CRJ SERIES Regional Jet

AIRPORT PLANNING MANUAL

TRANSMITTAL LETTER – REVISION 15

This package contains the CRJ700 Aircraft Airport Planning Manual, CSP B–020, Revision 15, dated Dec 17/2015.

THIS PAGE INTENTIONALLY LEFT BLANK

REMOVE:		INSERT:	
Chapter Section Subject	Page	Chapter Section Subject	Page
		Effective Pages	1–2
00–02–02	3–4	00–02–02	3–4
00–05–01	1	00–05–01	1
00–05–01	5	00–05–01	5
00–05–01	7	00–05–01	7
00–05–01	9–10	00–05–01	9–10
00–05–01	13	00–05–01	13

THIS PAGE INTENTIONALLY LEFT BLANK

CRJ SERIES Regional Jet

Model CL−600−2C10

Series 700

AIRPORT PLANNING MANUAL

Volume 1

CSP B−020

MASTER

BOMBARDIER INC.
BOMBARDIER AEROSPACE COMMERCIAL AIRCRAFT
CUSTOMER SUPPORT

123 GARRATT BLVD., TORONTO, ONTARIO
CANADA M3K 1Y5

BOMBARDIER

Initial Issue: May 30/1999
Revision 15: Dec 17/2015

Technical Publications

BOMBARDIER

Manual Change Request

TO: MCR FOCAL, TECHNICAL PUBLICATIONS **BOMBARDIER AEROSPACE** **123 GARRATT BLVD.** **TORONTO, ONTARIO, CANADA, M3K 1Y5** **MAIL STOP: N42–25 FAX: (416) 375–4538** **E–MAIL ADDRESS: mcrfocal@aero.bombardier.com**	**Name of Airline:** **Bombardier Reference #:** **Date:**

ALL fields marked with an asterisk * are required

Contact Information

*Name:	*Corporation Name:	*Dept Name/Code:
Address:	City:	State/Province:
Postal Code / Zip:	Country:	*Telephone:
Mobile/Cell Phone:	Fax Number:	*E–Mail:

☐ **I would like to receive notification of actions on this request.**
NOTE: Responses will only be sent by electronic mail.

Publication Information

*Aircraft Type:		*Aircraft Model:	*PSM/CSP:
*Publication Name/Revision:	*Media Type: ☐Paper ☐DVD ☐CD–ROM ☐iFly	*Chapter/Section/Subject/Task (or) Page Block/Page Number:	
Originator's reference number:		Impact on other programs:	

*Description of Change Request:

Reason for change:

Reference data provided: ☐ Yes ☐ No Description:

NOTE: Electronic submissions of MCRs are available on **www.iflybombardier.com**

Oct 04/2013

Technical Publications

BOMBARDIER

Manual Change Request

TO: **MCR FOCAL, TECHNICAL PUBLICATIONS** **BOMBARDIER AEROSPACE** **123 GARRATT BLVD.** **TORONTO, ONTARIO, CANADA, M3K 1Y5** **MAIL STOP: N42–25 FAX: (416) 375–4538** **E–MAIL ADDRESS: mcrfocal@aero.bombardier.com**	**Name of Airline:** **Bombardier Reference #:** **Date:**

ALL fields marked with an asterisk * are required

Contact Information

*Name:	*Corporation Name:	*Dept Name/Code:
Address:	City:	State/Province:
Postal Code / Zip:	Country:	*Telephone:
Mobile/Cell Phone:	Fax Number:	*E–Mail:

☐ **I would like to receive notification of actions on this request.**
NOTE: Responses will only be sent by electronic mail.

Publication Information

*Aircraft Type:	*Aircraft Model:	*PSM/CSP:

*Publication Name/Revision:	*Media Type: ☐Paper ☐DVD ☐CD–ROM ☐iFly	*Chapter/Section/Subject/Task (or) Page Block/Page Number:

Originator's reference number:	Impact on other programs:

*Description of Change Request:

Reason for change:

Reference data provided: ☐ Yes ☐ No Description:

NOTE: Electronic submissions of MCRs are available on **www.iflybombardier.com**

Oct 04/2013

Technical Publications

BOMBARDIER

Manual Change Request

TO: MCR FOCAL, TECHNICAL PUBLICATIONS **BOMBARDIER AEROSPACE** **123 GARRATT BLVD.** **TORONTO, ONTARIO, CANADA, M3K 1Y5** **MAIL STOP: N42–25 FAX: (416) 375–4538** **E–MAIL ADDRESS: mcrfocal@aero.bombardier.com**	**Name of Airline:** **Bombardier Reference #:** **Date:**

ALL fields marked with an asterisk * are required

Contact Information

*Name:	*Corporation Name:	*Dept Name/Code:
Address:	City:	State/Province:
Postal Code / Zip:	Country:	*Telephone:
Mobile/Cell Phone:	Fax Number:	*E–Mail:

☐ **I would like to receive notification of actions on this request.**
NOTE: Responses will only be sent by electronic mail.

Publication Information

*Aircraft Type:	*Aircraft Model:	*PSM/CSP:
*Publication Name/Revision:	*Media Type: ☐Paper ☐DVD ☐CD–ROM ☐iFly	*Chapter/Section/Subject/Task (or) Page Block/Page Number:
Originator's reference number:		Impact on other programs:

*Description of Change Request:

Reason for change:

Reference data provided: ☐ Yes ☐ No Description:

NOTE: Electronic submissions of MCRs are available on **www.iflybombardier.com**

Oct 04/2013

AIRPORT PLANNING MANUAL

RECORD OF REVISIONS

Record the date you insert and remove each Revision in your manual.

REV. NO.	ISSUE DATE	DATE INSERTED	INSERTED BY
Rev. 1	Aug 31/2000	Dec 05/2005	BCSG
Rev. 2	Never Issued	Dec 05/2005	BCSG
Rev. 3	Oct 15/2001	Dec 05/2005	BCSG
Rev. 4	Apr 15/2002	Dec 05/2005	BCSG
Rev. 5	Feb 15/2004	Dec 05/2005	BCSG
Rev. 6	Mar 20/2009	Mar 20/2009	BCSG
Rev.7	Jul 20/2009	Jul 20/2009	BCSG
Rev. 8	May 20/2010	May 20/2010	BCSG
Rev. 9	Dec 20/2010	Dec 20/2010	BCSG
Rev. 10	Apr 20/2011	Apr 20/2011	BCSG
Rev. 11	Dec 21/2011	Dec 21/2011	BCSG
Rev. 12	Dec 19/2012	Dec 19/2012	BCSG
Rev. 13	Dec 18/2013	Dec 18/2013	BCSG
Rev. 14	Dec 18/2014	Dec 18/2014	BCSG
Rev. 15	Dec 17/2015	Dec 17/2015	BCSG

REV. NO.	ISSUE DATE	DATE INSERTED	INSERTED BY

BCSG: Bombardier Customer Service Group

REV. NO.	ISSUE DATE	DATE INSERTED	INSERTED BY	REV. NO.	ISSUE DATE	DATE INSERTED	INSERTED BY

BCSG: Bombardier Customer Service Group

AIRPORT PLANNING MANUAL

LIST OF EFFECTIVE PAGES

* The asterisk indicates pages changed, added or deleted.

Chapter Section Subject	Page		Date
	3		May 20/2010
	4		May 20/2010
00–04–01	1		May 20/2010
	2		May 20/2010
	3		May 20/2010
	4		May 20/2010
00–04–02	1		May 20/2010
	2		May 20/2010
00–04–03	1		May 20/2010
	2		Dec 19/2012
	3		Dec 19/2012
	4		May 20/2010
	5		May 20/2010
	6		May 20/2010
00–05–01	1	*	Dec 17/2015
	2		May 20/2010
	3		May 20/2010
	4		Dec 18/2014
	5	*	Dec 17/2015
	6		Dec 18/2014
	7	*	Dec 17/2015
	8		Dec 18/2014
	9	*	Dec 17/2015
	10	*	Dec 17/2015
	11		Dec 18/2014
	12		Dec 18/2014
	13	*	Dec 17/2015
00–06–01	1		May 20/2010
	2		May 20/2010
	3		May 20/2010
	4		May 20/2010
00–07–01	1		Dec 20/2010
	2		Dec 20/2010
	3		May 20/2010
	4		May 20/2010
	5		May 20/2010
	6		Dec 20/2010
	7		Dec 20/2010
	8		Dec 20/2010
	9		Dec 20/2010
	10		Dec 20/2010
00–08–01	1		May 20/2010
00–09–01	1		May 20/2010
	2		May 20/2010
	3		May 20/2010

* The asterisk indicates pages changed, added or deleted.

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

**ON A/C ALL

INTRODUCTION

1. General

A. The Airport Planning Manual (APM), prepared by Bombardier Aerospace, contains general data on the airport facilities, ramp, and runway areas necessary to operate the Canadair Regional Jet (CRJ) Model CL–600–2C10 aircraft. This manual agrees with the Air Transportation Association of America Specification No. 100 (ATA 100), Revision 34 dated February 15, 1996 and is written in Simplified English.

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

C. If there is a difference between the data contained in this manual and that given by the local Regulatory Authority, the data from the Regulatory Authority must be obeyed.

2. Manual Organization

A. The APM contains the sections that follow:

- Section 01: Introduction
- Section 02: Aircraft Description
- Section 03: Aircraft Performance
- Section 04: Ground Maneuvering
- Section 05: Terminal Servicing
- Section 06: Operating Conditions
- Section 07: Pavement Data
- Section 08: Derivative Aircraft
- Section 09: Scaled Drawings

3. Dimensions

A. Linear dimensions given in this manual are in inches with the metric equivalents in parentheses ().

4. Correspondence

A. Send all correspondence about this manual to:

Bombardier Inc.
Bombardier Aerospace Commercial Aircraft
Customer Support
Mailbox Stop N42−25
123 Garratt Blvd., Toronto
Ontario, Canada
M3K 1Y5

Attention: Director, Technical Publications

5. Translation of Manual

A. If all or part of this publication is translated, the official version is the English language version by Bombardier Aerospace Regional Aircraft.

6. Standard Term Definitions

A. The definitions that follow are used throughout the APM:

Maximum Design Taxi Weight (MTW). Maximum weight at which an aircraft can move safely on the ground. This includes the fuel for these displacements and the takeoff run.

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

Maximum Design Take−Off Weight (MLOW). Maximum weight for takoff as limited by aircraft strength and airworthiness requirements. (This includes weight of fuel for taxi and run−up.)

Operational Weight Empty (OWE). Weight of structure, power plant, furnishings, systems, unusable fuel and other items of equipment that are a necessary part of a particular aircraft configuration. Also included are certain standard items, personnel, equipment and supplies necessary for full operations, but does not include usable fuel or payload.

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

Maximum Payload. Maximum design zero weight (MLOW) minus operational weight empty (OWE).

Maximum Cargo Volume. The maximum space available for cargo.

Maximum Seating Capacity. The maximum number of passengers permitted based on certification requirements.

Usable Fuel. Fuel available for aircraft propulsion and the APU.

7. Acronyms

A.

The acronyms that follow are used in the APM:

CGFS	Center of Gravity at Fuselage Station
FBO	Fixed Base Operator
ISA	International Standard Atmosphere
MLW	Maximum Landing Weight
MTOW	Maximum Take–Off Weight
MFW	Maximum Flight Weight
MRW	Maximum Ramp Weight
MZFW	Maximum Zero Fuel Weight
OWE	Operating Weight Empty
VM	Weight on Main Gear
VN	Weight on Nose Gear

THIS PAGE INTENTIONALLY LEFT BLANK

AIRCRAFT DESCRIPTION

1. Introduction

This section contains general description data about the aircraft. This section is divided into the subsections that follow:

– Aircraft characteristics

– Aircraft dimensions

– Interior configurations

– Door clearances

– Cargo compartment configurations.

2. Aircraft Characteristics

A. This section contains general data about the CRJ700 aircraft characteristics.

B. The structural weight limits, such as maximum ramp weight, and zero fuel weight are dependent on configuration. Refer to each aircraft's specified Weight and Balance Manual (CSP B–041) and Weight and Balance Report for structural limits and other weight information.

C. Refer to Table 1 for the general aircraft characteristics.

D. Refer to Table 2 for the system fluid capacities.

E. Refer to Table 3 for the service fluid capacities.

Table 1 – Aircraft Characteristics

Description	Model CL–600–2C10
Engines	QTY: 2 GE CF34–8C5 Turbofan checked
Mode	Passenger
Maximum Seating Capacity	70
Maximum Ramp Weight (MRW)	73000 lb (33112 kg)
Maximum Take–Off Weight (MTOW)	72750 lb (32999 kg)

Description	Model CL–600–2C10
Maximum Landing Weight (MTLW)	67000 lb (30390 kg)
Minimum Flight Weight (MFW)	42000 lb (19051 kg)
Maximum Zero Fuel Weight (MZFW)	62300 lb (28259 kg)
Maximum Fuel Tank Capacity	2903 US gal (10989 L) 19595 lb (8888 kg)[1]
Unusable Fuel	33.8 US gal (127.95 L) 228.2 lb (103.5 kg)[1]
Maximum Cargo Volume – Aft Baggage Compartment	437.5 pi³ (12.39 m³)[2]
Maximum Cargo Volume – Forward Under Floor Baggage	109.0 pi³ (3.09 m³)[2]
Maximum Cargo Volume – Under–seat storage	126.0 pi³ (3.57 m³)[2]
Maximum Cargo Volume – Overhead bins	114.06 pi³ (3.23 m³)[2]
[1] Weight is calculated with a fuel density of 6.75 lb/US gal (0.809 kg/L). [2] Cargo volume can be changed to agree with different interior configurations.	

Table 2 – System Fluid Capacities

Description	Volume	Weight
APU and Engine Fluids Calculated with 7.5 lb/US gal (0.898 kg/L)		
Engines Oil Tank @ 60 °F	5.2 US gal (19.68 L)	42.4 lb (19.2 kg)
Oil Replenisment Tank	1.6 US gal (6.06 L)	13.0 lb (5.9 kg)
Lines and Internal Engine Oil	0.9 US gal (3.41 L)	7.5 lb (3.4 kg)
Total	7.7 US gal (29.15 L)	62.9 lb (28.5 kg)
Hydraulic Fluids @ 77°F (25 °C) Low Density 8.43 lb/US gal (1.01 kg/L)		
System 1 Reservoir	0.7 US gal (2.65 L)	6.2 lb (2.8 kg)
System 2 Reservoir	1.0 US gal (3.79 L)	8.0 lb (3.6 kg)

Description	Volume	Weight
System 3 Reservoir	0.8 US gal (3.03 L)	6.6 lb (3.0 kg)
Total	2.5 US gal (9.46 L)	20.8 lb (9.4 kg)
Hydraulic Fluids @ 77°F (25 °C) High Density 8.86 lb/US gal (1.06 kg/L)		
System 1 Reservoir	0.7 US gal (2.65 L)	6.5 lb (2.9 kg)
System 2 Reservoir	1.0 US gal (3.79 L)	8.4 lb (3.8 kg)
System 3 Reservoir	0.8 US gal (3.03 L)	6.9 lb (3.1 kg)
Total	2.5 US gal (9.46 L)	21.8 (9.8 kg)

Table 3 – Service Fluid Capacities

Description	Volume	Weight
Potable Water @ 60 °F (15.5 °C)		
Forward Galley/Lavatory Tank	11.0 US gal (41.64 L)	91.7 lb (41.6 kg)
Aft Lavatory Tank	10 US gal (37.85 L)	83.4 lb (37.9 kg)
Chemical Toilet Fluid @ 60 °F (15.5 °C)		
Forward or Aft Toilet Tank	2.3 US gal (8.71 L)	19.2 lb (8.7 kg)

THIS PAGE INTENTIONALLY LEFT BLANK

DIMENSIONS

1. General

A. This section contains general data about the aircraft dimensions and clearances.

B. Refer to Table 1 and Figures 1, 2, and 3 for the aircraft dimensions and clearances.

C. Refer to Table 2 for the landing gear dimensions.

D. Refer to Table 3 and Figure 4 for the door dimensions and clearances.

Table 1 – General Aircraft Dimensions and Areas

DESCRIPTION	VALUE
Total Aircraft Length	1273.2 in. (32.3 m)
Total Aircraft Height	295.71 in. (7.51 m)
Total Wing Span	915.2 in. (23.25 m)
Total Horizontal Stabilizer Span	336.4 in. (8.54 m)
Fuselage External Diameter	105.96 in. (2.69 m)
Fuselage Length	1168.5 in. (29.68 m)
Static Ground Angle (Nominal)	1.8 degrees
Total Wing Area	760 ft.^{2} (70.61 m^2)
Total Horizontal Stabilizer Area	171.40 ft^2 (15.91 m^2)
Total Vertical Stabilizer Area	119.36 ft.^{2} (11.09 m^2)

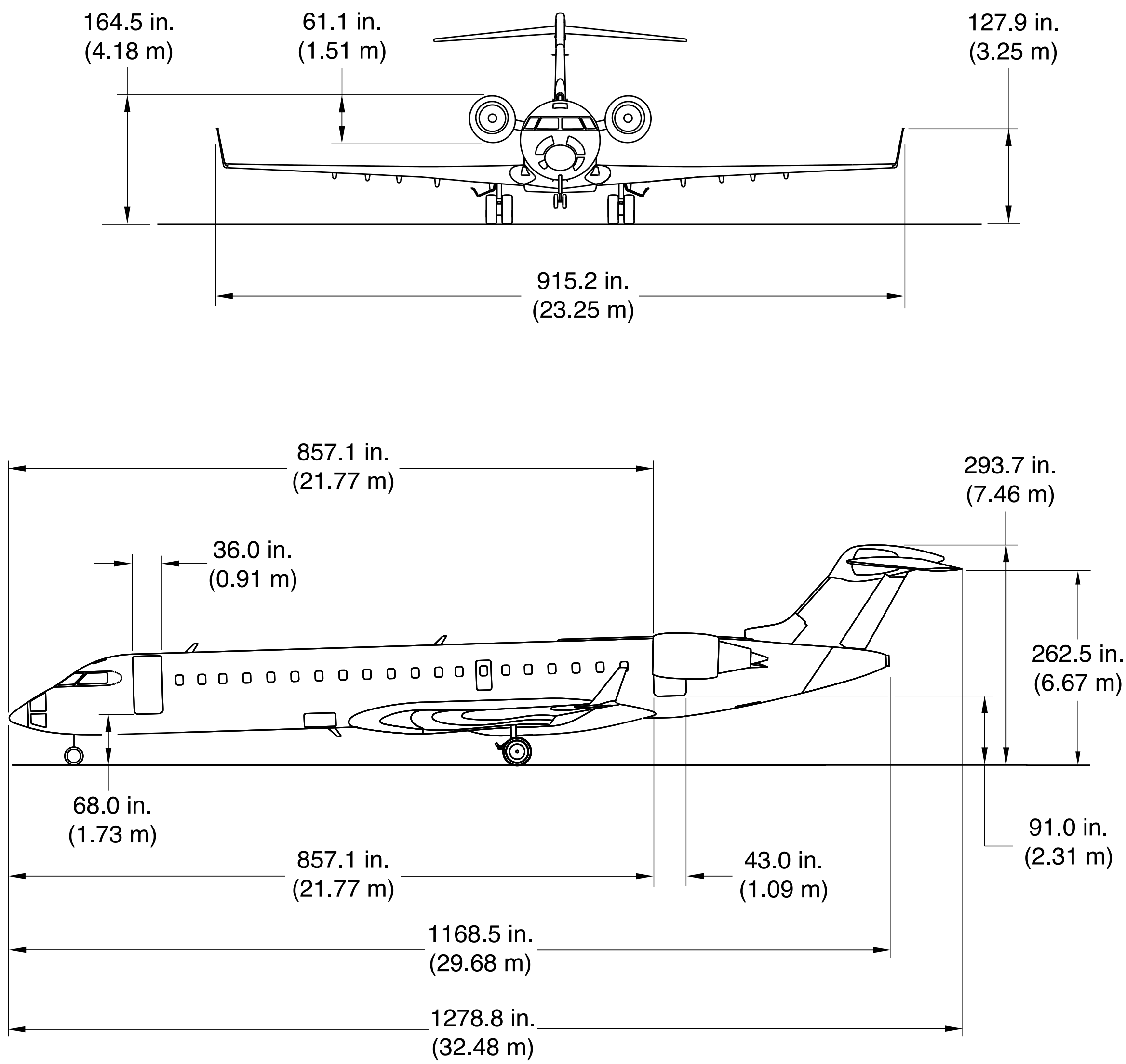
Table 2 – Landing Gear Dimensions

LANDING GEARS	MAIN	NOSE
Tire Dimensions	H36 x 12.0 –18 18 PR	H20.5 x 6.75 –10 12 PR
Wheel Size	18.0 in. (0.46 m)	10.0 in. (0.25 m)
Wheel Base (max)	590.9 in. (15.01 m)	N/A

LANDING GEARS	MAIN	NOSE
Track	162.2 in. (4.12 m)	N/A

Table 3 – Door Dimensions

DOOR	HEIGHT	WIDTH
Passenger Door	5 ft 10 in. (1.78 m)	3 ft. (0.91 m)
Service Door	4 ft. (1.22 m)	2 ft. (0.61 m)
Aft Baggage Door	2 ft. 9in. (0.84 m)	3 ft. 7 in. (1.09 m)
Under−Floor Baggage Door	1 ft. 8 in. (0.51 m)	3 ft. 6 in. (1.07 m)
Type III Over−Wing Exit Door	3 ft 2 in. (0.97 m)	1 ft. 8 in. (0.51 m)
Crew Escape Hatch	19.6 in. (0.50 m)	18.6 in. (0.47 m)

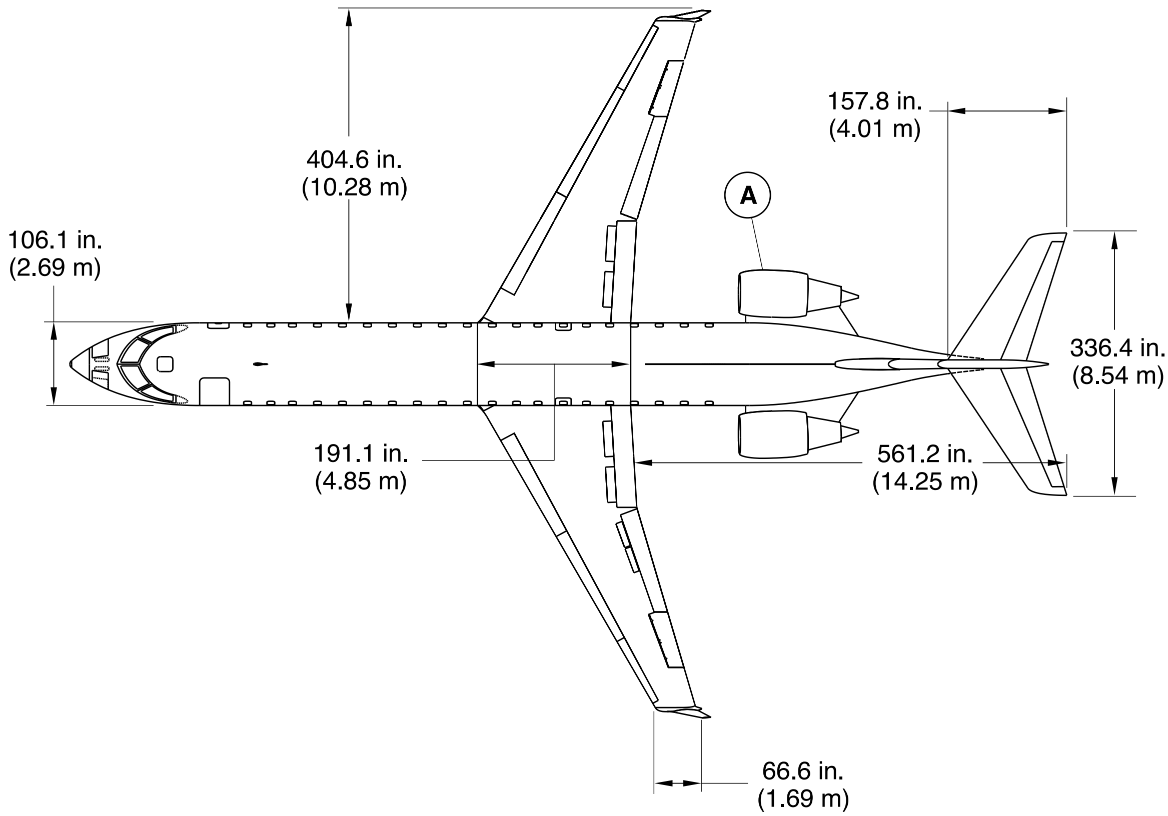


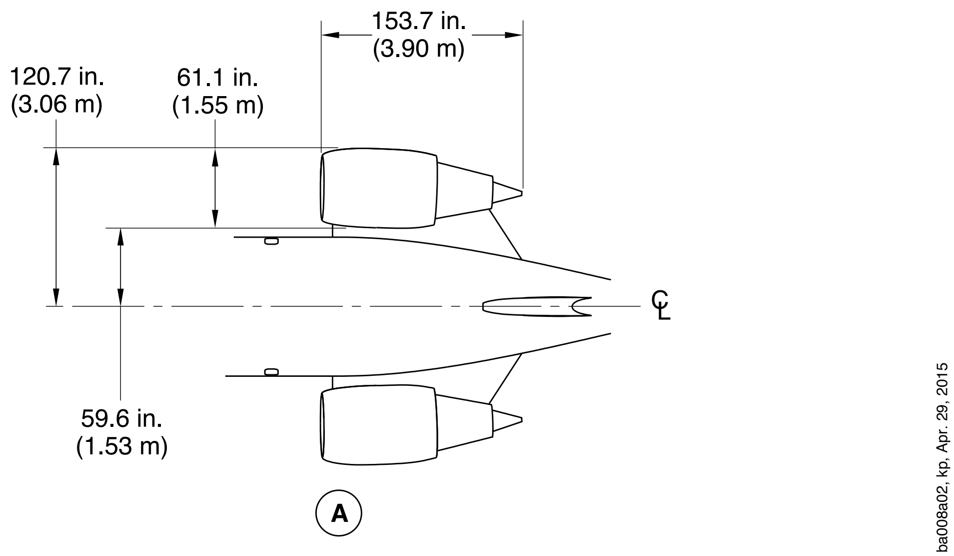
NOTE

Average clearance. Ground clearance depends on aircraft weight and center of gravity.

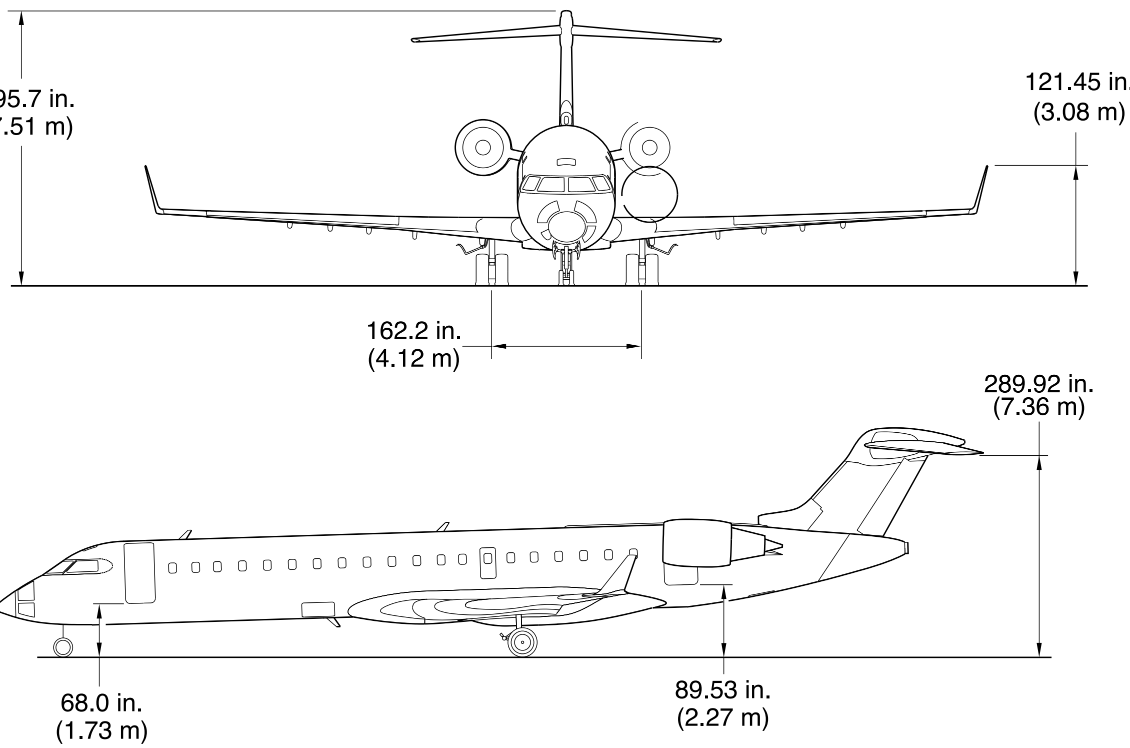
ba008a01, kp, Apr. 29, 2015

Aircraft Dimensions
Figure 1 (Sheet 1 of 2)





Aircraft Dimensions
Figure 1 (Sheet 2 of 2)

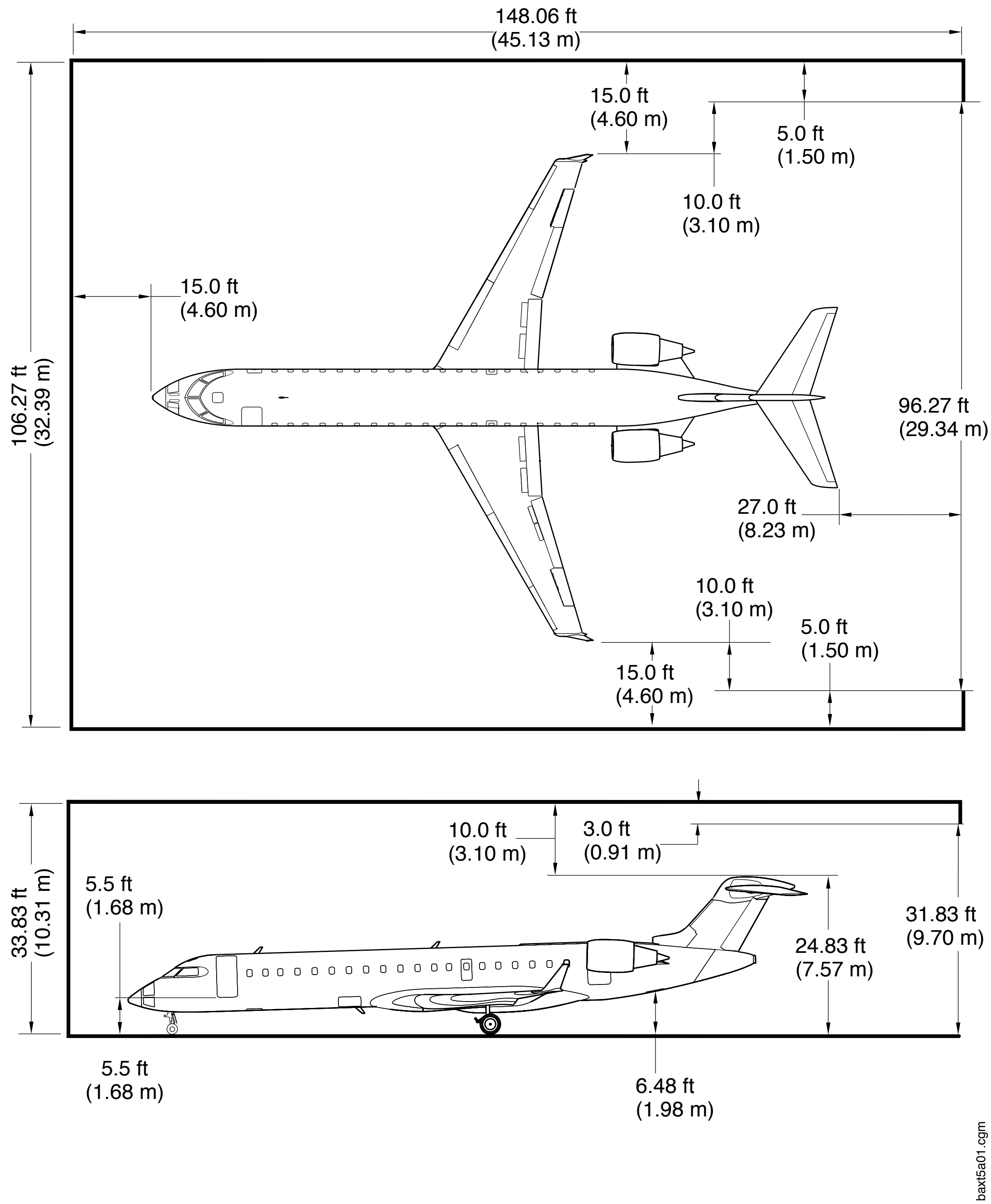


NOTE

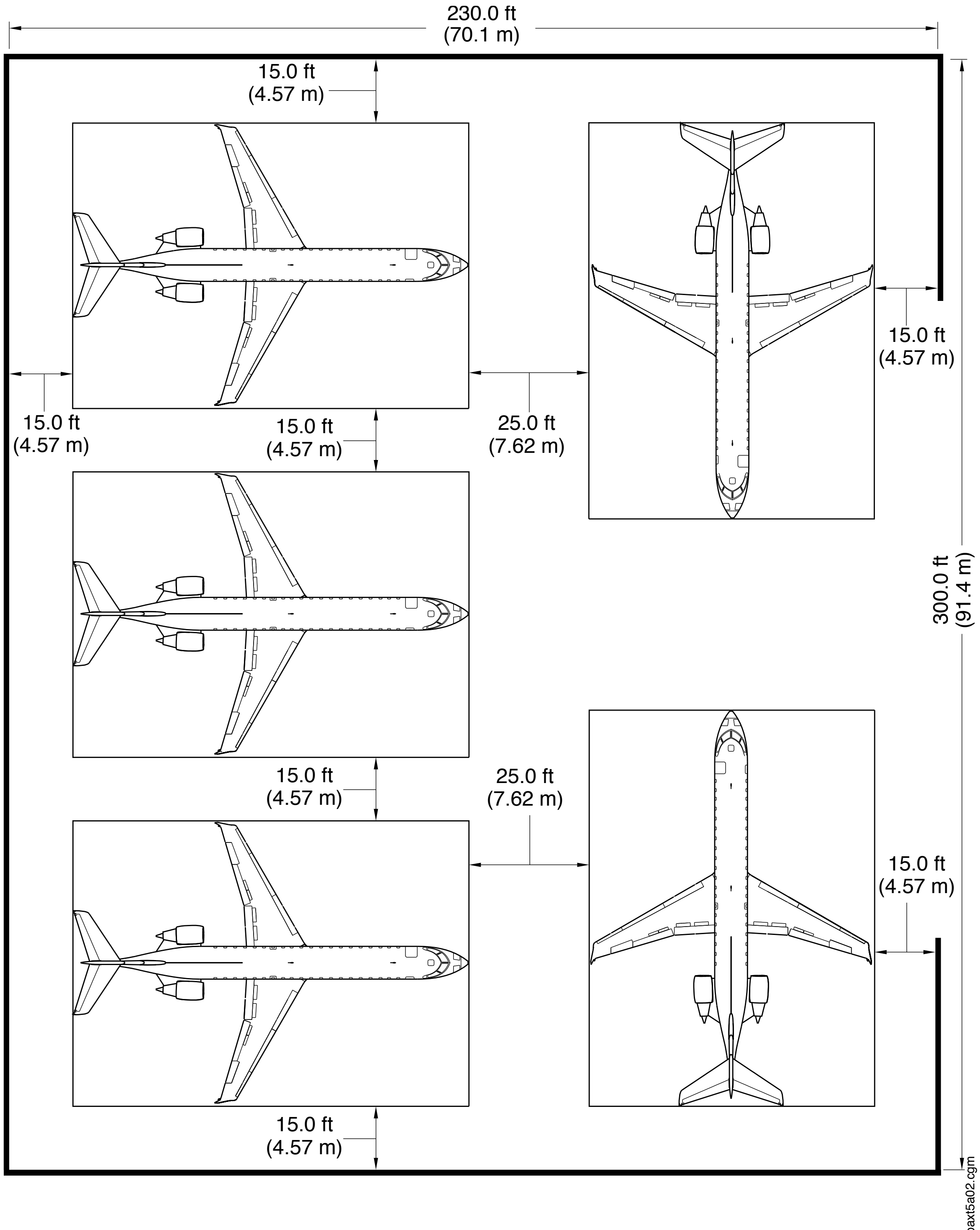
Clearances are estimated on maximum ramp weight.
Actual clearance is dependent on aircraft weight and CG.

ba0931a01_01.cgm

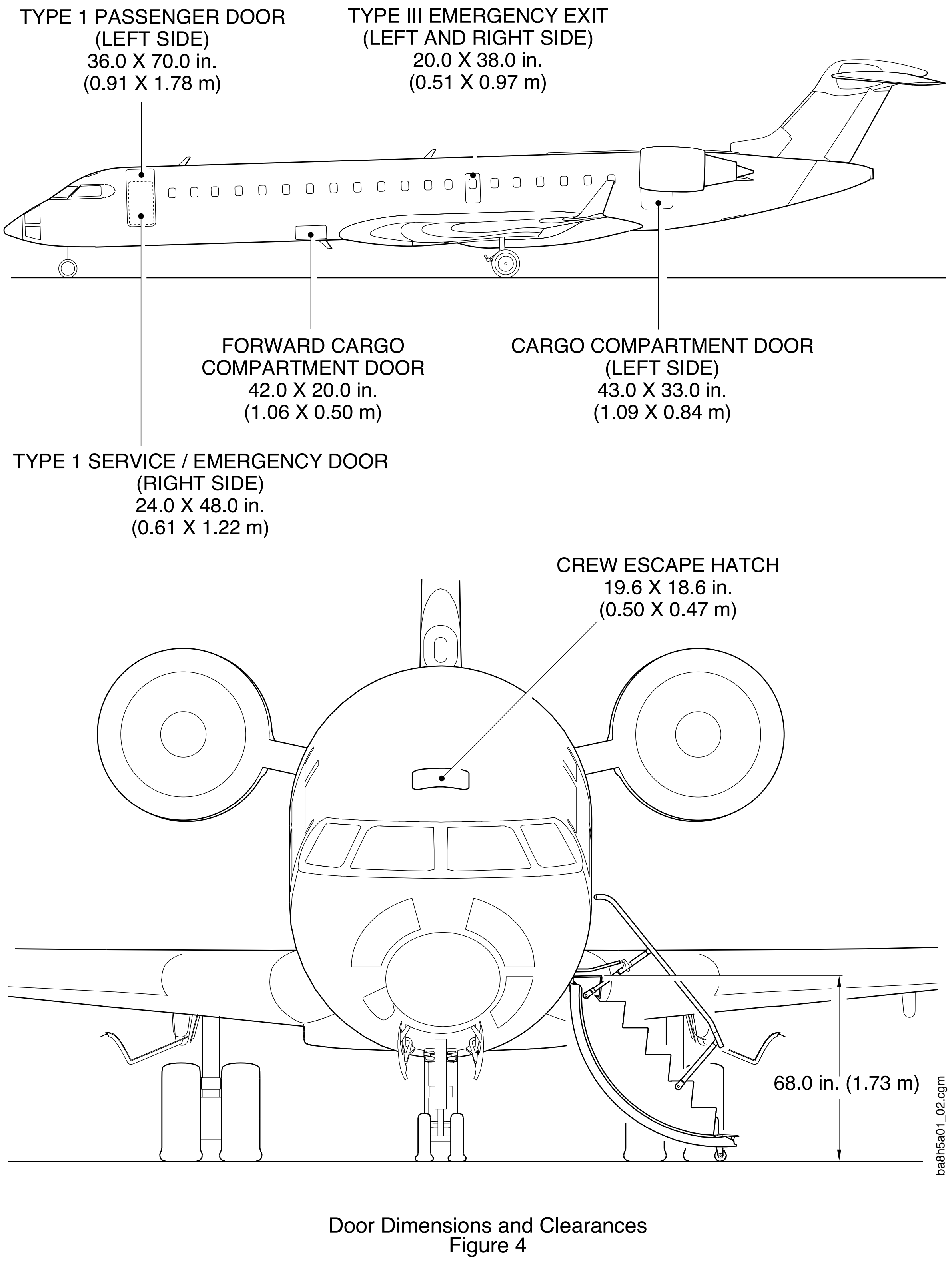
Aircraft Clearances
Figure 2



Hangar Space Needs
Figure 3 (Sheet 1 of 2)



Hangar Space Needs
Figure 3 (Sheet 2 of 2)



