AIRPORT PLANNING MANUAL

LEGEND

1. Forward passenger door.
2. Aft baggage door.
3. Forward type I emergency exit door.
4. Aft passenger door.
5. Flight compartment emergency exit.
6. Interphone connectors (3).
7. Lavatory service/optional wash water service.
8. Type I exit/aft service door.
9. Optional auxiliary power unit (APU).
10. Optional conditioned air connection.
11. Electrical DC power receptacle.
12. Electrical AC power receptacle (optional installation on right nose fuselage).
13. Pressure refueling panel and ground point.
14. Ground point (overwing—both sides).
15. Aircraft ground point (on undercarriage—both sides).
16. Gravity fuel filler (over wing—both sides).
17. Magnastick (fuel quantity—underwing—both sides).
18. Engine oil filler panel.
19. No.1 Hydraulic system.
20. No.2 Hydraulic system.
21. No.3 Hydraulic system.
22. Brake accumulator and hydraulic hand pump.
23. Emergency landing gear hydraulic reservoir and hand pump.
24. Nose landing gear shock strut charging point.
25. Main landing gear shock strut charging point (under nacelle—both sides).
26. Nose jacking point.
27. Wing jacking point (underwing—both sides).
28. Nose landing gear jacking point.
29. Main landing gear jacking point (both sides).
30. Crew oxygen supply.
31. Avionics bay.
32. Wardrobe.
33. Type III emergency exit door.
34. C1A Wardrobe.
35. Type II/III emergency exit door.
36. Optional galley water service.

NOTES

- 1 Type III emergency exit doors are installed at the station X479.70 on both the sides of the aircraft with the cargo combi configuration.
- 2 The aft passenger door is de-activated for the cargo combi configuration.
- 3 Forward baggage door is installed in lieu of aft service door and de-activated for the cargo combi configuration.
- 4 Type II/III emergency exit door is de-activated for the cargo combi configuration.

GROUND SERVICING POINT LOCATIONS (CARGO COMBI CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 6 of 6)

Figure 5 – 4



AIRPORT PLANNING MANUAL

| SYSTEM | DISTANCE AFT OF NOSE | | DISTANCE FROM AIRCRAFT CENTER LINE ¹ | | | | HEIGHT FROM GROUND ² | |
|--|----------------------|--------|---|---------|-----------------|---------|---------------------------------|--------|
| | ¹ | | LEFT SIDE | | RIGHT SIDE | | ² | |
| | FT | M | FT | M | FT | M | FT | M |
| Hydraulic System (Phosphate-Ester Based Hydraulic-Fluid) 3 Service Points | | | | | | | | |
| -Access door on inboard L/H nacelle for No. 1 Hyd. System (reservoir capacity is 8 U.S. quarts, (7.57 L)) | 52 ft 2 in. | 15.9 m | 12 ft 11 in. | 3.94 m | — | — | 8 ft 8 in. | 2.64 m |
| -Access door on inboard R/H nacelle for No. 2 Hyd. System (reservoir capacity is 12 U.S. quarts, (11.35 L)) | 52 ft 2 in. | 15.9 m | — | — | 15 ft 11 in. | 4.85 m | 8 ft 8 in. | 2.64 m |
| -No. 3 Hyd. System reservoir (located in aft fuselage, 2 U.S. quarts, 1.89 L) | 90 ft 8 in. | 27.6 m | 1 ft 8 in. | 50.1 cm | — | — | 7 ft 8 in. | 2.34 m |
| Electrical System 2 Service Connections | | | | | | | | |
| -28 volt DC External Power Receptacle (capacity is 550 A continuous, 2000 A peak) | 4 ft 11 in. | 1.51 m | 2 ft 6 in. | 75.2 cm | — | — | 3 ft 10 in. | 1.16 m |
| Nacelle Location -115/200 volt A/C External Power Receptacle (capacity is 20 KVA MIN.,3-PH.,400Hz) | 51 ft 11 in. | 15.8 m | — | — | 12 ft 11 in. | 3.94 m | 8 ft 3 in. | 2.52 m |
| Nose Fuselage Location ³ -115/200 volt A/C External Power Receptacle (capacity is 20 KVA MIN.,3-PH.,400Hz) | 4 ft 11 in. | 1.51 m | — | — | 2 ft 6 in. | 75.2 cm | 3 ft 10 in. | 1.16 m |
| Oxygen System 1 Service Connection | | | | | | | | |
| -Charging valve for one 39.8 ft ³ (1100 L) Capacity Crew Supply (in nose compartment) | 4 ft 6 in. | 1.37 m | — | — | 1 ft 7 in. | 48.3 cm | 4 ft 0 in. | 1.22 m |
| Three 11.0 ft ³ (311L) portable passenger cylinders | | | | | | | | |
| One 11.0 ft ³ (311L) first-aid portable cylinder (optional) | | | | | | | | |

NOTES



These measurements are approximate.



For option 824CH00114 and 824SO90105.



These measurements are approximate and will vary with aircraft configuration and loading conditions.

br887a01.dg, swl/cm, nov13/2013

GROUND SERVICE CONNECTIONS DATA (Sheet 1 of 3)

Figure 5 – 5



AIRPORT PLANNING MANUAL

| SYSTEM | DISTANCE AFT OF NOSE | | DISTANCE FROM AIRCRAFT CENTER LINE ¹ | | | | HEIGHT FROM GROUND | |
|---|----------------------|--------|---|--------|----------------|---------|--------------------|---------|
| | ¹ | | LEFT SIDE | | RIGHT SIDE | | ² | |
| | FT | M | FT | M | FT | M | FT | M |
| Fuel System | | | | | | | | |
| 3 Service Points | | | | | | | | |
| -One Single-Point Refuel/Defuel Adapter (on Refuel/Defuel Panel) | 58 ft 7 in. | 17.8 m | — | — | 14 ft 5 in. | 4.40 m | 7 ft 3 in. | 2.22 m |
| -Two over-wing Gravity Filling-Points (one on each wing) | 49 ft 1 in. | 14.9 m | 33 ft 1 in. | 10.1 m | 33 ft 1 in. | 10.1 m | 12 ft 11 in. | 3.94 m |
| -2 pairs of Fuel Vents (one pair under each wing) | 49 ft 0 in. | 14.9 m | 34 ft 8 in. | 10.6 m | 34 ft 8 in. | 10.6 m | 12 ft 4 in. | 3.75 m |
| Landing Gear System | | | | | | | | |
| 3 Servicing Points (Nitrogen) | | | | | | | | |
| -One Shock-Strut Valve on each Main Gear | 51 ft 9 in. | 15.8 m | 14 ft 5 in. | 4.40 m | 14 ft 5 in. | 4.40 m | 4 ft 9 in. | 1.44 m |
| -One Shock-Strut Valve on Nose Gear | 6 ft 2 in. | 1.88 m | — | — | — | — | 2 ft 10 in. | 87.5 cm |
| -Charging Valve for Parking Brake Accumulator (behind access panel on R/H fuselage at wing root). | 52 ft 4 in. | 15.9 m | — | — | 3 ft 11 in. | 1.08 m | 10 ft 11 in. | 3.33 m |
| 1 Servicing Point (Phosphate-Ester Based Hydraulic-Fluid). | | | | | | | | |
| -Filling Point for reservoir of Alternate Landing-Gear Extension-System (in nose compartment) (1 U.S. quarts, 0.95 L) | 4 ft 6 in. | 1.37 m | — | — | 2 ft 4 in. | 71.1 cm | 3 ft 7 in. | 1.10 m |

¹ These measurements are approximate.

² These measurements are approximate and will vary with aircraft configuration and loading conditions.

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GROUND SERVICE CONNECTIONS DATA (Sheet 2 of 3)

Figure 5 – 5



AIRPORT PLANNING MANUAL

| SYSTEM | DISTANCE AFT OF NOSE | | DISTANCE FROM AIRCRAFT CENTER LINE | | | | HEIGHT FROM GROUND | |
|---|----------------------|--------|------------------------------------|--------|-----------------|---------|--------------------|---------|
| | 1 | | LEFT SIDE | | RIGHT SIDE | | 2 | |
| | FT | M | FT | M | FT | M | FT | M |
| Air Conditioning System | | | | | | | | |
| 1 Air-Conditioning ground connection (optional) | | | | | | | | |
| -One 8 inch (20.3 cm) receptacle (on R/H side of aft fuselage) | 86 ft 4 in. | 26.3 m | — | — | 1 ft 9 in. | 54.2 cm | 6 ft 5 in. | 1.96 m |
| Toilet | | | | | | | | |
| 1 Service Point | | | | | | | | |
| -1 Service connection on Lavatory Service Panel (capacity of toilet flush reservoir is 3.3 U.S. gallons (13 L)) | 14 ft 1 in. | 4.29 m | — | — | 2 ft 9 in. | 82.5 cm | 3 ft 1 in. | 93.2 cm |
| Oil | | | | | | | | |
| 2 Servicing Points | | | | | | | | |
| -Oil Filter behind access door on L/H side of each nacelle (tank capacity is 5.9 U.S. gallons (22.3 L)) | 40 ft 11 in. | 12.5 m | 15 ft 11 in. | 4.85 m | 12 ft 11 in. | 3.94 m | 9 ft 7 in. | 2.91 m |

1 These measurements are approximate.

2 These measurements are approximate and will vary with aircraft configuration and loading conditions.

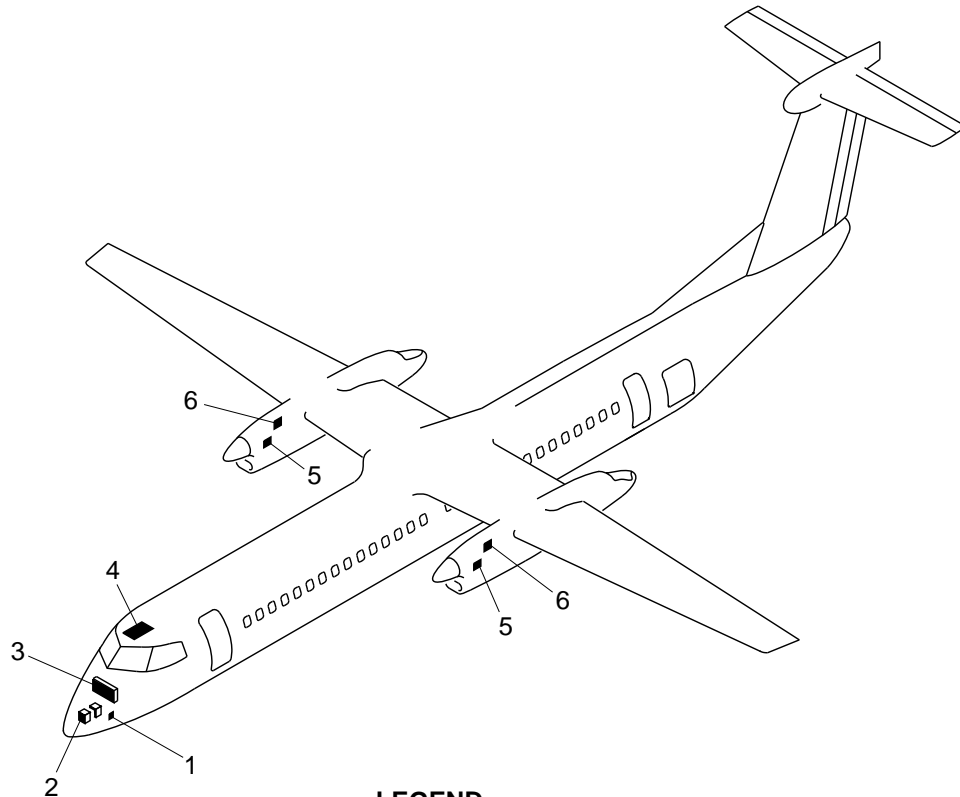
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GROUND SERVICE CONNECTIONS DATA (Sheet 3 of 3)

Figure 5 – 5



AIRPORT PLANNING MANUAL



LEGEND

1. External DC power receptacle.
2. Battery installation.
3. DC contactor box (includes start control relays).
4. Overhead console panel.
5. Ignition box.
6. Starter generator.

| CONDITIONS AT TYPICAL ENGINE START | | |
|--|--|--|
| NOMINAL STARTING VOLTAGE (VDC) | ENGINE START CURRENT REQUIRED FROM GROUND DC POWER CART (AMPS) | CORRESPONDING DURATION OF CRANKING (SECONDS) |
| 28 | 1200-1400 | 2-3 |
| | 600-800 | 5 |
| | 400 | 60 |
| NOTE: SET THE GROUND DC POWER CART LIMIT TO 1500 AMPS MINIMUM. | | |

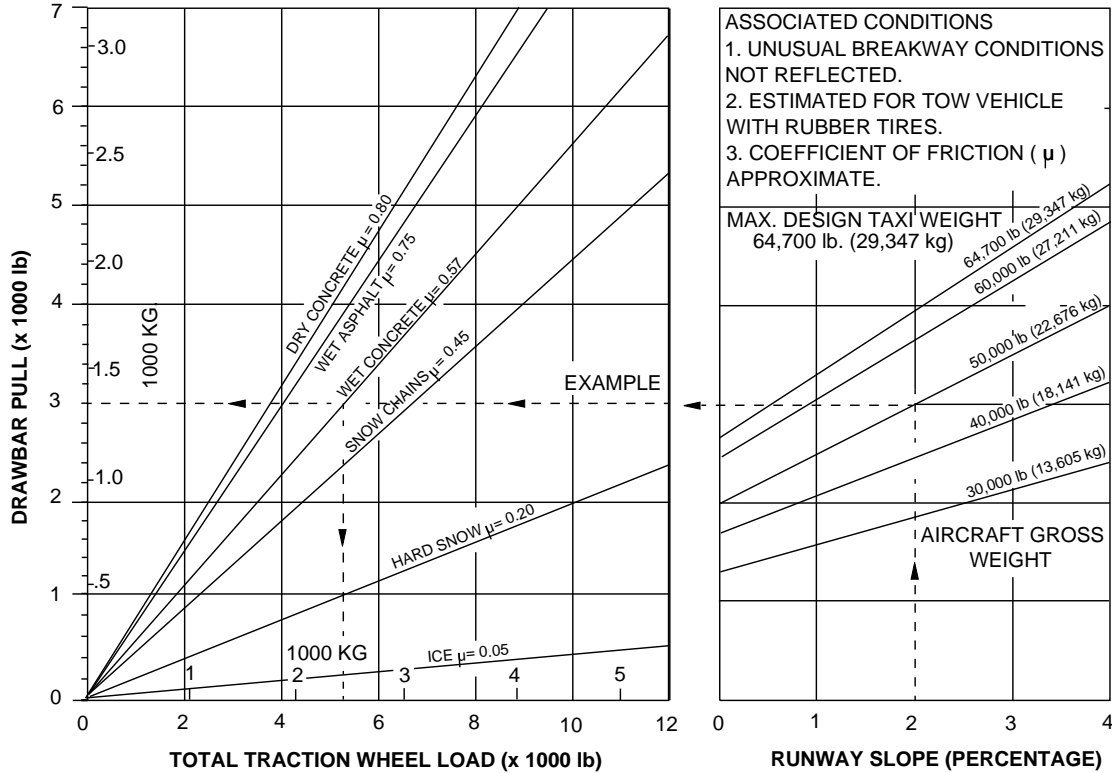
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ELECTRICAL REQUIREMENTS FOR ENGINE STARTING

Figure 5 – 6



AIRPORT PLANNING MANUAL



EXAMPLE :

