



A320

# AIRCRAFT CHARACTERISTICS AIRPORT AND MAINTENANCE PLANNING

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HIGHLIGHTS

Revision No. 39 - Dec 01/20

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## SCOPE

### 1-1-0 Introduction

**\*\*ON A/C A320-200 A320neo**

#### Purpose

##### 1. General

The A320 AIRCRAFT CHARACTERISTICS – AIRPORT AND MAINTENANCE PLANNING (AC) manual is issued for the A320-200 series aircraft equipped with wing-tip fences or sharklets, to provide necessary data to airport operators, airlines and Maintenance/Repair Organizations (MRO) for airport and maintenance facilities planning.

The A320 Family is the world's best-selling single-aisle aircraft. An A320 takes off or lands somewhere in the world every 1.5 seconds of every day, the family has logged more than 117 million cycles since entry-into-service and records a best-in-class dispatch reliability of 99.7%.

To ensure this true market leadership, Airbus continues to invest in improvements in the A320 Family: enhancements to aerodynamics such as the sharklet wingtip devices, upgrades to the widest passenger cabin in its class, the A320 Family neo. The latter combines top-of-class engine efficiency offered by two new engine options: the PW1100G PurePower from Pratt&Whitney and the LEAP-1A from CFM International with superior aerodynamics offered by the new sharklet devices.

The A320neo family offers a minimum of 15% fuel savings and an additional flight range of about 500 nm (926 km) and up to 20% fuel savings achieved through cabin innovations and efficiency improvements. For the environment, the A320neo family is also more eco-friendly, with 5 000 t (11 023 113 lb) less CO<sub>2</sub> emissions per year per aircraft and nearly 50% reduction in noise footprint compared to previous generation aircraft.

## 1-2-0 Glossary

**\*\*ON A/C A320-200 A320neo**Glossary

## 1. List of Abbreviations

A/C	Aircraft
ACF	Aircraft Cabin Flex
ACN	Aircraft Classification Number
AMM	Aircraft Maintenance Manual
APU	Auxiliary Power Unit
B/C	Business Class
CBR	California Bearing Ratio
CC	Cargo Compartment
CG	Center of Gravity
CKPT	Cockpit
E	Young's Modulus
ELEC	Electric, Electrical, Electricity
ESWL	Equivalent Single Wheel Load
FAA	Federal Aviation Administration
F/C	First Class
FDL	Fuselage Datum Line
FR	Frame
FSTE	Full Size Trolley Equivalent
FWD	Forward
GPU	Ground Power Unit
GSE	Ground Support Equipment
HYD	Hydraulic
ICAO	International Civil Aviation Organisation
IDG	Integrated Drive Generator
ISA	International Standard Atmosphere
L	Left
L	Radius of relative stiffness
LCN	Load Classification Number
LD	Lower Deck
L/G	Landing Gear
LH	Left Hand
LPS	Last Pax Seating
MAC	Mean Aerodynamic Chord



MAX	Maximum
MIN	Minimum
MLG	Main Landing Gear
NLG	Nose Landing Gear
OAT	Outside Air Temperature
PAX	Passenger
PBB	Passenger Boarding Bridge
PCA	Portland Cement Association
PCN	Pavement Classification Number
PRM	Passenger with Reduced Mobility
R	Right
RH	Right Hand
ULD	Unit Load Device
US	United States
WV	Weight Variant
Y/C	Tourist Class

## 2. Design Weight Terminology

- Maximum Design Ramp Weight (MRW):  
Maximum weight for ground maneuver (including weight of taxi and run-up fuel) as limited by aircraft strength and airworthiness requirements. It is also called Maximum Design Taxi Weight (MTW).
- Maximum Design Landing Weight (MLW):  
Maximum weight for landing as limited by aircraft strength and airworthiness requirements.
- Maximum Design Takeoff Weight (MTOW):  
Maximum weight for takeoff as limited by aircraft strength and airworthiness requirements. (This is the maximum weight at start of the take-off run).
- Maximum Design Zero Fuel Weight (MZFW):  
Maximum permissible weight of the aircraft without usable fuel.
- Maximum Seating Capacity:  
Maximum number of passengers specifically certified or anticipated for certification.
- Usable Volume:  
Usable volume available for cargo, pressurized fuselage, passenger compartment and cockpit.
- Water Volume:  
Maximum volume of cargo compartment.
- Usable Fuel:  
Fuel available for aircraft propulsion.

**AIRCRAFT DESCRIPTION**

**2-1-1 General Aircraft Characteristics Data**

**\*\*ON A/C A320-200 A320neo**

General Aircraft Characteristics Data

**\*\*ON A/C A320-200**

1. The following table provides characteristics of A320-200 Models, these data are specific to each Weight Variant:

Aircraft Characteristics					
	WV000	WV001	WV002	WV003	WV004
Maximum Ramp Weight (MRW)	73 900 kg	68 400 kg	70 400 kg	75 900 kg	71 900 kg
Maximum Taxi Weight (MTW)	(162 922 lb)	(150 796 lb)	(155 205 lb)	(167 331 lb)	(158 512 lb)
Maximum Take-Off Weight (MTOW)	73 500 kg	68 000 kg	70 000 kg	75 500 kg	71 500 kg
	(162 040 lb)	(149 914 lb)	(154 324 lb)	(166 449 lb)	(157 630 lb)
Maximum Landing Weight (MLW)	64 500 kg	64 500 kg	64 500 kg	64 500 kg	64 500 kg
	(142 198 lb)	(142 198 lb)	(142 198 lb)	(142 198 lb)	(142 198 lb)
Maximum Zero Fuel Weight (MZFW)	60 500 kg	60 500 kg	60 500 kg	60 500 kg	60 500 kg
	(133 380 lb)	(133 380 lb)	(133 380 lb)	(133 380 lb)	(133 380 lb)

Aircraft Characteristics					
	WV005	WV006	WV007	WV008	WV009
Maximum Ramp Weight (MRW)	67 400 kg	66 400 kg	77 400 kg	73 900 kg	75 900 kg
Maximum Taxi Weight (MTW)	(148 592 lb)	(146 387 lb)	(170 638 lb)	(162 922 lb)	(167 331 lb)
Maximum Take-Off Weight (MTOW)	67 000 kg	66 000 kg	77 000 kg	73 500 kg	75 500 kg
	(147 710 lb)	(145 505 lb)	(169 756 lb)	(162 040 lb)	(166 449 lb)
Maximum Landing Weight (MLW)	64 500 kg	64 500 kg	64 500 kg	64 500 kg	64 500 kg
	(142 198 lb)	(142 198 lb)	(142 198 lb)	(142 198 lb)	(142 198 lb)
Maximum Zero Fuel Weight (MZFW)	60 500 kg	60 500 kg	60 500 kg	61 000 kg	61 000 kg
	(133 380 lb)	(133 380 lb)	(133 380 lb)	(134 482 lb)	(134 482 lb)

Aircraft Characteristics					
	WV010	WV011	WV012	WV013	WV014
Maximum Ramp Weight (MRW)	77 400 kg	75 900 kg	77 400 kg	71 900 kg	73 900 kg
Maximum Taxi Weight (MTW)	(170 638 lb)	(167 331 lb)	(170 638 lb)	(158 512 lb)	(162 922 lb)
Maximum Take-Off Weight (MTOW)	77 000 kg	75 500 kg	77 000 kg	71 500 kg	73 500 kg
	(169 756 lb)	(166 449 lb)	(169 756 lb)	(157 630 lb)	(162 040 lb)
Maximum Landing Weight (MLW)	64 500 kg	66 000 kg	66 000 kg	64 500 kg	64 500 kg
	(142 198 lb)	(145 505 lb)	(145 505 lb)	(142 198 lb)	(142 198 lb)
Maximum Zero Fuel Weight (MZFW)	61 000 kg	62 500 kg	62 500 kg	61 000 kg	61 500 kg
	(134 482 lb)	(137 789 lb)	(137 789 lb)	(134 482 lb)	(135 584 lb)