Door Dimensions and Clearances
Figure 4

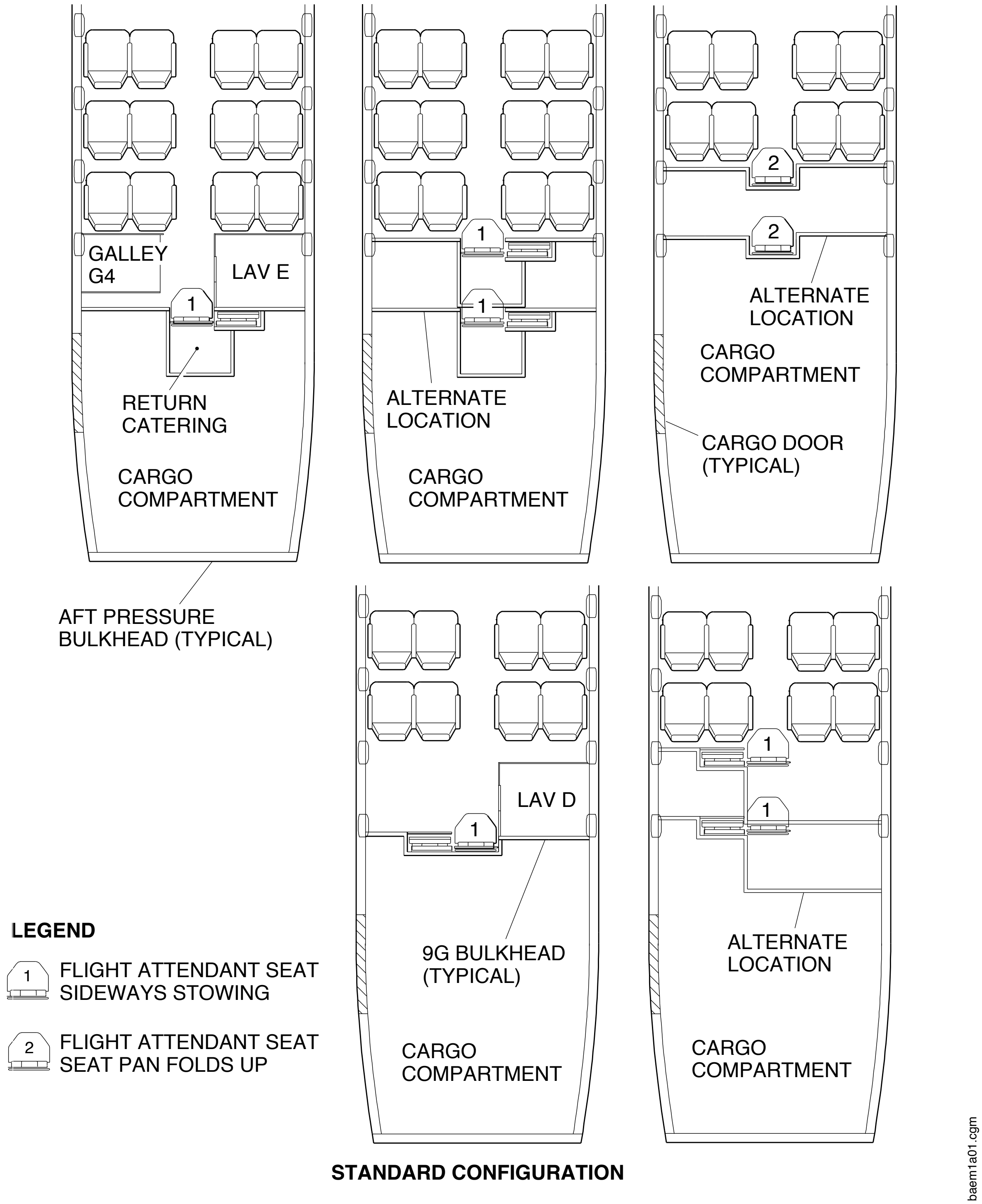
**ON A/C ALL

INTERIOR CONFIGURATIONS

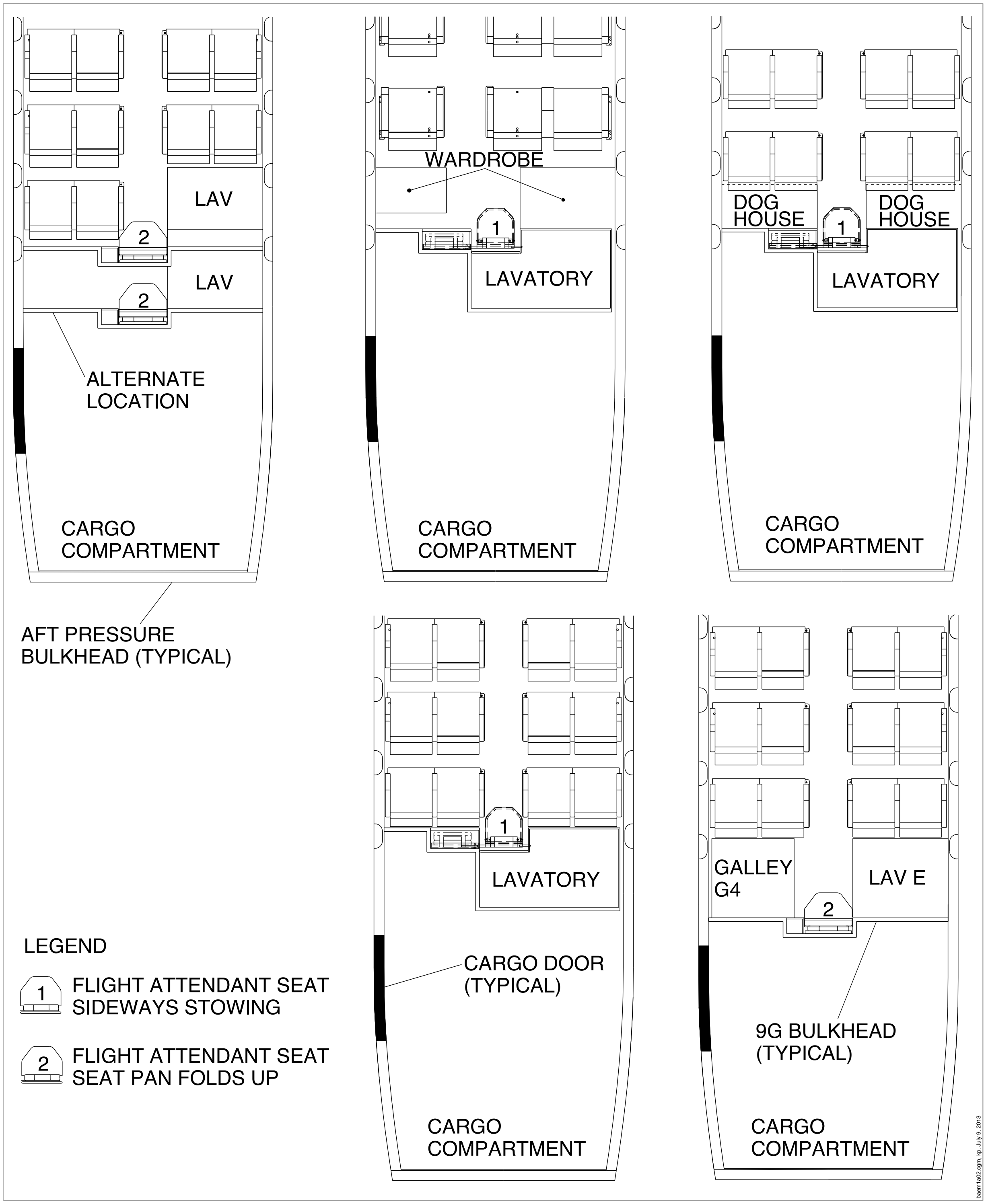
1. General

A. This section contains examples of passenger compartment interior configuration.

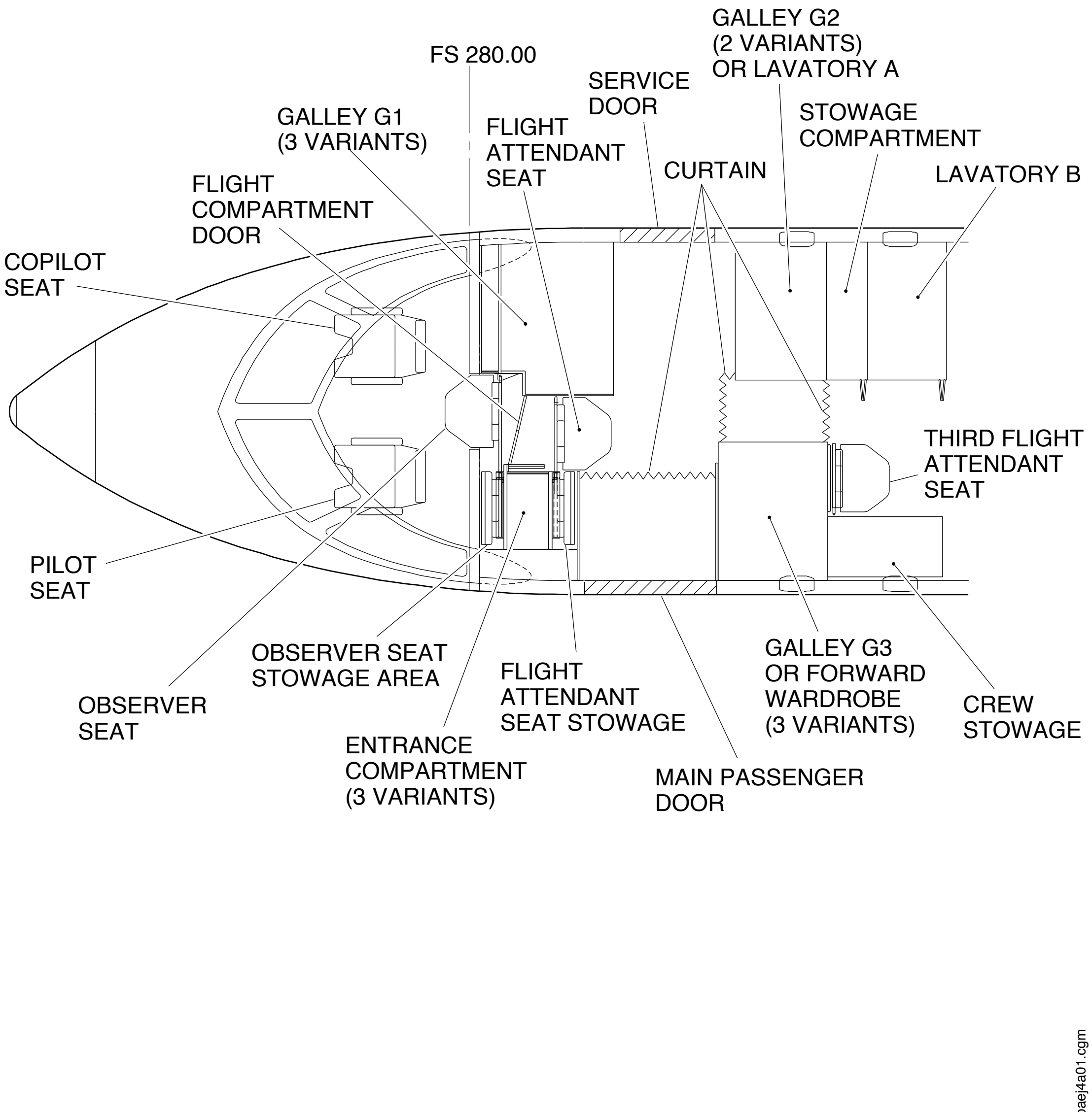
B. The passenger compartment includes the galley area, lavatory, and passenger seating area. The galley and utility areas are isolated from the passenger area by partitions and curtains (refer to Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 27, 29, 30, 31, and 32,)



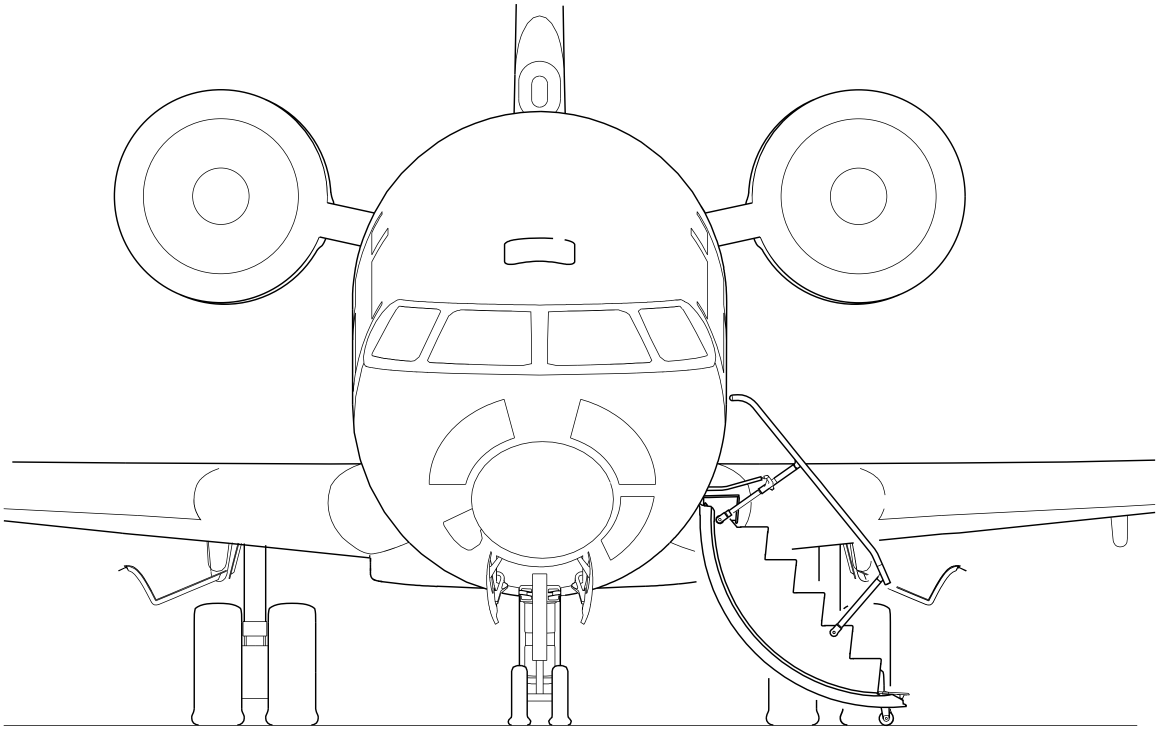
Aft Passenger Cabin Configurations and Lavatory Options
Figure 1 (Sheet 1 of 2)

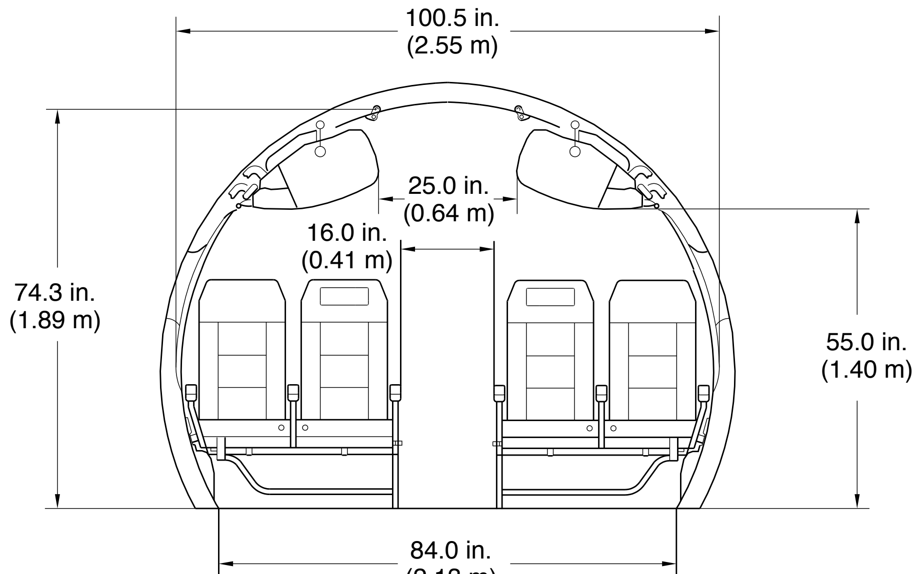


Aft Passenger Cabin Configurations and Lavatory Options
Figure 1 (Sheet 2 of 2)



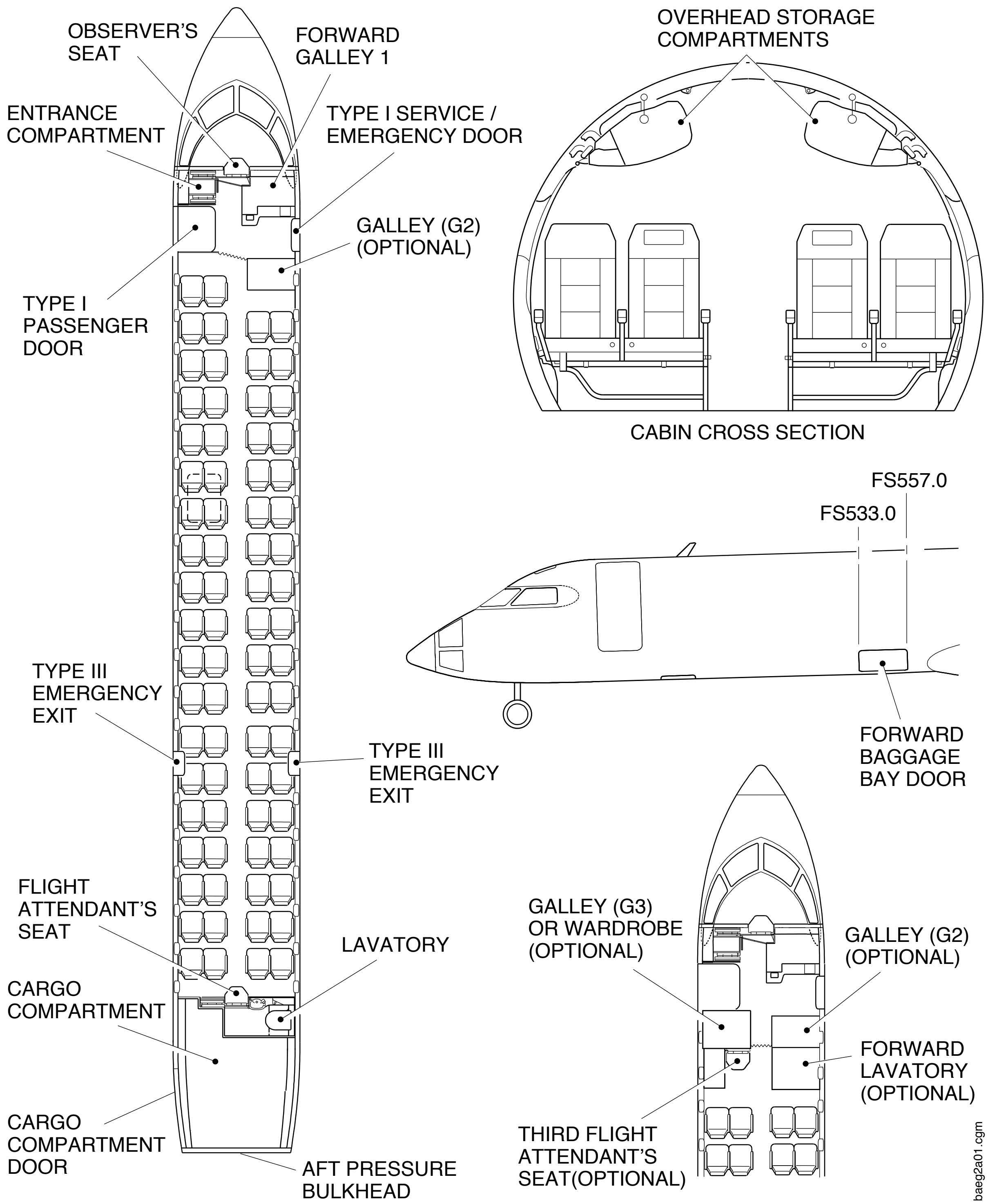
Forward Passenger Cabin Configuration
Figure 2



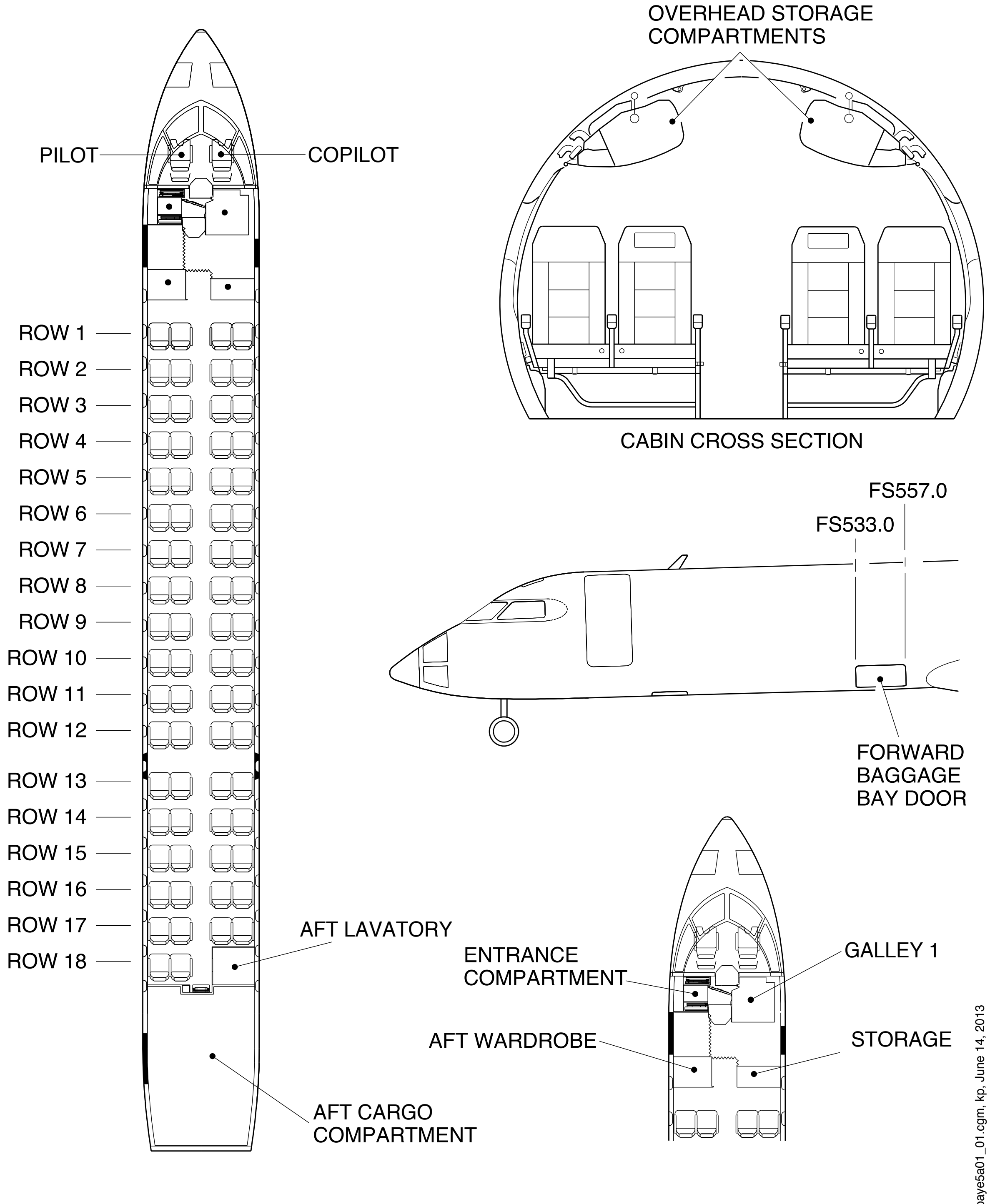


CABIN CROSS SECTION

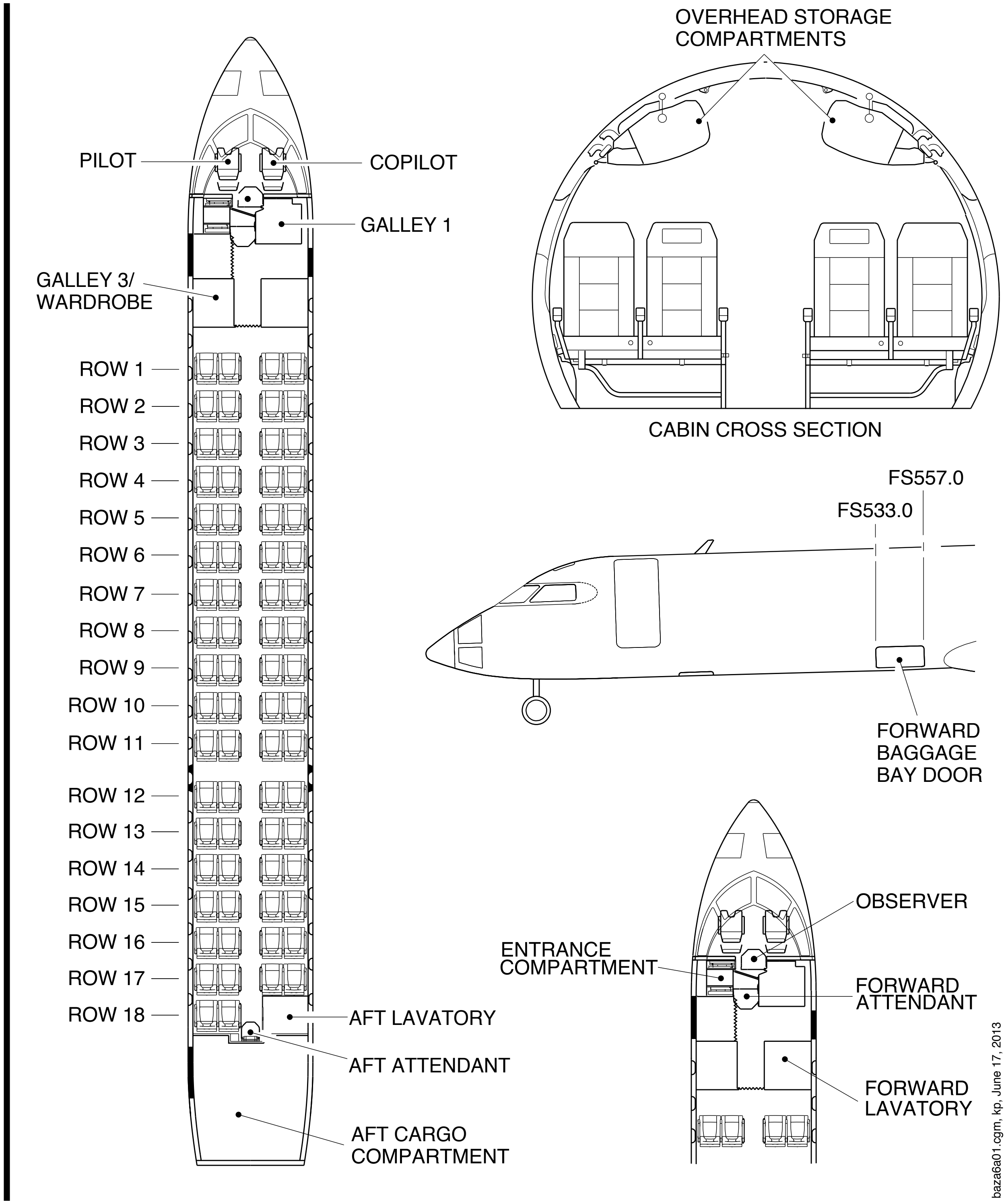
Passenger Compartment Cross Section
Figure 3



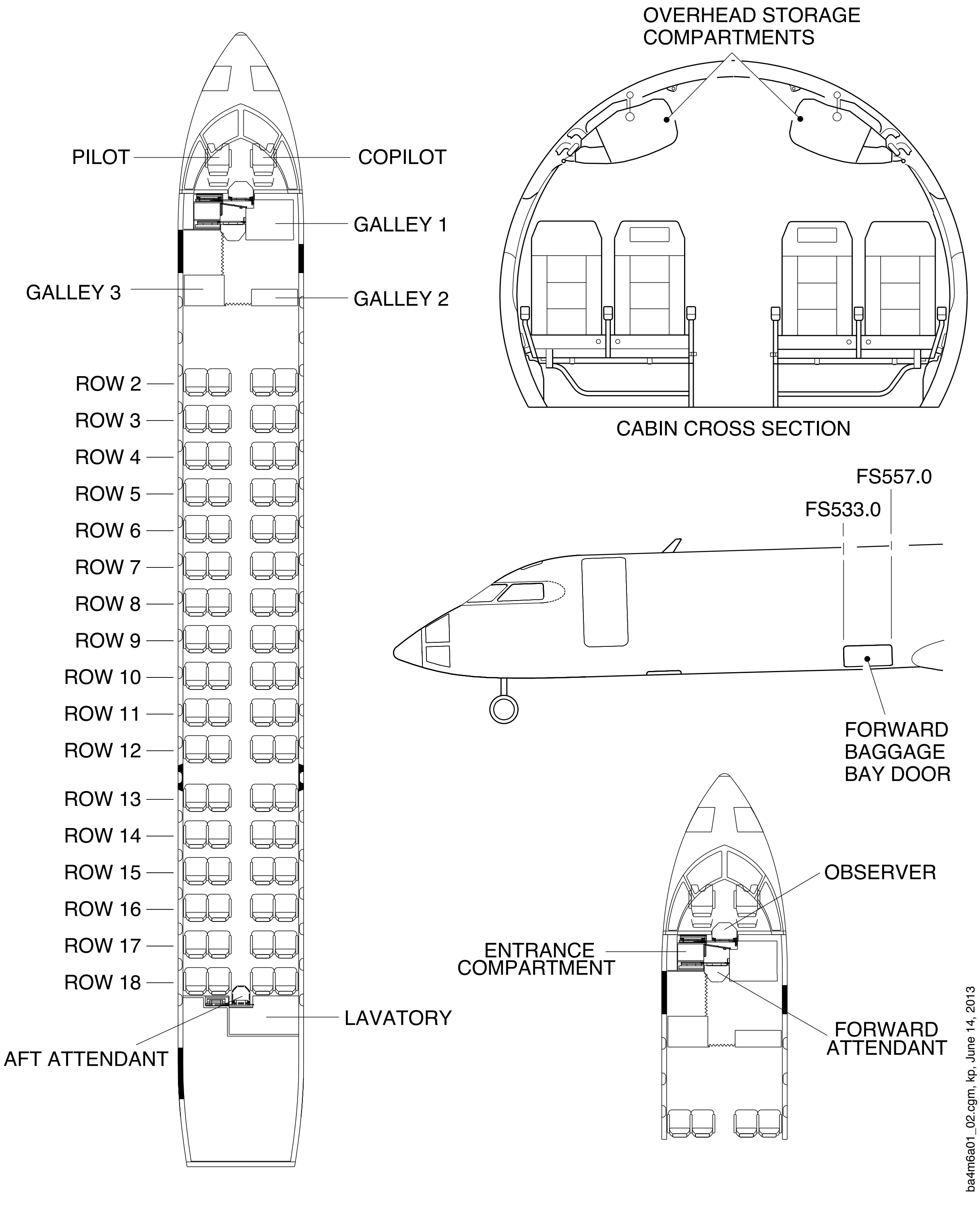
Passenger and Crew Arrangement – 74 Passengers
Figure 4



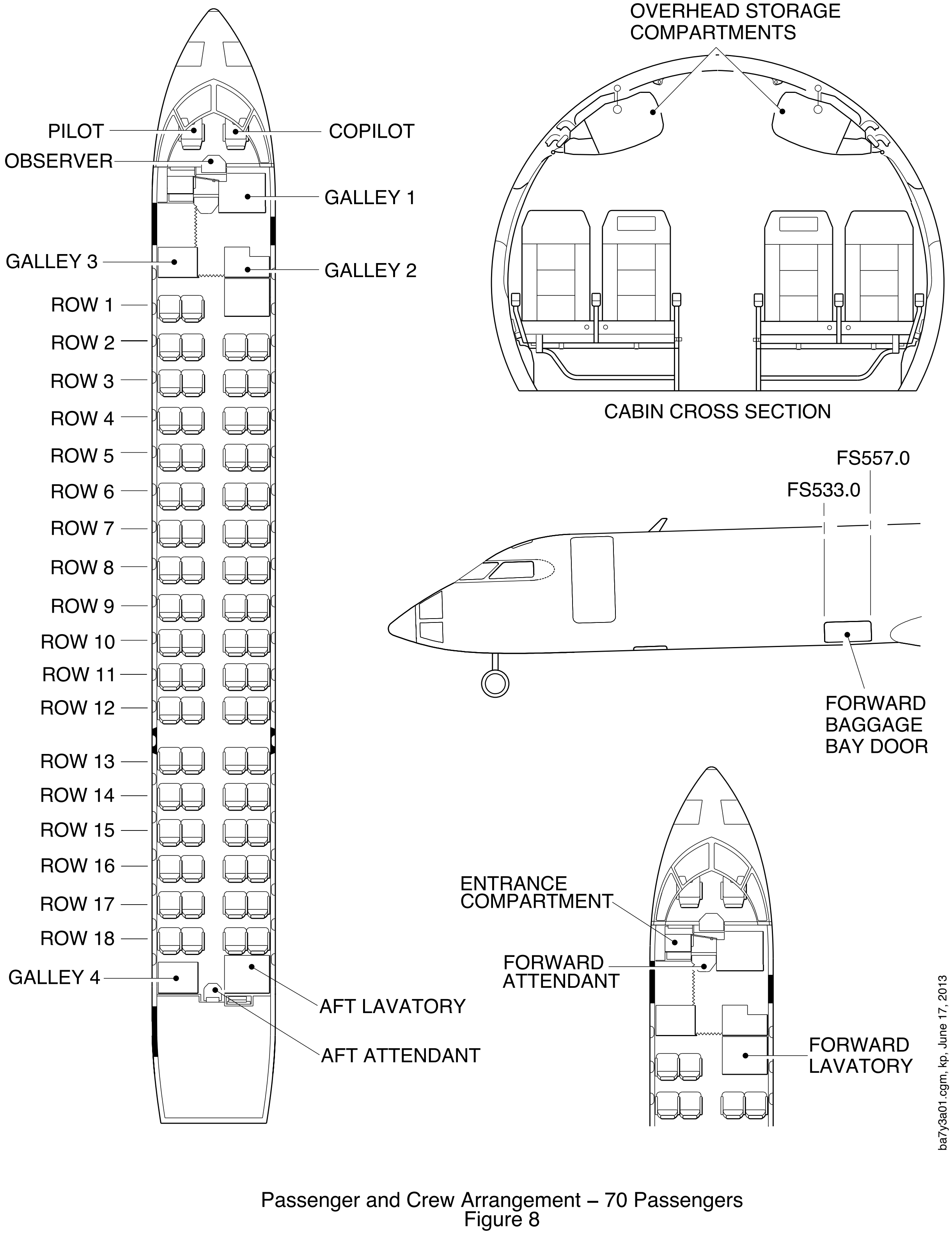
Passenger and Crew Arrangement – 70 passengers
Figure 5



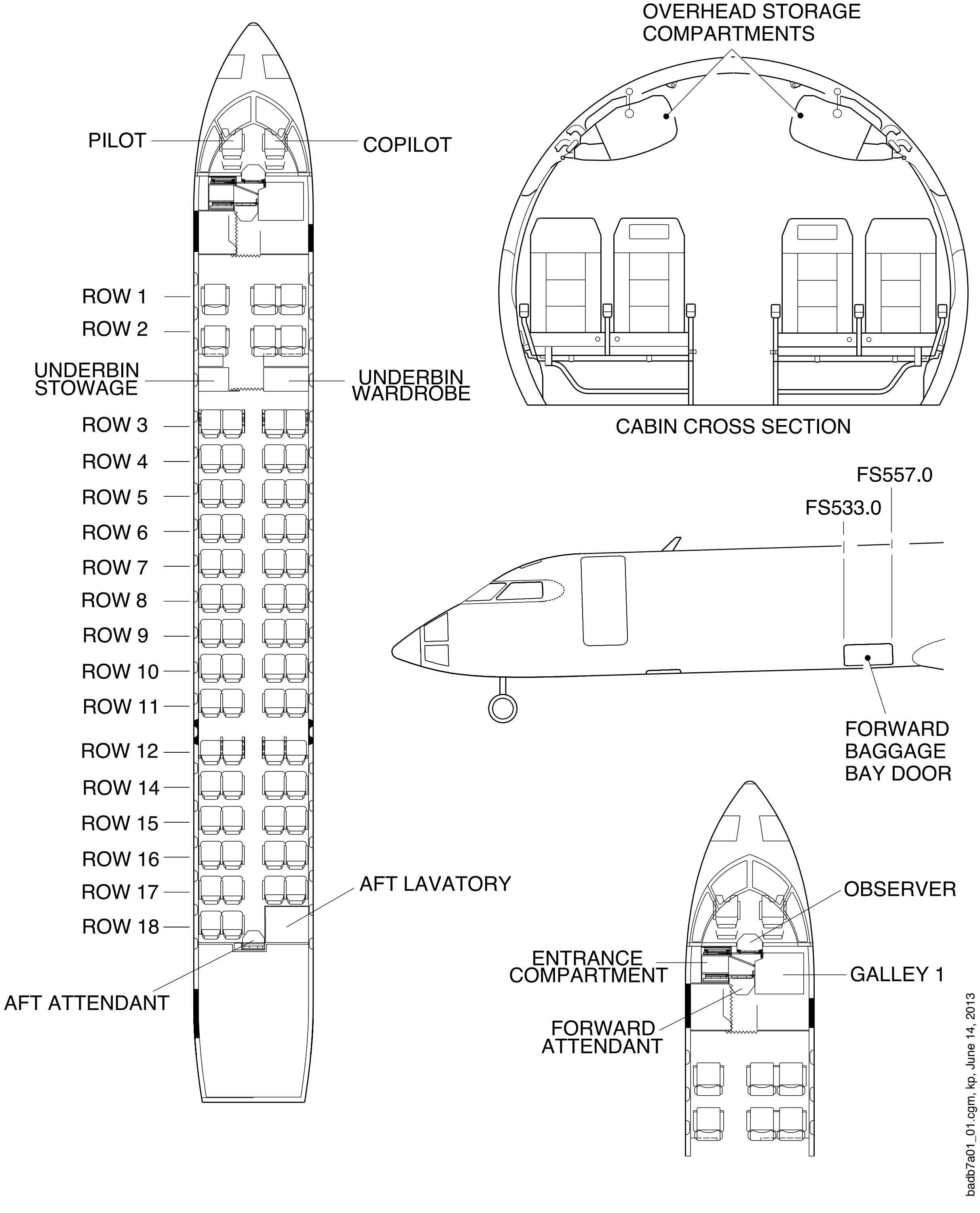
Passenger and Crew Arrangement – 70 Passengers
Figure 6



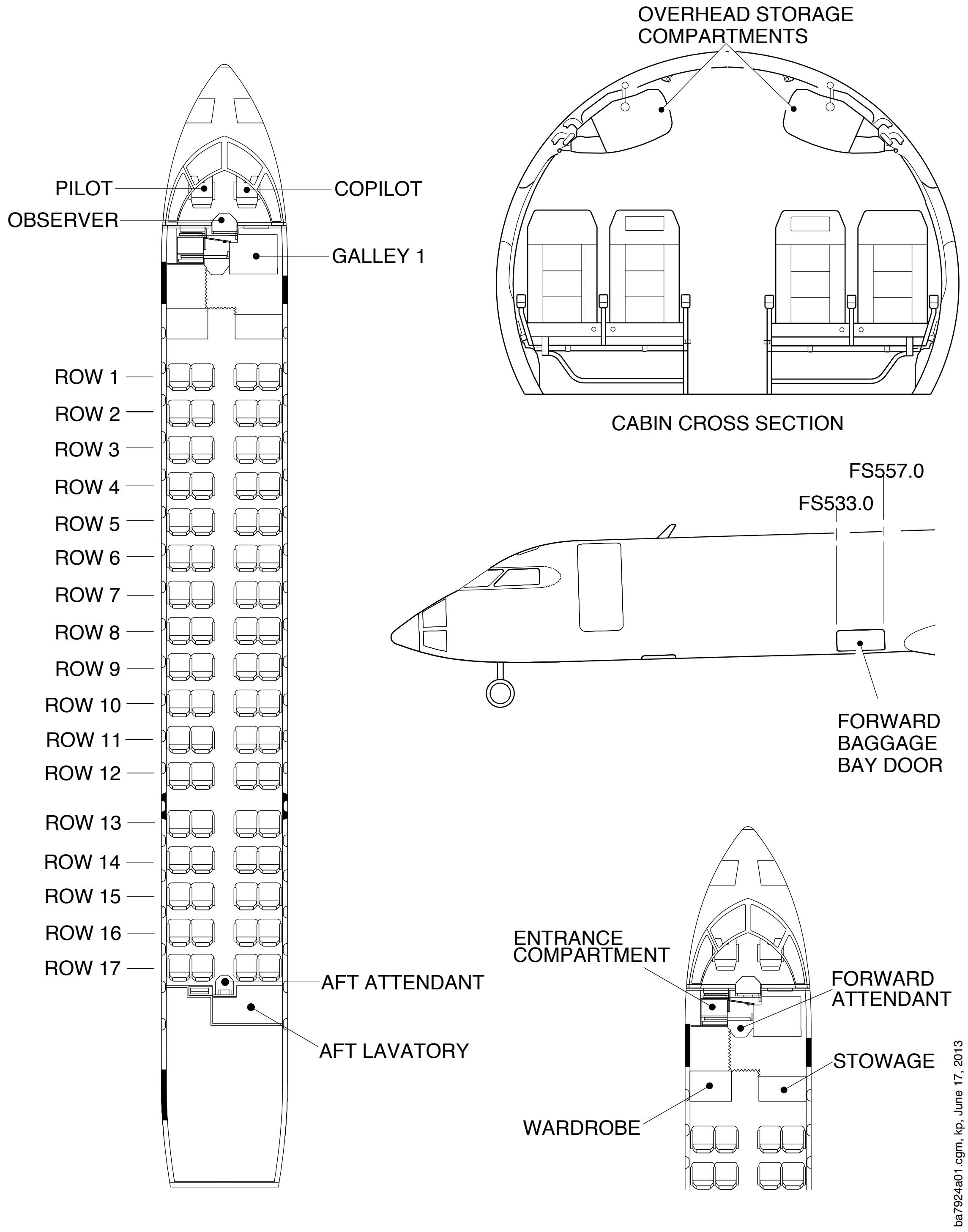
Passenger and Crew Arrangement – 68 Passengers
Figure 7