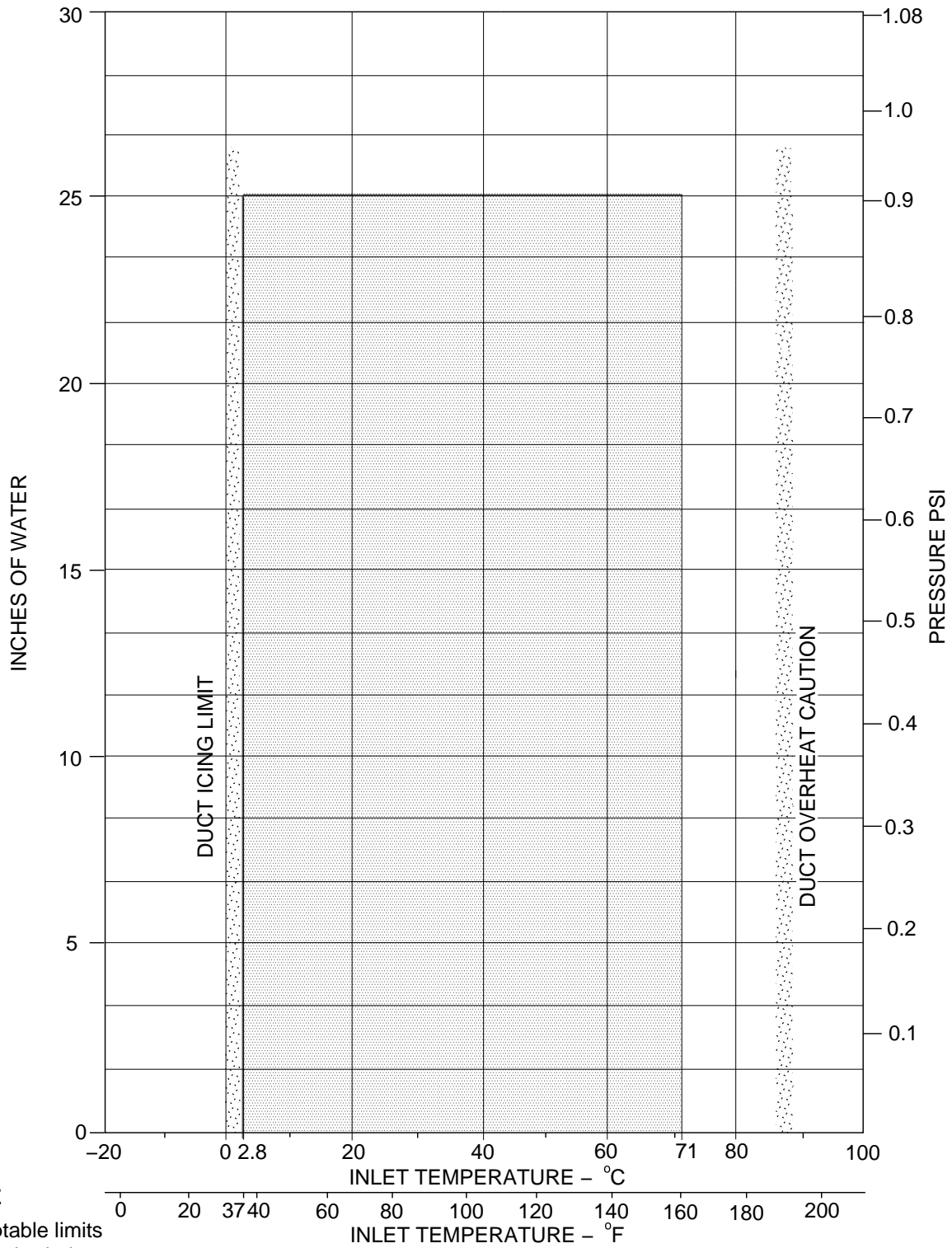
At an aircraft gross weight of 50,000 lb (22,676 kg), an uphill slope of 2 % and with a wet concrete surface, the corresponding draw bar pull or push required is 3,000 lb (1,360 kg) and the total traction wheel load is 5,250 lb (2,381 kg).

GROUND TOWING REQUIREMENTS

Figure 5 – 7



AIRPORT PLANNING MANUAL



NOTE
 Acceptable limits
 within shaded area.

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GROUND AIR CONDITIONING REQUIREMENTS – PRE CONDITIONED AIR

Figure 5 – 8

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AIRPORT PLANNING MANUAL

CHAPTER 6

OPERATING CONDITIONS AND NOISE DATA

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AIRPORT PLANNING MANUAL

General Information

1. 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 its 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 surrounding communities.
2. The Dash-8, Series 400 aircraft is designed with advanced, quiet, turboprop technology. Its noise impact is minimal compared to most aircraft, larger and smaller, currently being operated in a typical airport.
3. To help the airport planner to estimate the impact of the Dash-8 Series 400 on airport operations, the following material is provided:

A. Engine Exhaust Temperature Contours

- (1) Data on the exhaust temperature contours at ground idle, flight idle and take-off power settings are shown in Figure 6-1, Figure 6-2, Figure 6-3, Figure 6-4, Figure 6-5 and Figure 6-6.

B. Airport and Community Noise Data for Powerplants

- (1) Data on the takeoff and landing noise footprints for the PW150A powerplants are shown in Figure 6-7 and Figure 6-8.
- (2) The Dash-8, Series 400 complies with the Stage 3 noise-level limits under the trade-off clause specified in FAR 36, Section C36.5b and also under AWM 516 and JAR 36 standards. A summary of the certified noise levels, measured and corrected to these standards, is shown in the table that follows:

| | FAR 36 Stage 3 Noise Limit (EPNdB) | Dash-8 Series 400 Noise Level (EPNdB) | Margin (EPNdB) |
|----------|---|--|-----------------------|
| Take-off | 89 | 78.3 | +10.7 |
| Lateral | 94 | 84.2 | +9.8 |
| Approach | 98 | 94.9 | +3.1 |

C. Community Noise Data for Optional APU

- (1) The results of ramp noise tests for the optional APU are shown in Figure 6-9.

NOTE: Exhaust temperature contours for the optional APU is not available at this time.

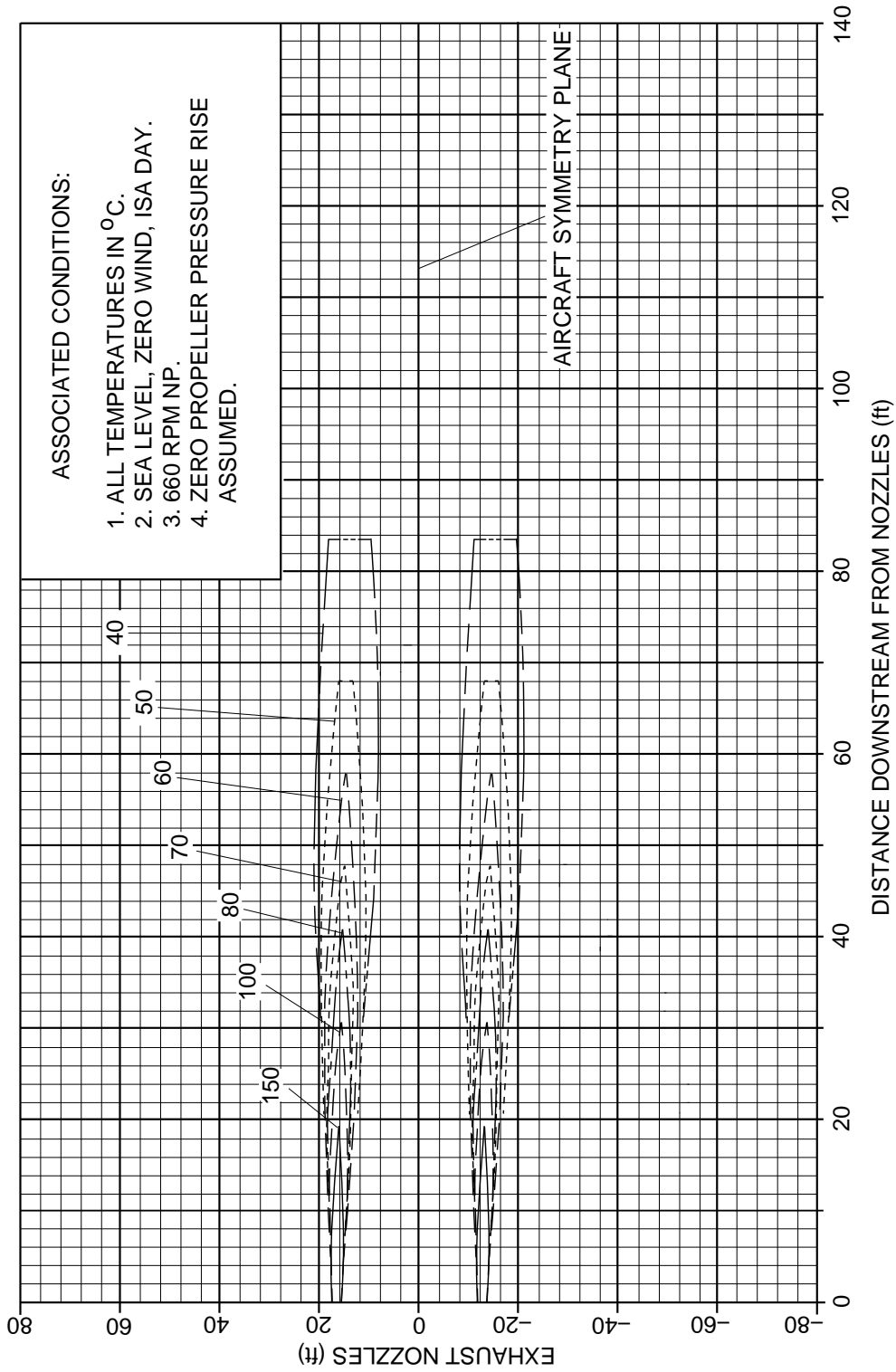
D. Propeller/Engine Slipstream Velocity Contours

- (1) Data on the Propeller/Engine slipstream velocity contours as on ground (18% and 43% torque) and at maximum takeoff power settings are shown in Figure 6-10, and Figure 6-11



AIRPORT PLANNING MANUAL

TOP VIEW – GROUND IDLE



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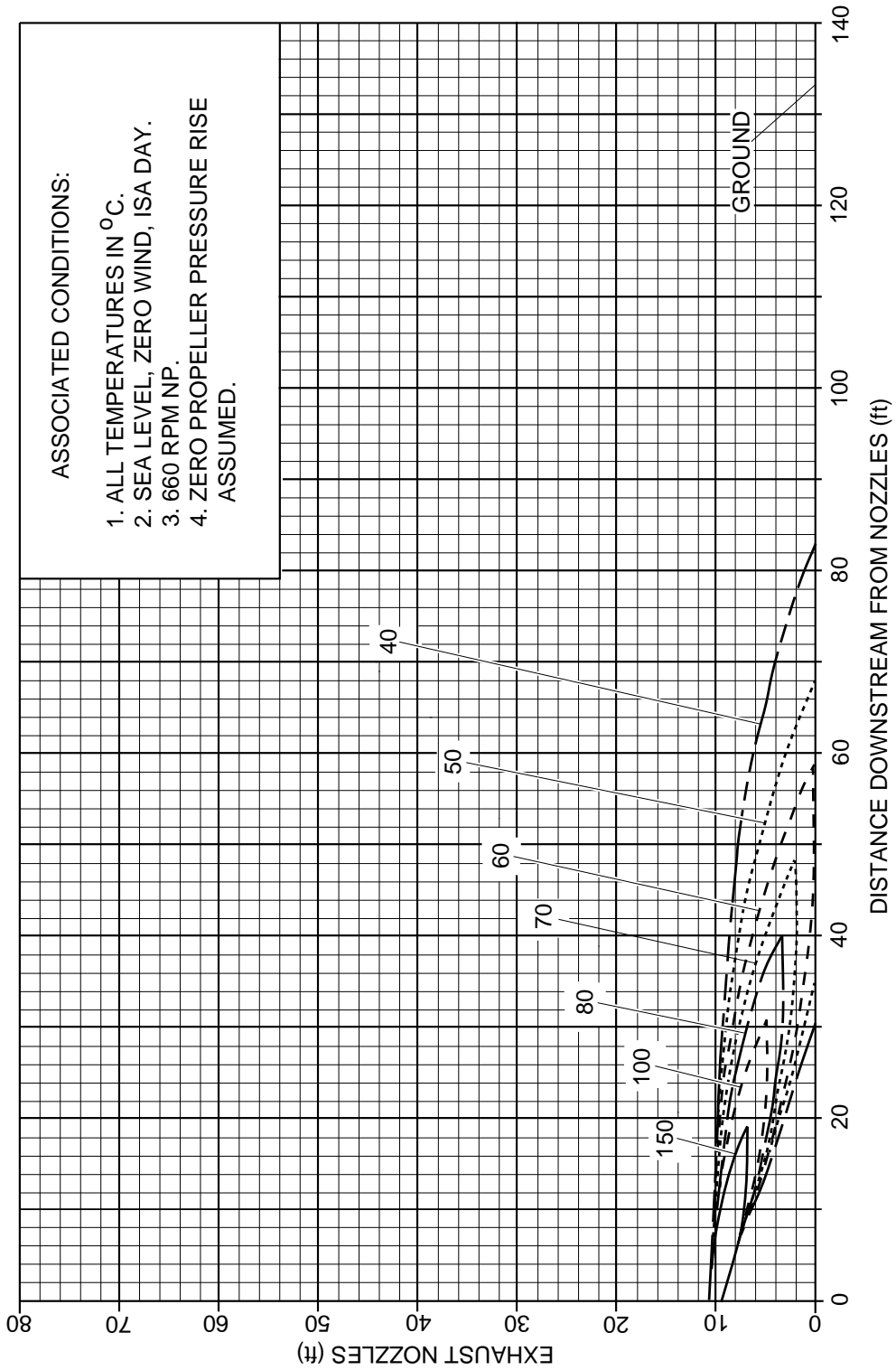
ENGINE EXHAUST TEMP. CONTOURS AT GROUND IDLE – TOP VIEW