Aircraft Characteristics					
	WV015	WV016	WV017	WV018	WV019
Maximum Ramp Weight (MRW)	78 400 kg	73 900 kg	78 400 kg	71 900 kg	70 400 kg
Maximum Taxi Weight (MTW)	(172 842 lb)	(162 922 lb)	(172 482 lb)	(158 512 lb)	(155 205 lb)
Maximum Take-Off Weight (MTOW)	78 000 kg	73 500 kg	78 000 kg	71 500 kg	70 000 kg
	(171 961 lb)	(162 040 lb)	(171 961 lb)	(157 630 lb)	(154 324 lb)
Maximum Landing Weight (MLW)	64 500 kg	66 000 kg	66 000 kg	66 000 kg	64 500 kg
	(142 198 lb)	(145 505 lb)	(145 505 lb)	(145 505 lb)	(142 198 lb)
Maximum Zero Fuel Weight (MZFW)	61 000 kg	62 500 kg	62 500 kg	62 500 kg	61 000 kg
	(134 482 lb)	(137 789 lb)	(137 789 lb)	(137 789 lb)	(134 482 lb)

**\*\*ON A/C A320neo**

2. The following table provides characteristics of A320neo Models, these data are specific to each Weight Variant:

Aircraft Characteristics				
	WV050	WV051	WV052	WV053
Maximum Ramp Weight (MRW)	73 900 kg	73 900 kg	77 400 kg	77 400 kg
Maximum Taxi Weight (MTW)	(162 921 lb)	(162 921 lb)	(170 638 lb)	(170 638 lb)
Maximum Take-Off Weight (MTOW)	73 500 kg	73 500 kg	77 000 kg	77 000 kg
	(162 040 lb)	(162 040 lb)	(169 756 lb)	(169 756 lb)
Maximum Landing Weight (MLW)	66 300 kg	67 400 kg	66 300 kg	67 400 kg
	(146 166 lb)	(148 591 lb)	(146 166 lb)	(148 591 lb)

Aircraft Characteristics				
	WV050	WV051	WV052	WV053
Maximum Zero Fuel Weight (MZFW)	62 800 kg (138 450 lb)	64 300 kg (141 757 lb)	62 800 kg (138 450 lb)	64 300 kg (141 757 lb)

Aircraft Characteristics				
	WV054	WV055	WV056	WV057
Maximum Ramp Weight (MRW)	79 400 kg	79 400 kg	70 400 kg	70 400 kg
Maximum Taxi Weight (MTW)	(175 047 lb)	(175 047 lb)	(155 205 lb)	(155 205 lb)
Maximum Take-Off Weight (MTOW)	79 000 kg (174 165 lb)	79 000 kg (174 165 lb)	70 000 kg (154 324 lb)	70 000 kg (154 324 lb)
Maximum Landing Weight (MLW)	66 300 kg (146 166 lb)	67 400 kg (148 591 lb)	66 300 kg (146 166 lb)	67 400 kg (148 591 lb)
Maximum Zero Fuel Weight (MZFW)	62 800 kg (138 450 lb)	64 300 kg (141 757 lb)	62 800 kg (138 450 lb)	64 300 kg (141 757 lb)

Aircraft Characteristics			
	WV068	WV069	WV071
Maximum Ramp Weight (MRW)	75 900 kg	75 900 kg	75 400 kg
Maximum Taxi Weight (MTW)	(167 331 lb)	(167 331 lb)	(166 228 lb)
Maximum Take-Off Weight (MTOW)	75 500 kg (166 449 lb)	75 500 kg (166 449 lb)	75 000 kg (1653 47 lb)
Maximum Landing Weight (MLW)	66 300 kg (146 166 lb)	67 400 kg (148 591 lb)	67 400 kg (148 592 lb)
Maximum Zero Fuel Weight (MZFW)	62 800 kg (138 450 lb)	64 300 kg (141 757 lb)	64 300 kg (141 757 lb)

Aircraft Characteristics					
	WV075	WV078	WV082	WV083	WV085
Maximum Ramp Weight (MRW)	74 400 kg	72 900 kg	71 900 kg	71 900 kg	71 400 kg
Maximum Taxi Weight (MTW)	(164 024 lb)	(160 717 lb)	(158 512 lb)	(158 512 lb)	(157 410 lb)
Maximum Take-Off Weight (MTOW)	74 000 kg (163 142 lb)	72 500 kg (159 835 lb)	71 500 kg (157 630 lb)	71 500 kg (157 630 lb)	71 000 kg (156 528 lb)
Maximum Landing Weight (MLW)	67 400 kg (148 592 lb)	66 300 kg (146 166 lb)	66 300 kg (146 166 lb)	67 400 kg (148 592 lb)	67 400 kg (148 592 lb)

Aircraft Characteristics					
	WV075	WV078	WV082	WV083	WV085
Maximum Zero Fuel Weight (MZFW)	64 300 kg (141 757 lb)	62 800 kg (138 450 lb)	62 800 kg (138 450 lb)	64 300 kg (141 757 lb)	64 300 kg (141 757 lb)

**\*\*ON A/C A320-200 A320neo**

3. The following table provides characteristics of A320-200 and A320neo Models, these data are common to each Weight Variant:

Aircraft Characteristics	
Standard Seating Capacity	180 (Single-Class)
Usable Fuel Capacity (density = 0.785 kg/l)	23 859 l - 26 759 l * - 29 659 l ** (6 303 US gal - 7 069 US gal * - 7 835 US gal **)
	18 729 kg - 21 005 kg * - 23 282 kg ** (41 290 lb - 46 308 lb * - 51 328 lb **)
Pressurized Fuselage Volume (A/C non equipped)	330 m <sup>3</sup> (11 654 ft <sup>3</sup> )
Passenger Compartment Volume	139 m <sup>3</sup> (4 909 ft <sup>3</sup> )
Cockpit Volume	9 m <sup>3</sup> (318 ft <sup>3</sup> )
Usable Volume, FWD CC	13.28 m <sup>3</sup> (469 ft <sup>3</sup> )
Usable Volume, AFT CC	18.26 m <sup>3</sup> (645 ft <sup>3</sup> )
Usable Volume, Bulk CC	5.88 m <sup>3</sup> (208 ft <sup>3</sup> )
Water Volume, FWD CC	15.56 m <sup>3</sup> (549 ft <sup>3</sup> )
Water Volume, AFT CC	20.77 m <sup>3</sup> (733 ft <sup>3</sup> )
Water Volume, Bulk CC	7.76 m <sup>3</sup> (274 ft <sup>3</sup> )