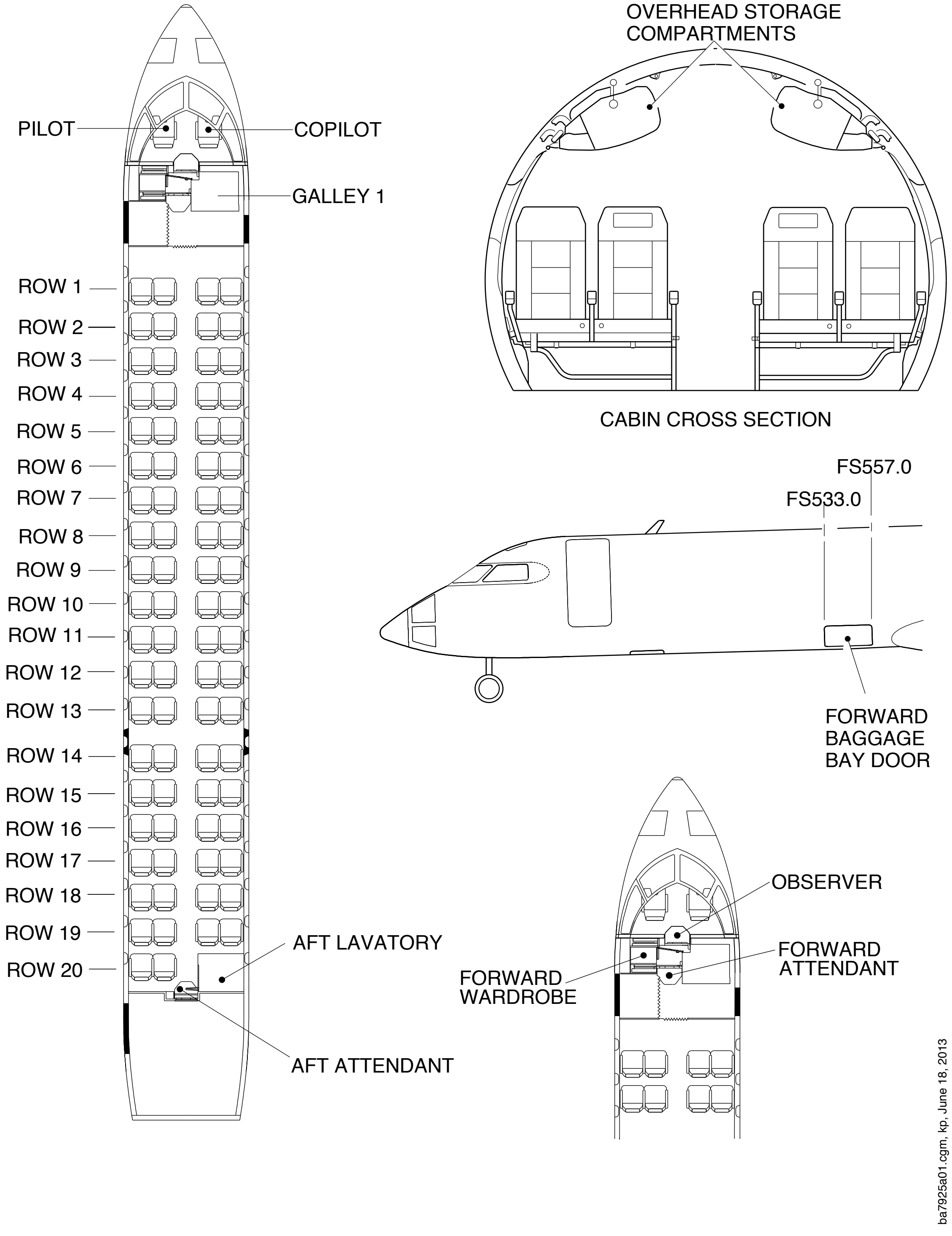
Passenger and Crew Arrangement – 70 Passengers
Figure 8



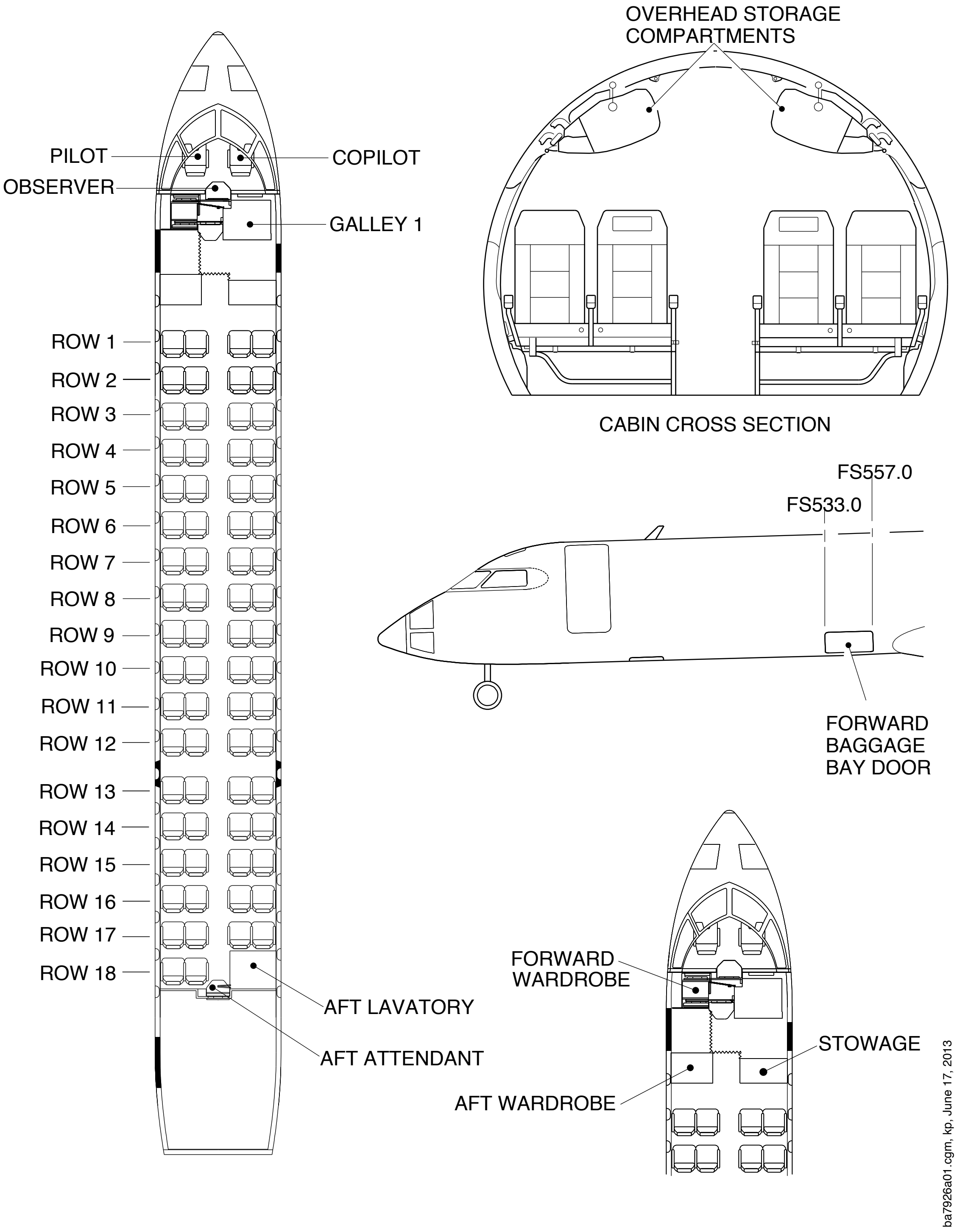
Passenger and Crew Arrangement – 64 Passengers
Figure 9



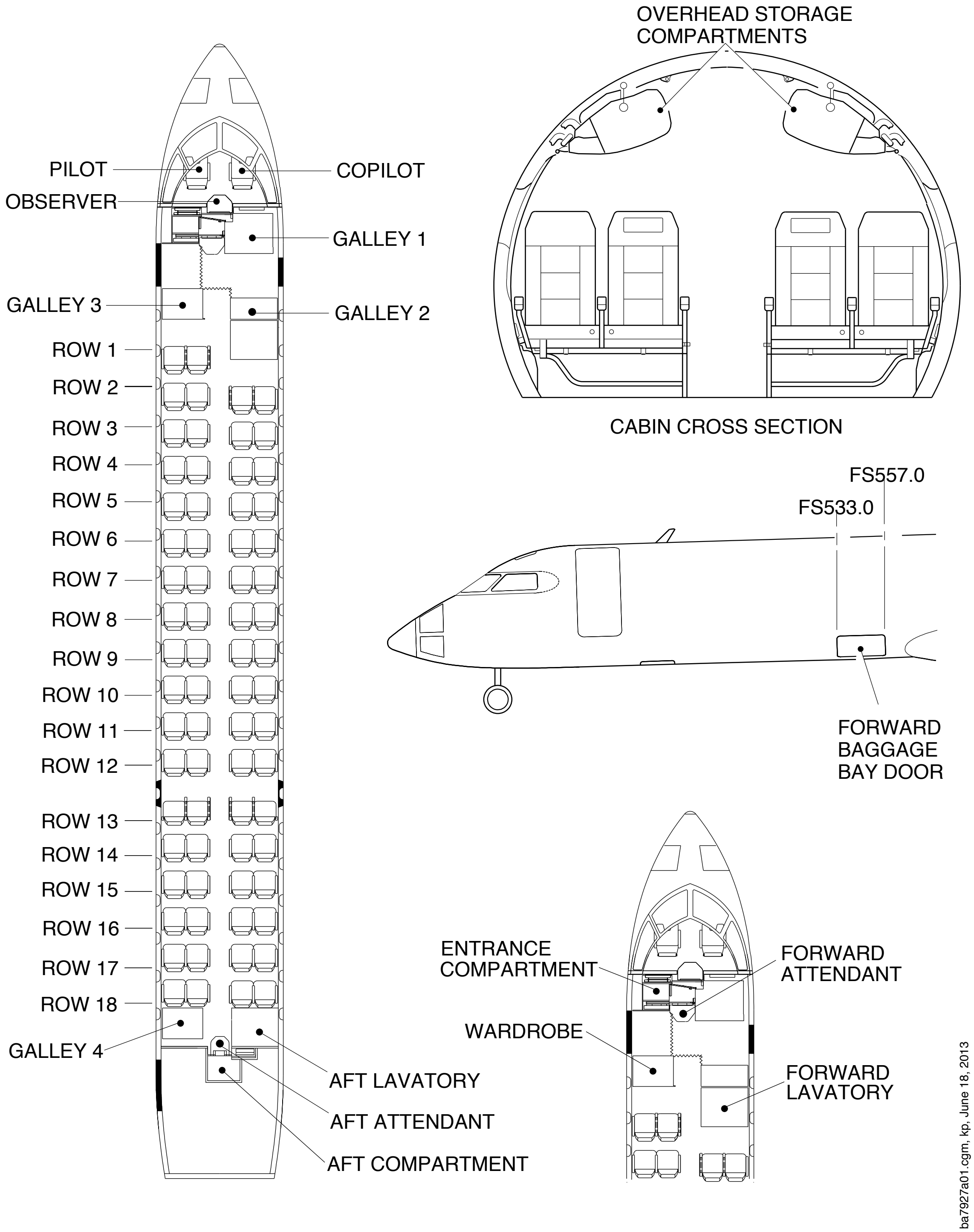
Passenger and Crew Arrangement – 68 Passengers
Figure 10



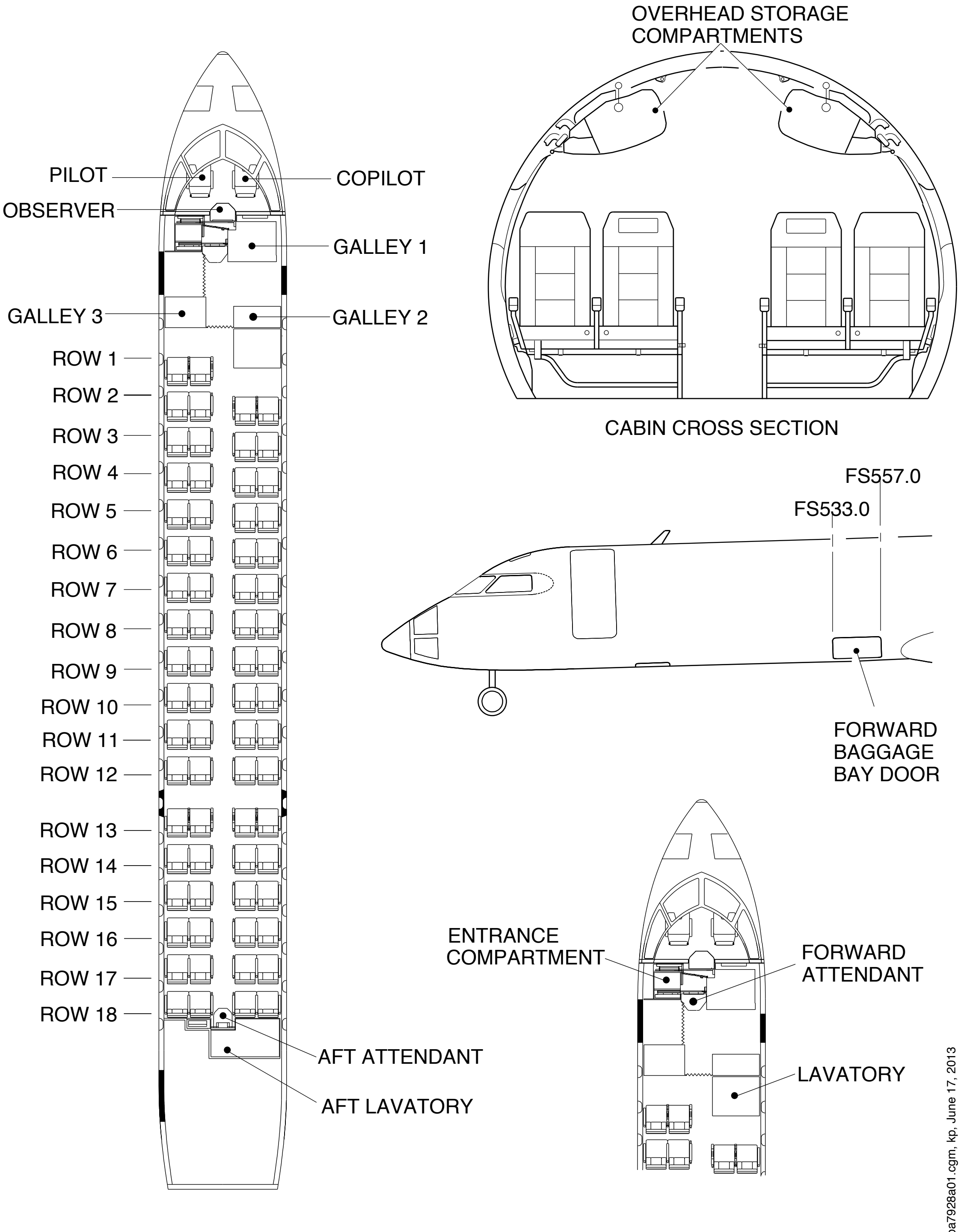
Passenger an Crew Arrangement – 78 Passengers
Figure 11



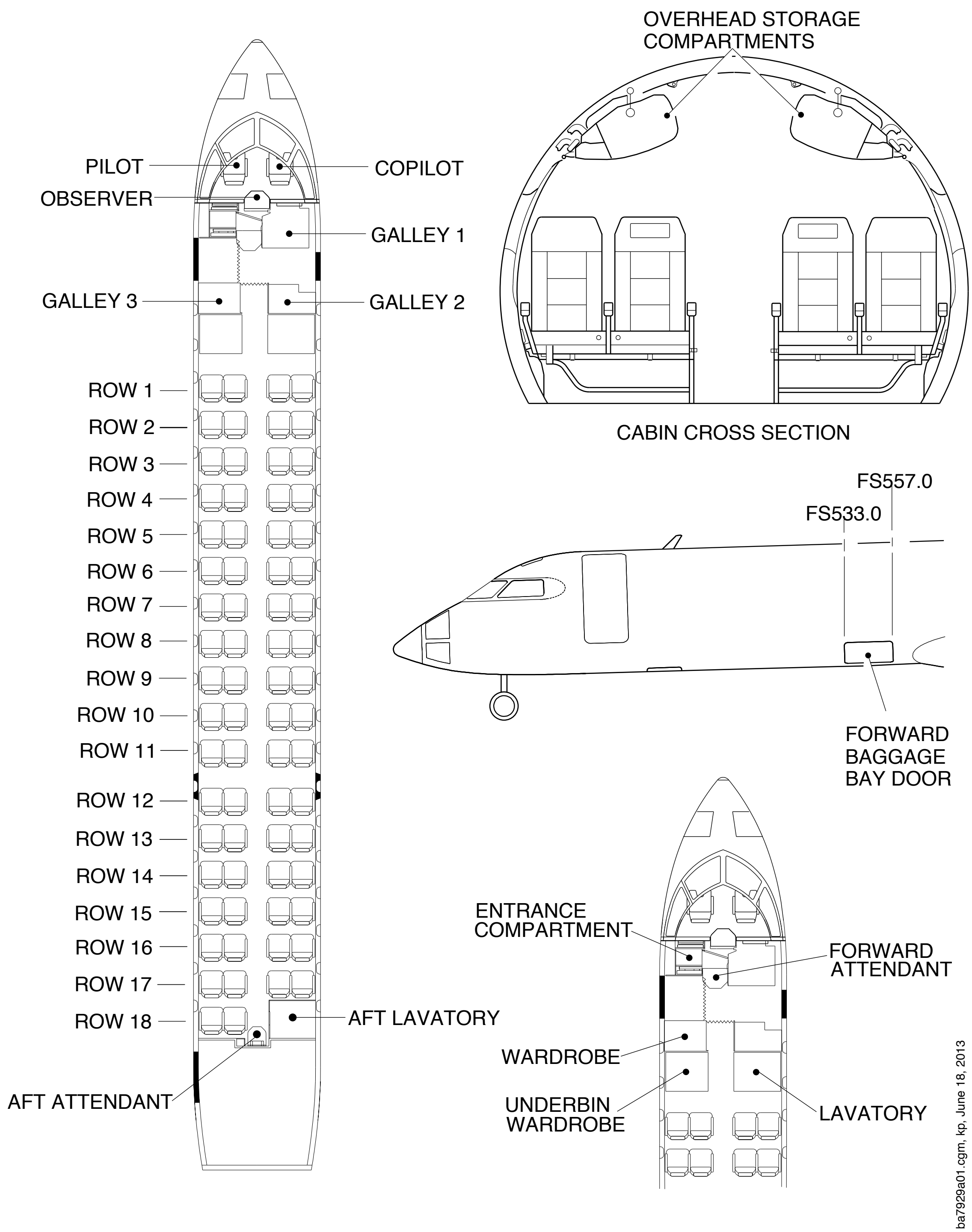
Passenger and Crew Arrangement – 70 Passengers
Figure 12



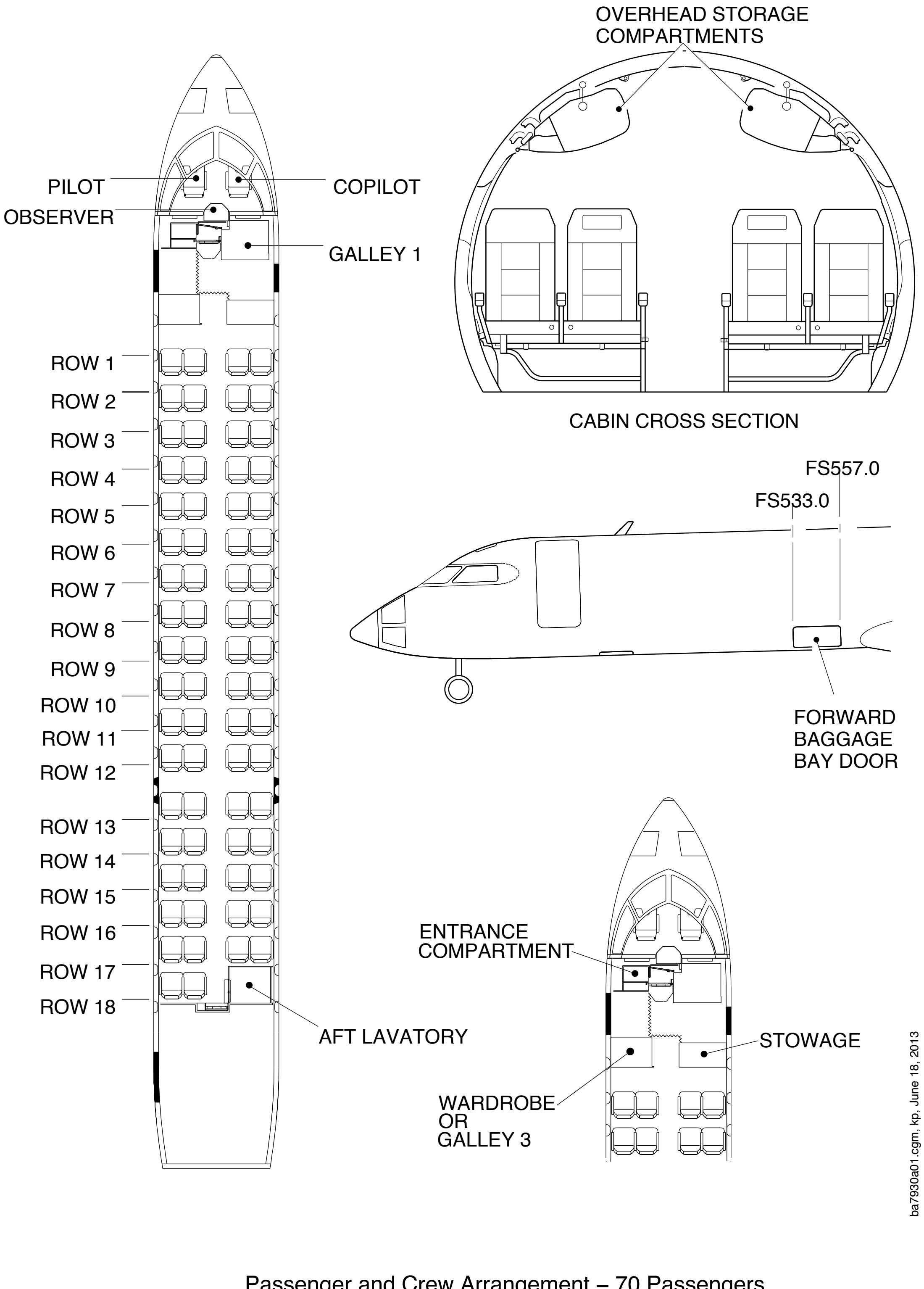
Passenger and Crew Arrangement – 70 Passengers
Figure 13



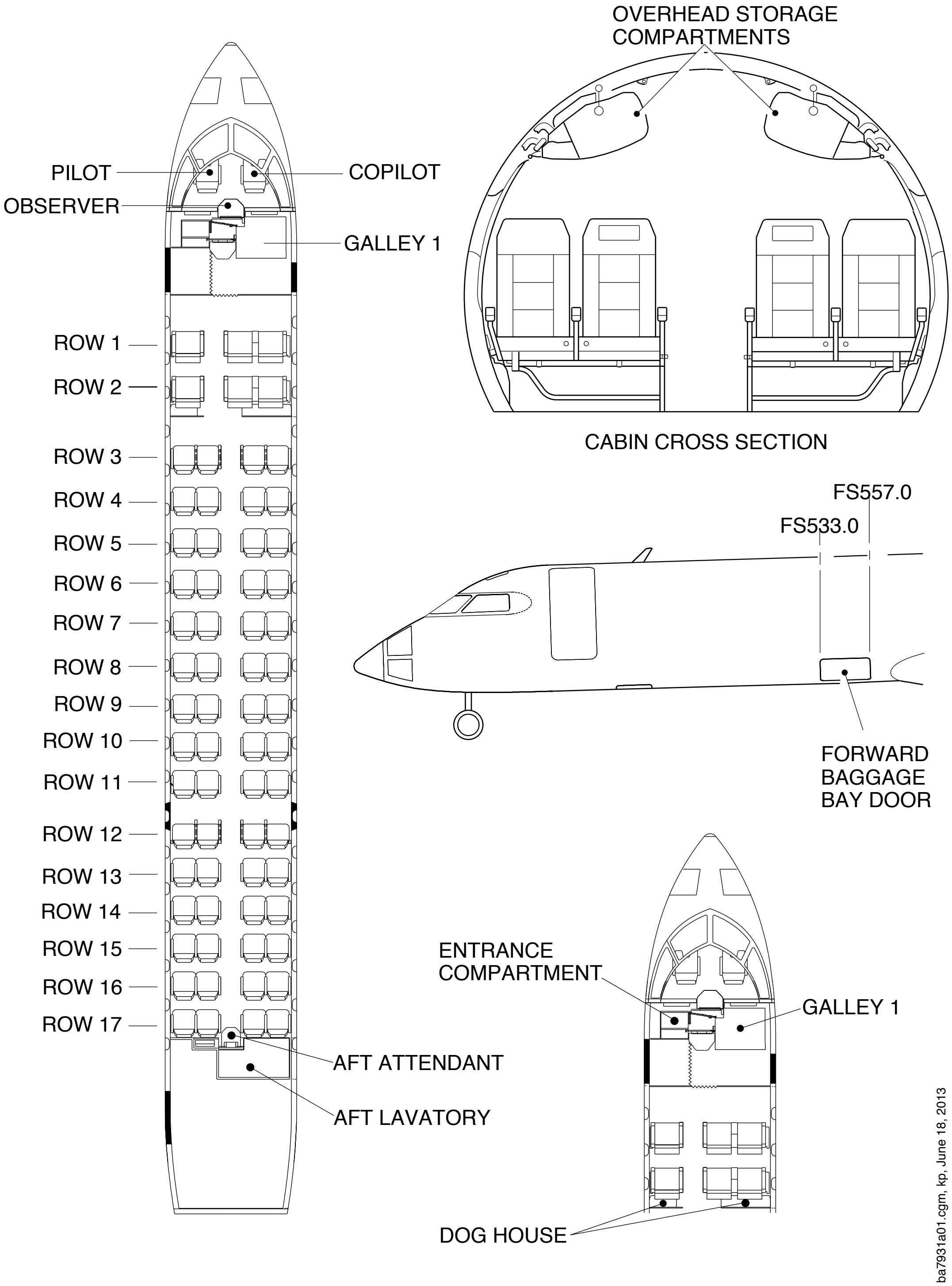
Passenger and Crew Arrangement – 70 Passengers
Figure 14



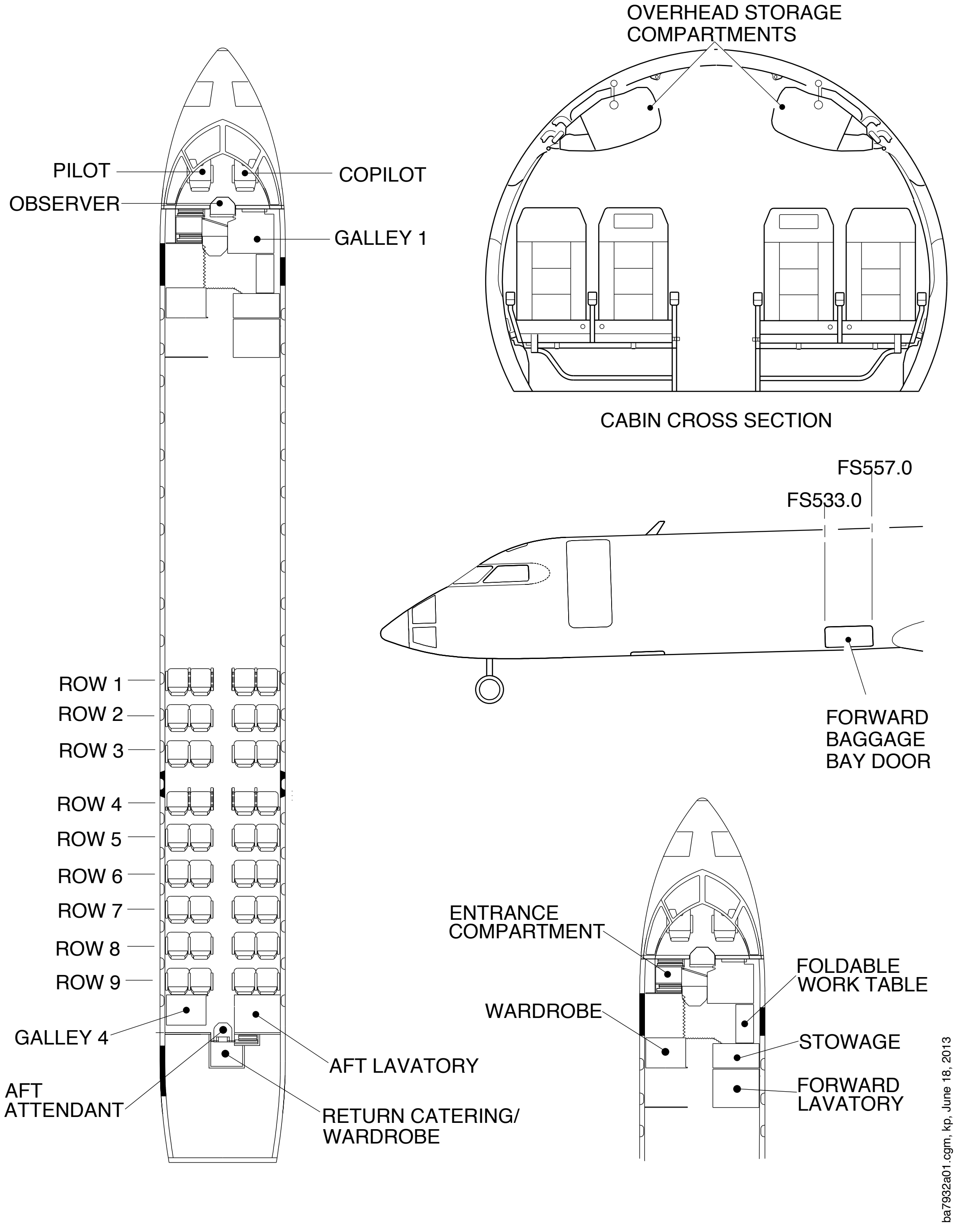
Passenger and Crew Arrangement – 70 Passengers
Figure 15



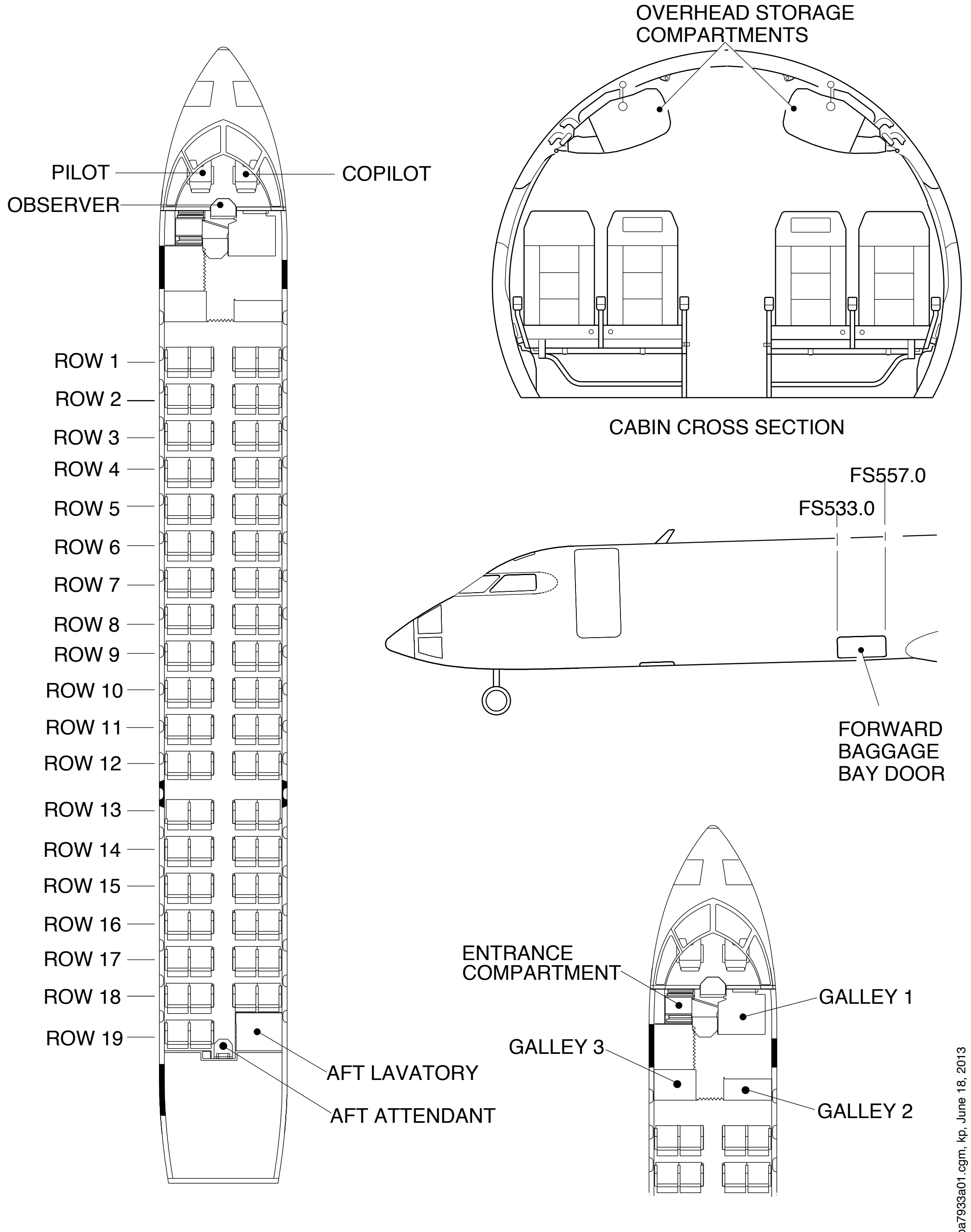
Passenger and Crew Arrangement − 70 Passengers
Figure 16



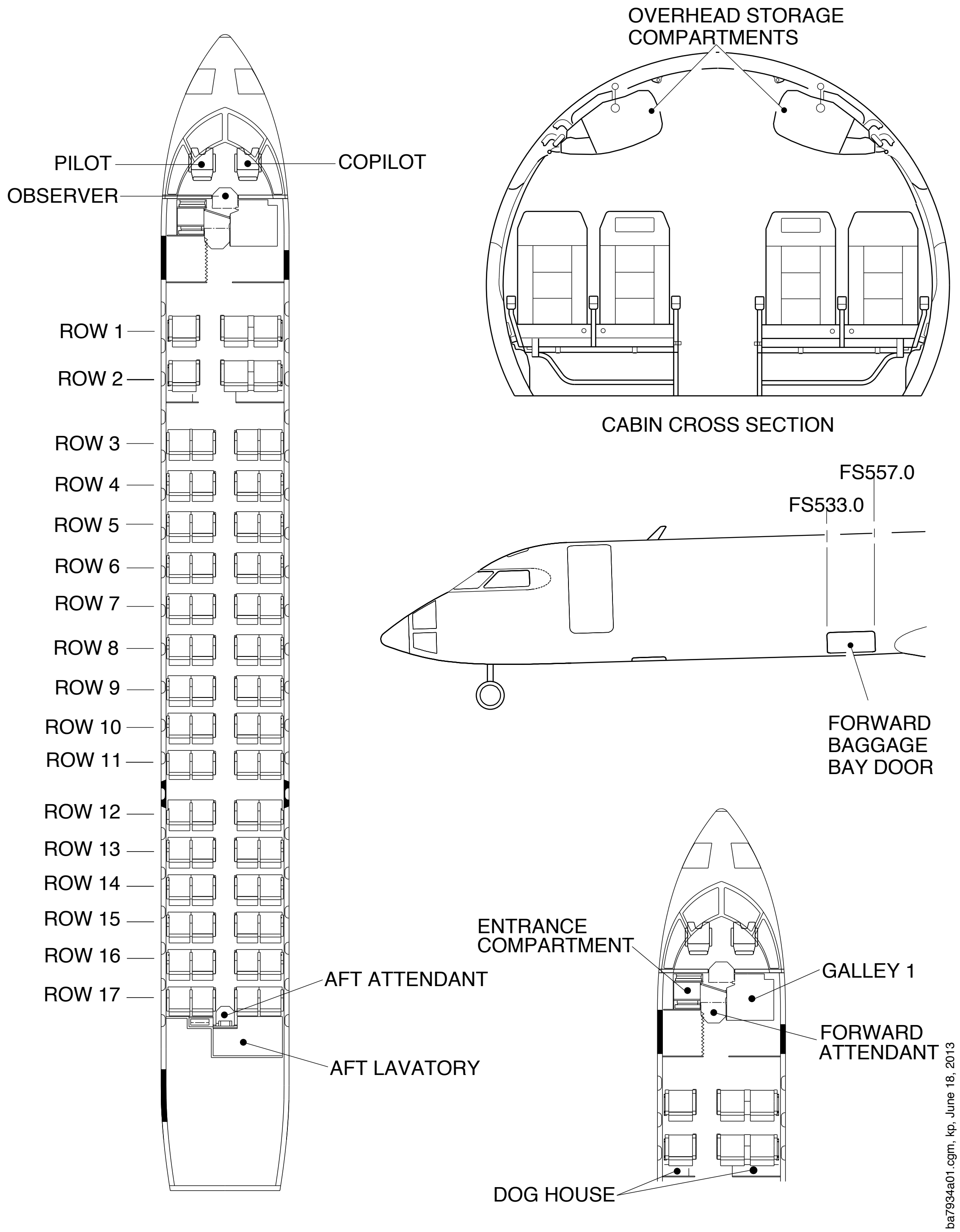
Passenger and Crew Arrangement – 66 Passengers
Figure 17



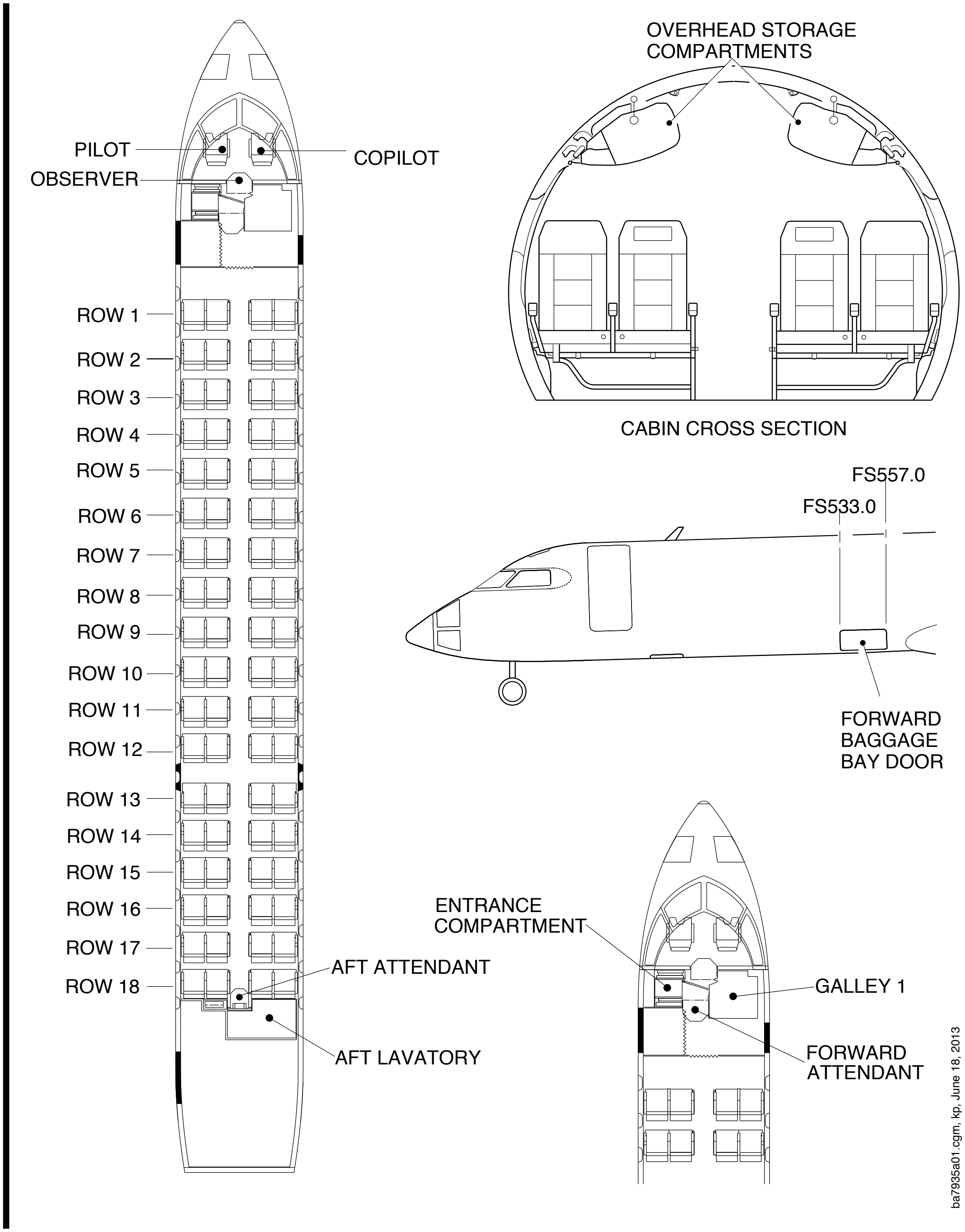
Passenger and Crew Arrangement – 36 Passengers
Figure 18



