BOMBARDIER

Q400 DASH 8
The Quiet One

AIRPORT PLANNING MANUAL

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AIRPORT PLANNING MANUAL

PSM 1-84-13

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AIRPORT PLANNING MANUAL

LIST OF EFFECTIVE PAGES

Chapter	Page	Date
Effective Pages	1	* Dec 05/2014
	2	* Dec 05/2014
Contents	1	* Dec 05/2014
	2	* Dec 05/2014
	3	* Dec 05/2014
	4	* Dec 05/2014
	5	* Dec 05/2014
	6	* Dec 05/2014
Chapter 1	1	* Dec 05/2014
	2	May 28/2001
Chapter 2	1	* Dec 05/2014
	2	* Dec 05/2014
	3	* Dec 05/2014
	4	* Dec 05/2014
	5	* Dec 05/2014
	6	* Dec 05/2014
	7	* Dec 05/2014
	8	* Dec 05/2014
	9	* Dec 05/2014
	10	* Dec 05/2014
	11	* Dec 05/2014
	12	* Dec 05/2014
	13	* Dec 05/2014
	14	* Dec 05/2014
	15	* Dec 05/2014
	16	* Dec 05/2014
	17	* Dec 05/2014
	18	* Dec 05/2014
	19	* Dec 05/2014
	20	* Dec 05/2014
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	34	* Dec 05/2014
	35	* Dec 05/2014
	36	* Dec 05/2014
	37	* Dec 05/2014
	38	* Dec 05/2014
	39	* Dec 05/2014
	40	* Dec 05/2014
	41	* Dec 05/2014
	42	* Dec 05/2014
	43	* Dec 05/2014
	44	* Dec 05/2014
Chapter 3	1	May 28/2001
	2	May 28/2001
	3	May 28/2001
	4	May 28/2001
	5	May 28/2001
	6	May 28/2001
	7	May 28/2001
	8	May 28/2001
	9	May 28/2001
	10	May 28/2001
	11	May 28/2001
	12	May 28/2001
	13	May 28/2001
	14	May 28/2001
	15	May 28/2001
	16	May 28/2001
Chapter 4	1	May 28/2001
	2	May 28/2001
	3	May 28/2001
	4	May 28/2001
	5	May 28/2001
	6	May 28/2001
	7	May 28/2001
	8	May 28/2001
	9	* Dec 05/2014
	10	May 28/2001
Chapter 5	1	* Dec 05/2014
	2	* Dec 05/2014
	3	* Dec 05/2014

The asterisk (*) indicates pages revised, added or deleted by current revision.

Chapter	Page	Date
	4	* Dec 05/2014
	5	* Dec 05/2014
	6	* Dec 05/2014
	7	* Dec 05/2014
	8	* Dec 05/2014
	9	* Dec 05/2014
	10	* Dec 05/2014
	11	* Dec 05/2014
	12	* Dec 05/2014
	13	* Dec 05/2014
	14	* Dec 05/2014
	15	* Dec 05/2014
	16	* Dec 05/2014
Chapter 6	1	* Dec 05/2014
	2	* Dec 05/2014
	3	* Dec 05/2014
	4	* Dec 05/2014
	5	* Dec 05/2014
	6	May 28/2001
	7	* Dec 05/2014
	8	May 28/2001
	9	May 28/2001
	10	* Dec 05/2014
	11	* Dec 05/2014
	12	* Dec 05/2014
Chapter 7	1	May 28/2001
	2	May 28/2001
	3	May 28/2001
	4	May 28/2001
	5	May 28/2001
	6	May 28/2001
	7	May 28/2001
	8	May 28/2001
	9	May 28/2001
	10	May 28/2001
	11	May 28/2001
	12	May 28/2001
	13	May 28/2001
	14	May 28/2001
Chapter 8	1	May 28/2001
Chapter 9	1	May 28/2001
	2	* Dec 05/2014
	3	* Dec 05/2014

Chapter	Page	Date
	4	* Dec 05/2014

The asterisk (*) indicates pages revised, added or deleted by current revision.

TABLE OF CONTENTS

Title **Page**

CHAPTER 1

PREFACE

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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.

   C. For more information, contact:

   Director, Technical Publications

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   M3K 1Y5.

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 70 to 86 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.

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.

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.

D. A cross−section of the passenger compartment is shown in Figure 2−11.

E. A floor loading diagram is shown in Figure 2−12.

F. Dimensions of the forward and aft baggage compartments are shown in Figure 2−13, Figure 2−14, and Figure 2−15.

G. Nets and tiedowns of the aft baggage compartment are shown in Figure 2−16 and Figure 2−17.

H. Clearances for the passenger, the service, the baggage and the forward type I emergency exit doors are shown in Figure 2−18, Figure 2−19, Figure 2−20, Figure 2−21, and Figure 2−22.

I. External handles of the various doors are shown in Figure 2−23.

J. Horizontal clearances between the fuselage and nacelles are shown in Figure 2−24.

K. Vertical dimensions of a typical aft baggage compartment is shown in Figure 2−25.

L. Ground clearances of empennage and sill of aft baggage door is shown in Figure 2−26.

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.

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.

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

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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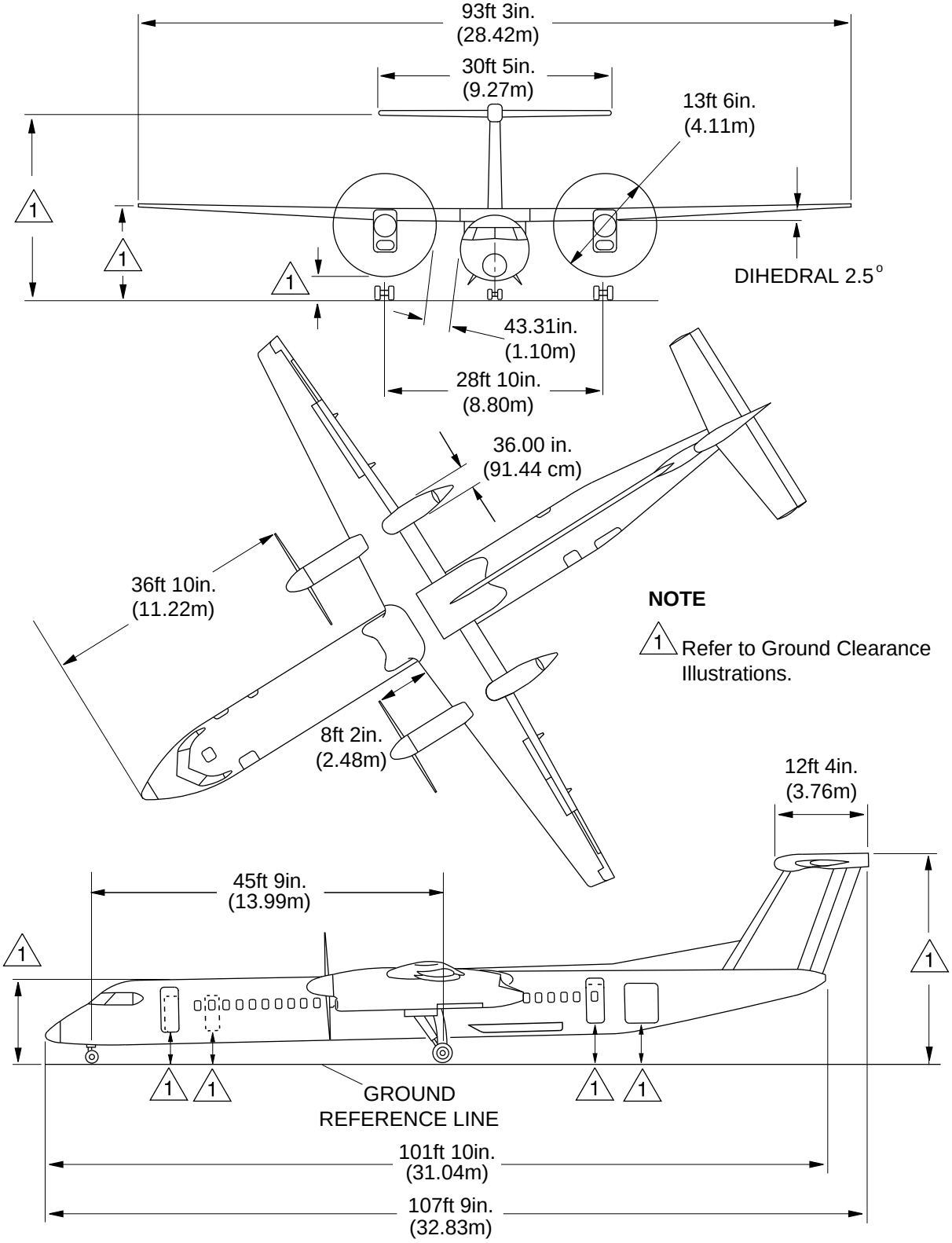
GENERAL AIRPLANE CHARACTERISTICS (Sheet 2 of 2)

Figure 2 − 1



NOTE

1 Refer to Ground Clearance Illustrations.

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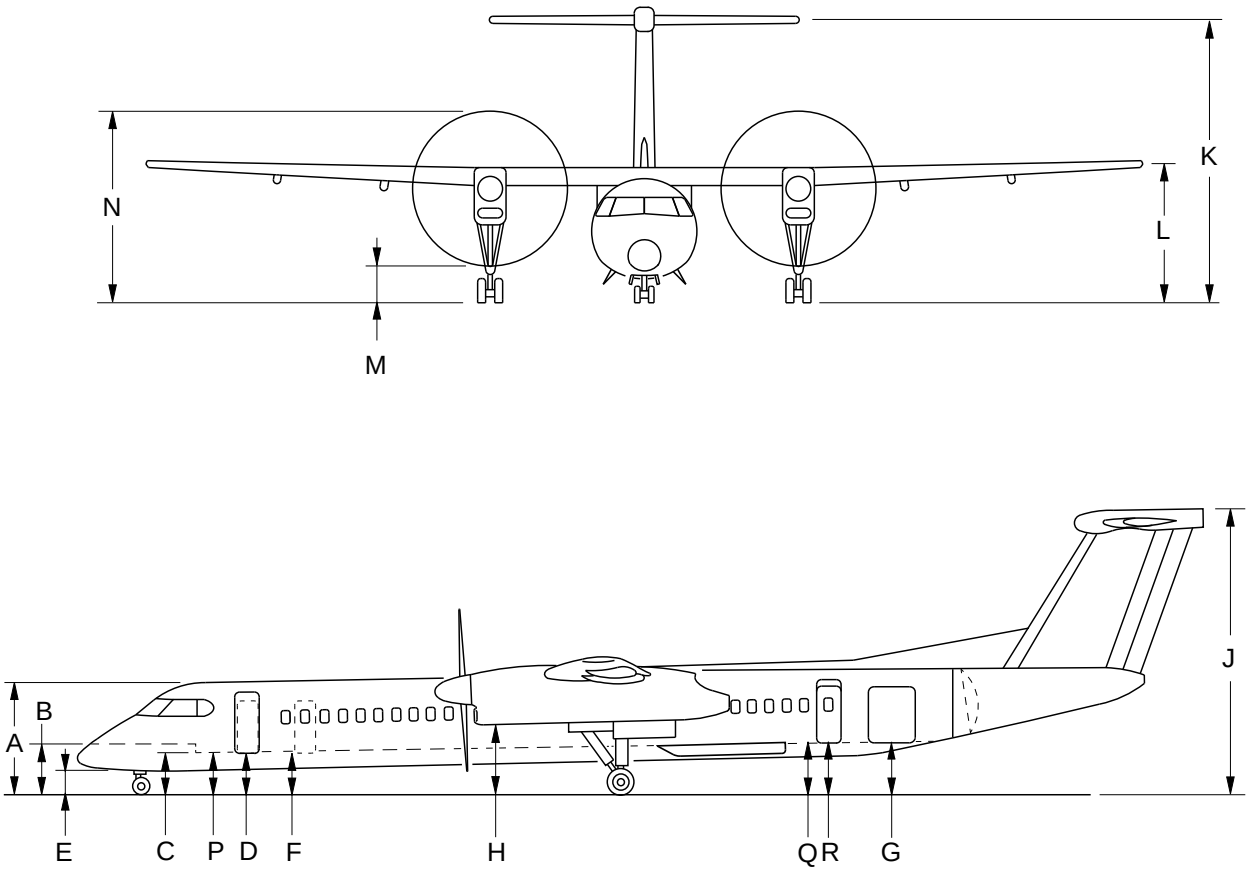
AIRCRAFT DIMENSIONS

Figure 2 − 2



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GROUND CLEARANCES − GENERAL ARRANGEMENT

Figure 2 − 3

		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	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 RH TYPE I EXIT DOOR △5	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	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 RH TYPE I EXIT DOOR △5	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

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.

△4 Type II/III emergency exit door is de−activated for the extra capacity configuration.

△5 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

MAXIMUM GROUND CLEARANCES−STANDARD MLG TIRES

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Figure 2 − 4

		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	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 RH TYPE I EXIT DOOR △5	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	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 RH TYPE I EXIT DOOR △5	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.

△4 Type II/III emergency exit door is de−activated for the extra capacity configuration.

△5 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

MINIMUM GROUND CLEARANCES−STANDARD MLG TIRES

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Figure 2 − 5

		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	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 RH TYPE I EXIT DOOR △5	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	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 RH TYPE I EXIT DOOR △5	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

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.

△4 Type II/III emergency exit door is de−activated for the extra capacity configuration.

△5 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

MAXIMUM GROUND CLEARANCES−OPTIONAL MLG TIRES

Figure 2 − 6

		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	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 RH TYPE I EXIT DOOR △5	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	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 RH TYPE I EXIT DOOR △5	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.

△4 Type II/III emergency exit door is de−activated for the extra capacity configuration.

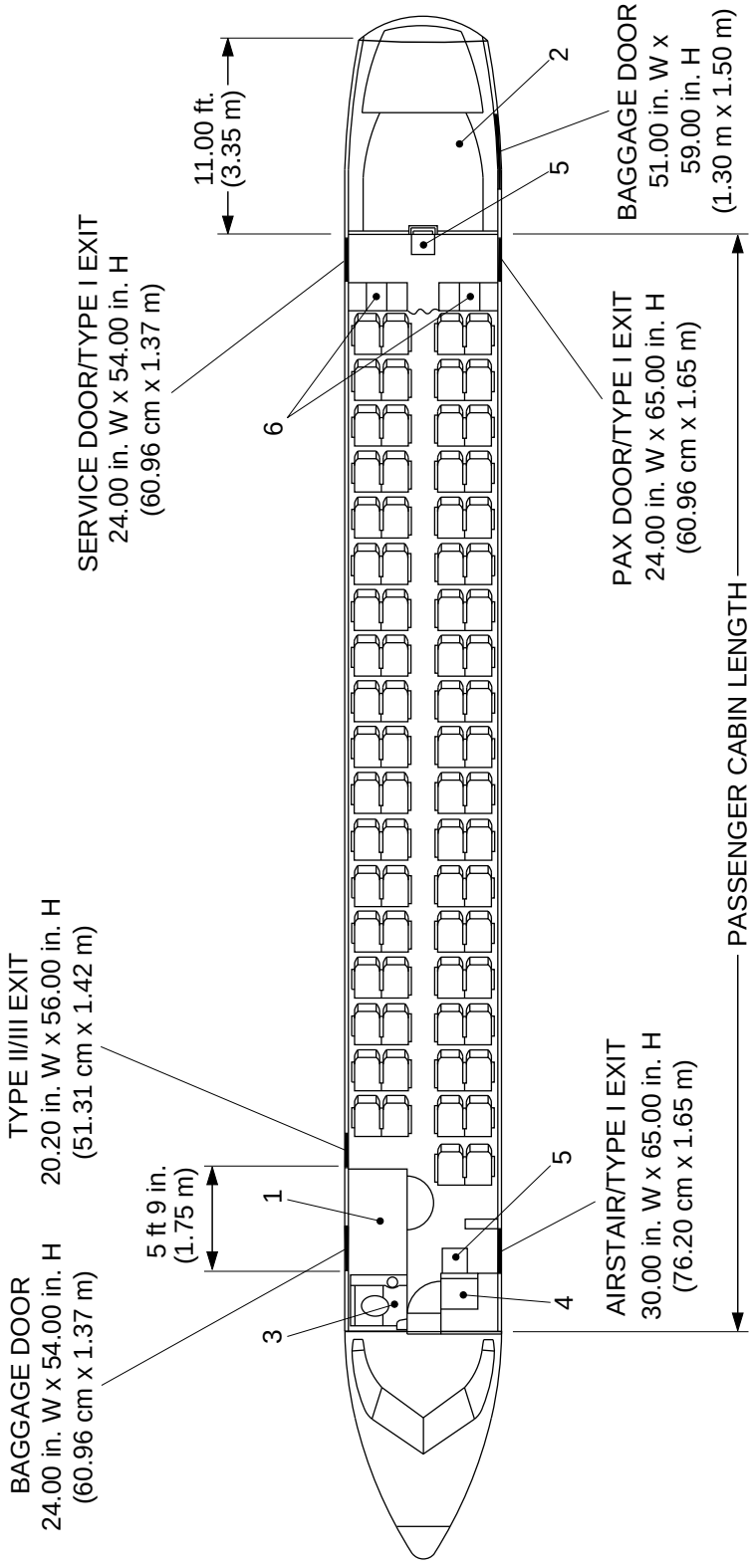
△5 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

cg3534a01.dg, cs, aug06/2014

MINIMUM GROUND CLEARANCES−OPTIONAL MLG TIRES

Figure 2 − 7

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



LEGEND

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

NOTE

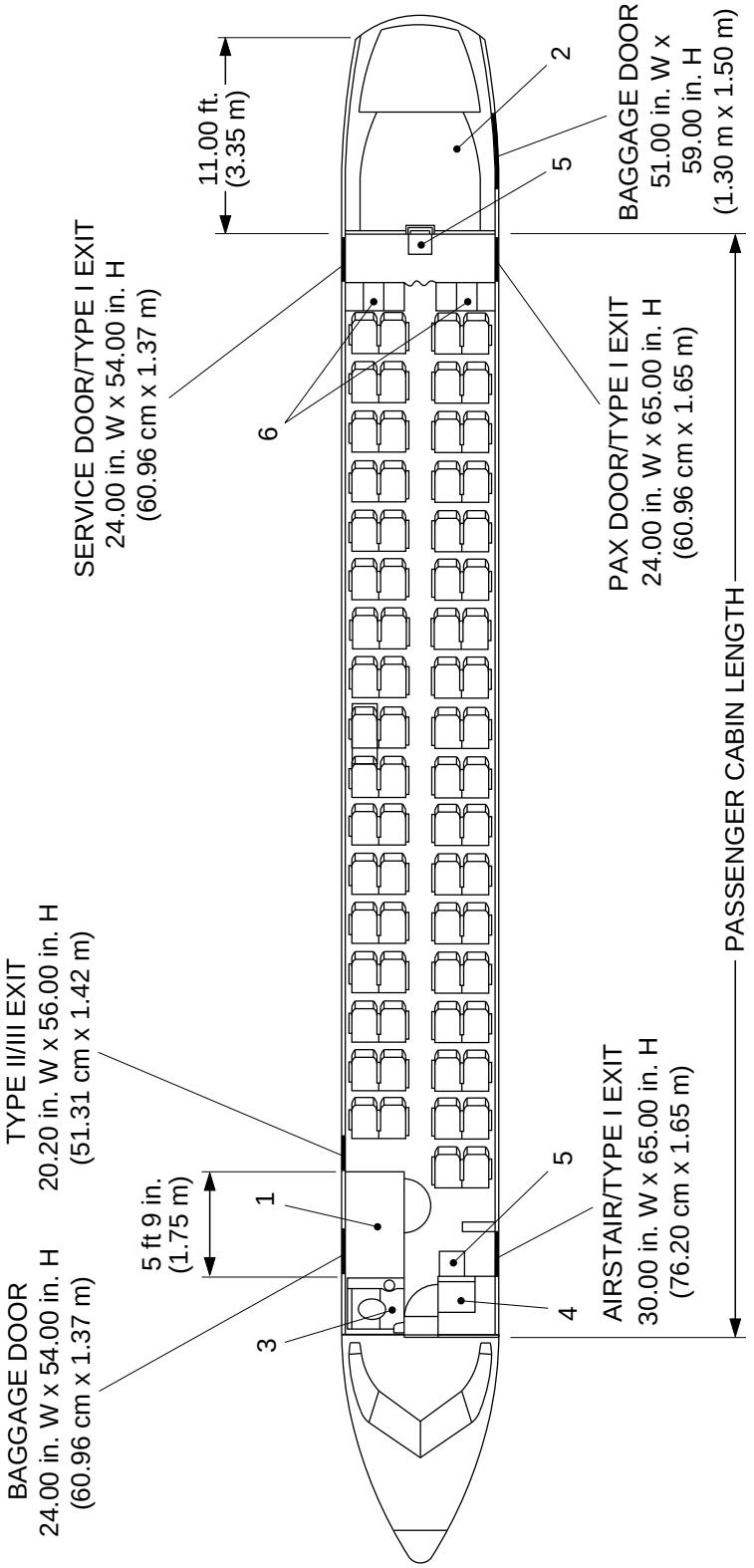
Standard configuration shown. Layout may vary with optional configurations.

br195a01.dg, gg/gw, aug5/2008

SERIES 400 STANDARD INTERIOR CONFIGURATIONS (Sheet 1 of 2)

Figure 2 − 8

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



LEGEND

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

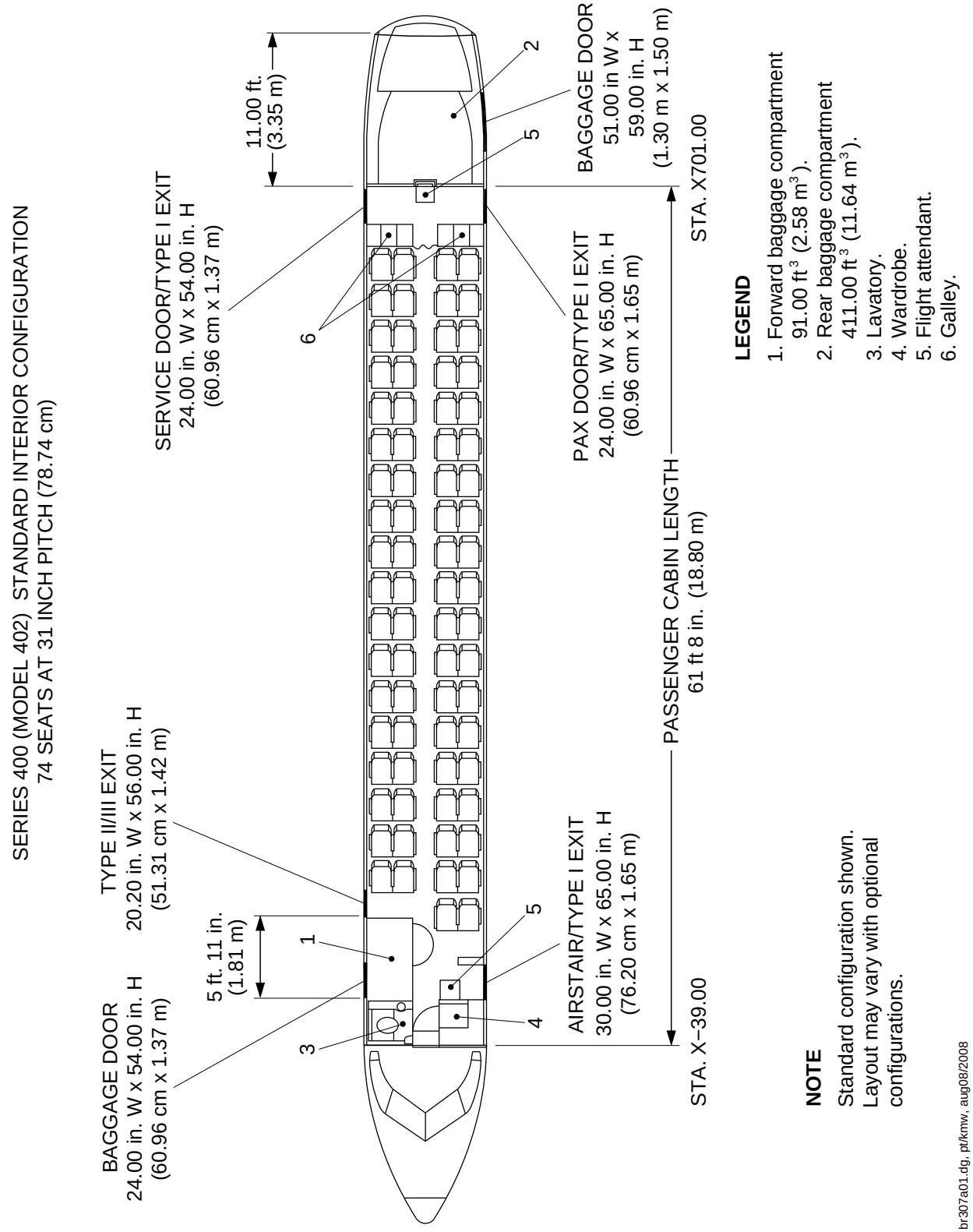
NOTE

Standard configuration shown. Layout may vary with optional configurations.

br195a02.dg, gg/gw, aug5/2008

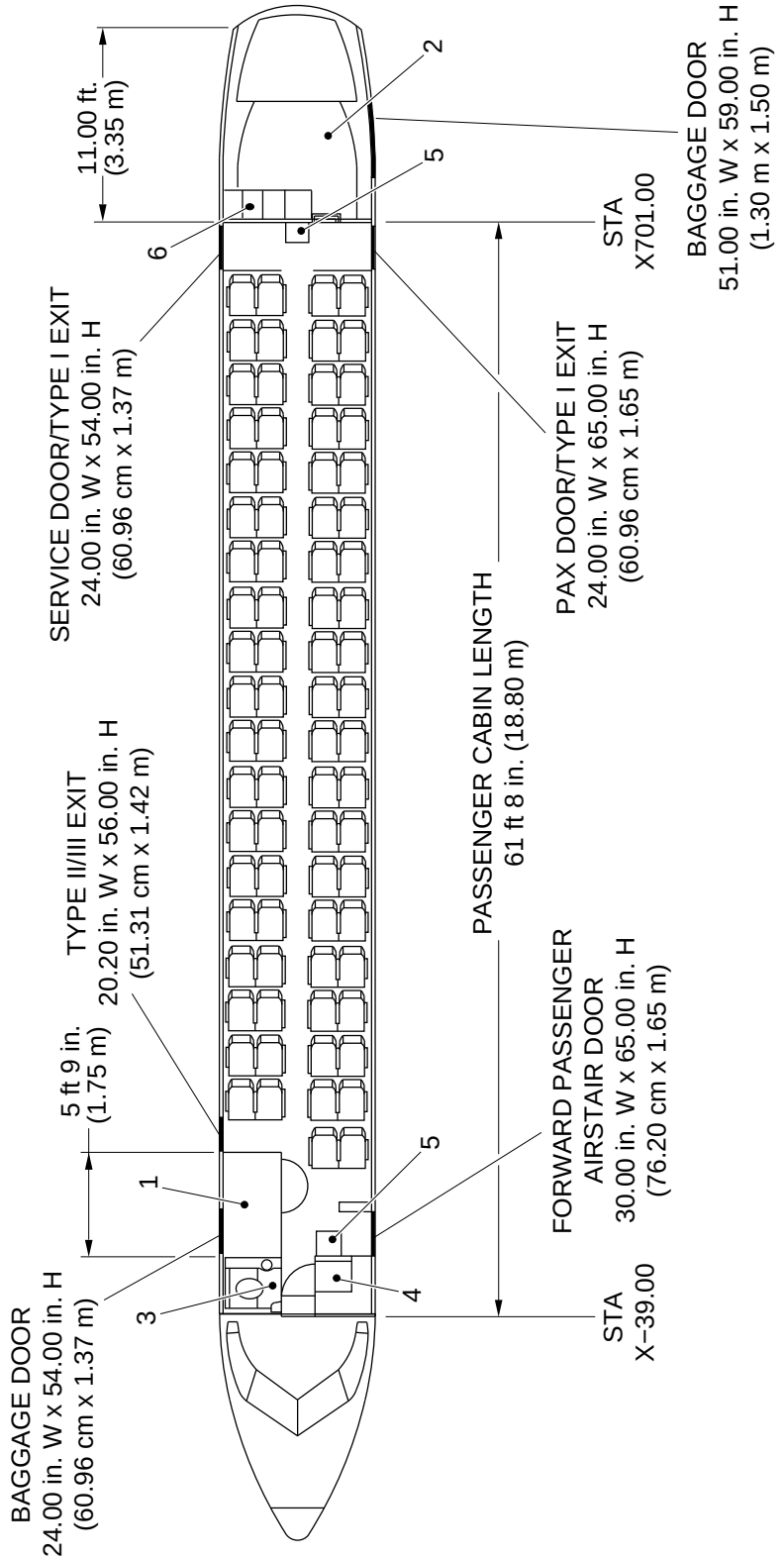
SERIES 400 STANDARD INTERIOR CONFIGURATIONS (Sheet 2 of 2)

Figure 2 − 8



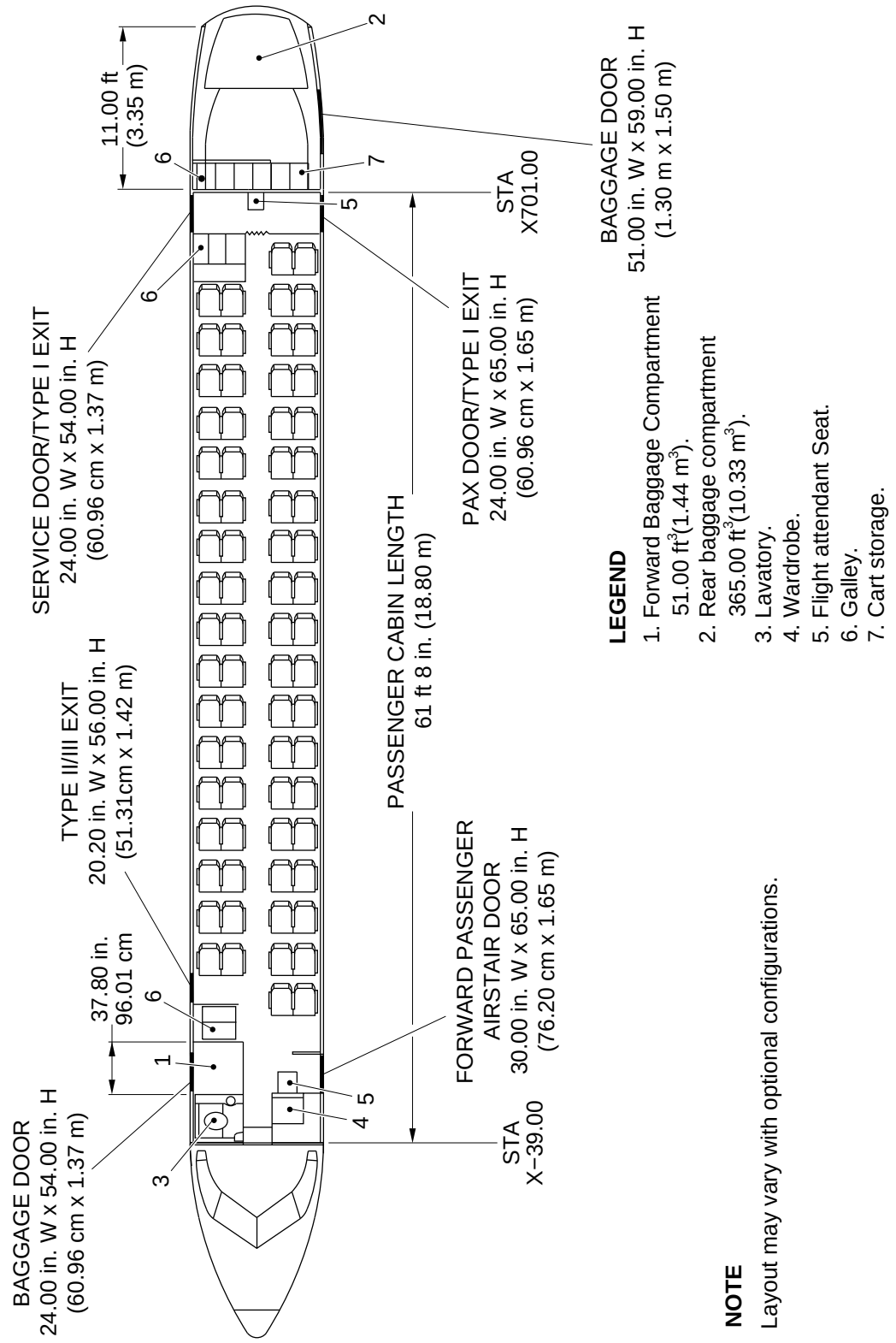
SERIES 400 (MODEL 402) STANDARD INTERIOR CONFIGURATION

Figure 2 − 9



SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 1 of 5)

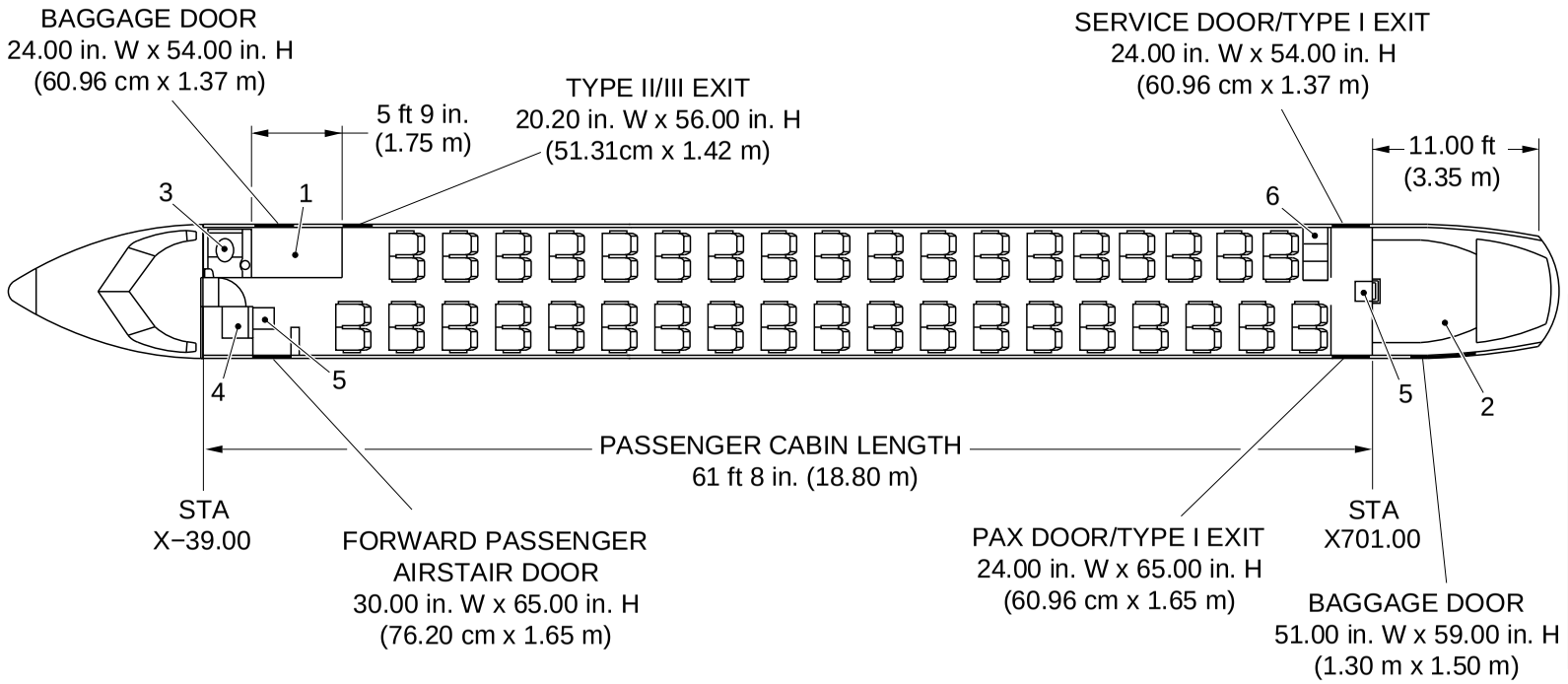
Figure 2 − 10



SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 2 of 5)

Figure 2 − 10

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



SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 3 of 5)

NOTE

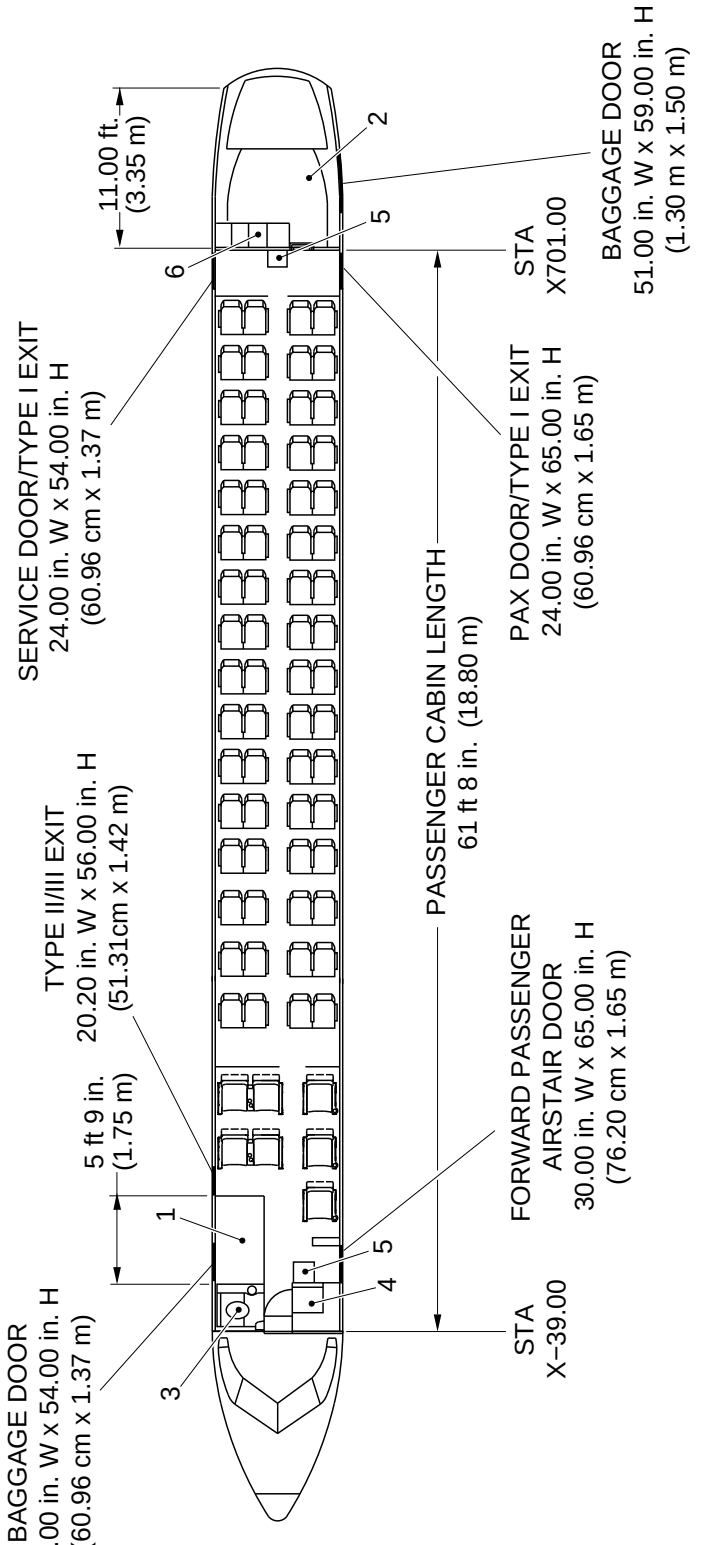
Layout may vary with optional configuration.

LEGEND

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

cg3535a03.dg, cs, aug06/2014

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 ft^3(2.58 m^3).
2. Rear baggage compartment 365.00 ft^3(10.33 m^3).
3. Lavatory.
4. Wardrobe.
5. Flight attendant.
6. Galley.