\* OPTION: 1 ACT

\*\* OPTION: 2 ACT



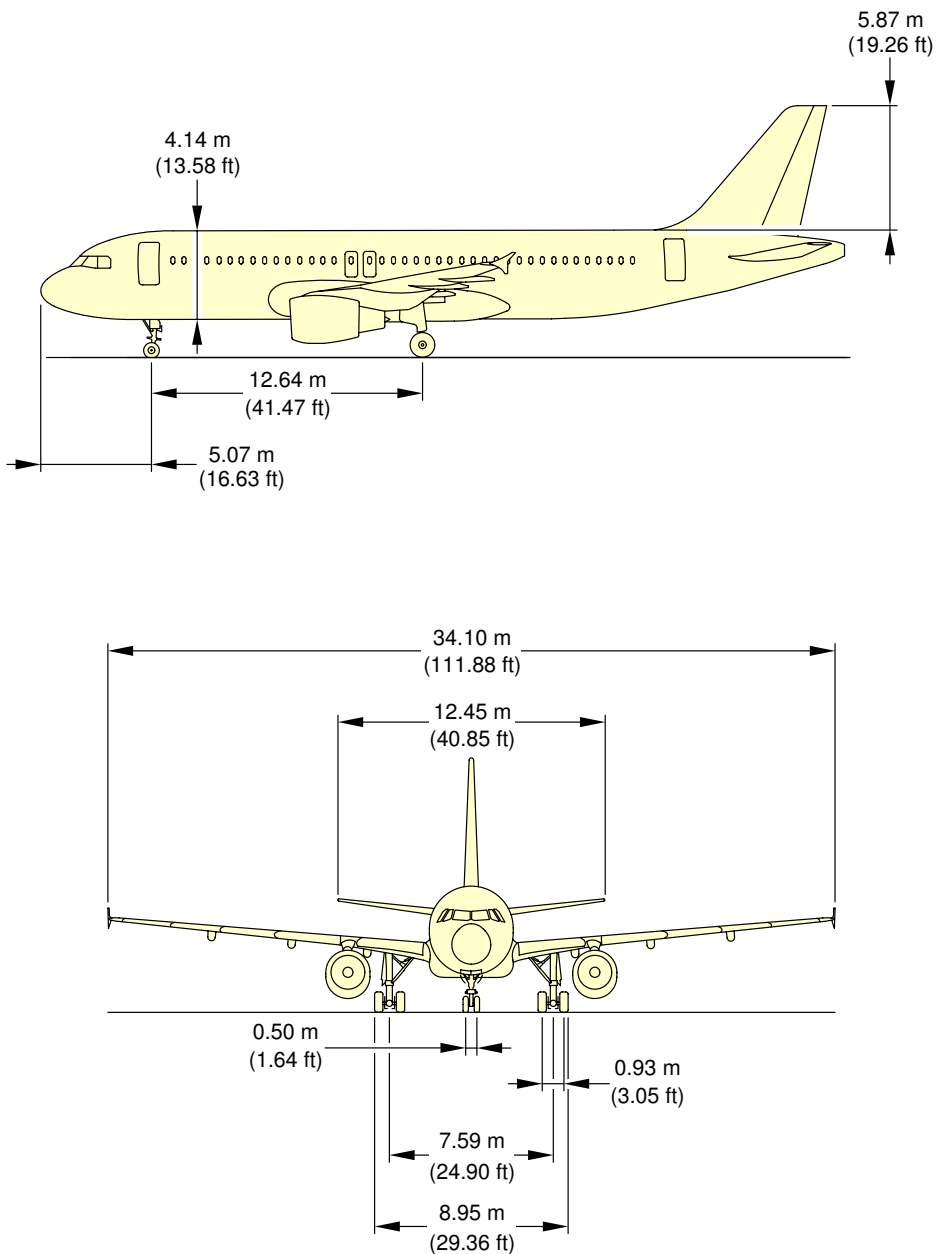
2-2-0 General Aircraft Dimensions

\*\*ON A/C A320-200 A320neo

General Aircraft Dimensions

1. This section provides general aircraft dimensions.

**\*\*ON A/C A320-200**



**NOTE:**  
RELATED TO AIRCRAFT ATTITUDE AND WEIGHT.

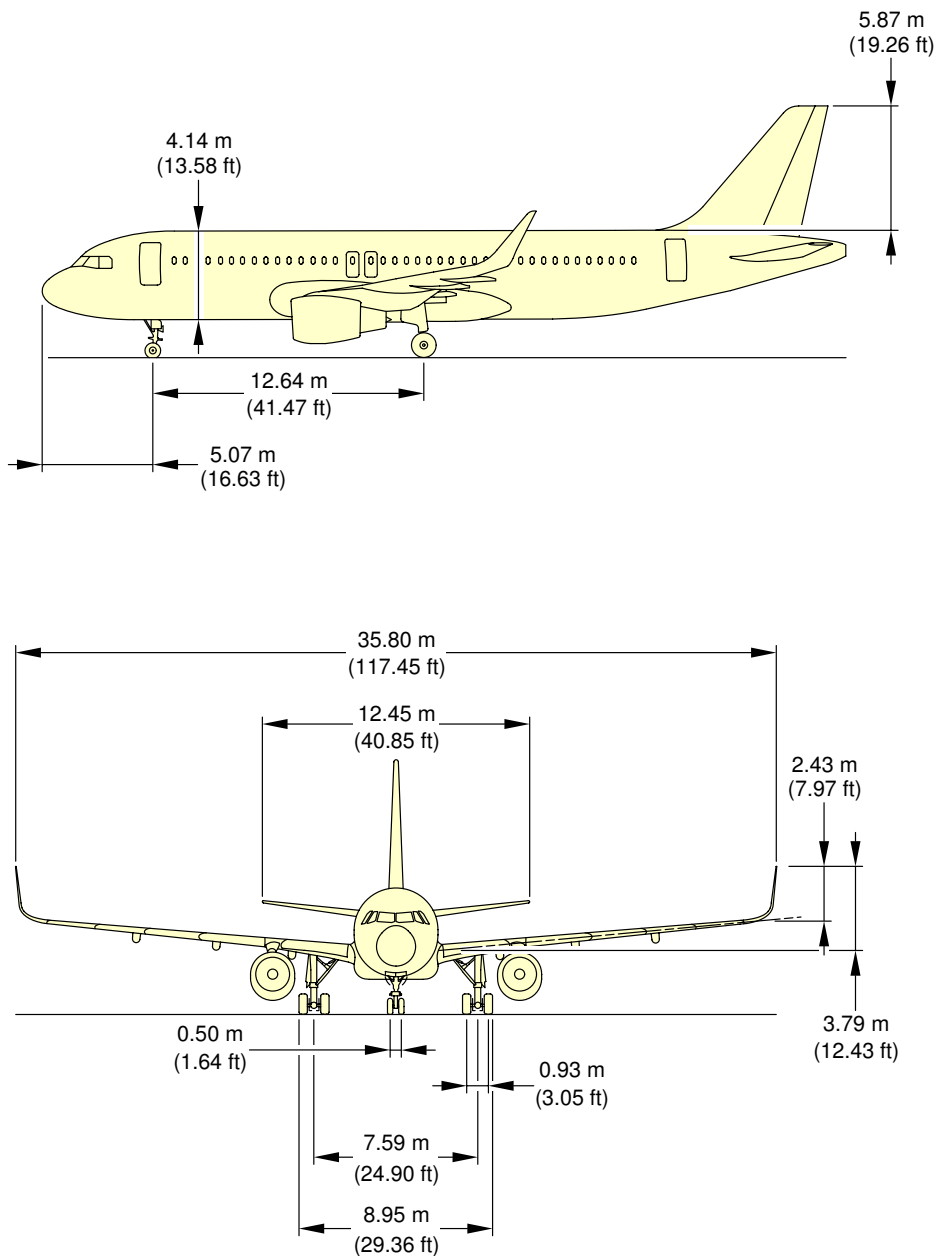
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General Aircraft Dimensions  
Wing Tip Fence (Sheet 1 of 4)  
FIGURE-2-2-0-991-004-A01