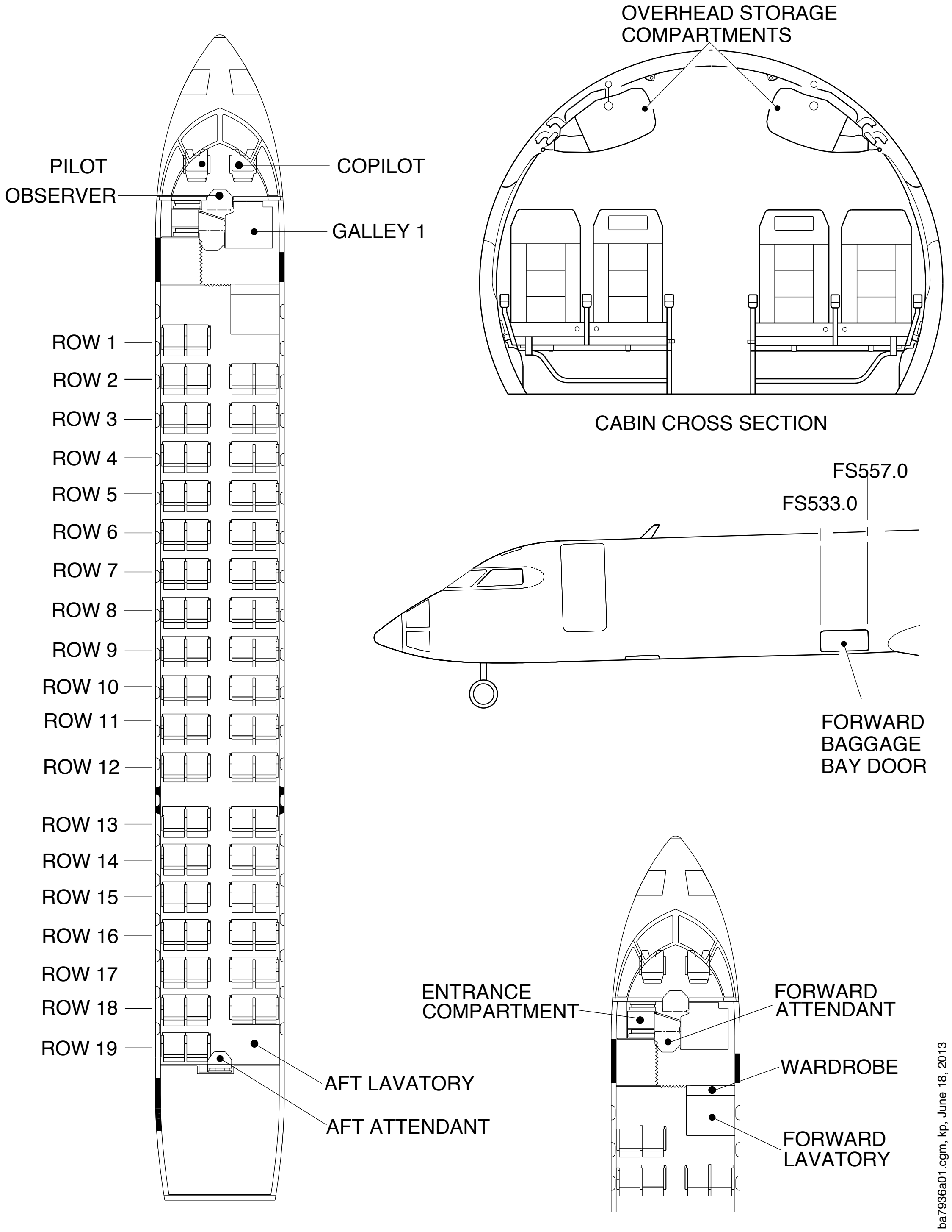
Passenger and Crew Arrangement – 74 Passengers
Figure 19



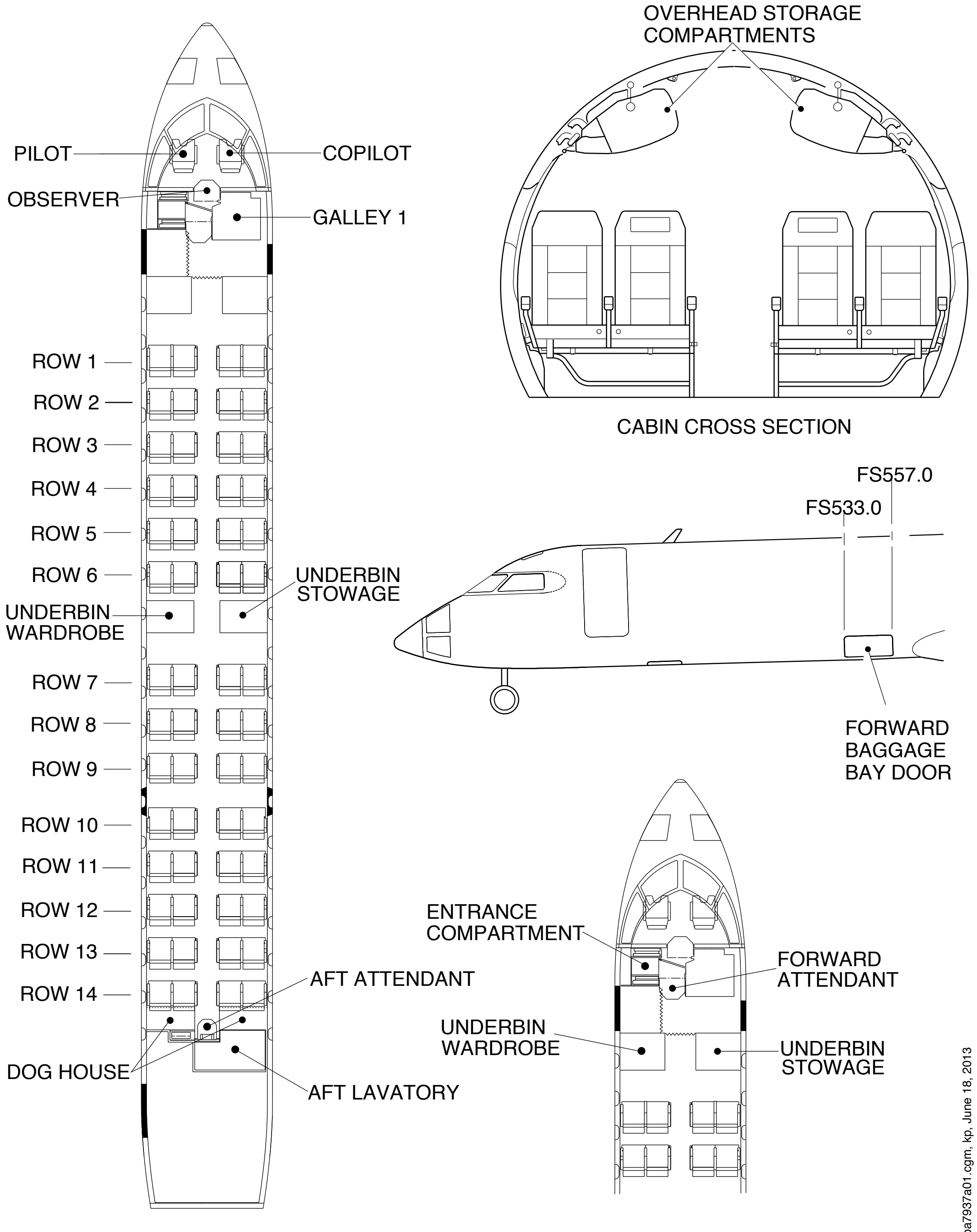
Passenger and Crew Arrangement – 66 Passengers – NEXT GEN
Figure 20



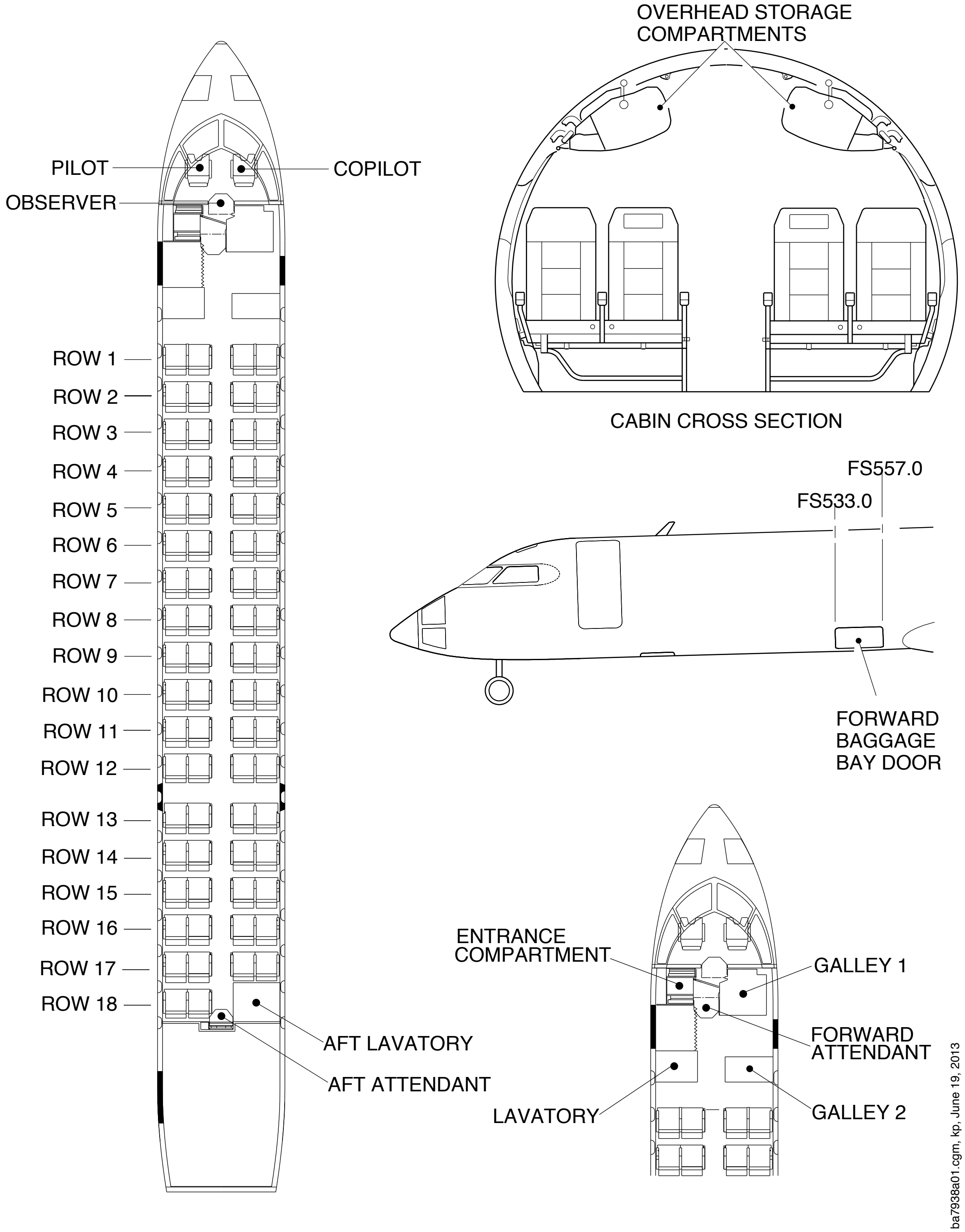
Passenger and Crew Arrangement – 72 Passengers – NEXT GEN
Figure 21



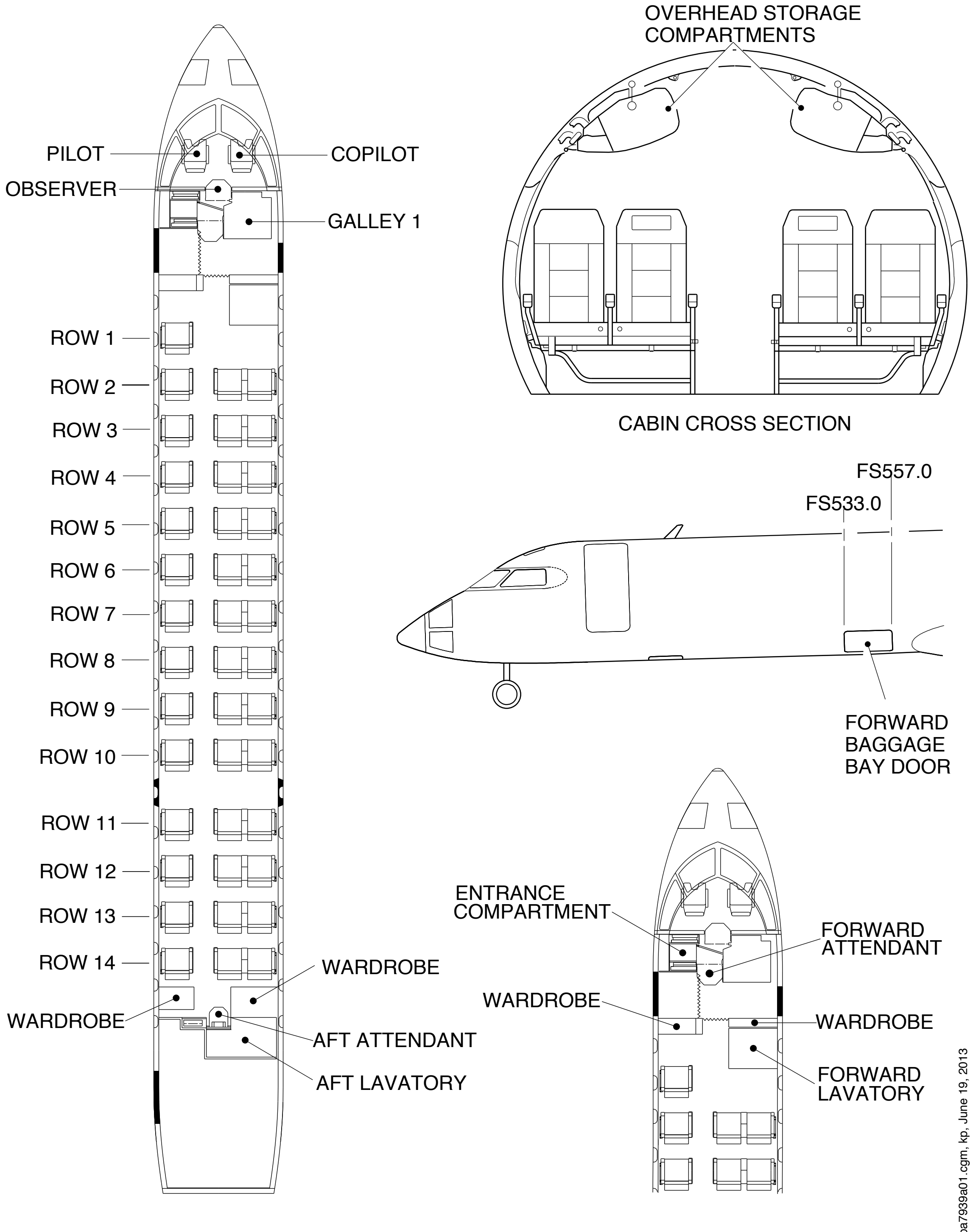
Passenger and Crew Arrangement – 72 Passengers – NEXT GEN
Figure 22



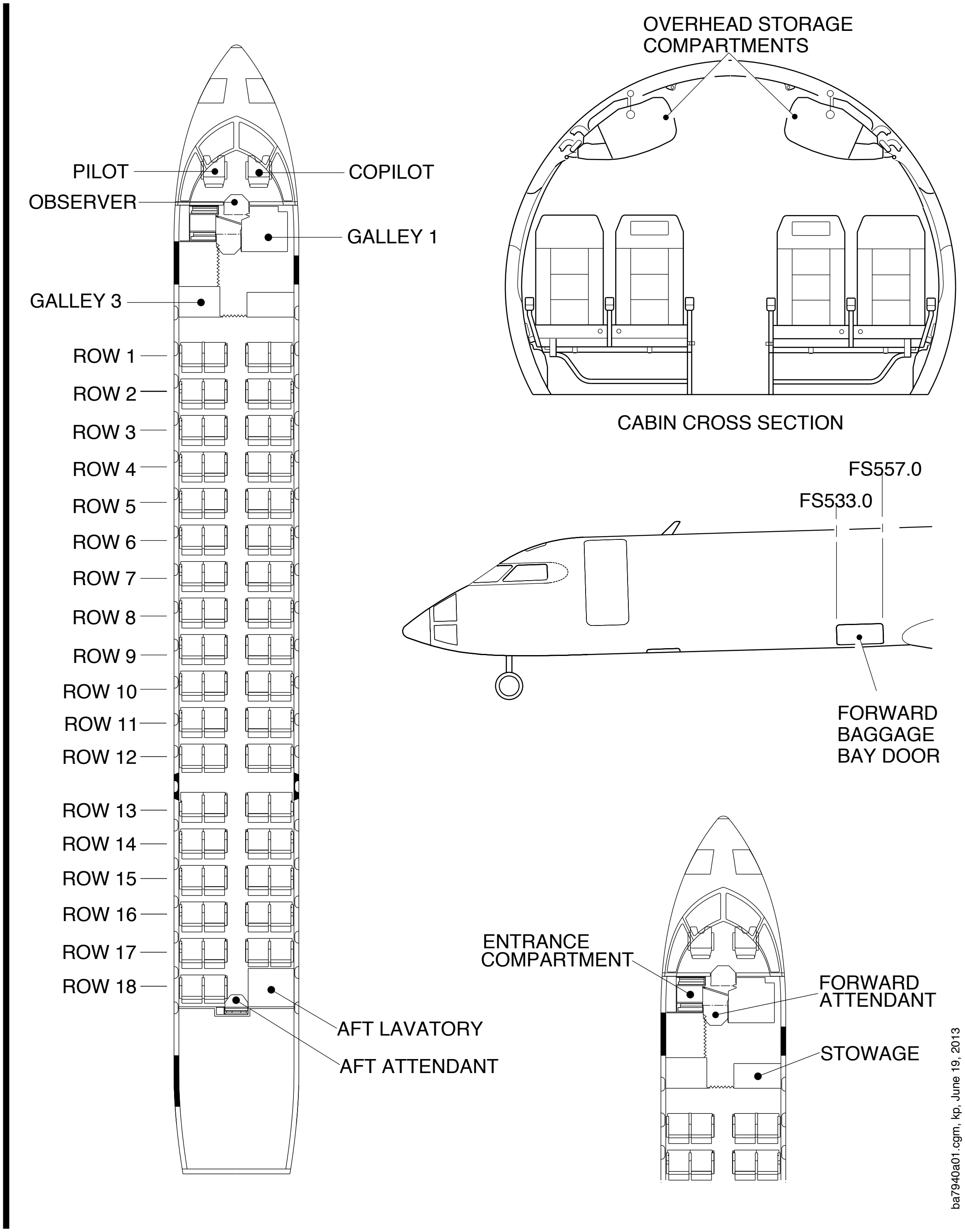
Passenger and Crew Arrangement − 56 Passengers − NEXT GEN
Figure 23



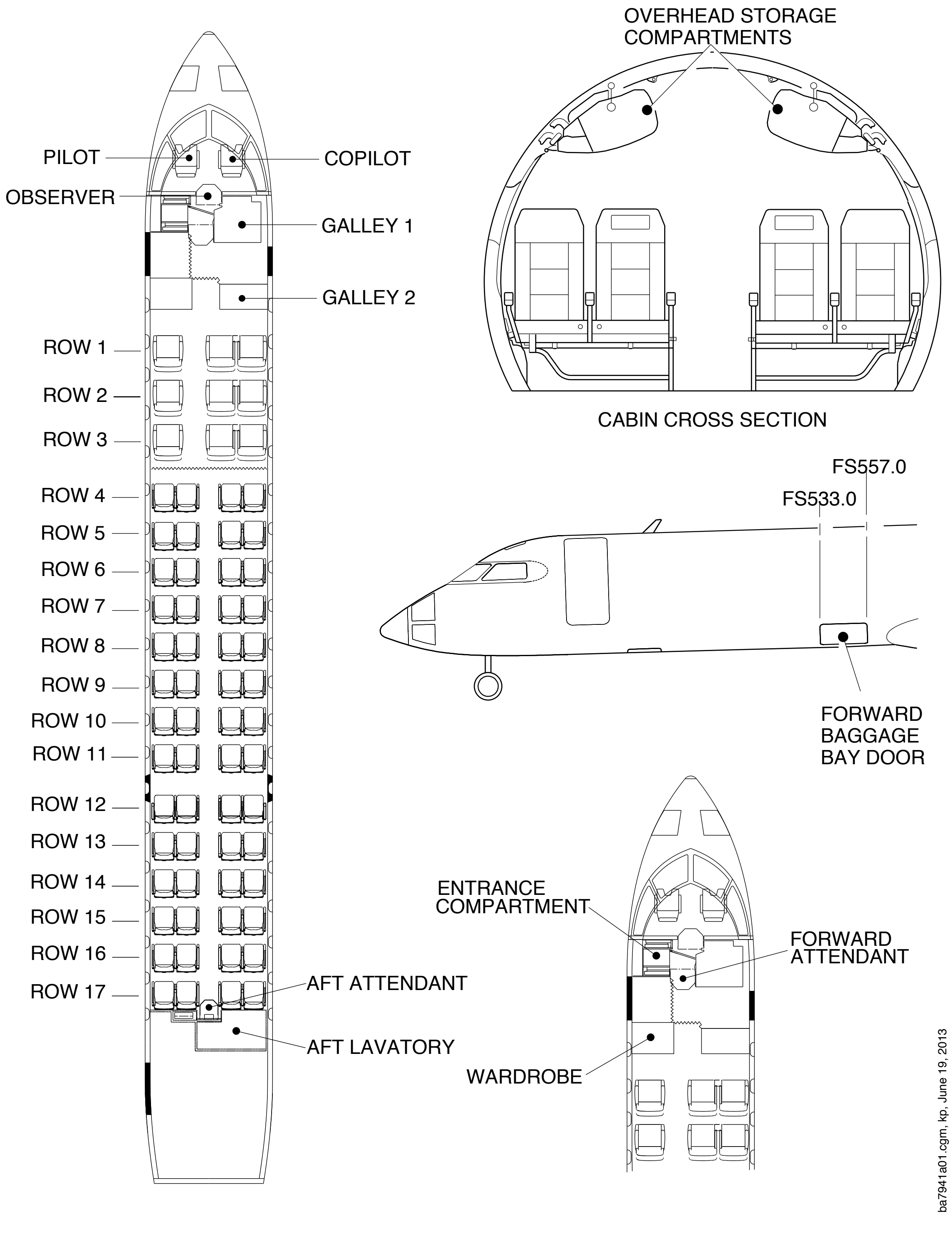
Passenger and Crew Arrangement – 70 Passengers – NEXT GEN
Figure 24



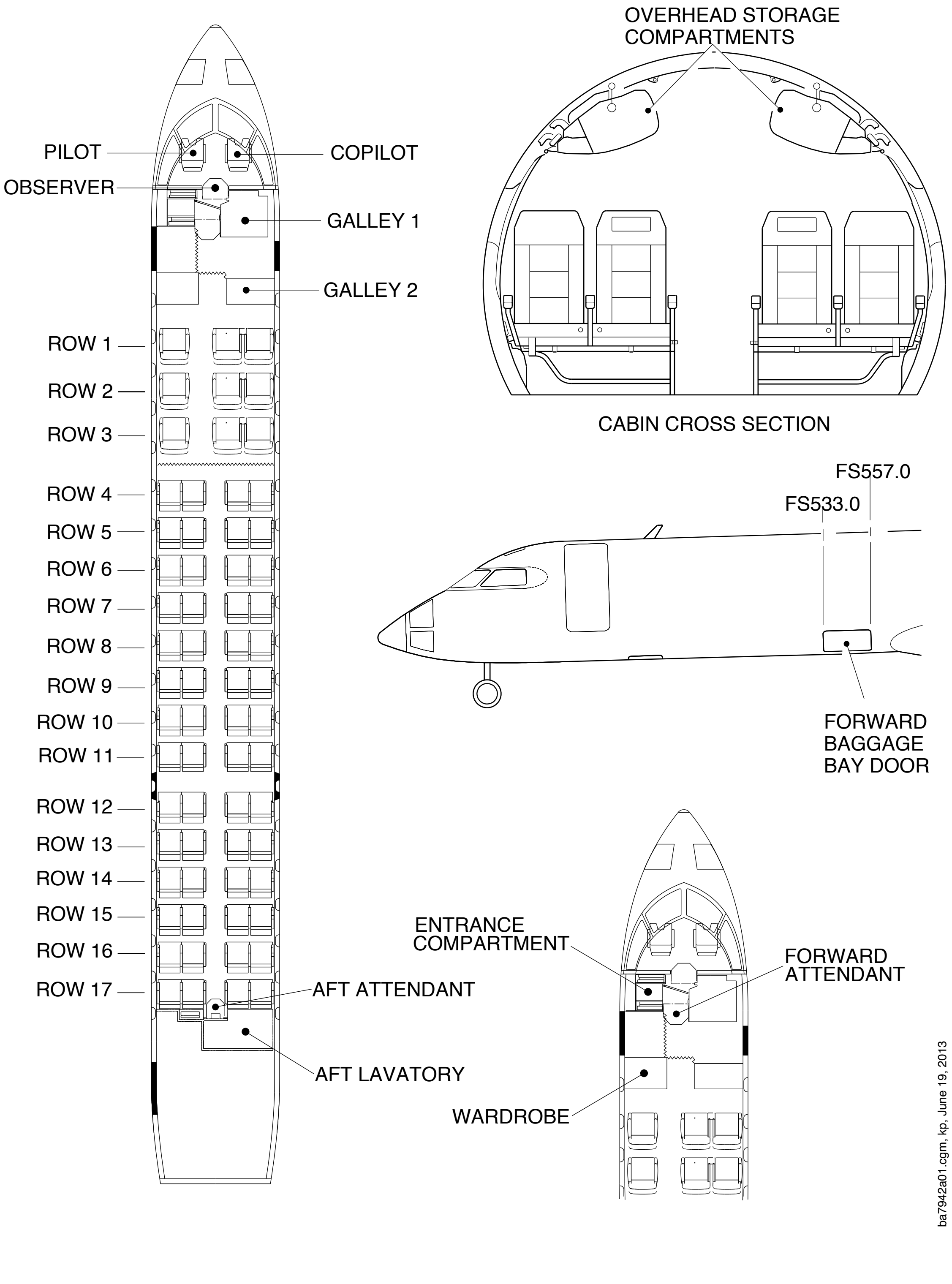
Passenger and Crew Arrangement – 40 Passengers – NEXT GEN
Figure 25



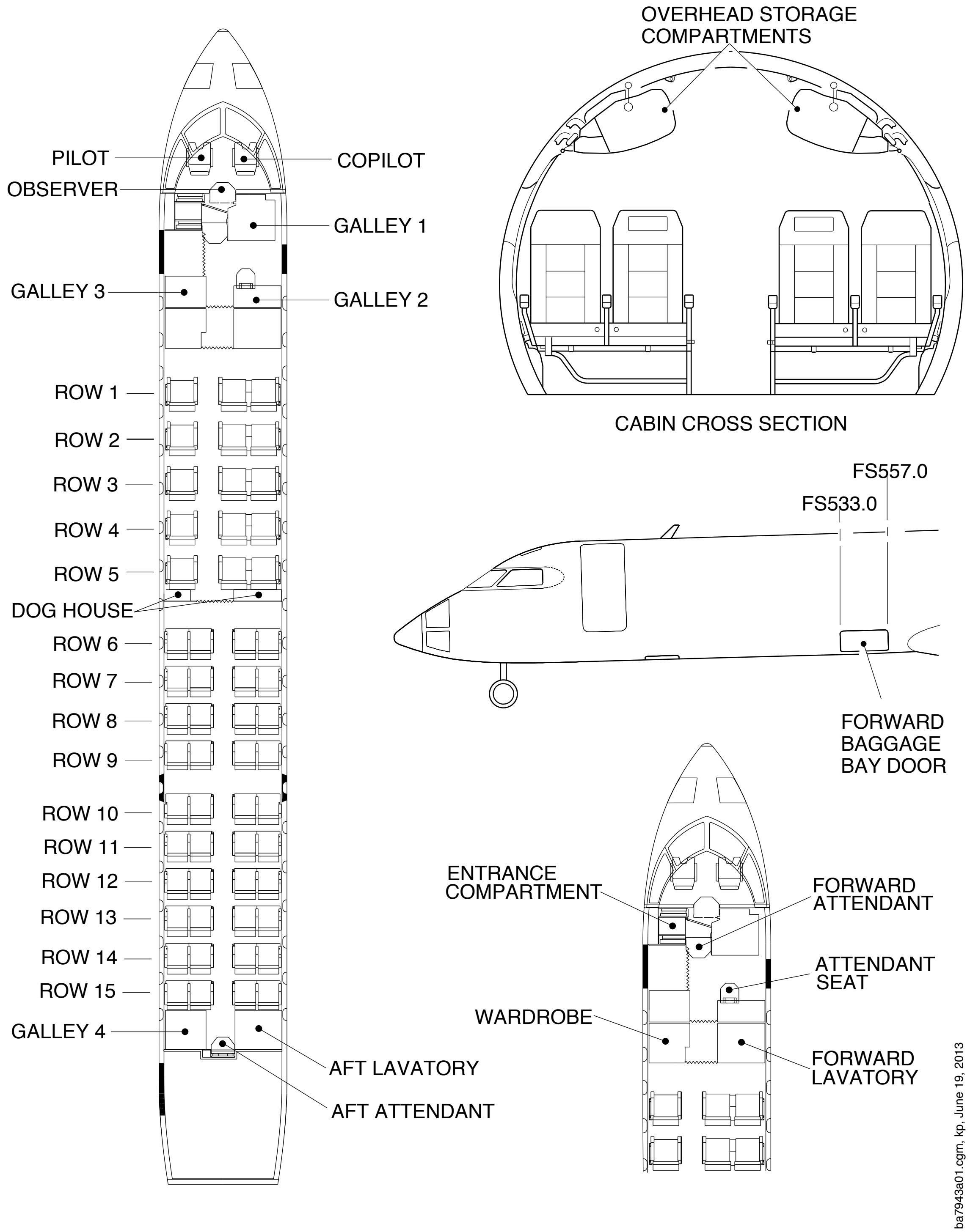
Passenger and Crew Arrangement – 70 Passengers – NEXT GEN
Figure 26



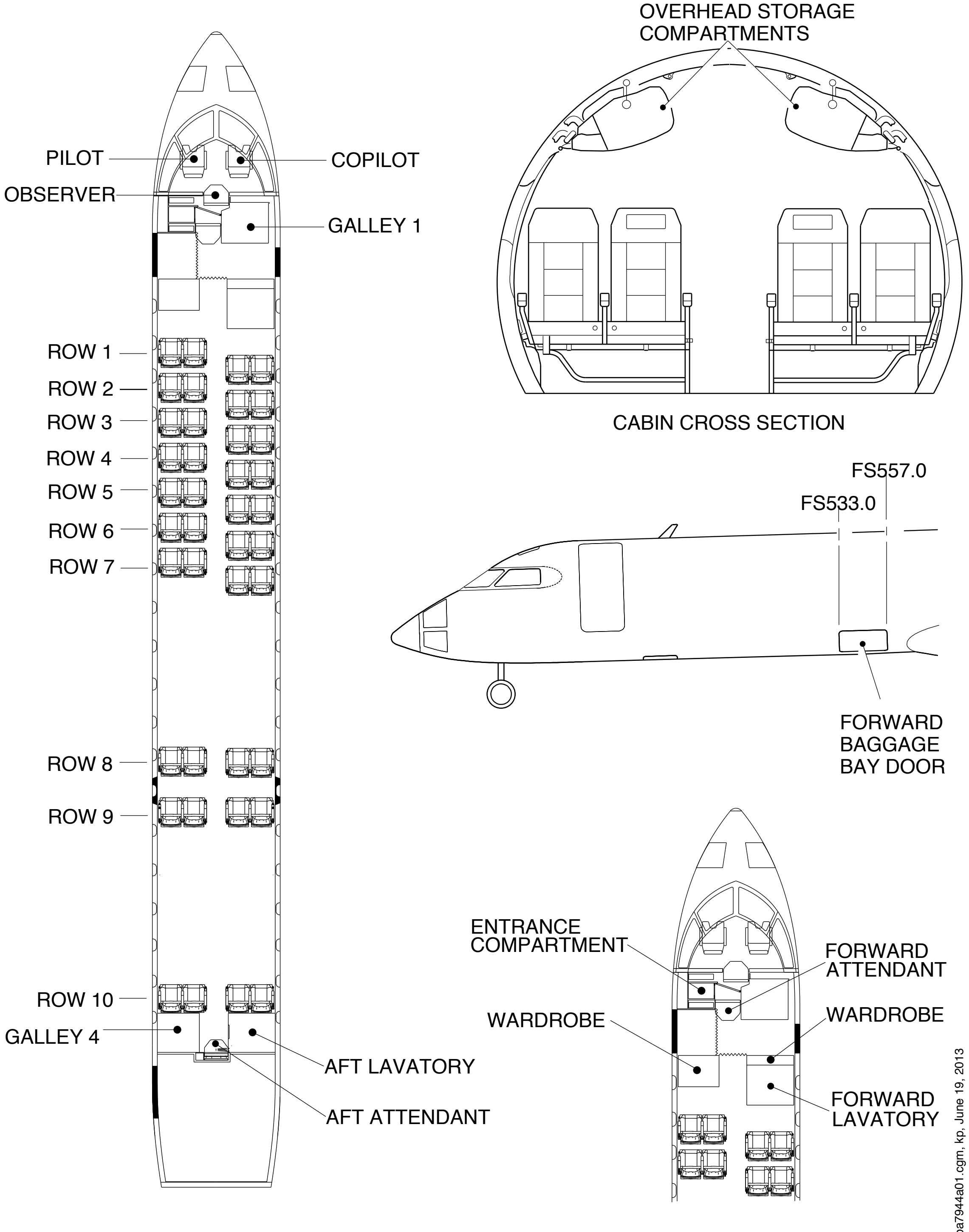
Passenger and Crew Arrangement – 65 Passengers – NEXT GEN
Figure 27



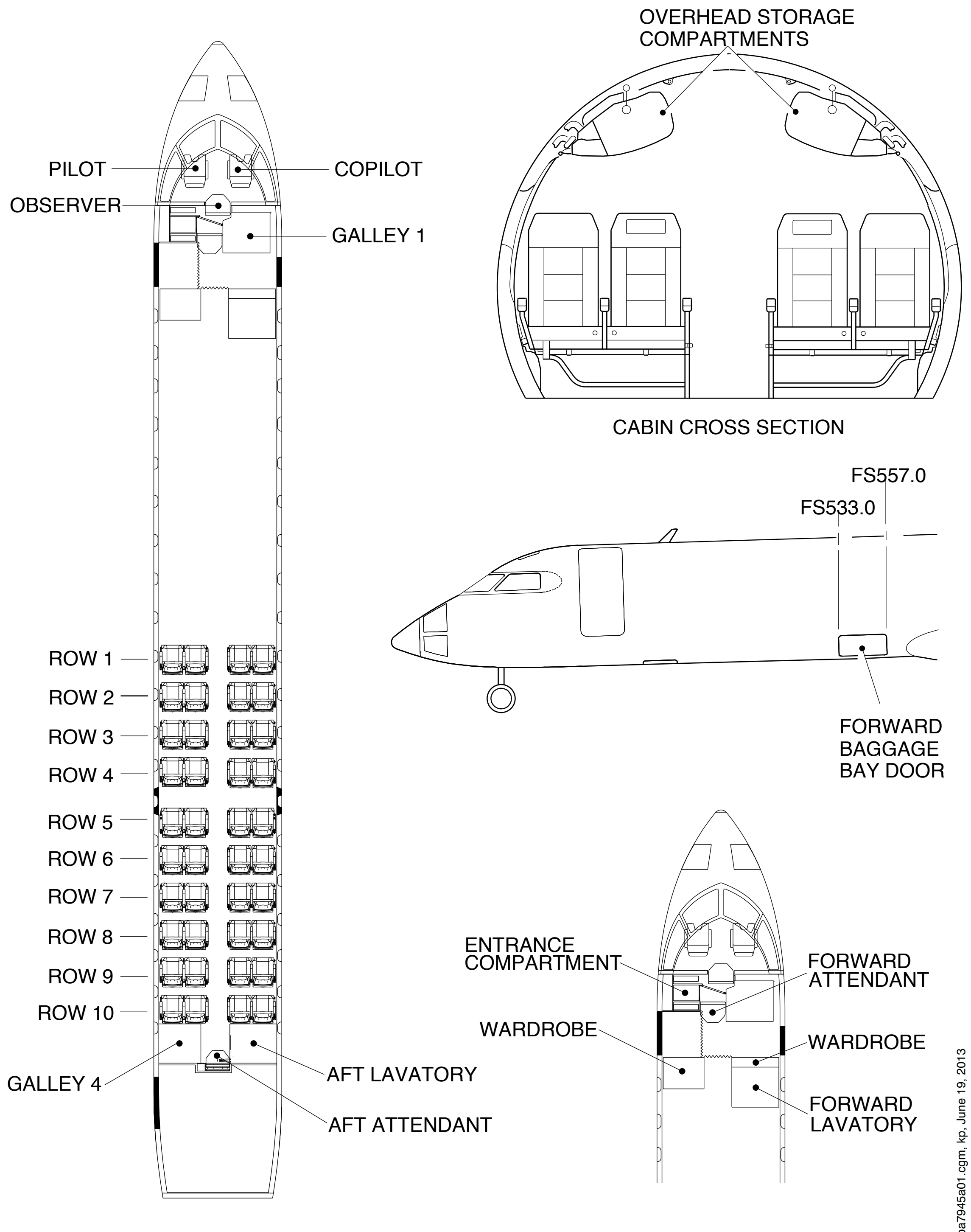
Passenger and Crew Arrangement – 65 Passengers – NEXT GEN
Figure 28



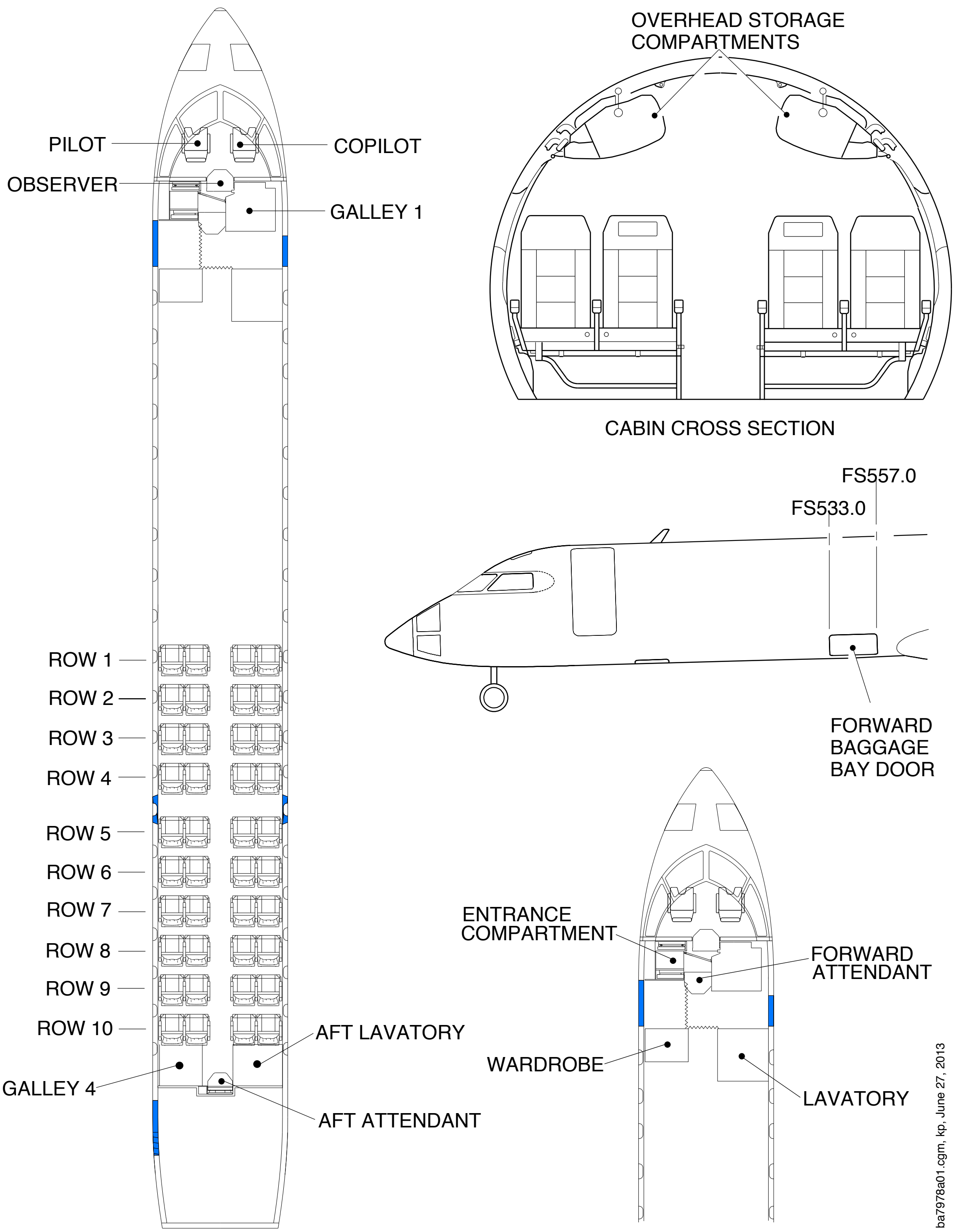
Passenger and Crew Arrangement – 55 Passengers – NEXT GEN
Figure 29



Passenger and Crew Arrangement – 40 Passengers – NEXT GEN
Figure 30



Passenger and Crew Arrangement – 40 Passengers – NEXT GEN
Figure 31



EDDY CURRENT INSTRUMENT
Figure 32

**ON A/C ALL

DOOR CLEARANCES

1. Introduction

This subsection gives data on the aircraft door sizes and clearance. This subsection is divided into the chapters that follow:

– General

– Door clearances

2. General

A. The door clearance sheets provide details on the door size and location on the aircraft. A general description of the doors is as follows:

(1) The main passenger door opens outward and down, and has stairs attached to the inner side. The door can be operated manually (internally and externally) for opening and can be manually closed from the outside. The passenger door can also be operated with a power assist system, to close it from the inside of the aircraft.