NOTE

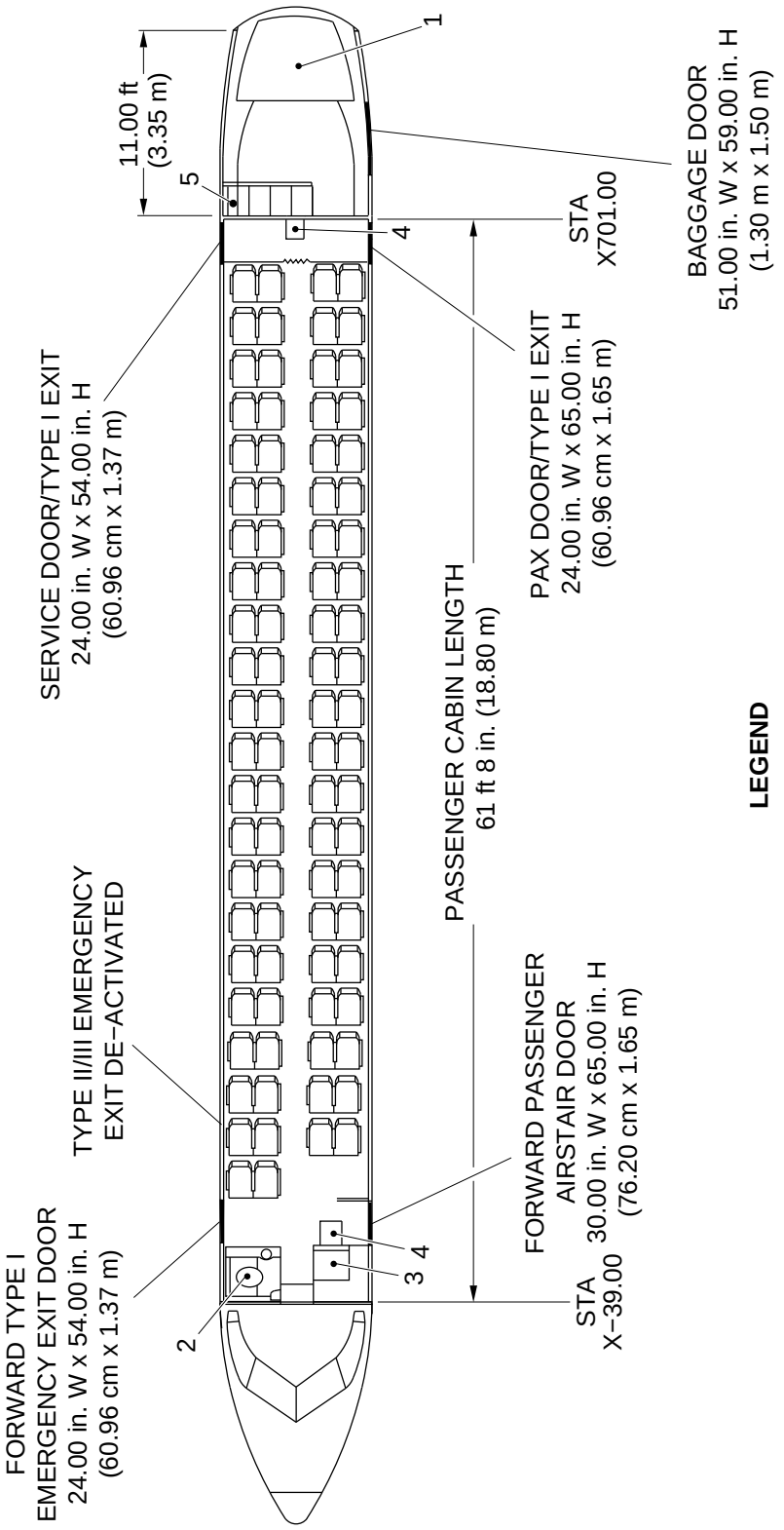
Layout may vary with optional configuration.

cg3535a04.dg, cs, aug06/2014

SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 4 of 5)

Figure 2 − 10

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



LEGEND

1. Rear baggage compartment 365.00 ft^3(10.33 m^3).
2. Lavatory.
3. Wardrobe.
4. Flight attendant Seat.
5. Galley.

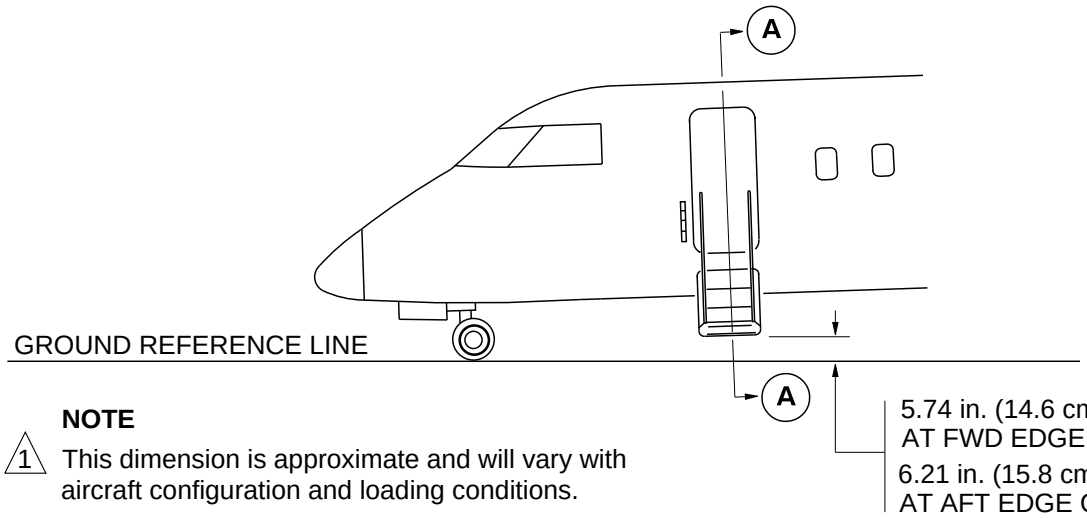
NOTE

Layout may vary with optional configurations.

cg3535a05.dg, cs, aug06/2014

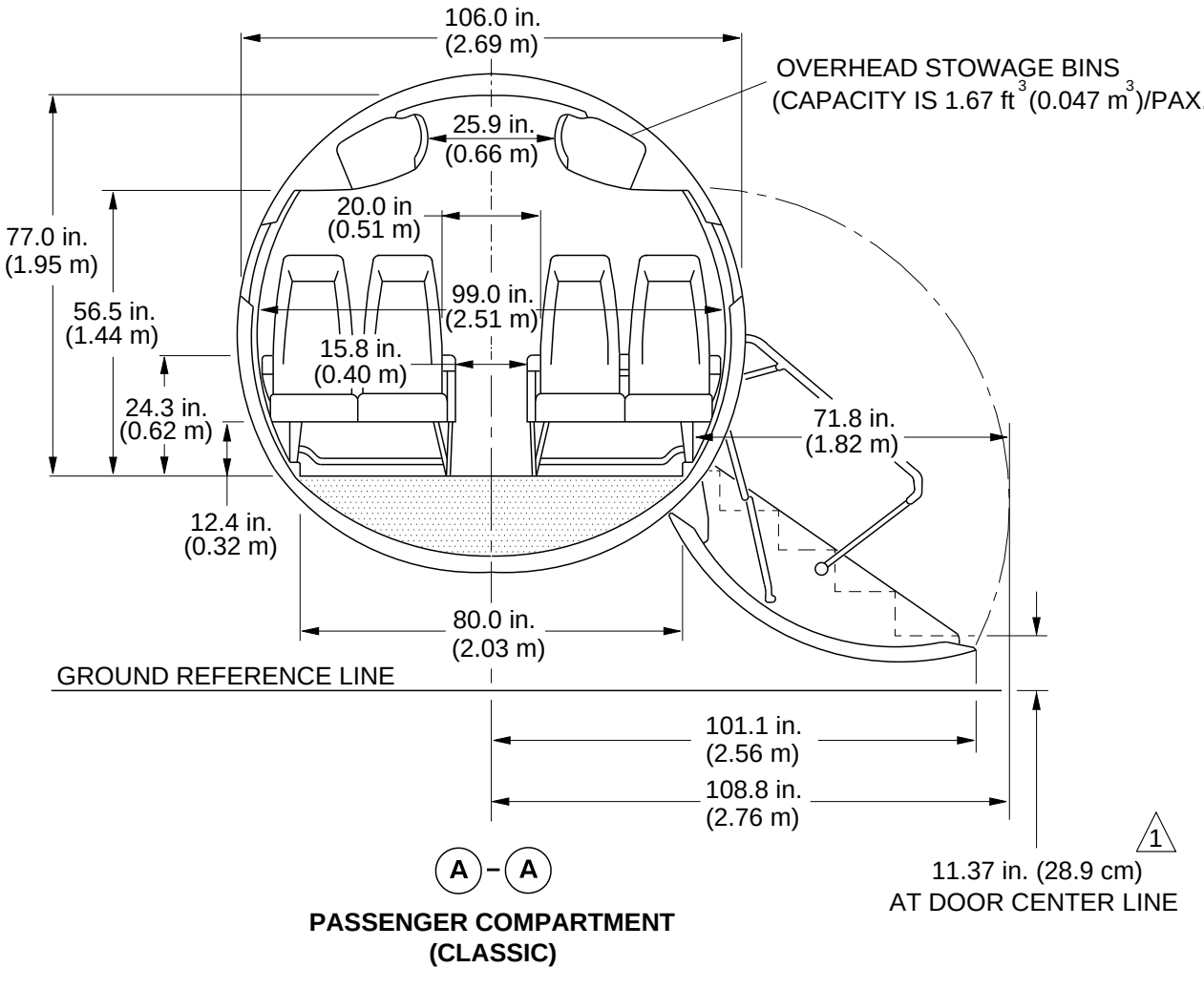
SERIES 400 OPTIONAL INTERIOR CONFIGURATIONS (Sheet 5 of 5)

Figure 2 − 10



NOTE

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

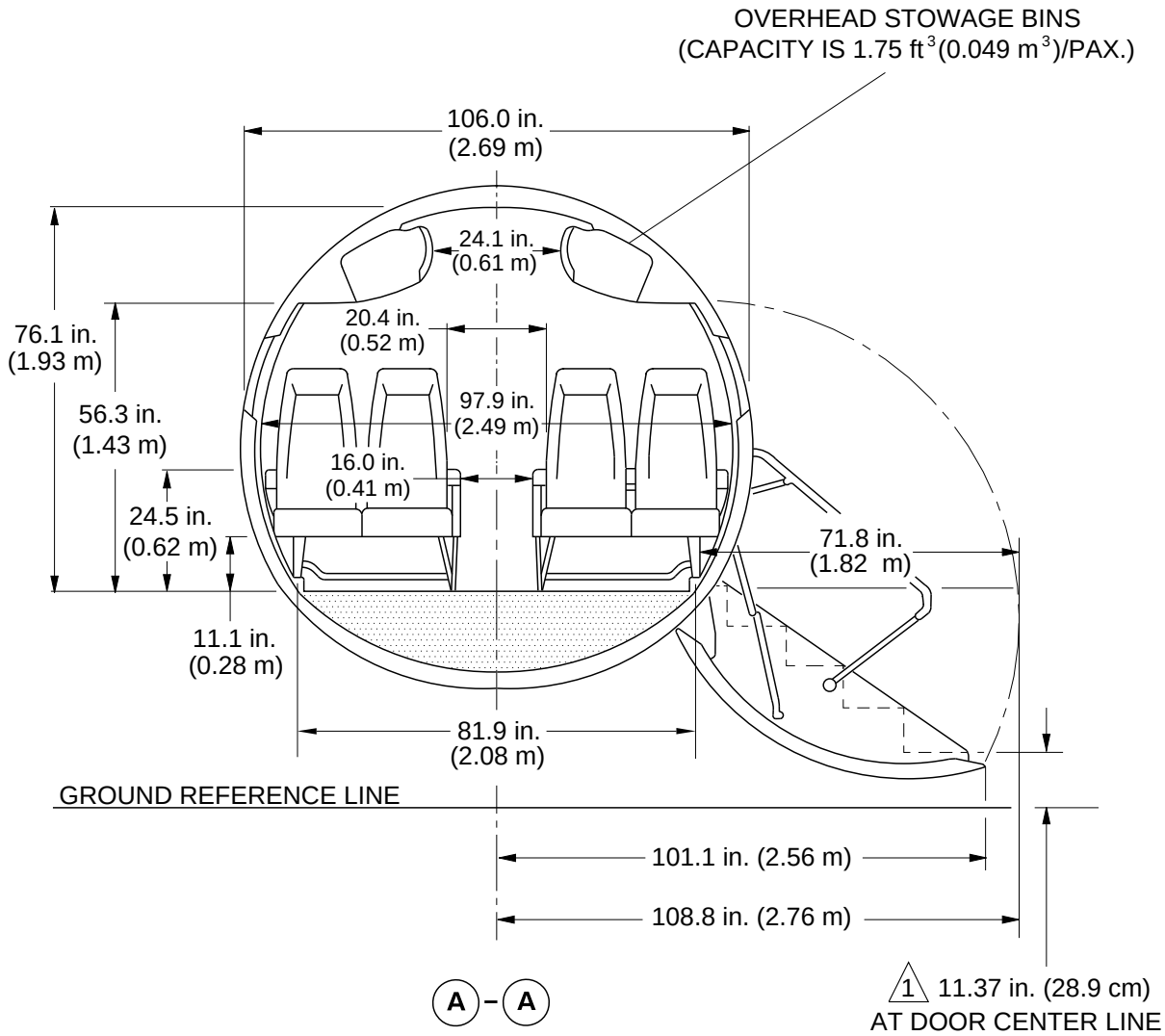


PASSENGER COMPARTMENT (CLASSIC)

br721a01.dg, gv/gw, nov13/2014

PASSENGER COMPARTMENT CROSS SECTION (Sheet 1 of 2)

Figure 2 − 11



PASSENGER COMPARTMENT
(NEXT GEN)

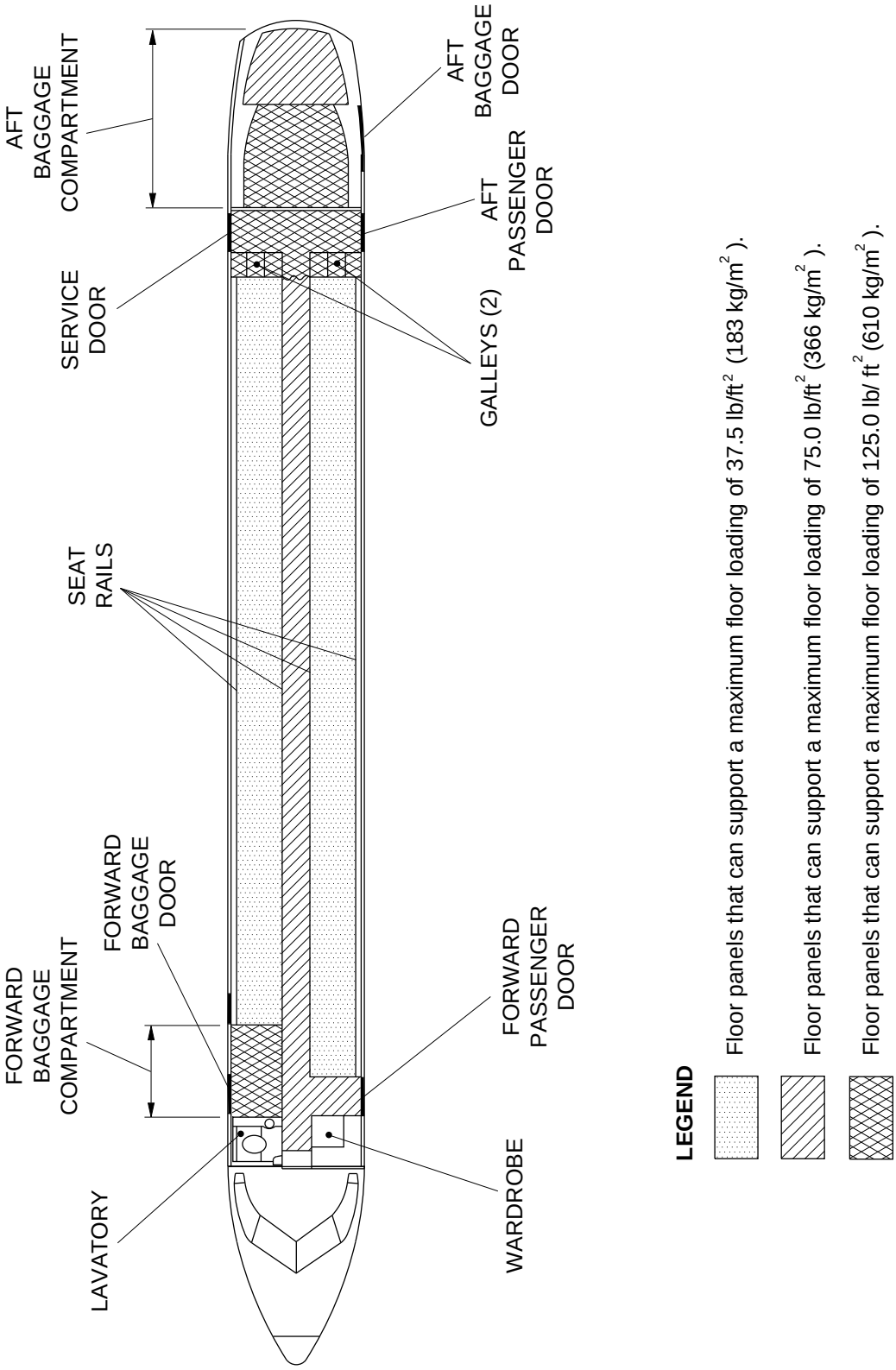
NOTE

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)

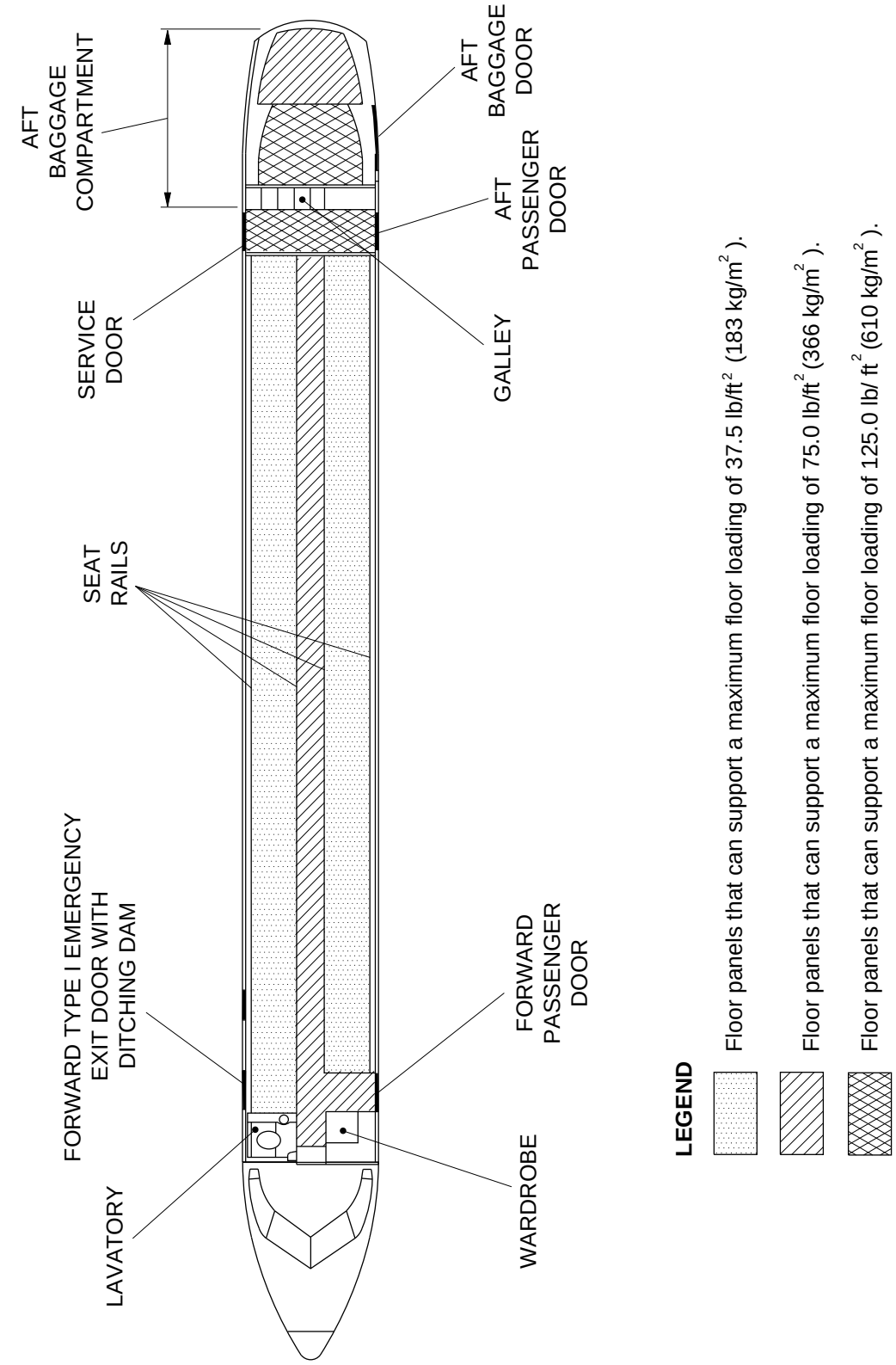
Figure 2 − 11



br297a01.dg, pt/cs, jul29/2014

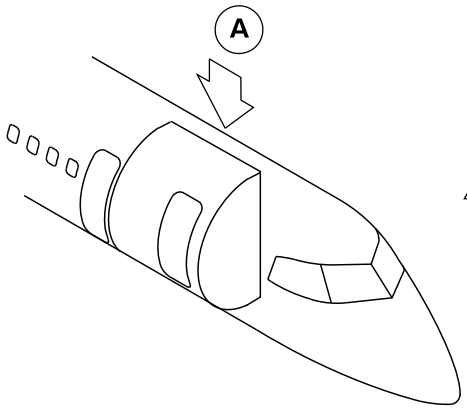
FLOOR LOADING DIAGRAM (Sheet 1 of 2)

Figure 2 − 12



FLOOR LOADING DIAGRAM (Sheet 2 of 2)

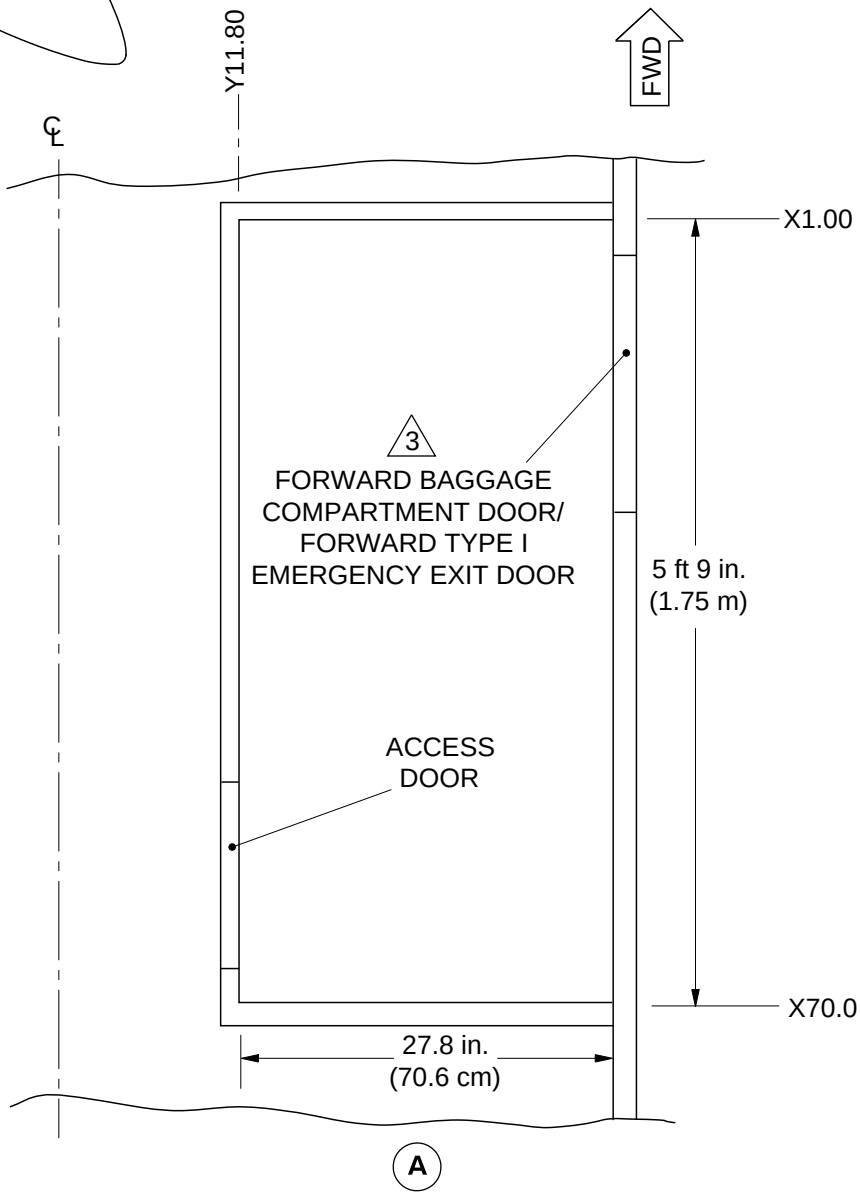
Figure 2 − 12



NOTES

1. The dimensions shown are measured at floor level.
2. Forward baggage compartment and forward baggage door is removed for the extra capacity configuration.

△3 Type I emergency exit door is installed in forward RH side for the extra capacity configuration.

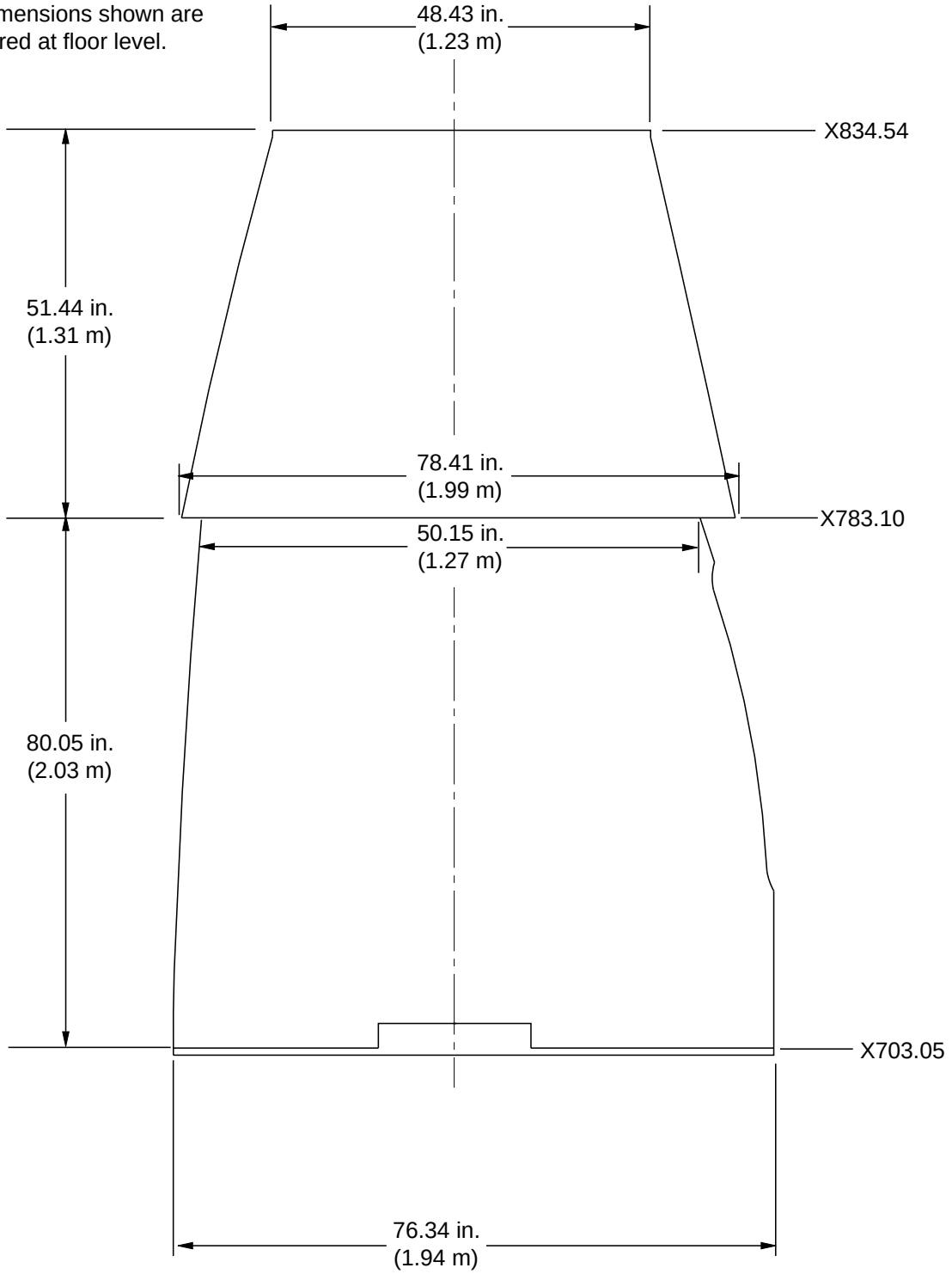


br757a01.dg, pt/cs, jul29/2014

FWD BAGGAGE − COMPARTMENT DIMENSIONS (STANDARD INTERIOR CONFIGURATION)

Figure 2 − 13

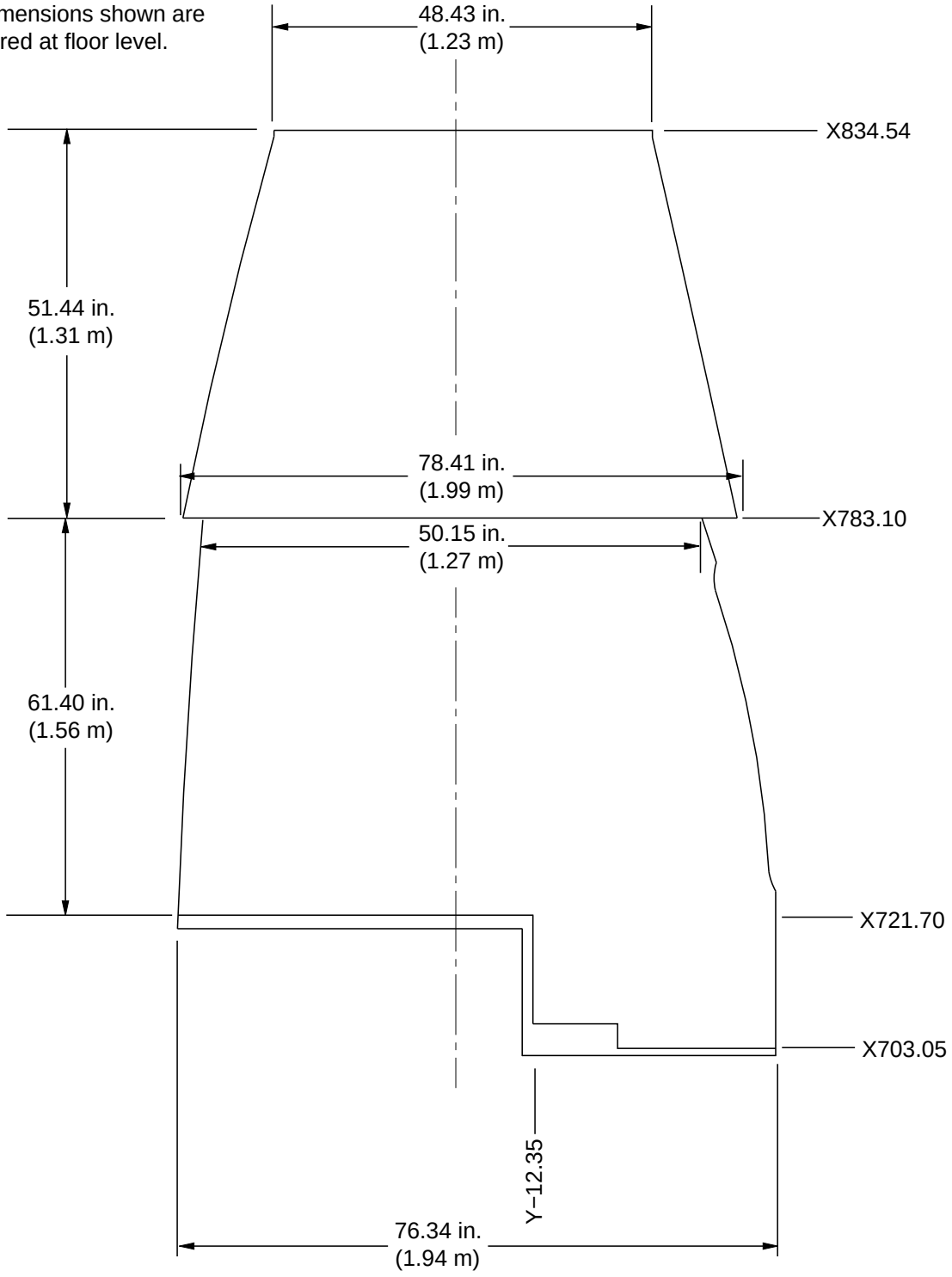
NOTE
The dimensions shown are measured at floor level.



AFT BAGGAGE COMPARTMENT DIMENSIONS (STANDARD INTERIOR CONFIGURATION)

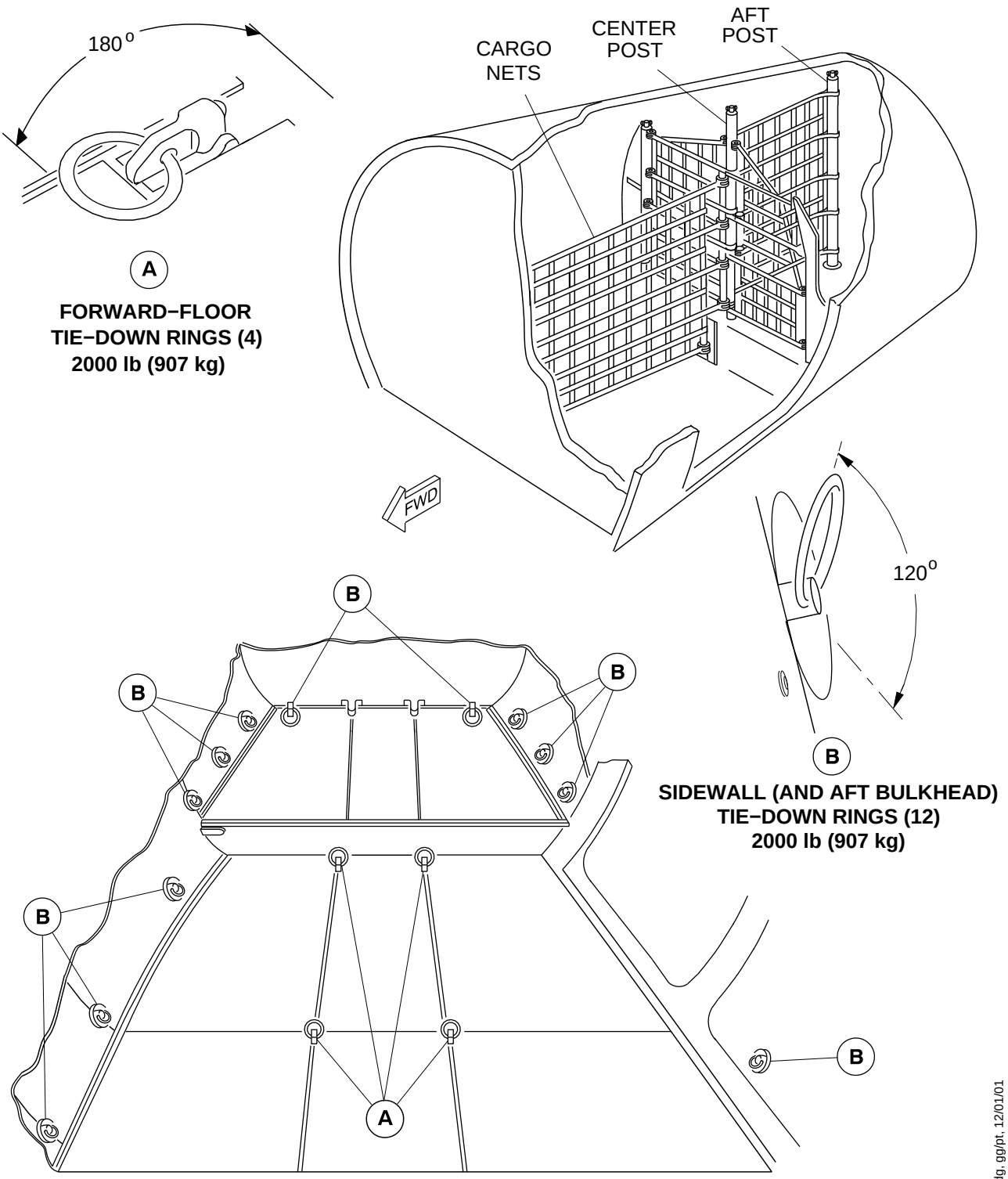
Figure 2 − 14

NOTE
The dimensions shown are measured at floor level.



AFT BAGGAGE COMPARTMENT DIMENSIONS (OPTIONAL INTERIOR CONFIGURATION)

Figure 2 − 15

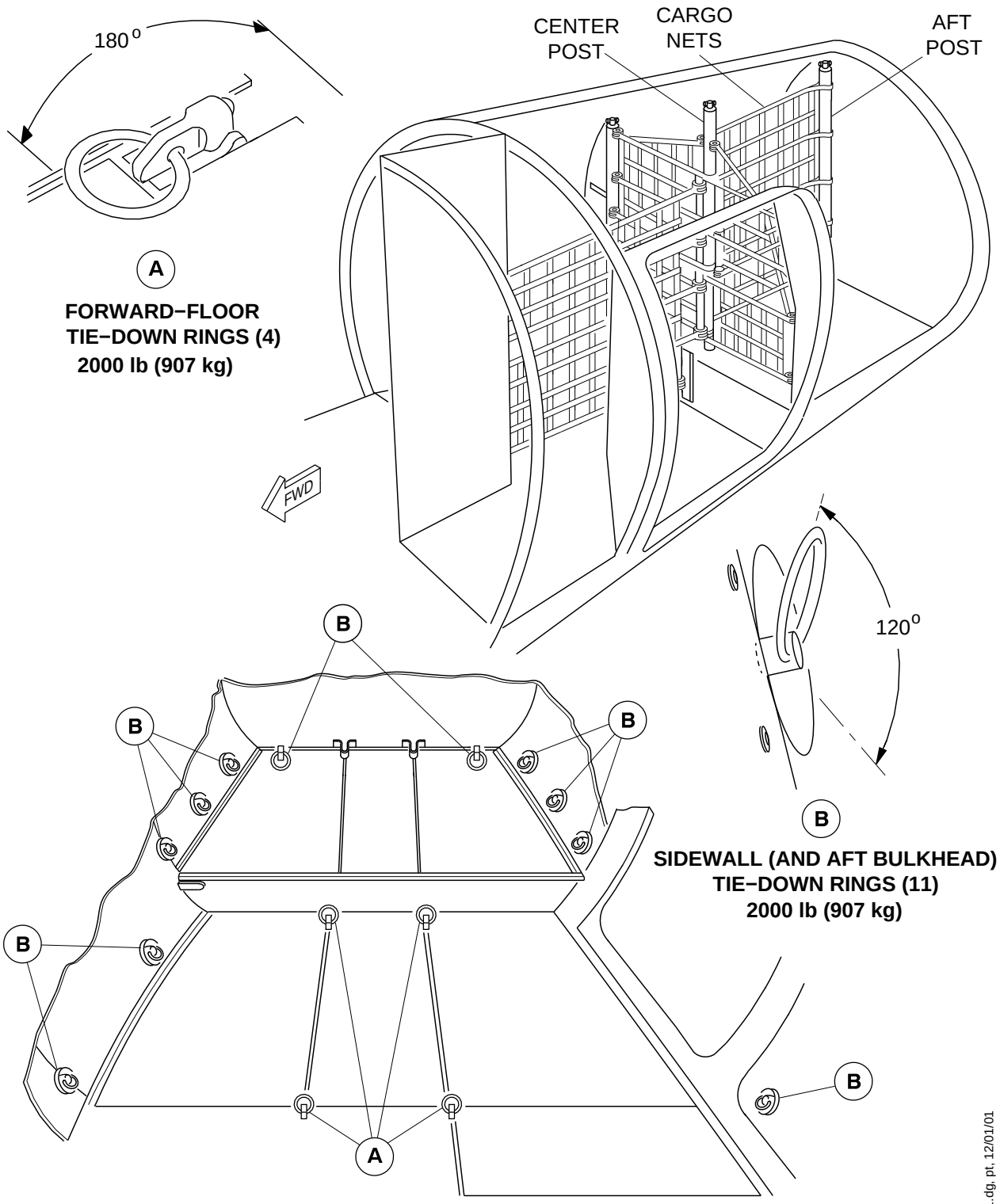


VIEW LOOKING AFT (NETS AND POLES OMITTED FOR CLARITY)

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

NETS AND TIE−DOWNS (DETAIL SPEC. CONFIGURATION)

Figure 2 − 16



VIEW LOOKING AFT (NETS AND POLES OMITTED FOR CLARITY)

NETS AND TIE−DOWNS (G3 GALLEY)

br883a01.dg, pt, 12/01/01

Figure 2 − 17

Door Clearances

1. General

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

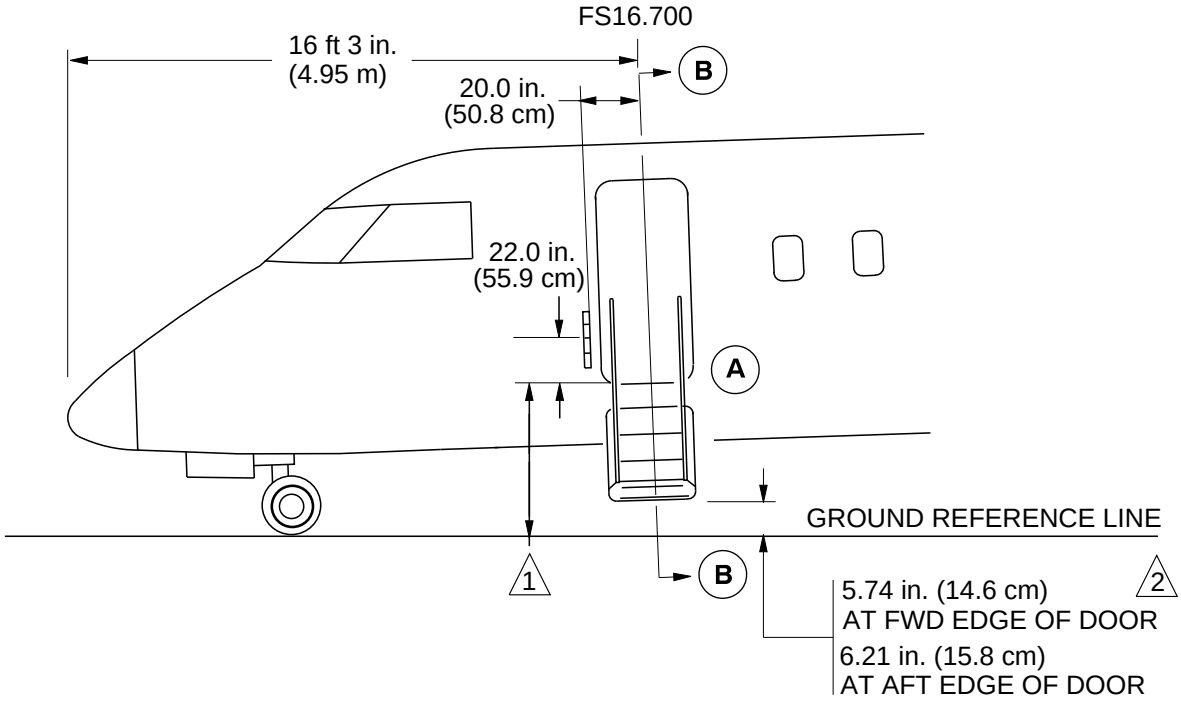
2. The forward passenger (airstair) door opens outwards and downwards and is manually controlled from inside or outside the aircraft.

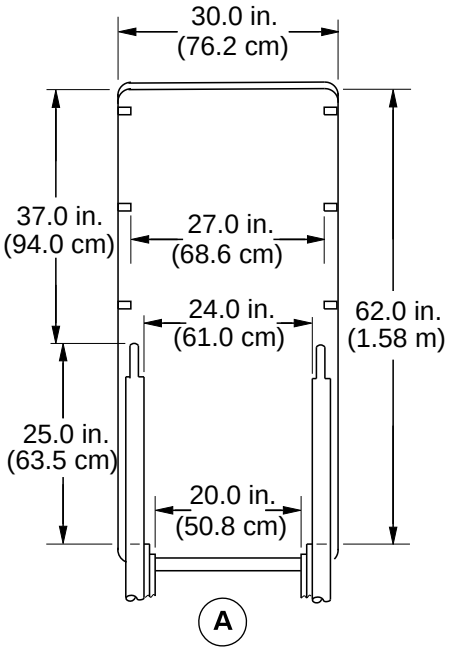
3. The aft passenger door/Type 1 exit opens inward and upwards, then moves outward and forward.

4. The aft service door/Type 1 exit opens inwards and upwards, then moves outwards and forward.

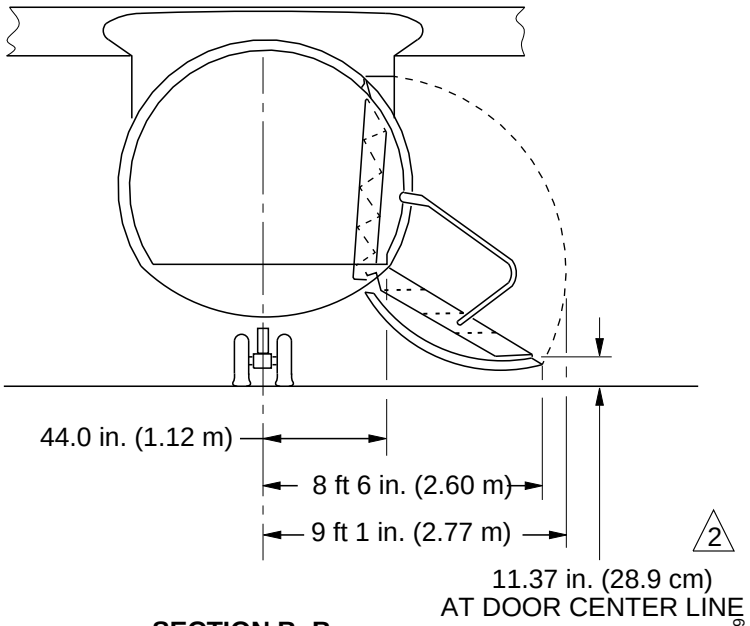
5. The forward baggage−compartment door opens inward and upward, then moves outwards and forward.

6. The aft baggage−compartment door opens outwards and upwards.





VIEW LOOKING INBOARD



SECTION B−B
VIEW LOOKING AFT

NOTE

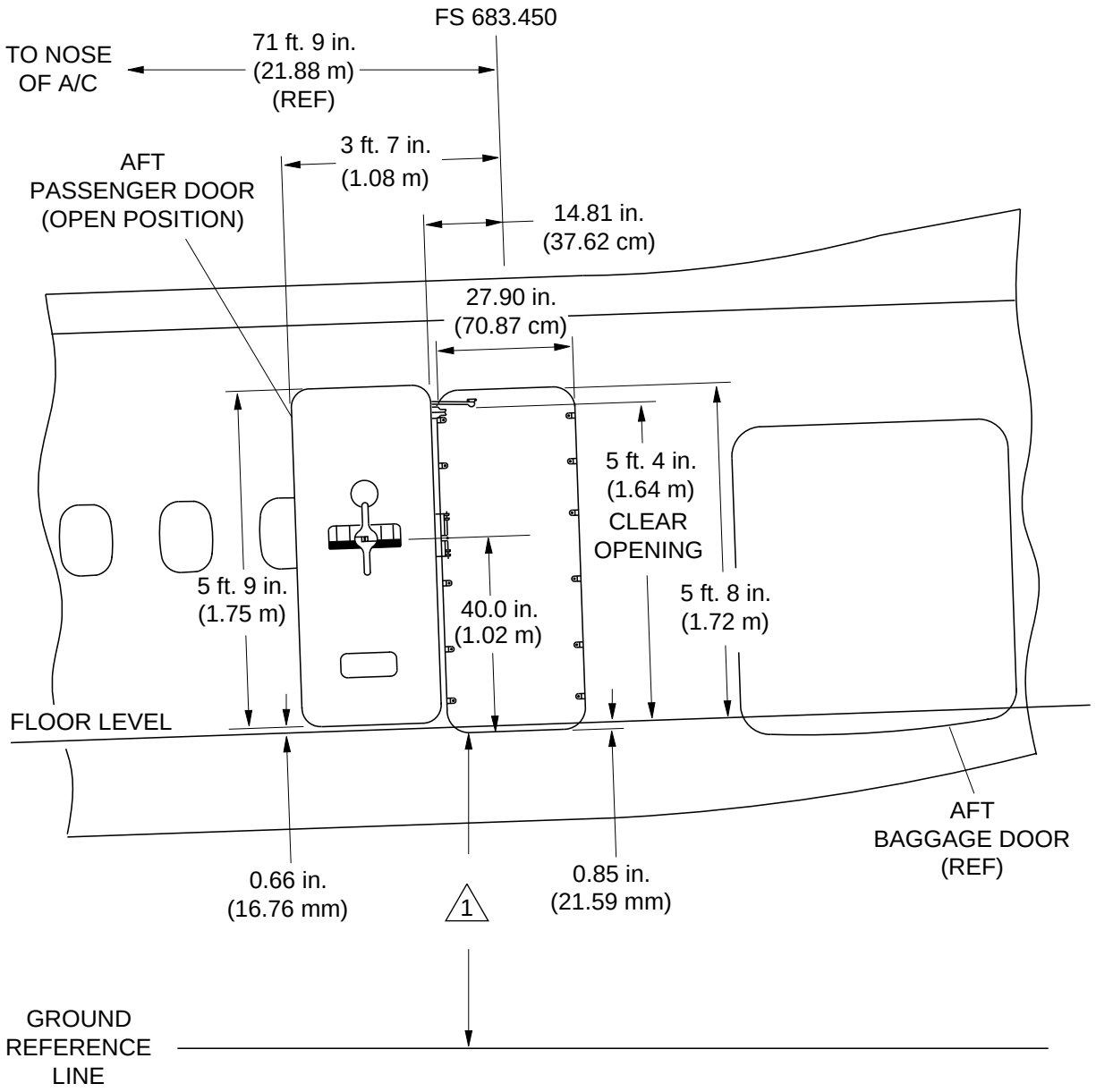
1 Refer to Ground Clearance illustrations.