Figure 6 – 1



AIRPORT PLANNING MANUAL

SIDE VIEW – GROUND IDLE



ENGINE EXHAUST TEMP. CONTOURS AT GROUND IDLE – SIDE VIEW

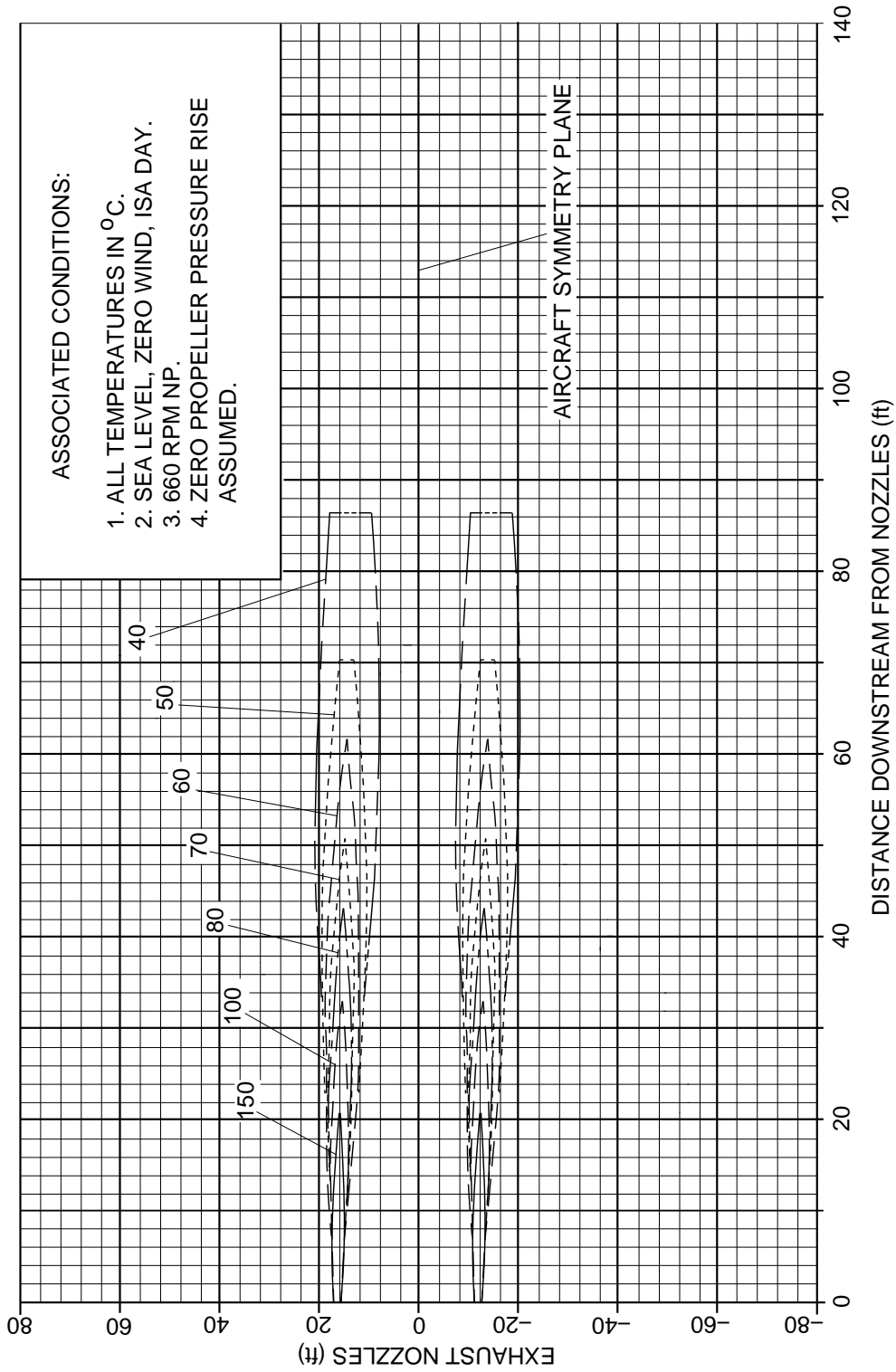
Figure 6 – 2

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AIRPORT PLANNING MANUAL

TOP VIEW - FLIGHT IDLE



ENGINE EXHAUST TEMP. CONTOURS AT FLIGHT IDLE - TOP VIEW

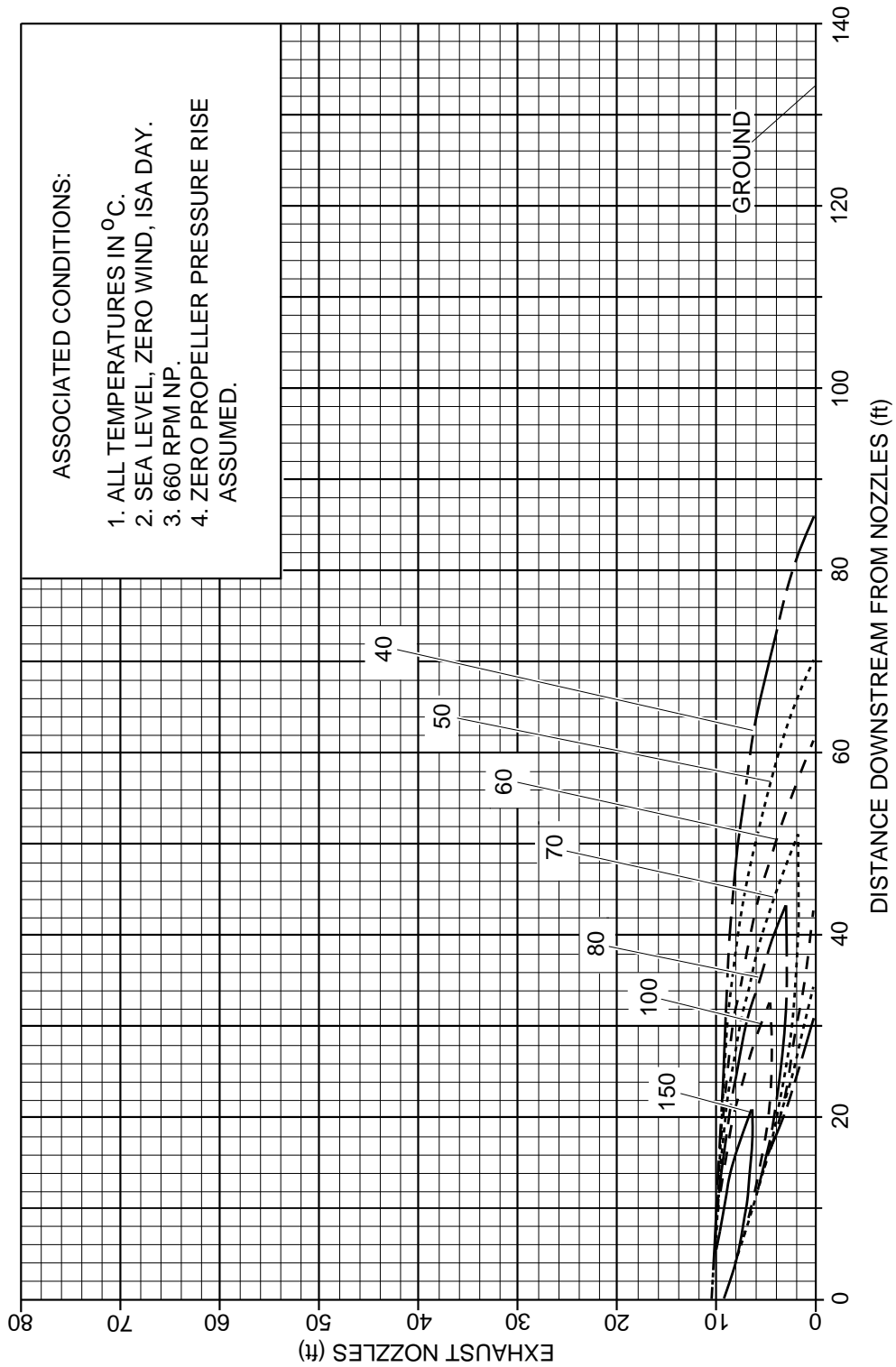
Figure 6 - 3

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AIRPORT PLANNING MANUAL

SIDE VIEW - FLIGHT IDLE



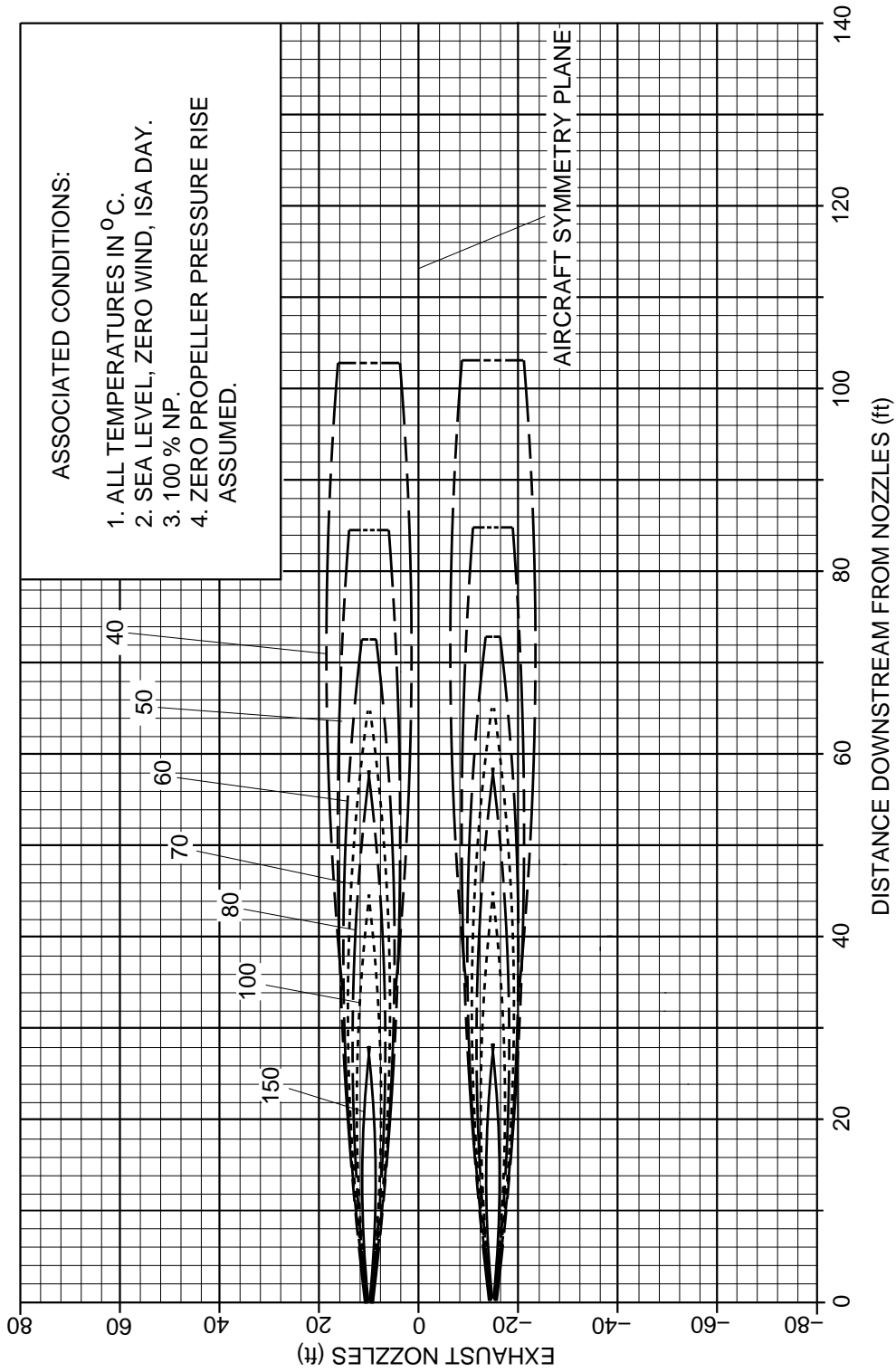
ENGINE EXHAUST TEMP. CONTOURS AT FLIGHT IDLE - SIDE VIEW

Figure 6 - 4



AIRPORT PLANNING MANUAL

TOP VIEW - MAX. TAKE-OFF



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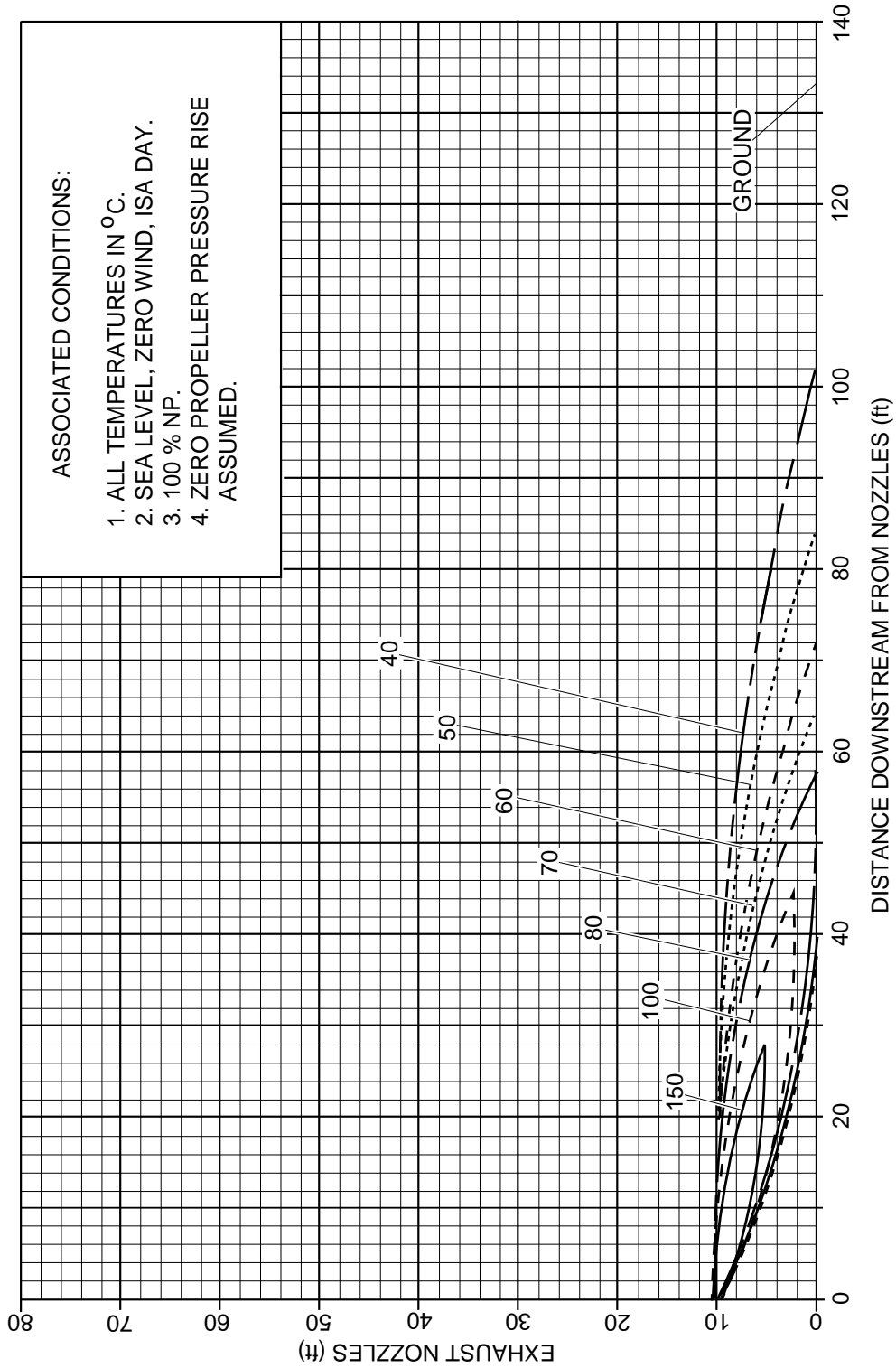
ENGINE EXHAUST TEMP. CONTOURS AT MAX. T.O. POWER - TOP VIEW