(2) The overwing emergency exits are plug–type doors that can be opened from the inside or from the outside of the fuselage. The emergency exit doors permit the passengers to exit from the aircraft during an emergency.

(3) The crew escape hatch is provided to permit the pilots to escape the aircraft during an emergency, if the flight compartment is blocked.

(4) The forward and aft cargo compartment doors are semi–plug type that open from the outside of the fuselage and are unlocked by use of an external handle. The doors move inward initially, continue to move outboard from the fuselage, and then swing down on a hinge mechanism resting below the fuselage outer skin. The cargo compartment doors are not accessible from the passenger compartment and are not emergency exits.

(5) The service doors include the galley service door, main avionics compartment door, and the aft equipment compartment door.

(a) The galley service door is a semi–plug type door and is a Type 1 emergency exit. The door is for servicing the galley and is manually opened or closed from inside or outside of the aircraft.

NOTE: For certain aircraft configurations, an optional fuselage plug is installed in the right aft fuselage in place of the aft galley service door to permit additional passenger seating.

(b) The main avionics compartment door is opened from the outside of the fuselage and moves up on a set of four roller arms and then moved fore or aft on a set of tracks.

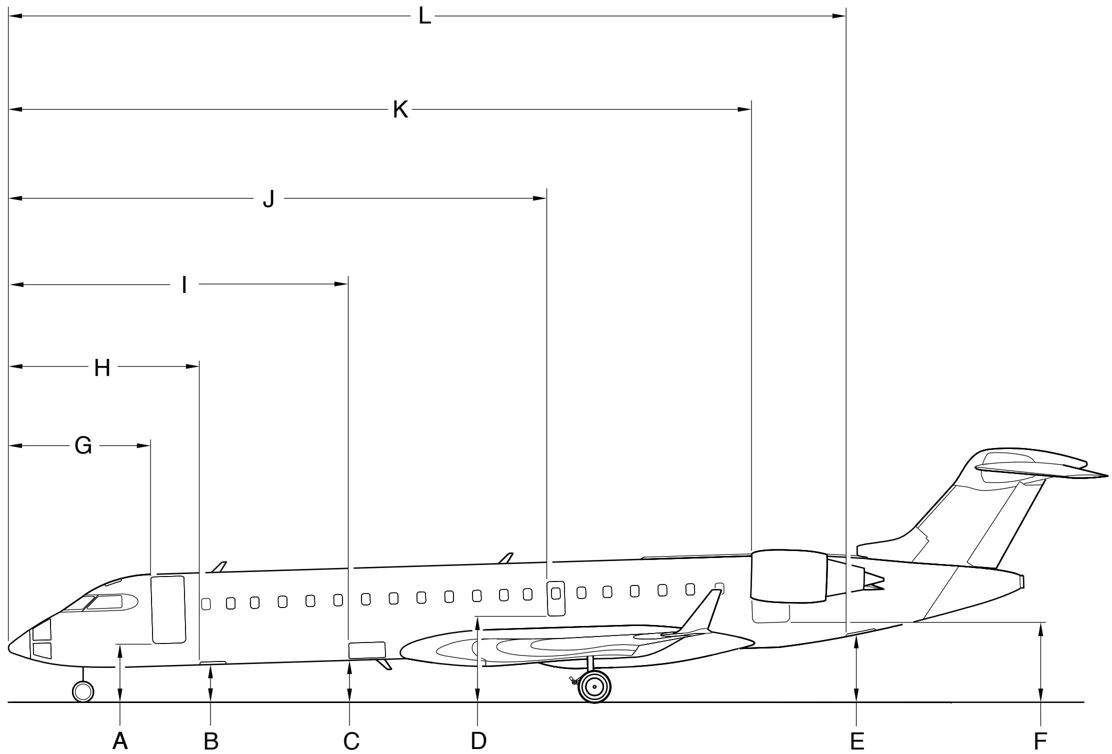
(c) The aft equipment compartment door, is located outside of the pressurized area of the aircraft. This door provides access to the aft equipment compartment components and has a grilled opening to ventilate the compartment.

3. Door Clearances

A. This section gives data about the location, the clearances between the doors, the access panels, and the ground (refer to Table 1 and Figure 1 for door clearances).

Table 1 – Door Clearances

LOCATION	DESCRIPTION	VALUE
A	Passenger Door Sill to Ground	5 ft. 8 in. (1.73 m)
A	Service Door (RH Side) Sill to Ground	5 ft. 8 in. (1.73 m)
B	Main Avionics Bay Door Sill to Ground	3 ft. 2 in. (0.98 m)
C	Forward Baggage Bay Door Sill to Ground	3 ft. 11 in. (1.19 m)
D	Overwing Emergency Exit Door Sill to Ground	7 ft. 9 in. (2.38 m)
E	Aft Equipment Bay Door to Ground	6 ft. 3 in. (1.92 m)
F	Aft Baggage Bay Door Sill to Ground	7 ft. 7 in. (2.31 m)
G	Passenger Door (FWD Side) to Radome	13 ft. 10 in. (4.22 m)
G	Service Door (RH Side) to Radome	14 ft. 7 in. (4.47 m)
H	Main Avionic Compartment Door to Radome	18 ft. 4 in. (5.61 m)
I	Forward Baggage Bay Door (FWD Side) to Radome	32 ft. 8 in. (9.97 m)
J	Overwing Emergency Exit (FWD Side) to Radome	51 ft. 6 in. (15.70 m)
K	Aft Baggage Bay Door (FWD Side) to Radome	71 ft. 5 in. (21.77 m)
L	Aft Equipment Bay Door to Radome	80 ft. 5 in. (24.51 m)



Door Clearances
Figure 1

THIS PAGE INTENTIONALLY LEFT BLANK

**ON A/C ALL

CARGO COMPARTMENT CONFIGURATIONS

1. Introduction

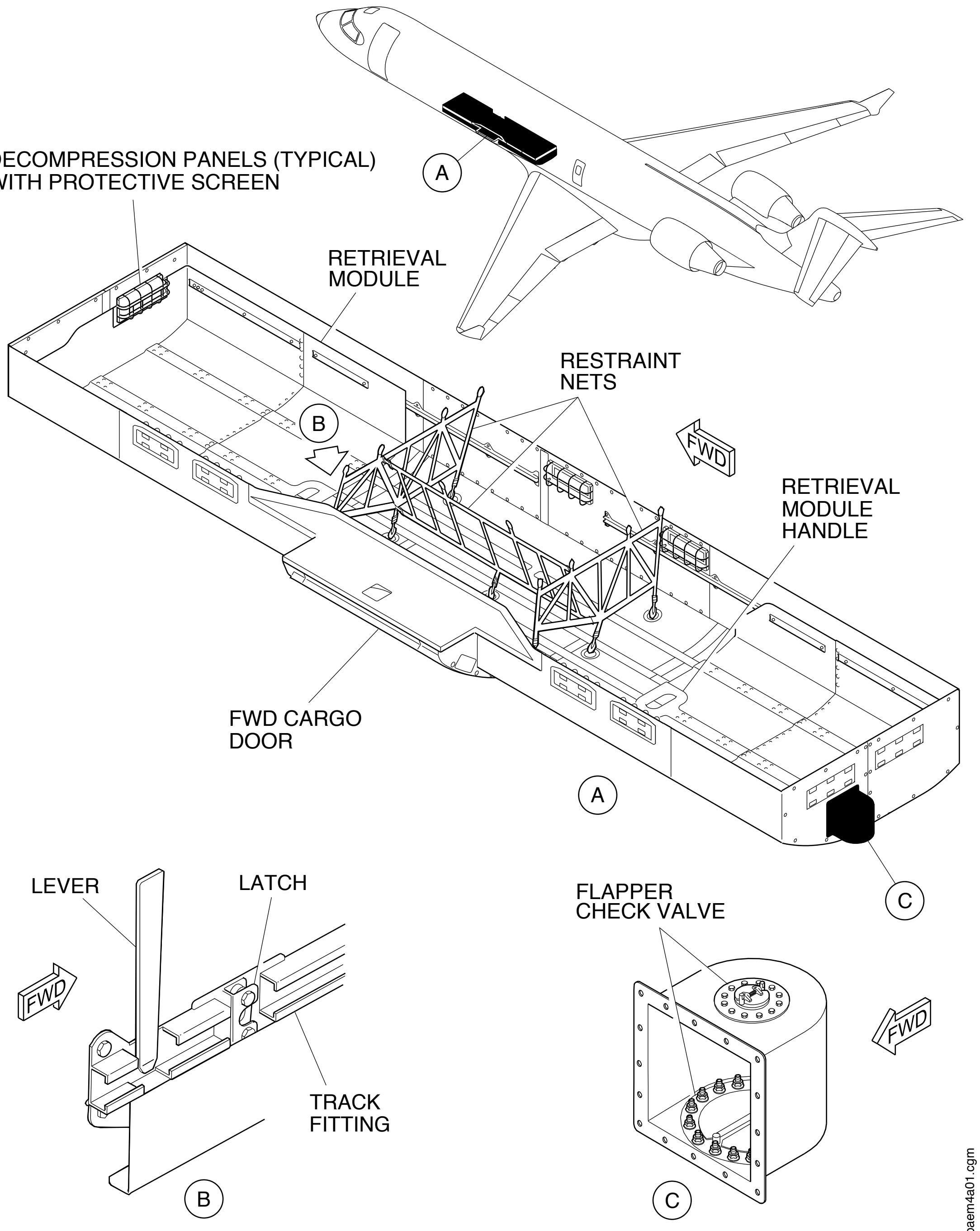
This section contains data about the cargo compartments. This section is divided into the subsections that follow:

– Forward cargo compartment

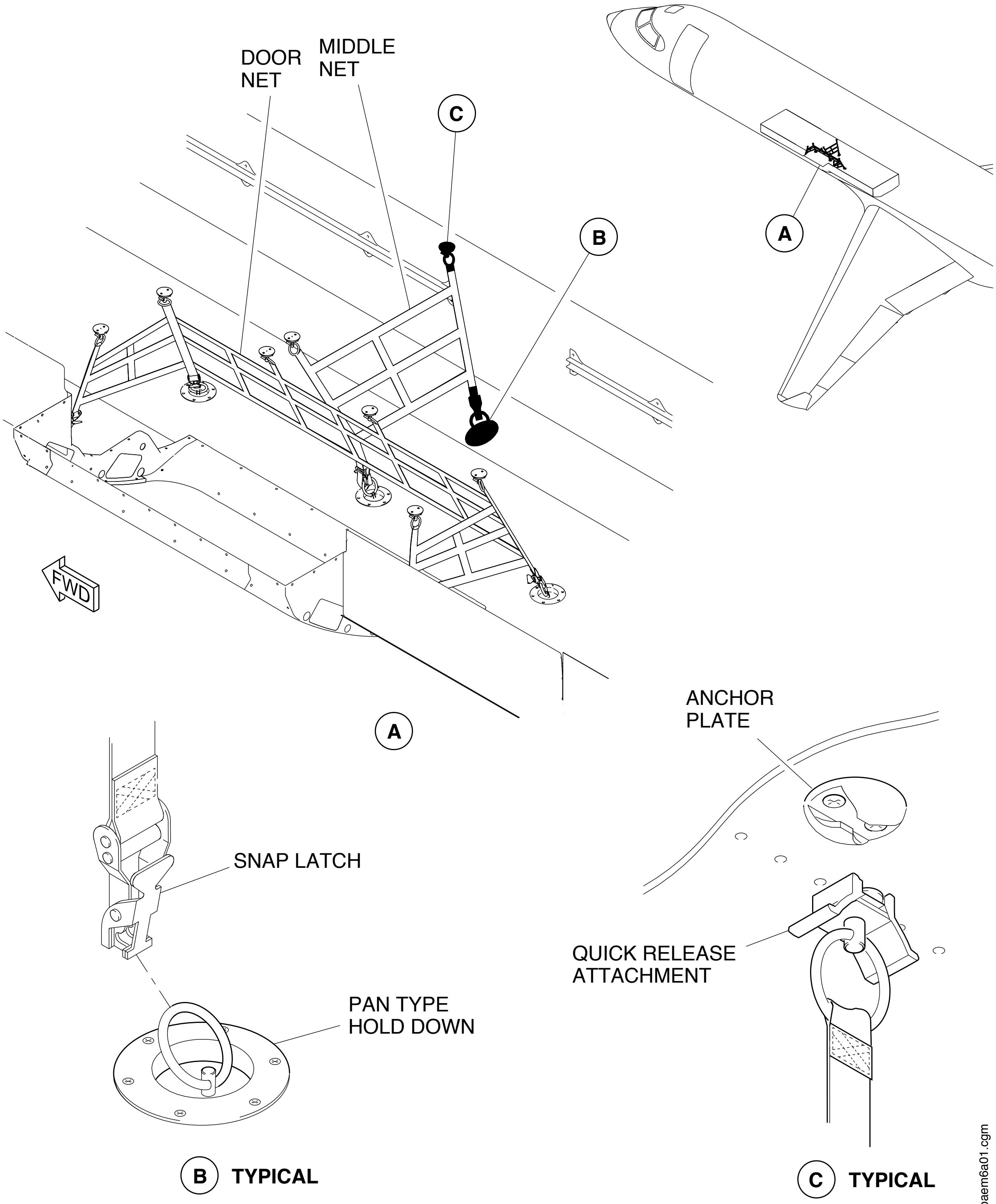
– Aft cargo compartment.

2. Forward Cargo Compartment

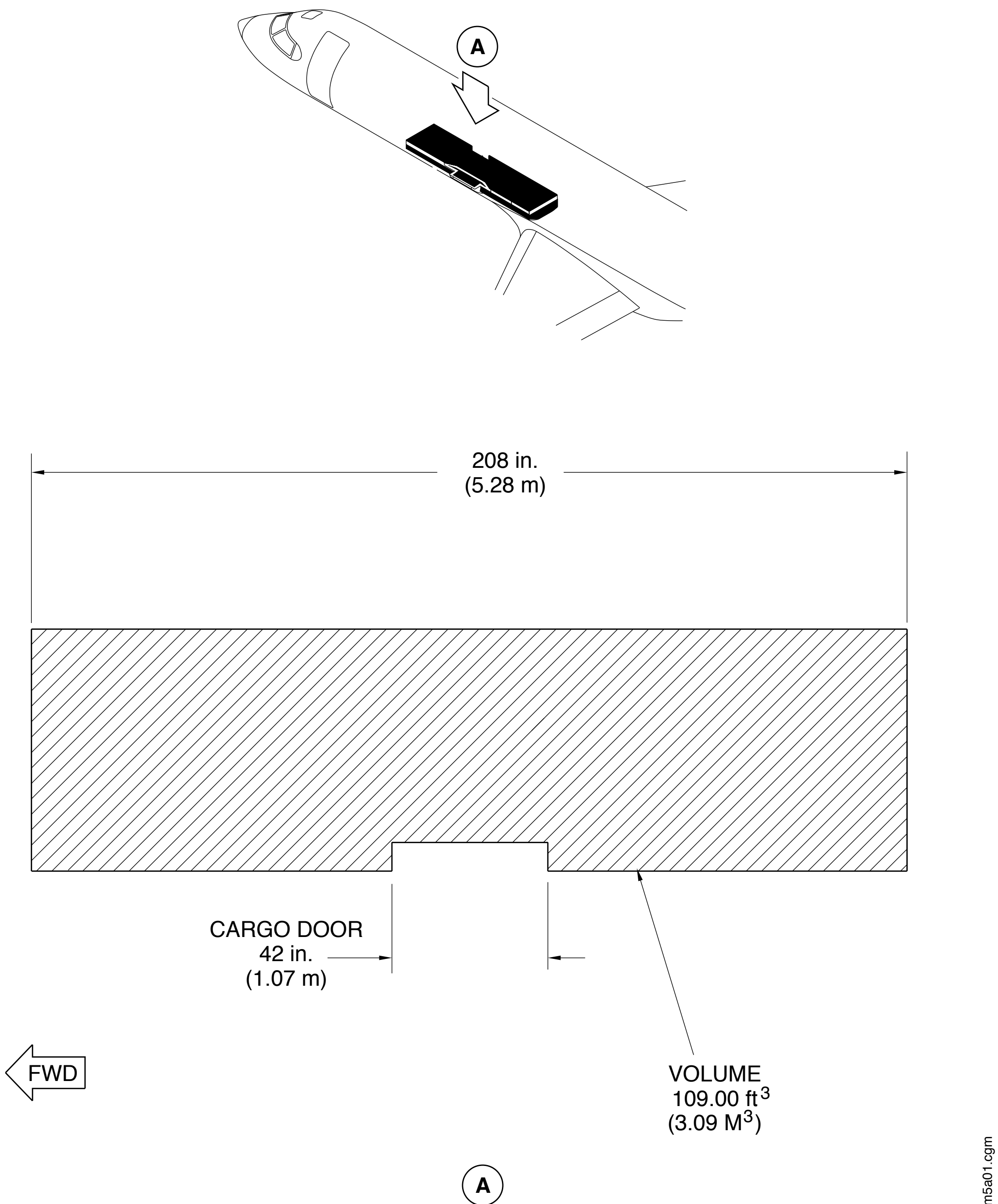
A. This subsection gives data about the forward cargo compartment (refer to Figures 1, 2 and 3).



Forward Cargo Compartment
Figure 1



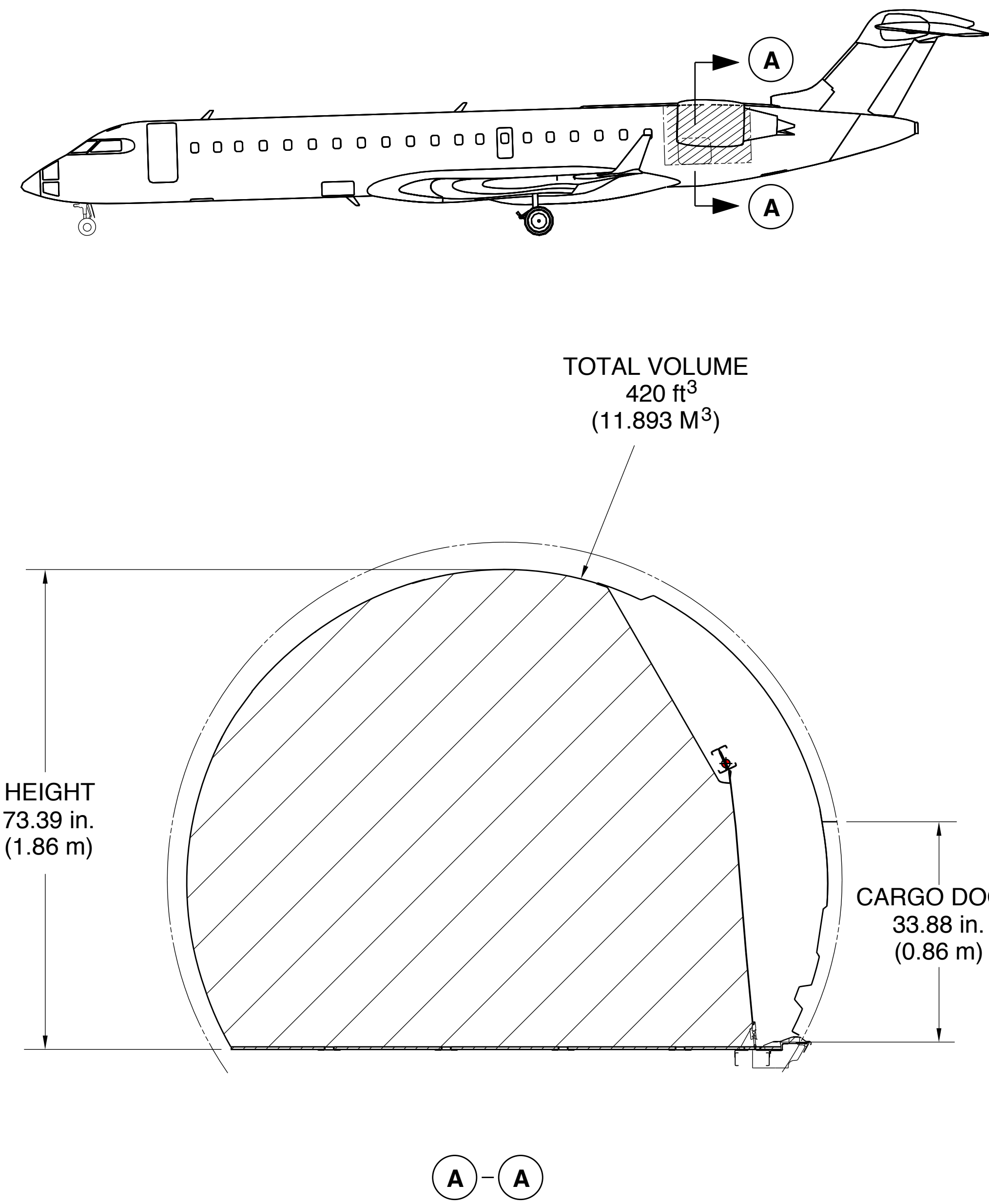
Forward Cargo Compartment
Figure 2



Forward Cargo Floor
Figure 3

3. Aft Cargo Compartment

A. This subsection gives data about the aft cargo compartment floor (refer to Figures 4, 5, 6 and 7).

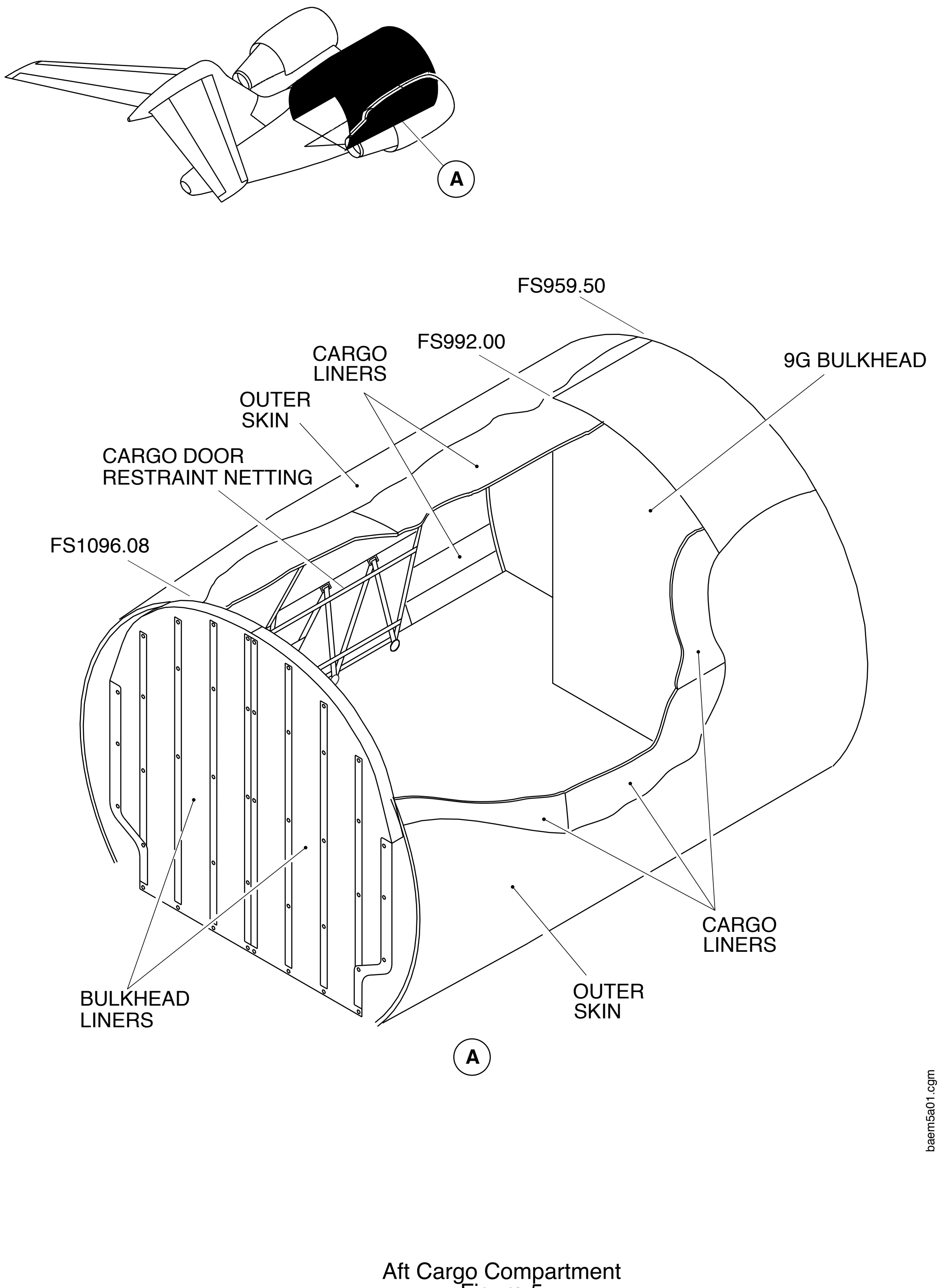


NOTE:

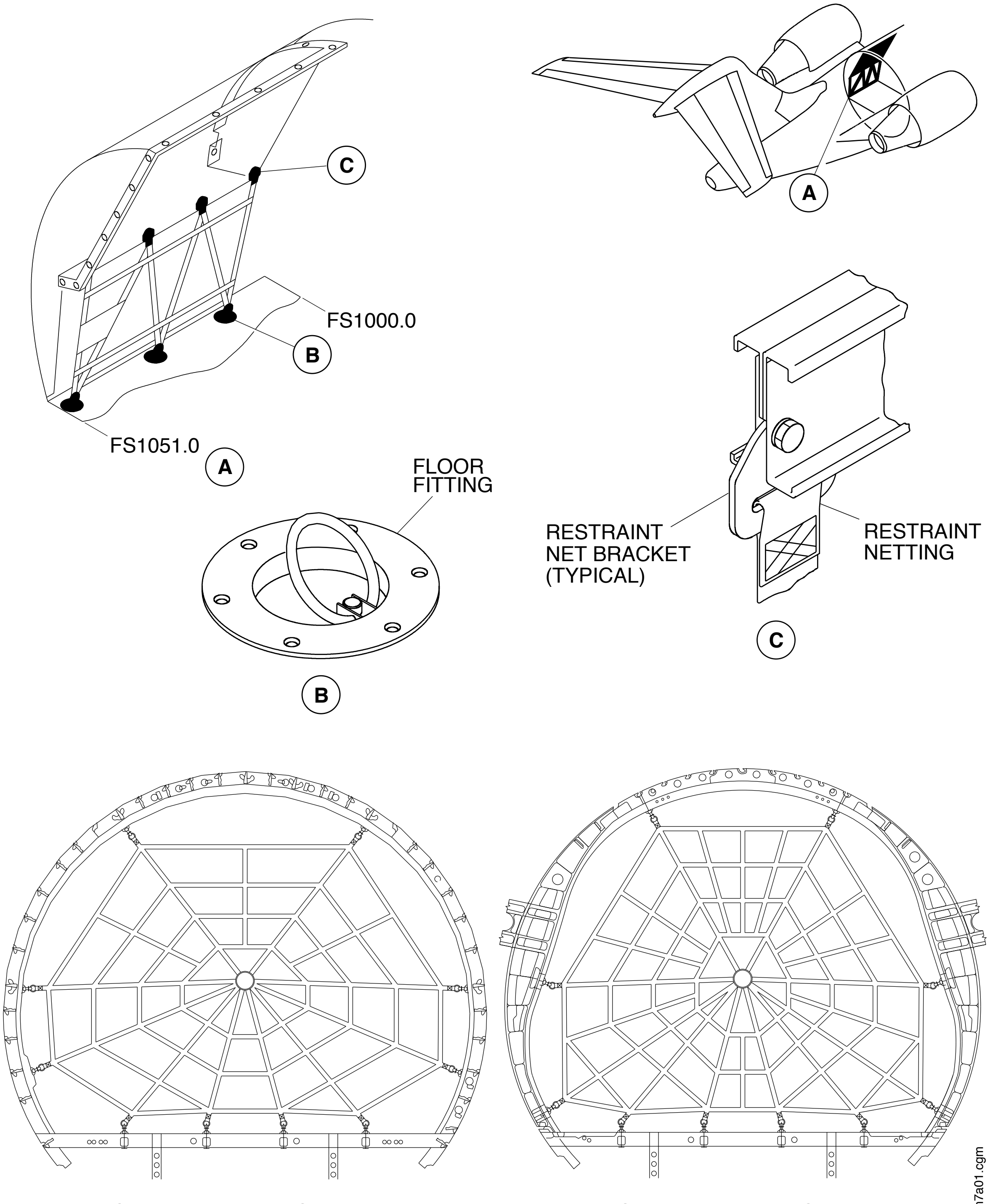
Dimensions are for reference only.

bavm6a01.cgm

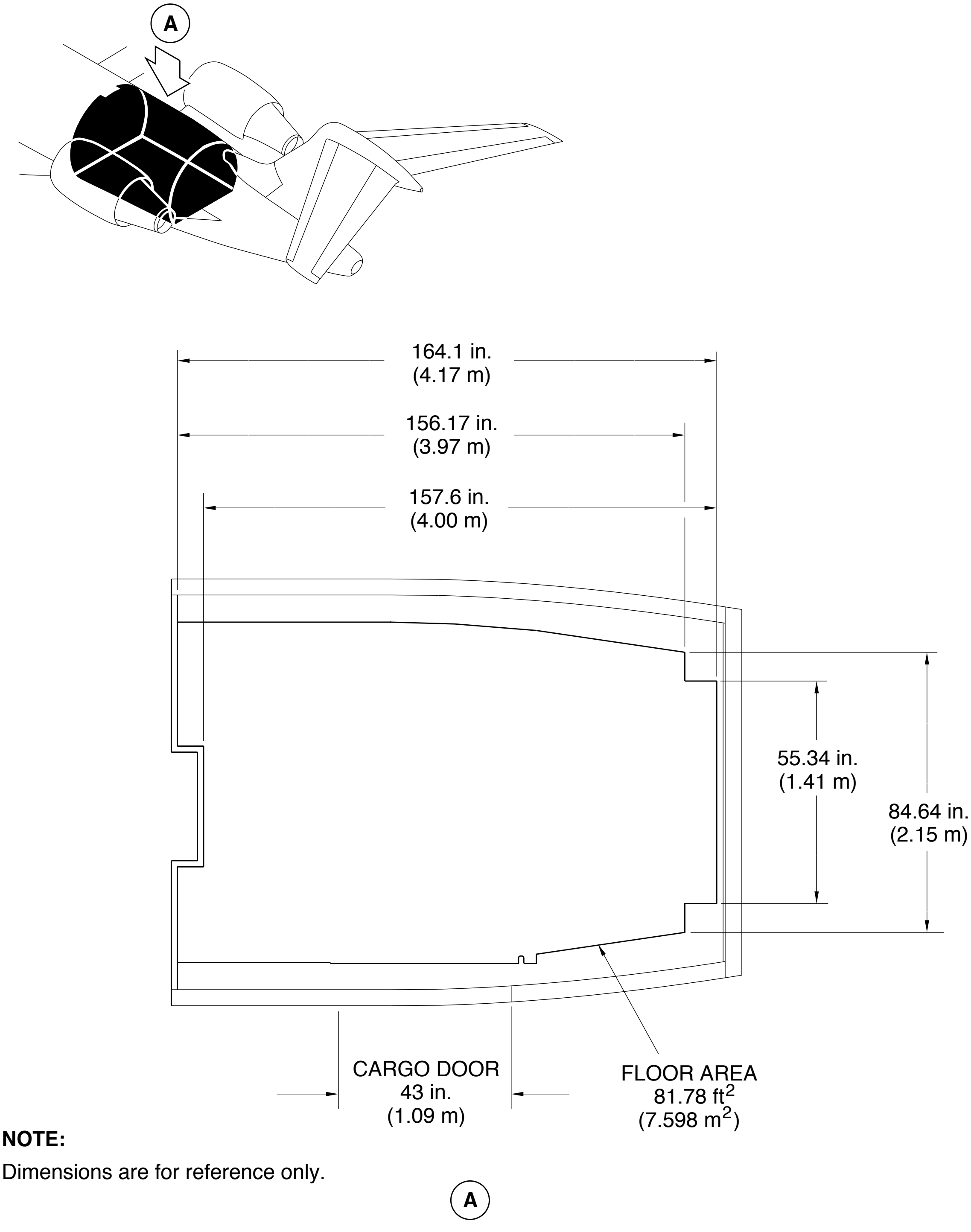
Aft Cargo Shape
Figure 4



Aft Cargo Compartment
Figure 5



Aft Cargo Compartment
Figure 6



NOTE:

Dimensions are for reference only.

Aft Cargo Floor
Figure 7

THIS PAGE INTENTIONALLY LEFT BLANK

**ON A/C ALL

AIRCRAFT PERFORMANCE

1. Introduction

This section contains performance data for the aircraft during normal operations:

– Standard day temperature chart

– Payload/range information for specific cruise altitudes and speeds.

This section is divided into the subsections that follow:

– Aircraft Performance – Takeoff field length requirements

– Aircraft Performance – Landing field length requirements.

2. Standard Day Temperature Chart

A. This section contains the performance data as required for airport planning purposes.

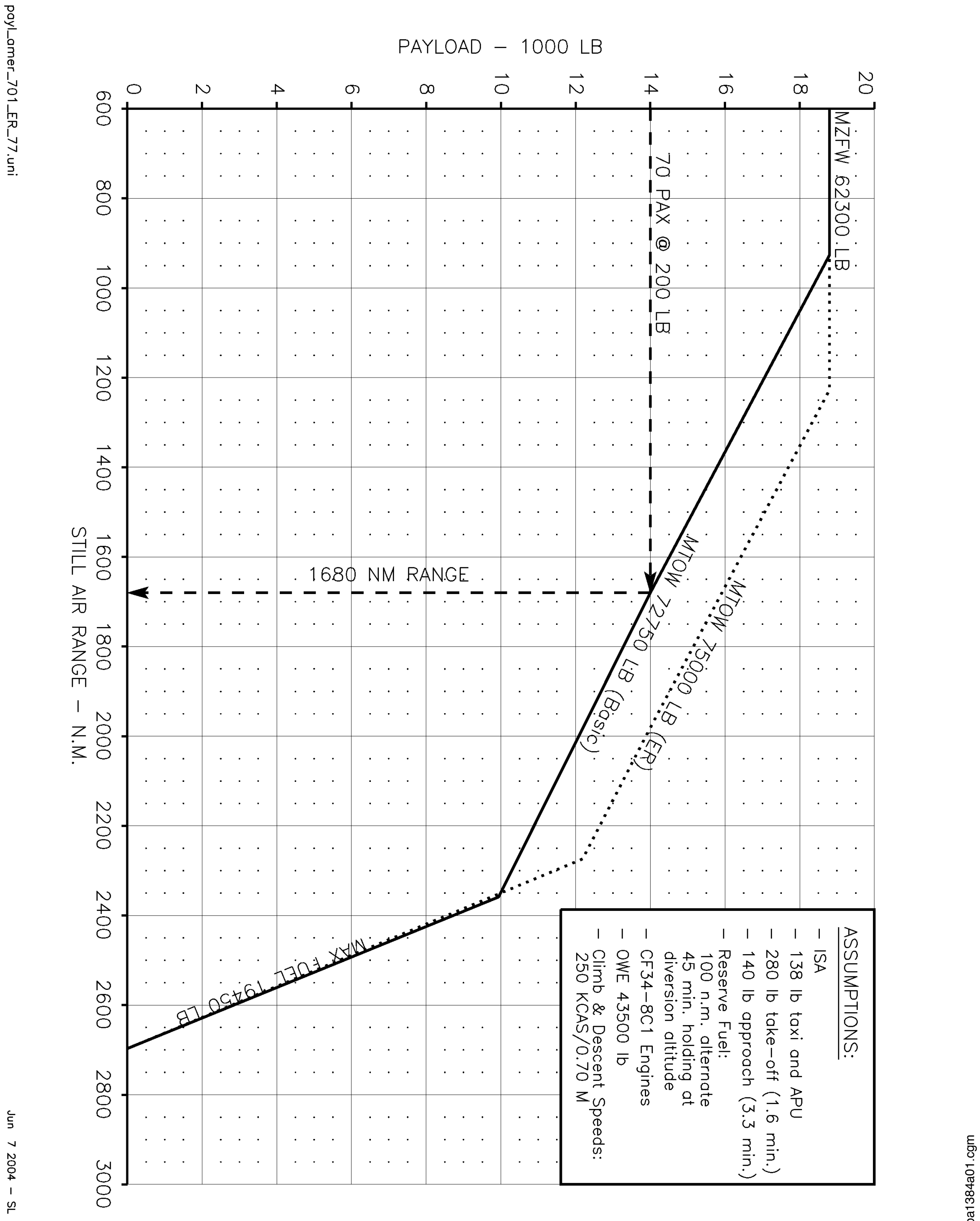
B. The standard day temperatures versus altitudes are given in Table 1 – Standard Day Temperature Chart.