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

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

FORWARD PASSENGER − DOOR CLEARANCES

Figure 2 − 18



VIEW LOOKING INBOARD ON L/H SIDE

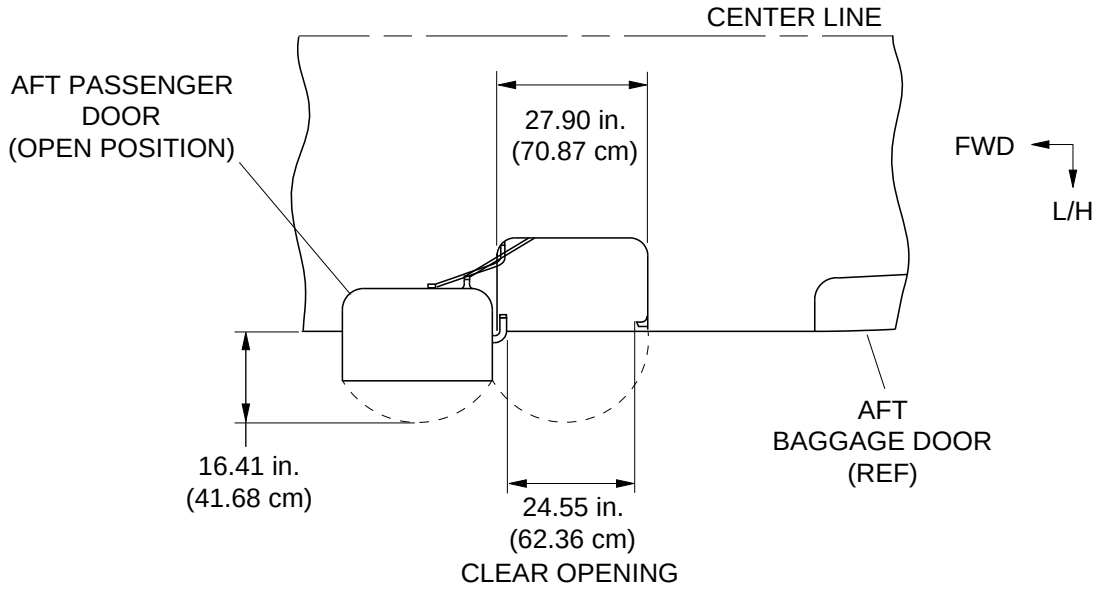
br845a01.dg, gg/sw, 04/10/99

NOTE

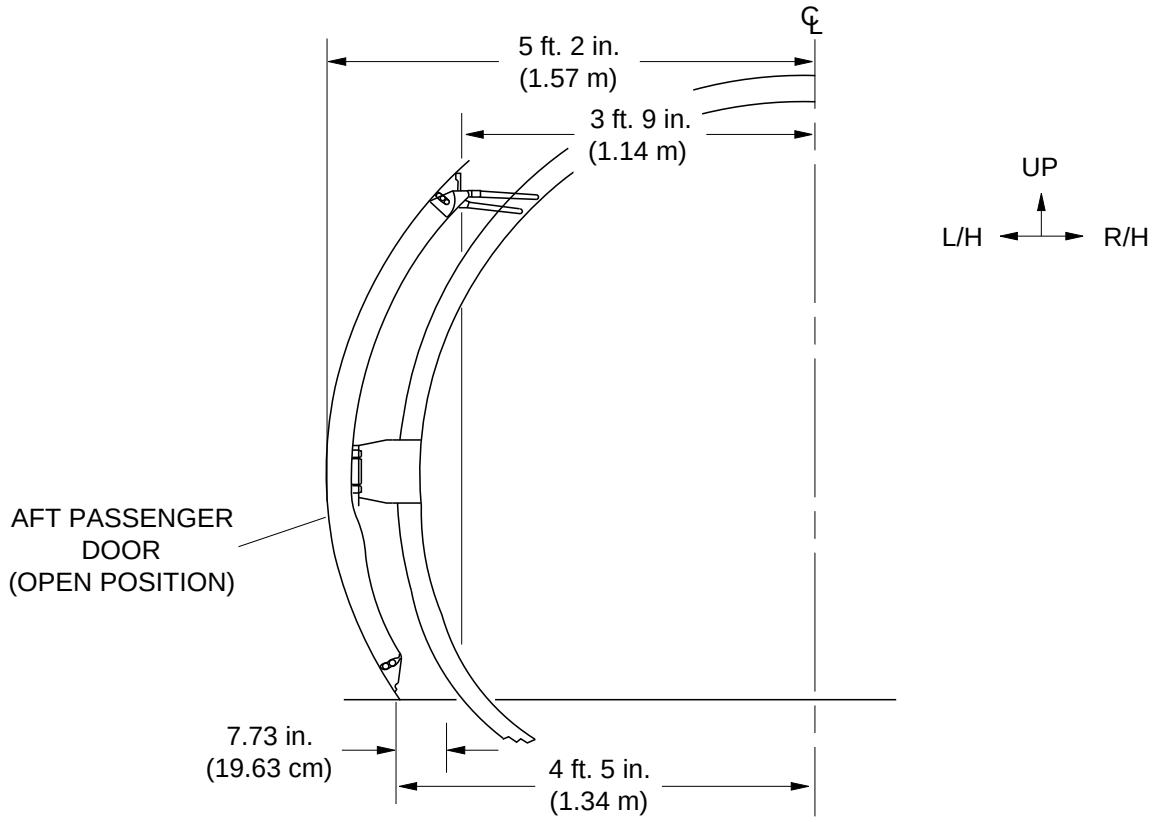
1 Refer to Ground Clearance illustrations.

AFT PASSENGER − DOOR CLEARANCES (Sheet 1 of 2)

Figure 2 − 19



VIEW LOOKING DOWN ON L/H SIDE

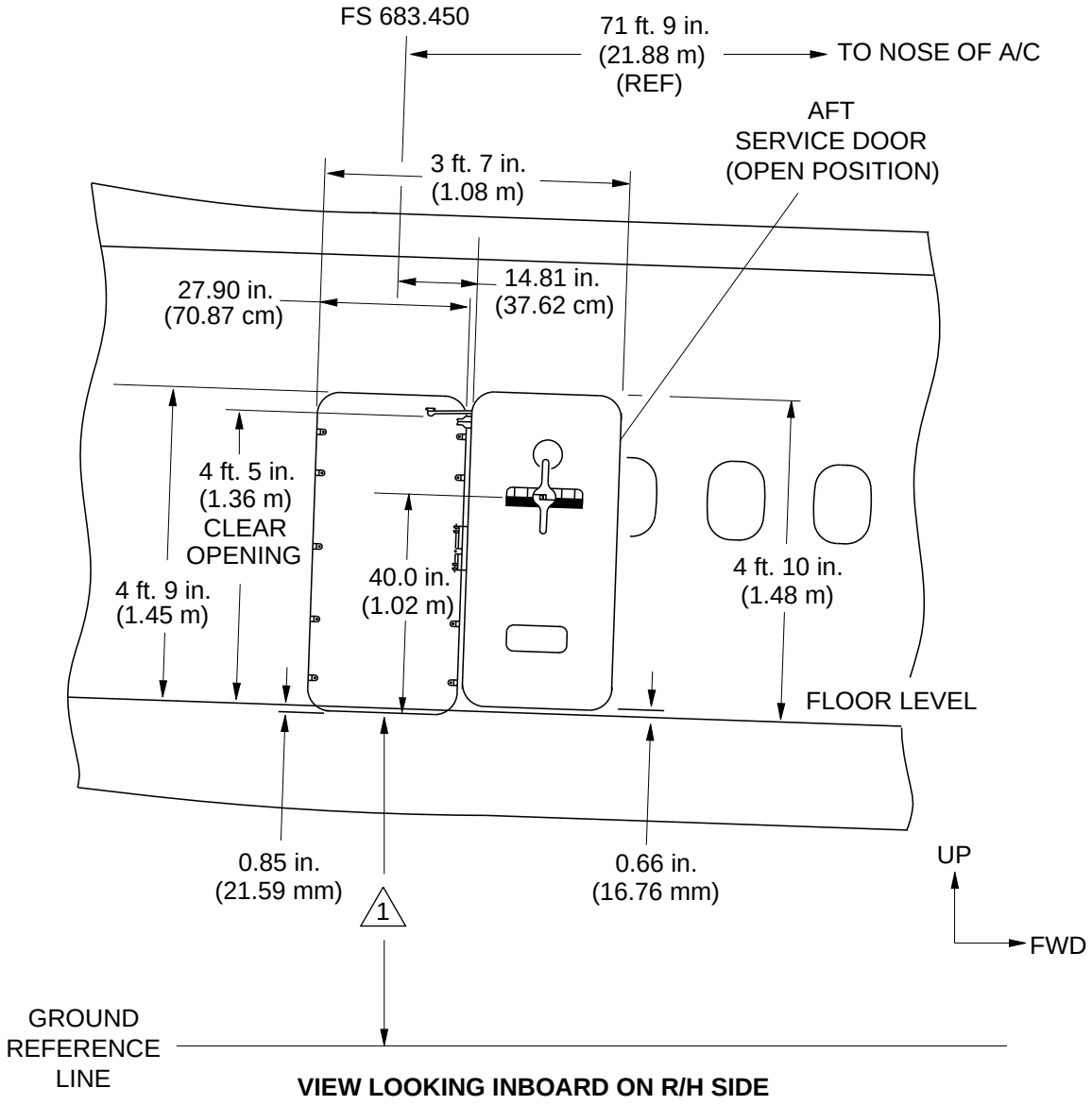


VIEW LOOKING FORWARD

AFT PASSENGER − DOOR CLEARANCES (Sheet 2 of 2)

br845a02.dg, gw, 08/04/98

Figure 2 − 19



VIEW LOOKING INBOARD ON R/H SIDE

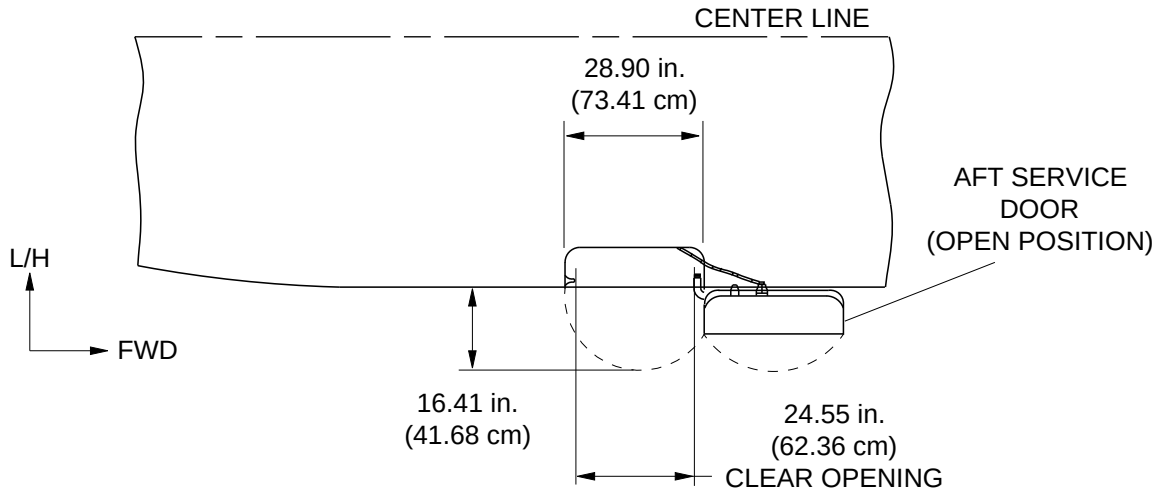
br466a01.dg, gg/sw, 04/10/99

NOTE

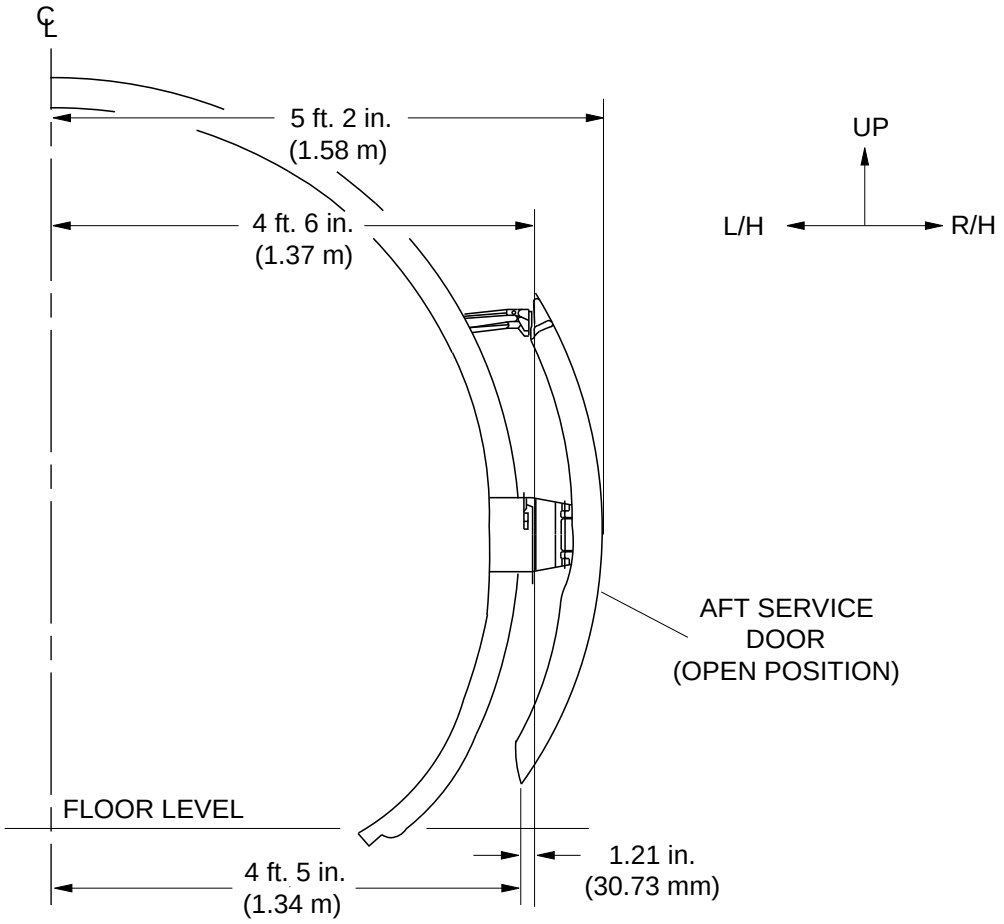
1 Refer to Ground Clearance illustrations.

AFT SERVICE − DOOR CLEARANCES (Sheet 1 of 2)

Figure 2 − 20



VIEW LOOKING DOWN ON R/H SIDE

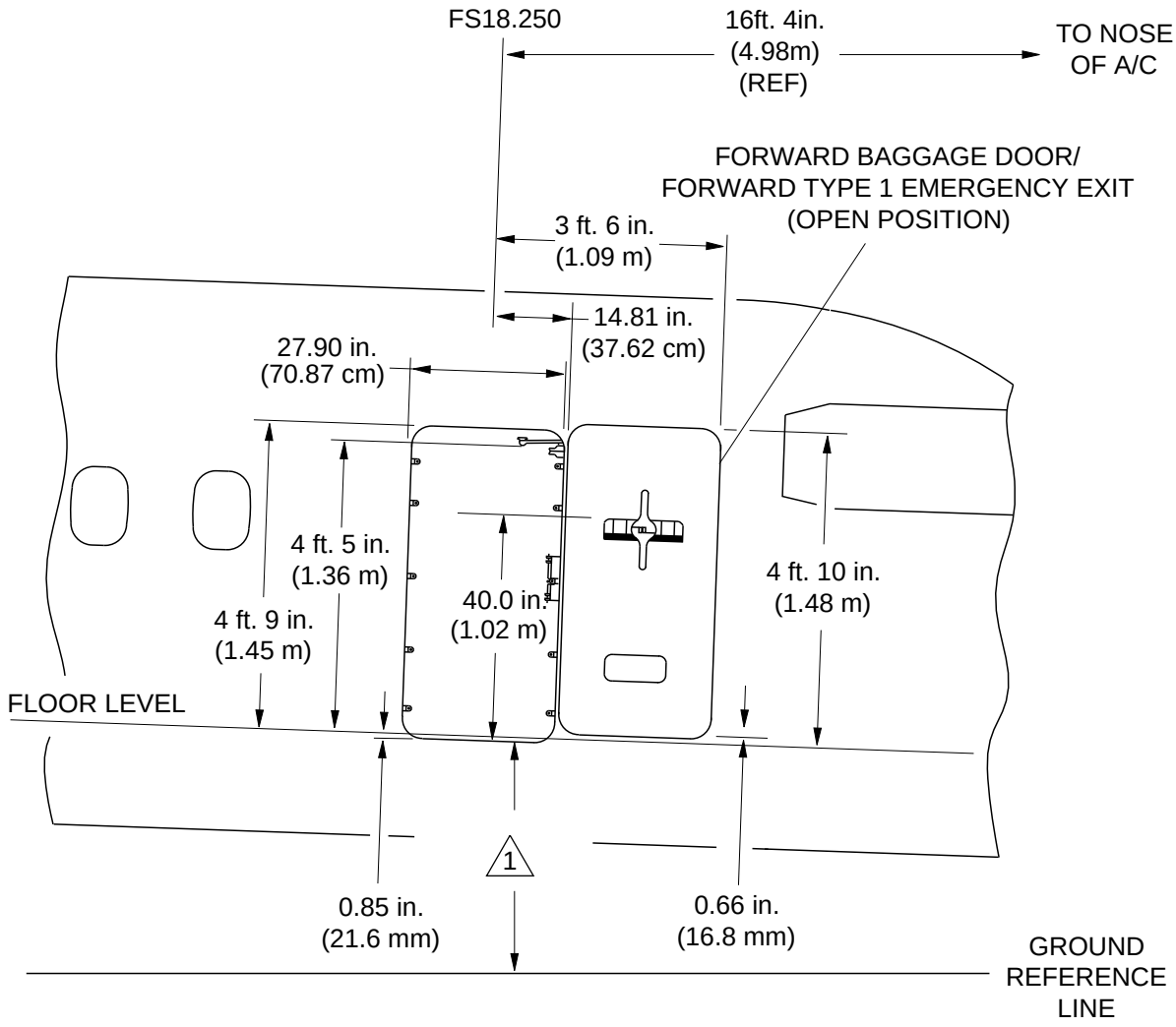


VIEW LOOKING FORWARD

br466a02.dg, gw, 08/04/98

AFT SERVICE − DOOR CLEARANCES (Sheet 2 of 2)

Figure 2 − 20



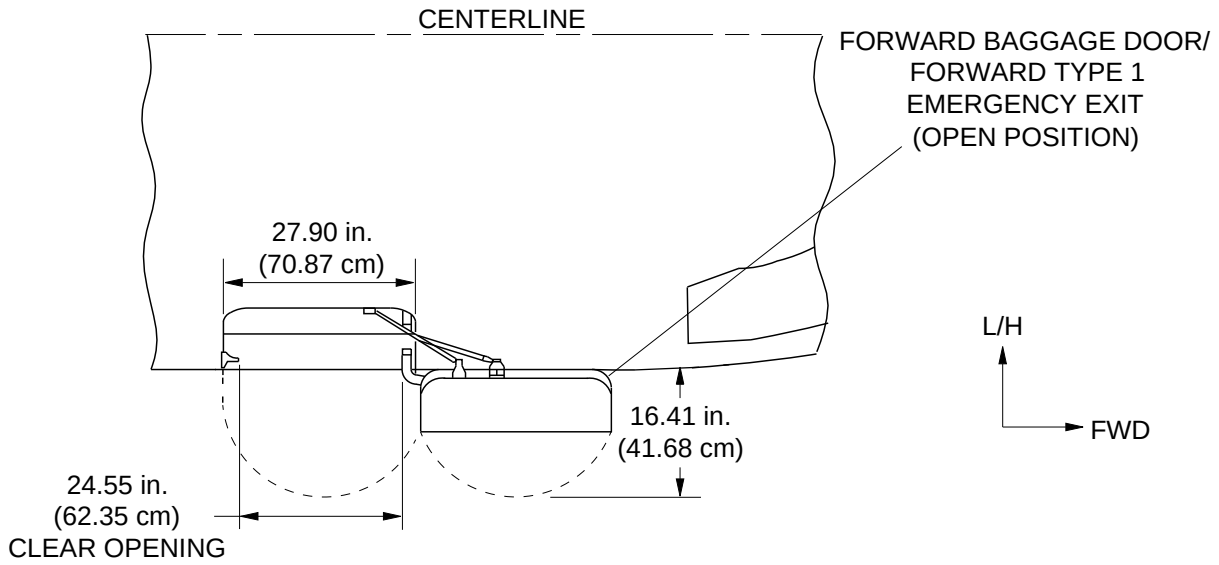
VIEW LOOKING INBOARD ON R/H SIDE

NOTES

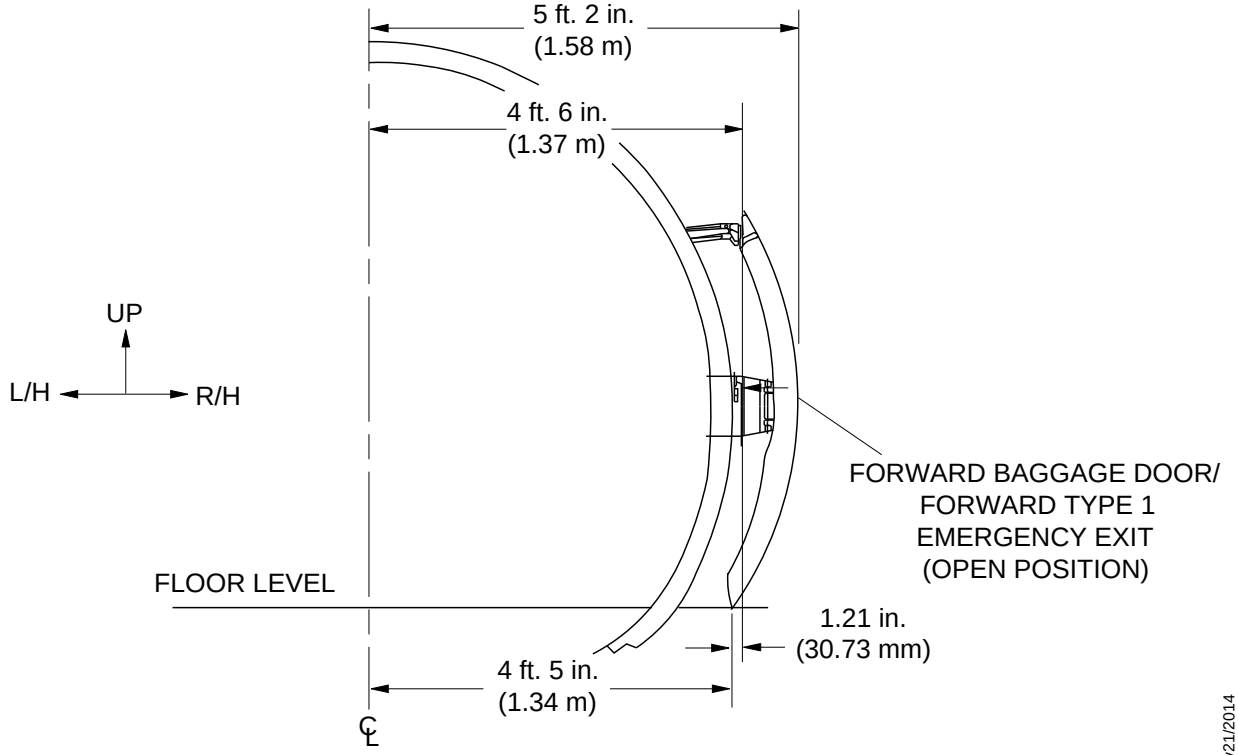
1. Refer to Ground Clearance illustrations.
2. Forward baggage compartment and forward baggage door is removed for the extra capacity configuration.
3. Forward type I emergency exit door is installed in lieu of forward baggage compartment door for the extra capacity configuration.

cg3536a01.dg, cs/kmw, nov21/2014

FORWARD BAGGAGE COMPARTMENT/FORWARD TYPE 1 EMERGENCY EXIT − DOOR CLEARANCES (Sheet 1 of 2)
Figure 2 − 21



VIEW LOOKING DOWN ON R/H SIDE



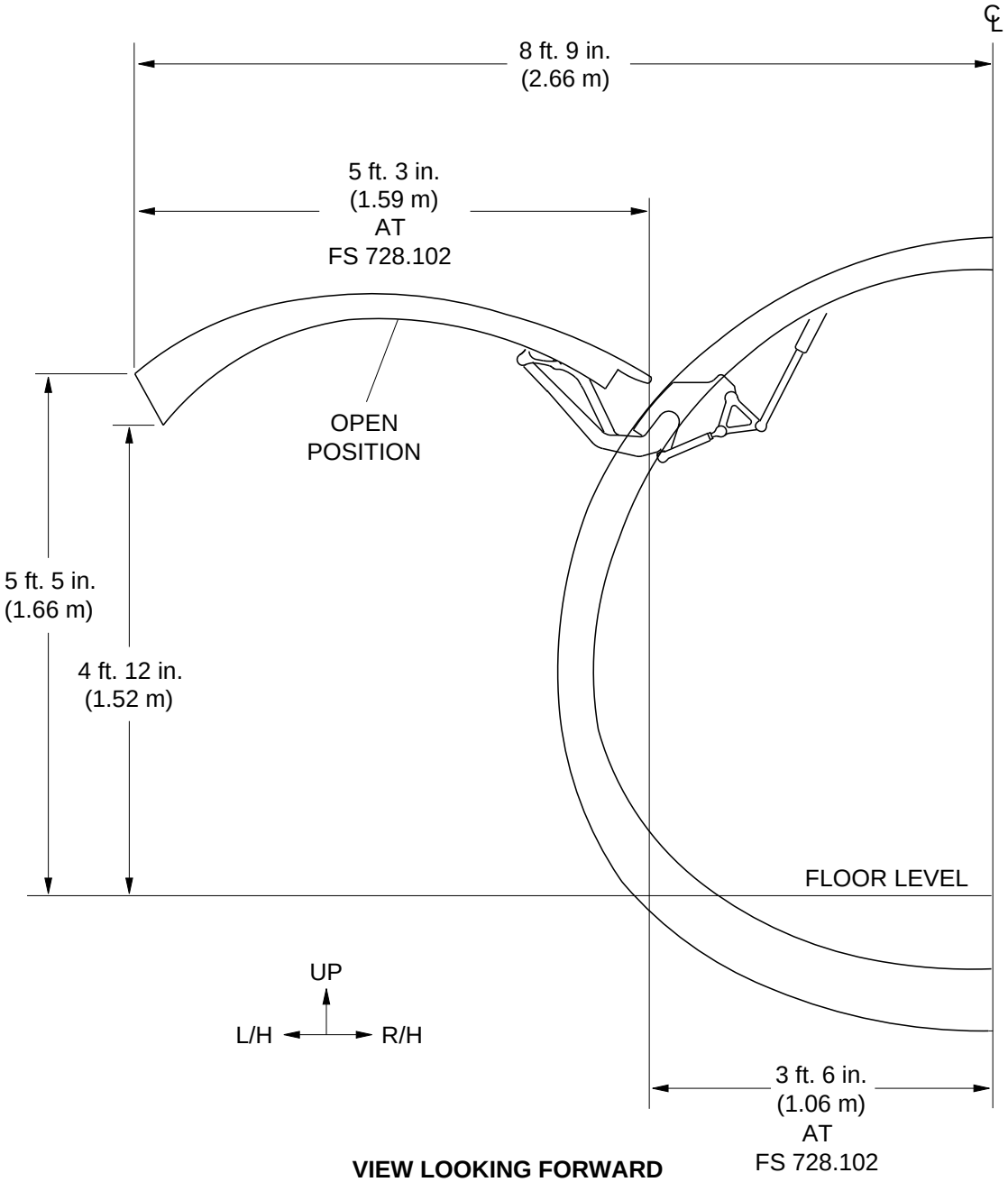
VIEW LOOKING FORWARD

NOTES

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

cg3536a02.dg, cs/kmw, nov21/2014

FORWARD BAGGAGE COMPARTMENT/FORWARD TYPE 1 EMERGENCY EXIT − DOOR CLEARANCES (Sheet 2 of 2)
Figure 2 − 21

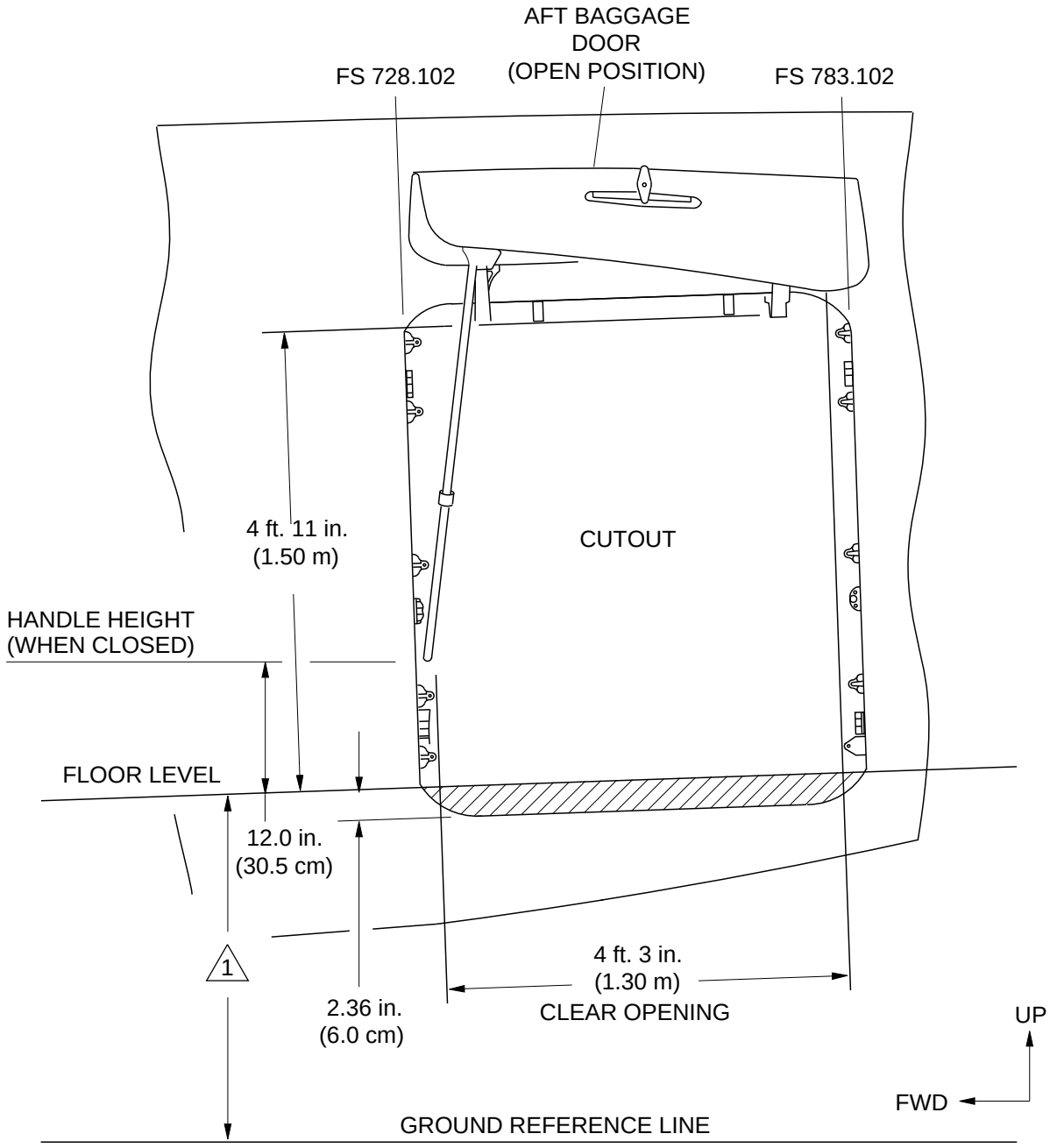


VIEW LOOKING FORWARD

br412a01.dg, pt, 13/05/98

AFT BAGGAGE−COMPARTMENT − DOOR CLEARANCES (Sheet 1 of 2)

Figure 2 − 22



VIEW LOOKING INBOARD ON L/H SIDE

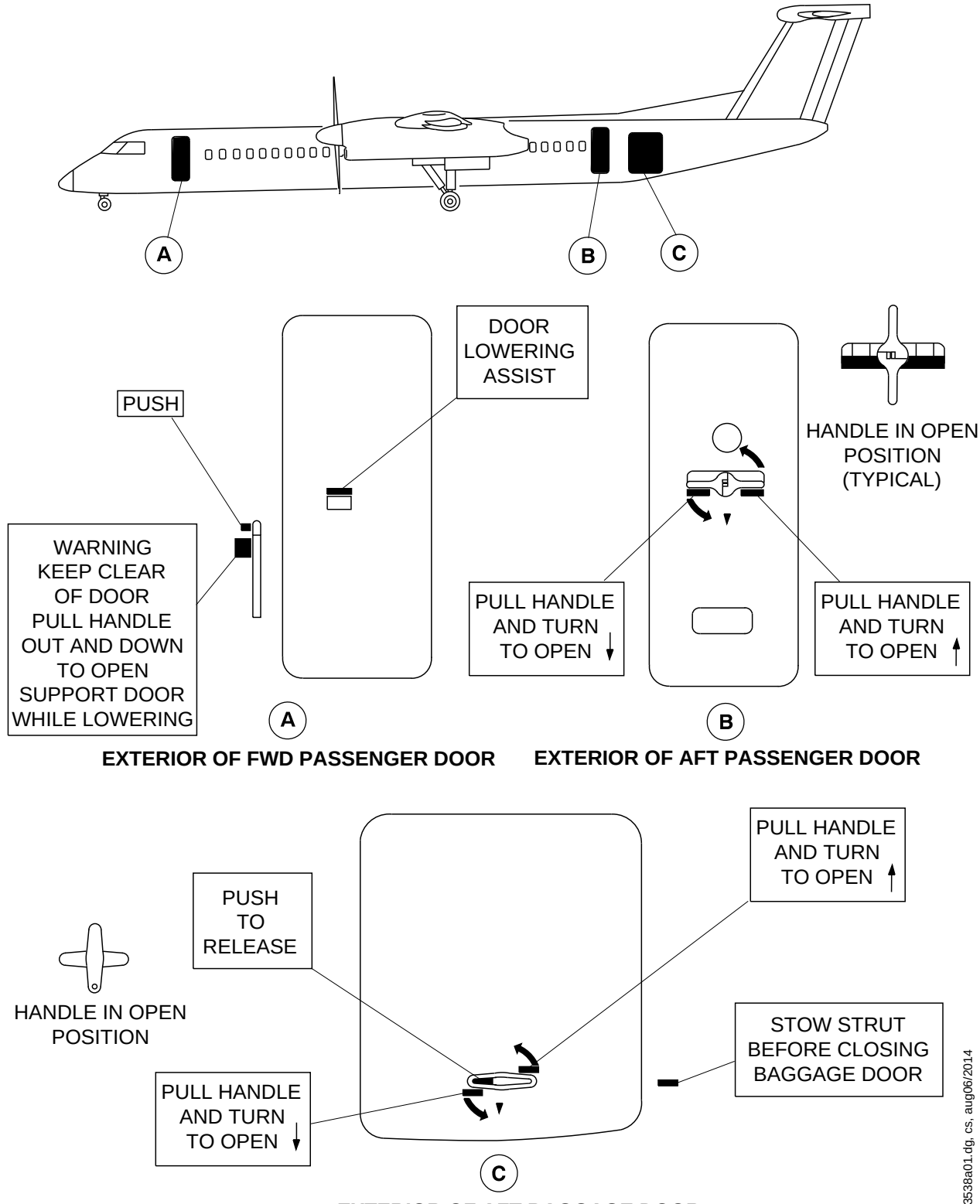
br412a02.dg, gg/kmw, aug08/2008

NOTE

1 Refer to Ground Clearance illustrations.

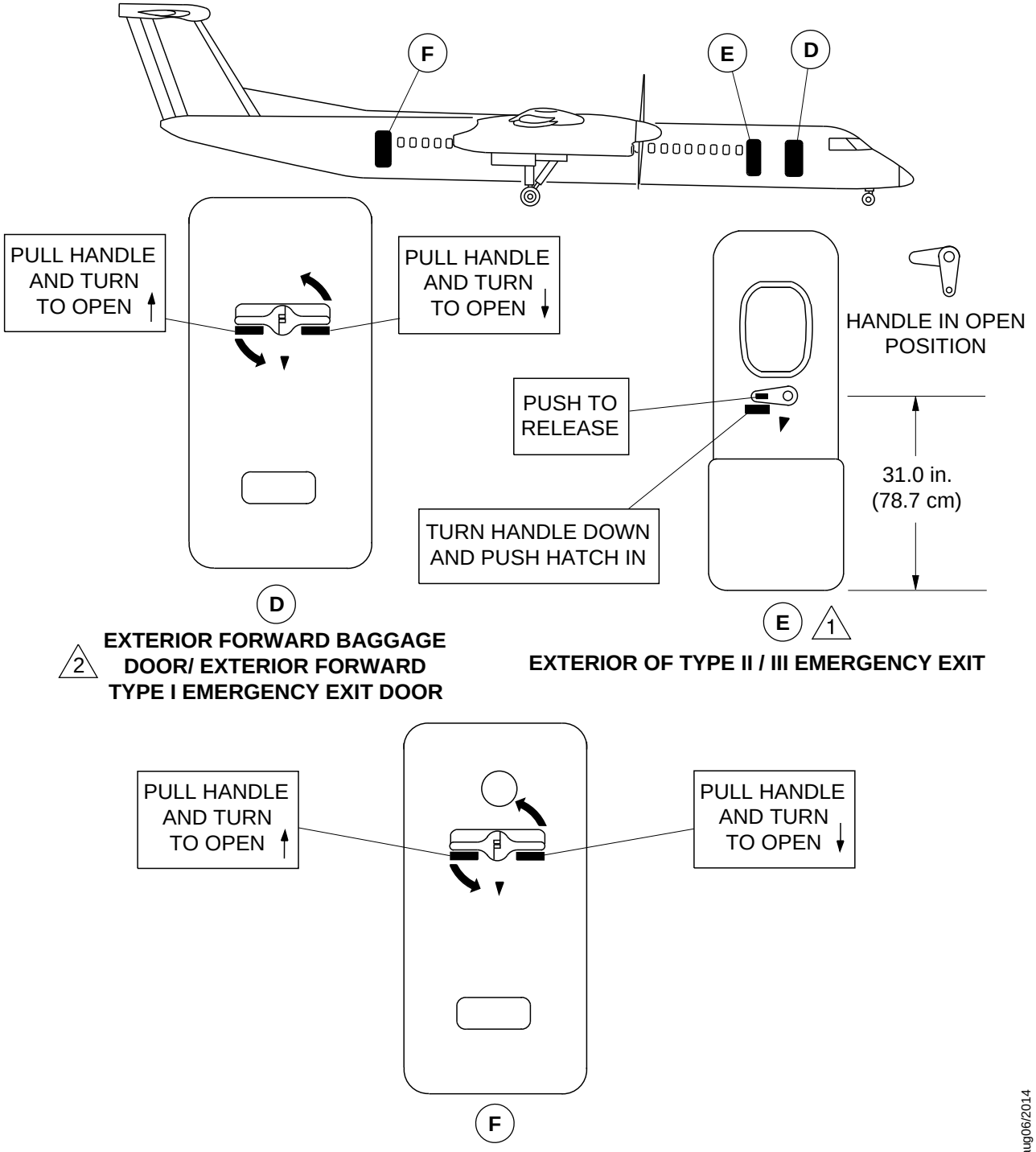
AFT BAGGAGE−COMPARTMENT − DOOR CLEARANCES (Sheet 2 of 2)

Figure 2 − 22



EXTERIOR HANDLES (Sheet 1 of 2)

Figure 2 − 23



EXTERIOR FORWARD BAGGAGE DOOR/ EXTERIOR FORWARD TYPE I EMERGENCY EXIT DOOR

EXTERIOR OF TYPE II / III EMERGENCY EXIT

EXTERIOR OF AFT SERVICE DOOR

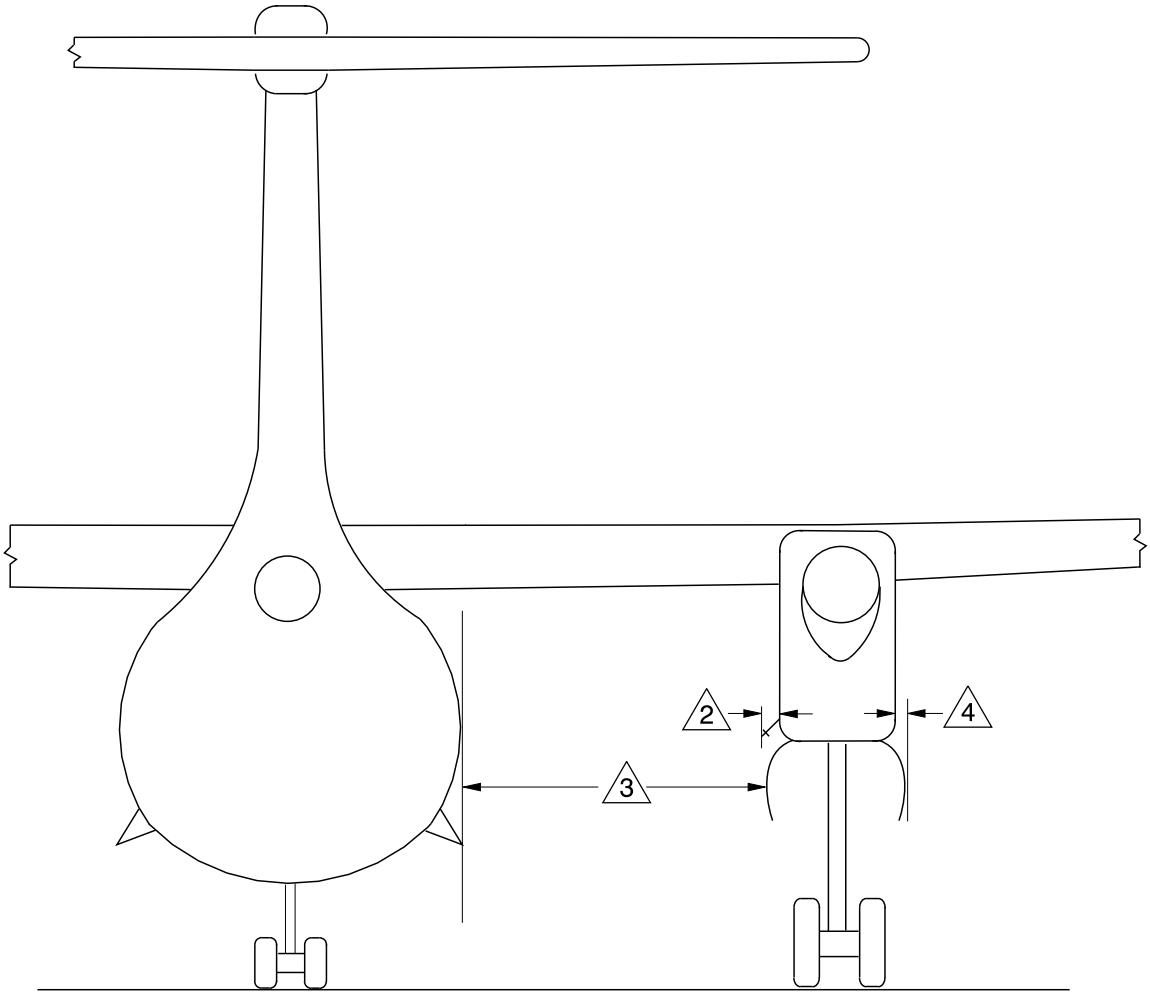
NOTES

1. Type II/III emergency exit door is de−activated for the extra capacity configuration.
2. Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

cg3538a02.dg, cs, aug06/2014

EXTERIOR HANDLES (Sheet 2 of 2)

Figure 2 − 23



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).