Figure 6 - 5



AIRPORT PLANNING MANUAL

SIDE VIEW - MAX. TAKE-OFF

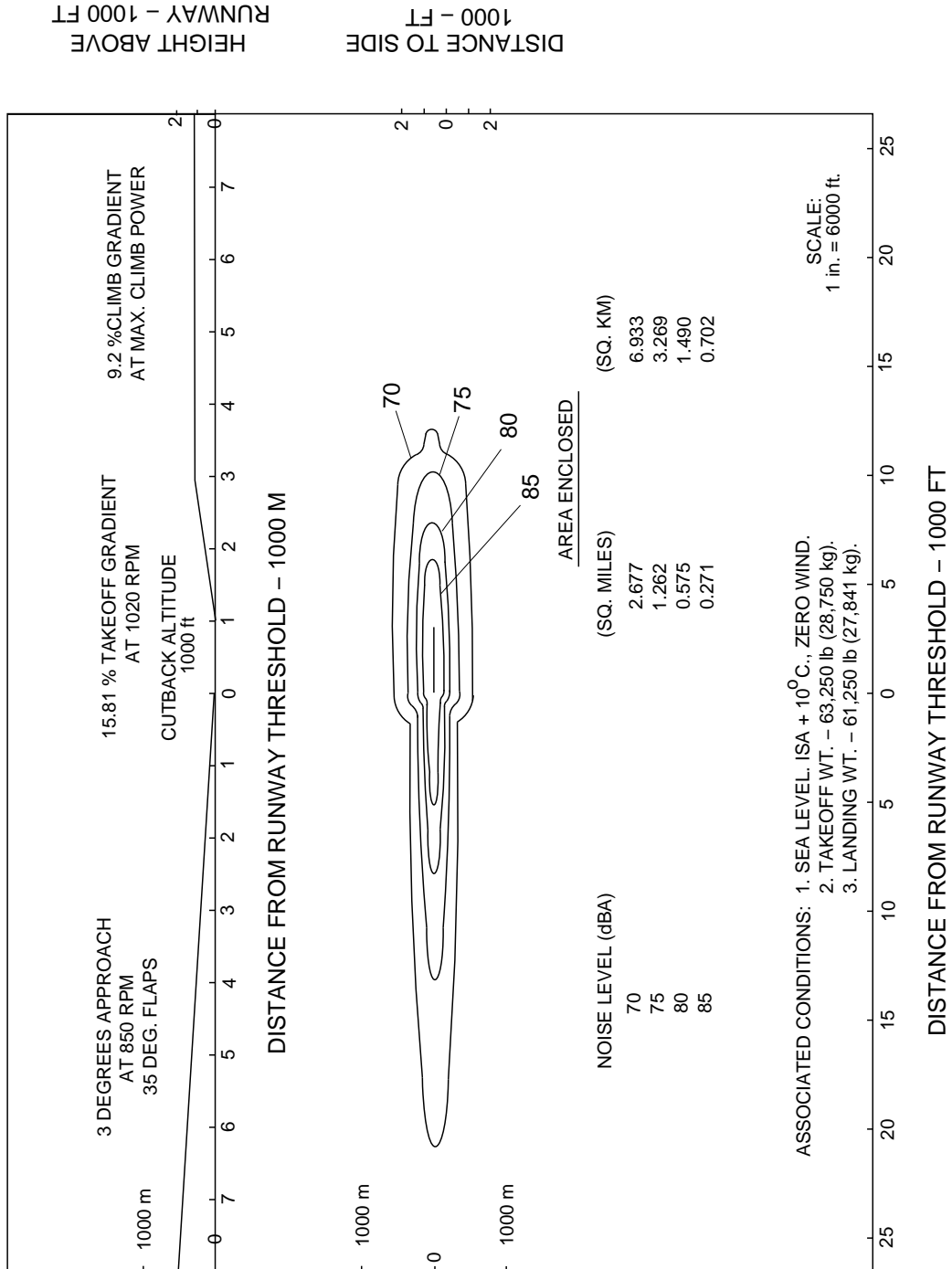


ENGINE EXHAUST TEMP. CONTOURS AT MAX. T.O. POWER - SIDE VIEW

Figure 6 - 6



AIRPORT PLANNING MANUAL



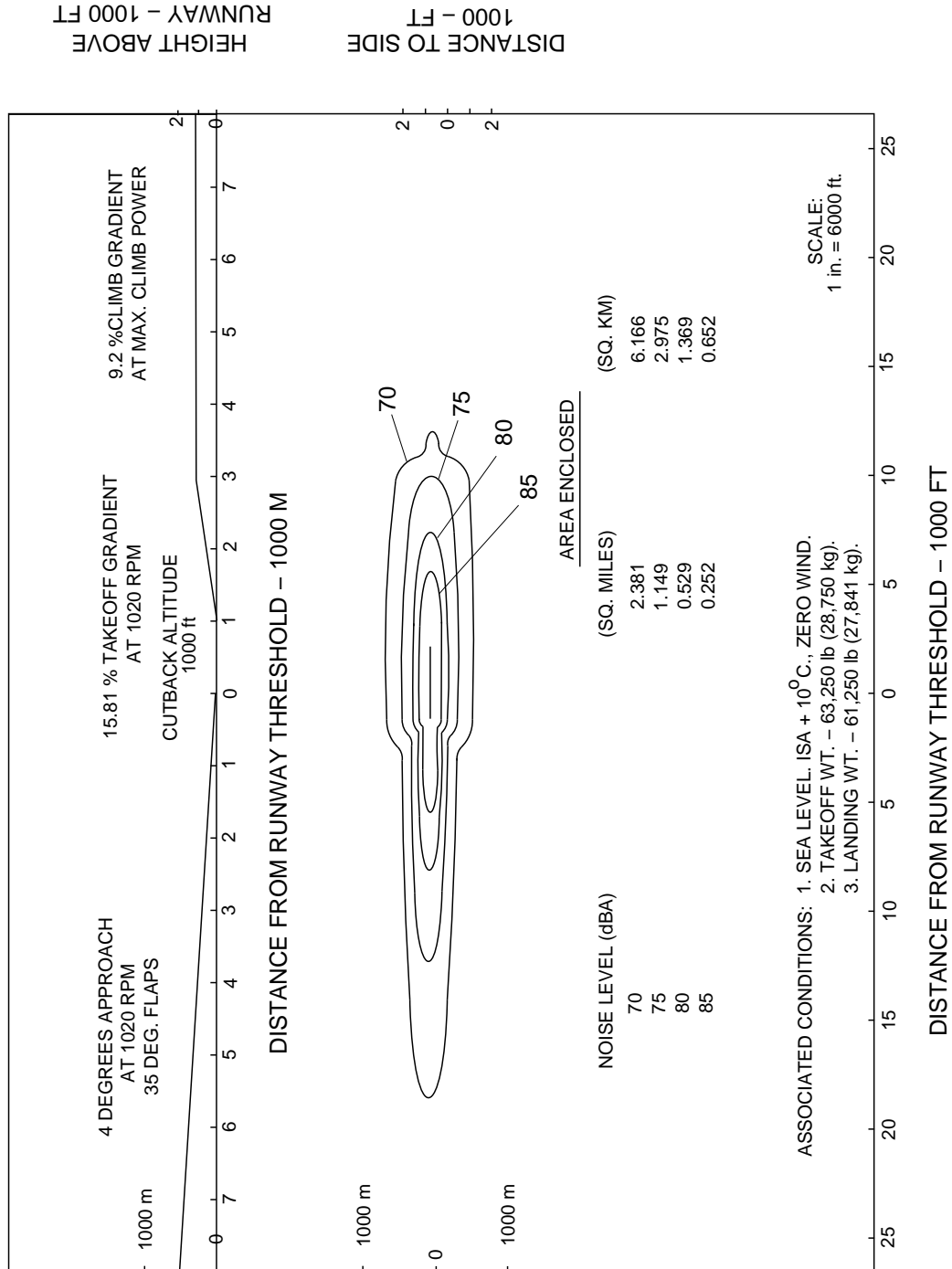
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TAKEOFF AND LANDING NOISE FOOTPRINT - 3 DEGREE APPROACH

Figure 6 - 7



AIRPORT PLANNING MANUAL

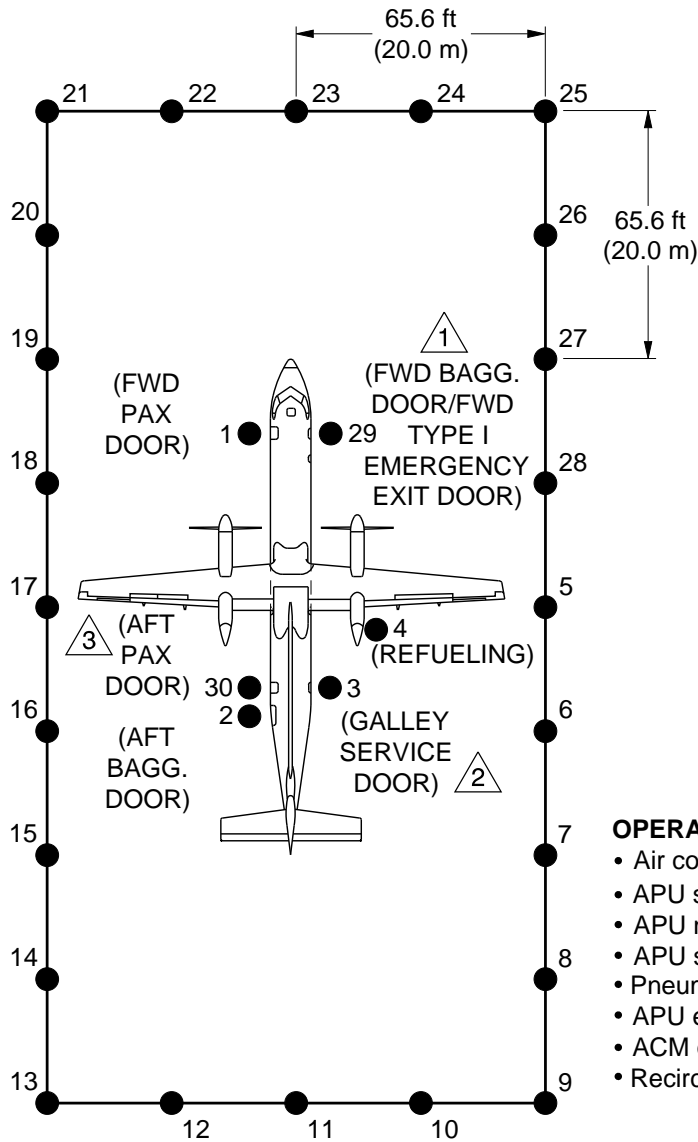


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TAKEOFF AND LANDING NOISE FOOTPRINT - 4 DEGREES APPROACH

Figure 6 - 8

AIRPORT PLANNING MANUAL



APU / ECS NOISE READINGS

| POSITION | dB(A) | POSITION | dB(A) |
|----------|-------|----------|-------|
| 1 | 70 | 16 | 80 |
| 2 | 84 | 17 | 78 |
| 3 | 79 | 18 | 76 |
| 4 | 82 | 19 | 74 |
| 5 | 79 | 20 | 72 |
| 6 | 81 | 21 | 68 |
| 7 | 82 | 22 | 66 |
| 8 | 83 | 23 | 63 |
| 9 | 84 | 24 | 67 |
| 10 | 85 | 25 | 69 |
| 11 | 84 | 26 | 72 |
| 12 | 83 | 27 | 75 |
| 13 | 82 | 28 | 77 |
| 14 | 83 | 29 | 73 |
| 15 | 82 | 30 | 78 |

OPERATING CONDITIONS

- Air conditioning packs operating : 2
- APU shaft speed : 100% or 64,154 RPM
- APU normal rated speed : 64,154 RPM
- APU shaft load : 65% or 260 Amps (100%=400 Amps)
- Pneumatic load : 36.3 kg/min
- APU exhaust gas temperature : 1,173 °C
- ACM operating mode : maximum cooling
- Recirculation fan : on

NOTES

- △1 Forward type I emergency exit door is installed only on aircraft with extra capacity and cargo combi configuration.
- △2 Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
- △3 Aft passenger door is de-activated for the cargo combi configuration.

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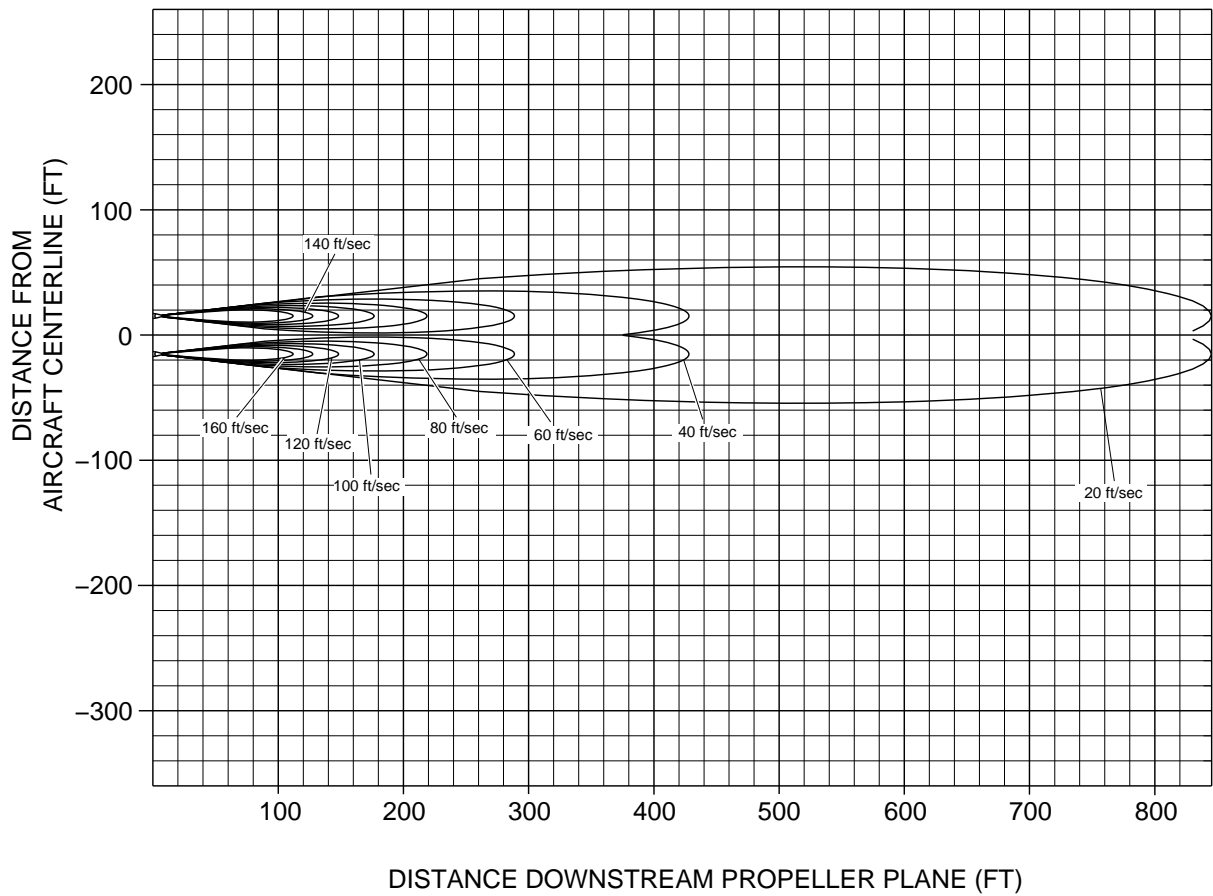
RAMP NOISE TEST RESULTS FOR OPTIONAL APU

Figure 6 – 9



AIRPORT PLANNING MANUAL

**PROPELLER/ENGINE SLIPSTREAM VELOCITY CONTOURS
(MAXIMUM TAKEOFF POWER)**



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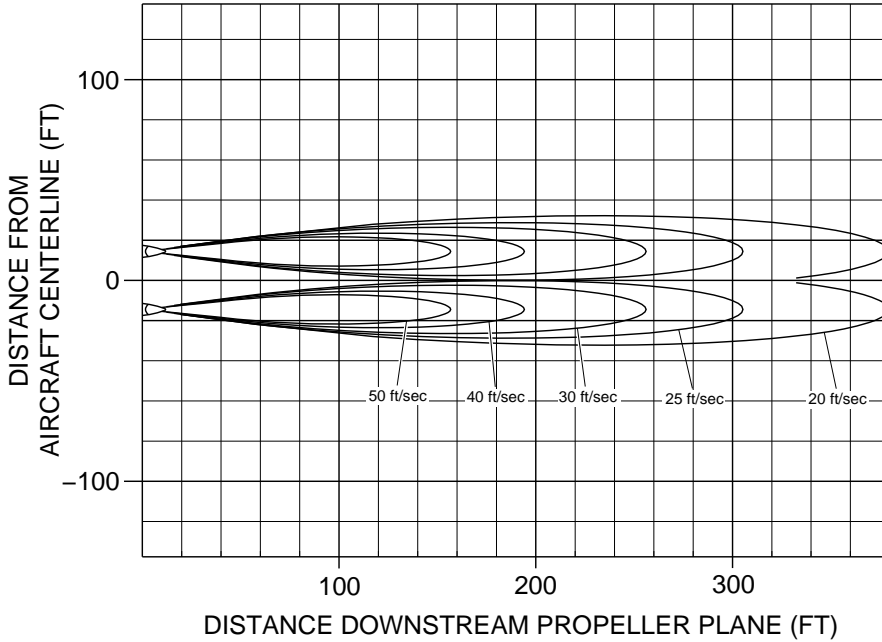
PROPELLER / ENGINE SLIPSTREAM VELOCITY CONTOUR AT MAXIMUM TAKEOFF POWER