Table 1 – Standard Day Temperature Chart

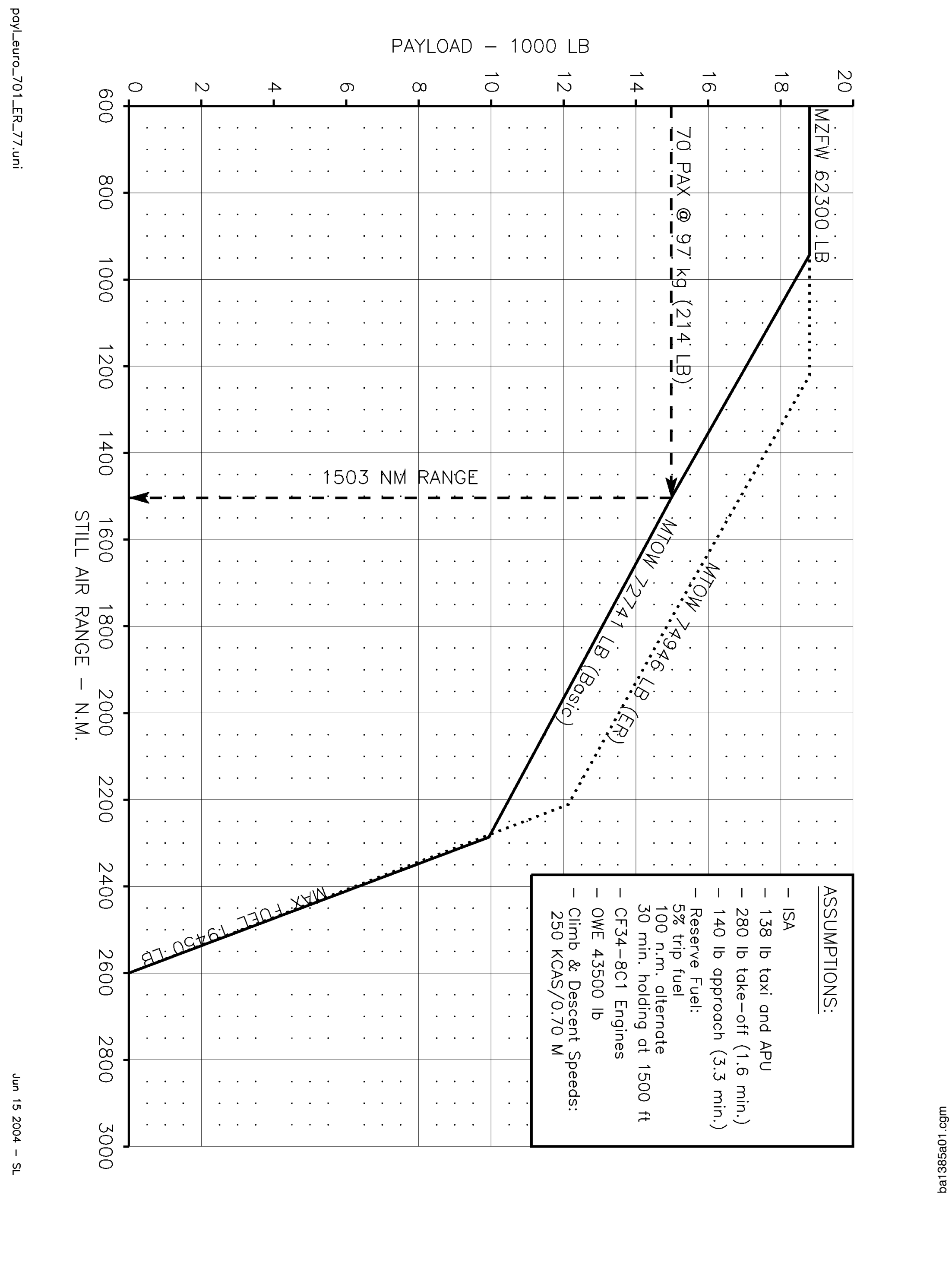
Elevation		Standard Day Temperature	
Feet (ft)	Meters (m)	°F	°C
0	0	59	15
2000	610	51.9	11.1
4000	1220	44.7	7.1
6000	1830	37.6	3.1
8000	2440	30.5	–0.8
10000	3050	23.3	–4.8

3. Payload/Range

A. Refer to Figures 1 and 2 for the payload/range data.



Payload/Range − US
Figure 1



Payload/Range – EU
Figure 2

THIS PAGE INTENTIONALLY LEFT BLANK

**ON A/C ALL

TAKEOFF FIELD LENGTH REQUIREMENTS

1. Introduction

This subsection gives data on the aircraft performance and field length requirements related to takeoff during normal operations. This subsection is divided into the chapter that follows:

– FAR takeoff runway length requirements.

2. FAR Takeoff Field Length Requirements

NOTE: For more information about aircraft performance, refer to the Aircraft Flight Manual (CSP B–012).

A. Refer to Figure 1 for the takeoff field length ISA.

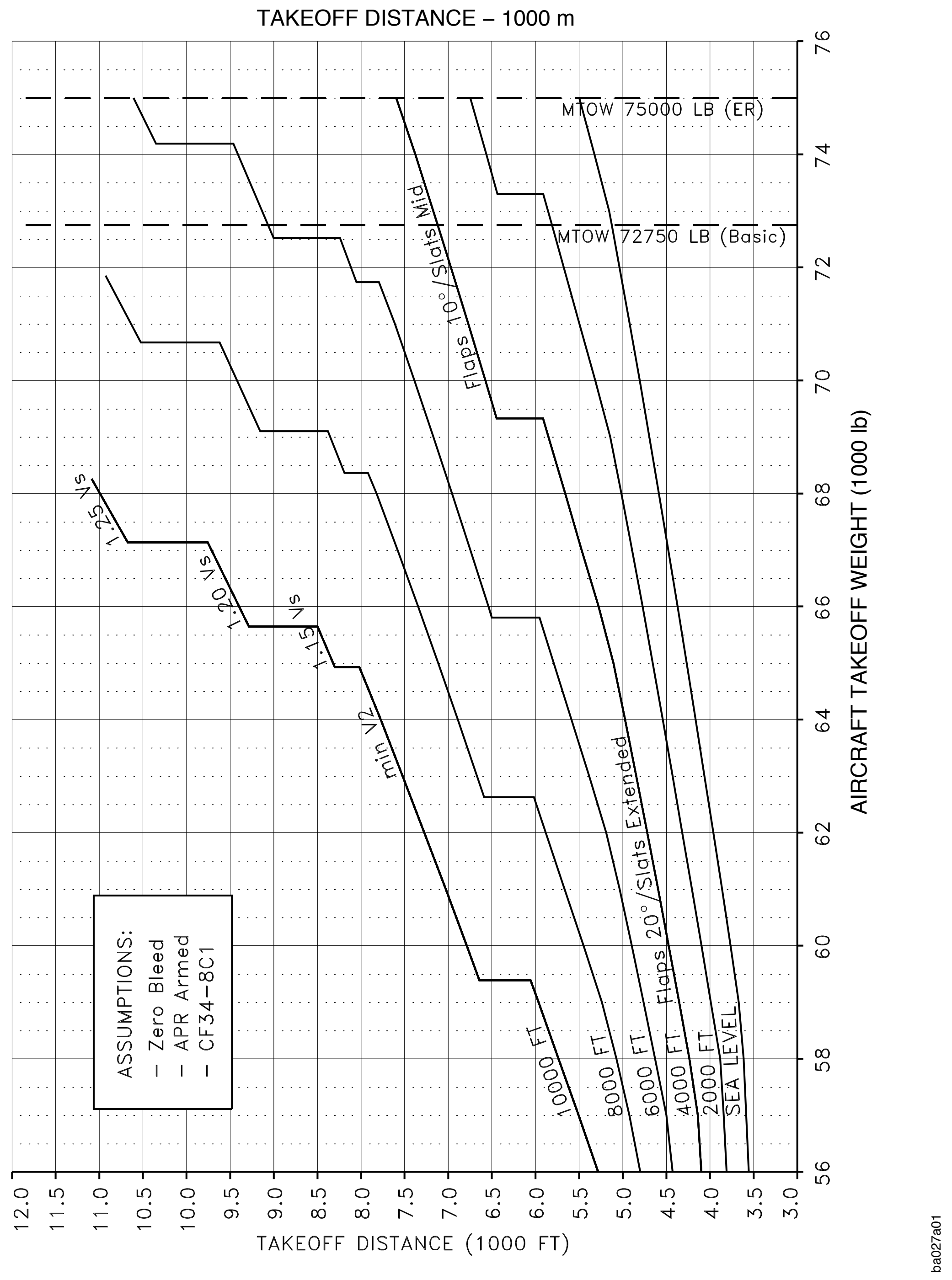
B. Refer to Figure 2 for the takeoff field length ISA + 15°C.

C. Refer to Figure 3 for the takeoff field length ISA + 20°C.

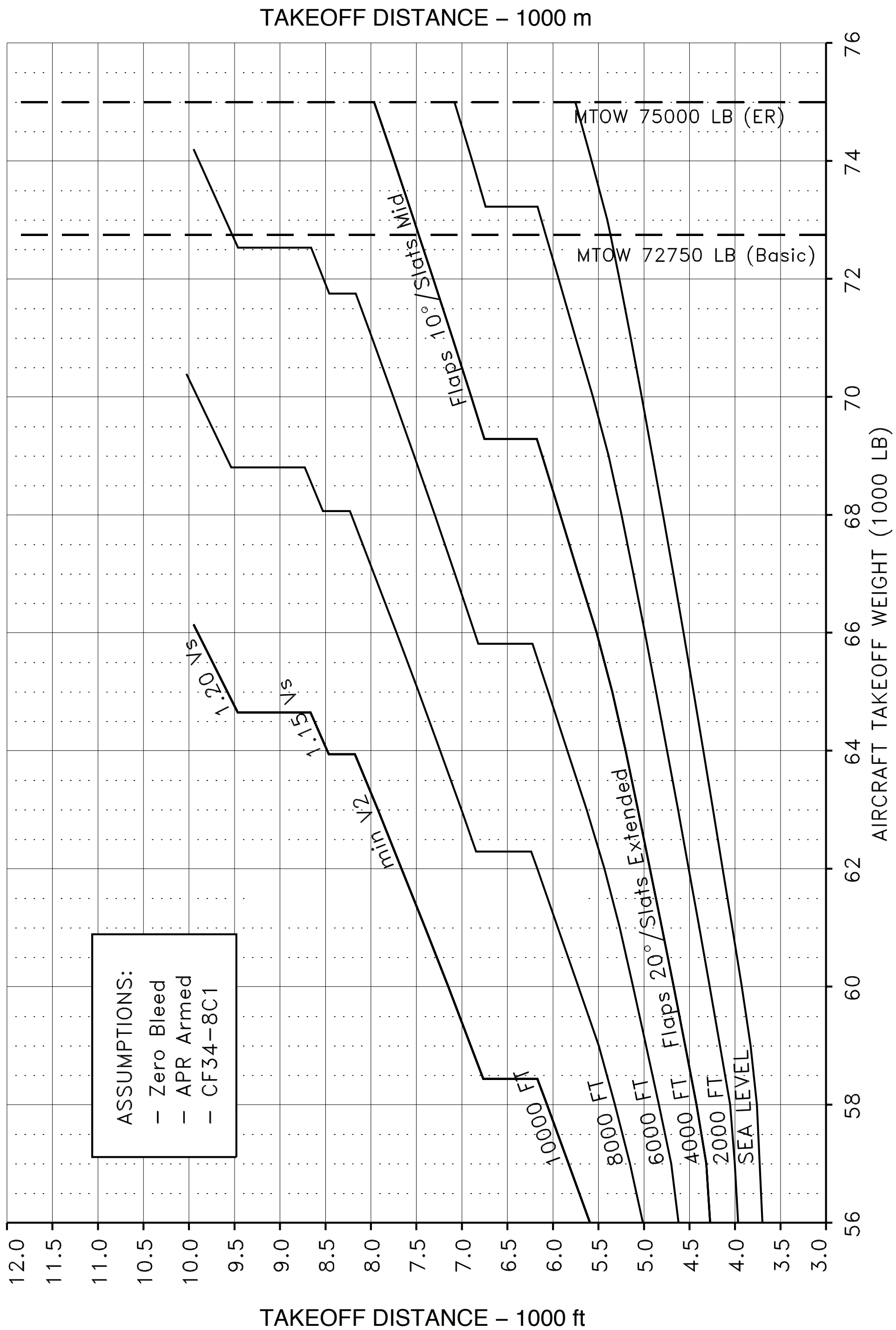
D. Refer to Figure 4 for the takeoff field length ISA + 25°C.

E. Refer to Figure 5 for the takeoff field length ISA + 30°C.

F. Refer to Figure 6 for the takeoff field length ISA + 35°C.

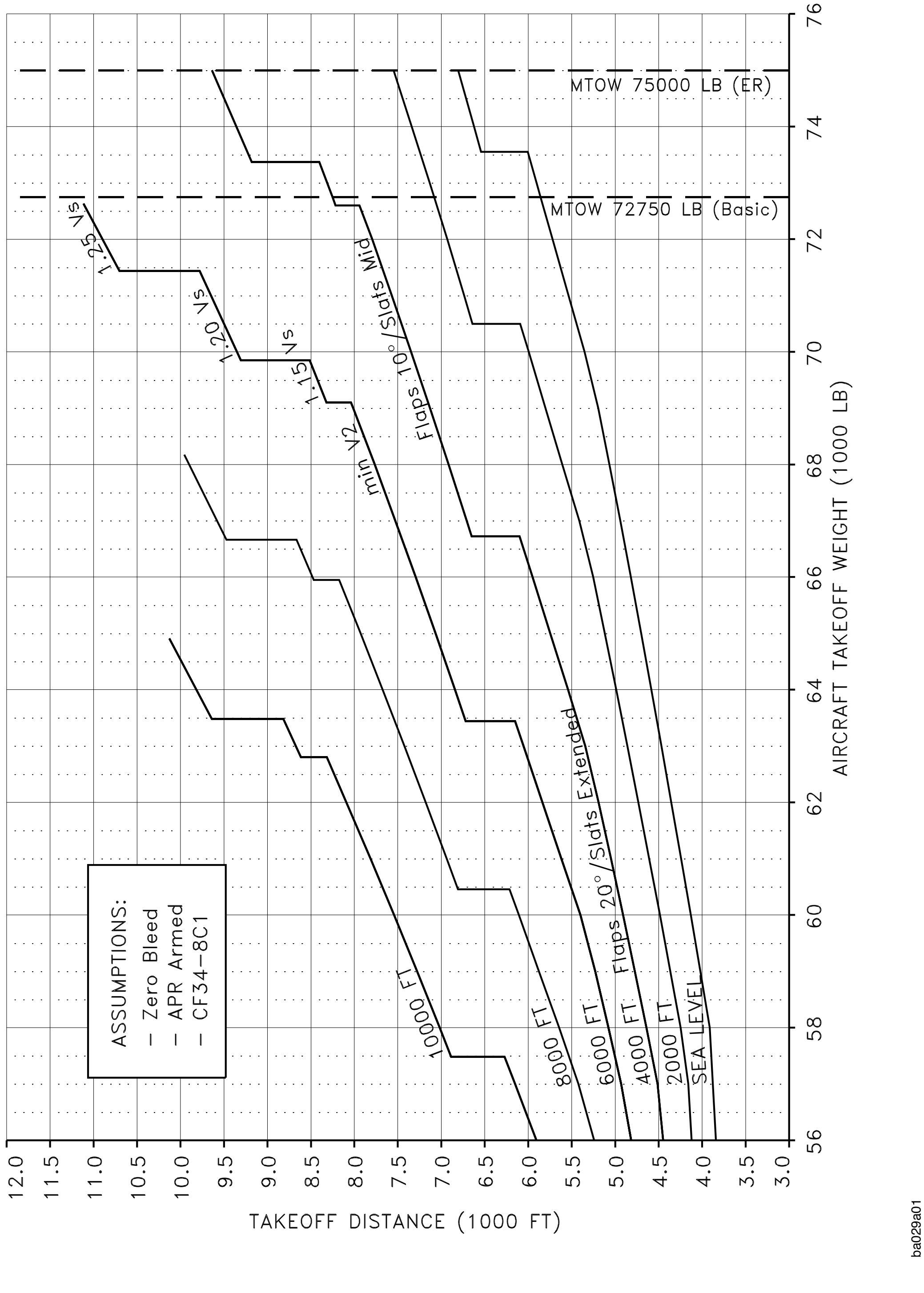


Take–Off Field Length – ISA
Figure 1

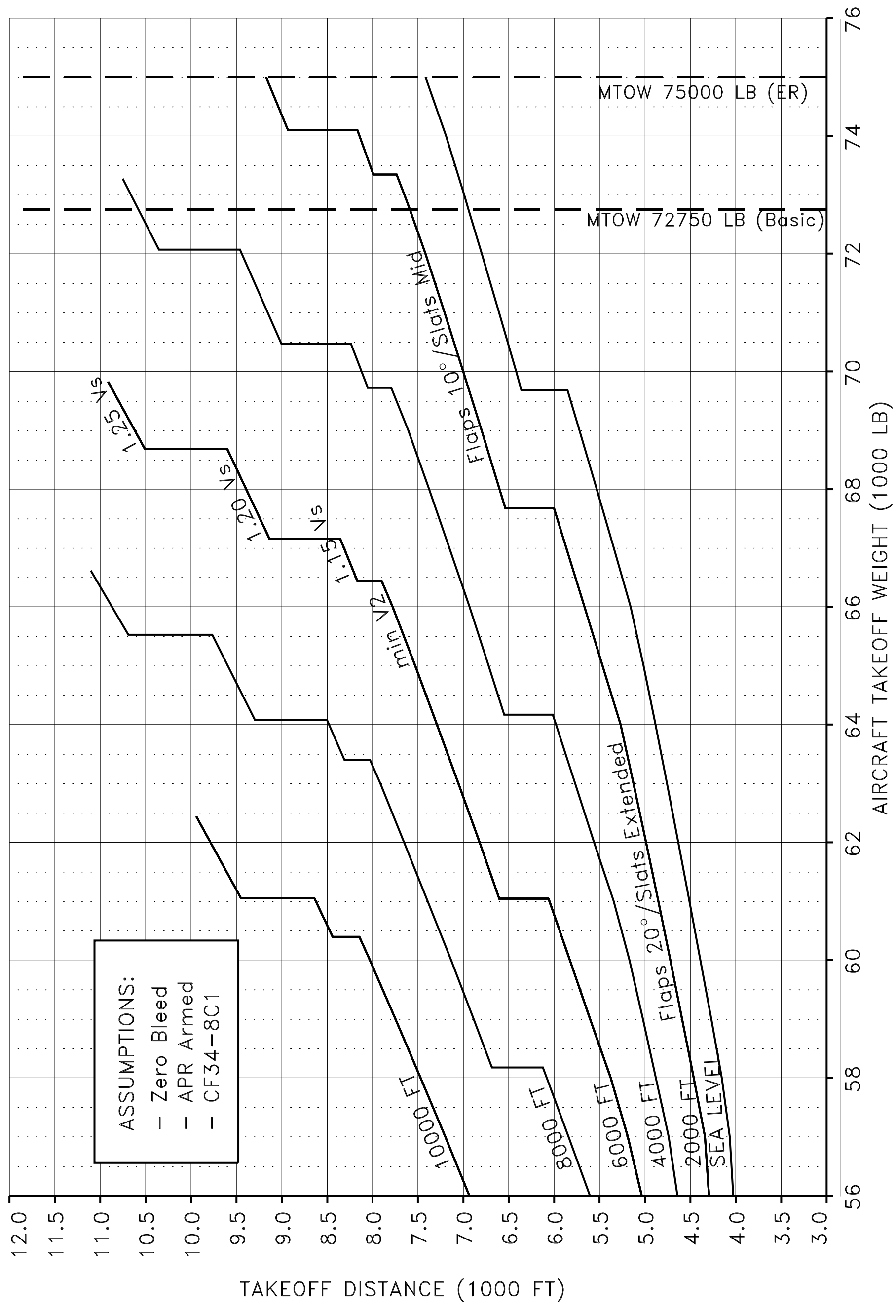


ba026a01

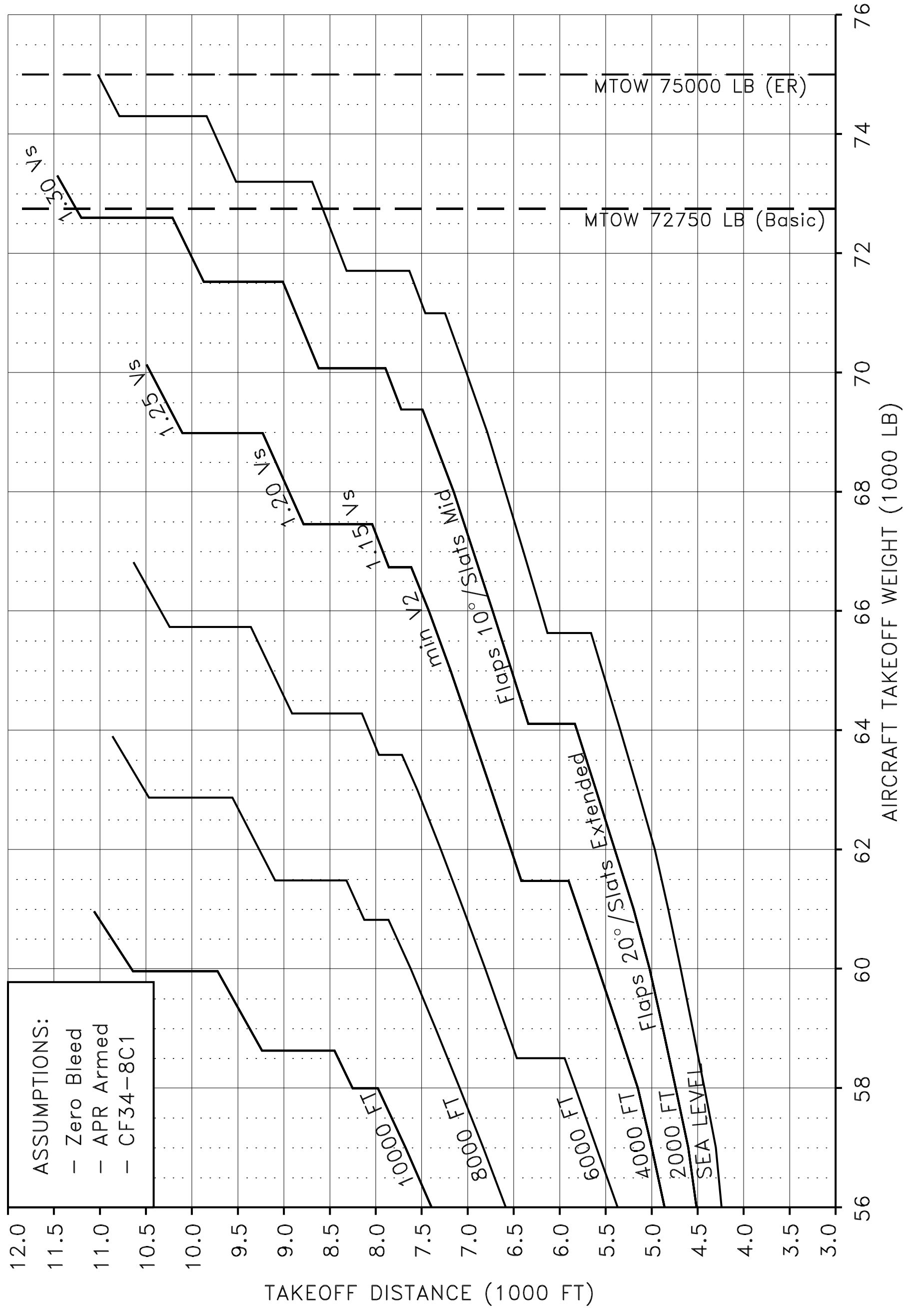
Take–Off Field Length – ISA + 15 Degrees C
Figure 2



Take–Off Field Length – ISA + 20 Degrees C
Figure 3

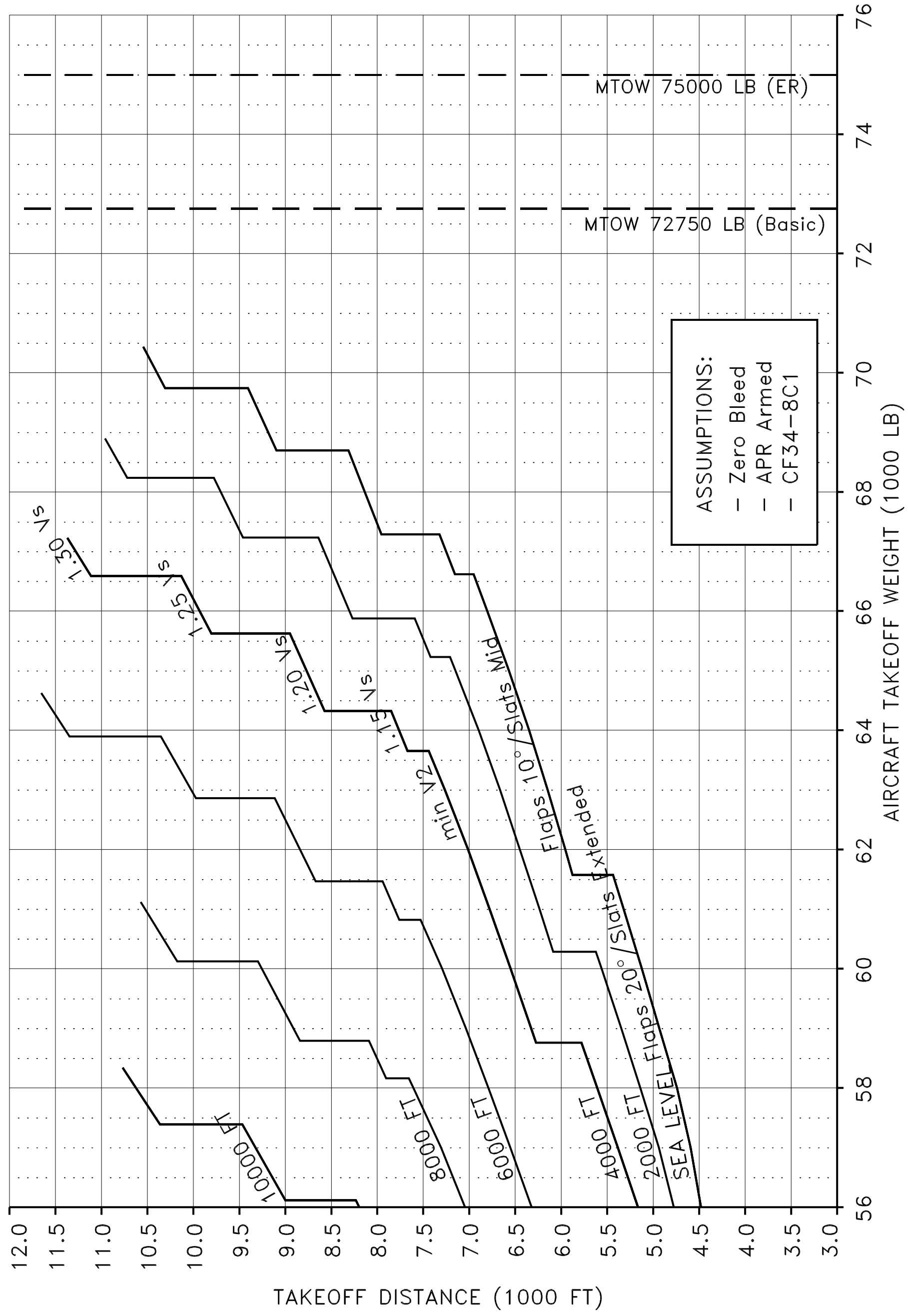


Take–Off Field Length – ISA + 25 Degrees C
Figure 4



ba078a01

Take–Off Field Length – ISA + 30 Degrees C
Figure 5



ba079a01

Take–Off Field Length – ISA + 35 Degrees C
Figure 6

THIS PAGE INTENTIONALLY LEFT BLANK

**ON A/C ALL

LANDING FIELD LENGTH REQUIREMENTS

1. General

This subsection gives data on the aircraft performance and field length requirements related to landing during normal operations. This subsection is divided into the chapters that follow:

– FAR landing field length requirements

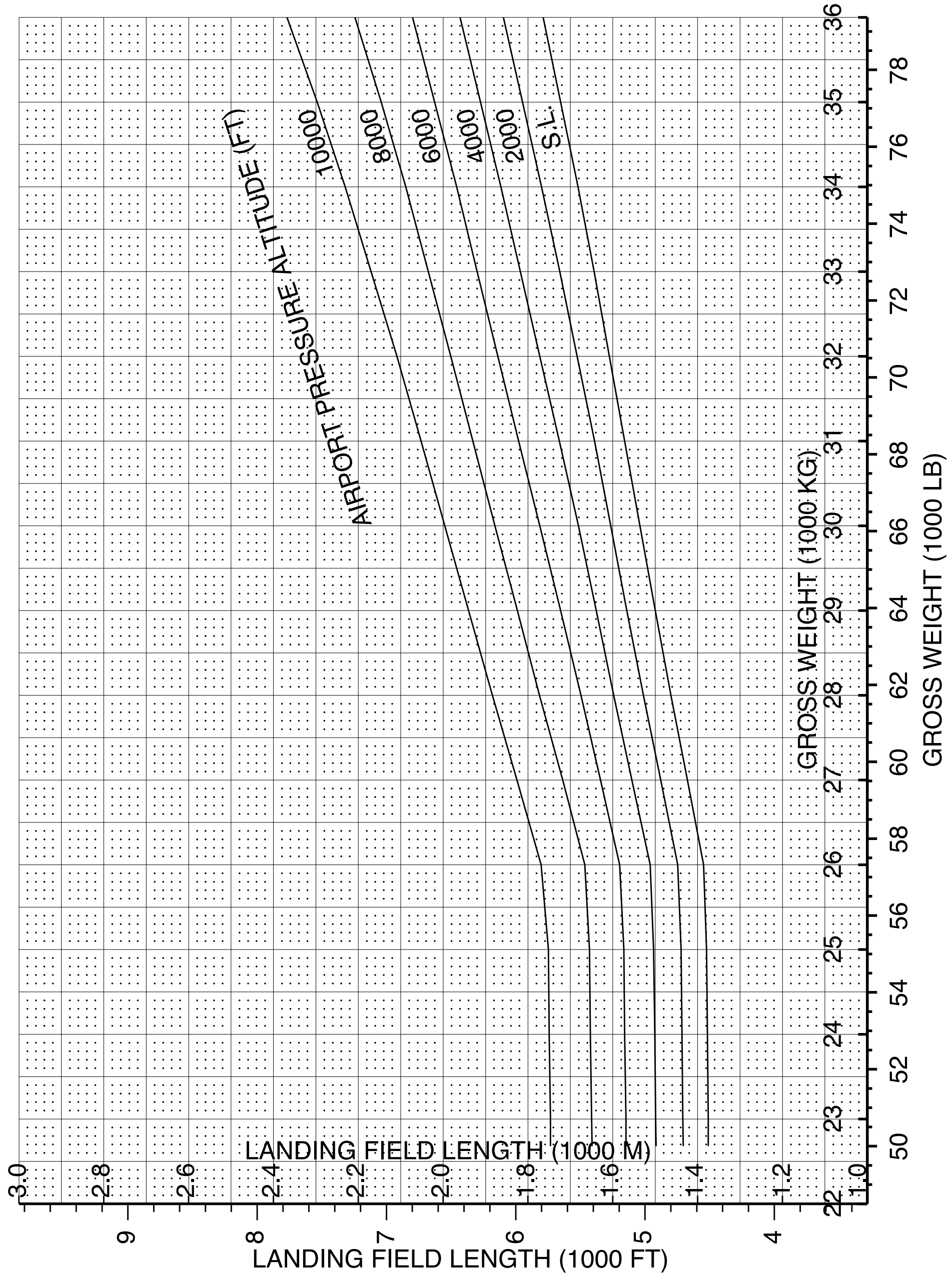
– Landing speed restrictions

2. FAR Landing Field Length Requirements

NOTE: FAR 25 landing field length versus landing weight are for dry runway and ISA conditions. The actual landing distance on a dry runway is equal to the dry runway landing field length multiplied by 0.6.

A. For more information about landing field, refer to the Aircraft Flight Manual (CSP B–012).

B. Refer to Figure 1 for the dry landing field length with flaps at 45 degrees/slats extended.

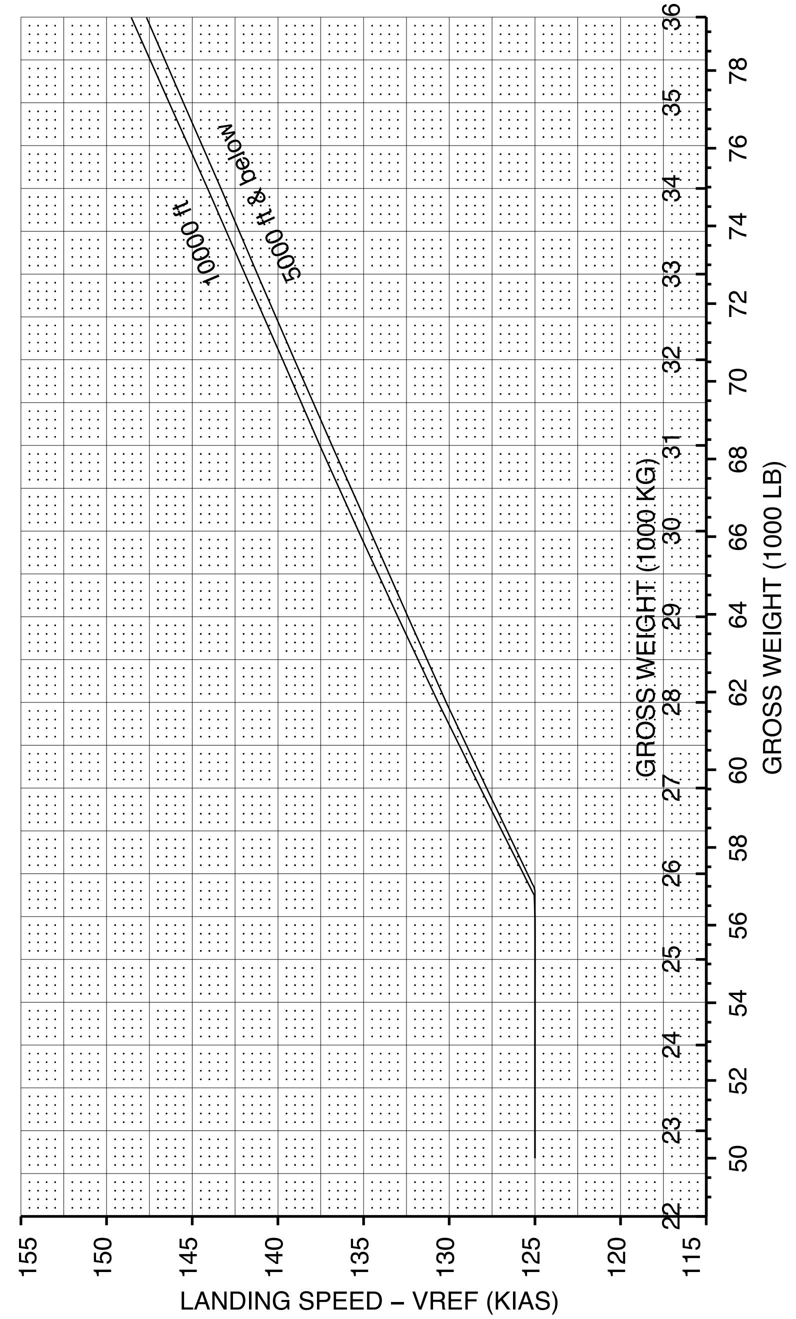


ba1879a01.cgm

Landing Field Length − Flaps at 45 Degrees/Slats Extended
Figure 1

3. Landing Speed Restrictions

A. Refer to Figure 2 for aircraft landing speed with flaps at 45 degrees/slats extended.



ba1831a01

Landing Speed − Flaps at 45 Degrees/Slats Extended
Figure 2

**ON A/C ALL

GROUND MANEUVERING

1. Introduction

This section contains data for the ground maneuvering of the aircraft during normal operations. This section is divided into the subsections that follow:

- Landing gear turning radii, including minimum turning radii
- Angles of visibility from the flight compartment
- Runway and taxiway turn paths

2. General

For ease of presentation, this data is taken from the theoretical limits given by the geometry of the aircraft and, where noted, provides for the normal allowance of tire slippage and reflects the turning capability of the aircraft in favorable operating circumstances. This data should only be used as a guideline for the method of determining the turning capabilities and maneuvering characteristics of the aircraft.

For ground maneuvering operations, different airlines can demand more conservative turning procedures be adopted to avoid too much tire wear and reduce possible maintenance problems. Maneuvering limits and performance levels will vary over a wide range of operating circumstances. Changes from the standard operating policies are sometimes necessary to agree with the physical limits found in the maneuvering area. This can include adverse grades, limited access areas or maneuvering in areas where there is a high risk of jet blast damage. For these reasons, airline ground maneuvering operations and limits should be known before you do the actual layout planning.

3. Landing gear turning radii, including minimum turning radii

A. This section contains data about the aircraft turning capability and maneuvering characteristics on the ground. The data is based on aircraft performance in good conditions of operation. Thus, the values must be considered theoretical and used only as an aid.

B. Refer to Table 1 for the values to use with Figure 1 to know the minimum turn radii.

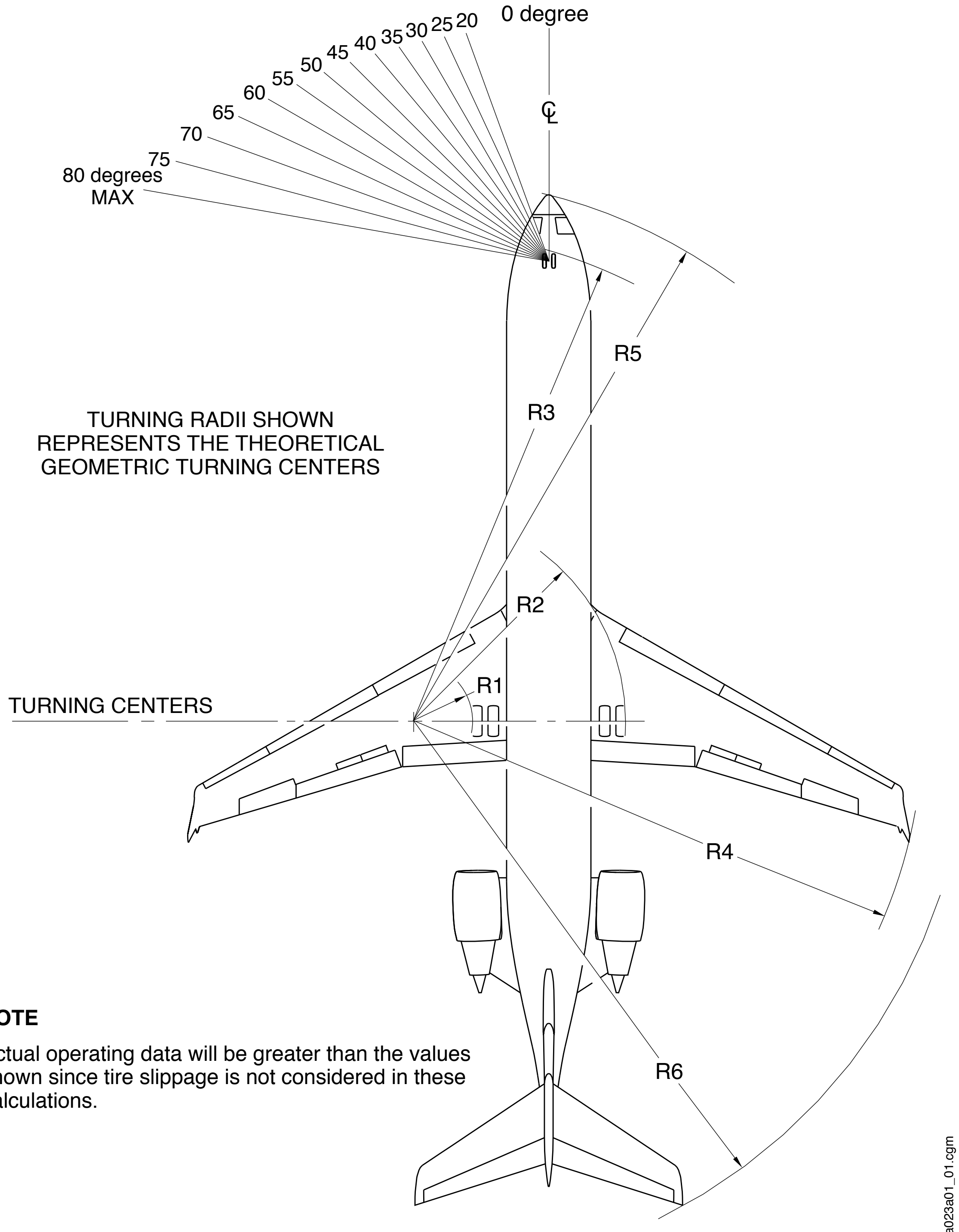
Table 1 – Turn Radii

Angle (Degrees)	20	30	40	50	60	70	80 (3 Degree Slip Angle)
R1	1525.0 in. (38.73 m)	924.5 in. (23.48 m)	605.0 in. (15.37 m)	396.4 in. (10.07 m)	241.4 in. (6.13 m)	115.0 in. (2.92 m)	36.1 in. (0.92 m)

Angle (Degrees)	20	30	40	50	60	70	80 (3 Degree Slip Angle)
R2	1722.0 in. (43.74 m)	1121.6 in. (28.49 m)	802.0 in. (20.37 m)	593.3 in. (15.07 m)	438.3 in. (11.13 m)	311.9 in. (7.92 m)	233.0 in. (5.92 m)
R3	1738.7 in. (44.16 m)	1192.9 in. (30.30 m)	930.4 in. (23.63 m)	782.7 in. (19.88 m)	693.8 in. (17.62 m)	640.6 in. (16.27 m)	618.4 in. (15.71 m)
R4	2086.8 in. (53.00 m)	1488.8 in. (37.82 m)	1171.4 in. (29.75 m)	964.9 in. (24.51 m)	812.3 in. (20.63 m)	688.7 in. (17.49 m)	612.0 in (15.54 m)
R5	1758.3 in. (44.66 m)	1225.8 in. (31.14 m)	975.0 in. (24.77 m)	837.0 in. (21.26 m)	755.8 in. (19.20 m)	708.1 in. (17.99 m)	688.4 in. (17.49 m)
R6	1888.5 in. (47.97 m)	1332.5 in. (33.85 m)	1056.5 in. (26.84 m)	892.2 in. (22.66 m)	783.9 in. (19.91 m)	709.6 in. (18.02 m)	671.2 in. (17.05 m)

C. Refer to Figure 1 for the turn radii with 3 degree slip angle.

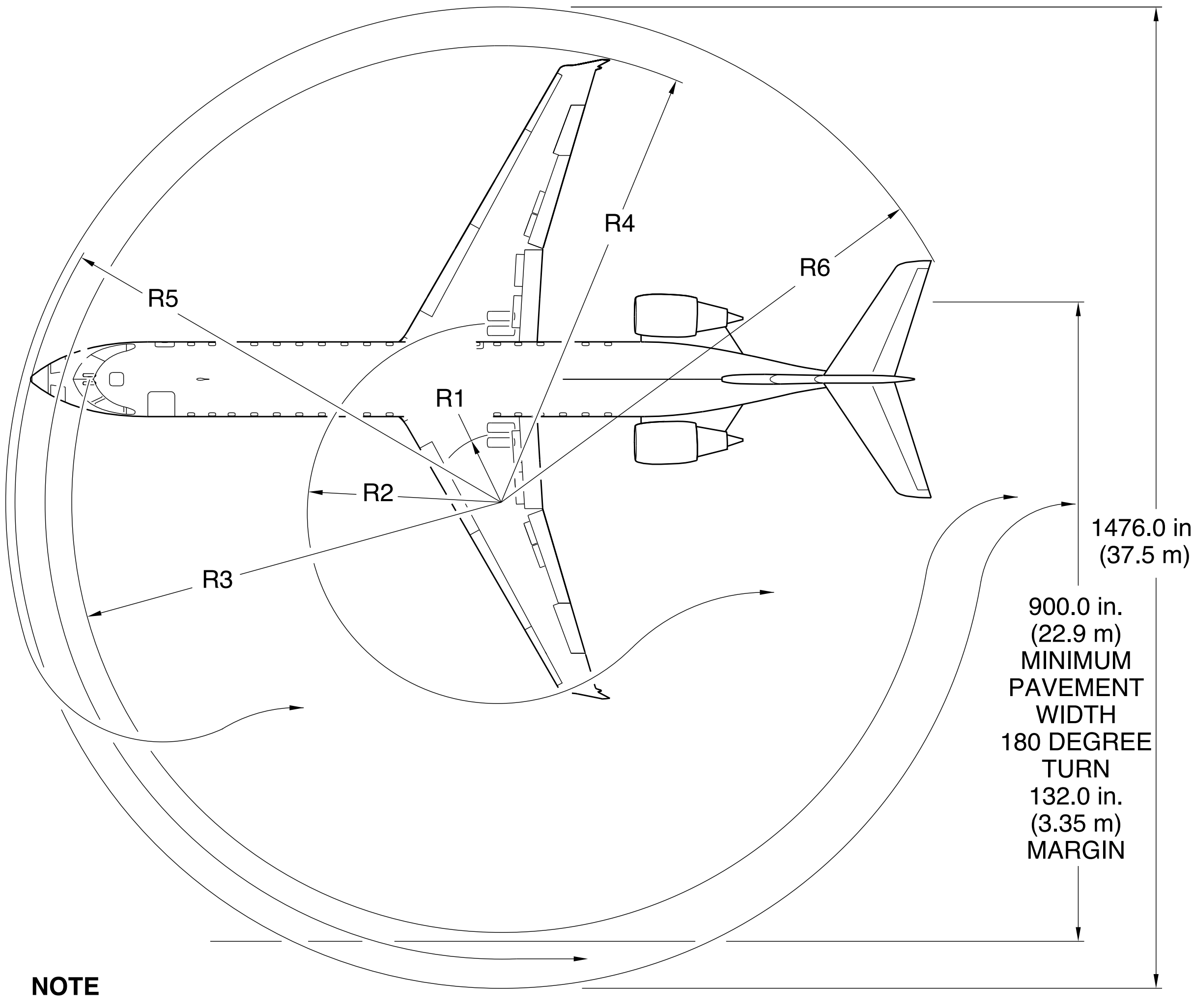
D. When the aircraft turns, the tip of the horizontal stabilizer extends further than the wing tip (refer to Figure 2, R6 vs. R4).