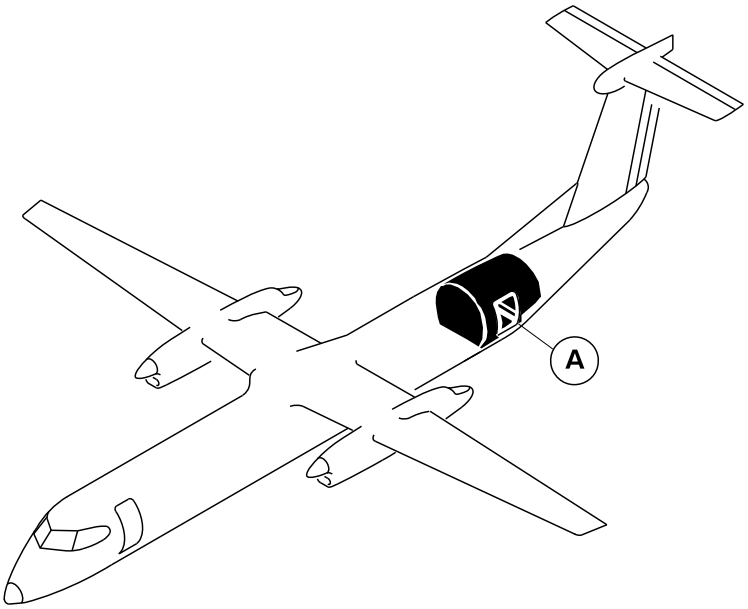
3 The minimum clearance between the nacelle (aft MLG doors) and the fuselage is 96 in. (2.44 m). Right side of the aircraft is shown, left side is identical.

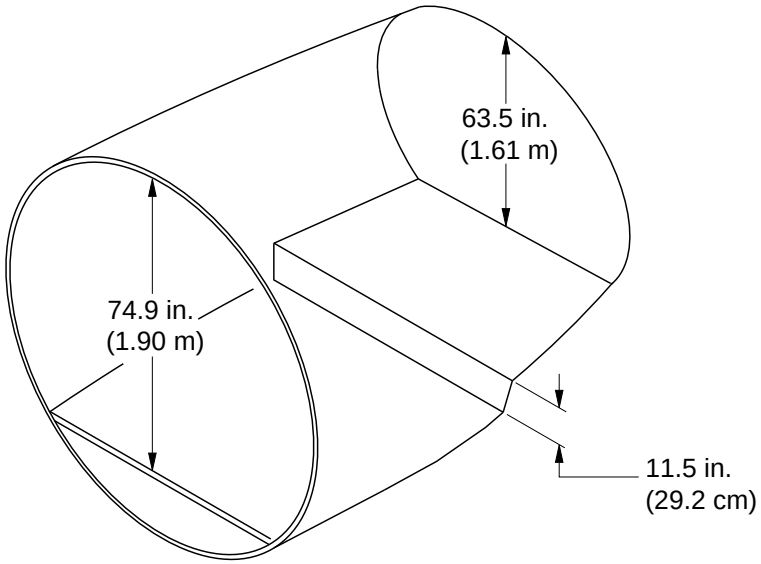
4 Aft MLG doors protrude approx. 6 in. (15.2 cm) from both sides of the nacelles.

braa8a01.dg, ab, 26/08/01

MINIMUM CLEARANCE BETWEEN NACELLES AND FUSELAGE

Figure 2 − 24



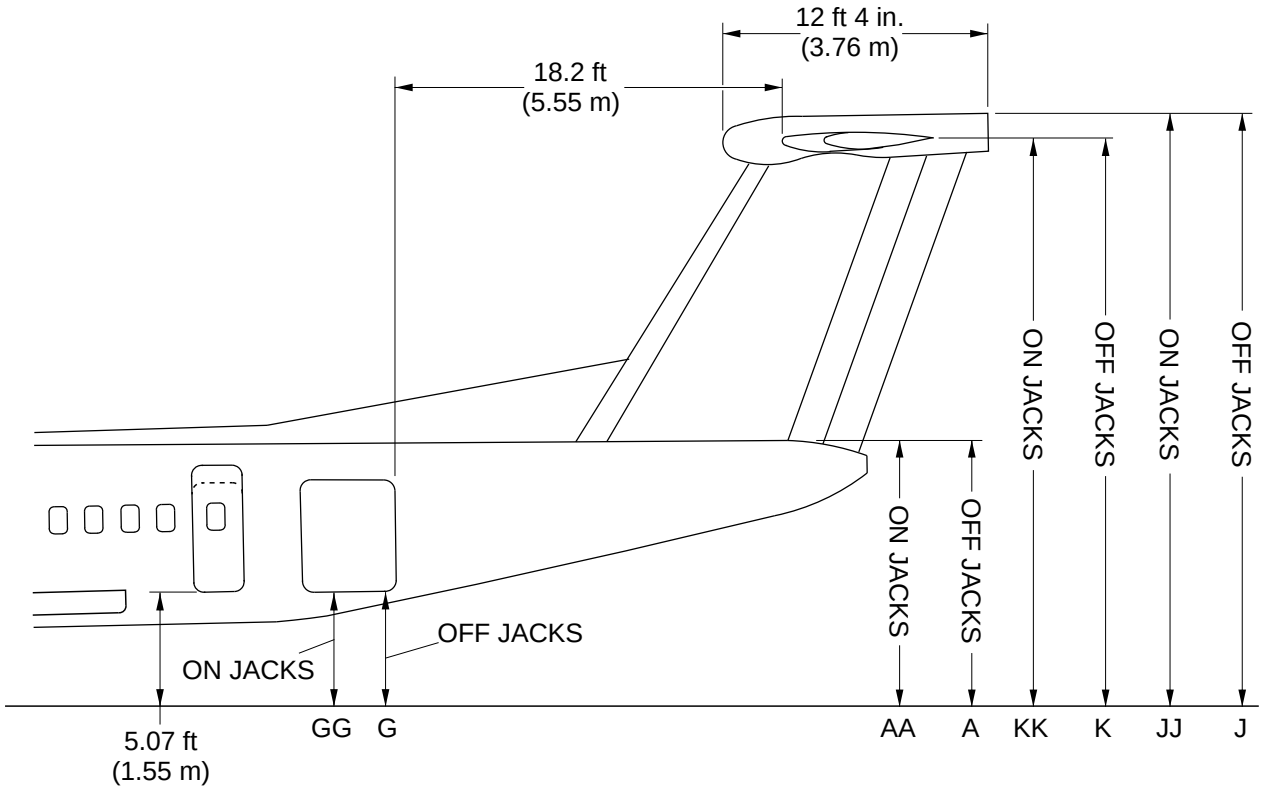


braa7a01.dg, ab, 26/03/01

A

AFT BAGGAGE COMPARTMENT VERTICAL DIMENSIONS (TYPICAL CONFIGURATION)

Figure 2 − 25



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

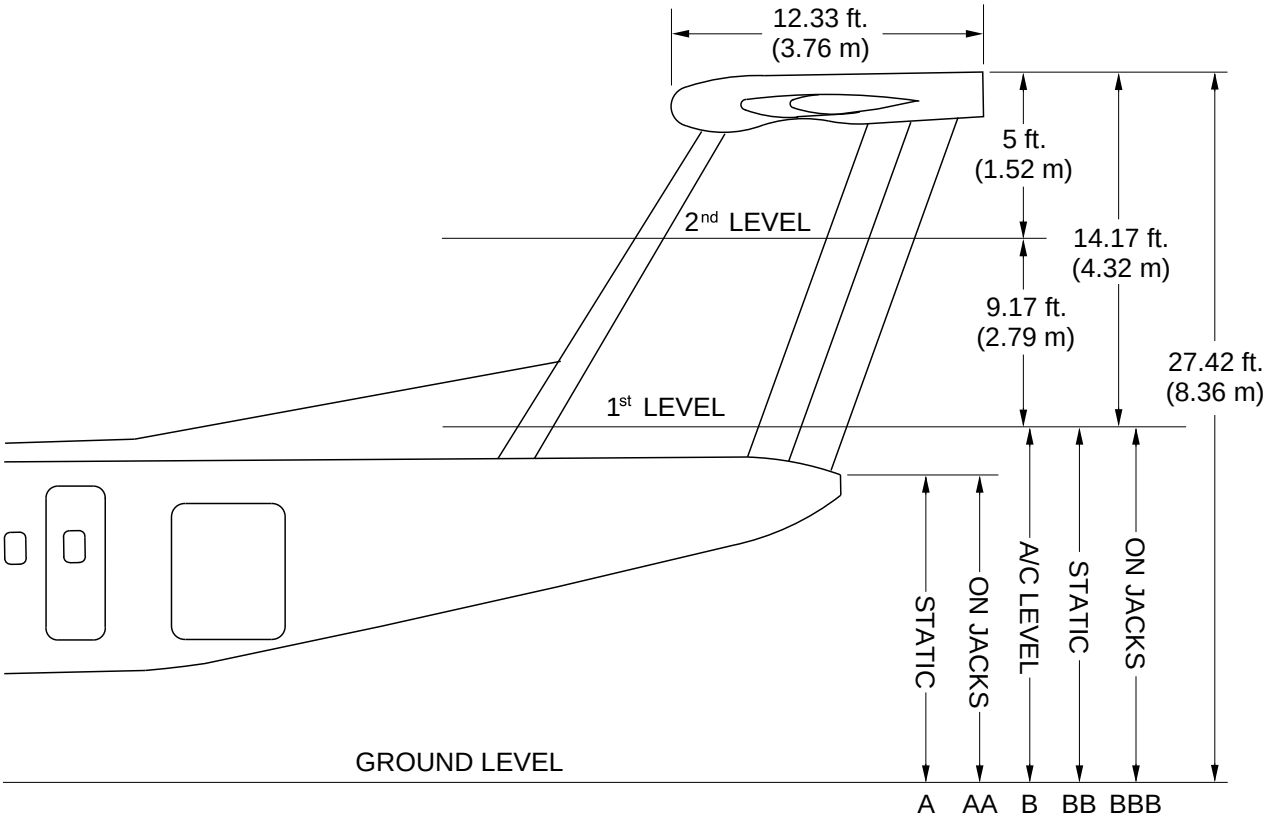
NOTES

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.dg, nn/kmw, sep19/2013

AIRCRAFT DIMENSIONS (Sheet 1 of 3)

Figure 2 − 26



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

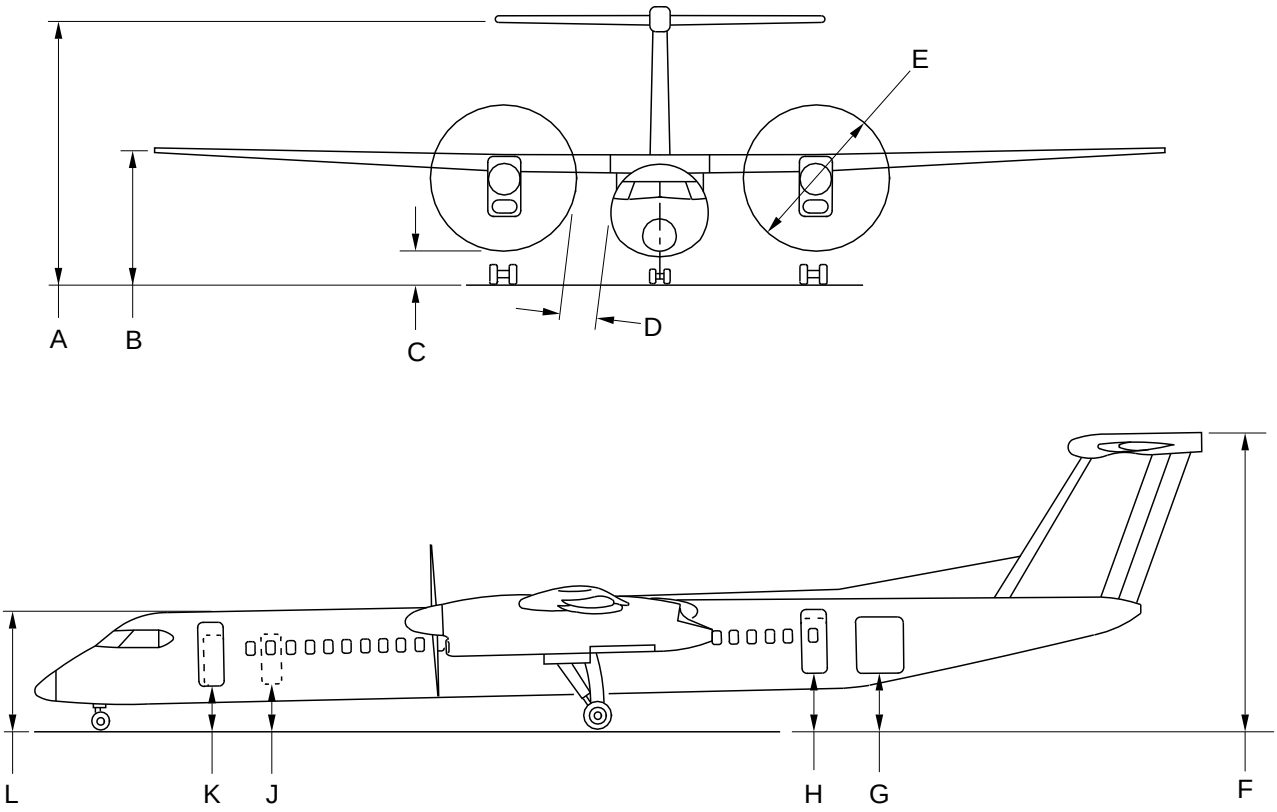
NOTE

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

cg2886a02.dg, kh, nov12/2013

AIRCRAFT DIMENSIONS (Sheet 2 of 3)

Figure 2 − 26



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

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EMERGENCY EXIT LOCATIONS AND ELEVATIONS

AIRCRAFT DIMENSIONS (Sheet 3 of 3)

Figure 2 − 26

CHAPTER 3

AIRCRAFT PERFORMANCE

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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

(a) Maximum main−wheel anti−skid braking.

(b) One propeller in the DISC position, the other one is feathered.

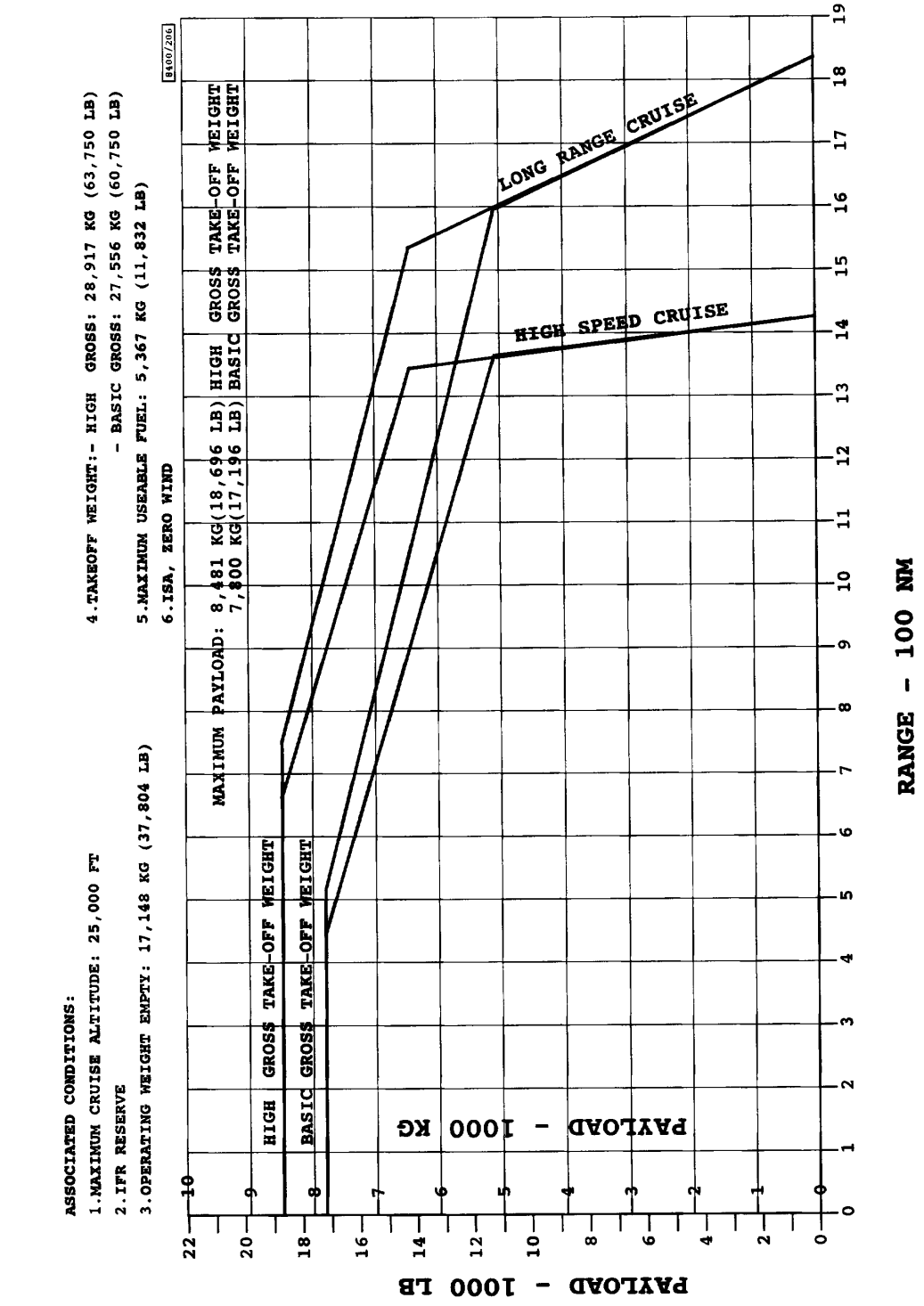
(c) Roll spoilers are extended.

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



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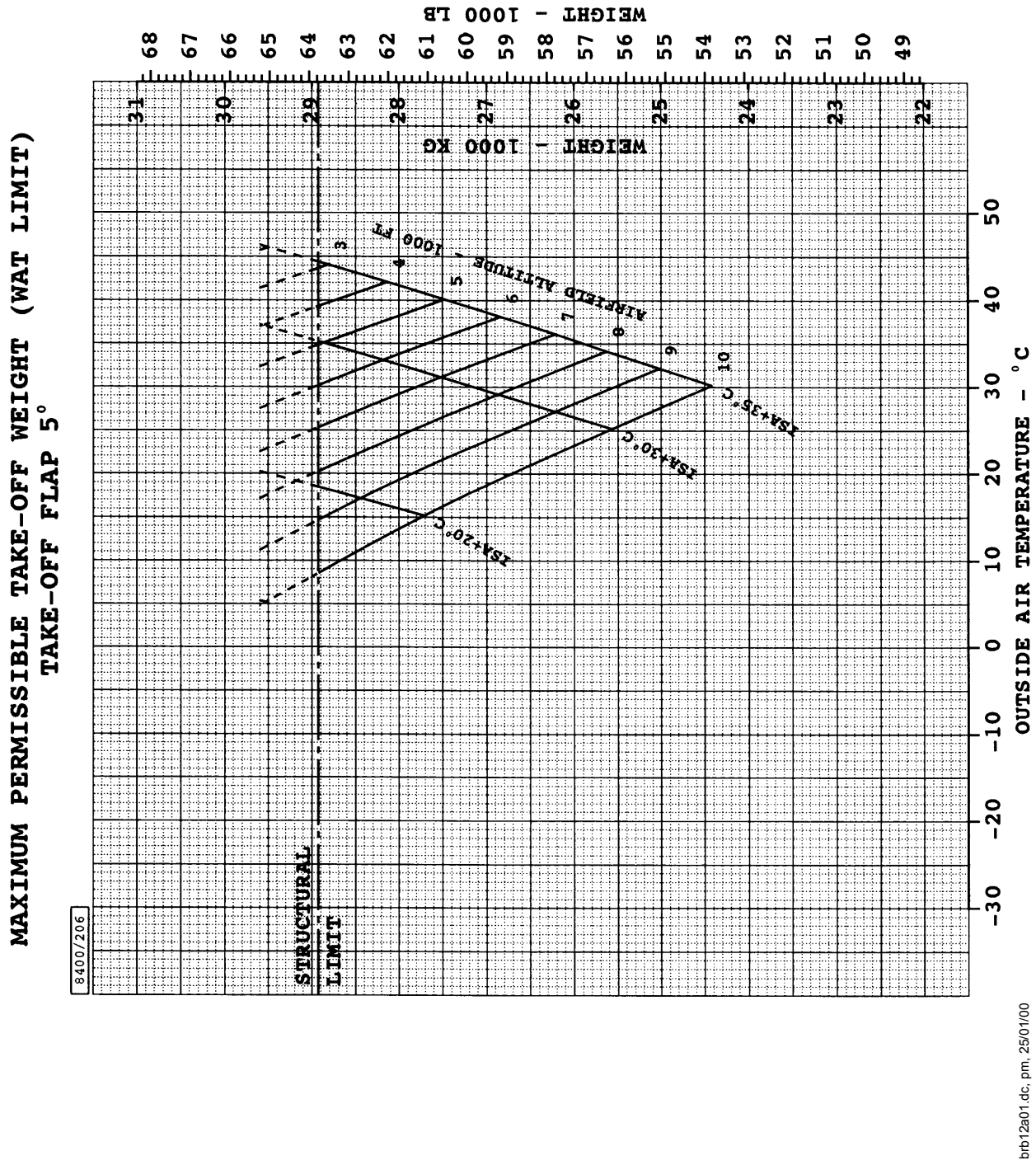
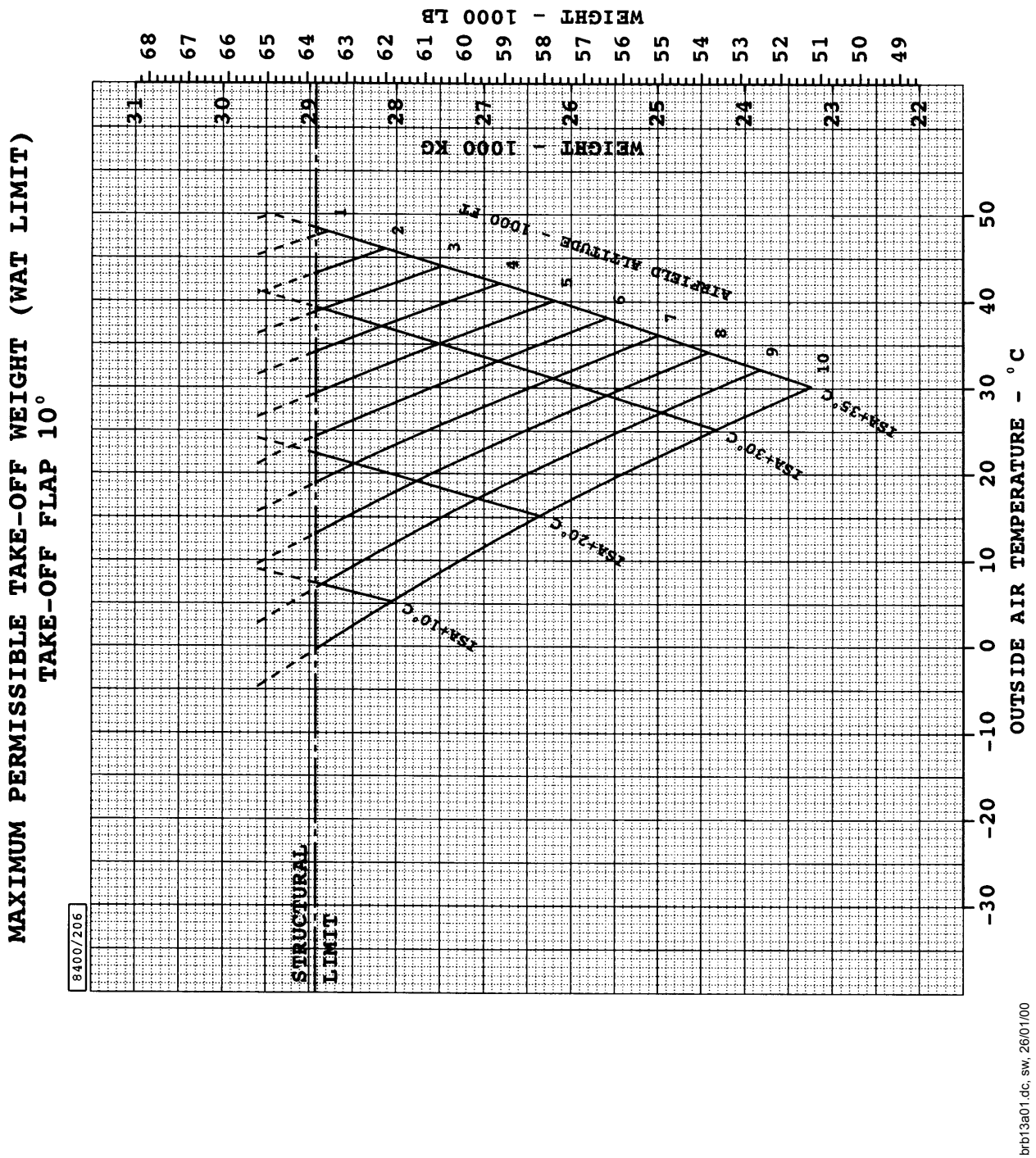
PAYLOAD/RANGE AT MAXIMUM CRUISE RATING AND LONG RANGE CRUISE

Figure 3 − 1



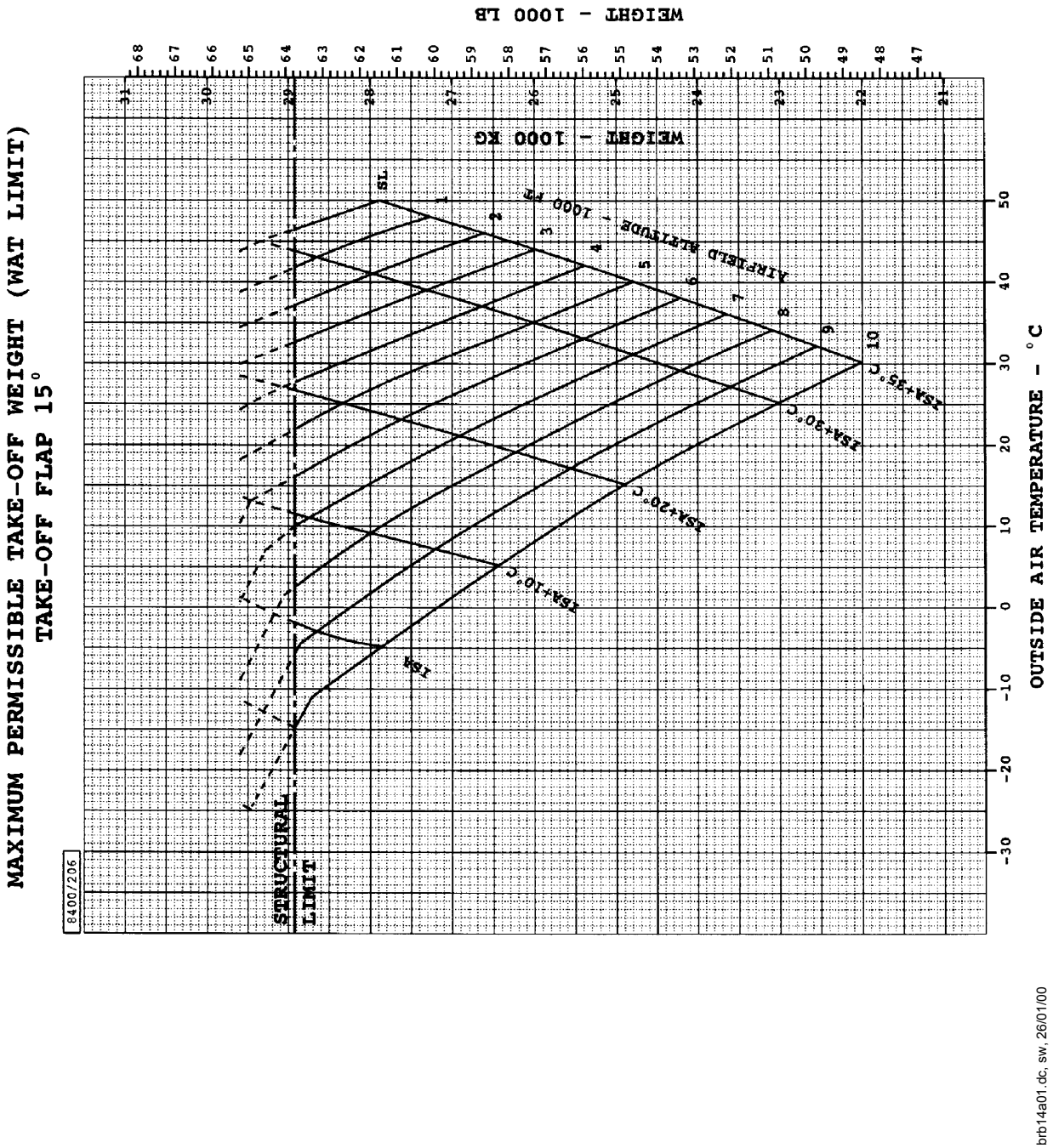
MAXIMUM PERMISSIBLE TAKE−OFF WEIGHT (WAT LIMIT) − FLAPS 5 DEGREES

Figure 3 − 2



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

Figure 3 − 3



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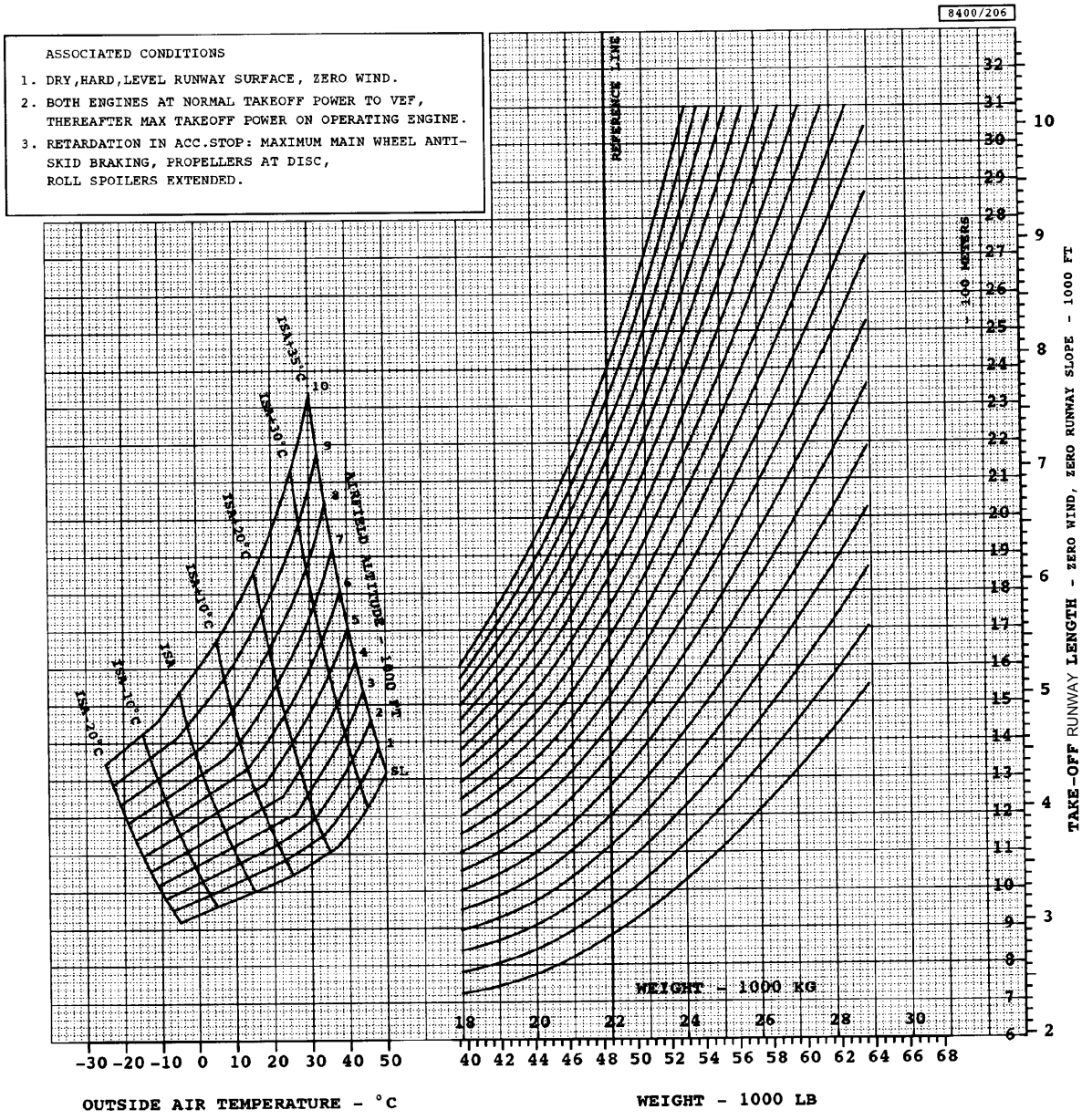
MAXIMUM PERMISSIBLE TAKE−OFF WEIGHT (WAT LIMIT) − FLAPS 15 DEGREES

Figure 3 − 4

TAKE-OFF FIELD LENGTH - FLAP 5°



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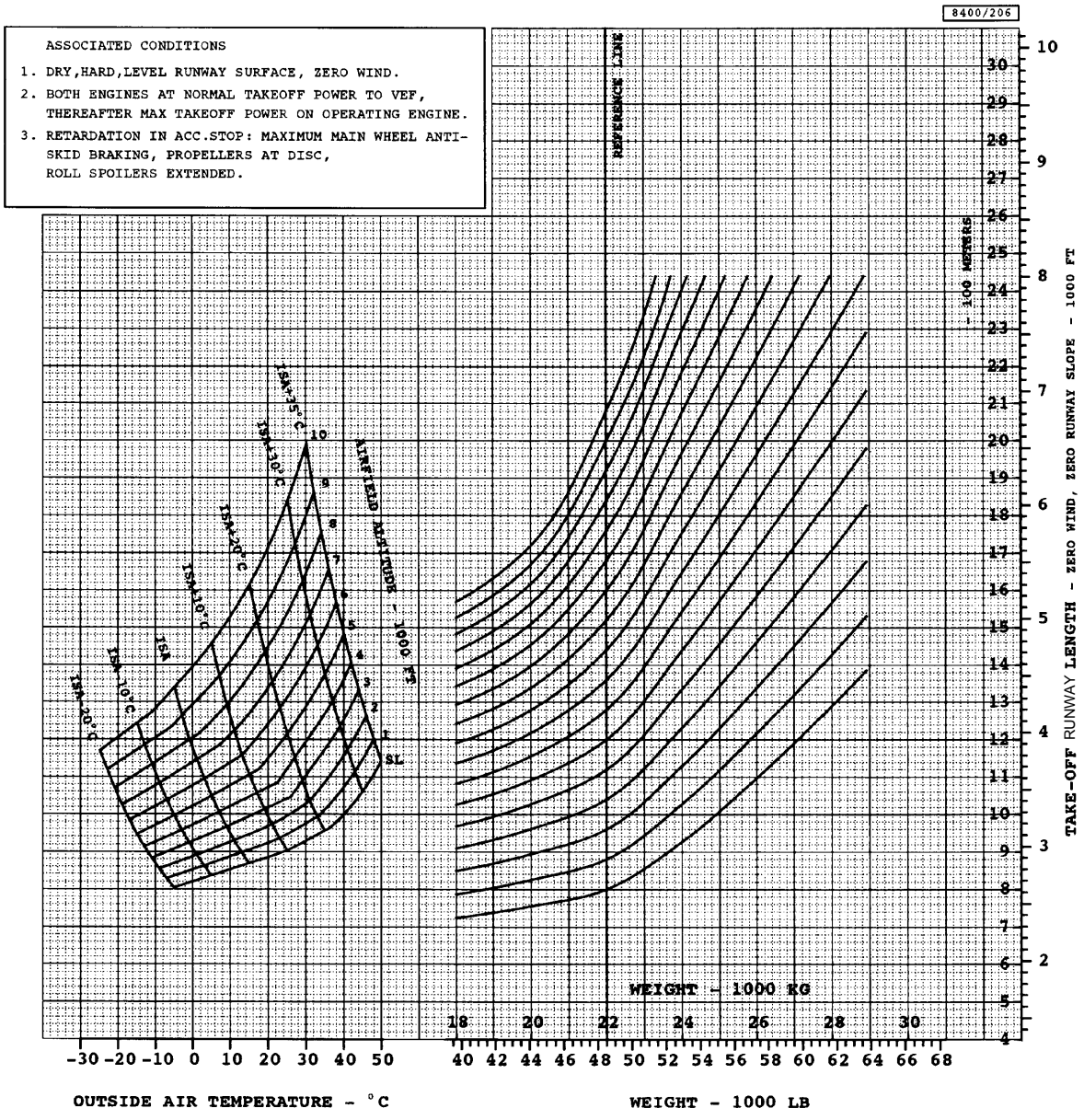
TAKE−OFF RUNWAY LENGTH REQUIREMENTS − FLAPS 5 DEGREES

Figure 3 − 5

TAKE-OFF FIELD LENGTH - FLAP 10°



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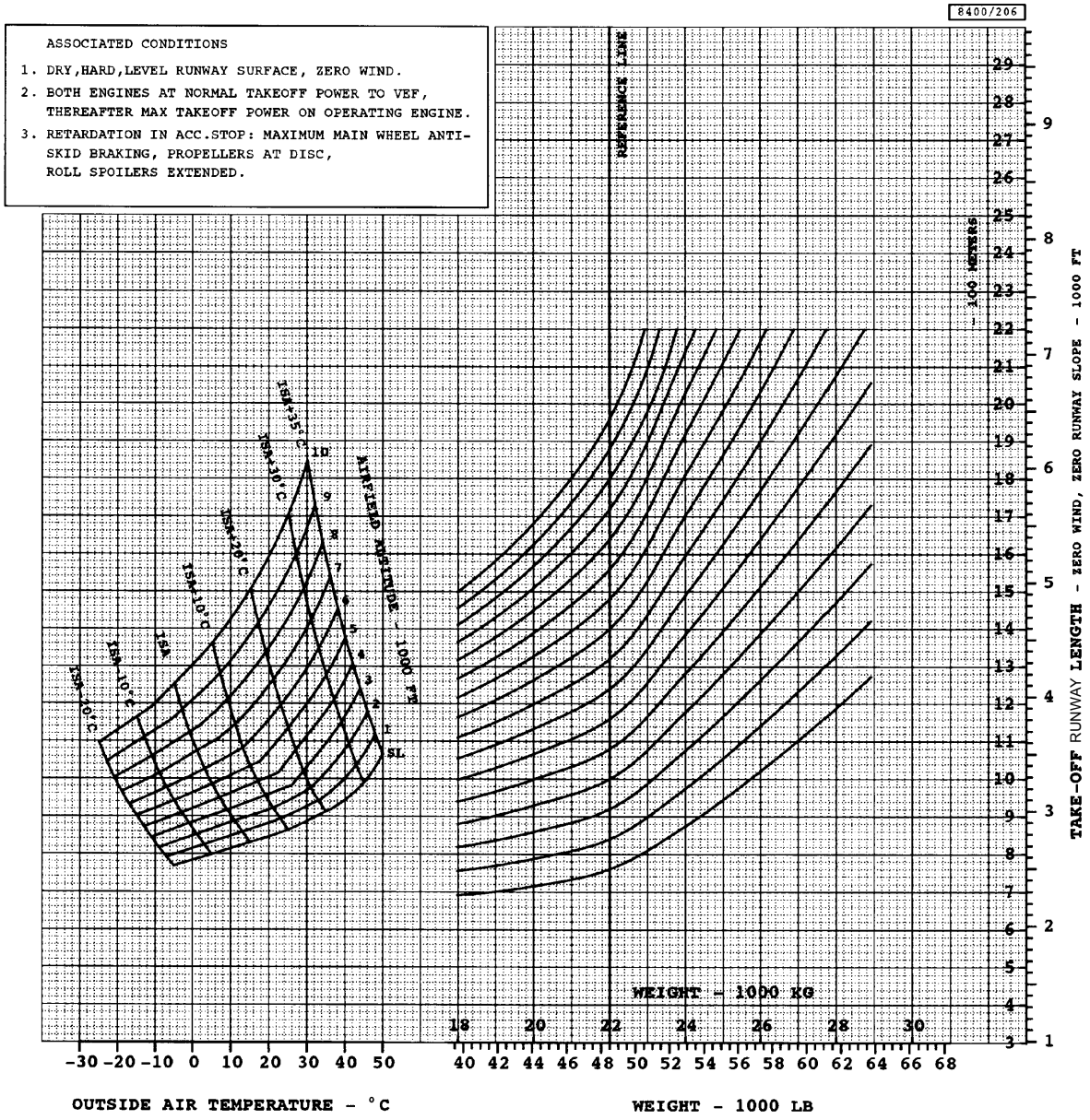
TAKE−OFF RUNWAY LENGTH REQUIREMENTS − FLAPS 10 DEGREES