Figure 6 – 10

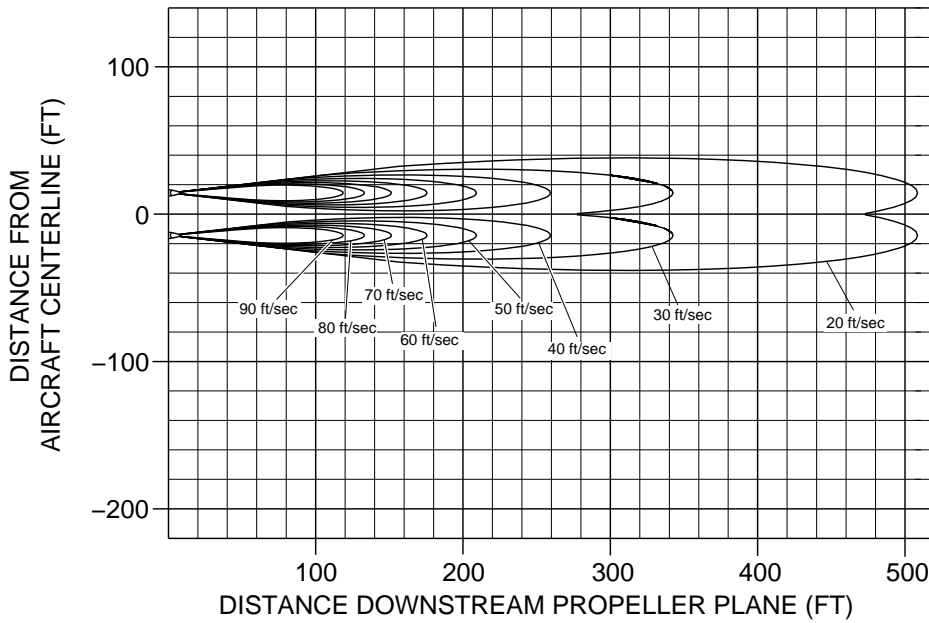


AIRPORT PLANNING MANUAL

PROPELLER/ENGINE SLIPSTREAM VELOCITY CONTOURS (~18% TORQUE) (STATIONARY ON GROUND)



PROPELLER/ENGINE SLIPSTREAM VELOCITY CONTOURS (~43% TORQUE) (STATIONARY ON GROUND)



PROPELLER / ENGINE SLIPSTREAM VELOCITY CONTOUR AS ON GROUND

Figure 6 – 11

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AIRPORT PLANNING MANUAL

CHAPTER 7

PAVEMENT DATA

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AIRPORT PLANNING MANUAL

General Information

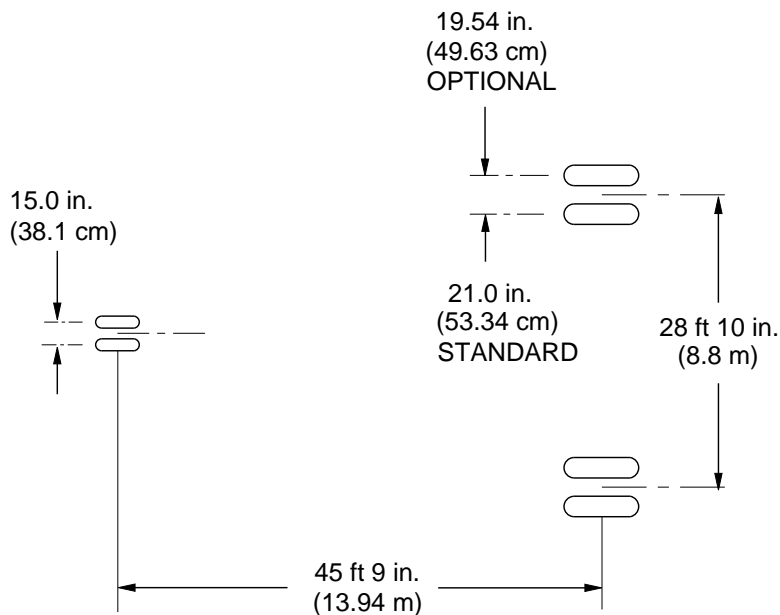
1. The pavement requirements for commercial aircraft are customarily derived from the static analysis loads imposed on the main landing-gear wheels and tires through the shock struts.
 - A. Basic data on the landing-gear footprint configuration, maximum-design taxi loads, and tire sizes and pressures are shown in Figure 7-1.
 - B. Maximum pavement loads for certain critical conditions at the tire-ground interfaces are shown in Figure 7-2.
 - C. Landing-gear loading on pavement at various aircraft weights is shown in Figure 7-3.
 - D. The California Bearing Ratio (CBR) for unlimited commercial use at all aircraft weights is shown in Figure 7-4 and Figure 7-5.
 - E. The minimum Load Classification Number (LCN) for flexible and rigid pavement are shown in Figure 7-6, Figure 7-7, Figure 7-8 and Figure 7-9.
 - F. The minimum Aircraft Classification Number (ACN) for flexible and rigid pavement are shown in Figure 7-10, Figure 7-11, Figure 7-12 and Figure 7-13.
2. Make sure that all runways or pavements to be used meet these minimum CBR, LCN and ACN requirements.

AIRPORT PLANNING MANUAL

| | |
|--------------------------------|--|
| MAXIMUM DESIGN TAXI WEIGHT | 64,700 lb (29,347 kg) |
| PERCENTAGE WEIGHT ON MAIN GEAR | (REFER TO LANDING GEAR LOADING ON PAVEMENT ILLUSTRATION) |
| NOSE-GEAR TIRE SIZE | 22 x 6.50 – 10 |
| NOSE-GEAR TIRE PRESSURE | 85 PSI (586 kPa) UNLOADED 89 PSI (614 kPa) LOADED |
| MAIN-GEAR TIRE SIZE | 32 x 8.8 – 16 STANDARD 34 x 10.75 – 16 OPTIONAL |
| MAIN-GEAR TIRE PRESSURE | STD – 218 PSI (1503 kPa) UNLOADED 227 PSI (1565 kPa) LOADED OPT – 135 PSI (931 kPa) UNLOADED 141 PSI (972 kPa) LOADED |

NOTE

Tire pressures shown are for calculation purposes only.
Refer to AMM Ch. 12 for service pressure.

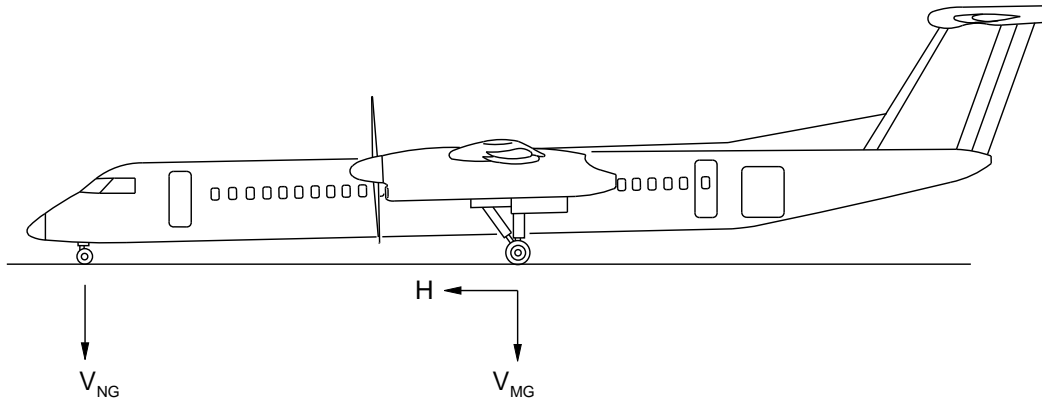


LANDING GEAR FOOTPRINT

Figure 7 – 1



AIRPORT PLANNING MANUAL



| MODEL | MAXIMUM DESIGN TAXI WEIGHT | V_{NG} | | V_{MG} (PER STRUT) | H (PER STRUT) | |
|-------|----------------------------|-------------------------------|---|---|--|---|
| | | STATIC (AT MOST FORWARD C.G.) | STATIC + BRAKING AT 10 ft/sec ² (3.05 m/sec ²) DECELERATION ¹ | MAXIMUM LOAD OCCURRING AT STATIC AFT C.G. | AT STEADY BRAKING OF 10 ft/sec ² (3.05 m/sec ²) DECELERATION ² | AT INSTANTANEOUS BRAKING (COEFFICIENT OF FRICTION 0.8) ³ |
| 402 | 64,700 lb (29,347 kg) | 6458 lb (2929 kg) | 12,159 lb (5514 kg) | 30,169 lb (13,682 kg) | 9369 lb (4249 kg) | 24,135 lb (10,946 kg) |

NOTES:

All loads calculated using aircraft Maximum Design Taxi Weight.

V_{NG} = Maximum Vertical Nose–Gear Ground Load at Most Forward C.G..

V_{MG} = Maximum Vertical Main–Gear Ground Load at Most Aft C.G..

H = Maximum Horizontal Ground Load from Braking.

¹ Upper C.G. limit is approximately 12.77 ft (3.89 m) above ground line.

² Maximum main–gear horizontal–force excludes the alleviating effect of nose–gear rolling friction.

³ Instantaneous braking applied during a steady braking run.

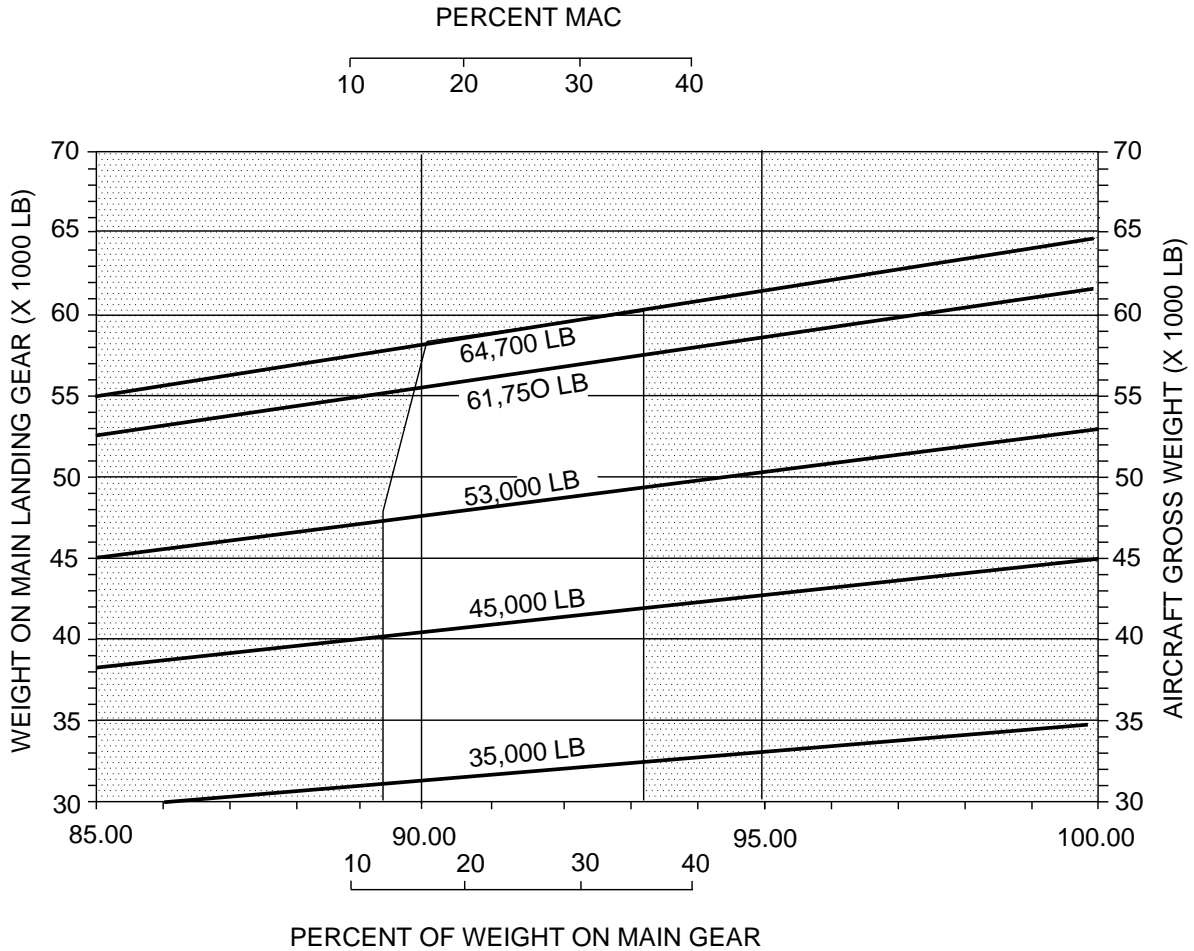
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MAXIMUM PAVEMENT LOADS

Figure 7 – 2



AIRPORT PLANNING MANUAL



NOTE

Unshaded area represents operational limits.

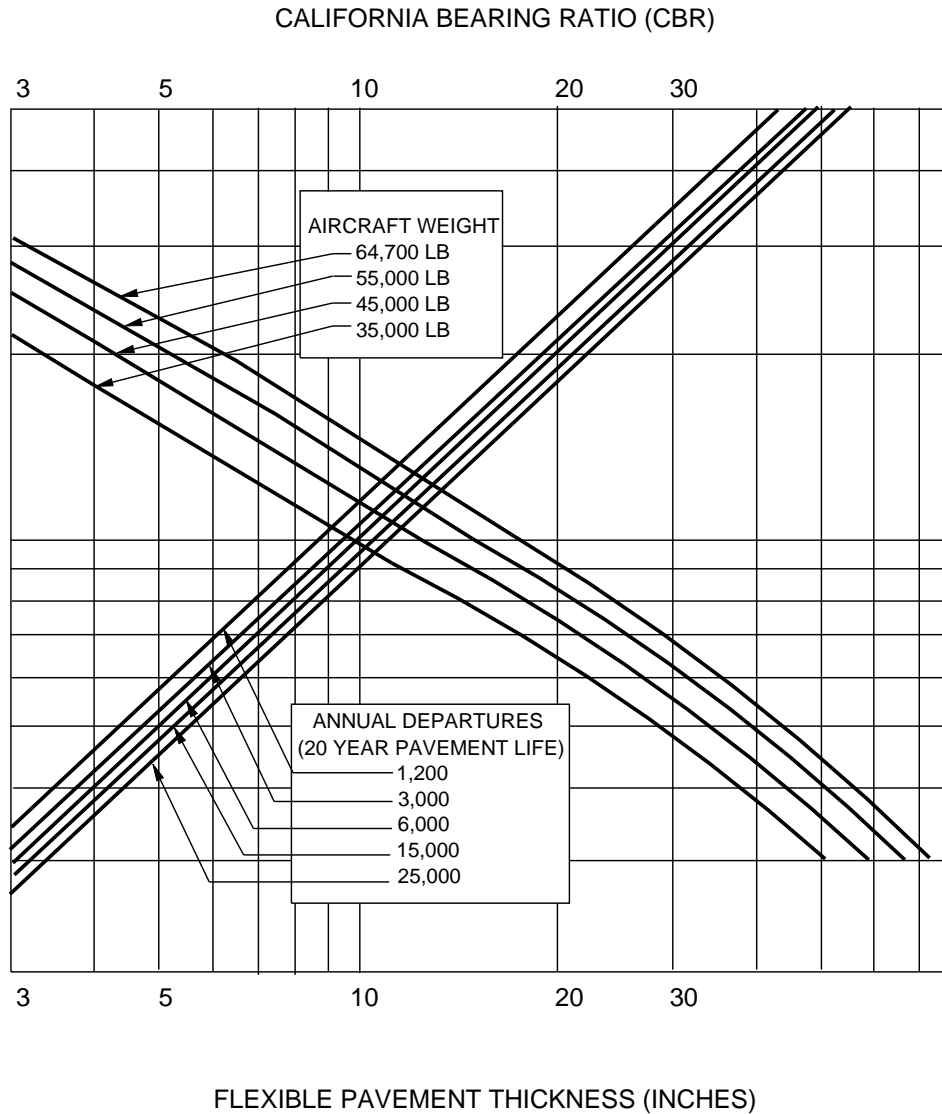
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LANDING GEAR LOADING ON PAVEMENT

Figure 7 - 3



AIRPORT PLANNING MANUAL



NOTES

1. Tires are 32 x 8.8-16 (21.0 in. centers), inflated to 227 psi (1565 kPa), loaded.
2. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
3. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).
4. U.S. Army Corps of Engineers design method (S-77-1) and FAA design method used.