NOTE

Actual operating data will be greater than the values shown since tire slippage is not considered in these calculations.

Minimum Turn Radii – CRJ700
Figure 1



NOTE

Maximum steering:
- Symmetrical and idle thrust
- No differential braking
- 80 degree steering angle
- 3 degree slip
- Dry runway
- Slow continuous turn
- Maximum A/C weight
- AFT CG

babx7a01_02.cgm

Runway and Taxiway Turn Radius – CRJ700
Figure 2

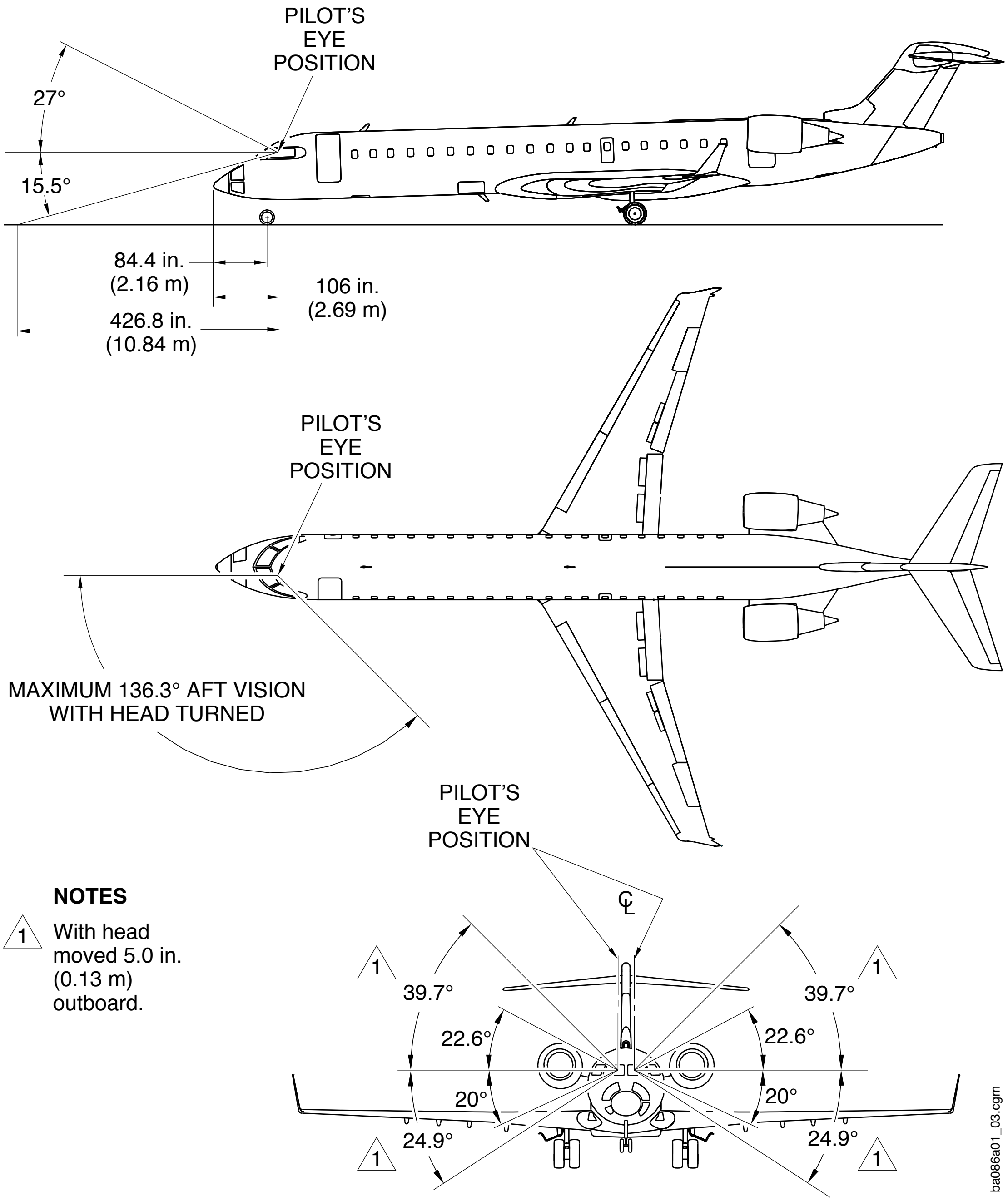
**ON A/C ALL

VISIBILITY FROM FLIGHT COMPARTMENT

1. Visibility from Flight Compartment

A. This subsection gives data about the visibility from the flight compartment.

B. Refer to Figure 1 for the distance you can see from the flight compartment (aircraft at rest).



Distance You Can See from the Flight Compartment
Figure 1

**ON A/C ALL

RUNWAY AND TAXIWAY

1. Introduction

This subsection contains data for the runway and taxiway maneuvering of the aircraft during normal operations. This subsection is divided into the chapters that follow:

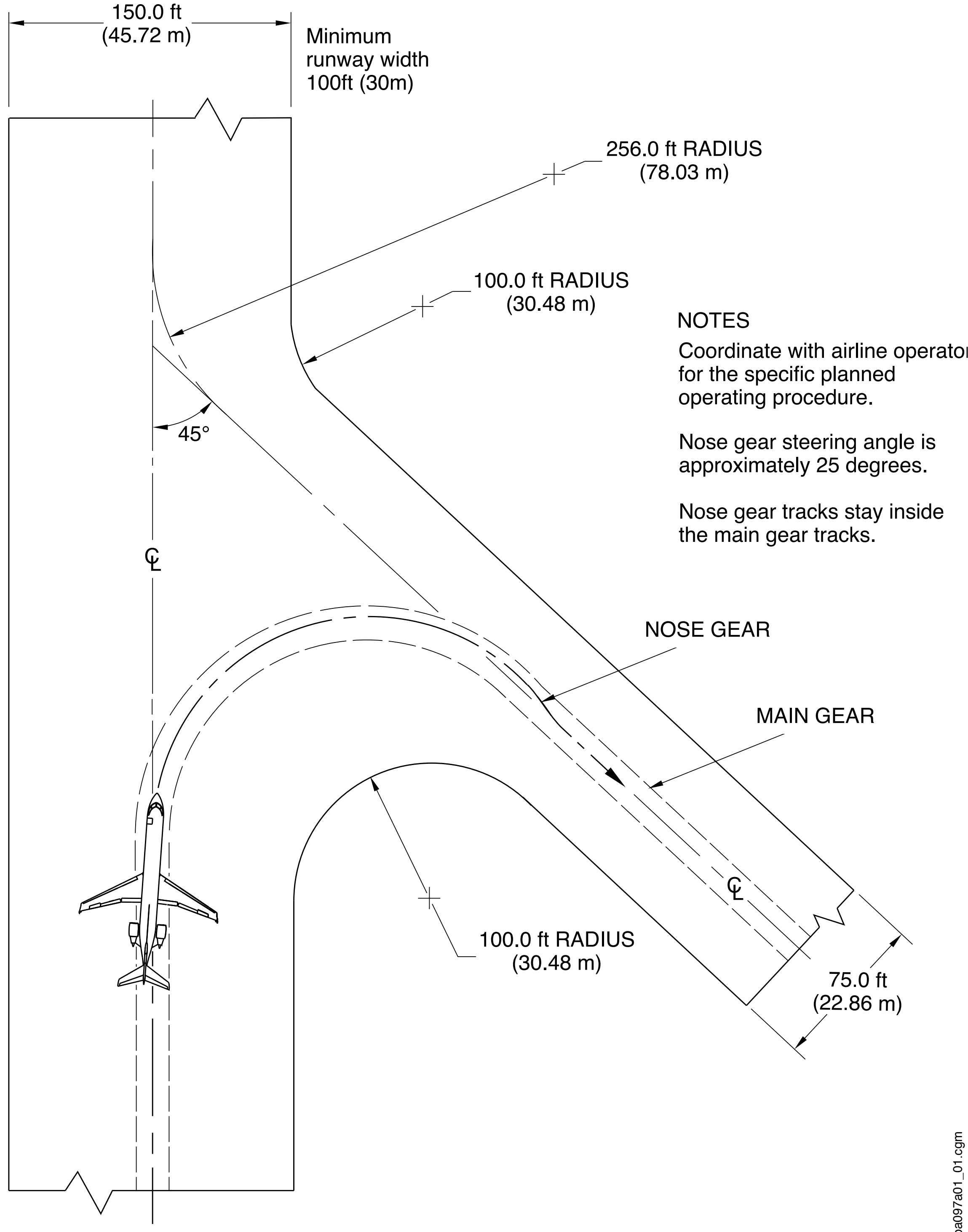
– Runway and taxiway turn paths

– Minimum holding bay (apron) widths.

2. Runway and Taxiway Turn Paths

A. This chapter gives data about the Runway and taxiway turn paths.

B. Refer to Figures 1, 2, and 3 for the 45 and 90 degree turns from runway to taxiway.



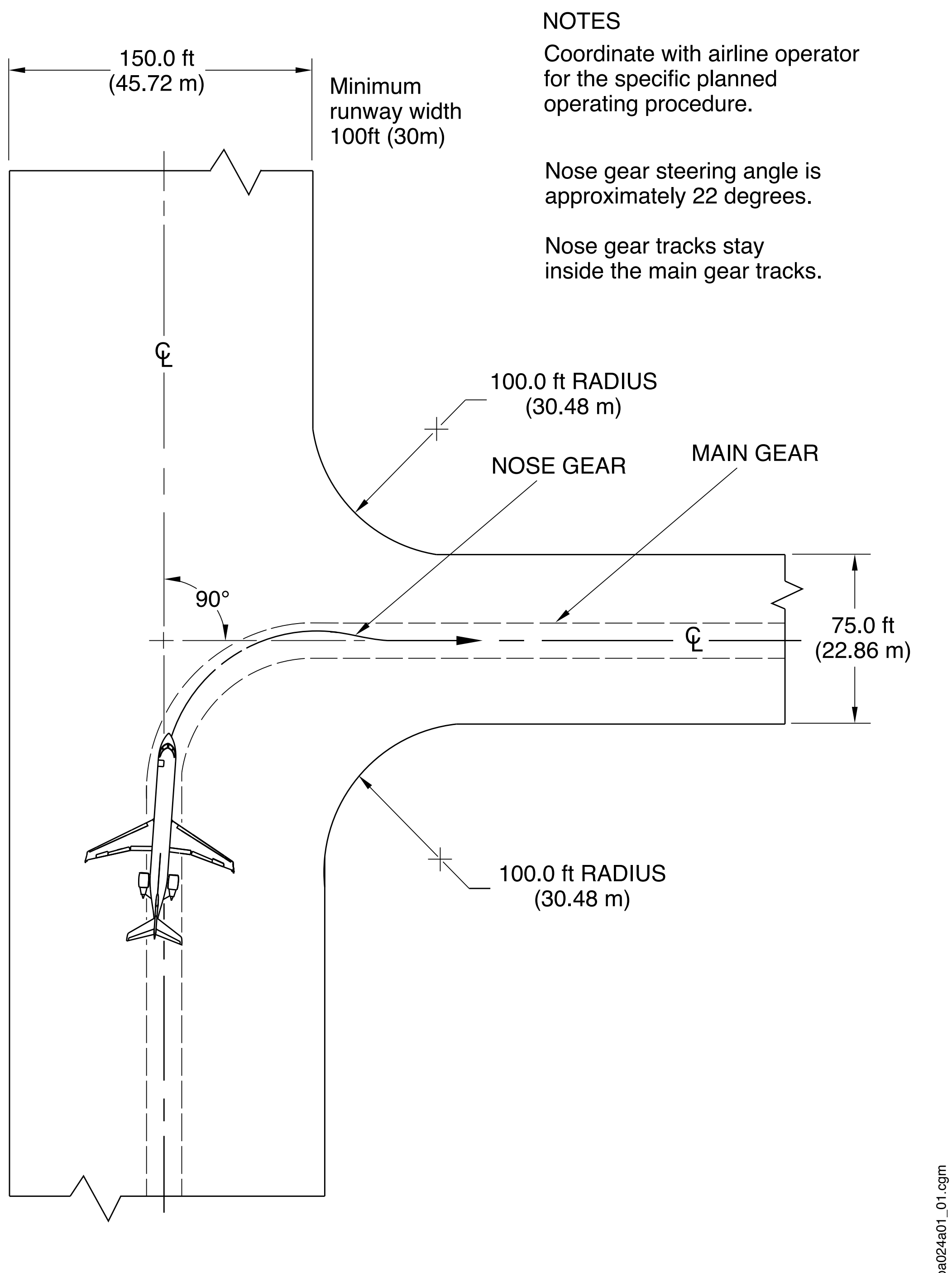
NOTES

Coordinate with airline operator for the specific planned operating procedure.

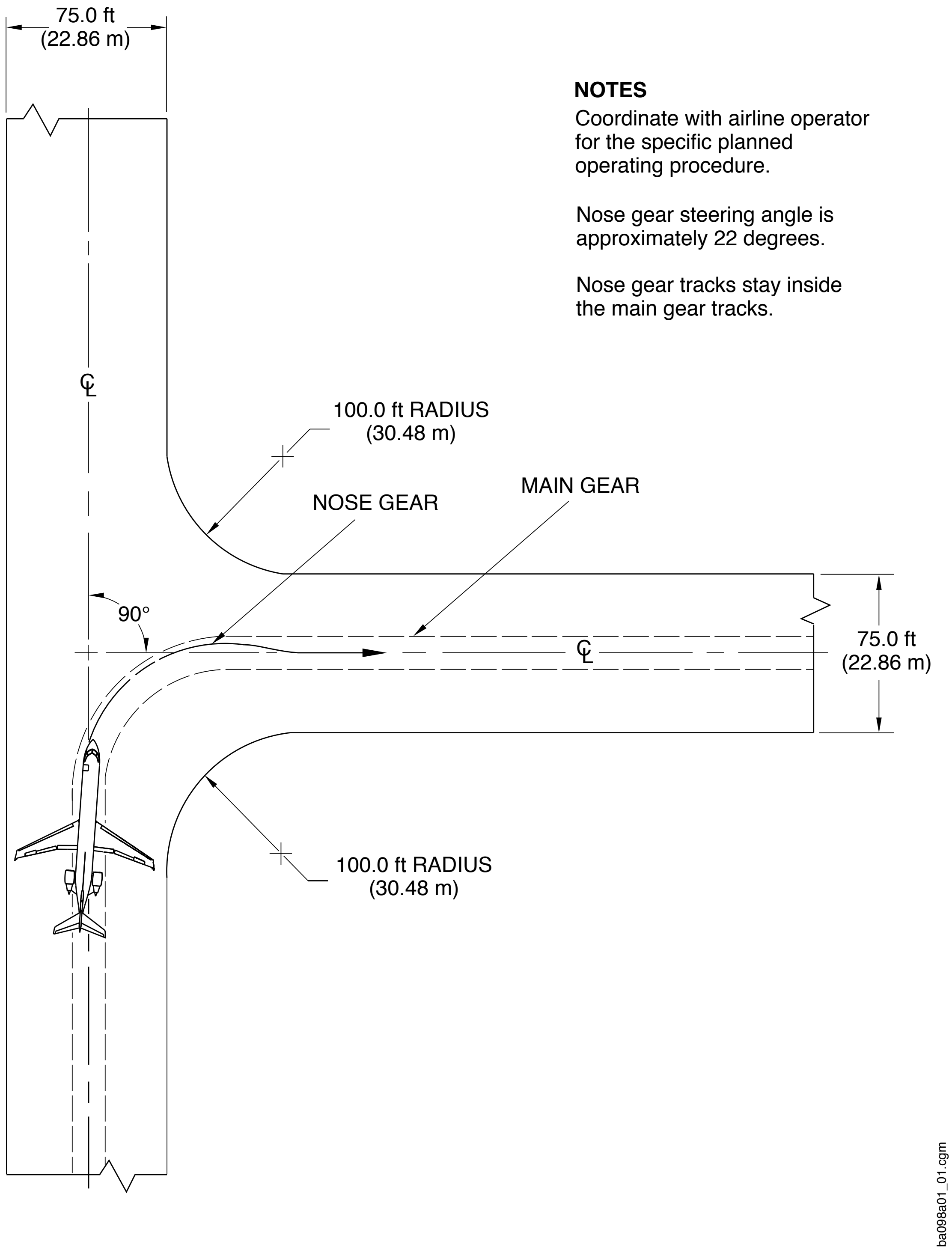
Nose gear steering angle is approximately 25 degrees.

Nose gear tracks stay inside the main gear tracks.

Runway and Taxiway Turn−Paths
Figure 1



90 Degree Turn – Runway to Taxiway
Figure 2

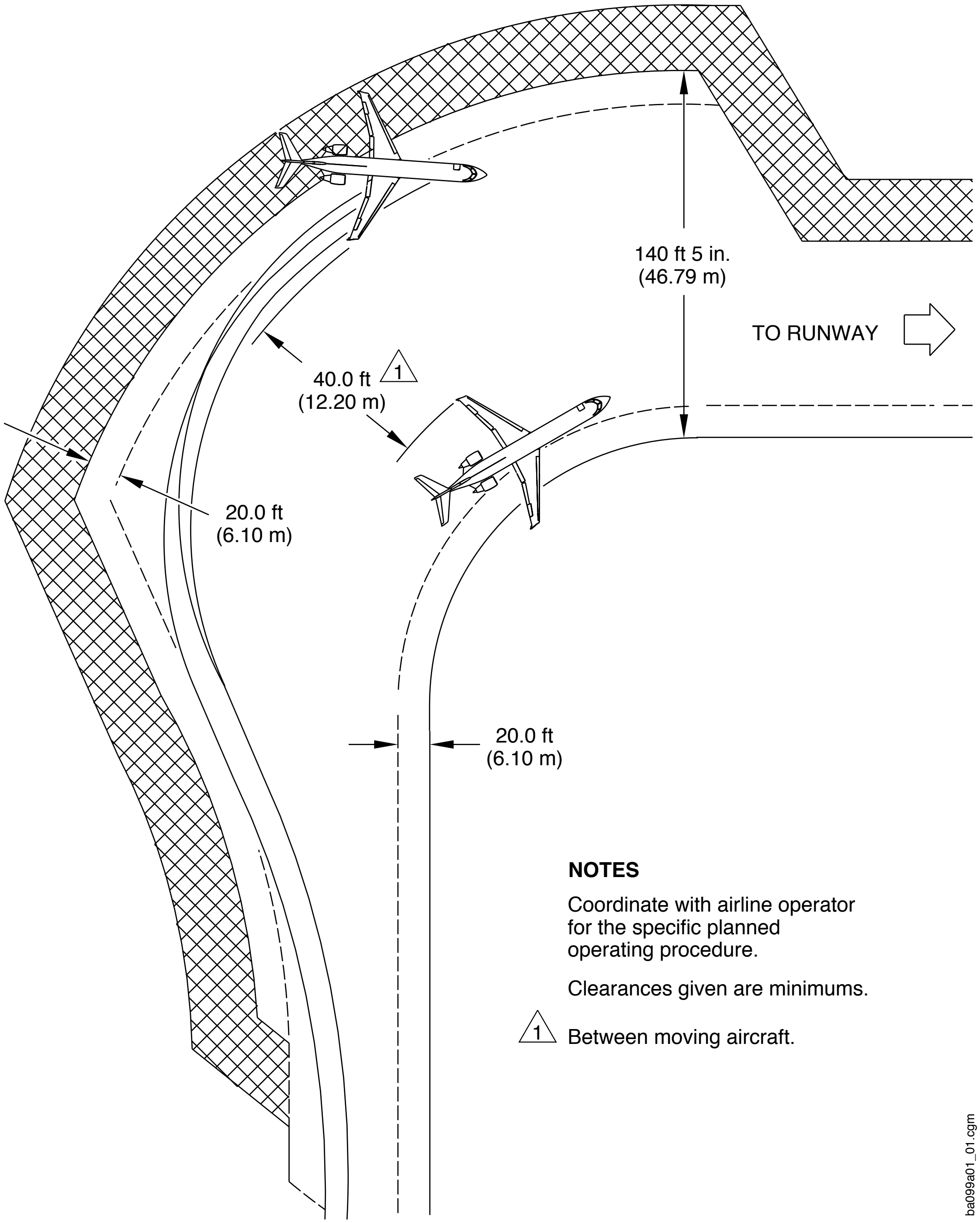


90 Degree Turn – Taxiway to Taxiway
Figure 3

3. Minimum Holding Bay

A. This chapter gives data about the minimum holding bay (apron) widths.

B. Refer to Figure 4 for the runway holding area.



Runway Holding Area
Figure 4

TERMINAL SERVICING

1. Introduction

A. This section contains the data related to the preparation of an aircraft for flight from a terminal. This data is provided to show the general types of tasks involved in terminal operations. Each airline is special and can operate under have different operating conditions and practices, which can result in changes in the operating procedures and time intervals to do the tasks specified. Because of this, requirements for ground operations should be approved with the specified airline(s) before ramp planning is started. This section is divided into the subsections that follow:

- Ground towing requirements
- Ground servicing connections
- Ground servicing connection data
- Aircraft servicing arrangement
- Terminal operations
- Ground electrical power requirements
- Preconditioned airflow requirements – air conditioning
- Ground pneumatic power requirements – engine starting.

2. Ground Towing Requirements

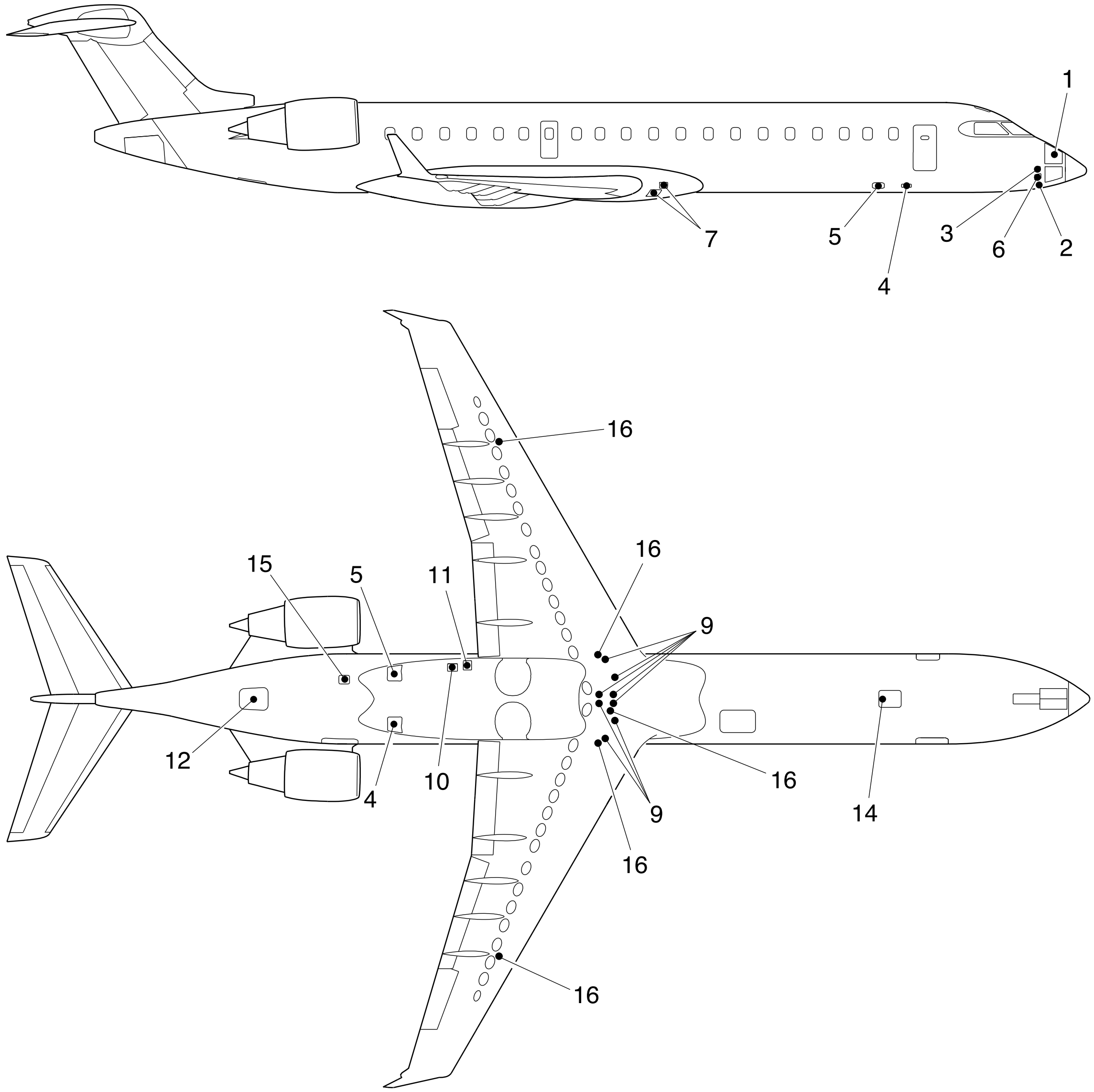
A. The ground towing requirements for the CRJ700 aircraft are as follows:

- 8000 lbs drawer pull
- 10000 lbs weight.

B. The recommended towing vehicle for the CRJ700 is P/N AP8750BAL700. When a towbar is necessary, the recommended towbar is P/N 01–1281–0010. For more information related to towing, refer to the Illustrated Tool and Equipment Manual (CSP B–007) and the Aircraft Maintenance Manual (CSP B–001).

3. Ground Servicing Connections

A. Refer to Figure 1 for the ground servicing connection points. For servicing procedures, refer to the Aircraft Maintenance Manual (CSP B–001).

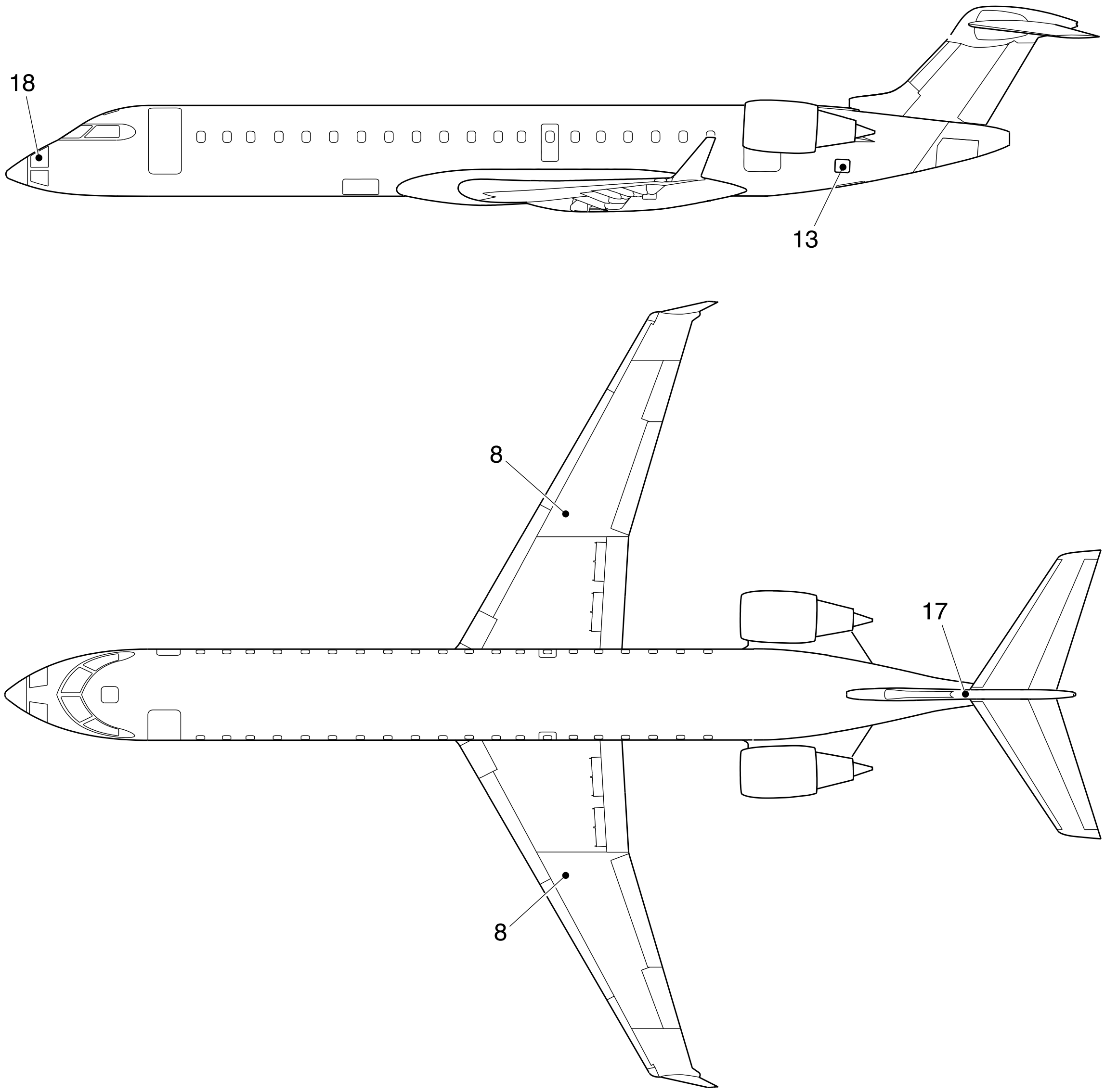


LEGEND

1. ADG oil servicing.
2. AC ground–power connection.
3. Oxygen fill service panel.
4. Forward/aft potable water connection.
5. Forward/aft water waste connections.
6. External service panel with interphone.
7. Refuel–defuel control panel and refuel access door with interphone.
9. Water drain valves.
10. Accumulator pressure fill point access door.
11. Hydraulic system no. 3 service panel access.
12. Access to engine oil replenisment tank and hydraulic systems no. 1 and no. 2 components access and interphone.
14. Interphone.
15. Ground air conditionning connection.
16. Magnetic fuel level indicator.

ba5357a01.cgm, lr, feb09/2009

Aircraft Servicing – Locations
Figure 1 (Sheet 1 of 2)



LEGEND

8. Gravity fuel filler cap of the main tanks.
13. Ground air access.
17. Horizontal stab, trim actuator oil servicing.
18. Hydraulic brake control.

Aircraft Servicing – Locations
Figure 1 (Sheet 2 of 2)

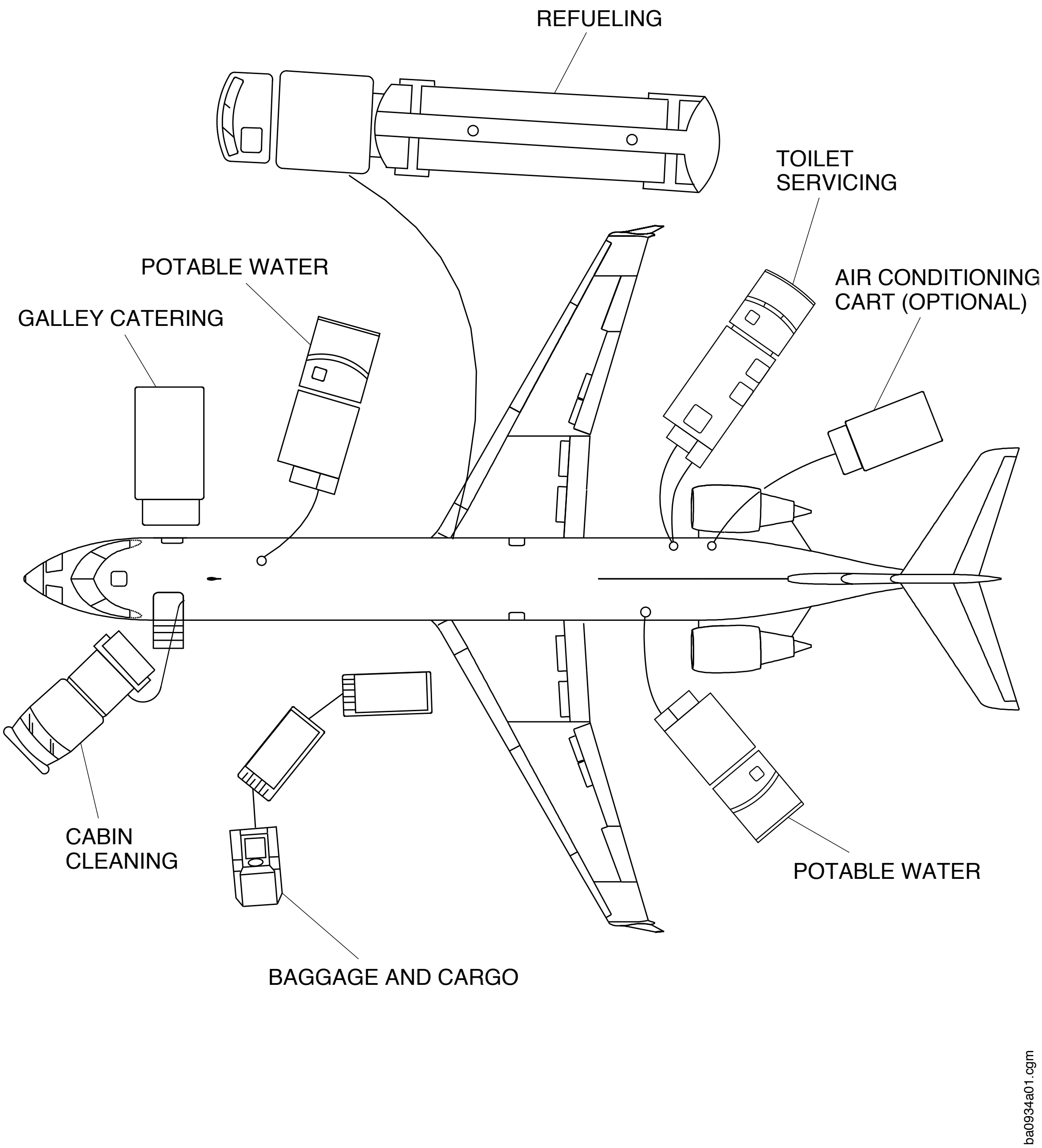
4. Ground Service Connection Data

Aircraft Connection			Mating Ground Connector		ITEM Ref.
System	Description	Part #	Supplier	Part #	ATA
AC External Power	AC Esternal Connector	MS90362–4	MIL SPEC	740–60TLS C690–90 GFC37M	24–00–00–006
Oxygen	Oxygen Fill Valve	170080	B/E AEROSPACE INC.	173785	12–00–00–010
Potable Water	Adapter, Fill and Cap	3E3203–1	GOODRICH CORP.	ACE1410 ACE1510 SLC110 GSB1220002 GSB1214001	12–00–00–011
Lavatory Waste	Valve Rinse/Fill	332–005–01	PARKER HANNIFIN FLUID SYSTEMS	ACE1410 SLC110 LSP–900 GSB1220002	12–00–00–011
Refuel/ Defuel	Adapter	K97–63–607	ZODIAC–INTER–TECHNIQUE FUEL & INERTING–SYSTEMS		(Standard Commercial Part)
Heating/Air Conditioning	Low–Pressure Ground Connection	BA670–96174–1	LIEBHERR–AEROSPACE TOULOUSE SAS	DAC321 GSB1220001	12–00–00–002
Engine Starting	(USE SAME CONNECTIONS AS HEATING/AIR CONDITIONING)				
Hydraulic Power	Quick Disconnect Assembly	AE99147E AE99118G AE99147J	EATON AEROQUIP INC.	PF53467–6PWS PF53467–6P	12–00–00–006

Aircraft Connection			Mating Ground Connector		ITEM Ref.
System	Description	Part #	Supplier	Part #	ATA
Grounding	Receptacle Elec. Gnd.	56725–3	AVIBANK MFG. INC.		(Standard Commercial Part)
ITEM refers to the Illustrated Tool and Equipment Manual (CSP–B–007), available from Bombardier. It contains data on ground support equipment that is approved for this aircraft.					

5. Aircraft Servicing Arrangement

A. Refer to Figure 2 for the aircraft servicing arrangement.

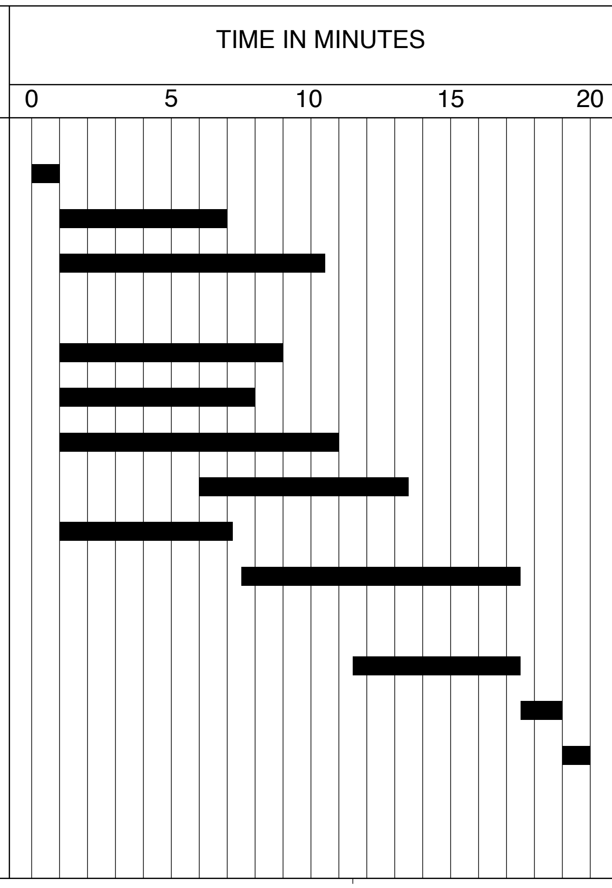


Aircraft Servicing Arrangement
Figure 2

6. Terminal Operations

A. Refer to Figure 3 for the turnaround station operations.

NOTE: Turnaround time based on a maximum of 70 passengers that disembark and embark the aircraft with the typical number of pieces of baggage unloaded and loaded.