**\*\*ON A/C A320-200**

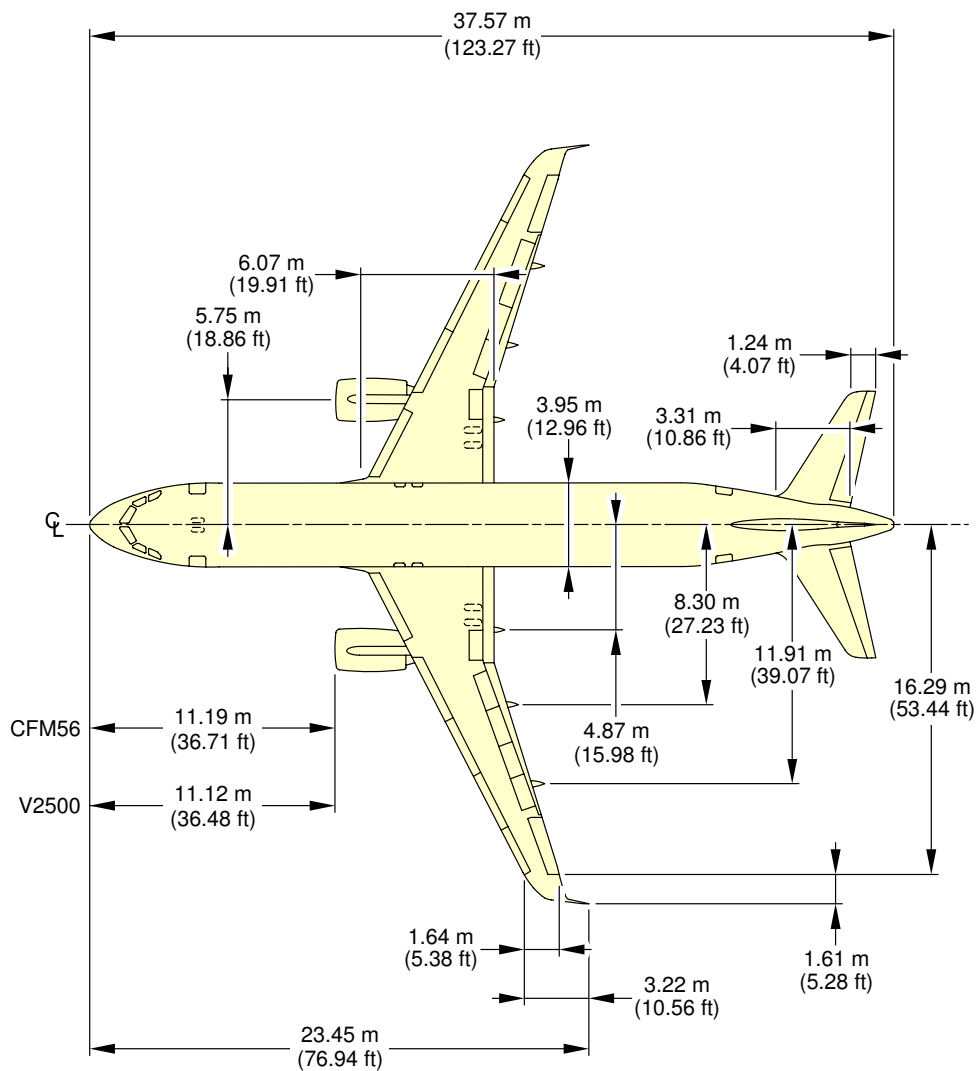


**NOTE:**  
RELATED TO AIRCRAFT ATTITUDE AND WEIGHT.

N\_AC\_020200\_1\_0040103\_01\_02

General Aircraft Dimensions  
Sharklet (Sheet 3 of 4)  
FIGURE-2-2-0-991-004-A01

**\*\*ON A/C A320-200**

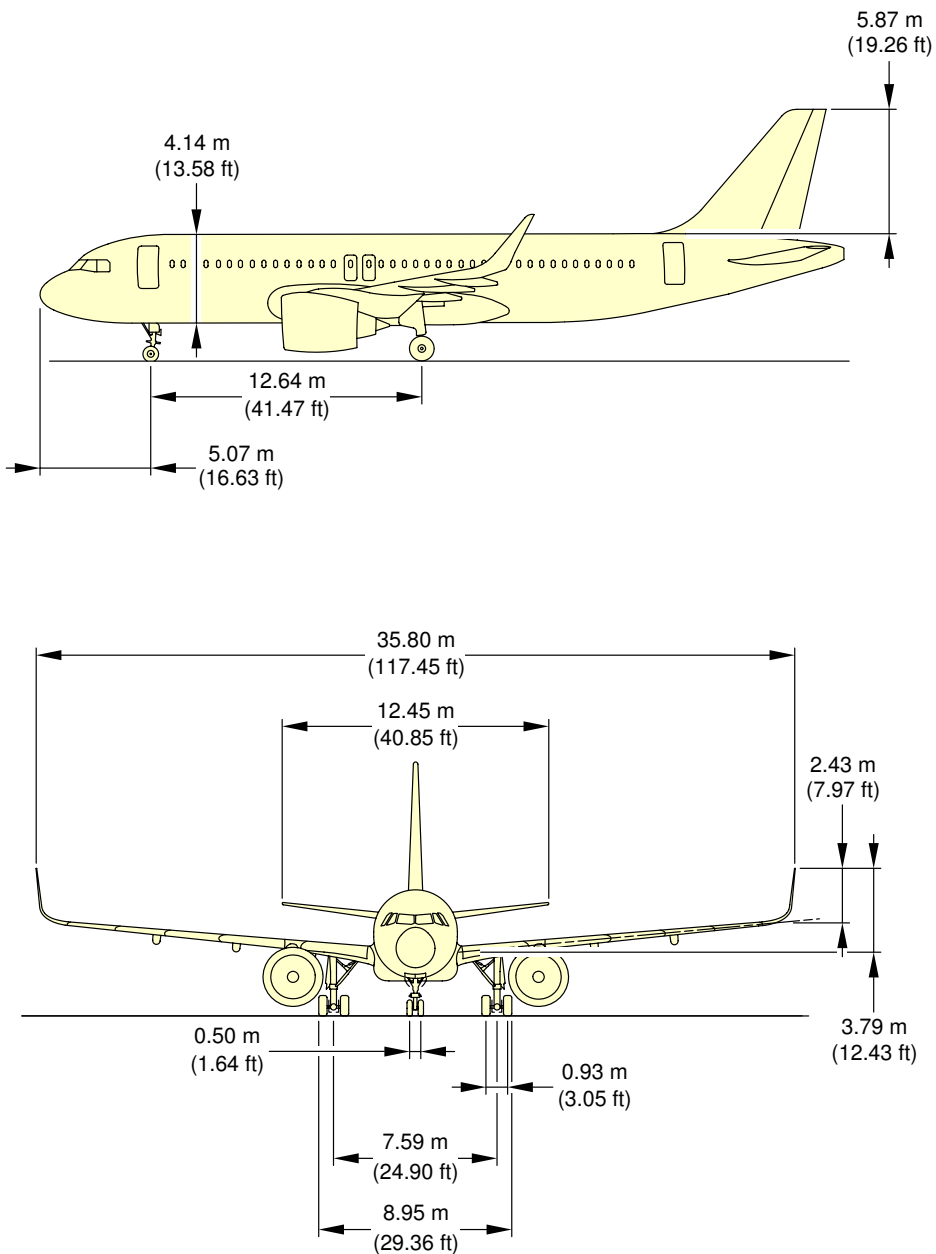


**NOTE:**  
RELATED TO AIRCRAFT ATTITUDE AND WEIGHT.

N\_AC\_020200\_1\_0040105\_01\_02

General Aircraft Dimensions  
Sharklet (Sheet 4 of 4)  
FIGURE-2-2-0-991-004-A01

\*\*ON A/C A320neo

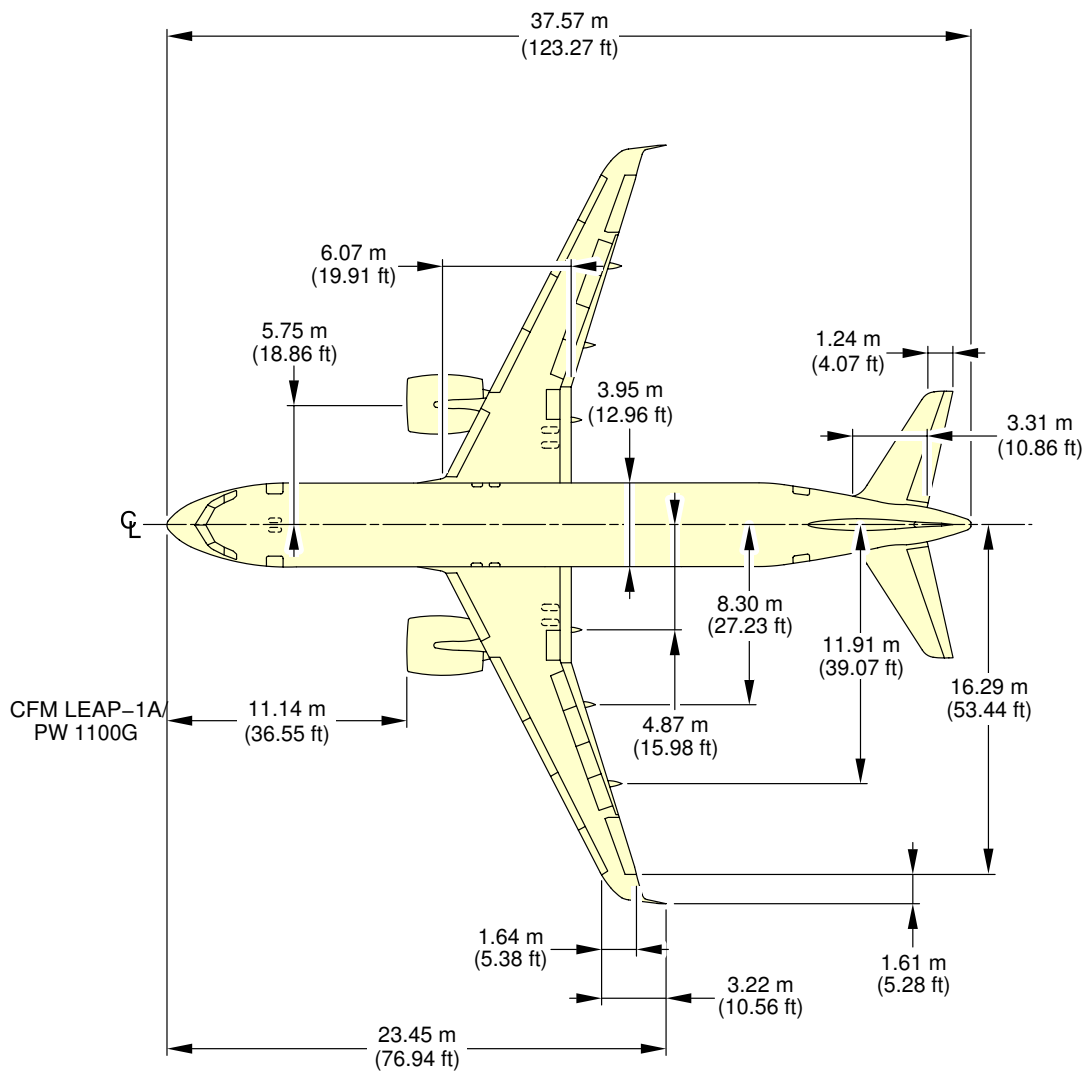


**NOTE:**  
RELATED TO AIRCRAFT ATTITUDE AND WEIGHT.

N\_AC\_020200\_1\_0090101\_01\_01

General Aircraft Dimensions  
(Sheet 1 of 2)  
FIGURE-2-2-0-991-009-A01

**\*\*ON A/C A320neo**



**NOTE:**  
RELATED TO AIRCRAFT ATTITUDE AND WEIGHT.

N\_AC\_020200\_1\_0090102\_01\_01

General Aircraft Dimensions  
(Sheet 2 of 2)  
FIGURE-2-2-0-991-009-A01

**2-3-0 Ground Clearances****\*\*ON A/C A320-200 A320neo**Ground Clearances

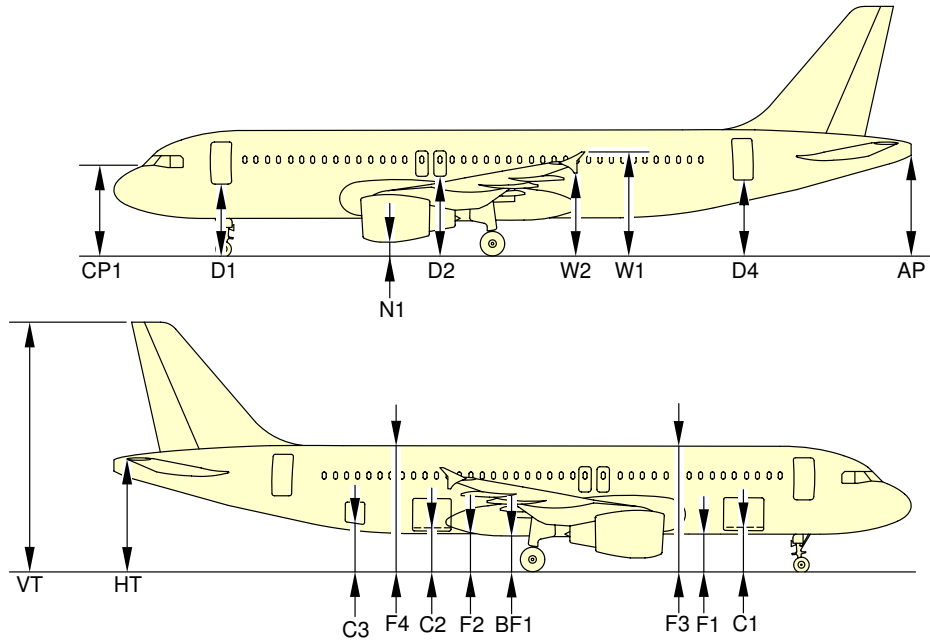
1. This section provides the height of various points of the aircraft, above the ground, for different aircraft configurations.  
Dimensions in the tables are approximate and will vary with tire type, weight and balance and other special conditions.

The dimensions are given for:

- A light weight, for an A/C in maintenance configuration with a mid CG,
- An aircraft at Maximum Ramp Weight with a FWD CG and an AFT CG,
- Aircraft on jacks, FDL at 4.60 m (15.09 ft).