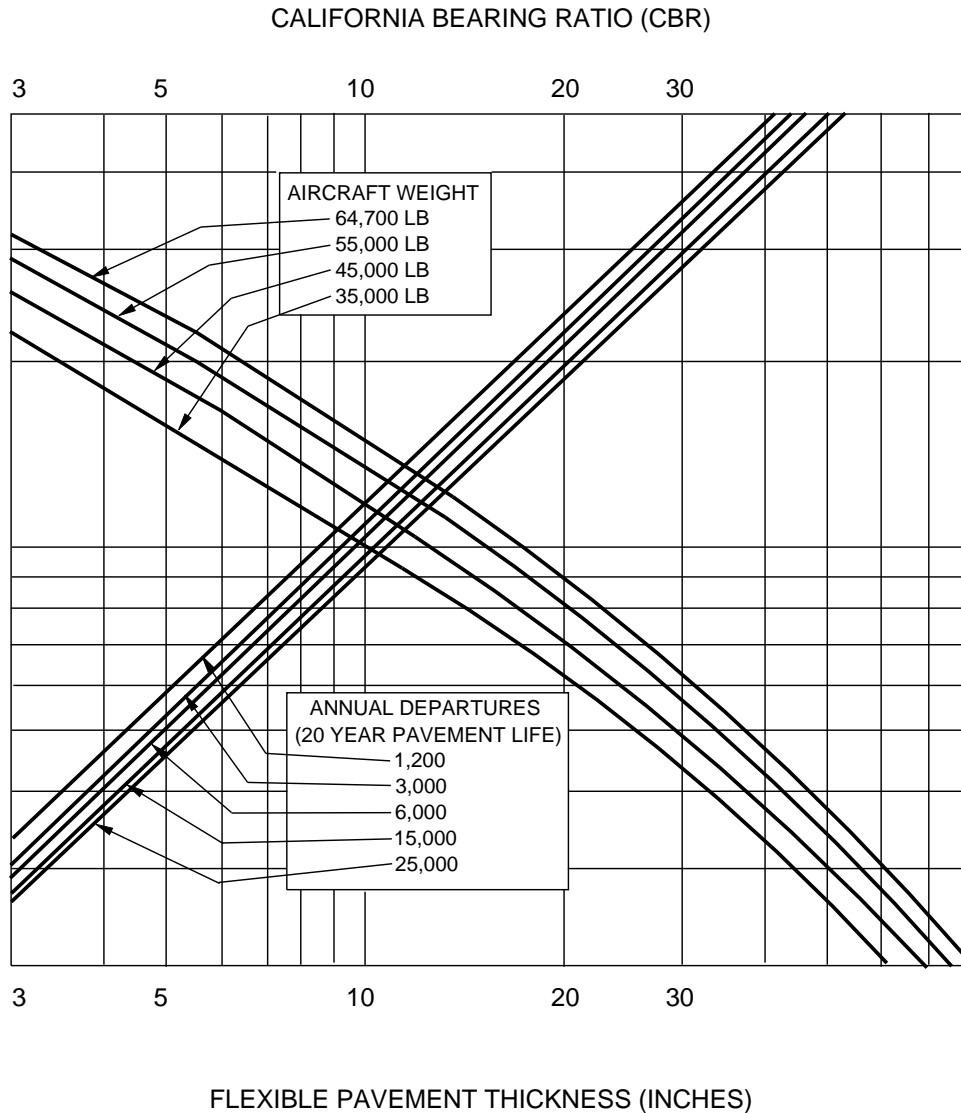
bre57a01.dg, sw, 19/01/00

FLEXIBLE PAVEMENT REQUIREMENTS – CBR (32X8.8-16 TIRES)

Figure 7 – 4



AIRPORT PLANNING MANUAL



NOTES

1. Tires are 34 x 10.75-16 (19.5 in. centers), inflated to 141 psi (972 kPa), loaded.
2. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
3. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).
4. U.S. Army Corps of Engineers design method (S-77-1) and FAA design method used.

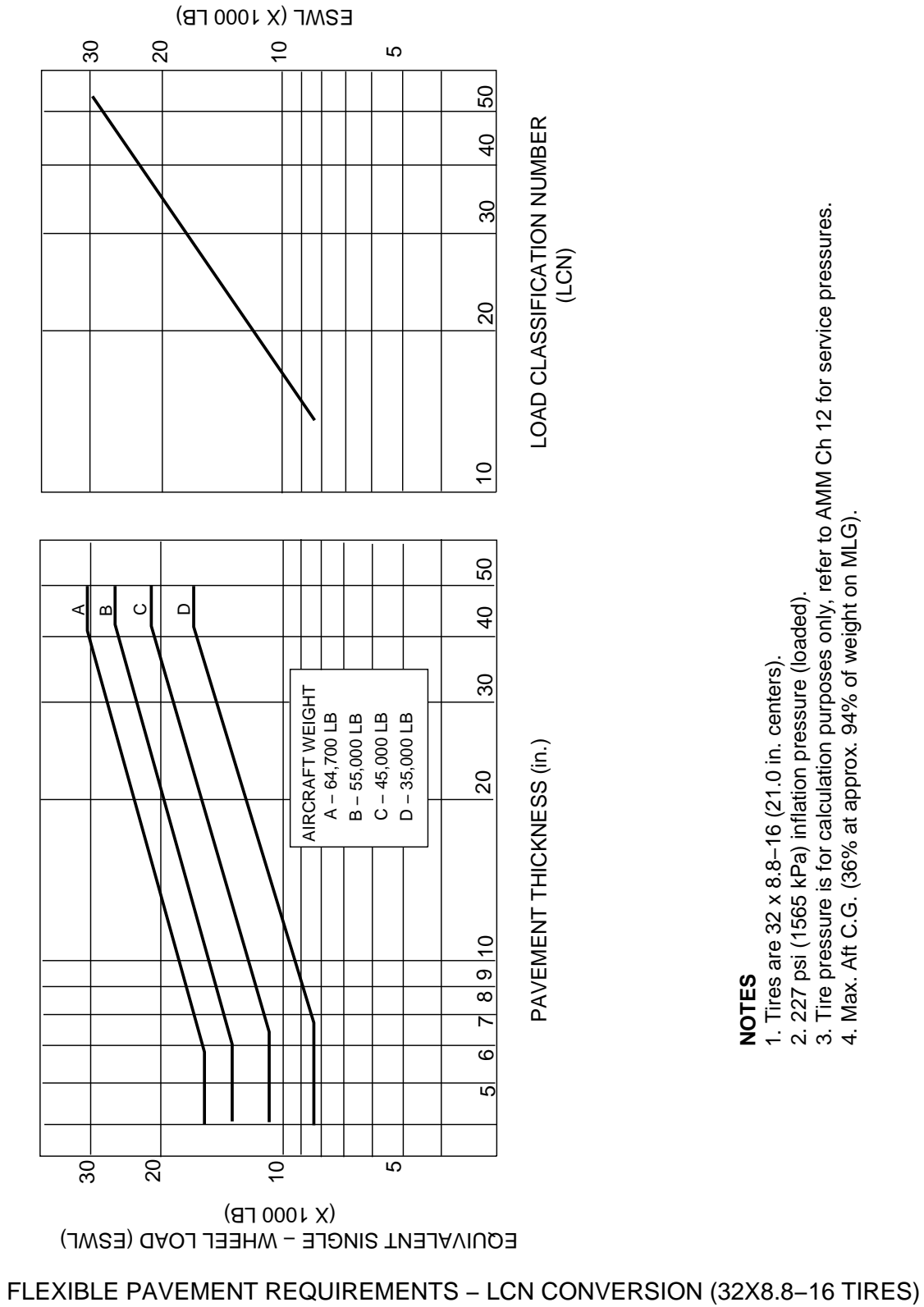
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FLEXIBLE PAVEMENT REQUIREMENTS – CBR (34X10.75-16 TIRES)

Figure 7 – 5



AIRPORT PLANNING MANUAL



NOTES

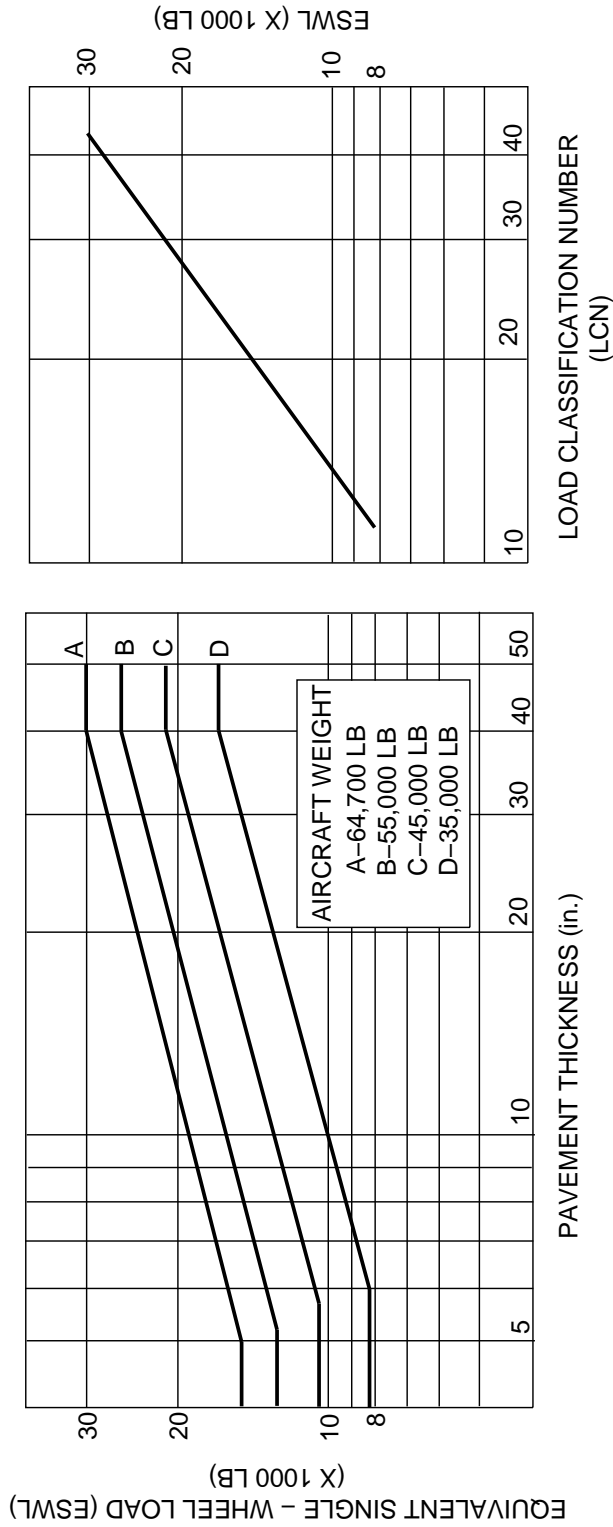
1. Tires are 32 x 8.8–16 (21.0 in. centers).
2. 227 psi (1565 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% at approx. 94% of weight on MLG).

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Figure 7 – 6



AIRPORT PLANNING MANUAL



NOTES

1. Tires are 34 x 10.75-16 (19.5 in. centers).
2. 141 psi (972 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).

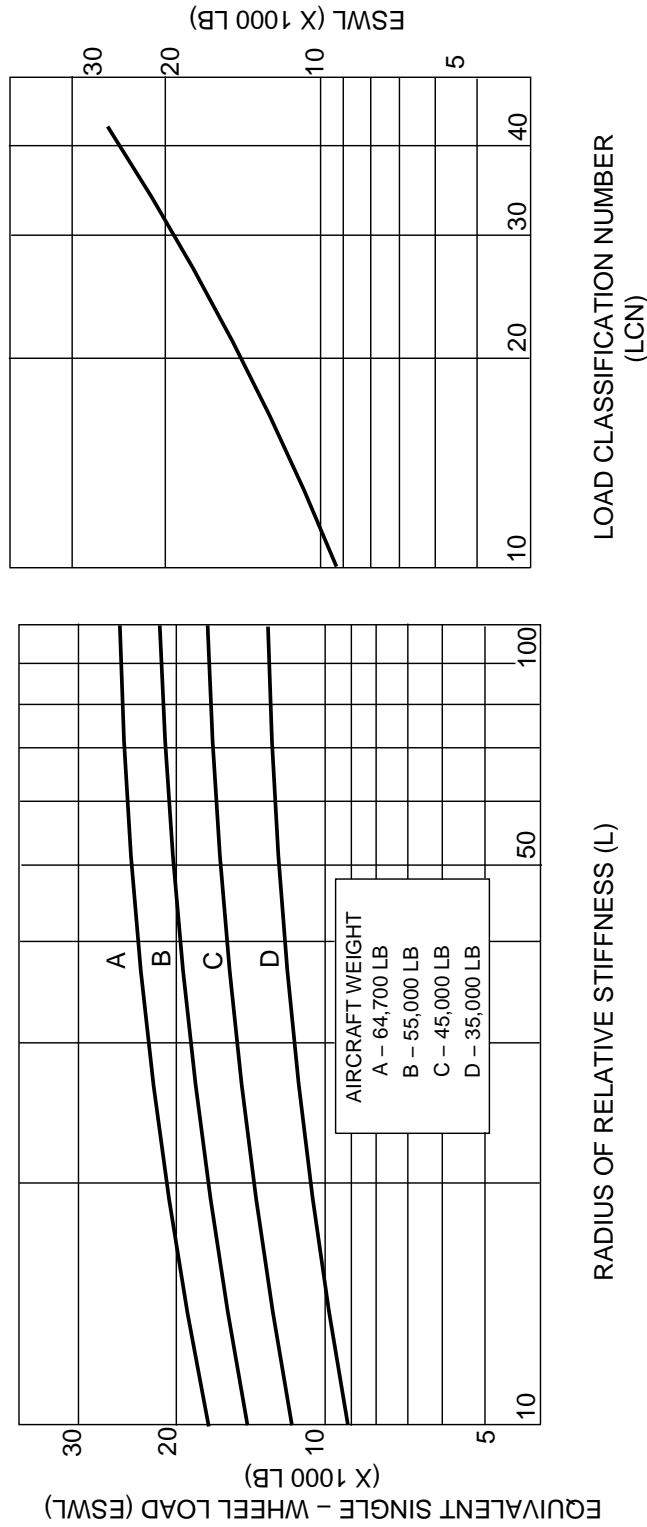
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FLEXIBLE PAVEMENT REQUIREMENTS – LCN CONVERSION (34X10.75-16 TIRES)