TURNAROUND STATION OPERATIONS	TASK TIME
ENGINES RUNDOWN	1.0
DEPLANE PASSENGERS	6.0
UNLOAD BAGGAGE/CARGO	9.5
SERVICE WASTE TANK	8.0
SERVICE POTABLE WATER	7.0
SERVICE GALLEY	10.0
SERVICE AIRPLANE INTERIOR	7.5
FUEL AIRPLANE *	6.2
LOAD CARGO/BAGGAGE	10.0
ENPLANE PASSENGERS	6.0
MONITOR ENGINE START	1.5
CLEAR AIRPLANE FOR DEPARTURE	1.0
TOTAL TURNAROUND TIME (Includes equipment positioning and removal)	20 minutes

* 85% FUEL UPLIFT, REFUELING PRESSURE 50 ± 5 PSI (344 kPa) AT 295 gpm (1136 Lpm).

ba1713z01.cgm

Turnaround Station Operations
Figure 3

7. Ground Electrical Power Requirements

A. The external power system is used to connect AC electrical power from a ground power connection. There are no provisions to connect DC power from an external ground cart. External AC can be used to power the complete AC distribution system or only those buses that provide power to the passenger compartment. The tables show the external AC power requirements data, the external power quality limitations data, the external AC power quality limitations data, and the external AC power requirements data.

B. Refer to Table 1 for the External AC Power Requirements data.

C. Refer to Table 2 for the External Power Quality Limitations data.

D. Refer to Table 3 for the External AC Power Limitations data.

E. Refer to Table 4 for the Voltage Regulation data.

F. Refer to Figure for overcurrent protection.

G. The external AC power requirements are shown in Table 1.

Table 1– External AC Power Requirements

VOLTAGE	FREQUENCY	Phase	KVA
115/200Vac	400Hz	3–Phase	40kVA minimum

H. The external power quality limitations are shown in Table 2.

Table 2– External Power Quality Limitations

PARAMETER	SETTING LIMIT	RESPONSE TIME
Overvoltage (High)	150 V ±2%	< 0.25 SEC
Overvoltage (Normal)	124 V ±2%	0.75 ±0.25 SEC
Undervoltage	106 V ±2%	6.00 ±0.75 SEC
Overfrequency	430 Hz ±2%	< 0.25 SEC
Underfrequency	370 Hz ±2%	< 0.25 SEC
Phase Sequence	A–B–C	< 0.25 SEC

I. The external AC power limitations are shown in Table 3.

Table 3– External AC Power Limitations

CURRENT	LIMITATION
Between 122 A and 130 A	300 SEC
Between 130 A and 250 A	5 SEC
More than 250 A	0.7 SEC

J. The voltage regulation is shown in Table 4.

Table 4– Voltage Regulation

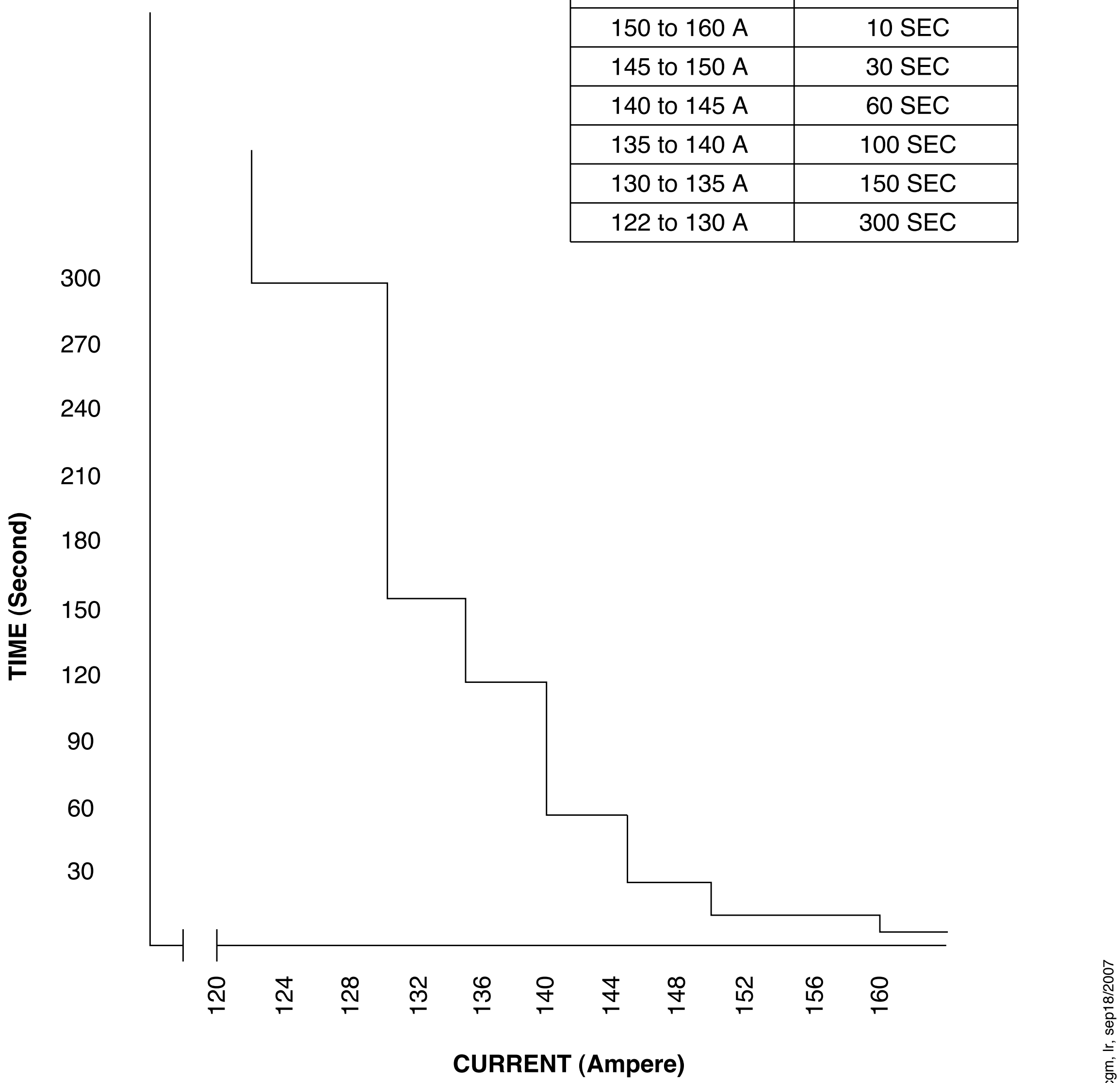
LOAD	LIMITATION	VOLTAGE
0 to 40 kVA	0.75 lag to 1.0 pF	115 ±1.5 V
40 to 45 kVA	0.75 lag to 1.0 pF	115 ±1.5, –2.0 V
45 to 60 kVA	0.75 lag to 1.0 pF	115 ±2.0, –2.5 V

K. Refer to Figure 4 for overcurrent protection.

NOTE

1 Current is ±5 amperes.

CURRENT 1	TIME
> 160 A	5 SEC
150 to 160 A	10 SEC
145 to 150 A	30 SEC
140 to 145 A	60 SEC
135 to 140 A	100 SEC
130 to 135 A	150 SEC
122 to 130 A	300 SEC



Overcurrent Protection Ampere versus Time Delay
Figure 4

8. Preconditioned Airflow Requirements – Air Conditioning

A. The ground air supply requirements for air conditioning and airflow requirements are shown in Table 5.

Table 5 – Preconditioned Airflow Requirements – Air Conditioning

Ground Air Supply – Requirements for Cooling and Heating			
Requirements	**Pressure**	**Airflow**	**Temperature**
To Cool Cabin to 80 °F (26.67 °C) Conditions: 1. Initial cabin temp. is 103 °F (39.44 °C) 2. Outside air temp. is 103 °F (39.44 °C) 3. Galley (s) is (are) off 4. Auto full cold, two packs 5. Total of maximum passengers and crew	35 psi (241.32 kPa)	60 lb/min. (27.2 kg/min.)	Less than 400 °F (204.4 °C)
To Heat Cabin to 75 °F (23.89 °C) Conditions: 1. Initial cabin temp. is 0 °F (–17 °C) 2. Outside cabin temp. is 0 °F (–17 °C) 3. Cloudy day 4. Auto full hot, two packs 5. No crew and passengers	35 psi (241.32 kPa)	70 lb/min. (31.75 kg/min.)	300 – 400 °F (148.9 – 204.4 °C)

9. Ground Pneumatic Power Requirements – Engine Starting

A. The ground air supply requirements for engine starting are shown in Table 6. Refer to AMM 71–00–00–866–806 – Engine Start (with external air) for more details.

Table 6 – Ground Pneumatic Power Requirements – Engine Starting

Ground Air Supply – Requirements for Engine Starting			
Requirements	**Pressure**	**Airflow**	**Temperature**
To Provide Starter Air Pressure Conditions: 1. Time allowed during start (to starter cutout) is 90 seconds. 2. Time–to–IDLE on ground is 45 seconds minimum. 3. No bleed air extraction is permitted during start sequence.	60 p si (413.7 kPa) maximum		

THIS PAGE INTENTIONALLY LEFT BLANK

**ON A/C ALL

OPERATING CONDITIONS AND NOISE DATA

1. Introduction

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

- Engine dangerous areas – engine intake and exhaust
- Airport and community noise data for powerplants
- Engine emission data

2. General

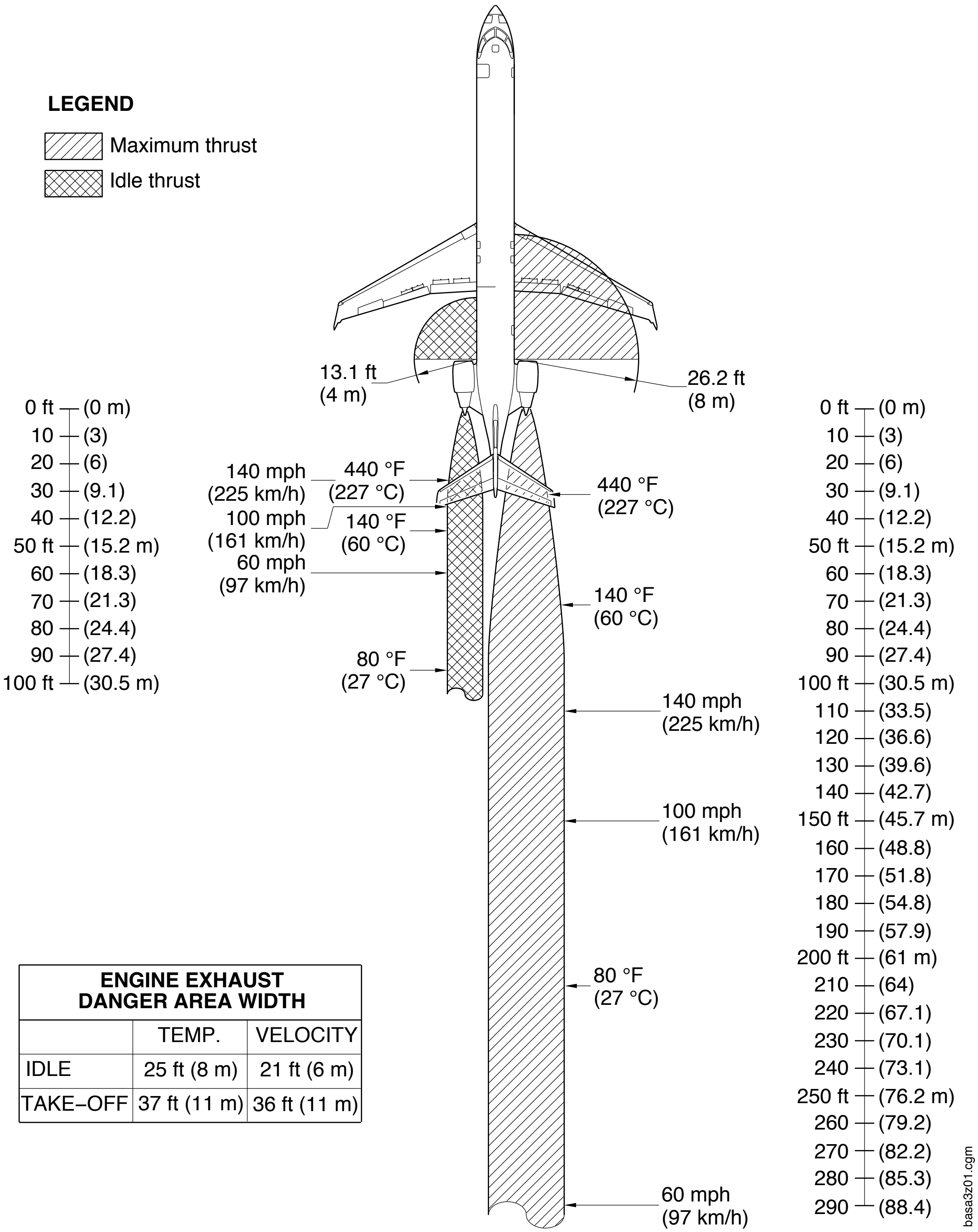
A. Aircraft operating conditions and noise are important to airport and community planners. While an airport is a major element in a community transportation system and is vital to its growth, it must also be accountable to the best interests of the neighborhood in which it is located. This can only be accomplished with proper planning. Because aircraft noise extends beyond the boundaries of the airport, it is important to consider the impact on surrounding communities located near the airport.

B. The CRJ Series aircraft is designed with advanced, quite, turbofan technology. Its noise impact is minimal compared to most commercial aircraft, larger and smaller, currently being operated in a typical airport.

3. Engine Dangerous Areas – Engine Intake and Exhaust

A. This section contains data on the engine intake and exhaust dangerous areas.

B. Refer to Figure 1 for the zones and distances that should be considered dangerous during engine operation.



ENGINE EXHAUST DANGER AREA WIDTH		
	TEMP.	VELOCITY
IDLE	25 ft (8 m)	21 ft (6 m)
TAKE–OFF	37 ft (11 m)	36 ft (11 m)

Engine Intake and Exhaust Danger Areas
Figure 1

4. Airport and Community Noise Data for Powerplants

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

B. Refer to Table 1 for the demonstrated effective perceived noise levels (EPNdB), limits, and the relative difference (margin of compliance) for the engines.

C. Refer to Table 2 for the Auxiliary Power Unit (APU) noise measurements.

Table 1 – Engine Noise Levels and Restrictions

Phase of Flight	Actual Noise Level (EPNdB)	Maximum Allowable Noise Level (dB)	Margin of Compliance (dB)
Takeoff/Flyover	82.0	89.0	–7.0
Sideline/Lateral	89.6	94.0	–4.4
Approach	92.6	98.0	–5.4

NOTE: These estimated noise level values are stated for reference conditions of standard atmospheric pressure at sea level, at 77 °F (25 °C) ambient temperature, 70% relative humidity, and zero wind.

Table 2 – Auxiliary Power Unit (APU) Noise Measurements

Measurement Location	Corrected dB (A) Level with ECS at Maximum Cooling
Aft Lavatory Drain Port	86.0
Worst Case Perimeter Location*	84.0

* Worst case perimeter location is located on the right side of the aircraft at 65 feet 8 inches from the centerline and 32 feet 10 inches aft of the rudder trailing edge.

NOTE: Atmosheric conditions during the test: Barometric pressure: 975.3 hPa, relative humidity: 60.1–72.7%, outside temperature: 3.0–4.9 °C.

5. Engine Emission Data

A. Engine emission data must agree with ICAO Annex 16, Volume 2, Part III, Appendix 3.

B. Refer to Table 3 for the CO, HC, and NOx emission data.

C. Refer to Table 4 for the smoke emission data.

Table 3 – Engine Emission Data

Type of Emission	Average Characteristic Emission Value (g/kN)	Maximum Allowable Average Emission Value (g/kN)
CO	63.0	118.0
HC	0.3	19.6
NOx	43.1	68.8
NOTE: The average characteristic emission values are given for single engine operation only for engine model CF34–8C.		

Table 4 – Engine Smoke Emission Data

Type of Emission	Average Characteristic Smoke Number	Maximum Allowable Smoke Number
Smoke Number	6.87	27.7
NOTE: The average characteristic smoke number is given for single engine operation only.		

**ON A/C ALL

PAVEMENT DATA

1. Introduction

This section contains data about the pavement design specifications, including aircraft footprints, pavement loading during standard operations, and aircraft/pavement rating systems. Also given are the flotation classification for different weights, fixed tire pressure, and aft centre–of–gravity (CG), with two recommended methods: Load Classification Number (LCN) and Aircraft Classification Number (ACN). This section is divided into the subsections that follow:

- Pavement chart explanations
- Footprint, tire size and inflation pressure
- Flexible pavement requirements
- Rigid pavement requirements.

2. Pavement Chart Explanations

The pavement requirements for commercial aircraft come from the static analysis loads imposed on the main landing–gear wheels and tires through the shock struts.

NOTE: Make sure that all runways or pavements to be used meet these minimum LCN and ACN requirements.

A. The pavement data necessary for this aircraft are from the fixed analysis of the loads applied to the Main Landing Gear (MLG) struts. The MLG loads are put into Tables 1 to 4.

B. Refer to Figures 1 and 2 to find these loads through the stability limits of the aircraft (at rest on the pavement).

C. Refer to Airplane Flight Manual (CSP B–012) for the maximum permissible CG limits and find the approximate average MLG load per side. Enter the total aircraft weight in the aircraft Weight column at the applicable aircraft CG, and use the applicable multiplier to find the gear load.

D. Flexible pavement design data is based on procedures given in Instruction Report 77–1 “Procedures for Development of CBR Design Curves,” dated June 1977. This report was written for the U.S. Army Corps of Engineers. Also, “Airport Pavement Design and Evaluation” was revised to include the procedures given in FAA Advisory Circular 150/5320–6C dated December 7, 1978.

E. An aircraft will have two Load Classification Numbers (LCN) for any given weight and tire pressure. One for rigid pavement (usually concrete) and the second for flexible pavement (usually layered asphalt).

F. An aircraft will have eight Aircraft Classification Numbers (ACN) for any given weight and tire pressure. Four ACN numbers are given for flexible pavement, one for each subgrade strength. Another four ACN numbers are given for rigid pavement, one for each subgrade strength.

G. The ACN/PCN procedure shows that tire pressure makes a minimum change on the ACN. Unless an airport maximum–pressure is given, a decrease in the aircraft operating weight can make the ACN much better. Thus, operators can decrease the applicable ACN as necessary by a decrease in the aircraft operating weight, and not in the tire pressure.

H. The subgrade categories are divided as follows:

- High strength is characterized by k = 150 MN/m^3 for rigid pavement and by CBR = 15 for flexible pavement.

- Medium strength is characterized by k = 80 MN/m^3 for rigid pavement and by CBR = 10 for flexible pavement.

- Low strength is characterized by k = 40 MN/m^3 for rigid pavement and by CBR = 6 for flexible pavement.

- Ultra low strength is characterized by k = 20 MN/m^3 for rigid pavement and by CBR = 3 for flexible pavement.

I. An aircraft with an ACN equal to or less than the reported Pavement Classification Number (PCN) for a given airport can operate without restrictions.

J. Tables 1 and 2 show the LCN and ACN load data, the Equivalent Single–Wheel Load (ESWL) compared to the pavement thickness for flexible pavement. Tables 3 and 4 show the LCN and ACN load data for the loads against the radius of relative stiffness for rigid pavements.

Table 1 – Main Gear Load (MLG – Approximate per side)										
A/C C.G.		A/C Weight Multiplier	A/C Weight (lb)					A/C Weight (lb)	NLG Load (lb)	Comment
%MAC	Arm (in)		40000	50000	60000	70000	73000			
			MLG Load (lb) (A/C Weight x Multiplier)							
6	**751.09**	**0.4421**	17684	22105	26526	30947	32273			
7	**752.42**	**0.4432**	17728	22160	26592	31024	32354			
8	**753.75**	**0.4444**	17776	22220	26664	31108	32441			
9	**755.09**	**0.4455**	17820	22275	26730	31185	32522			
10	**756.42**	**0.4466**	17864	22330	26796	31262	32602			
11	**757.75**	**0.4477**	17908	22385	26862	31339	32682			
12	**759.08**	**0.4489**	17956	22445	26934	31423	32770			
13	**760.41**	**0.4500**	18000	22500	27000	31500	32850			
14	**761.75**	**0.4511**	18044	22555	27066	31577	32930			
15	**763.08**	**0.4522**	18088	22610	27132	31654	33011			
16	**764.41**	**0.4534**	18136	22670	27204	31738	33098			
17	**765.74**	**0.4545**	18180	22725	27270	31815	33179			
18	**767.07**	**0.4556**	18224	22780	27336	31892	33259			
19	**768.41**	**0.4567**	18268	22835	27402	31969	33339			
20	**769.74**	**0.4579**	18316	22895	27474	32053	33427			
21	**771.07**	**0.4590**	18360	22950	27540	32130	33507			
22	**772.40**	**0.4601**	18404	23005	27606	32207	33587			
23	**773.73**	**0.4613**	18452	23065	27678	32291	33675			
24	**775.06**	**0.4624**	18496	23120	27744	32368	33755			
25	**776.40**	**0.4635**	18540	23175	27810	32445	33836			
26	**777.73**	**0.4646**	18584	23230	27876	32522	33916			
27	**779.06**	**0.4658**	18632	23290	27948	32606	34003			
28	**780.39**	**0.4669**	18676	23345	28014	32683	34084			
29	**781.72**	**0.4680**	18720	23400	28080	32760	34164			
30	**783.06**	**0.4691**	18764	23455	28146	32837	34244			
31	**784.39**	**0.4703**	18812	23515	28218	32921	34332			
32	**785.72**	**0.4714**	18856	23570	28284	32998	34412			
33	**787.05**	**0.4725**	18900	23625	28350	33075	34493			
34	**788.38**	**0.4736**	18944	23680	28416	33152	34573			
35	**789.71**	**0.4748**	18992	23740	28488	33236	34660			
36	**791.05**	**0.4759**	19036	23795	28554	33313	34741			**CAUTION: Towing NOT Allowed When less than 2000 lb on Nose Landing Gear**
37	**792.38**	**0.4770**	19080	23850	28620	33390	34821			
38	**793.71**	**0.4782**	19128	23910	28692	33474	34909			
39	**795.04**	**0.4793**	19172	23965	28758	33551	34989			
40	**796.37**	**0.4804**	19216	24020	28824	33628	35069			
41	**797.71**	**0.4815**	19260	24075	28890	33705	35150			
42	**799.04**	**0.4827**	19308	24135	28962	33789	35237			
43	**800.37**	**0.4838**	19352	24190	29028	33866	35317			
44	**801.70**	**0.4849**	19396	24245	29094	33943	35398			
45	**803.03**	**0.4860**	19440	24300	29160	34020	35478			
46	**804.37**	**0.4872**	19488	24360	29232	34104	35566			
47	**805.70**	**0.4883**	19532	24415	29298	34181	35646			
48	**807.03**	**0.4894**	19576	24470	29364	34258	35726			
49	**808.36**	**0.4905**	19620	24525	29430	34335	35807			
50	**809.69**	**0.4917**	19668	24585	29502	34419	35894			
51	**811.02**	**0.4928**	19712	24640	29568	34496	35974			
52	**812.36**	**0.4939**	19756	24695	29634	34573	36055			
53	**813.69**	**0.4951**	19804	24755	29706	34657	36142			
54	**815.02**	**0.4962**	19848	24810	29772	34734	36223			
55	**816.35**	**0.4973**	19892	24865	29838	34811	36303			Danger – Tip Over Region
56	**817.68**	**0.4984**	19936	24920	29904	34888	36383			

ba0249a01_01.cgm

Center of Gravity Limits – Main Landing Gear
Figure 1

Table 2 –Nose Gear Load										
A/C C.G.		A/C	A/C Weight (lb)					A/C Weight	NLG Load	Comment
%MAC	Arm (in)	Weight Multiplier	40000	50000	60000	70000	73000	(lb)	(lb)	
			NLG Load (lb) (A/C Weight x Multiplier)							
6	751.09	0.1156	4624	5780	6936	8092	8439			
7	752.42	0.1134	4536	5670	6804	7938	8278			
8	753.75	0.1111	4444	5555	6666	7777	8110			
9	755.09	0.1089	4356	5445	6534	7623	7950			
10	756.42	0.1066	4264	5330	6396	7462	7782			
11	757.75	0.1044	4176	5220	6264	7308	7621			
12	759.08	0.1021	4084	5105	6126	7147	7453			
13	760.41	0.0999	3996	4995	5994	6993	7293			
14	761.75	0.0976	3904	4880	5856	6832	7125			
15	763.08	0.0954	3816	4770	5724	6678	6964			
16	764.41	0.0931	3724	4655	5586	6517	6796			
17	765.74	0.0909	3636	4545	5454	6363	6636			
18	767.07	0.0886	3544	4430	5316	6202	6468			
19	768.41	0.0864	3456	4320	5184	6048	6307			
20	769.74	0.0841	3364	4205	5046	5887	6139			
21	771.07	0.0818	3272	4090	4908	5726	5971			
22	772.40	0.0796	3184	3980	4776	5572	5811			
23	773.73	0.0773	3092	3865	4638	5411	5643			
24	775.06	0.0751	3004	3755	4506	5257	5482			
25	776.40	0.0728	2912	3640	4368	5096	5314			
26	777.73	0.0706	2824	3530	4236	4942	5154			
27	779.06	0.0683	2732	3415	4098	4781	4986			
28	780.39	0.0661	2644	3305	3966	4627	4825			
29	781.72	0.0638	2552	3190	3828	4466	4657			
30	783.06	0.0616	2464	3080	3696	4312	4497			
31	784.39	0.0593	2372	2965	3558	4151	4329			
32	785.72	0.0571	2284	2855	3426	3997	4168			
33	787.05	0.0548	2192	2740	3288	3836	4000			
34	788.38	0.0526	2104	2630	3156	3682	3840			
35	789.71	0.0503	2012	2515	3018	3521	3672			
36	791.05	0.0480	1920	2400	2880	3360	3504			
37	792.38	0.0458	1832	2290	2748	3206	3343			
38	793.71	0.0435	1740	2175	2610	3045	3176			**CAUTION: Towing NOT Allowed When less than 2000 lb on Nose Landing Gear**
39	795.04	0.0413	1652	2065	2478	2891	3015			
40	796.37	0.0390	1560	1950	2340	2730	2847			
41	797.71	0.0368	1472	1840	2208	2576	2686			
42	799.04	0.0345	1380	1725	2070	2415	2519			
43	800.37	0.0323	1292	1615	1938	2261	2358			
44	801.70	0.0300	1200	1500	1800	2100	2190			
45	803.03	0.0278	1112	1390	1668	1946	2029			
46	804.37	0.0255	1020	1275	1530	1785	1862			
47	805.70	0.0233	932	1165	1398	1631	1701			
48	807.03	0.0210	840	1050	1260	1470	1533			
49	808.36	0.0188	752	940	1128	1316	1372			
50	809.69	0.0165	660	825	990	1155	1205			
51	811.02	0.0142	568	710	852	994	1037			
52	812.36	0.0120	480	600	720	840	876			
53	813.69	0.0097	388	485	582	679	708			
54	815.02	0.0075	300	375	450	525	548			
55	816.35	0.0052	208	260	312	364	380			Danger – Tip
56	817.68	0.0030	120	150	180	210	219			Over Region

ba1468a01.cgm

Center of Gravity Limits – Nose Landing Gear
Figure 2

3. Footprint, Tire Size and Inflation Pressure

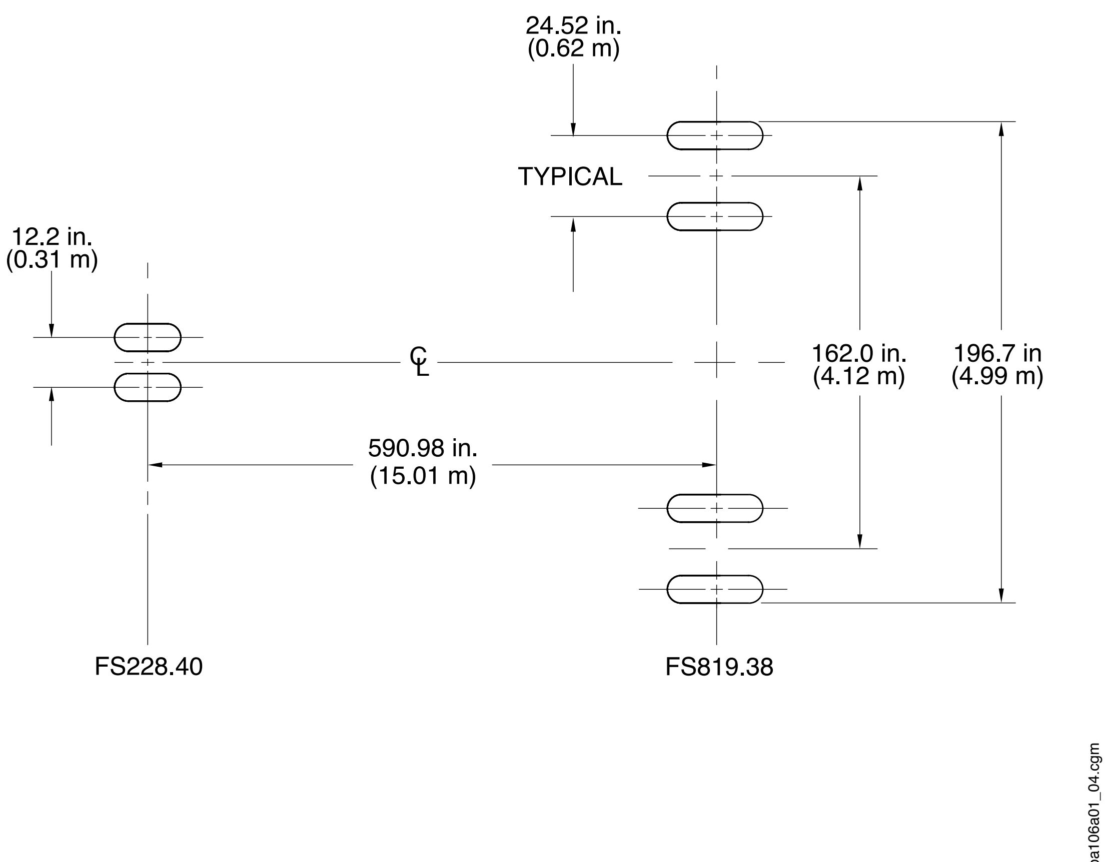
A. This section defines the flotation classification for different weights, fixed tire pressure, and aft CG, with two recommended methods: LCN and ACN classification systems.

B. Refer to Figure 3 for the aircraft footprint, tire size and inflation pressure.

TIRE TYPE : NOSE : H20.5 x 6.75 – 10
MAIN : H36 x 12 – 18

UNLOADED TIRE PRESSURE : NOSE : 121 psi
MAIN : 142 psi

MAIN GEAR CONFIGURATION : DUAL WHEEL



Footprint, Tire Size and Inflation Pressure
Figure 3

4. Flexible Pavement Requirements

A. The pavement data necessary for this aircraft is from the fixed analysis of the loads applied to the MLG struts. Refer to Figures to find these loads through the stability limits of the aircraft (at rest on the pavement). The MLG loads are put into the pavement design tables (Table 1 and Table 2).

B. Flexible pavement design–data is based on procedures set out in Instruction Report 77–1 "Procedures for Development of CBR Design Curves" dated June 1977. This report was written for the U.S. Army Corps of Engineers. Also, "Airport Pavement Design and Evaluation" changed to include the procedures given in FAA Advisory Circular 150/5320–6D dated July 7, 1995.

C. An aircraft will have two Load Classification Numbers (LCN) for any given weight and tire pressure. One for rigid pavement (usually concrete) and the second for flexible pavement (usually layered asphalt).

D. The tables show the LCN and loads, and the Equivalent Single–Wheel Load (ESWL) compared to the pavement thickness for flexible pavement.

E. Refer to Airplane Flight Manual (CSP B–012) for the maximum permissible CG limits and find the approximate average MLG load per side. Enter the total aircraft weight in the aircraft Weight column at the applicable aircraft CG, and use the applicable multiplier to find the gear load.

F. Refer to Table 1 for the LCN Flexible Pavement data.

G. Refer to Table 2 for the ACN Flexible Pavement data.

NOTE: To find the approximate average MLG Load per side, enter the total aircraft weight in the aircraft Weight column at the applicable aircraft CG, and use the applicable multiplier to find the gear load.

H. This data is related to the International Civil Aviation Organization (ICAO) Document No. 9157–AN/901, Aerodrome Design Manual (Part 3 – Pavement), Second Edition 1983.

Table 1 – LCN Flexible Pavement

Aircraft Weight	Pavement Thickness							
	10 in. (0.25 m)		15 in. (0.38 m)		20 in. (0.51 m)		30 in. (0.76 m)	
	ESWL	LCN	ESWL	LCN	ESWL	LCN	ESWL	LCN
75250 lb (34132 kg)	19690 lb (8931 kg)	23	22881 lb (10379 kg)	30	25454 lb (11546 kg)	36	29580 lb (13417 kg)	43
67000 lb (30391 kg)	17546 lb (7959 kg)	19	20385 lb (9246 kg)	25	22675 lb (10285 kg)	27	26344 lb (11949 kg)	38

Aircraft Weight	Pavement Thickness							
	10 in. (0.25 m)		15 in. (0.38 m)		20 in. (0.51 m)		30 in. (0.76 m)	
	ESWL	LCN	ESWL	LCN	ESWL	LCN	ESWL	LCN
56000 lb (25401 kg)	14659 lb (6649 kg)	16	17033 lb (7726 kg)	20	18947 lb (8594 kg)	22	22015 lb (9986 kg)	29

Table 2 – ACN Flexible Pavement

Aircraft Weight	Subgrade categories			
	Ultra Low Strength CBR = 3	Low Strength CBR = 6	Medium Strength CBR = 10	High Strength CBR = 15
	ACN	ACN	ACN	ACN
75250 lb (34132 kg)	23.17	20.50	18.13	17.18
67000 lb (30391 kg)	20.20	17.54	15.45	14.46
56000 lb (25401 kg)	16.28	13.61	12.25	11.08

I. If the aircraft LCN for weight, tire pressure, and pavement (relative stiffness of thickness) is not more than 10% above the published pavement LCN, then the aircraft is allowed “unlimited” use of a runway.

J. If the aircraft LCN is not in the limits, the aircraft can be considered for “occasional use”.

NOTE: The pavement types are shown for loads, wheels, and tires accepted for the CRJ700, at a given tire pressure.

5. Rigid Pavement Requirements

A. The pavement data necessary for this aircraft is from the fixed analysis of the loads applied to the MLG struts. Refer to Figures to find these loads through the stability limits of the aircraft (at rest on the pavement). The MLG loads are put into the pavement design tables (Table 3 and Table 4).

B. An aircraft will have two Load Classification Numbers (LCN) for any given weight and tire pressure. One for rigid pavement (usually concrete) and the second for flexible pavement (usually layered asphalt).

C. The tables show the LCN and loads for the CRJ700 against the radius of relative−stiffness for rigid pavements.

D. Refer to Airplane Flight Manual (CSP B−012) for the maximum permissible CG limits and find the approximate average MLG load per side. Enter the total aircraft weight in the aircraft Weight column at the applicable aircraft CG, and use the applicable multiplier to find the gear load.

E. Refer to Table 3 for the LCN Rigid Pavement data.

F. Refer to Table 4 for the ACN Rigid Pavement data.

G. This data is related to the International Civil Aviation Organization (ICAO) Document No. 9157−AN/901, Aerodrome Design Manual (Part 3 – Pavement), Second Edition 1983.

Table 3 – LCN Rigid Pavement

Aircraft Weight	Tire Pressure	Radius of Relative Stiffness					
		30 in. (0.76 m)		40 in. (1.01 m)		50 in. (1.27 m)	
		ESWL	LCN	ESWL	LCN	ESWL	LCN
75250 lb (34132 kg)	153 psi (1054 kPa)	25902 lb (11749 kg)	39	26883 lb (12194 kg)	40	27723 lb (12574 kg)	41
67000 lb (30391 kg)	135 psi (930 kPa)	23063 lb (10461 kg)	31	23936 lb (10857 kg)	32	24684 lb (11196 kg)	33
56000 lb (25401 kg)	113 psi (779 kPa)	19276 lb (8743 kg)	24	20006 lb (9074 kg)	25	20630 lb (9357 kg)	26

Table 4 – ACN Rigid Pavement

Aircraft Weight	Subgrade Categories							
	Ultra Low Strength K = 20 MN/m³		Low Strength K = 40 MN/m³		Medium Strength K = 80 MN/m³		High Strength K = 150 MN/m³	
	Pavement Thickness	ACN	Pavement Thickness	ACN	Pavement Thickness	ACN	Pavement Thickness	ACN
75250 lb (34132 kg)	9.45 in. (0.240 m)	22.9	8.90 in. (0.226 m)	21.9	8.27 in. (0.210 m)	20.8	7.68 in. (0.195 m)	19.5
67000 lb (30391 kg)	8.78 in. (0.223 m)	19.6	8.23 in. (0.209 m)	18.7	7.64 in. (0.194 m)	17.5	7.09 in. (0.180 m)	16.4
56000 lb (25401 kg)	7.83 in. (0.199 m)	15.4	7.32 in. (0.186 m)	14.5	6.77 in. (0.172 m)	13.5	6.26 in. (0.159 m)	12.5

H. If the aircraft LCN for weight, tire pressure, and pavement (relative stiffness of thickness) is not more than 10% above the published pavement LCN, then the aircraft is allowed “unlimited” use of a runway.

I. If the aircraft LCN is not in the limits, the aircraft can be considered for “occasional use”.

NOTE: The pavement types are shown for loads, wheels, and tires accepted for the CRJ700, at a given tire pressure.

DERIVATIVE AIRCRAFT

1. General

A. The aircraft Models CL−600−2D15 and CL−600−2D24 are the most recent additions to the Canadair Regional Jet family. They are the derivatives of the Canadair Regional Jet Model CL−600−2C10.

B. The CL−600−2D15 and CL−600−2D24 can accommodate 74 and 86 passengers in addition to the crew.

C. For more information on airport planning for these models, refer to Airport Planning Manual (CSP C−020) or contact Bombardier Aerospace Regional Aircraft.

THIS PAGE INTENTIONALLY LEFT BLANK

**ON A/C ALL

SCALED DRAWINGS

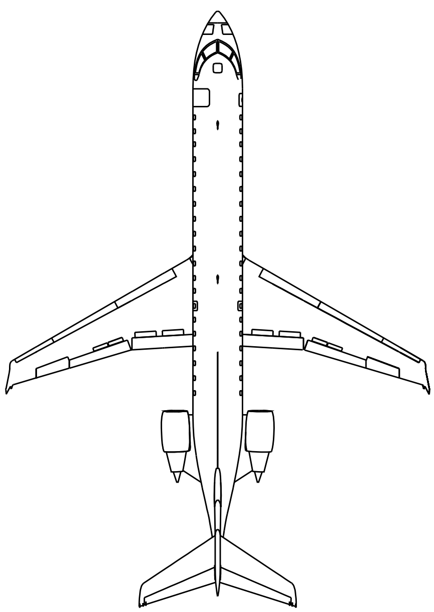
1. General

A. This section contains the scaled drawings. They can be used to plan and to verify runway, ramp, and maintenance facility layouts.

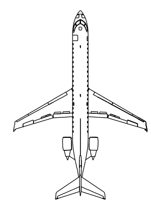
B. Refer to Figure 1 for the US Standard scaled drawing.

C. Refer to Figure 2 for the Metric scaled drawing.

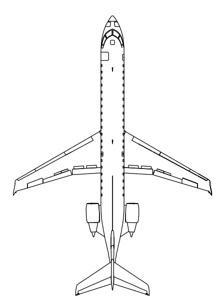
SCALE
1 INCH = 32 FEET



SCALE
1 INCH = 100 FEET



SCALE
1 INCH = 50 FEET

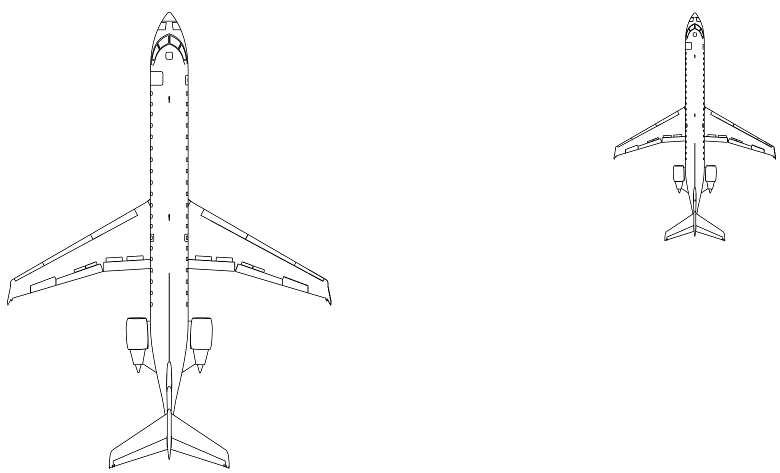


ba1528a01.cgm

Scaled Drawing − US Standard
Figure 1

SCALE 1:500

SCALE 1:1000



ba1529a01

Scaled Drawing – Metric
Figure 2

THIS PAGE INTENTIONALLY LEFT BLANK