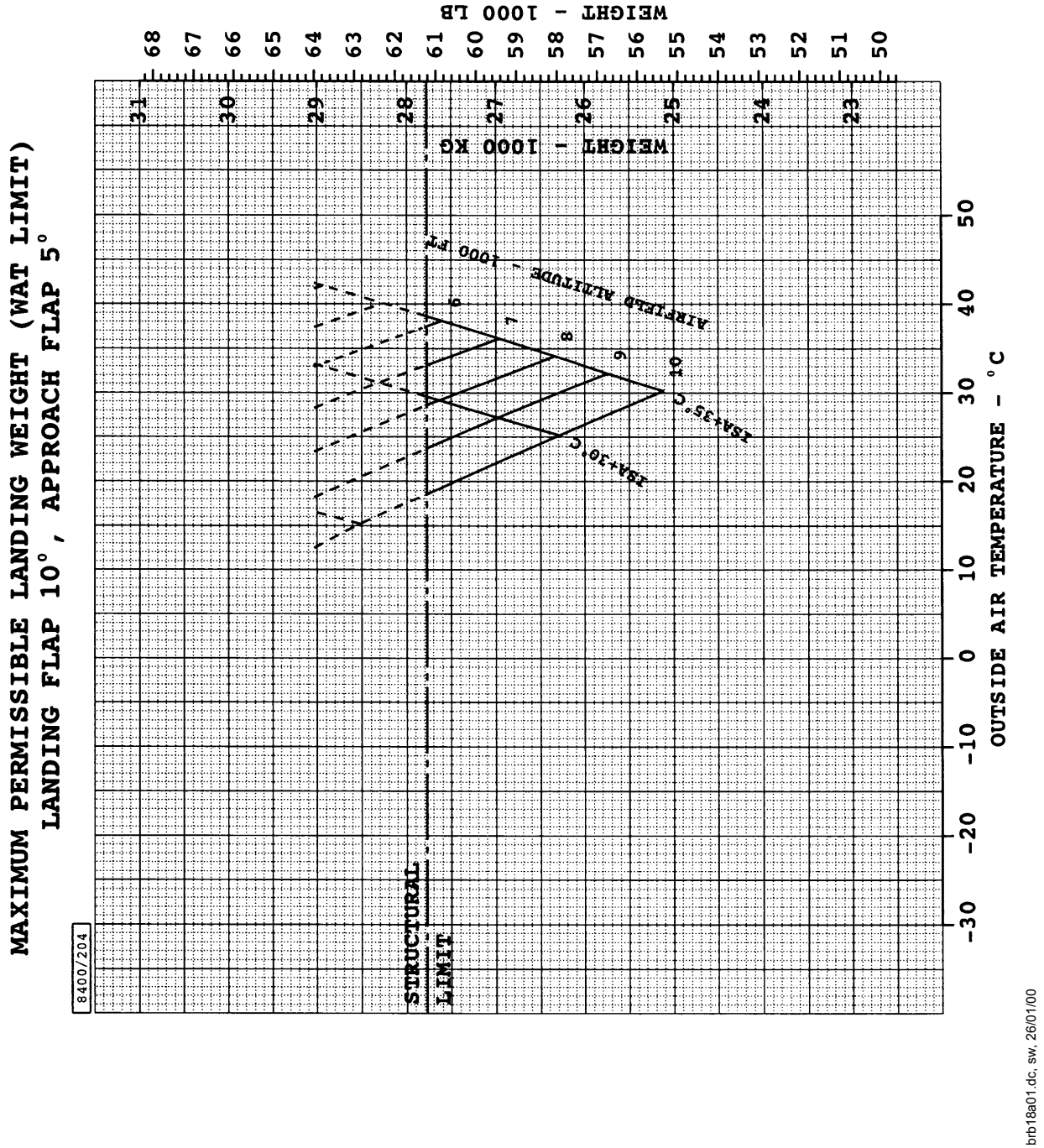
Figure 3 − 6

TAKE-OFF FIELD LENGTH - FLAP 15°



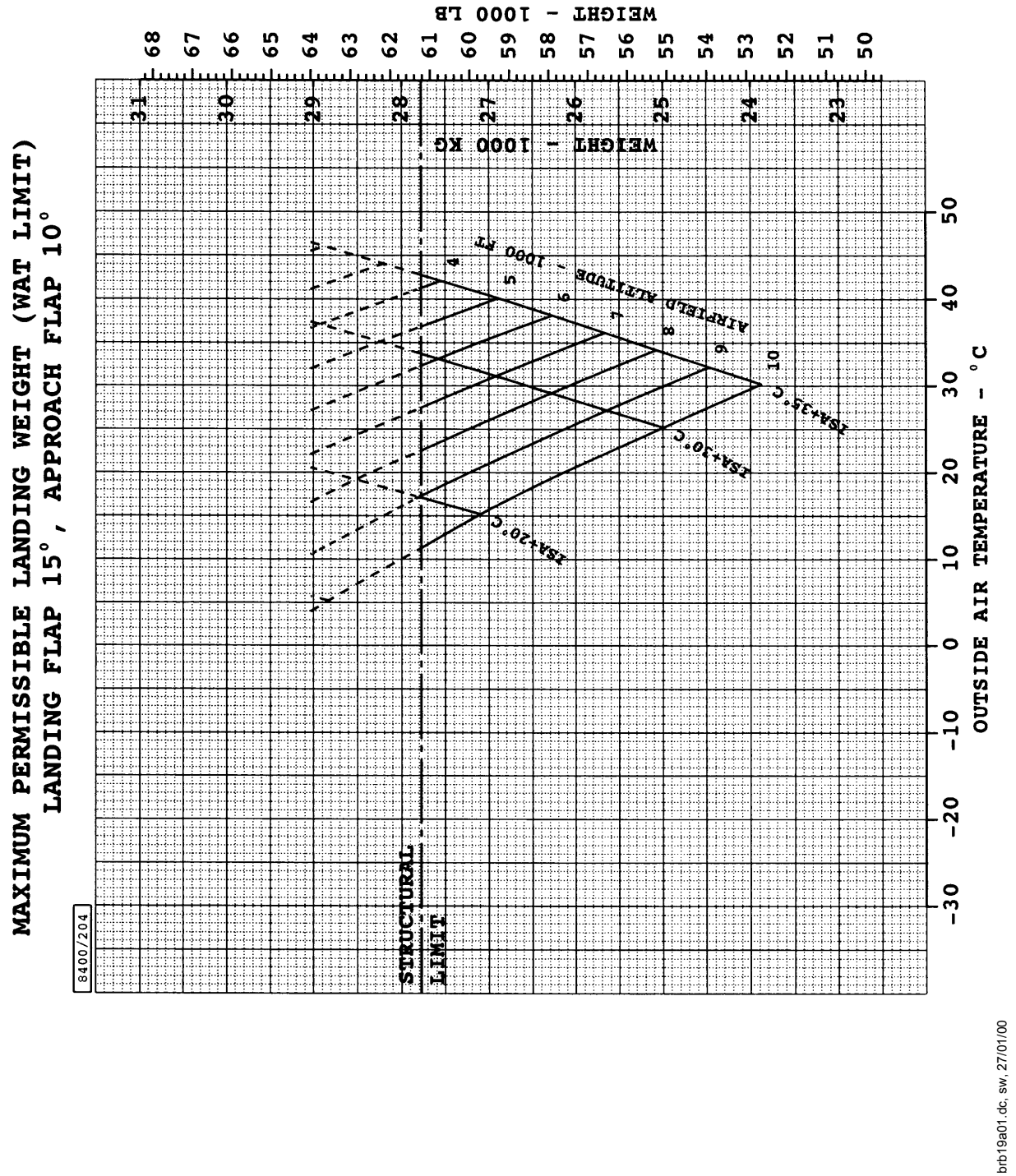
TAKE−OFF RUNWAY LENGTH REQUIREMENTS − FLAPS 15 DEGREES

Figure 3 − 7



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

Figure 3 − 8



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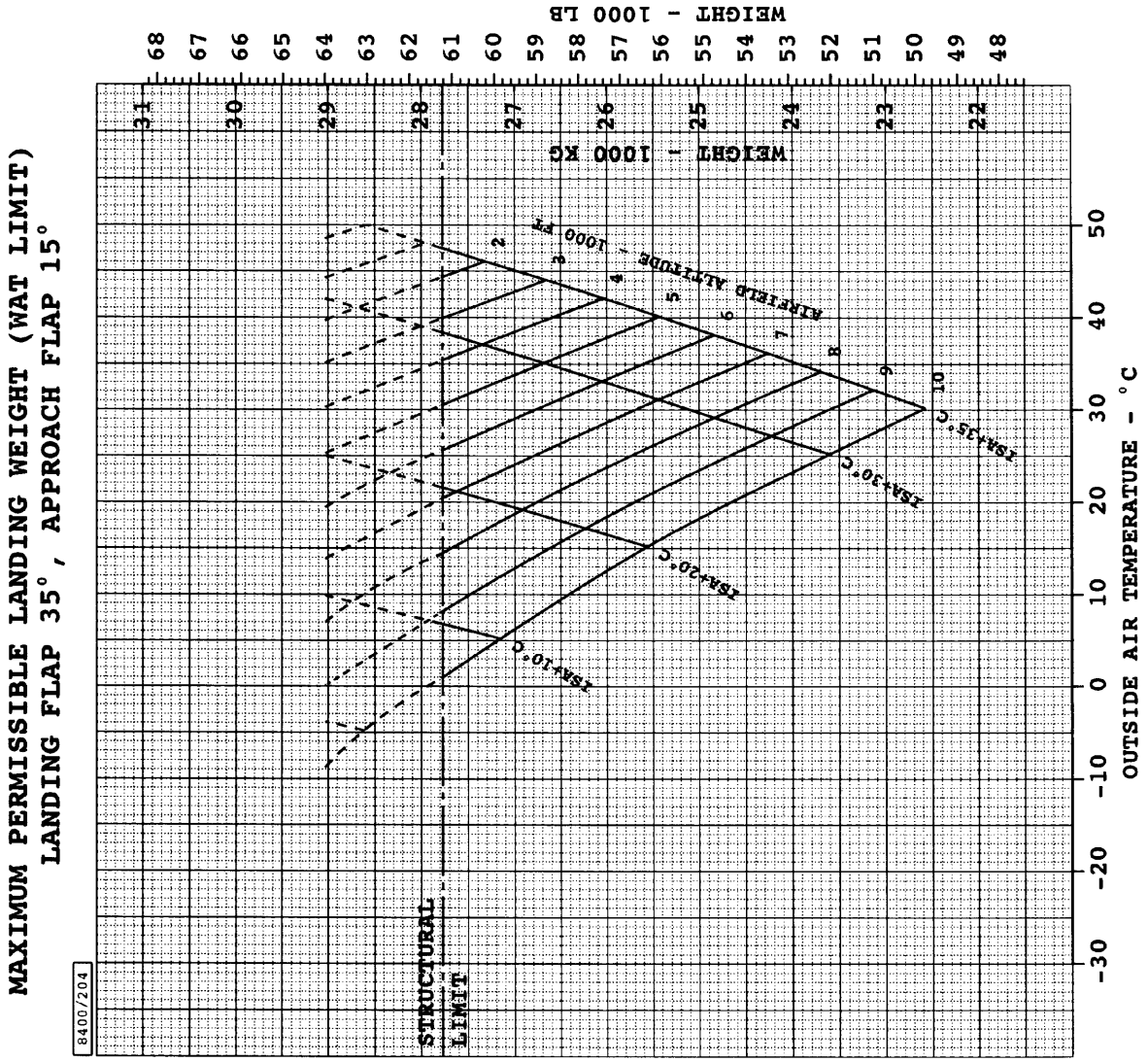
MAX. LANDING WEIGHT − LANDING FLAPS 15 AND APPROACH FLAPS 10 DEGREES

Figure 3 − 9



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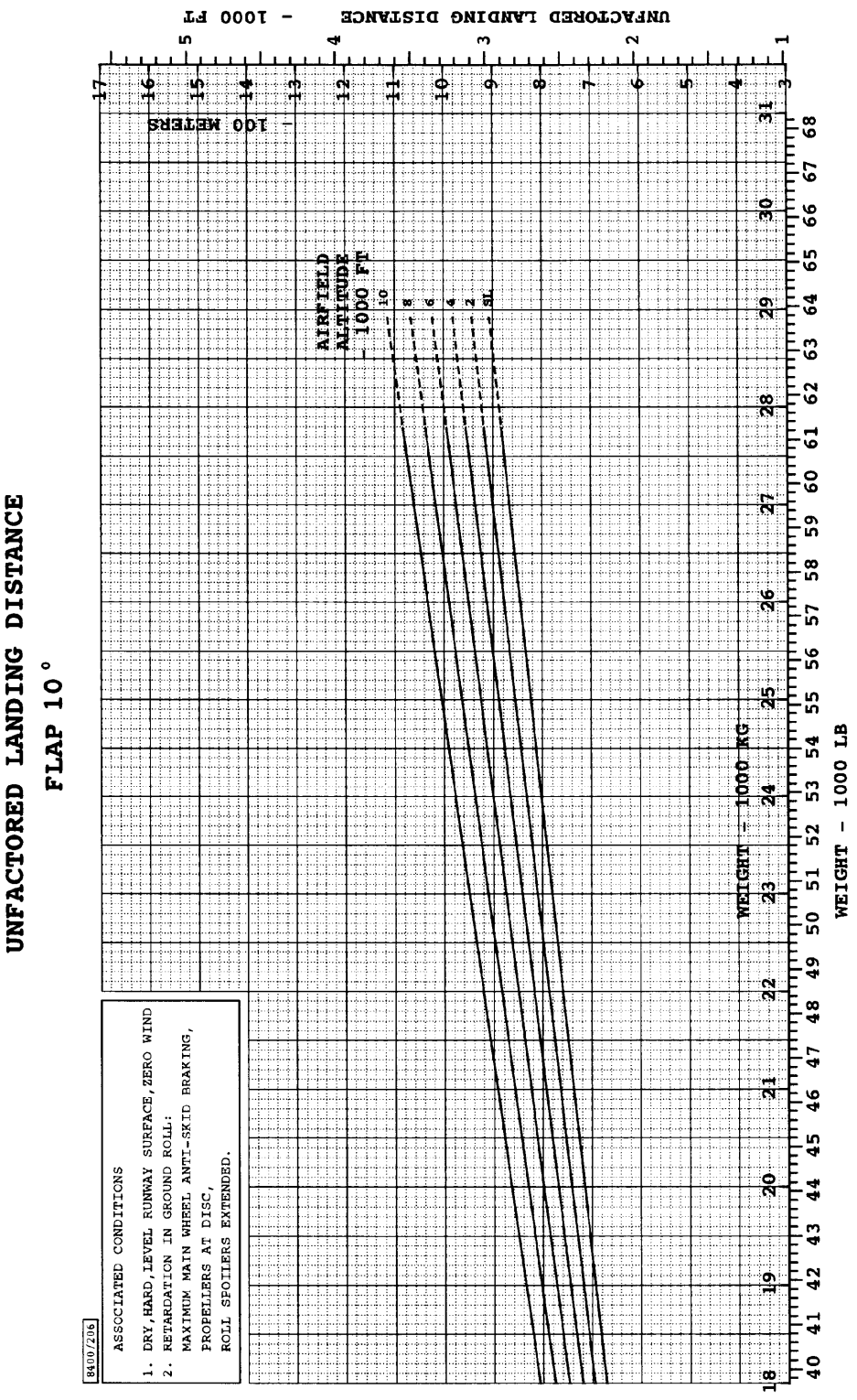
MAX. LANDING WEIGHT − LANDING FLAPS 35 AND APPROACH FLAPS 15 DEGREES

Figure 3 − 10



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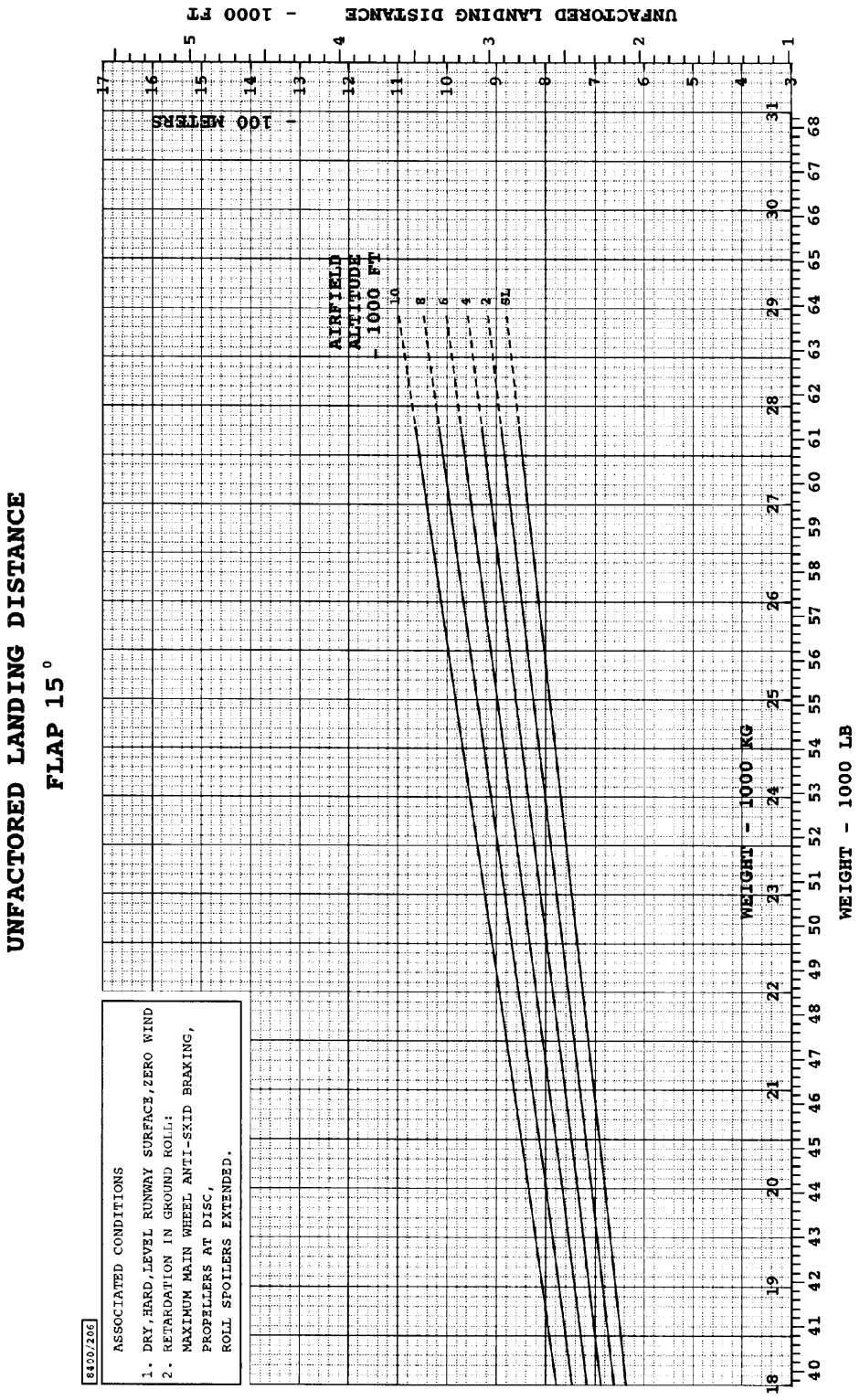
UNFACTORED LANDING DISTANCE − FLAPS 10 DEGREES

Figure 3 − 11



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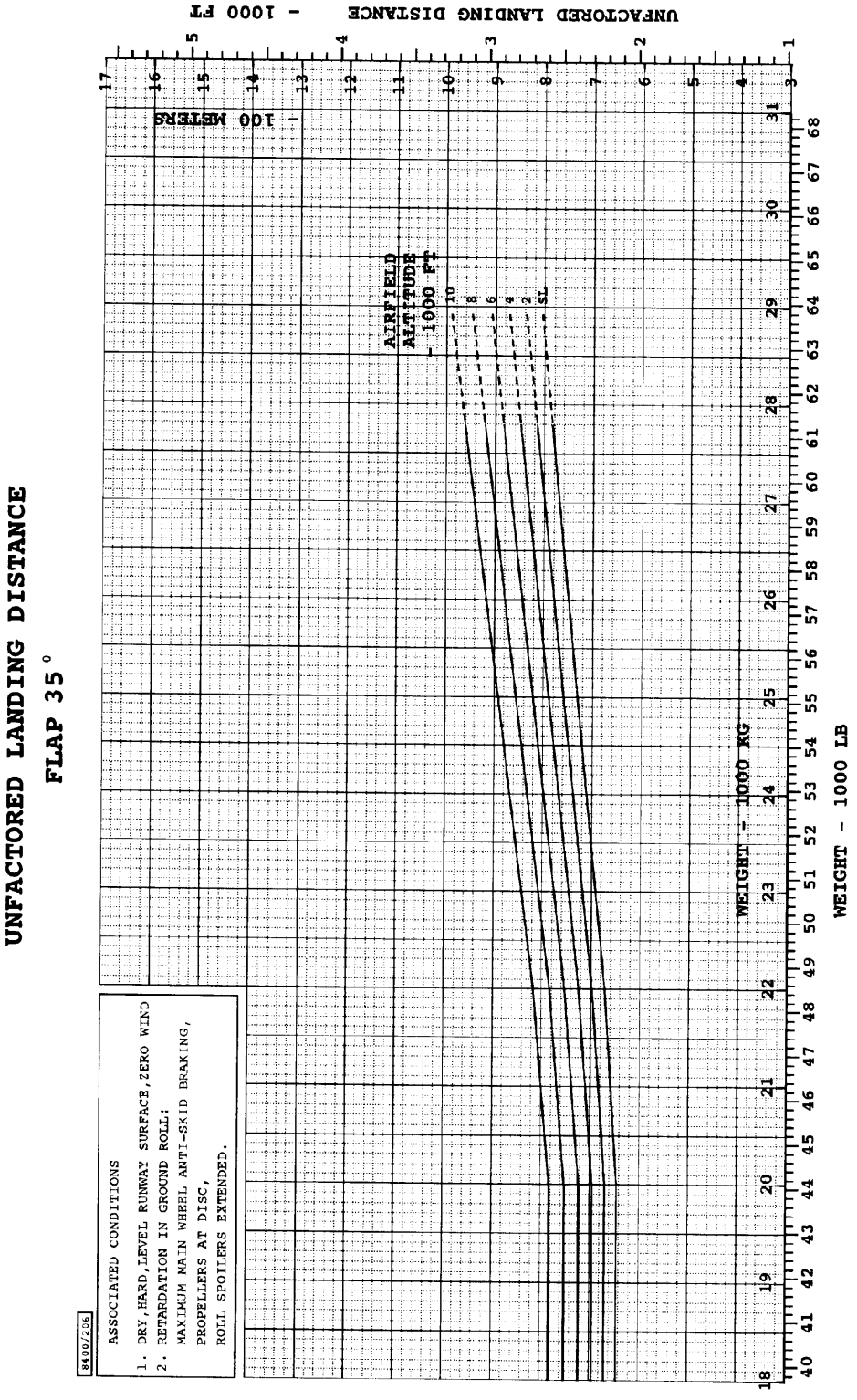
UNFACTORED LANDING DISTANCE − FLAPS 15 DEGREES

Figure 3 − 12



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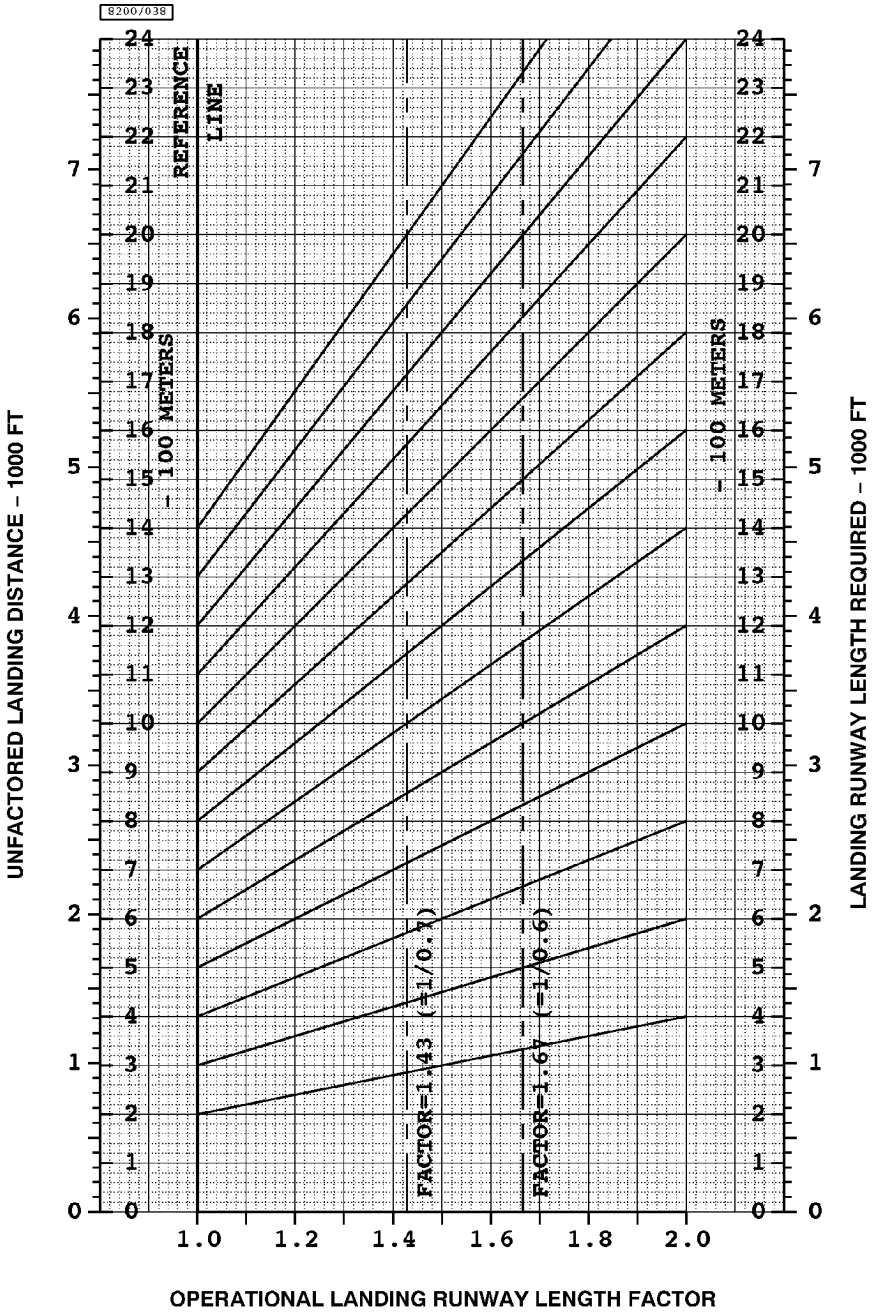
UNFACTORED LANDING DISTANCE − FLAPS 35 DEGREES

Figure 3 − 13

LANDING RUNWAY LENGTH REQUIRED



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LANDING − RUNWAY LENGTH REQUIRED

Figure 3 − 14

CHAPTER 4

GROUND MANEUVERING

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General Information

1. This Chapter supplies data on the items that follow:

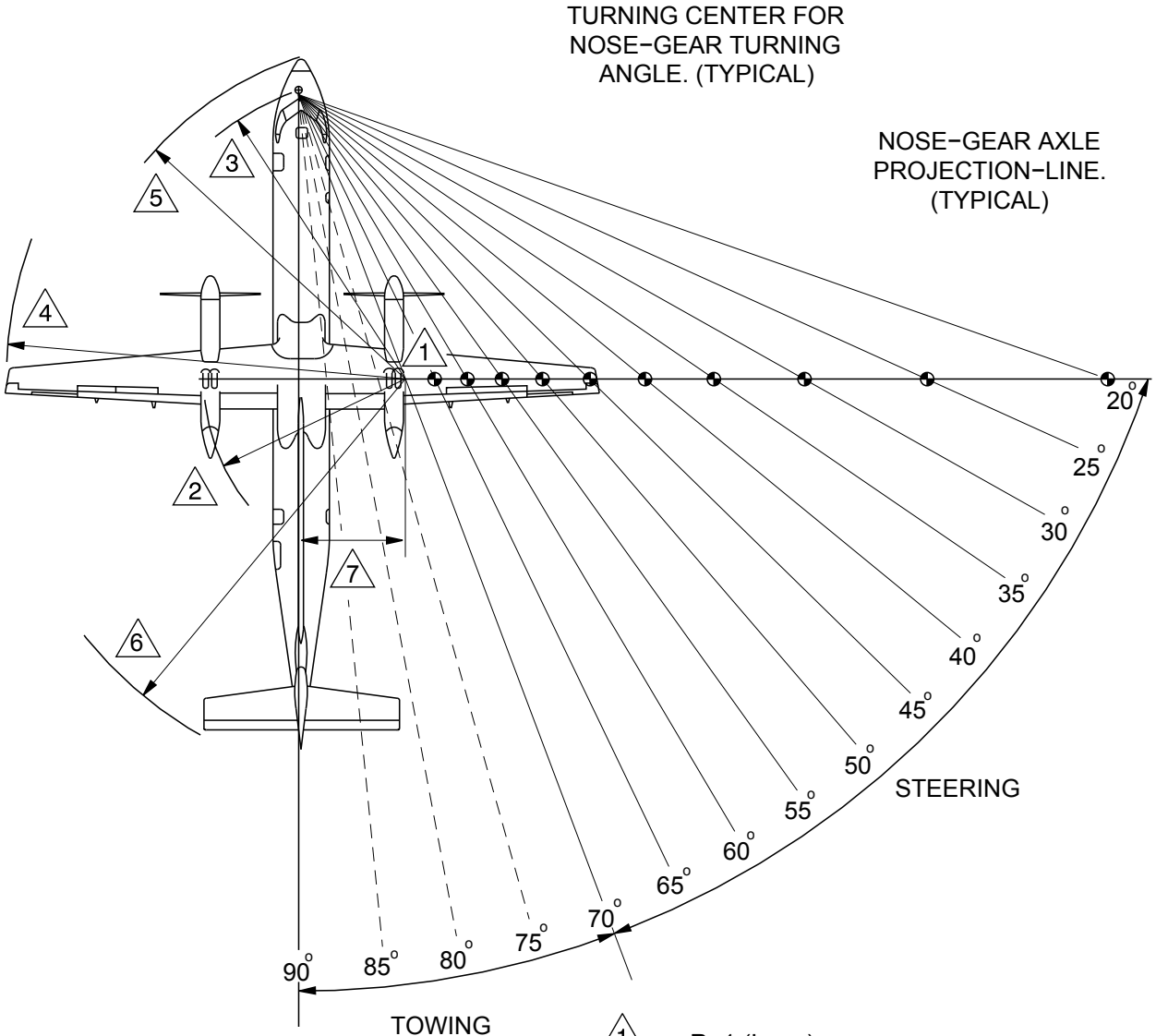
   - Aircraft turning capability (refer to Figure 4−1, Figure 4−2 and Figure 4−3)
   - Visibility from cockpit (Note, this information is not available at this time)
   - Maneuvering characteristics (refer to Figure 4−4, Figure 4−5, Figure 4−6 and Figure 4−7)
   - Mooring data (refer to Figure 4−8).

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.



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

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
STEERING	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	761.53 63.50	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
TOWING	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

TURNING RADII DATA (NO SLIP ANGLE)

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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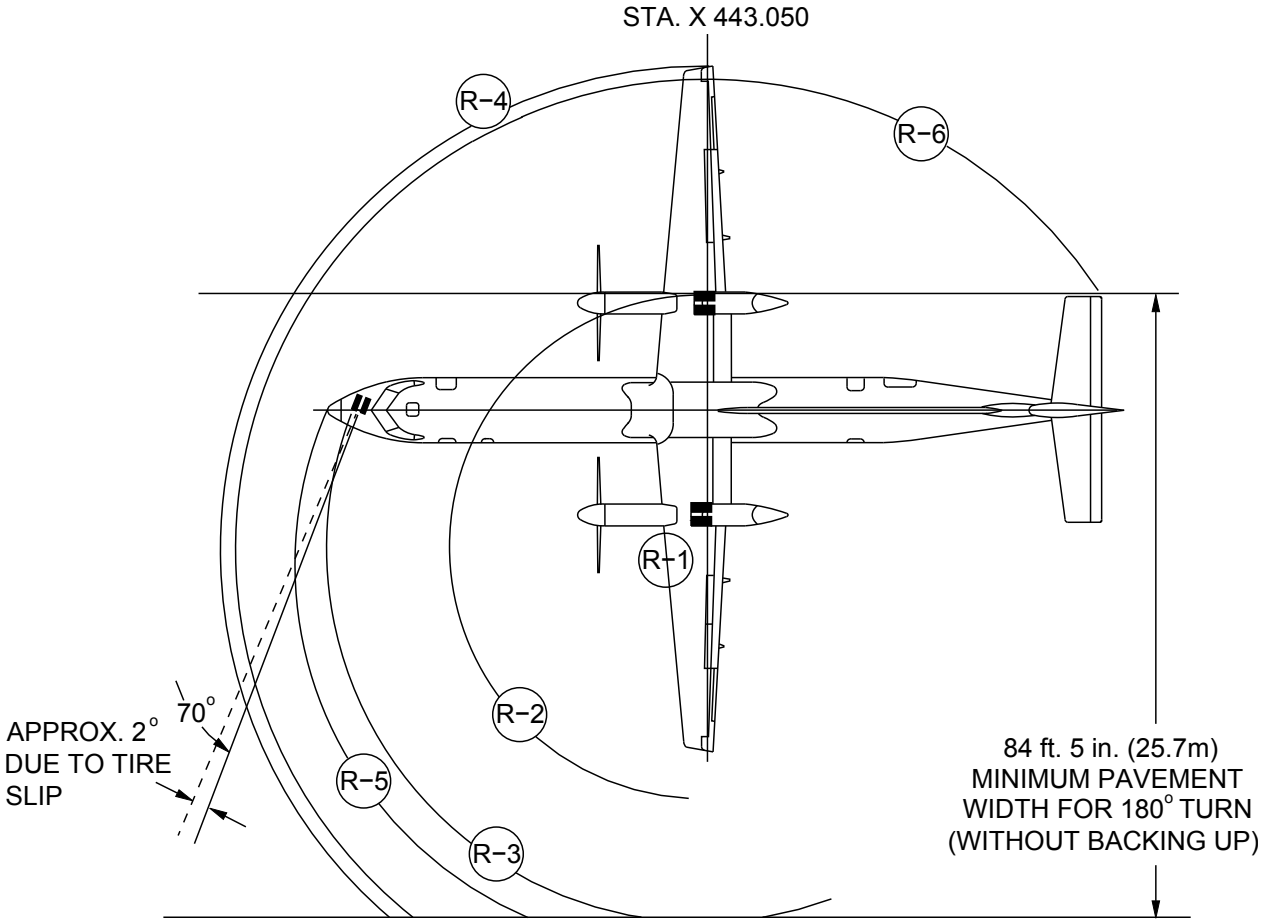
Figure 4 − 2

Series: 400

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.

TURNING RADIUS AT MINIMUM POWER

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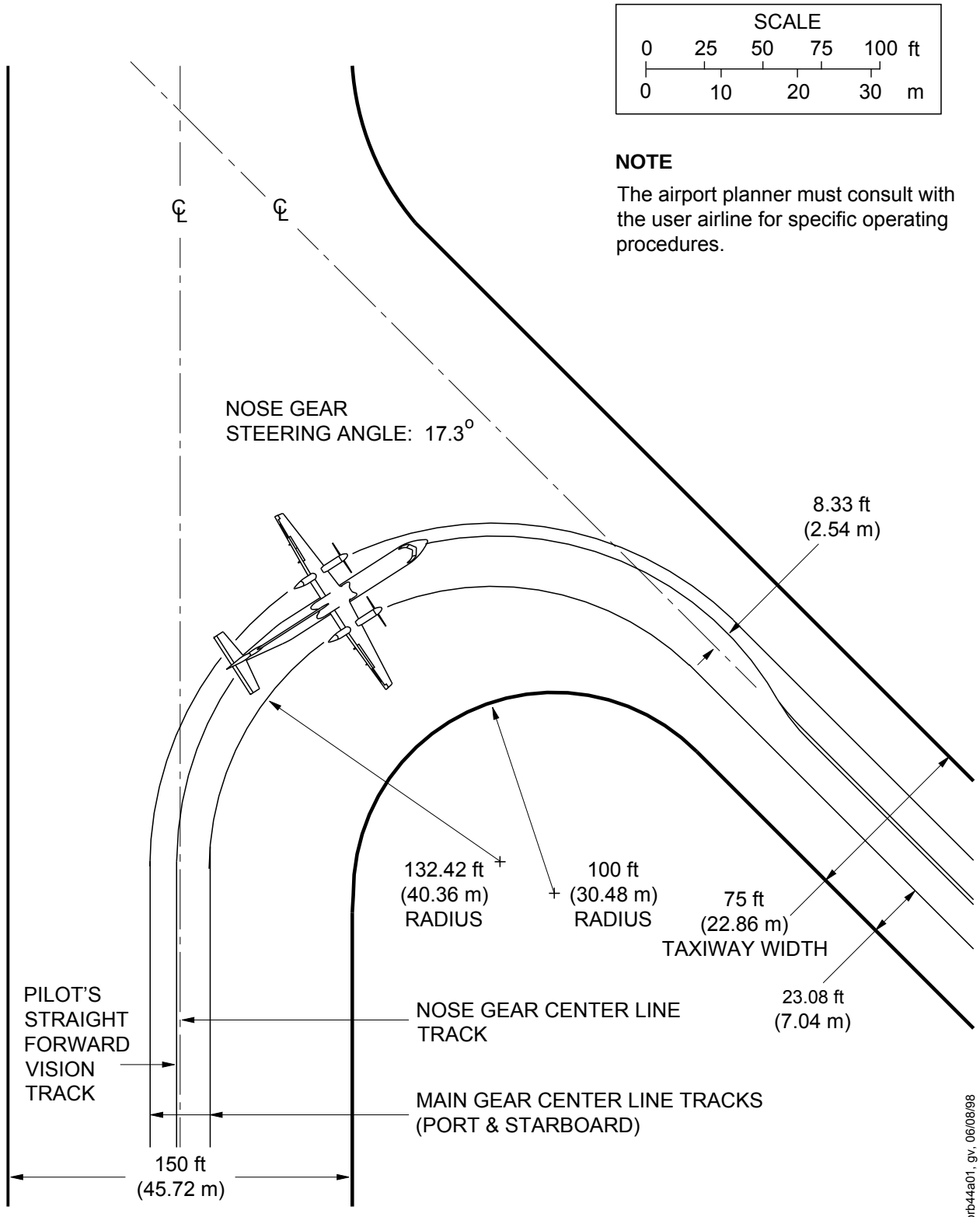
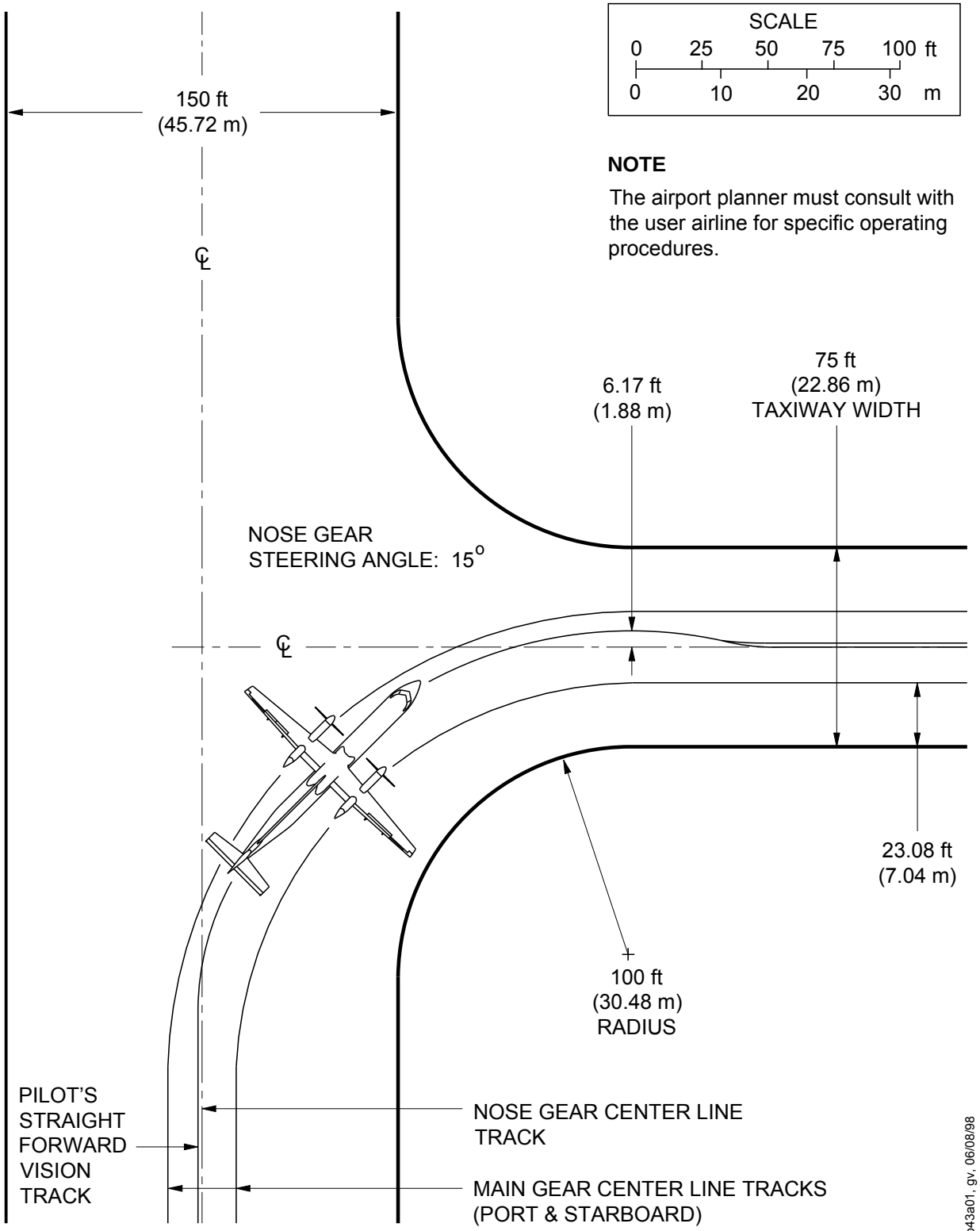
Figure 4 − 3



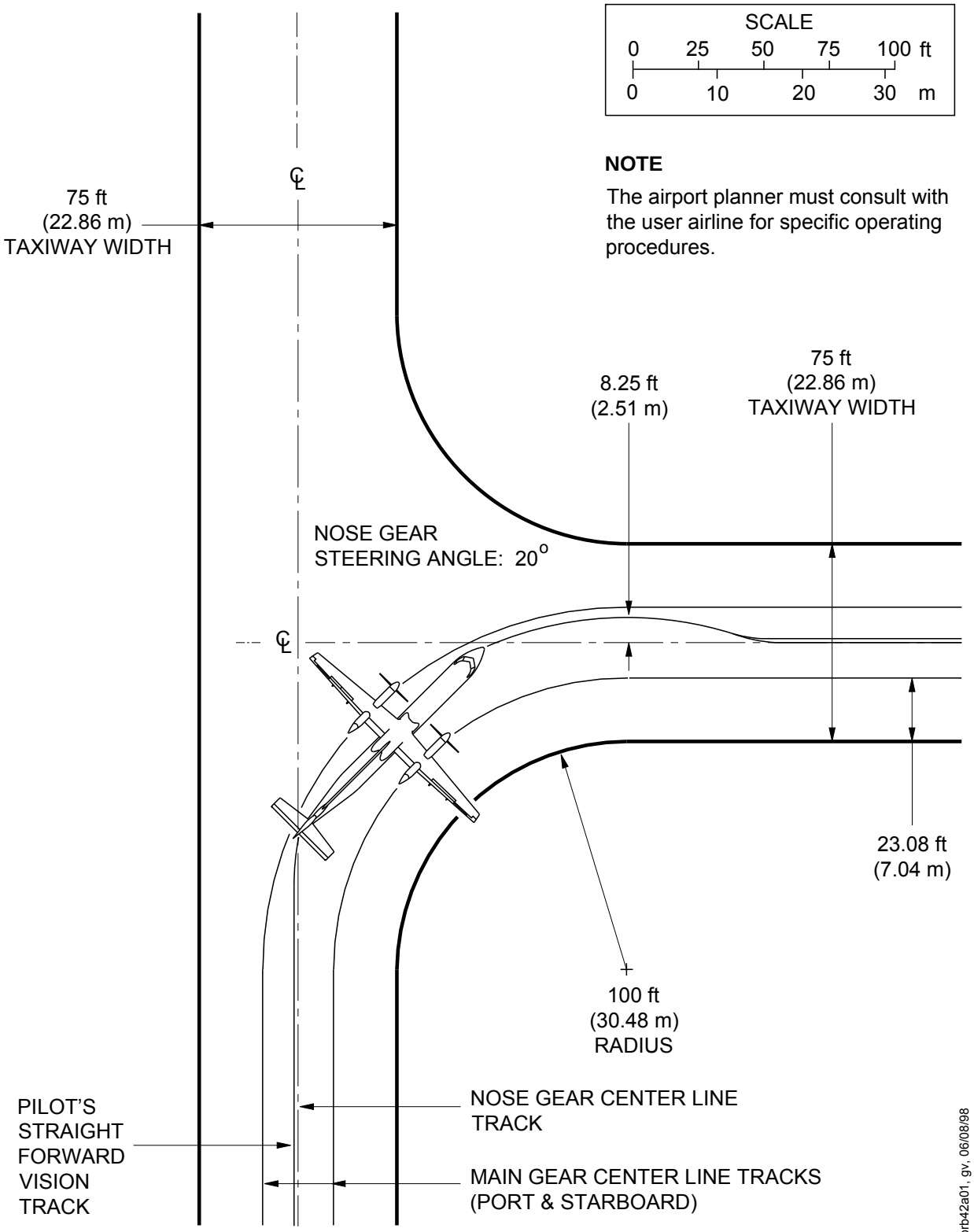
GREATER THAN 90 DEGREE TURN − RUNWAY TO TAXIWAY WITH TRACKS

Figure 4 − 4



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

Figure 4 − 5



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

Figure 4 − 6

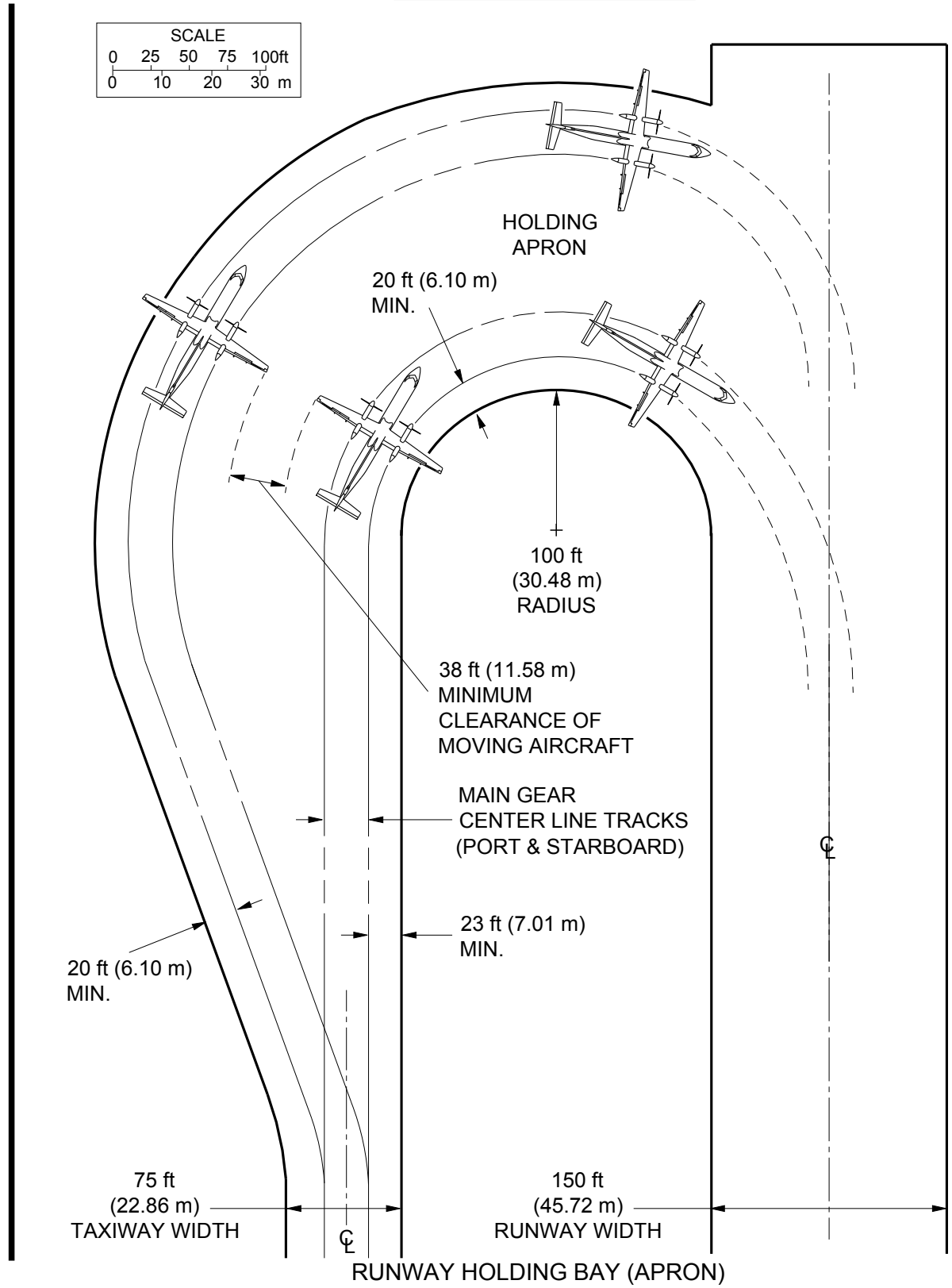
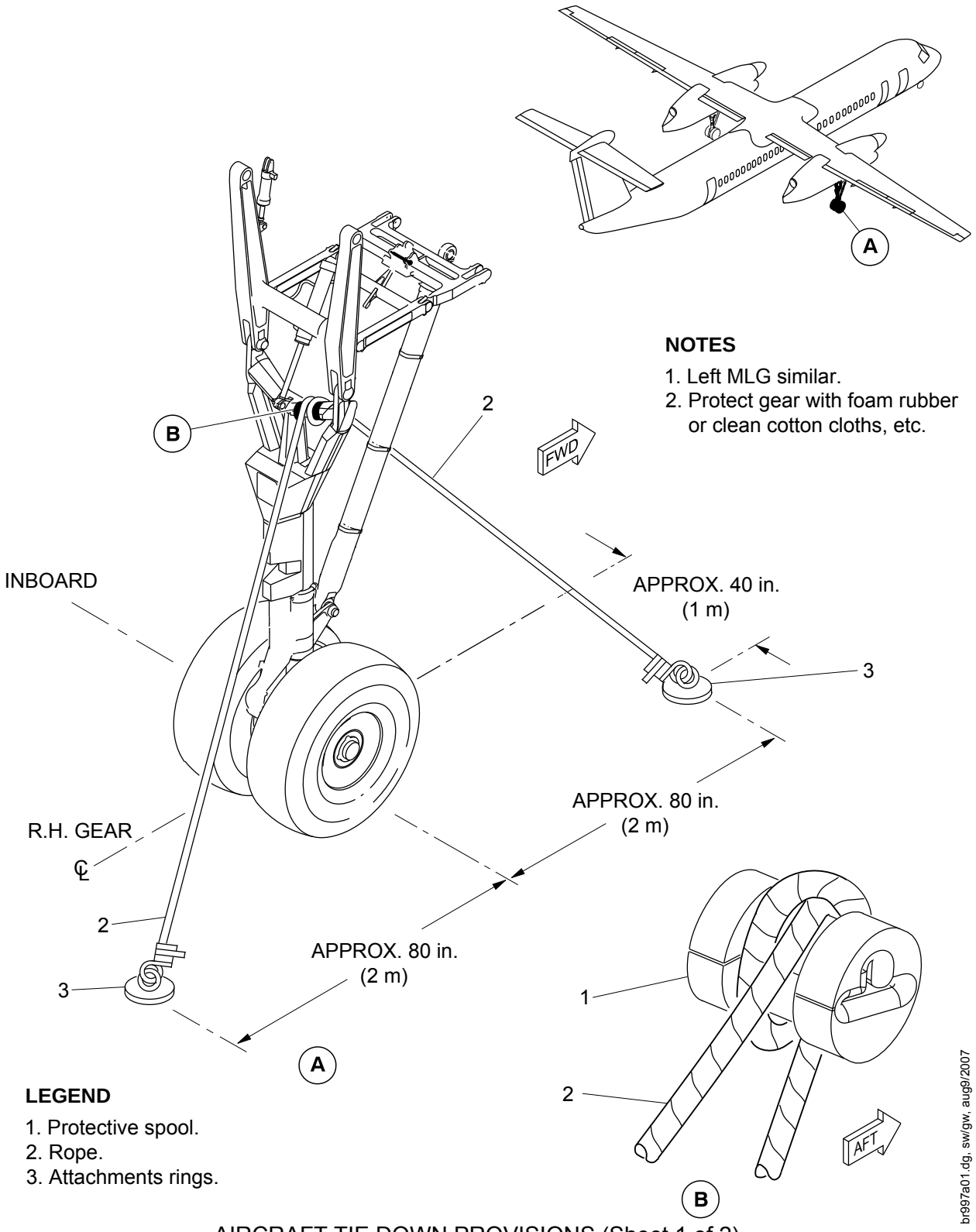