Figure 7 – 7



AIRPORT PLANNING MANUAL



RIGID PAVEMENT REQUIREMENTS – LCN CONVERSION (32X8.8–16 TIRES)

Figure 7 – 8

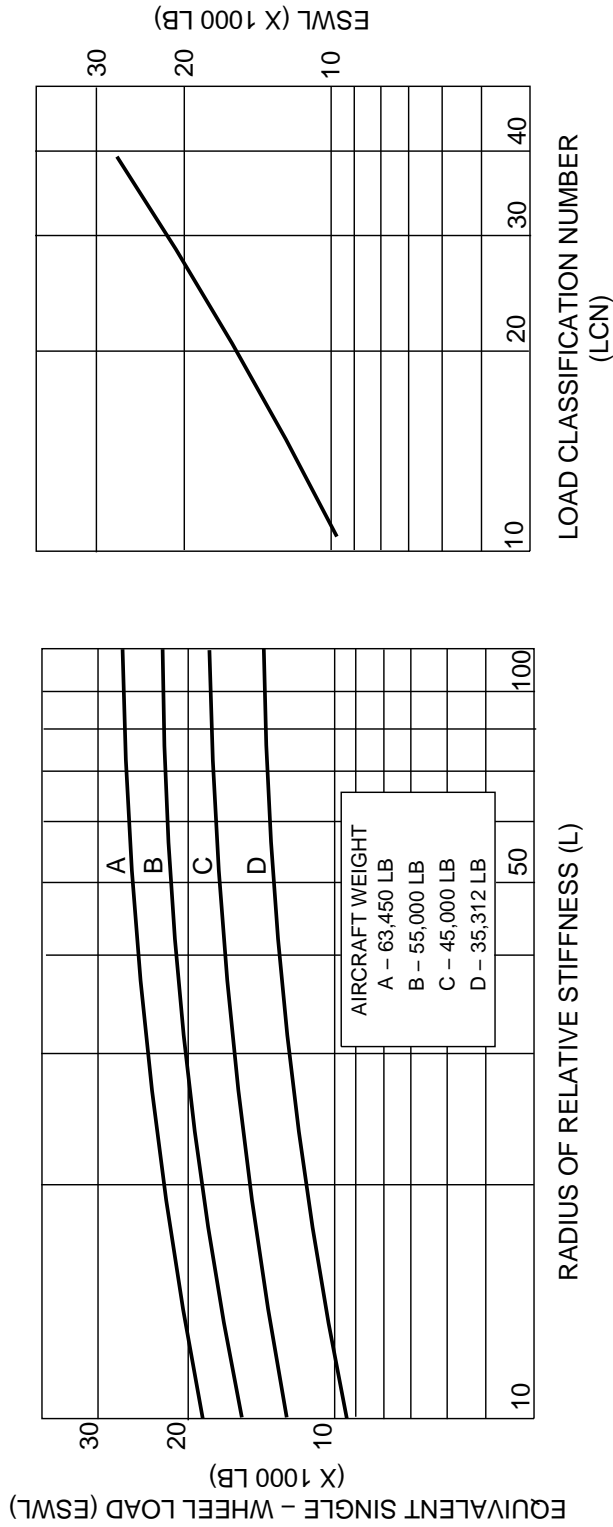
NOTES

1. Tires are 32 x 8.8–16 (21.0 in. centers).
2. 227 psi (1565 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).

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AIRPORT PLANNING MANUAL



NOTES

1. Tires are 34 x 10.75-16 (19.5 in. centers).
2. 141 psi (972 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).

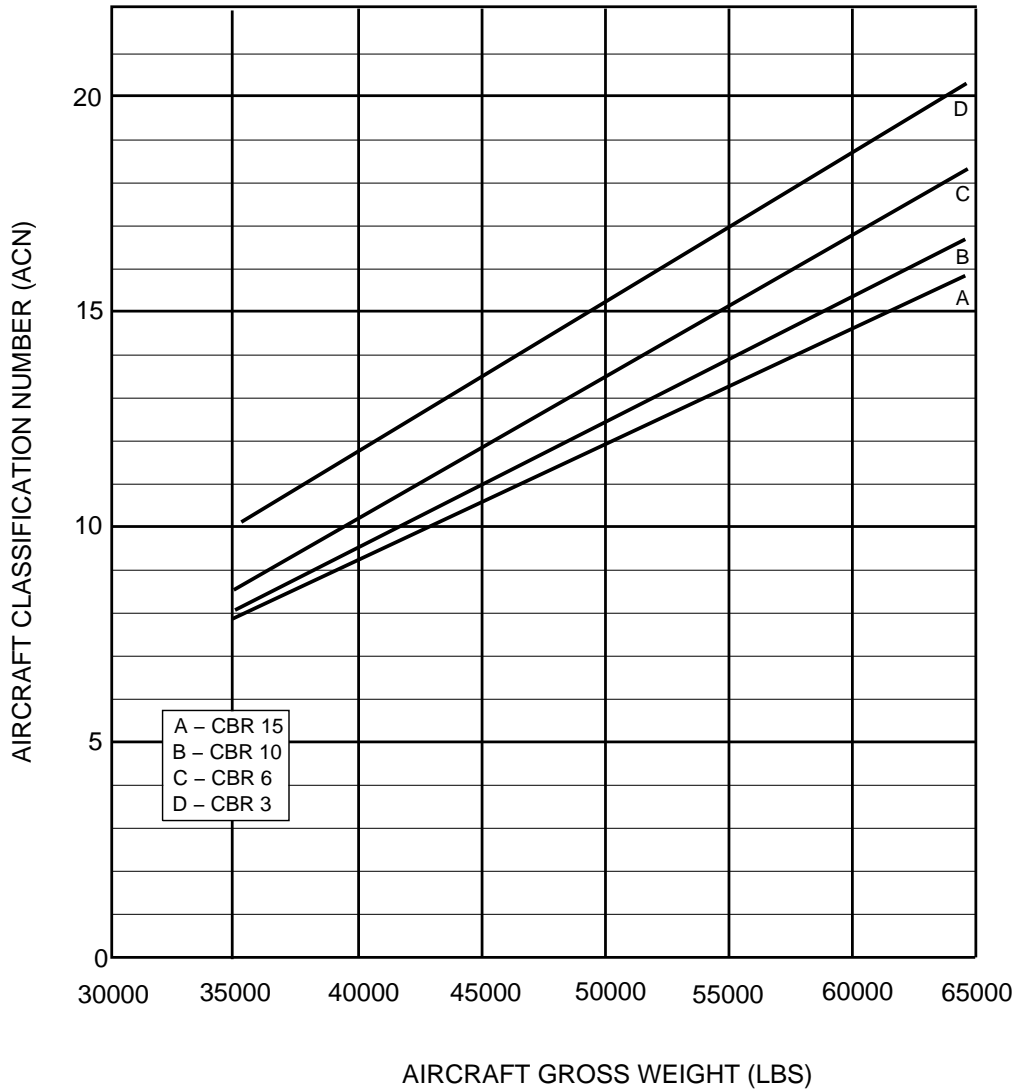
RIGID PAVEMENT REQUIREMENTS – LCN CONVERSION (34X10.75-16 TIRES)

Figure 7 – 9

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AIRPORT PLANNING MANUAL



NOTES

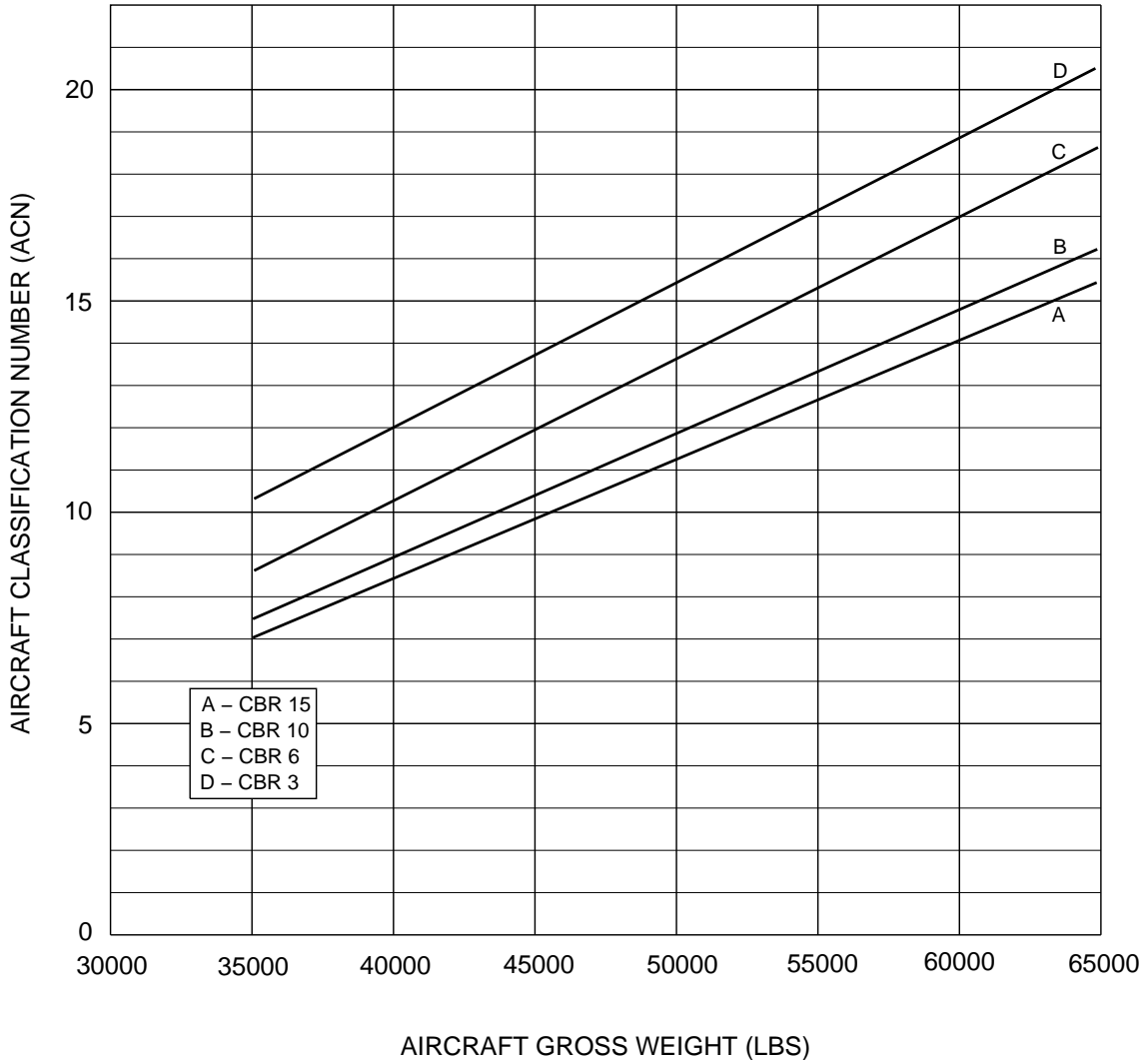
1. Tires are 32 x 8.8-16 (21.0 in. centers).
2. 227 psi (1565 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).

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AIRCRAFT CLASSIFICATION NUMBER – FLEXIBLE PAVEMENT (32X8.8-16 TIRES)

Figure 7 – 10

AIRPORT PLANNING MANUAL



NOTES

1. Tires are 34 x 10.75-16 (19.5 in. centers).
2. 141 psi (972 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).

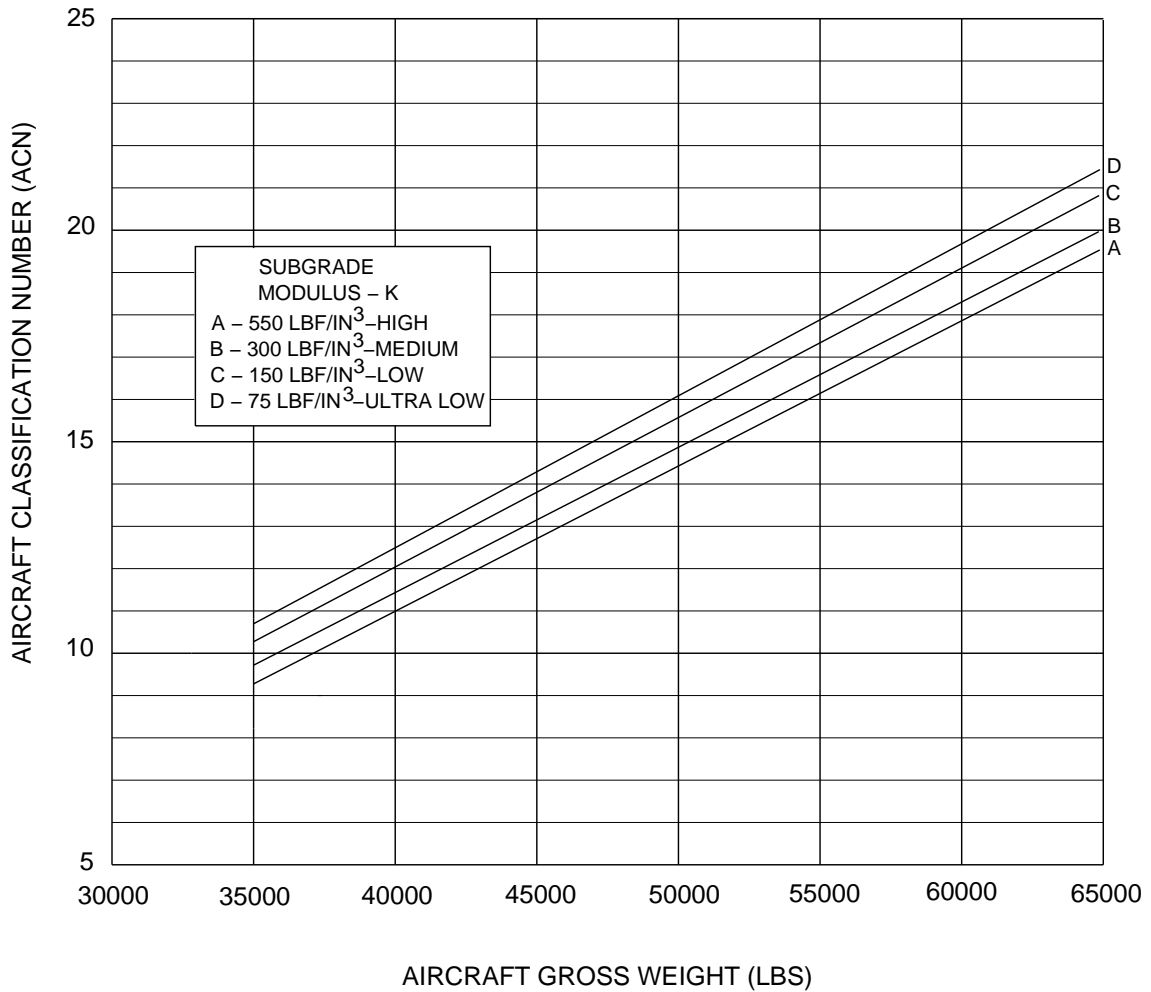
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AIRCRAFT CLASSIFICATION NUMBER – FLEXIBLE PAVEMENT (34X10.75-16 TIRES)