NOTE : Passenger and cargo door ground clearances are measured from the center of the door sill and from floor level.

**\*\*ON A/C A320-200**



A/C CONFIGURATION		MRW				41 000 kg (90 389 lb)		A/C JACKED FDL = 4.60 m (15.09 ft)	
		FWD CG (17%)		AFT CG (36.8%)		CG (26.5%)			
		m	ft	m	ft	m	ft	m	ft
DOORS	D1	3.38	11.09	3.45	11.32	3.48	11.42	4.13	13.55
	D2	3.87	12.70	3.88	12.73	3.98	13.06	4.54	14.89
	D4	3.60	11.81	3.50	11.48	3.70	12.14	4.13	13.55
	C1	1.98	6.50	2.04	6.69	2.09	6.86	2.71	8.89
	C2	2.12	6.96	2.07	6.79	2.22	7.28	2.71	8.89
FUSELAGE	C3	2.19	7.19	2.11	6.92	2.29	7.51	2.75	9.02
	F1	1.72	5.64	1.76	5.77	1.82	5.97	2.43	7.97
	F2	1.84	6.04	1.79	5.87	1.95	6.40	2.43	7.97
	F3	5.86	19.23	5.90	19.36	5.97	19.59	6.58	21.59
	F4	5.99	19.65	5.93	19.46	6.09	19.98	6.58	21.59
WINGS	BF1	1.62	5.31	1.60	5.25	1.72	5.64	2.26	7.41
	CP1	4.17	13.68	4.27	14.01	4.28	14.04	4.96	16.27
TAILPLANE	W1	4.76	15.62	4.71	15.45	4.86	15.94	5.35	17.55
	W2	3.78	12.40	3.74	12.27	3.89	12.76	4.38	14.37
ENGINE/ NACELLE	HT	5.46	17.91	5.32	17.45	5.56	18.24	5.93	19.46
	AP	4.74	15.55	4.59	15.06	4.84	15.88	5.20	17.06
ENGINE/ NACELLE	VT	11.98	39.30	11.83	38.81	12.08	39.63	12.45	40.85
	N1 (CFM)	0.57	1.87	0.58	1.90	0.67	2.20	1.24	4.07
ENGINE/ NACELLE	N1 (IAE)	0.75	2.46	0.76	2.49	0.85	2.79	1.42	4.66

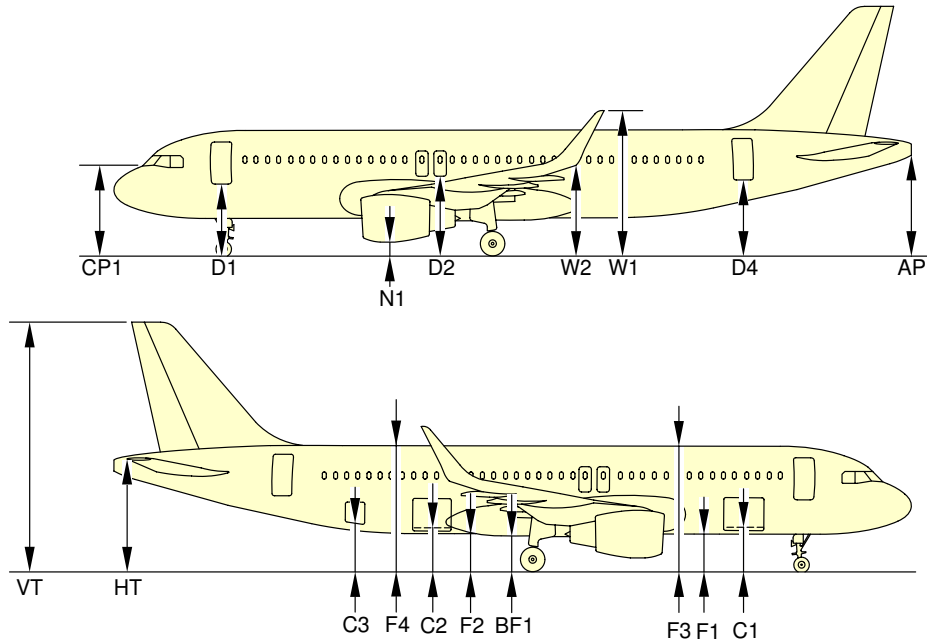
**NOTE:**

PASSENGER AND CARGO DOOR GROUND CLEARANCES ARE MEASURED FROM THE CENTER OF THE DOOR SILL AND FROM FLOOR LEVEL.