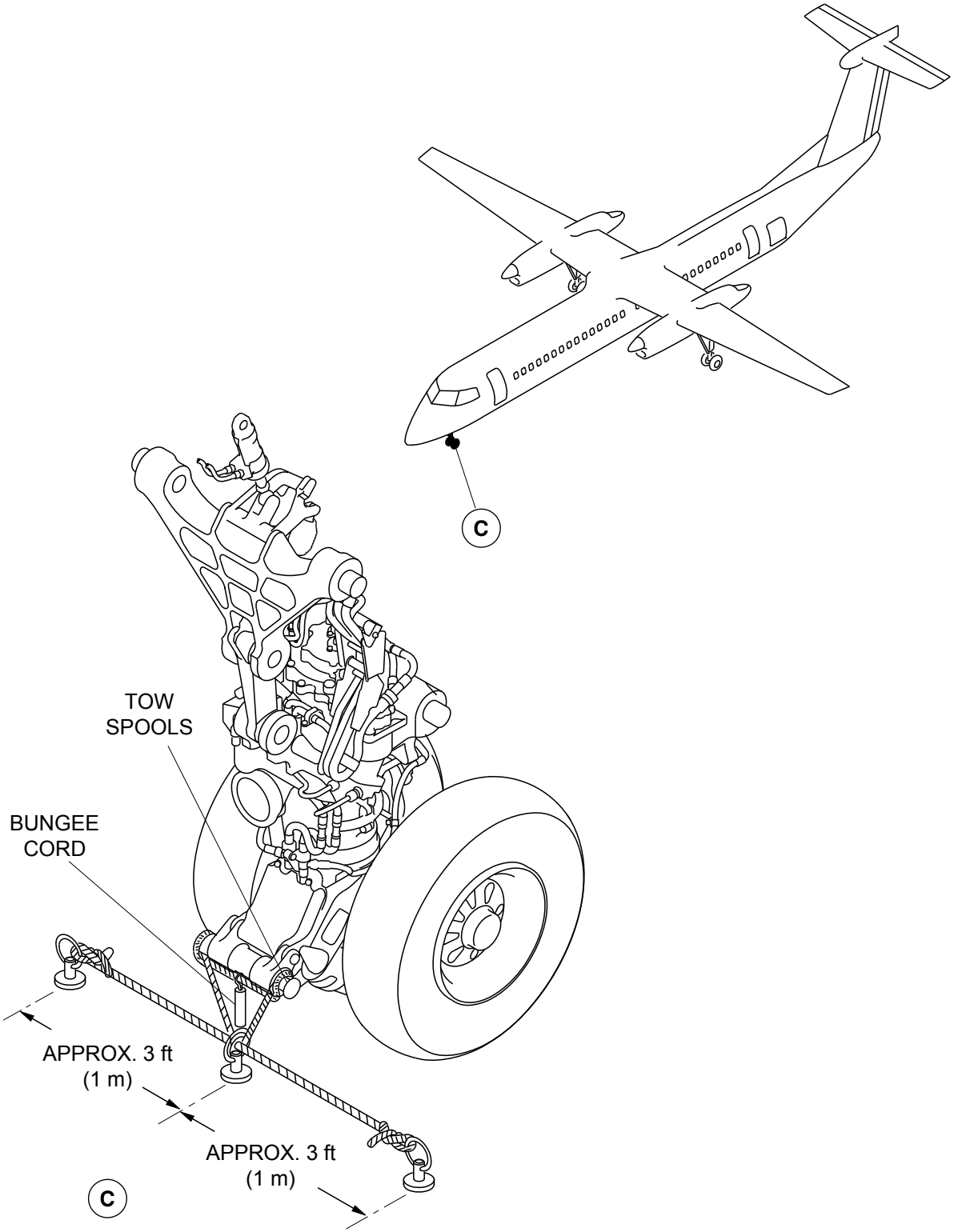
Figure 4 − 7

Series: 400



AIRCRAFT TIE DOWN PROVISIONS (Sheet 1 of 2)

Figure 4 − 8



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AIRCRAFT TIE DOWN PROVISIONS (Sheet 2 of 2)

Figure 4 − 8

CHAPTER 5

TERMINAL SERVICING

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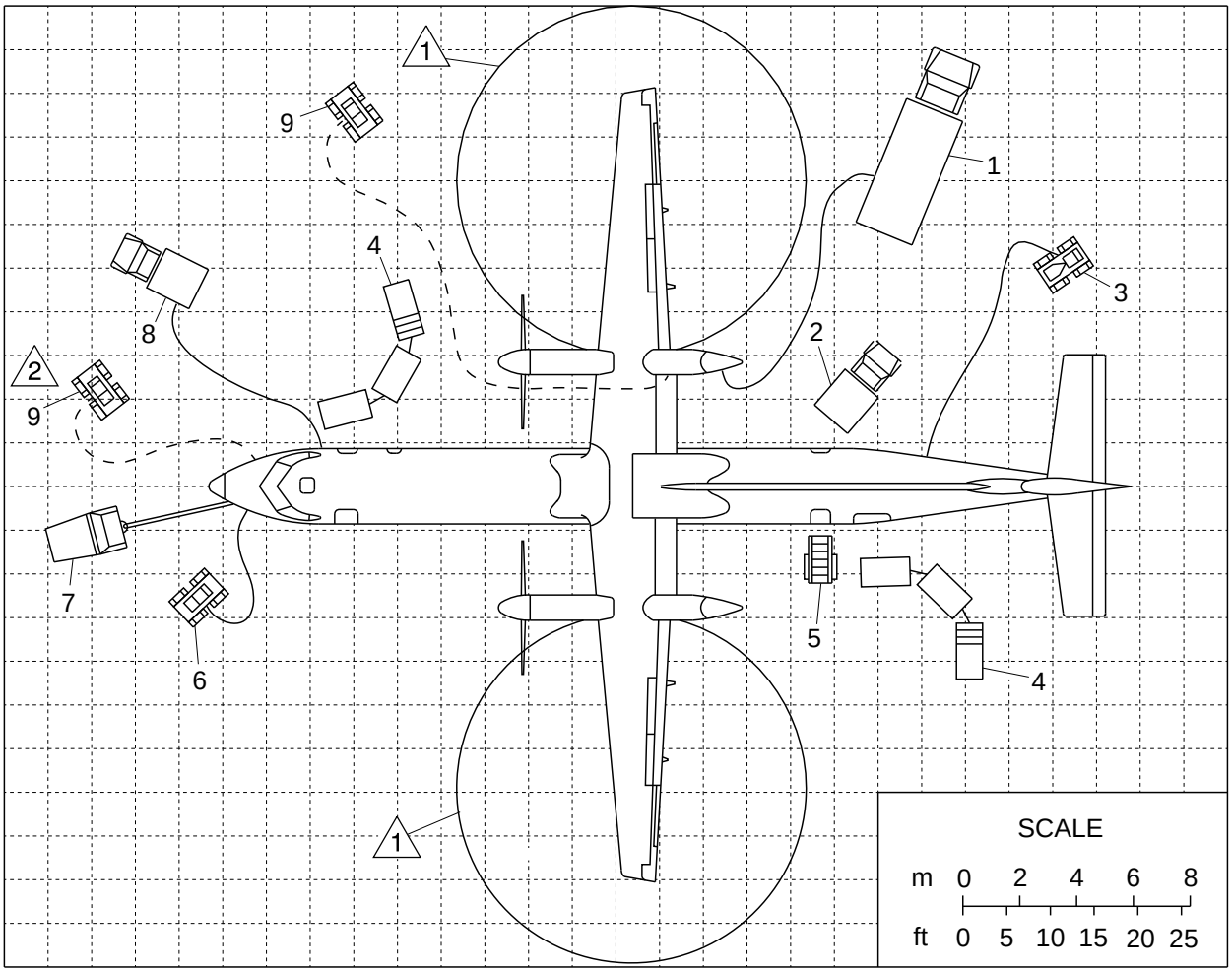
General Information

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.



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.

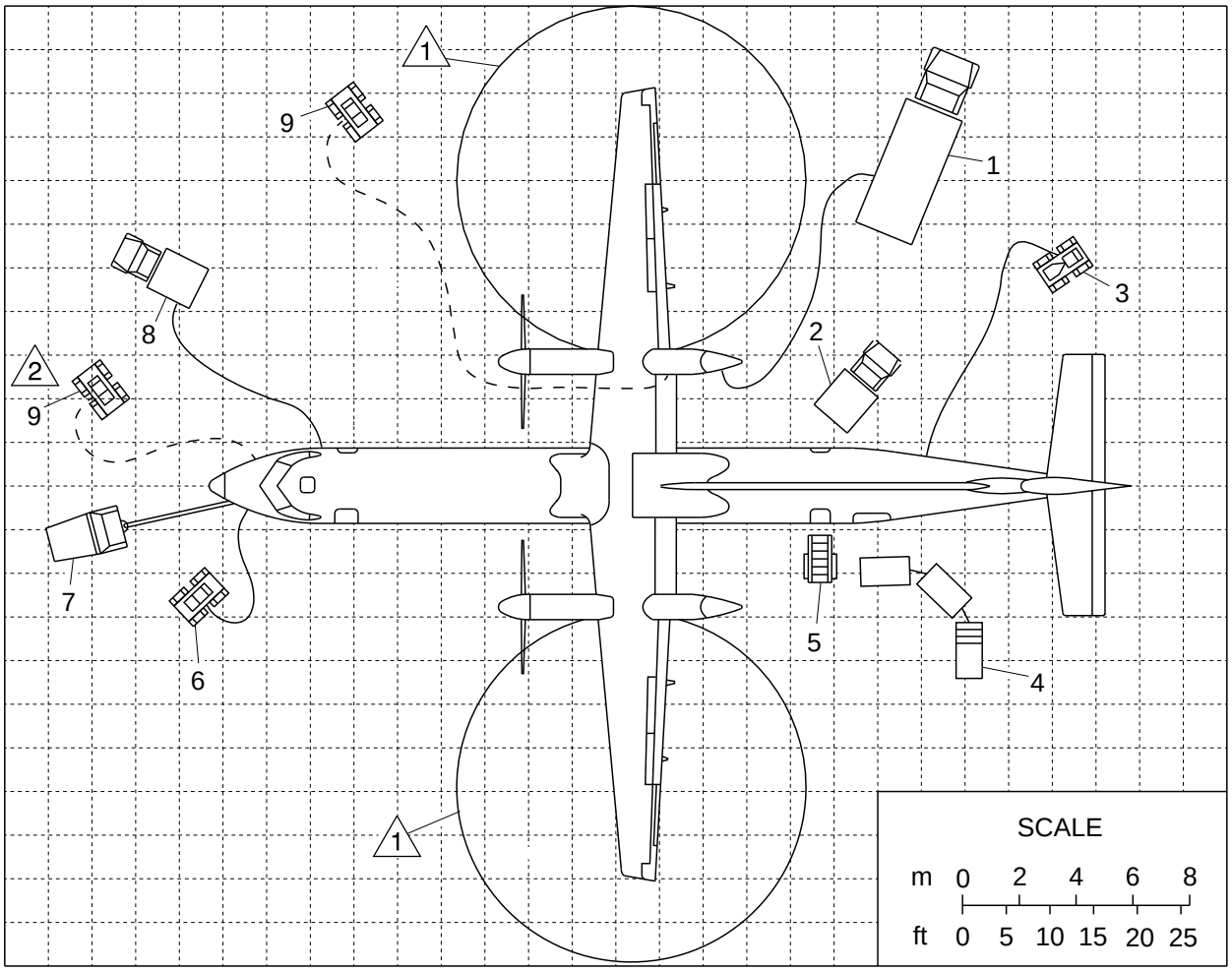
2 For option 824CH00114, 824SO90105.

br334a01.dg, gv/cs, sep09/2014

AIRCRAFT SERVICING ARRANGEMENT (STANDARD CONFIGURATION)

AIRCRAFT SERVICING ARRANGEMENT (TYPICAL − NO APU) (Sheet 1 of 3)

Figure 5 − 1



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.

br334a02.dg, nn/cs, sep09/2014

AIRCRAFT SERVICING ARRANGEMENT (EXTRA CAPACITY CONFIGURATION)

AIRCRAFT SERVICING ARRANGEMENT (TYPICAL − NO APU) (Sheet 2 of 3)

Figure 5 − 1

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)

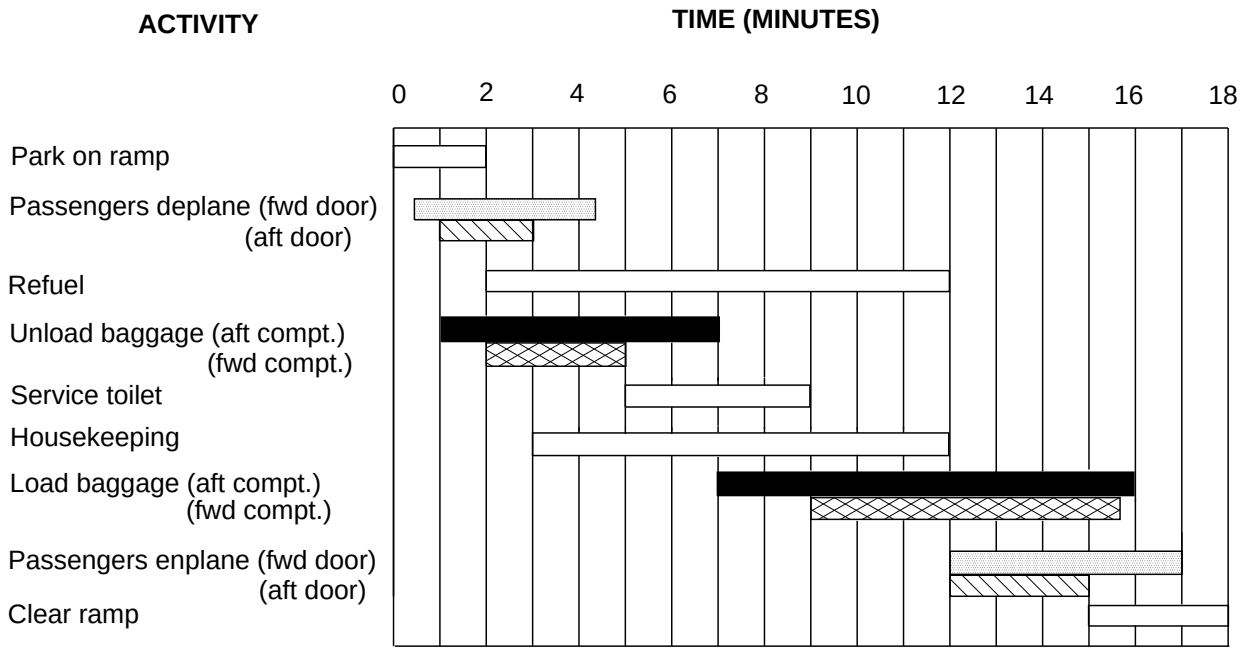
HYDRAULIC SYSTEM

		EQUIPMENT INTERFACE DETAILS		AIRCRAFT INTERFACE DETAILS	
DESCRIPTION	**SIZE**	**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

br334a03.dg, cs, sep09/2014

AIRCRAFT SERVICING ARRANGEMENT (TYPICAL − NO APU) (Sheet 3 of 3)

Figure 5 − 1



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.

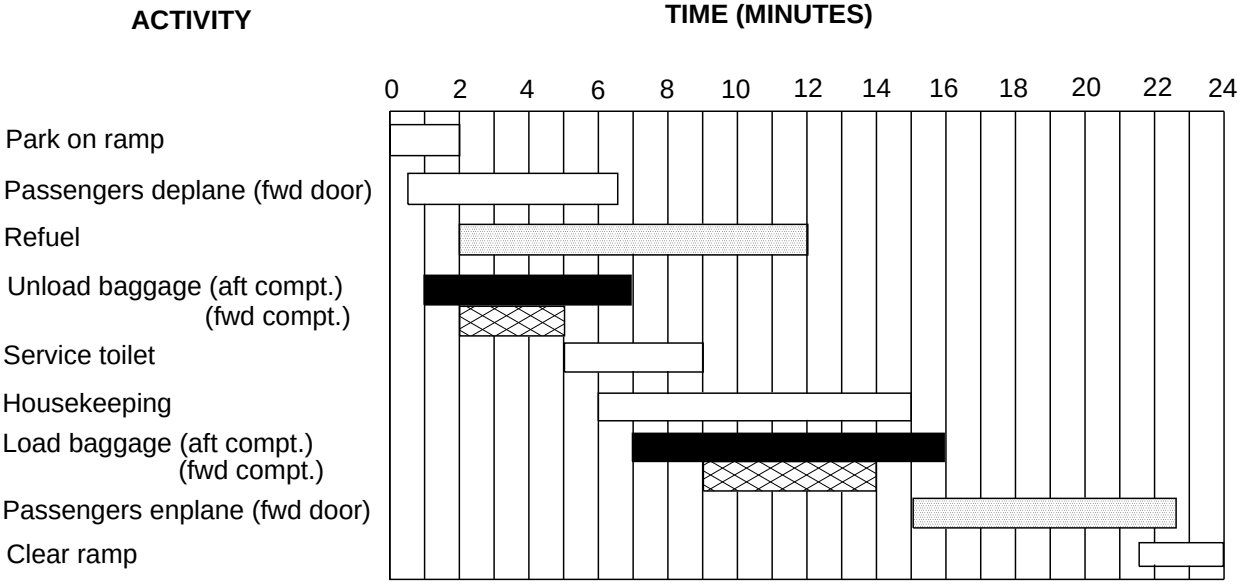
NOTE

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

cg3502a01.dg, cs, sep09/2014

RAPID TURNAROUND USING FORWARD AND AFT DOORS

Figure 5 − 2



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.

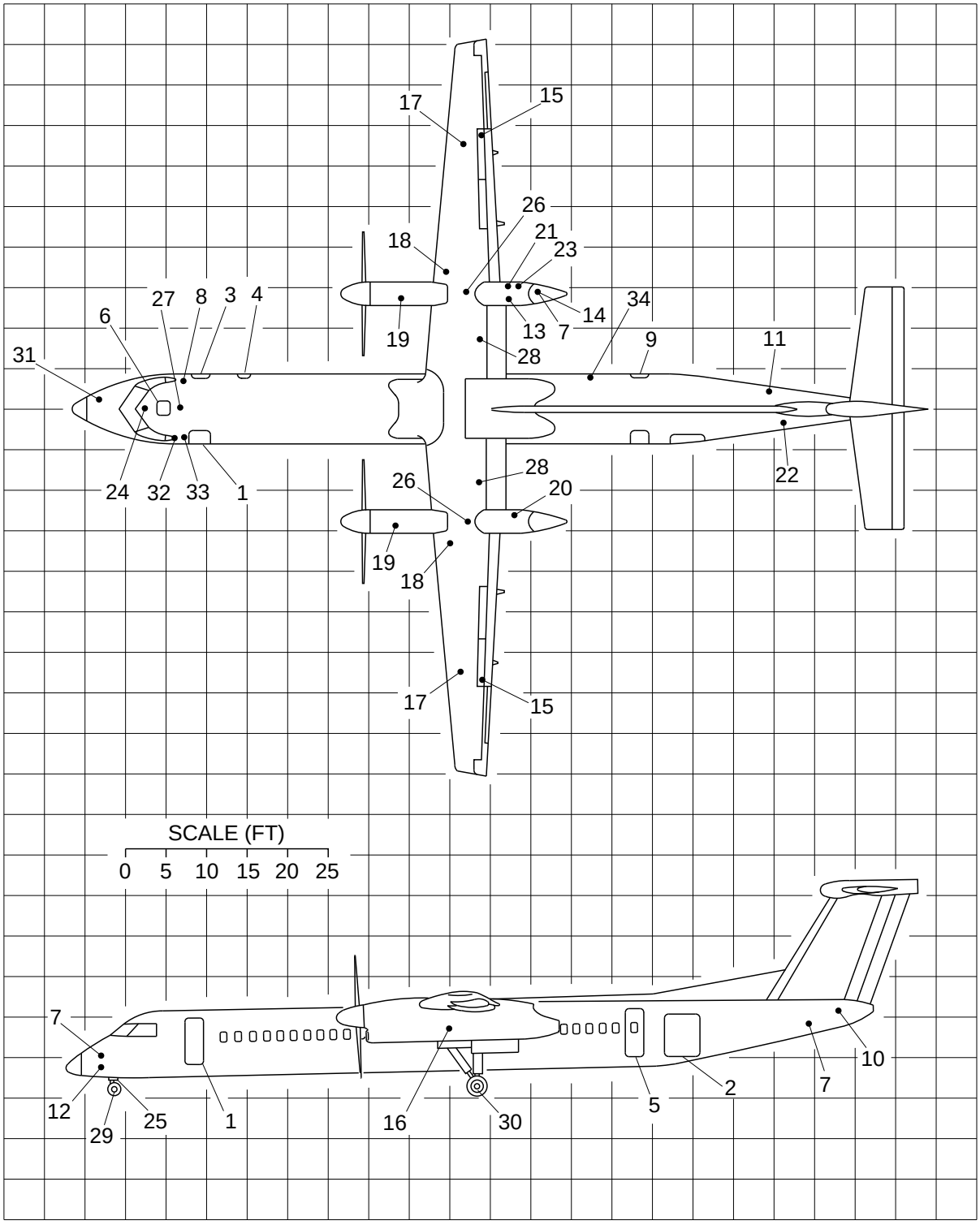
NOTE

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

cg3545a01.dg, cs, sep09/2014

RAPID TURNAROUND USING FORWARD DOOR ONLY

Figure 5 − 3



GROUND SERVICING POINT LOCATIONS (STANDARD CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 1 of 4)

Figure 5 − 4

LEGEND

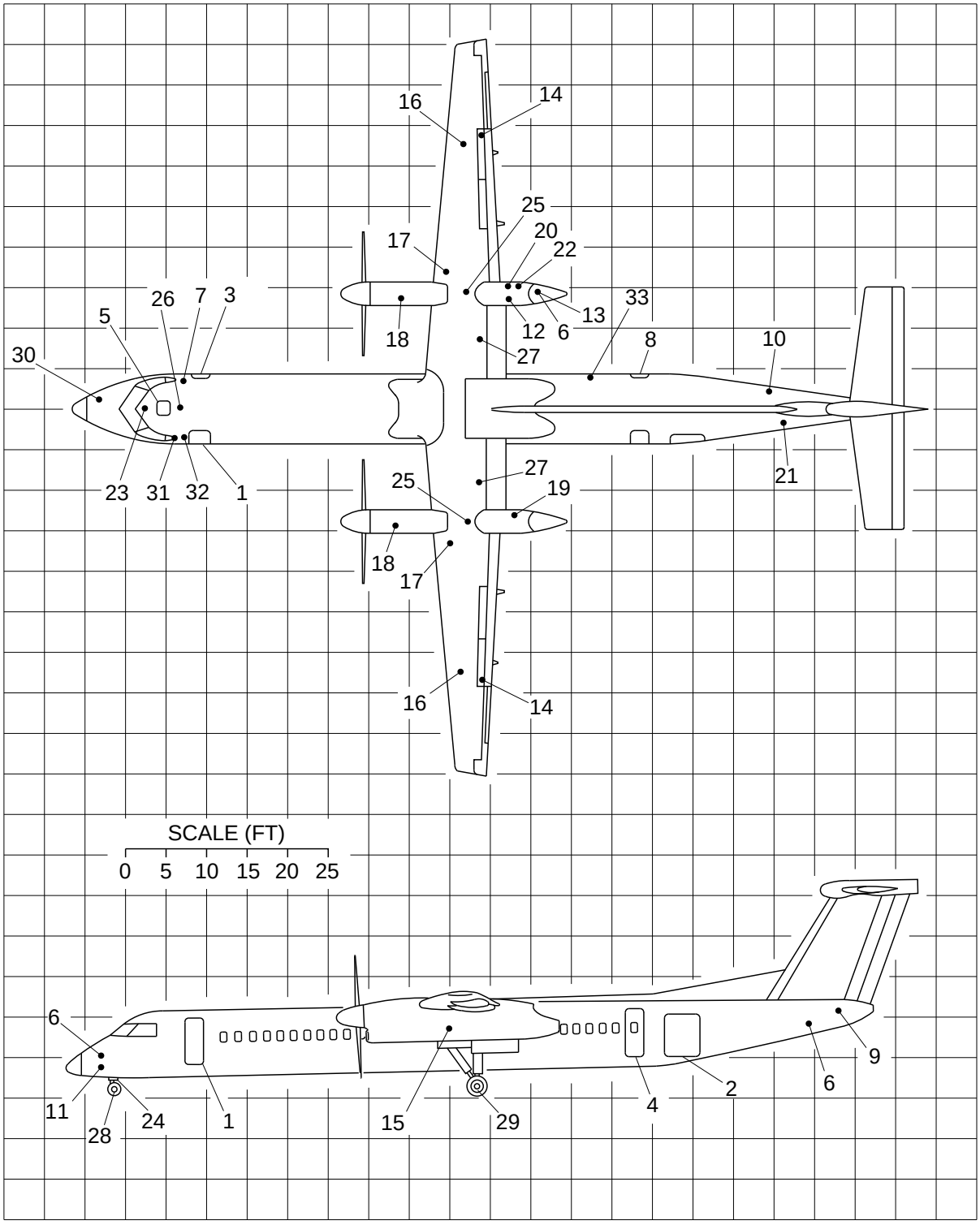
1. Forward passenger door.
2. Aft baggage door.
3. Forward baggage door.
4. Type II/III emergency exit.
5. Aft passenger door.
6. Flight compartment emergency exit.
7. Interphone connectors (3).
8. Lavatory service/ optional wash water service.
9. Galley service door/type I emergency exit.
10. Optional 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.

cg3539a02.dg, cs, aug06/2014

GROUND SERVICING POINT LOCATIONS (STANDARD CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 2 of 4)

Figure 5 − 4



cg3539a01.dg, cs, sep09/2014

GROUND SERVICING POINT LOCATIONS (EXTRA CAPACITY CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 3 of 4)

Figure 5 − 4

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.

cg3539a04.dg, cs, sep09/2014

GROUND SERVICING POINT LOCATIONS (EXTRA CAPACITY CONFIGURATION)

GROUND SERVICING POINT LOCATIONS (Sheet 4 of 4)

Figure 5 − 4

SYSTEM	DISTANCE AFT OF NOSE (1)		DISTANCE FROM AIRCRAFT CENTER LINE (1)				HEIGHT FROM GROUND (2)	
			LEFT SIDE		RIGHT SIDE			
	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

(1) These measurements are approximate.

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

(3) For option 824CH00114 and 824SO90105.

br887a01.dg, sw/cm, nov13/2013

GROUND SERVICE CONNECTIONS DATA (Sheet 1 of 3)

Figure 5 − 5

SYSTEM	DISTANCE AFT OF NOSE (1)		DISTANCE FROM AIRCRAFT CENTER LINE (1)				HEIGHT FROM GROUND (2)	
			LEFT SIDE		RIGHT SIDE			
	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.

br887a02.dg, sw, 09/06/98

GROUND SERVICE CONNECTIONS DATA (Sheet 2 of 3)

Figure 5 − 5

SYSTEM	DISTANCE AFT OF NOSE (1)		DISTANCE FROM AIRCRAFT CENTER LINE (1)				HEIGHT FROM GROUND (2)	
			LEFT SIDE		RIGHT SIDE			
	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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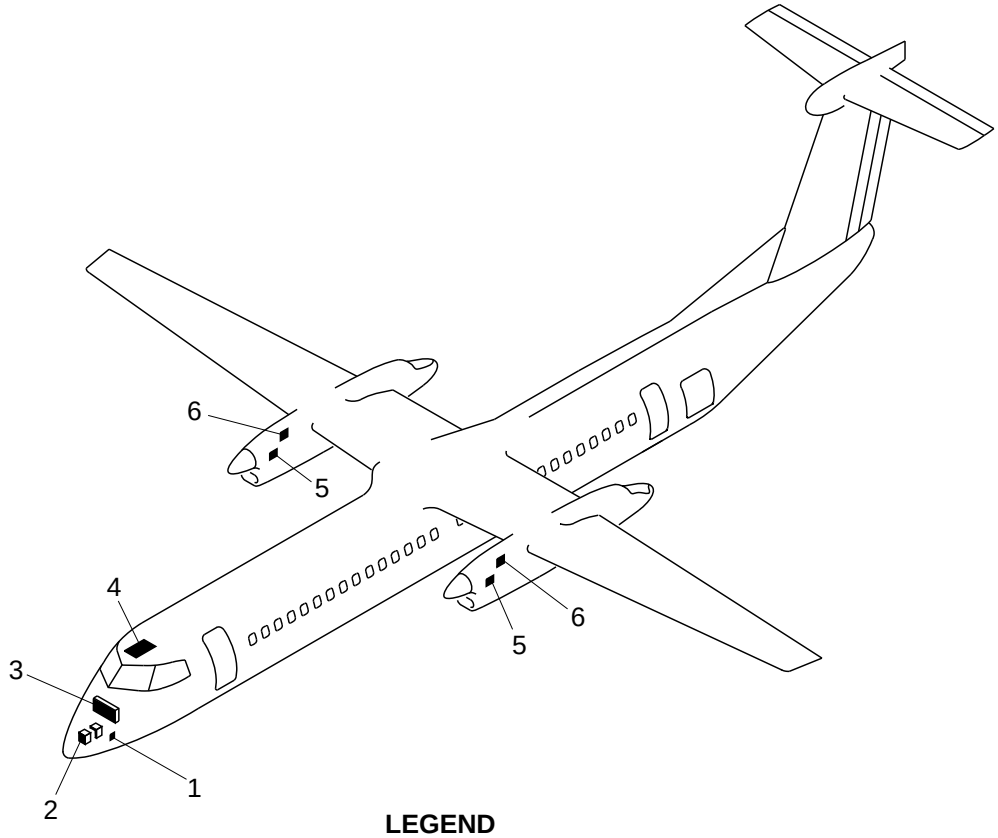
GROUND SERVICE CONNECTIONS DATA (Sheet 3 of 3)

Figure 5 − 5



LEGEND

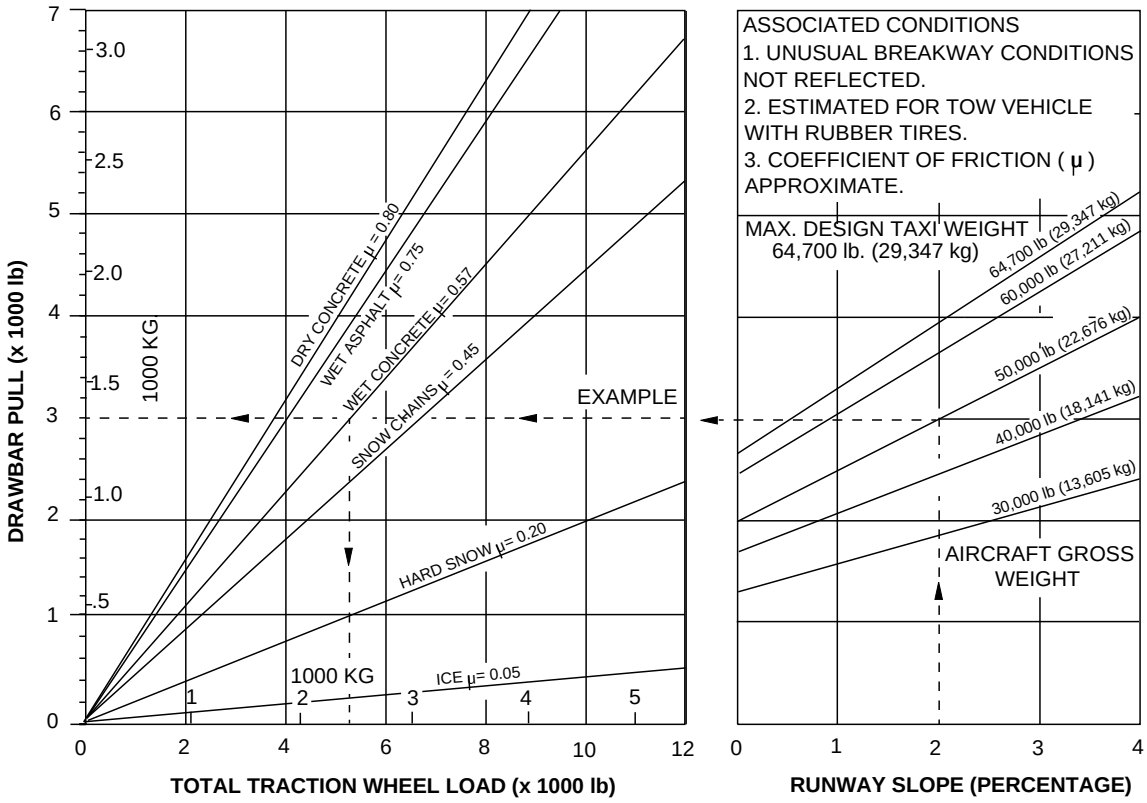
1. External DC power receptacle.
2. Battery installation.
3. DC contactor box (includes start control relays).
4. Overhead console panel.
5. Ignition box.
6. Starter generator.

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.		

br299a01.dg, pt/ak, apr04/2013

ELECTRICAL REQUIREMENTS FOR ENGINE STARTING

Figure 5 − 6



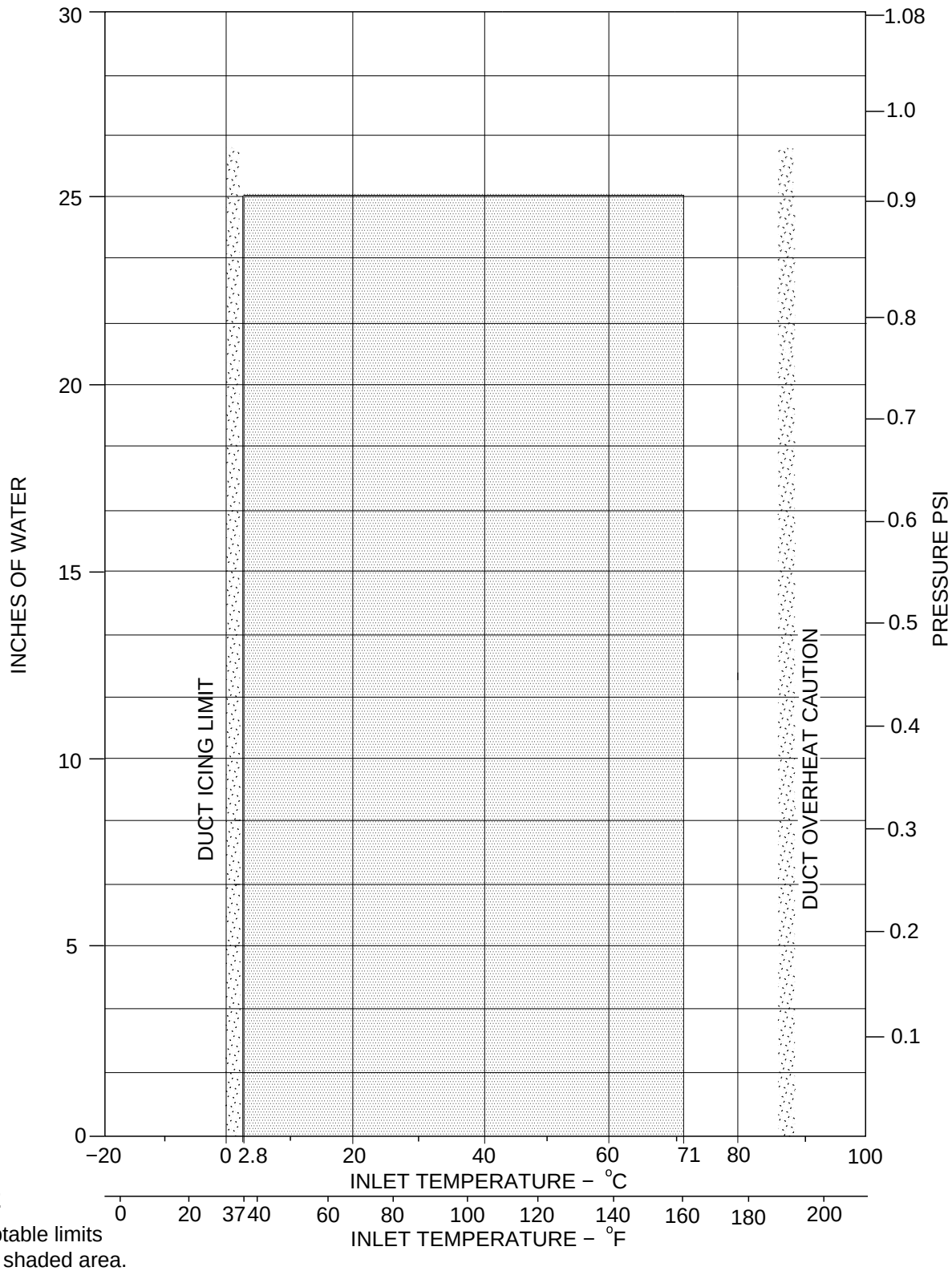
EXAMPLE :

At an aircraft gross weight of 50,000 lb (22,676 kg), an uphill slope of 2 % and with a wet concrete surface, the coresponding 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).

brc73a01.dg, sw, 18/01/00

GROUND TOWING REQUIREMENTS

Figure 5 − 7



NOTE

Acceptable limits within shaded area.

GROUND AIR CONDITIONING REQUIREMENTS − PRE CONDITIONED AIR

Figure 5 − 8

CHAPTER 6

OPERATING CONDITIONS AND NOISE DATA

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General Information

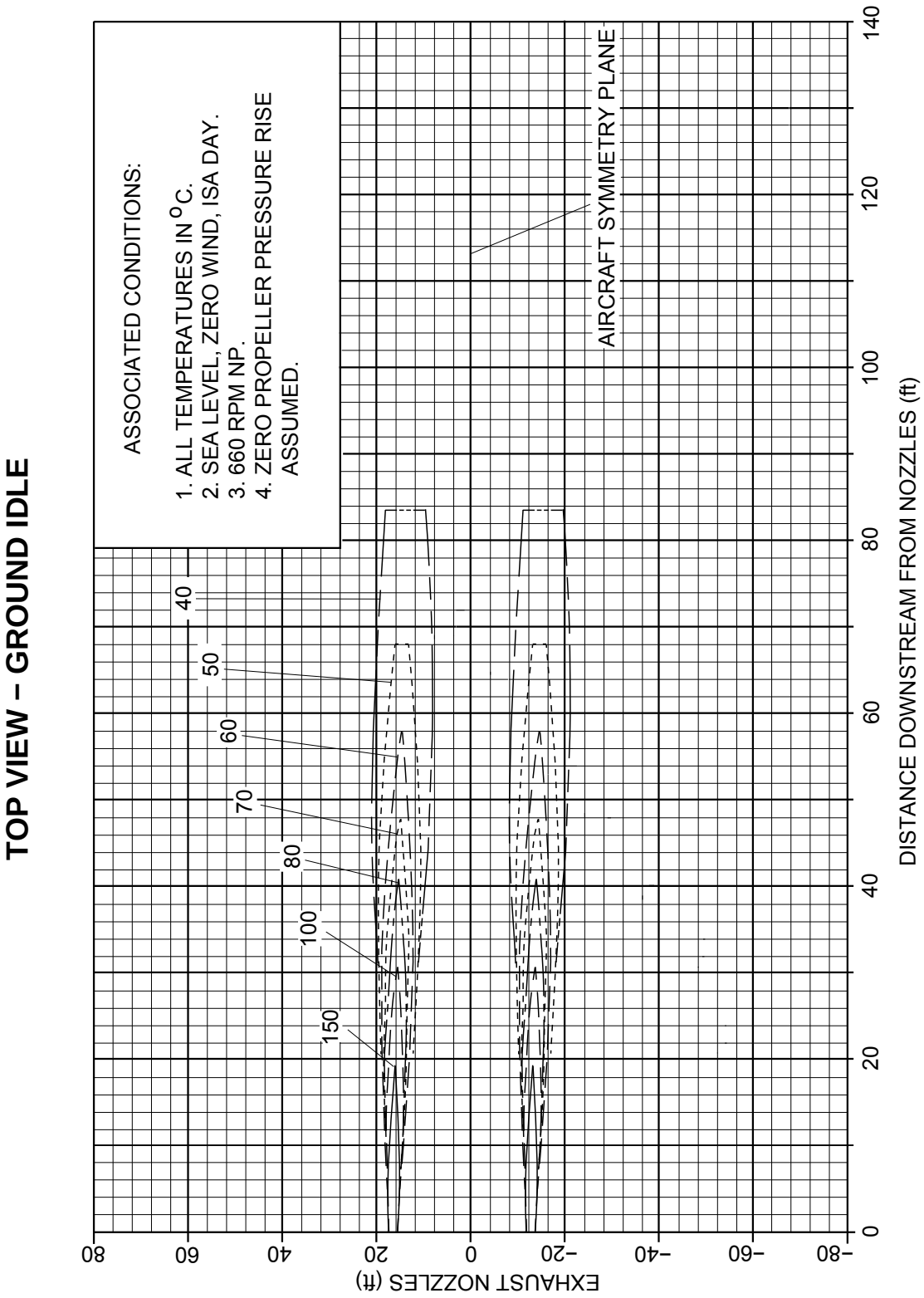
1. Aircraft operating conditions and noise are important to airport and community planners. While an airport is a major element in an community transportation system and is vital to its growth, it must be a good neighbor. This can only be accomplished with proper planning. Because aircraft noise extends 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.