Figure 7 – 11



AIRPORT PLANNING MANUAL



NOTES

1. Tires are 32 x 8.8-16 (21.0 in. centers).
2. 227 psi (1565 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).

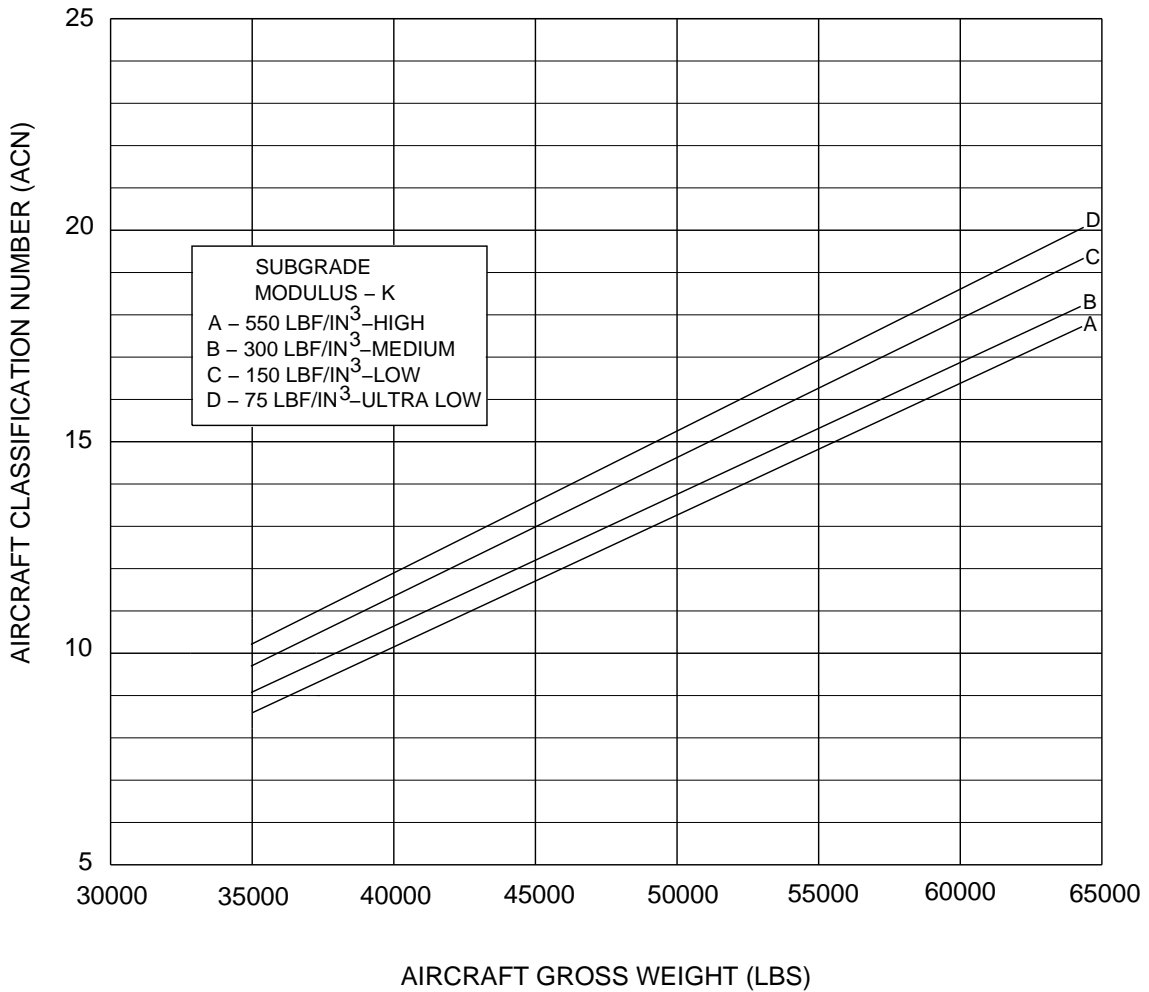
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AIRCRAFT CLASSIFICATION NUMBER – RIGID PAVEMENT (32X8.8-16 TIRES)

Figure 7 – 12



AIRPORT PLANNING MANUAL



NOTES

1. Tires are 34 x 10.75-16 (19.5 in. centers).
2. 141 psi (972 kPa) inflation pressure (loaded).
3. Tire pressure is for calculation purposes only, refer to AMM Ch 12 for service pressures.
4. Max. Aft C.G. (36% MAC at approx. 94% of weight on MLG).

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AIRCRAFT CLASSIFICATION NUMBER – RIGID PAVEMENT (34X10.75-16 TIRES)

Figure 7 – 13



AIRPORT PLANNING MANUAL

CHAPTER 8

DERIVATIVE AIRCRAFT

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DE HAVILLAND AIRCRAFT
OF CANADA LIMITED

AIRPORT PLANNING MANUAL

General Information

1. There are no plans to develop any derivative aircraft at this time.

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AIRPORT PLANNING MANUAL

CHAPTER 9

SCALED DRAWINGS OF DASH-8 SERIES 400

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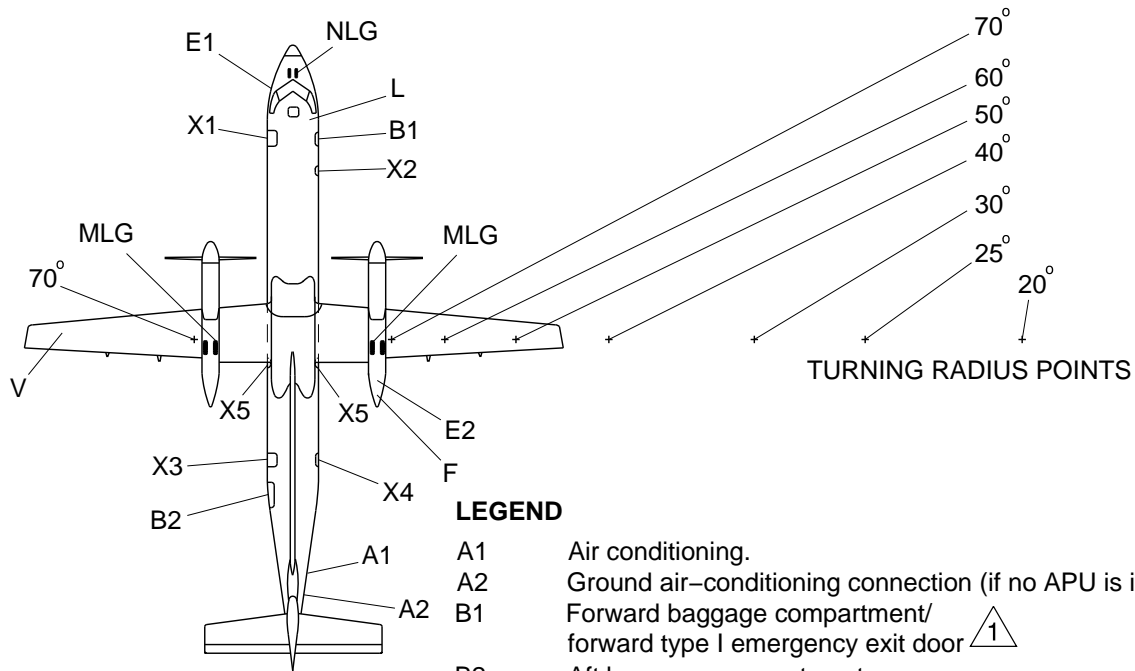
AIRPORT PLANNING MANUAL

General Information

1. The scaled drawings that follow can be used to plan/verify runway, ramp and maintenance facility layouts.
 - A. The 1 in. = 32 ft. (1:384) scaled drawing is shown in Figure 9-1.
 - B. The 1 in. = 50 ft (1:600) and 1 in. = 100 ft (1:1200) scaled drawings are shown in Figure 9-2.
 - C. The 1:500 and 1:1000 (Metric) scaled drawings are shown in Figure 9-3.



AIRPORT PLANNING MANUAL



1 IN = 32 FT (1:384)

LEGEND

- A1 Air conditioning.
- A2 Ground air-conditioning connection (if no APU is installed).
- B1 Forward baggage compartment/
forward type I emergency exit door ¹
- B2 Aft baggage compartment.
- E1 Electrical connection (DC).
- E2 Electrical connection (AC).
- F Pressure refueling point.
- L Lavatory.
- MLG Main landing gear.
- NLG Nose landing gear.
- V Fuel vent (on both wings).
- X1 Forward passenger airstair door.
- X2 Type II/III emergency exit. ²
- X3 Aft passenger door. ⁵
- X4 Aft service door. ⁴
- + Turning radius points: 70°, 60°, 50°, 40°, 30°, 25°, 20°.
- X5 Type III emergency exit door. ³

NOTES

- ¹ Forward type I emergency exit door is installed only on aircraft with extra capacity and cargo combi configuration.
- ² Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.
- ³ Type III emergency exit doors are installed at the station X479.70 on both the sides of the aircraft with the cargo combi configuration.
- ⁴ Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
- ⁵ Aft passenger door is de activated for the cargo combi configuration.

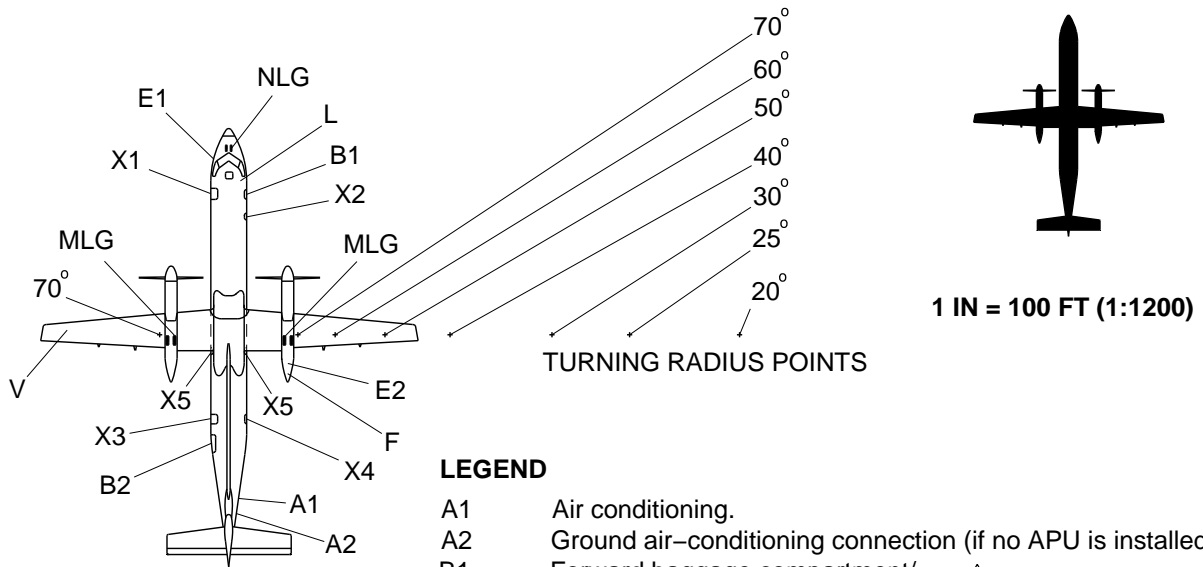
SCALED DASH 8, SERIES 400 (MODEL 402) DRAWING – 1 IN. = 32 FT (1:384)

Figure 9 – 1

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AIRPORT PLANNING MANUAL



LEGEND

- A1 Air conditioning.
- A2 Ground air-conditioning connection (if no APU is installed).
- B1 Forward baggage compartment/
forward type I emergency exit door 1
- B2 Aft baggage compartment.
- E1 Electrical connection (DC).
- E2 Electrical connection (AC).
- F Pressure refueling point.
- L Lavatory.
- MLG Main landing gear.
- NLG Nose landing gear.
- V Fuel vent (on both wings).
- X1 Forward passenger airstair door.
- X2 Type II/III emergency exit. 2
- X3 Aft passenger door. 5
- X4 Aft service door. 4
- + Turning radius points: 70°, 60°, 50°, 40°, 30°, 25°, 20°.
- X5 Type III emergency exit door. 3

NOTES

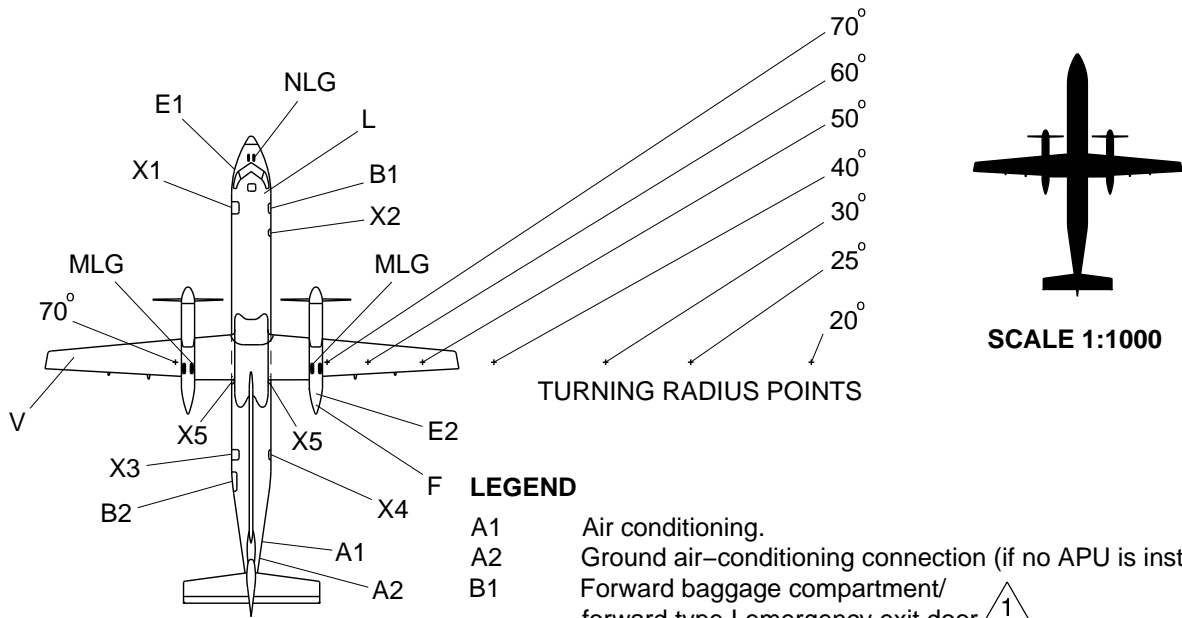
- 1 Forward type I emergency exit door is installed only on aircraft with extra capacity and cargo combi configuration.
- 2 Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.
- 3 Type III emergency exit doors are installed at the station X479.70 on both the sides of the aircraft with the cargo combi configuration.
- 4 Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
- 5 Aft passenger door is de activated for the cargo combi configuration.

SCALED (MODEL 402) DRAWING – 1 IN. = 50 FT (1:600), 1 IN. = 100 FT (1:1200)

Figure 9 – 2



AIRPORT PLANNING MANUAL



SCALE 1:500

SCALE 1:1000

LEGEND

- A1 Air conditioning.
- A2 Ground air-conditioning connection (if no APU is installed).
- B1 Forward baggage compartment/ forward type I emergency exit door 1
- B2 Aft baggage compartment.
- E1 Electrical connection (DC).
- E2 Electrical connection (AC).
- F Pressure refueling point.
- L Lavatory.
- MLG Main landing gear.
- NLG Nose landing gear.
- V Fuel vent (on both wings).
- X1 Forward passenger airstair door.
- X2 Type II/III emergency exit. 2
- X3 Aft passenger door. 5
- X4 Aft service door. 4
- + Turning radius points: 70°, 60°, 50°, 40°, 30°, 25°, 20°.
- X5 Type III emergency exit door. 3

NOTES

- 1 Forward type I emergency exit door is installed only on aircraft with extra capacity and cargo combi configuration.
- 2 Type II/III emergency exit door is de-activated for the extra capacity and the cargo combi configuration.
- 3 Type III emergency exit doors are installed at the station X479.70 on both the sides of the aircraft with the cargo combi configuration.
- 4 Forward baggage door is installed in lieu of the aft service door and de-activated for the cargo combi configuration.
- 5 Aft passenger door is de activated for the cargo combi configuration.

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SCALED DASH 8, SERIES 400 (MODEL 402) DRAWING – 1:500 AND 1:1000 (METRIC)

Figure 9 – 3