N\_AC\_020300\_1\_0040101\_01\_08

Ground Clearances  
Wing Tip Fence  
FIGURE-2-3-0-991-004-A01

**\*\*ON A/C A320-200**



A/C CONFIGURATION		MRW				41 000 kg (90 389 lb)		A/C JACKED FDL = 4.60 m (15.09 ft)	
		FWD CG (17%)		AFT CG (36.8%)		CG (26.5%)			
		m	ft	m	ft	m	ft	m	ft
DOORS	D1	3.38	11.09	3.45	11.32	3.48	11.42	4.13	13.55
	D2	3.87	12.70	3.88	12.73	3.98	13.06	4.54	14.89
	D4	3.60	11.81	3.50	11.48	3.70	12.14	4.13	13.55
	C1	1.98	6.50	2.04	6.69	2.09	6.86	2.71	8.89
	C2	2.12	6.96	2.07	6.79	2.22	7.28	2.71	8.89
FUSELAGE	C3	2.19	7.19	2.11	6.92	2.29	7.51	2.75	9.02
	F1	1.72	5.64	1.76	5.77	1.82	5.97	2.43	7.97
	F2	1.84	6.04	1.79	5.87	1.95	6.40	2.43	7.97
	F3	5.86	19.23	5.90	19.36	5.97	19.59	6.58	21.59
	F4	5.99	19.65	5.93	19.46	6.09	19.98	6.58	21.59
WINGS	BF1	1.62	5.31	1.60	5.25	1.72	5.64	2.26	7.41
	CP1	4.17	13.68	4.27	14.01	4.28	14.04	4.96	16.27
TAILPLANE	W1	6.70	21.98	6.65	21.82	6.80	22.31	7.25	23.79
	W2	4.05	13.29	4.01	13.16	4.16	13.65	4.65	15.26
ENGINE/ NACELLE	HT	5.46	17.91	5.32	17.45	5.56	18.24	5.93	19.46
	AP	4.74	15.55	4.59	15.06	4.84	15.88	5.20	17.06
	VT	11.98	39.30	11.83	38.81	12.08	39.63	12.45	40.85
ENGINE/ NACELLE	N1 (CFM)	0.57	1.87	0.58	1.90	0.67	2.20	1.24	4.07
	N1 (IAE)	0.75	2.46	0.76	2.49	0.85	2.79	1.42	4.66

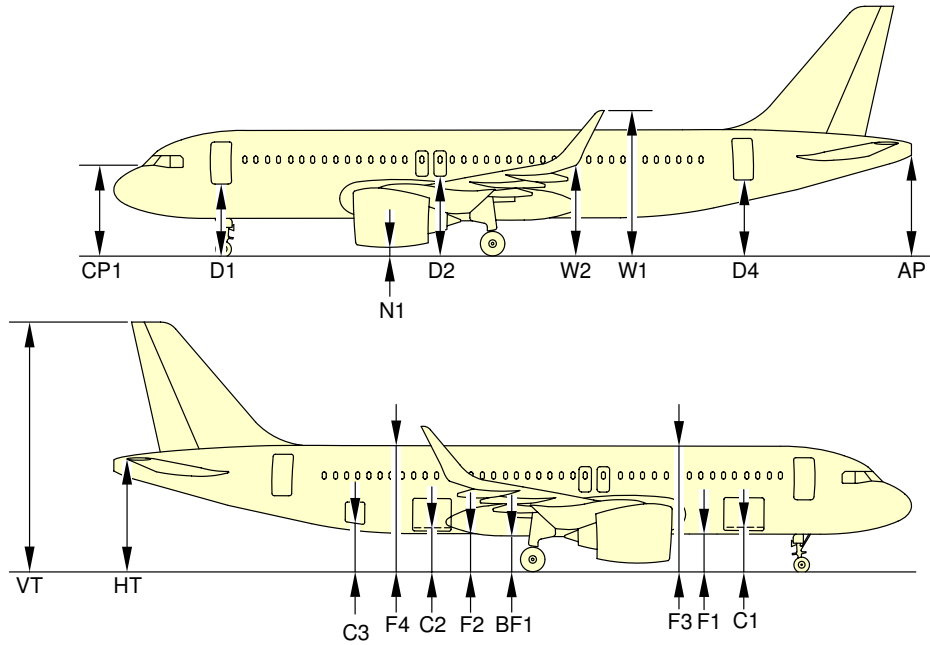
**NOTE:**

PASSENGER AND CARGO DOOR GROUND CLEARANCES ARE MEASURED FROM THE CENTER OF THE DOOR SILL AND FROM FLOOR LEVEL.

N\_AC\_020300\_1\_0290101\_01\_03

Ground Clearances  
Sharklet  
FIGURE-2-3-0-991-029-A01

**\*\*ON A/C A320neo**



A/C CONFIGURATION		MRW				41 000 kg (90 389 lb)		A/C JACKED FDL = 4.60 m (15.09 ft)	
		FWD CG (17%)		AFT CG (36.8%)		CG (26.5%)		m	ft
		m	ft	m	ft	m	ft		
DOORS	D1	3.38	11.09	3.45	11.32	3.48	11.42	4.13	13.55
	D2	3.87	12.70	3.88	12.73	3.98	13.06	4.54	14.89
	D4	3.60	11.81	3.50	11.48	3.70	12.14	4.13	13.55
	C1	1.98	6.50	2.04	6.69	2.09	6.86	2.71	8.89
	C2	2.12	6.96	2.07	6.79	2.22	7.28	2.71	8.89
FUSELAGE	C3	2.19	7.19	2.11	6.92	2.29	7.51	2.75	9.02
	F1	1.72	5.64	1.76	5.77	1.82	5.97	2.43	7.97
	F2	1.84	6.04	1.79	5.87	1.95	6.40	2.43	7.97
	F3	5.86	19.23	5.90	19.36	5.97	19.59	6.58	21.59
	F4	5.99	19.65	5.93	19.46	6.09	19.98	6.58	21.59
WINGS	BF1	1.62	5.31	1.60	5.25	1.72	5.64	2.26	7.41
	CP1	4.17	13.68	4.27	14.01	4.28	14.04	4.96	16.27
TAILPLANE	W1	6.70	21.98	6.65	21.82	6.80	22.31	7.25	23.79
	W2	4.05	13.29	4.01	13.16	4.16	13.65	4.65	15.26
ENGINE/ NACELLE	HT	5.46	17.91	5.32	17.45	5.56	18.24	5.93	19.46
	AP	4.74	15.55	4.59	15.06	4.84	15.88	5.20	17.06
ENGINE/ NACELLE	VT	11.98	39.30	11.83	38.81	12.08	39.63	12.45	40.85
	N1 (CFM LEAP-1A)	0.46	1.51	0.47	1.54	0.56	1.84	1.13	3.71
	N1 (PW 1100G)	0.46	1.51	0.47	1.54	0.56	1.84	1.13	3.71

**NOTE:**

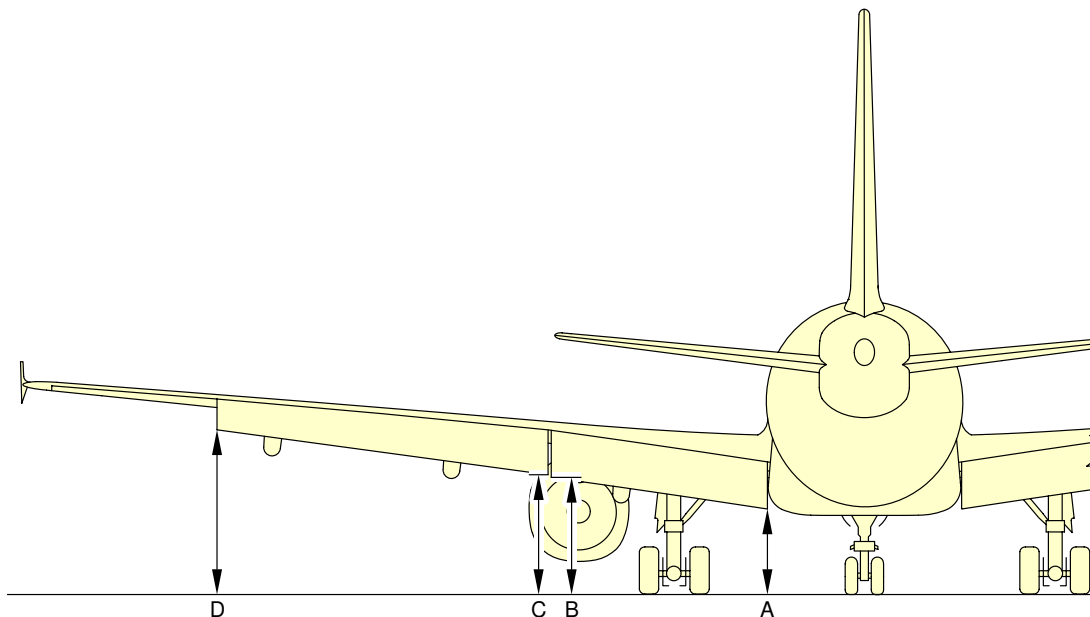
PASSENGER AND CARGO DOOR GROUND CLEARANCES ARE MEASURED FROM THE CENTER OF THE DOOR SILL AND FROM FLOOR LEVEL.