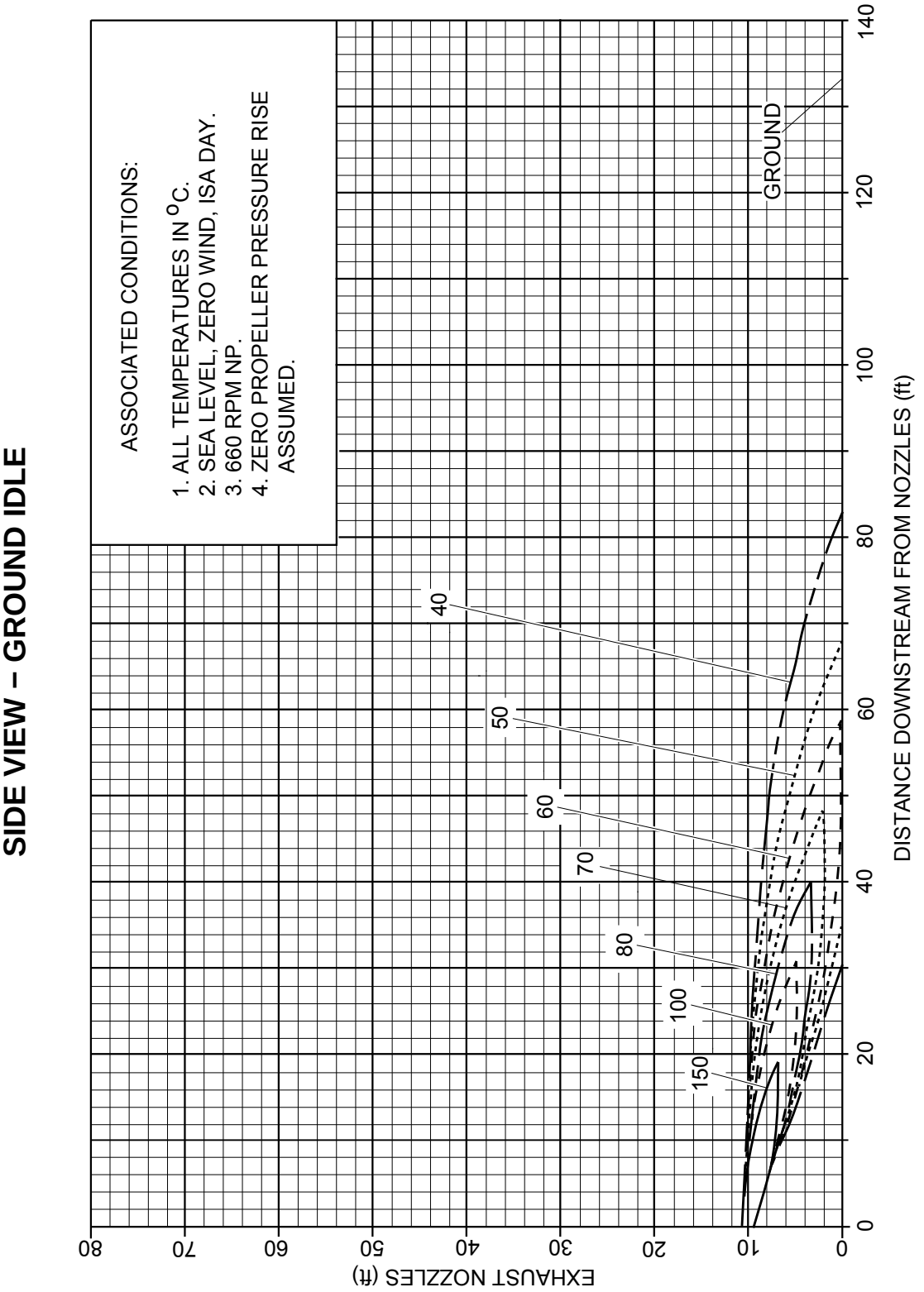
      NOTE: Exhaust temperature contours for the optional APU is not available at this time.

   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



ENGINE EXHAUST TEMP. CONTOURS AT GROUND IDLE − TOP VIEW

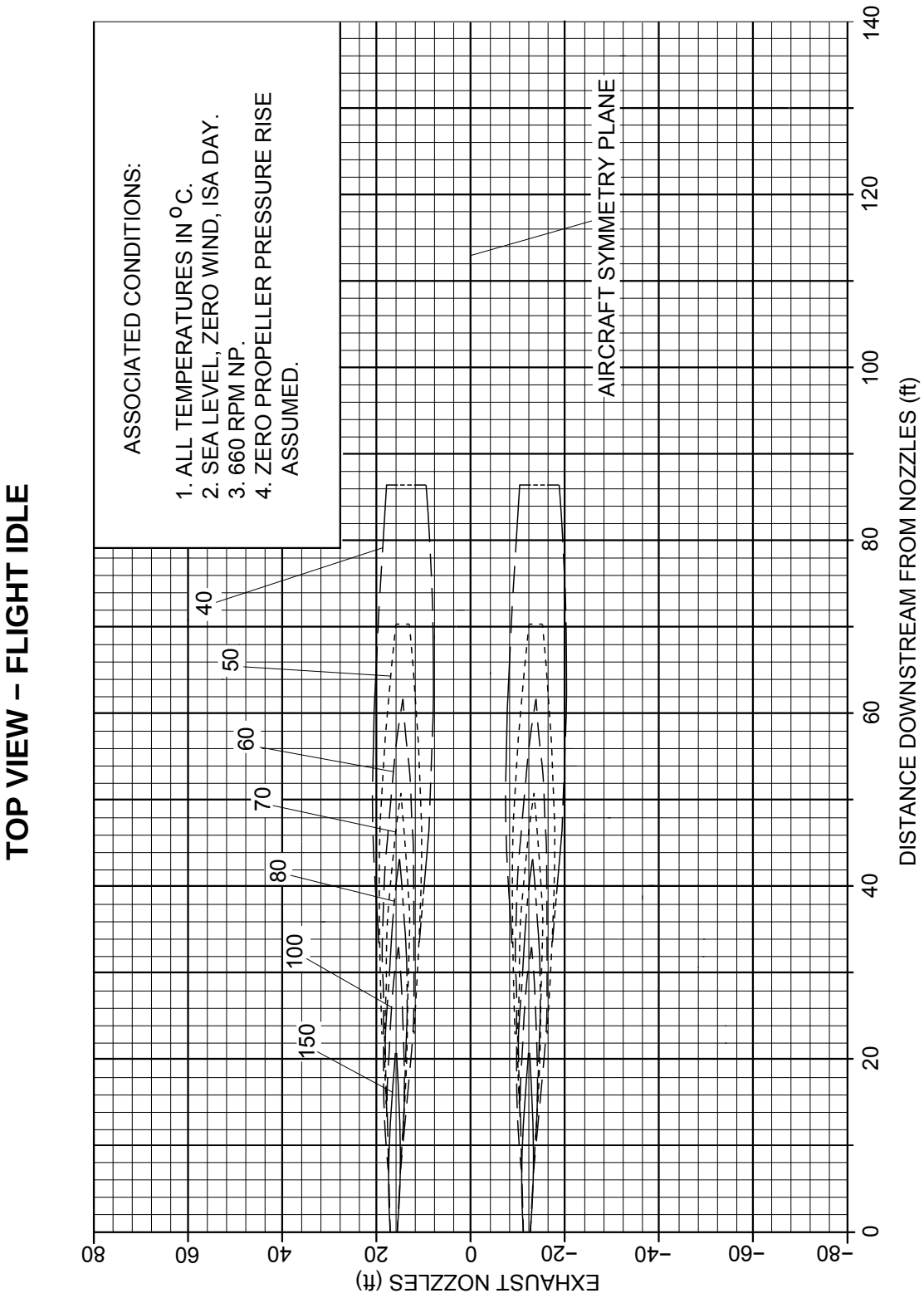
Figure 6 − 1



brn09a01.dg, sw/gw, may5/2011

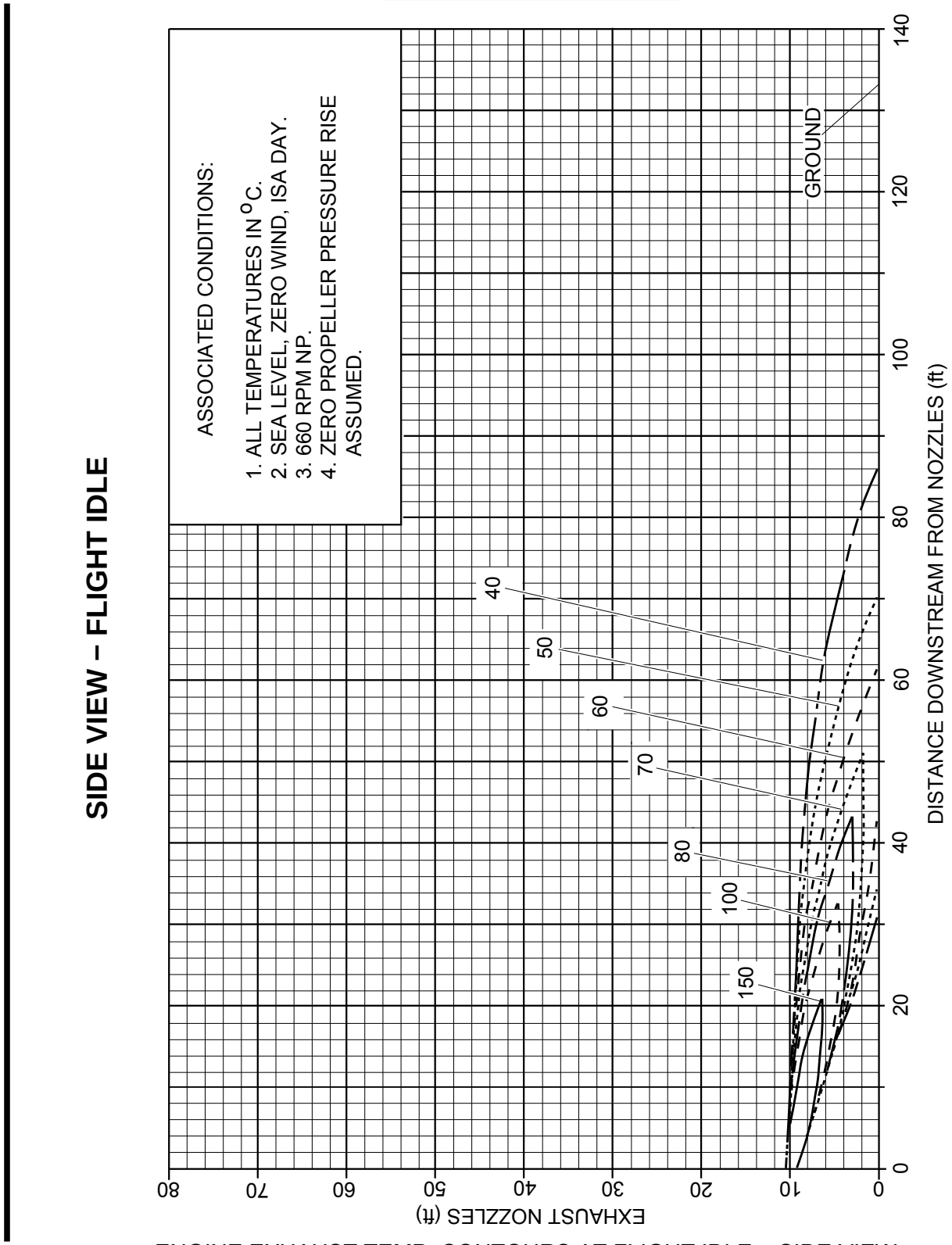
ENGINE EXHAUST TEMP. CONTOURS AT GROUND IDLE − SIDE VIEW

Figure 6 − 2



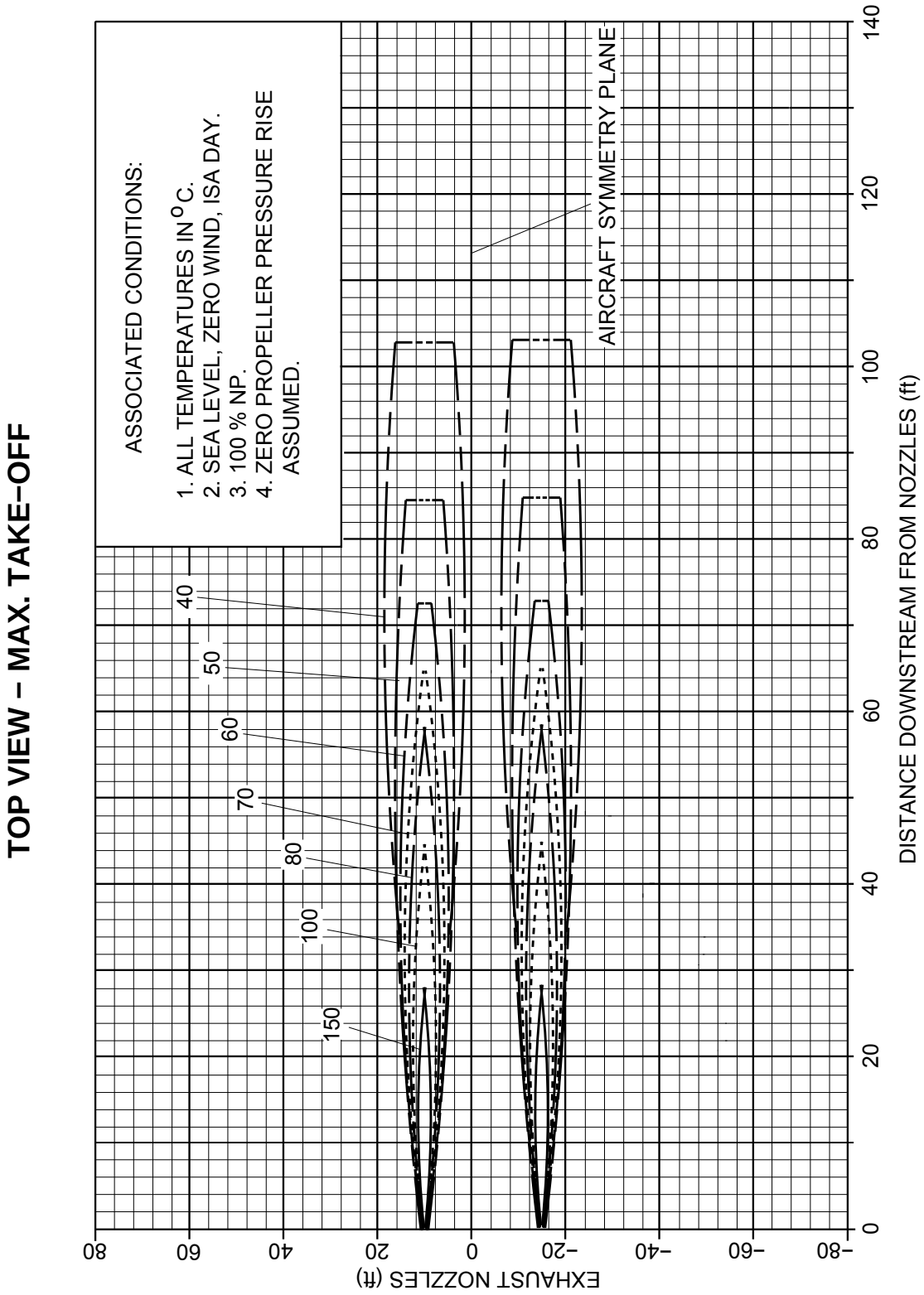
ENGINE EXHAUST TEMP. CONTOURS AT FLIGHT IDLE − TOP VIEW

Figure 6 − 3



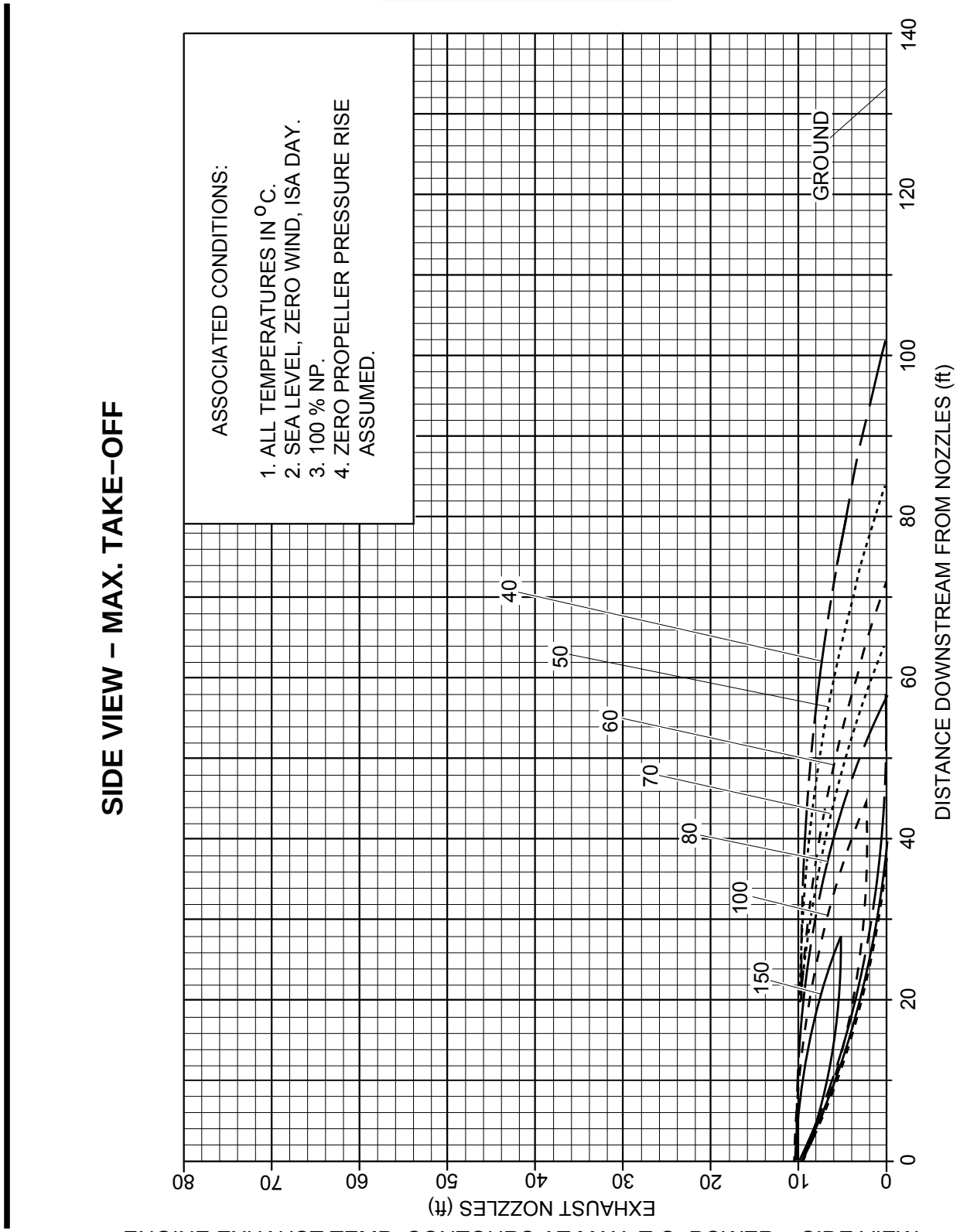
ENGINE EXHAUST TEMP. CONTOURS AT FLIGHT IDLE − SIDE VIEW

Figure 6 − 4



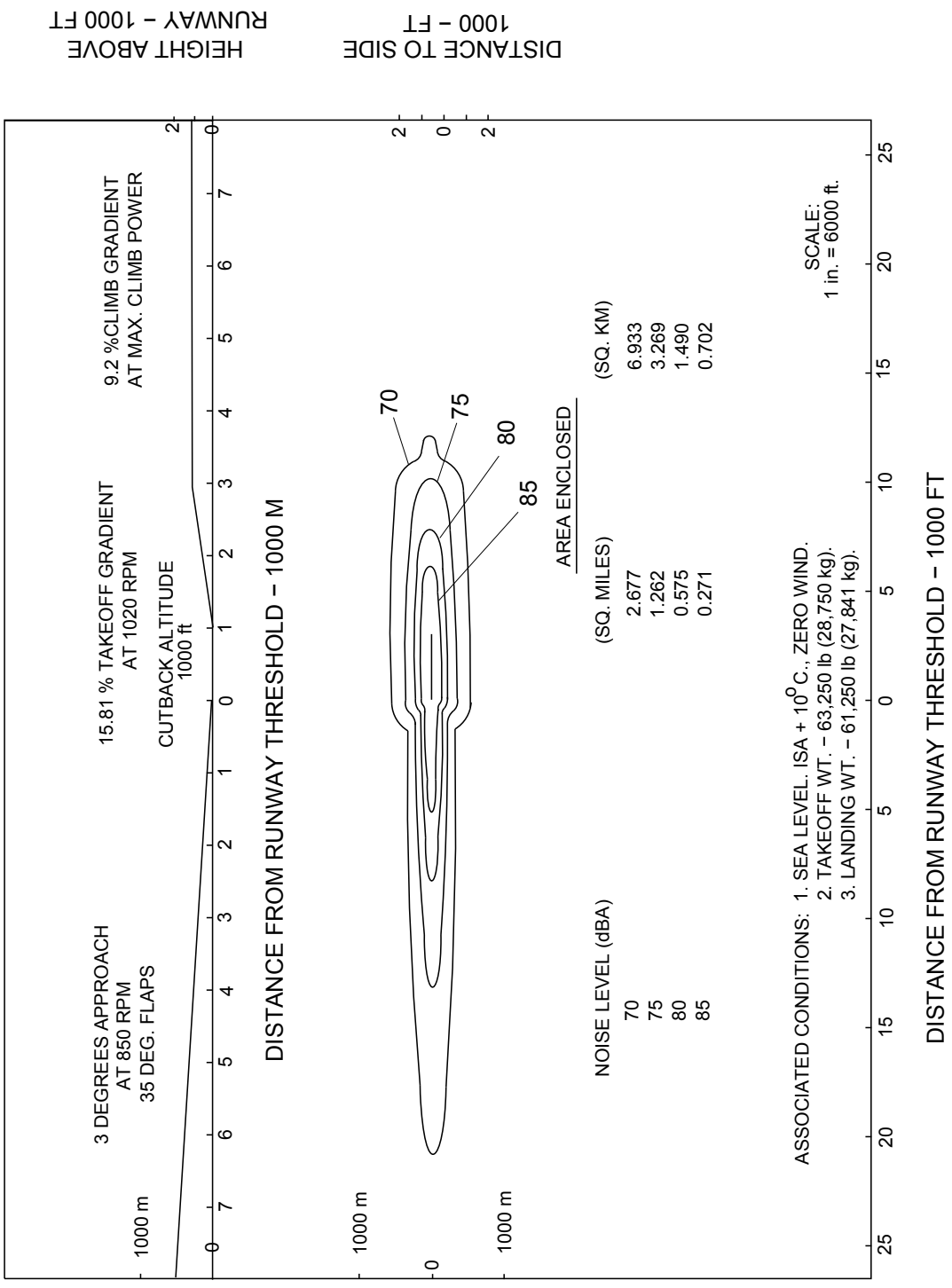
ENGINE EXHAUST TEMP. CONTOURS AT MAX. T.O. POWER − TOP VIEW

Figure 6 − 5



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

Figure 6 − 6



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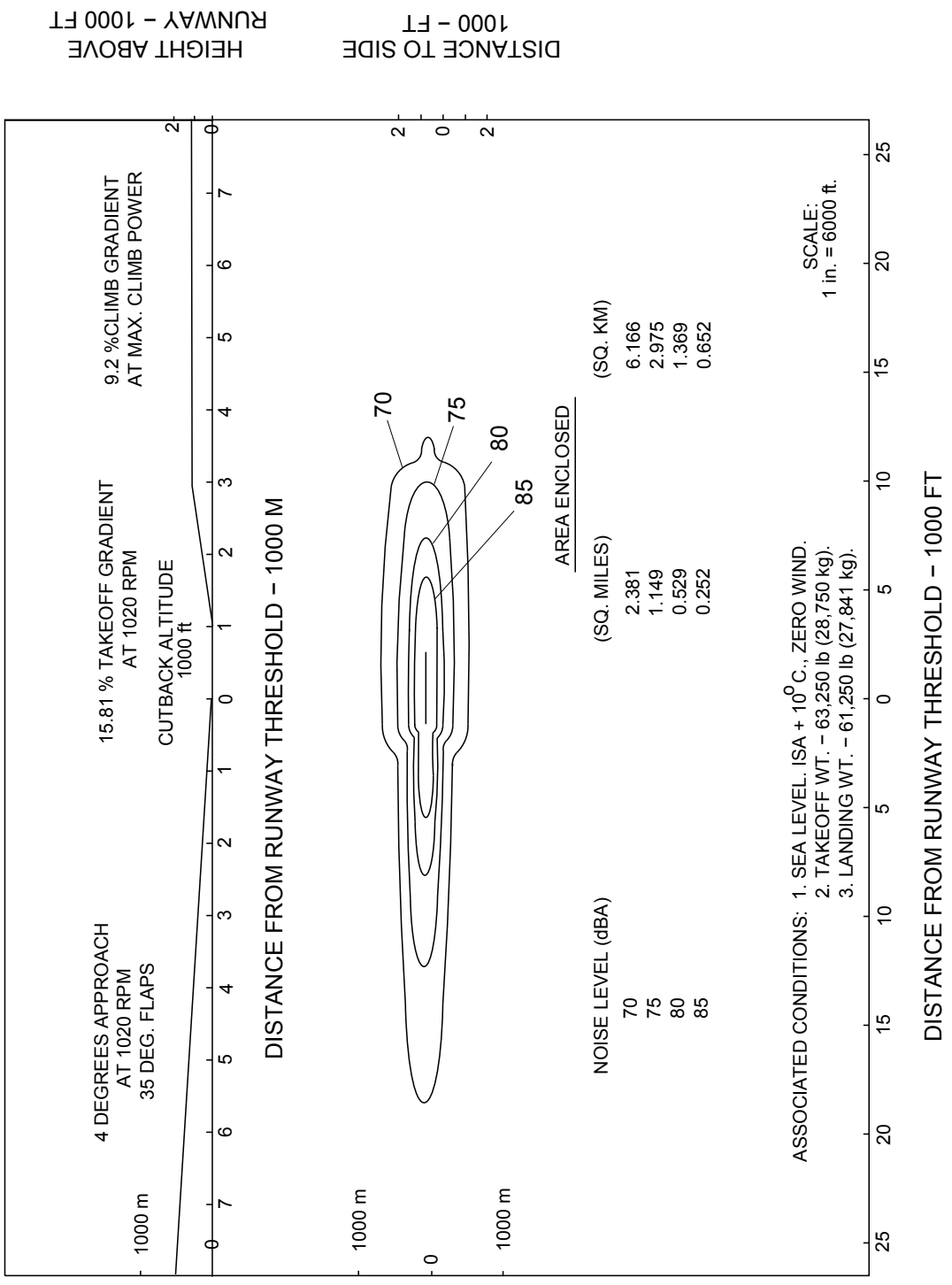
TAKEOFF AND LANDING NOISE FOOTPRINT − 3 DEGREE APPROACH

Figure 6 − 7

Series: 400

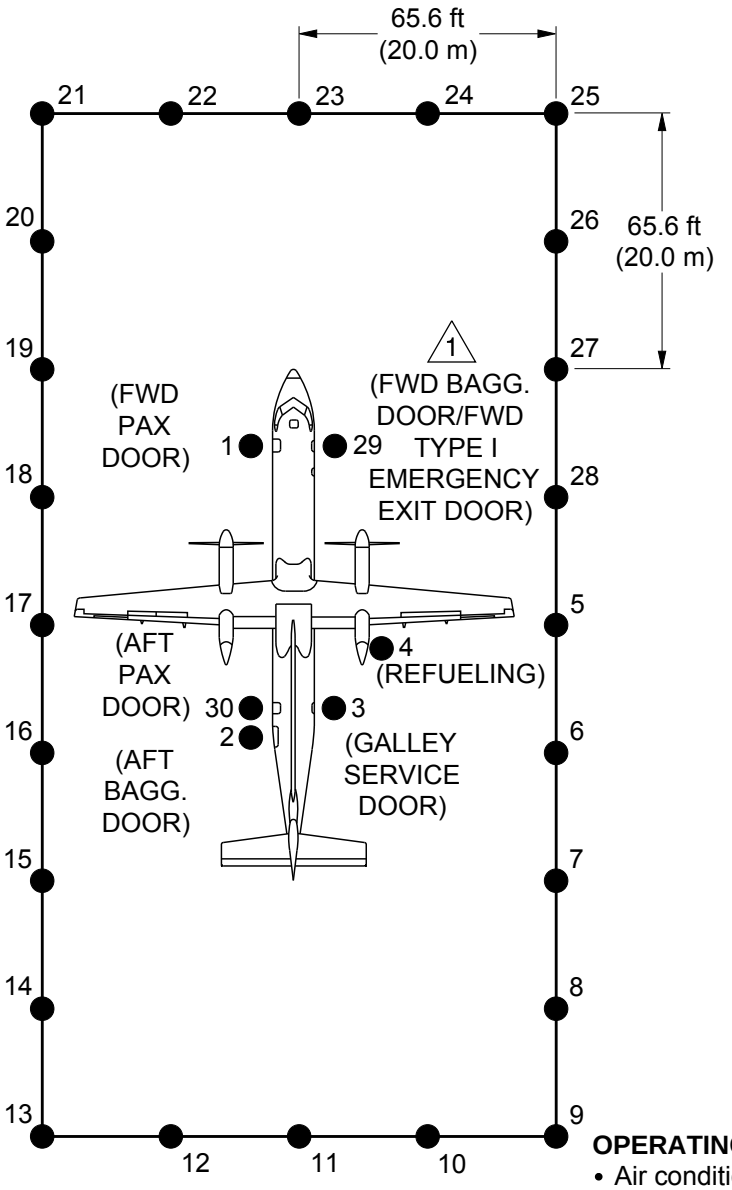


bm12a01.dg, sw, 01/10/99

TAKEOFF AND LANDING NOISE FOOTPRINT − 4 DEGREES APPROACH

Figure 6 − 8

Series: 400



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

braa9a01.dg, ab/cs, jul30/2014

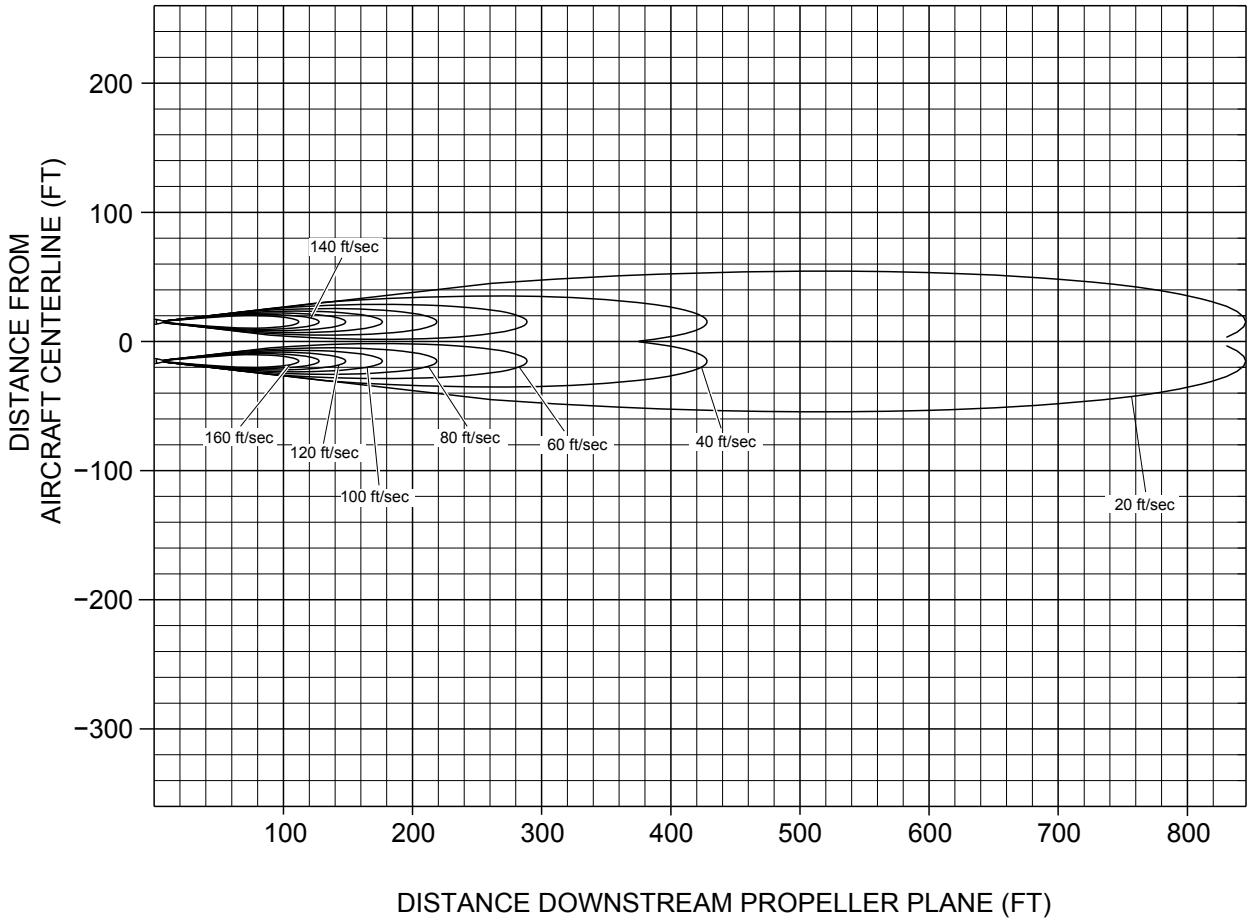
NOTE

1 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

RAMP NOISE TEST RESULTS FOR OPTIONAL APU

Figure 6 − 9

PROPELLER/ENGINE SLIPSTREAM VELOCITY CONTOURS
(MAXIMUM TAKEOFF POWER)

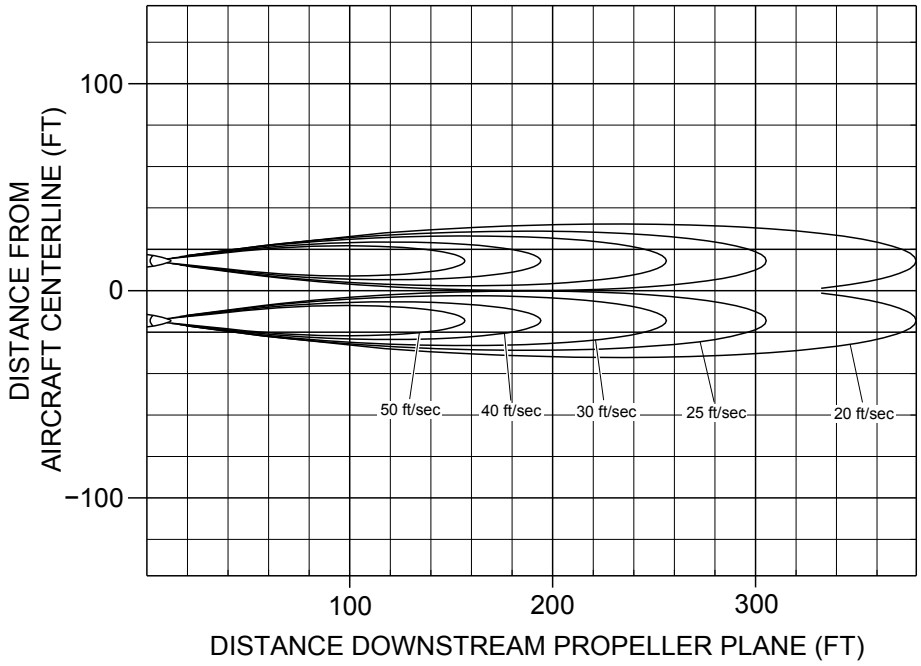


cg2866a01.dg, ms, aug30/2013

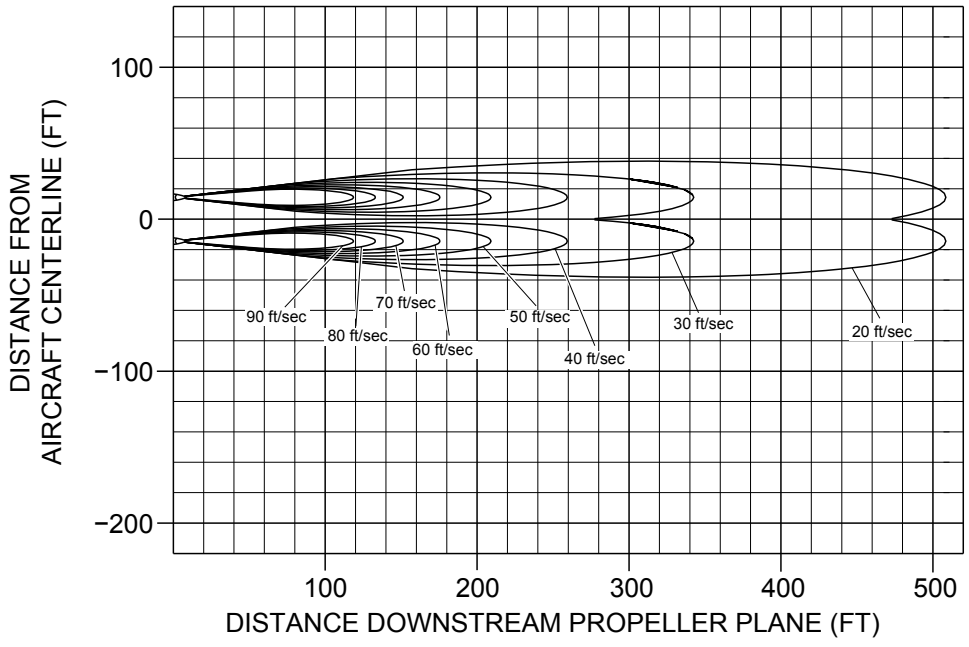
PROPELLER / ENGINE SLIPSTREAM VELOCITY CONTOUR AT MAXIMUM TAKEOFF POWER

Figure 6 − 10

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



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



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PROPELLER / ENGINE SLIPSTREAM VELOCITY CONTOUR AS ON GROUND

Figure 6 − 11

CHAPTER 7

PAVEMENT DATA

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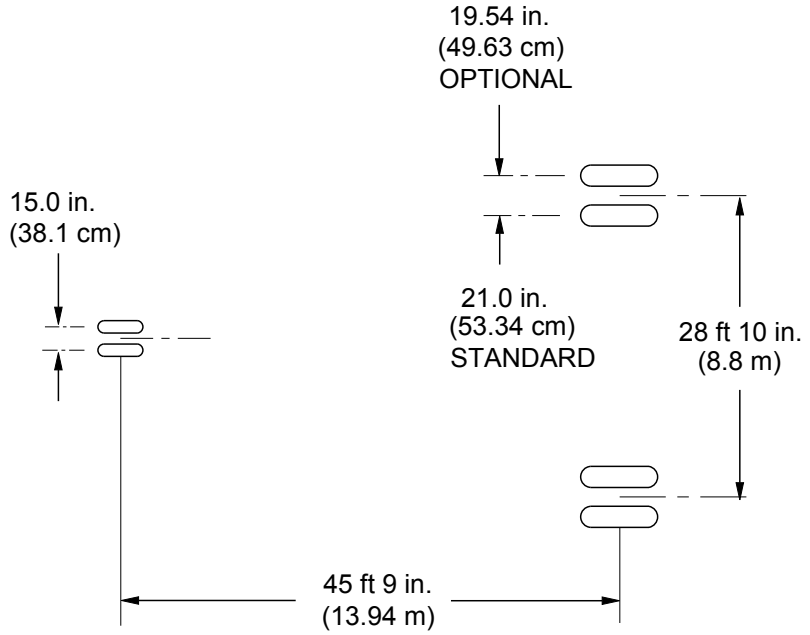
General Information

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.

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.



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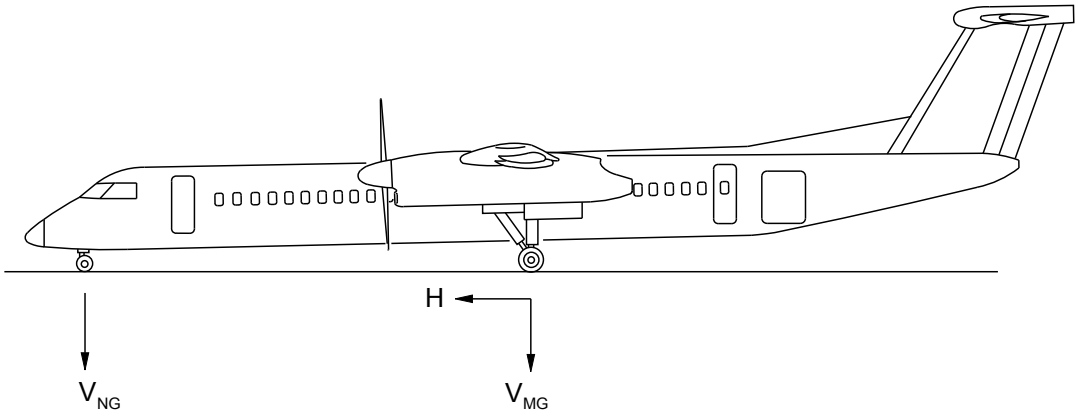
LANDING GEAR FOOTPRINT

Figure 7 − 1



		V_{NG}		V_{MG} (PER STRUT)	$H_{(PER\ STRUT)}$	
MODEL	MAXIMUM DESIGN TAXI WEIGHT	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 2 (3.05 m/sec^2) DECELERATION	AT INSTANTANEOUS BRAKING 3 (COEFFICIENT OF FRICTION 0.8)
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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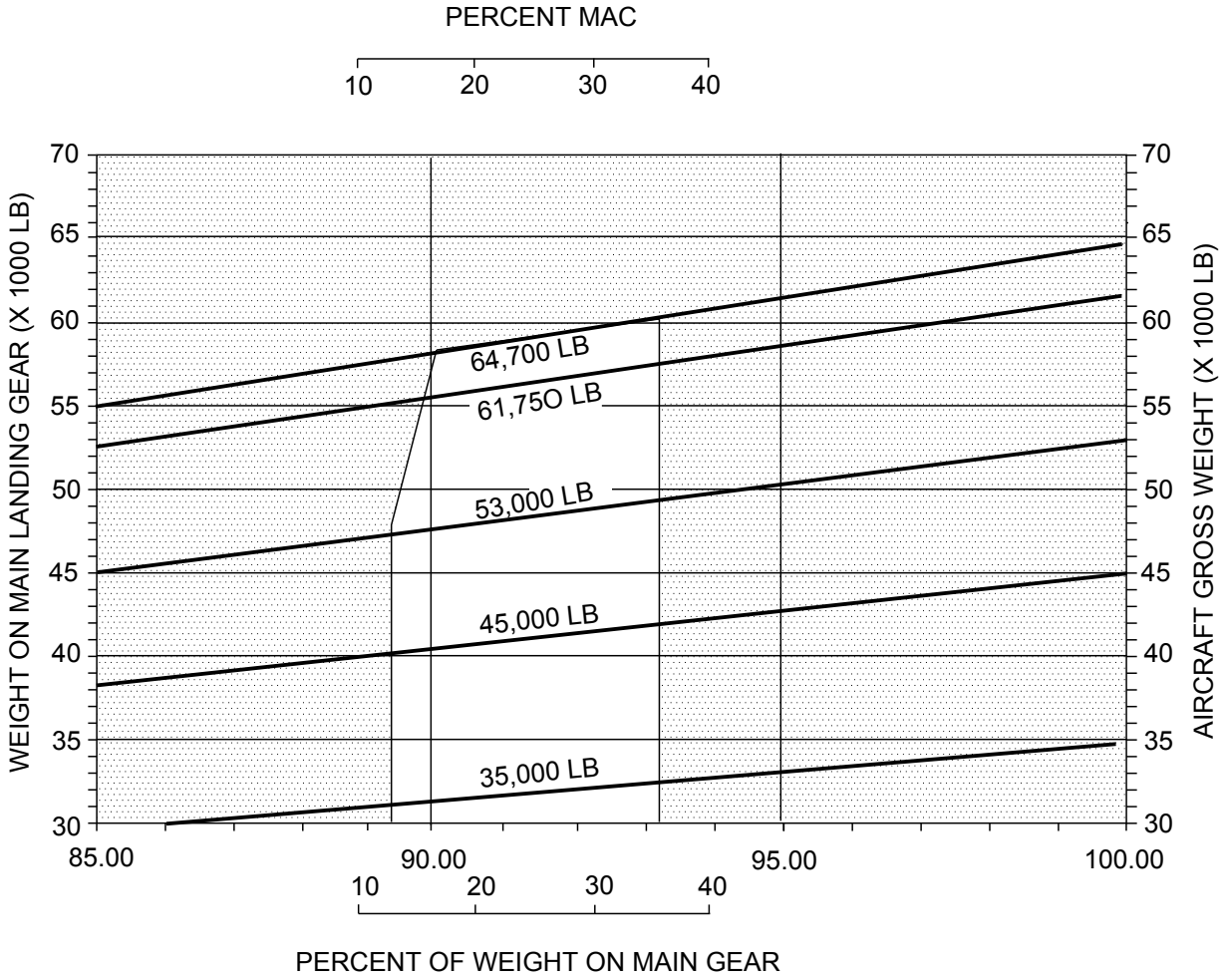
MAXIMUM PAVEMENT LOADS

Figure 7 − 2



NOTE
Unshaded area represents operational limits.