N\_AC\_020300\_1\_0320101\_01\_02

Ground Clearances  
FIGURE-2-3-0-991-032-A01



\*\*ON A/C A320-200

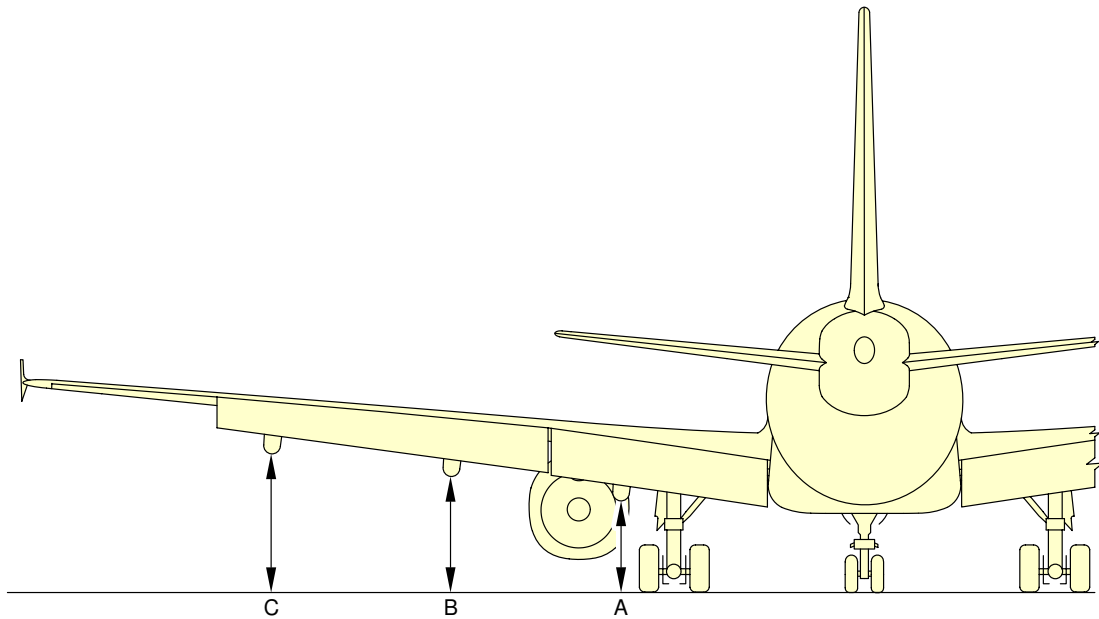


FLAPS EXTENDED CFM 56 ENGINE							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
FLAP 1 INBD	A	2.09	6.86	1.99	6.53	1.96	6.43
FLAP 1 OUTBD	B	2.82	9.25	2.71	8.89	2.69	8.83
FLAP 2 INBD	C	2.86	9.38	2.75	9.02	2.72	8.92
FLAP 2 OUTBD	D	3.68	12.07	3.56	11.68	3.52	11.55

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Ground Clearances  
Trailing Edge Flaps - Extended  
FIGURE-2-3-0-991-016-A01

**\*\*ON A/C A320-200**

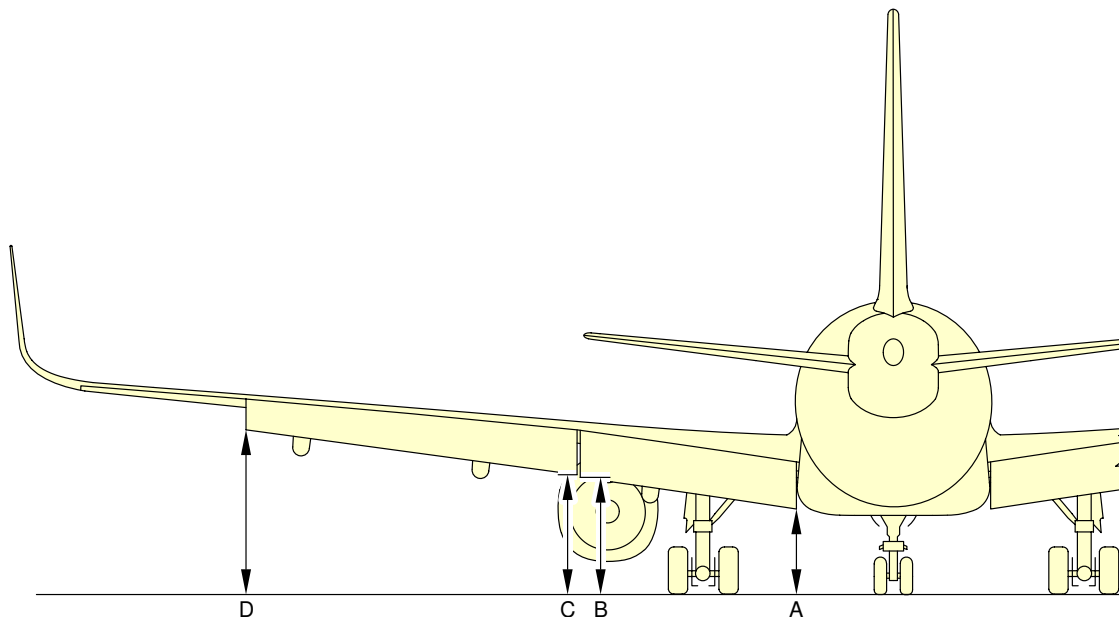


FLAP TRACKS EXTENDED CFM 56 ENGINE							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
FLAP TRACK 2	A	2.18	7.15	2.08	6.82	2.05	6.73
FLAP TRACK 3	B	2.66	8.73	2.55	8.37	2.52	8.27
FLAP TRACK 4	C	3.10	10.17	2.99	9.81	2.95	9.68

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Ground Clearances  
Flap Tracks - Extended  
FIGURE-2-3-0-991-041-A01

\*\*ON A/C A320-200 A320neo

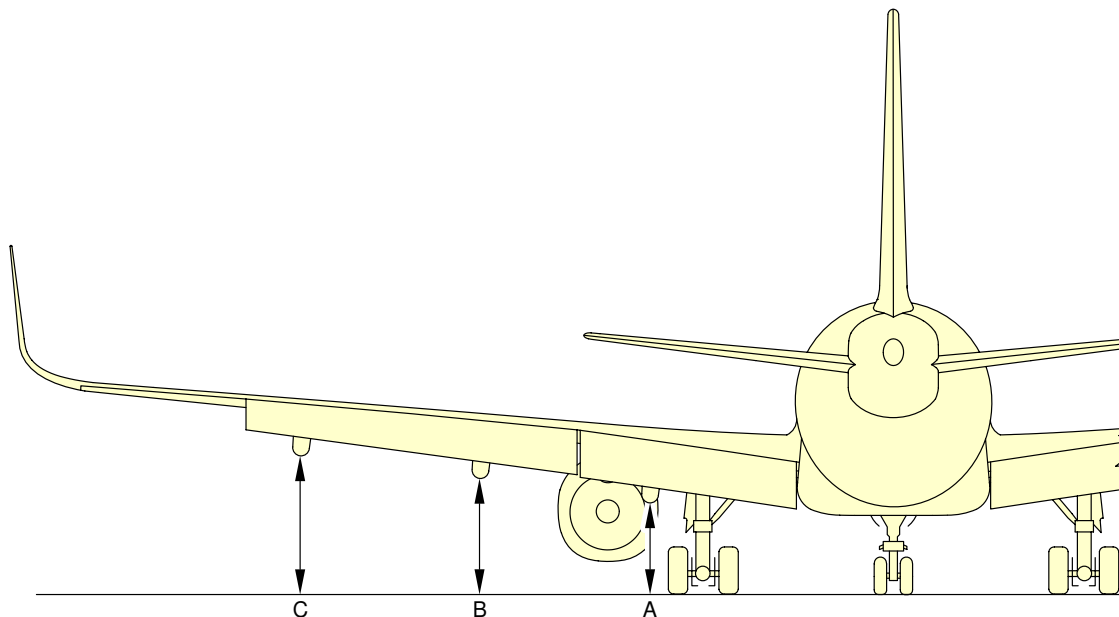


FLAPS EXTENDED IAE V2500, PW 1100G AND CFM LEAP-1A ENGINES							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
FLAP 1 INBD	A	2.05	6.73	1.94	6.37	1.92	6.30
FLAP 1 OUTBD	B	2.77	9.09	2.66	8.73	2.64	8.66
FLAP 2 INBD	C	2.81	9.22	2.70	8.86	2.68	8.78
FLAP 2 OUTBD	D	3.64	11.94	3.53	11.58	3.49	11.45