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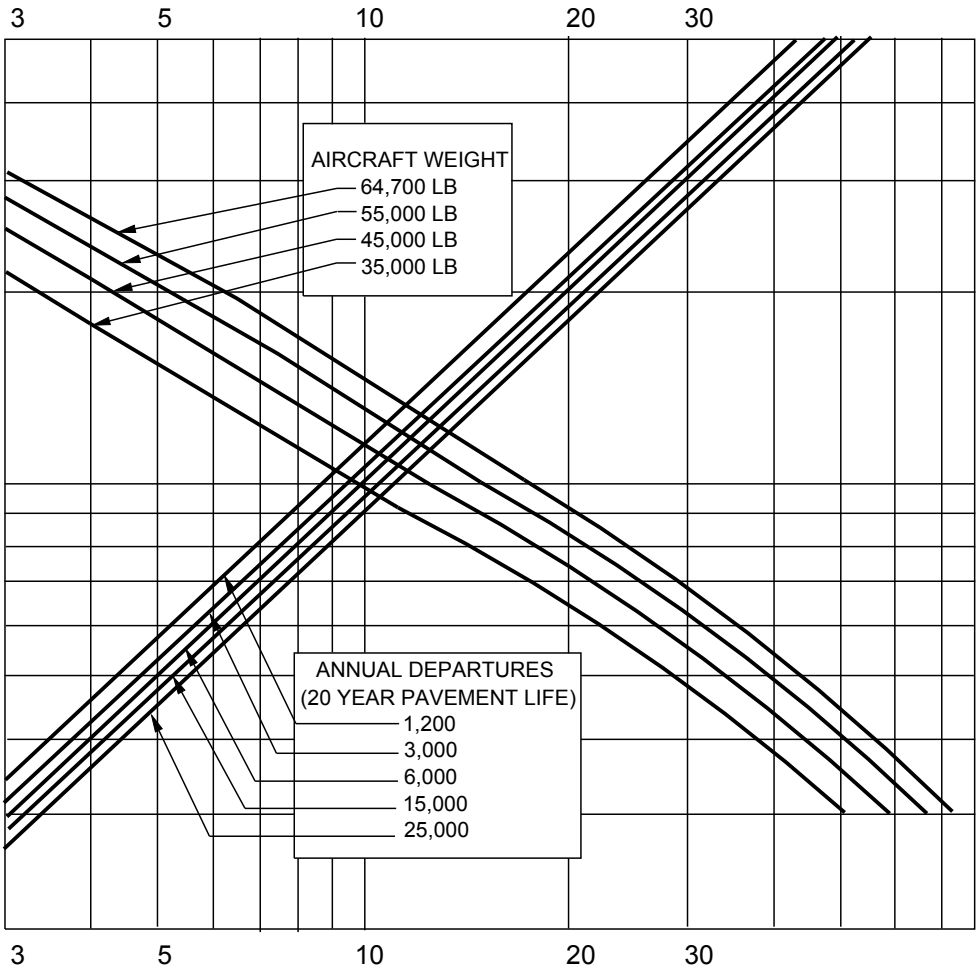
LANDING GEAR LOADING ON PAVEMENT

Figure 7 − 3

CALIFORNIA BEARING RATIO (CBR)



FLEXIBLE PAVEMENT THICKNESS (INCHES)

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.

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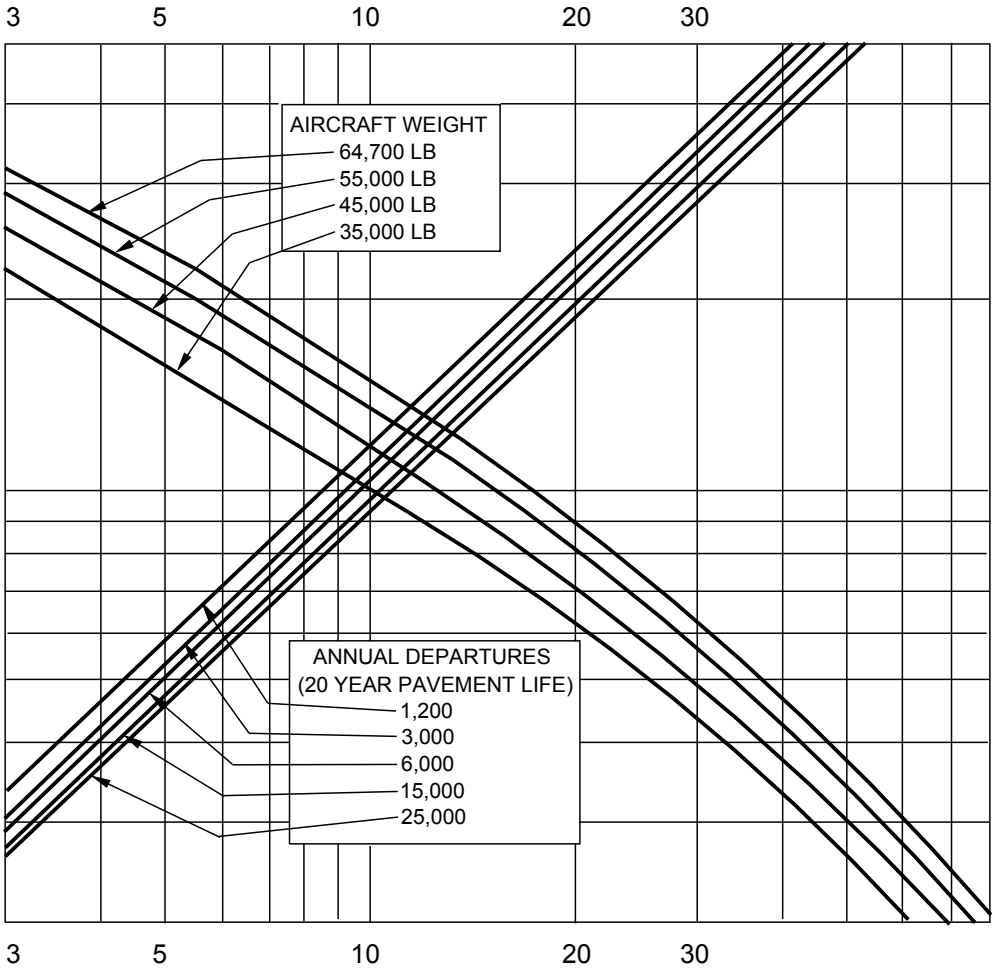
FLEXIBLE PAVEMENT REQUIREMENTS − CBR (32X8.8−16 TIRES)

Figure 7 − 4

CALIFORNIA BEARING RATIO (CBR)



FLEXIBLE PAVEMENT THICKNESS (INCHES)

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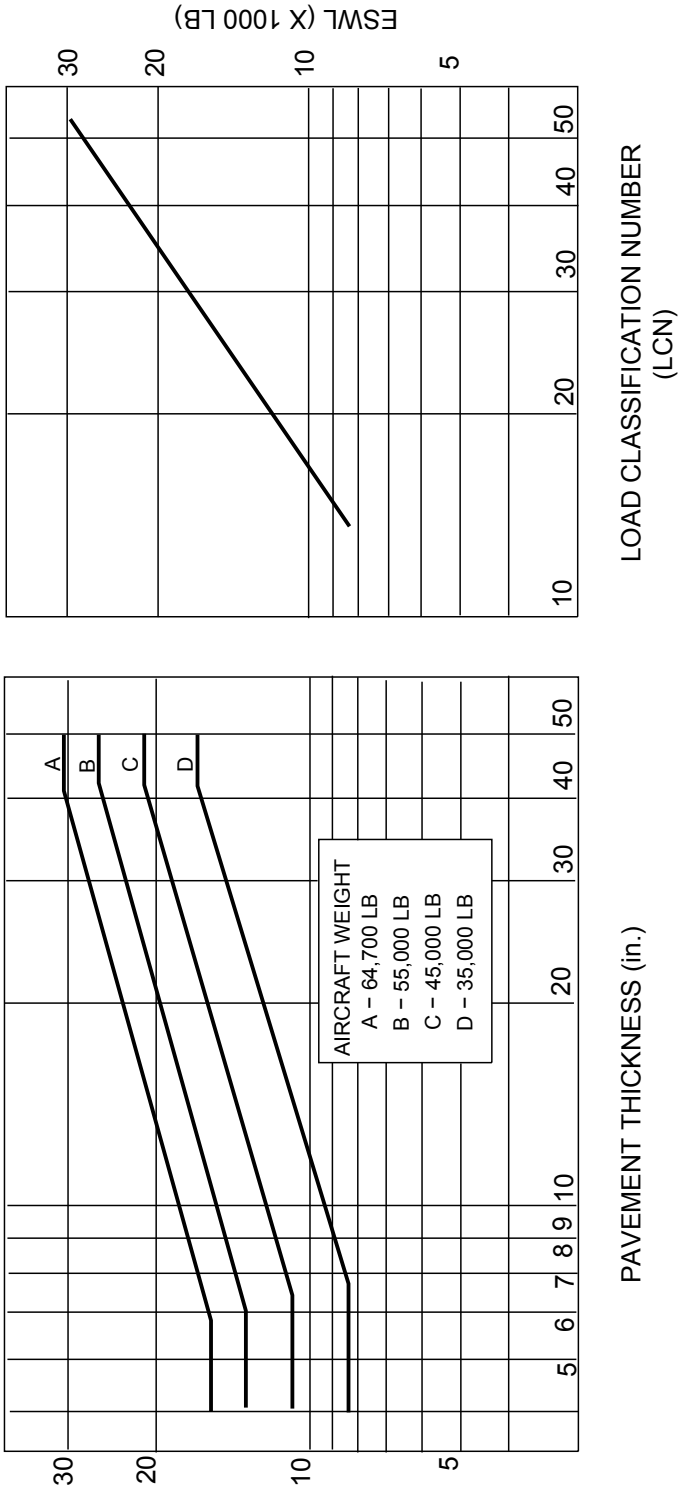
FLEXIBLE PAVEMENT REQUIREMENTS − CBR (34X10.75−16 TIRES)

Figure 7 − 5



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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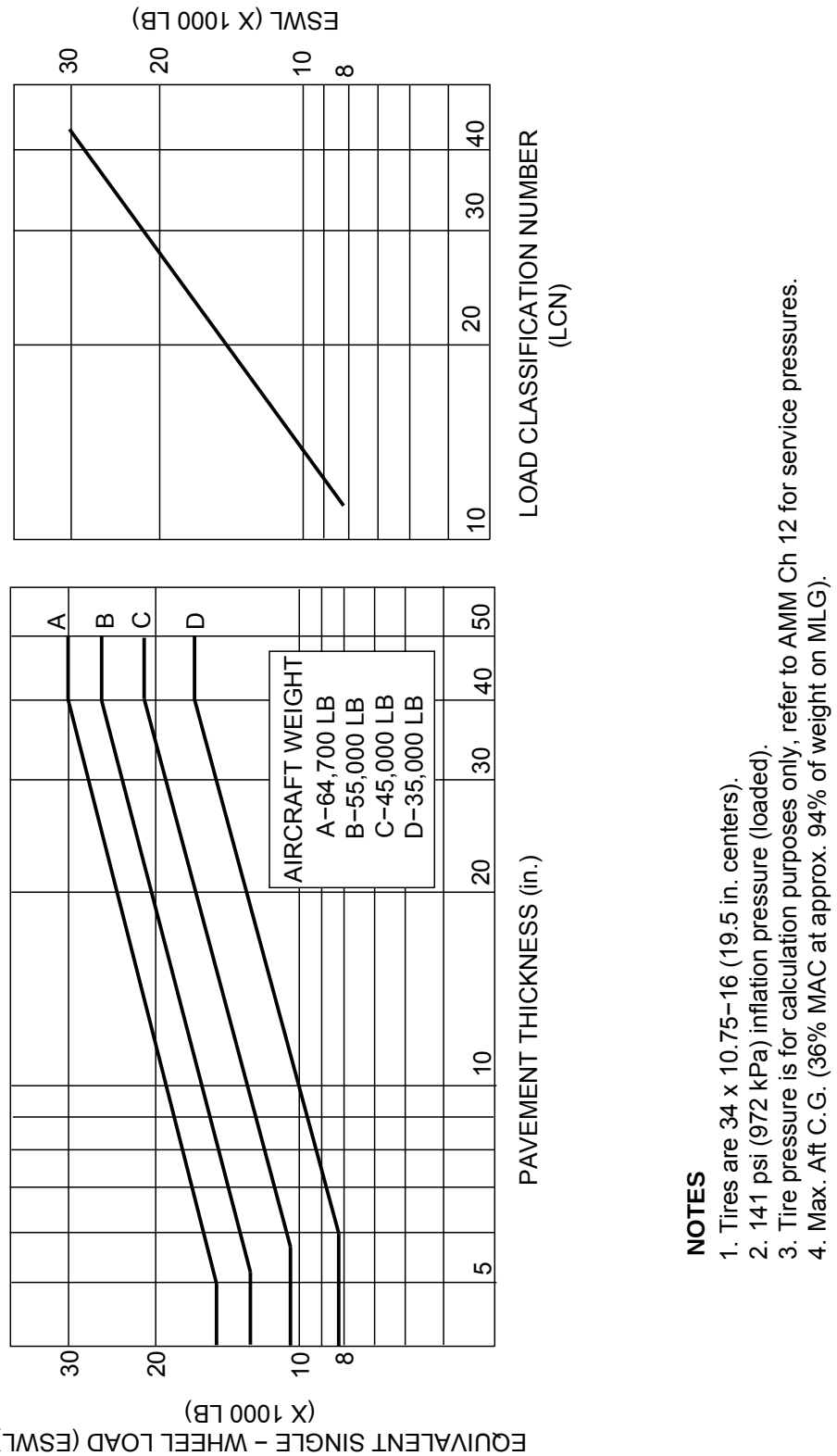
FLEXIBLE PAVEMENT REQUIREMENTS − LCN CONVERSION (32X8.8−16 TIRES)

Figure 7 − 6



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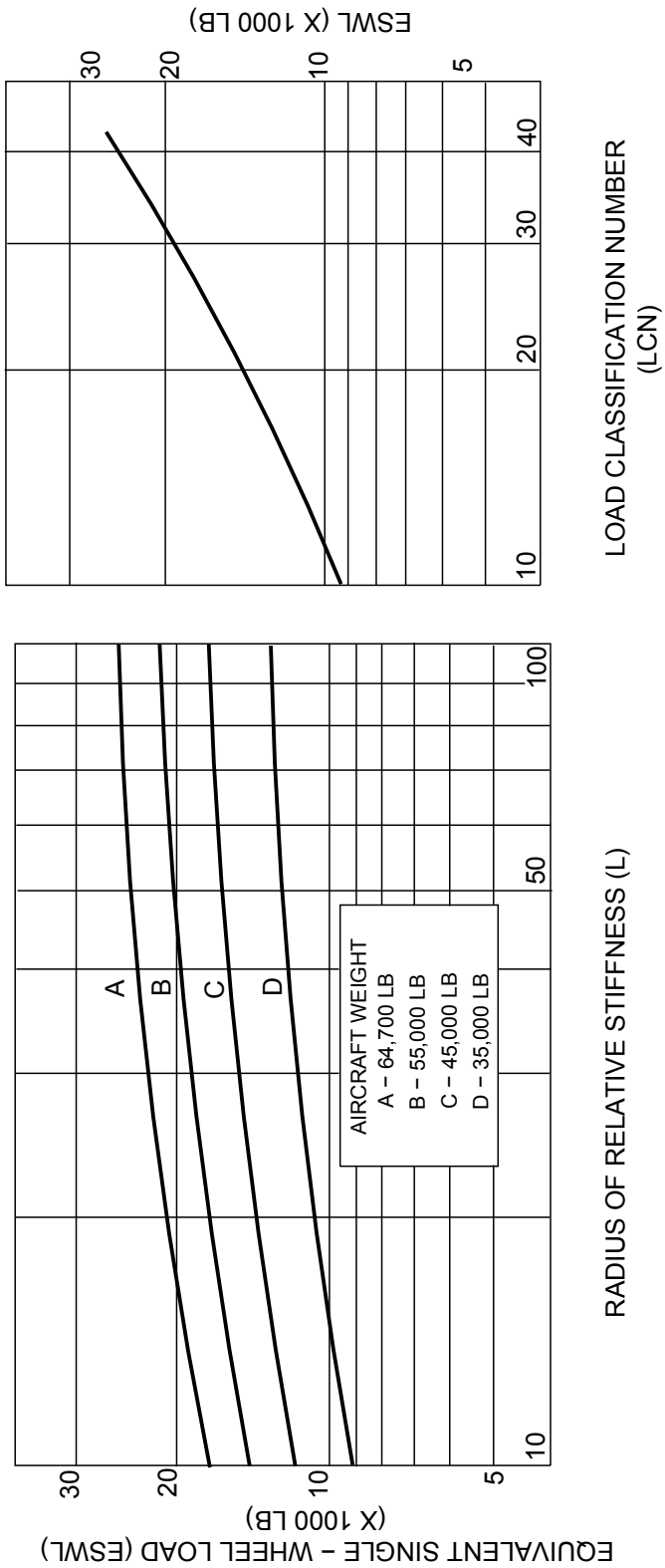
FLEXIBLE PAVEMENT REQUIREMENTS − LCN CONVERSION (34X10.75−16 TIRES)

Figure 7 − 7



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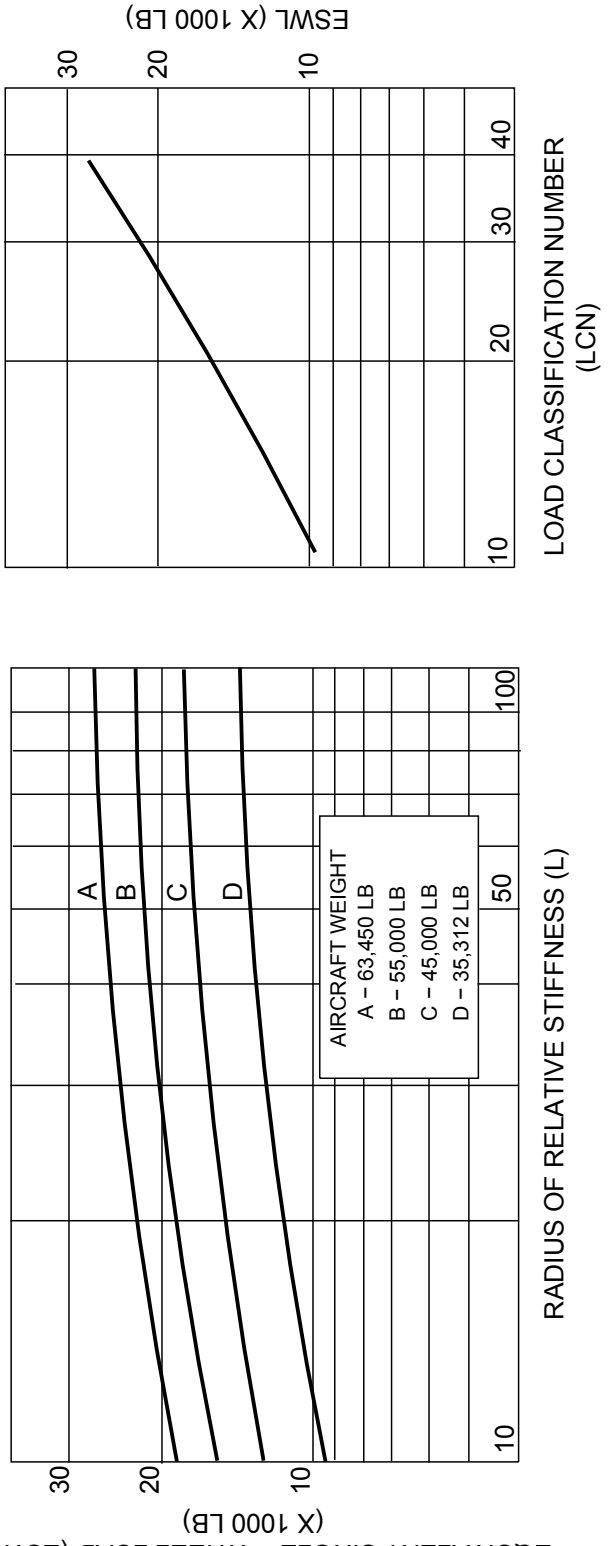
RIGID PAVEMENT REQUIREMENTS − LCN CONVERSION (32X8.8−16 TIRES)

Figure 7 − 8



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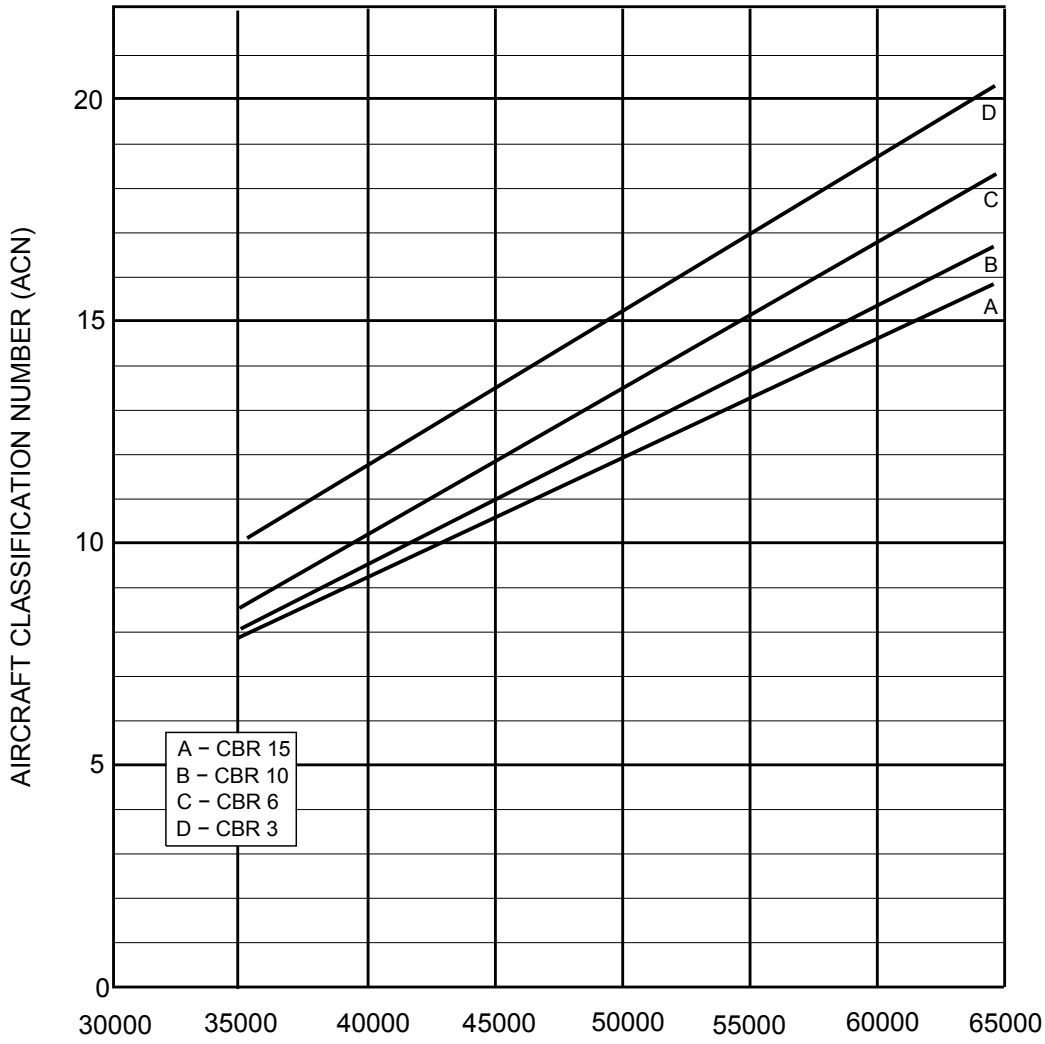
RIGID PAVEMENT REQUIREMENTS − LCN CONVERSION (34X10.75−16 TIRES)

Figure 7 − 9



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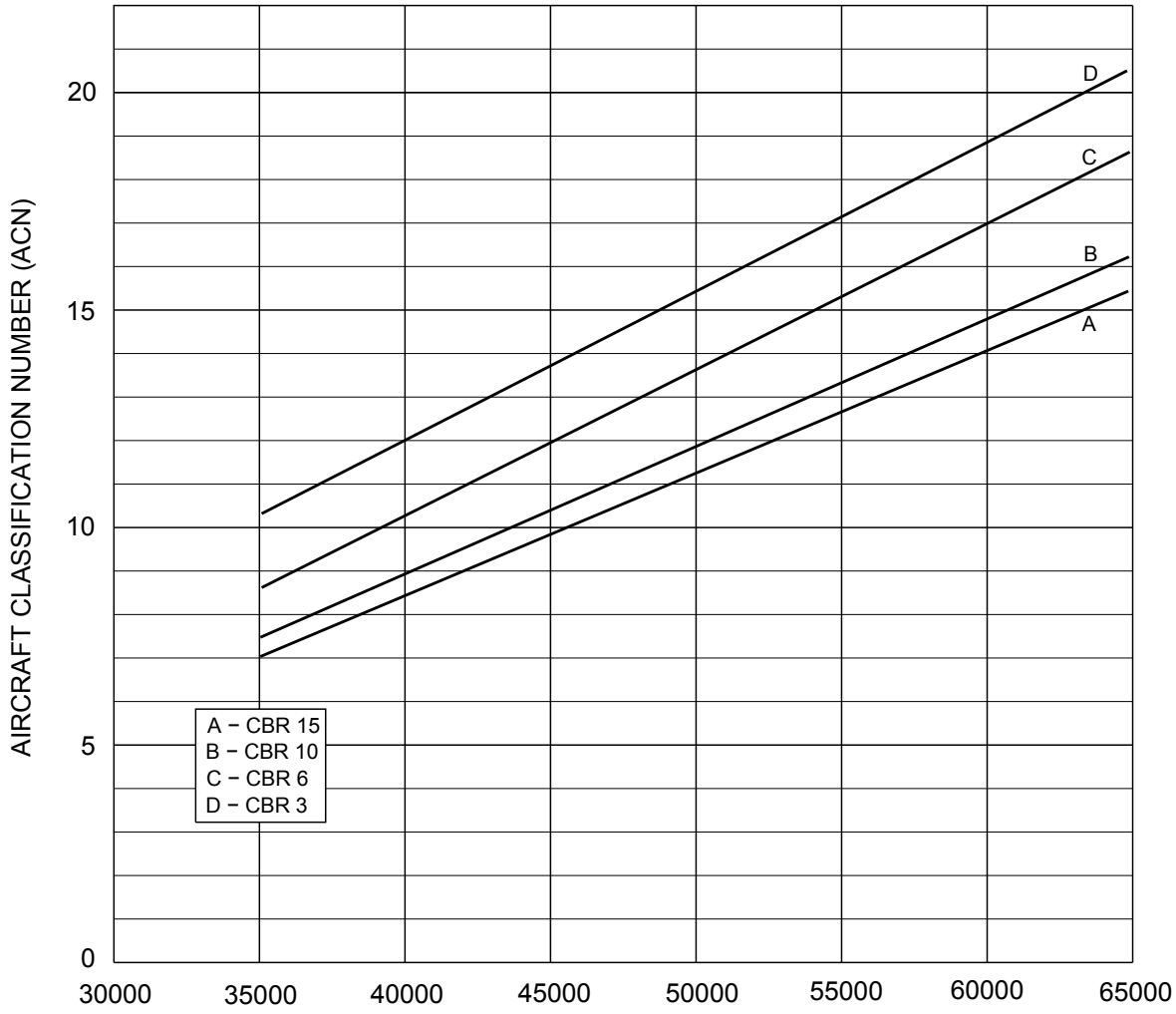
AIRCRAFT CLASSIFICATION NUMBER − FLEXIBLE PAVEMENT (32X8.8−16 TIRES)

Figure 7 − 10



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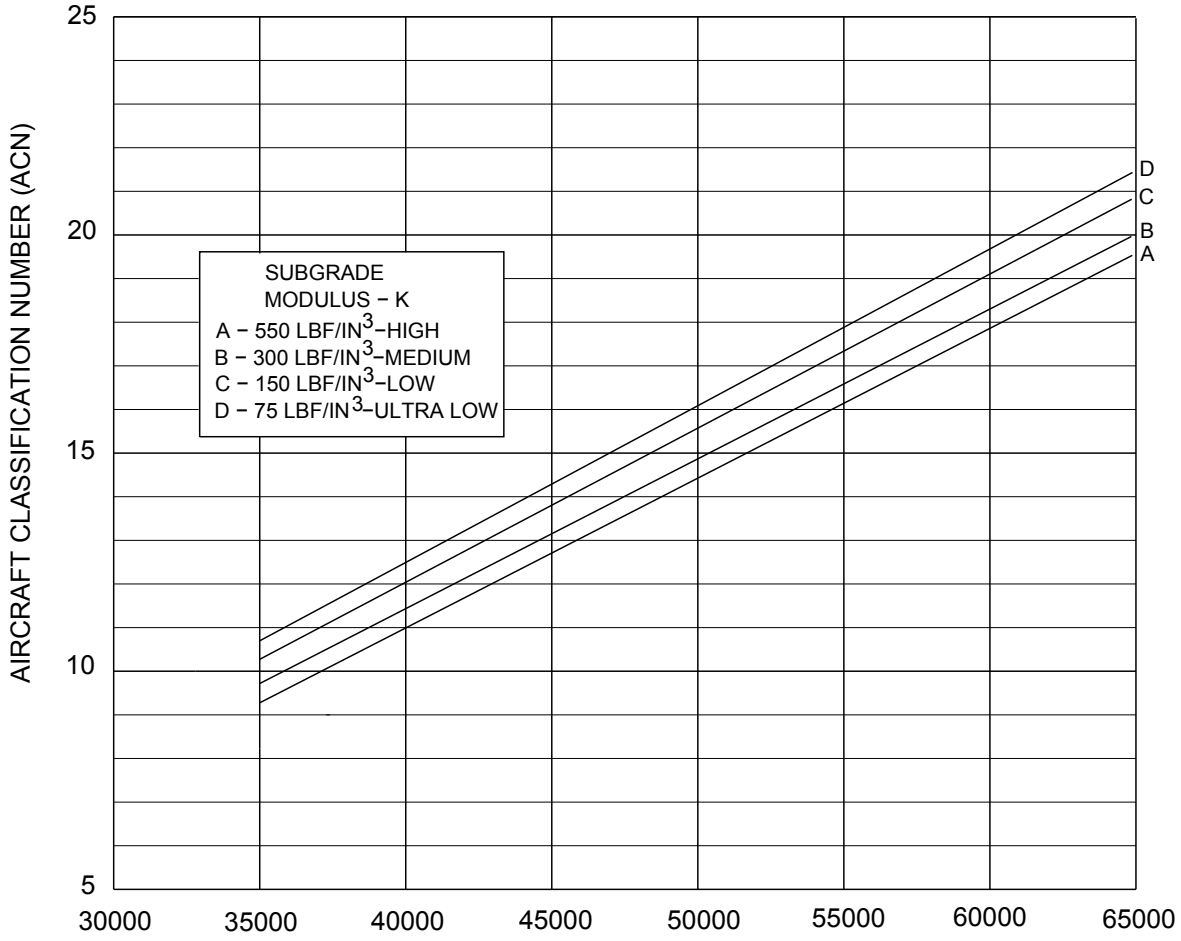
AIRCRAFT CLASSIFICATION NUMBER − FLEXIBLE PAVEMENT (34X10.75−16 TIRES)

Figure 7 − 11



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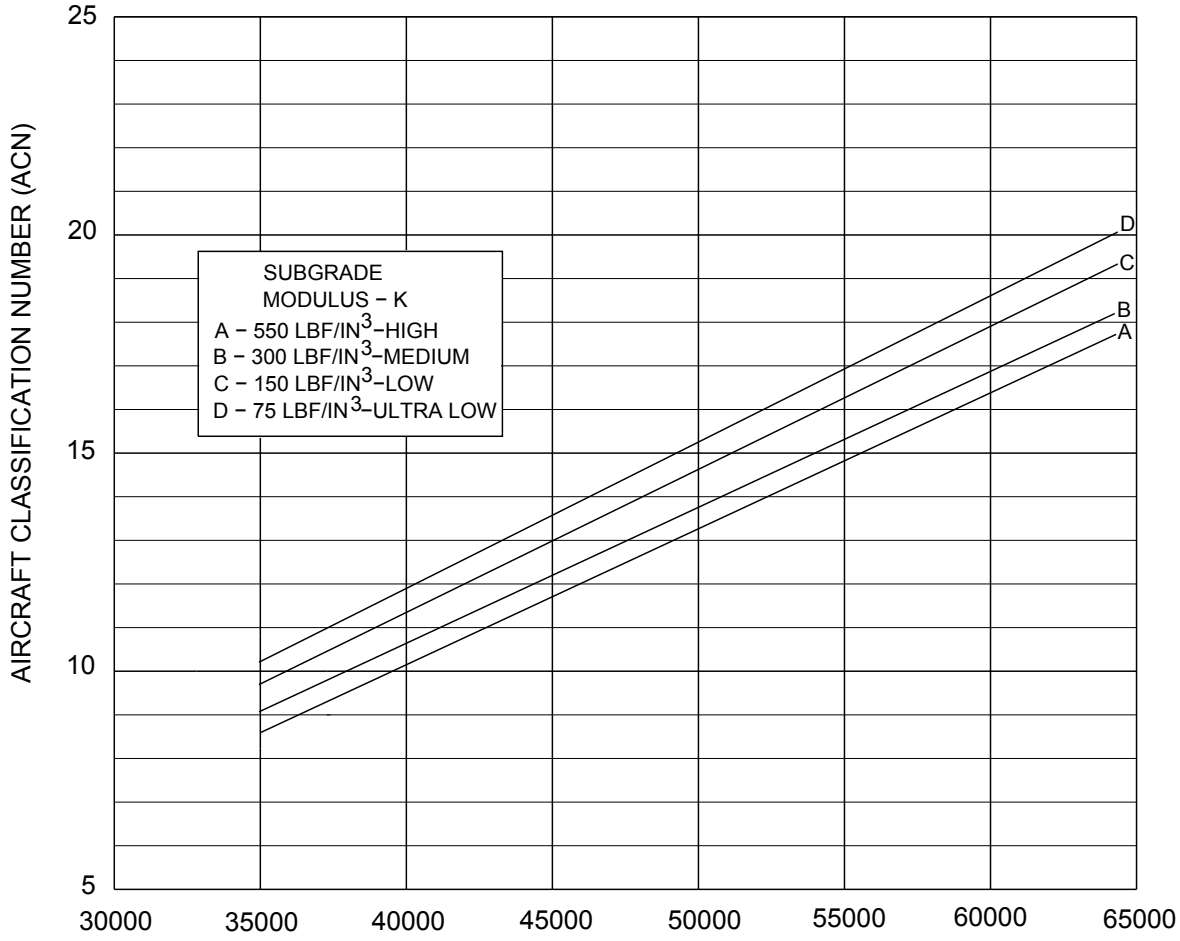
AIRCRAFT CLASSIFICATION NUMBER − RIGID PAVEMENT (32X8.8−16 TIRES)

Figure 7 − 12



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

CHAPTER 8

DERIVATIVE AIRCRAFT

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General Information

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

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CHAPTER 9

SCALED DRAWINGS OF DASH-8 SERIES 400

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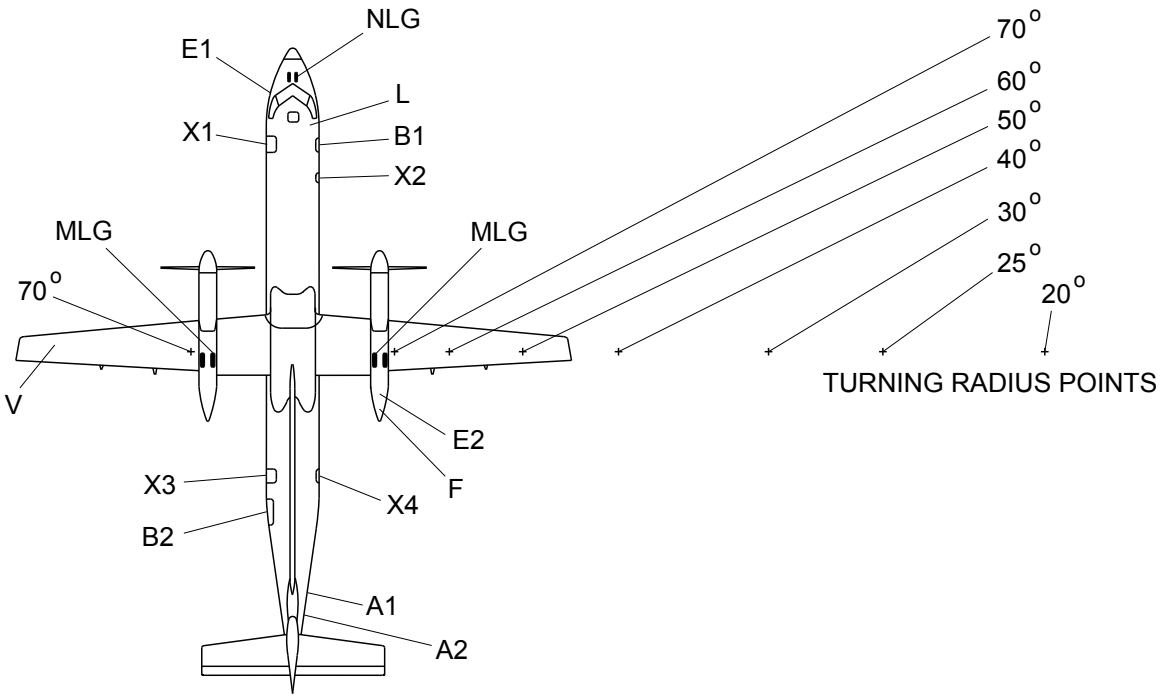
General Information

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.



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.
X4	Galley service door.
+	Turning radius points: 70°, 60°, 50°, 40°, 30°, 25°, 20°.

NOTES

△1 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

△2 Type II/III emergency exit door is de−activated for the extra capacity configuration.

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

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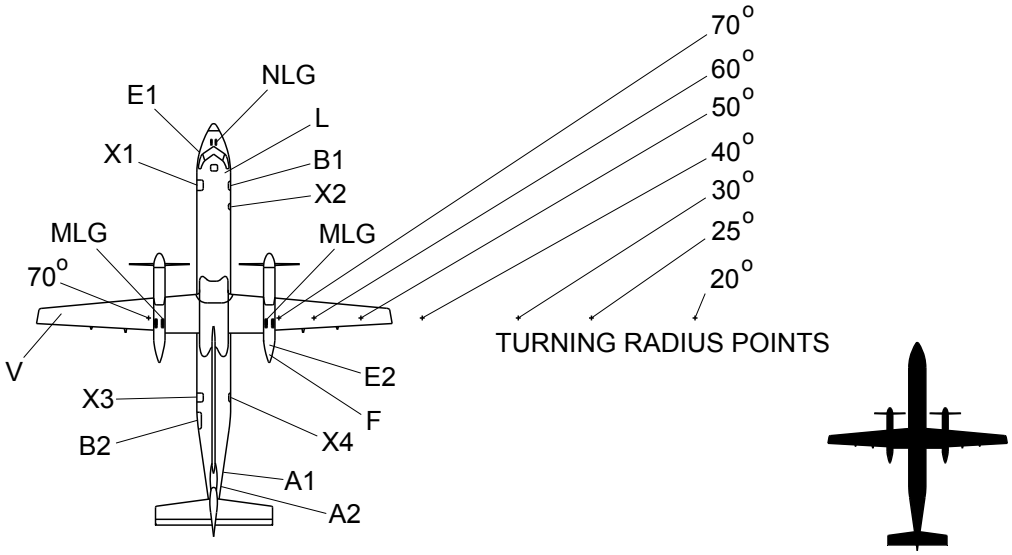
Figure 9 − 1



1 IN = 50 FT (1:600)

1 IN = 100 FT (1:1200)

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.
X4	Galley service door.
+	Turning radius points: 70°, 60°, 50°, 40°, 30°, 25°, 20°.

NOTES

1 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

2 Type II/III emergency exit door is de−activated for the extra capacity configuration.

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

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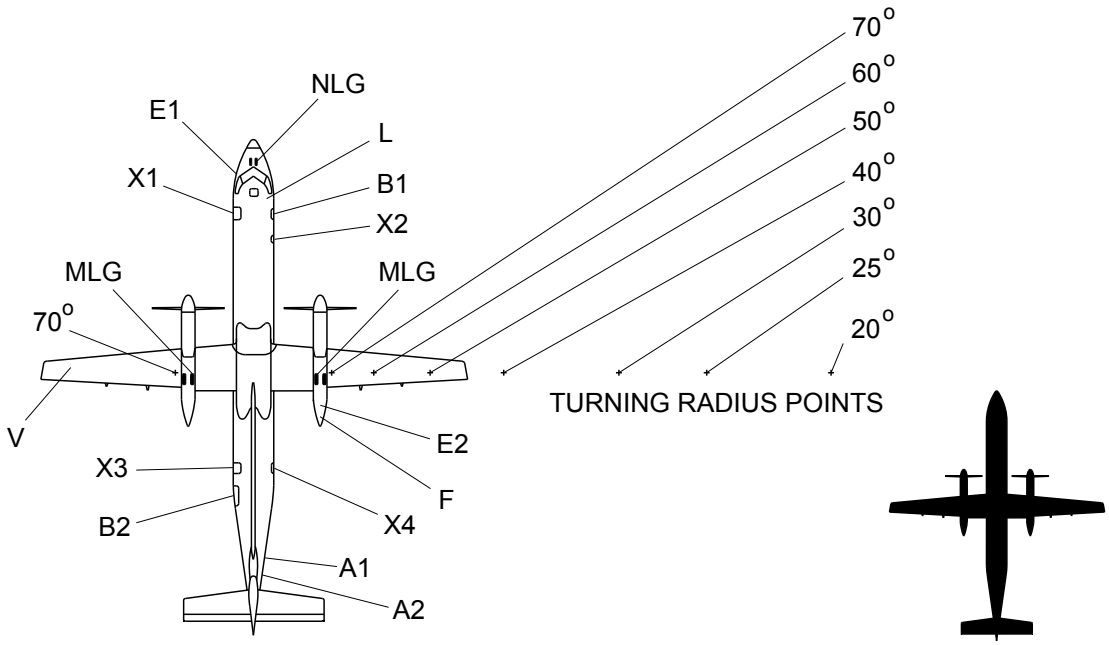
Figure 9 − 2



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.
X4	Galley service door.
+	Turning radius points: 70°, 60°, 50°, 40°, 30°, 25°, 20°.

NOTES

△1 Forward type I emergency exit door is installed only on aircraft with extra capacity configuration.

△2 Type II/III emergency exit door is de−activated for the extra capacity configuration.

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

Figure 9 − 3