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Ground Clearances  
Trailing Edge Flaps - Extended  
FIGURE-2-3-0-991-017-A01

\*\*ON A/C A320-200 A320neo

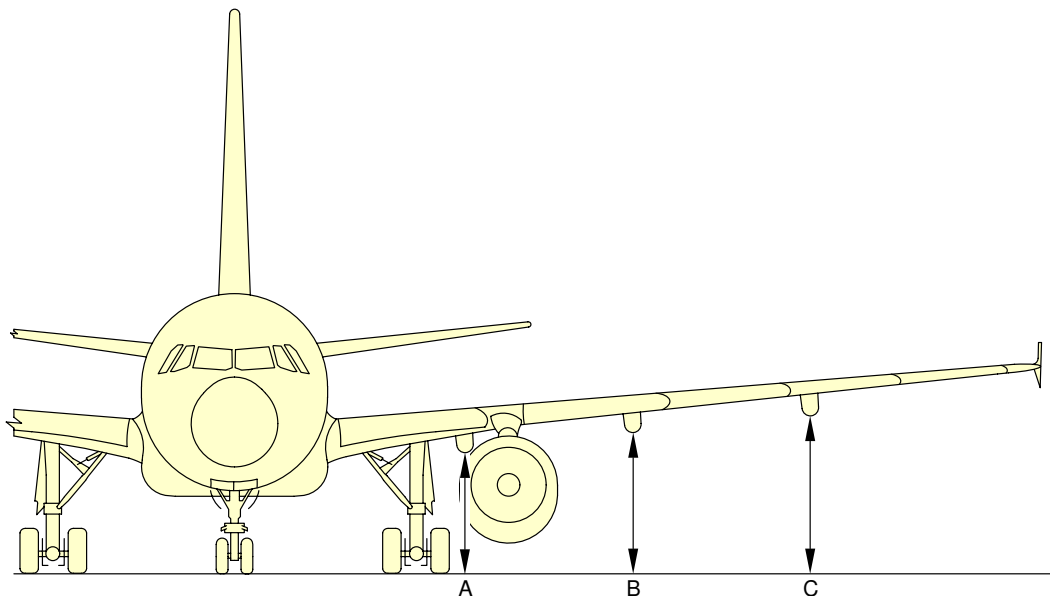


FLAP TRACKS EXTENDED IAE V2500, PW 1100G AND CFM LEAP-1A ENGINES							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
FLAP TRACK 2	A	2.09	6.86	1.98	6.49	1.95	6.40
FLAP TRACK 3	B	2.59	8.50	2.48	8.14	2.44	8.01
FLAP TRACK 4	C	3.03	9.94	2.92	9.58	2.88	9.45

N\_AC\_020300\_1\_0420101\_01\_00

Ground Clearances  
Flap Tracks - Extended  
FIGURE-2-3-0-991-042-A01

\*\*ON A/C A320-200 A320neo

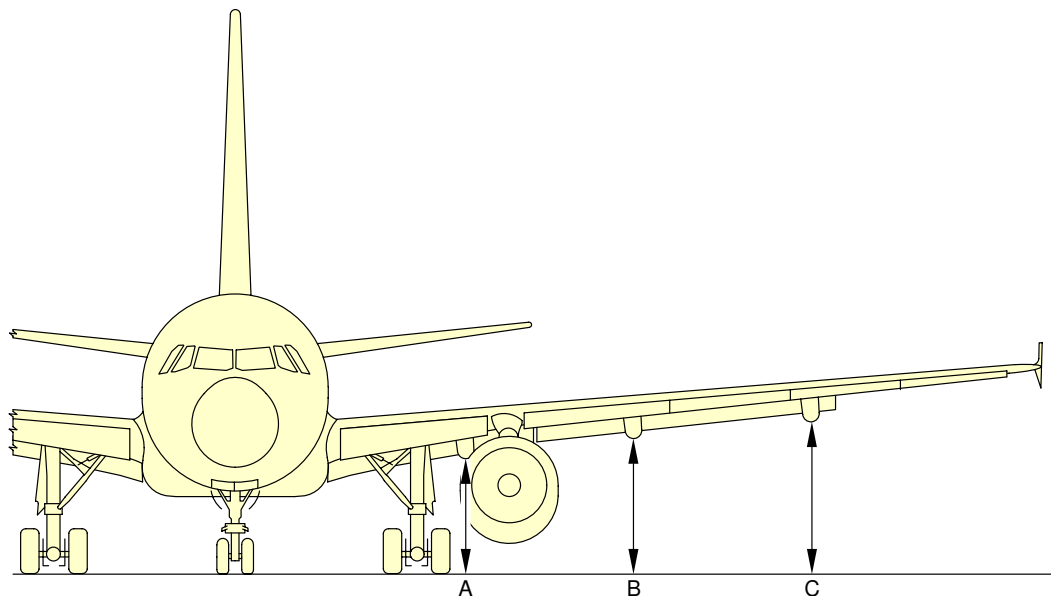


FLAP TRACKS RETRACTED							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
FLAP TRACK 2	A	2.70	8.86	2.60	8.53	2.58	8.46
FLAP TRACK 3	B	3.10	10.17	3.00	9.84	2.97	9.74
FLAP TRACK 4	C	3.50	11.48	3.39	11.12	3.36	11.02

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Ground Clearances  
 Flap Tracks - Retracted  
 FIGURE-2-3-0-991-018-A01

\*\*ON A/C A320-200 A320neo

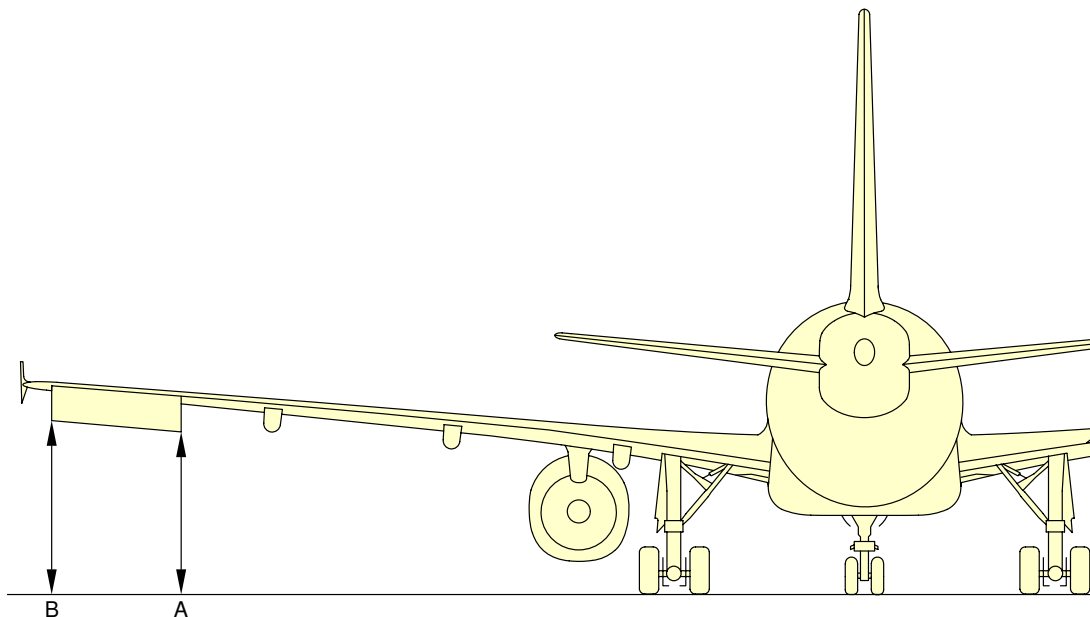


FLAP TRACKS 1+F							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
FLAP TRACK 2	A	1.95	6.40	1.85	6.07	1.83	6.00
FLAP TRACK 3	B	2.31	7.58	2.21	7.25	2.18	7.15
FLAP TRACK 4	C	2.89	9.48	2.78	9.12	2.75	9.02

N\_AC\_020300\_1\_0430101\_01\_00

Ground Clearances  
 Flap Tracks - 1 + F  
 FIGURE-2-3-0-991-043-A01

\*\*ON A/C A320-200 A320neo

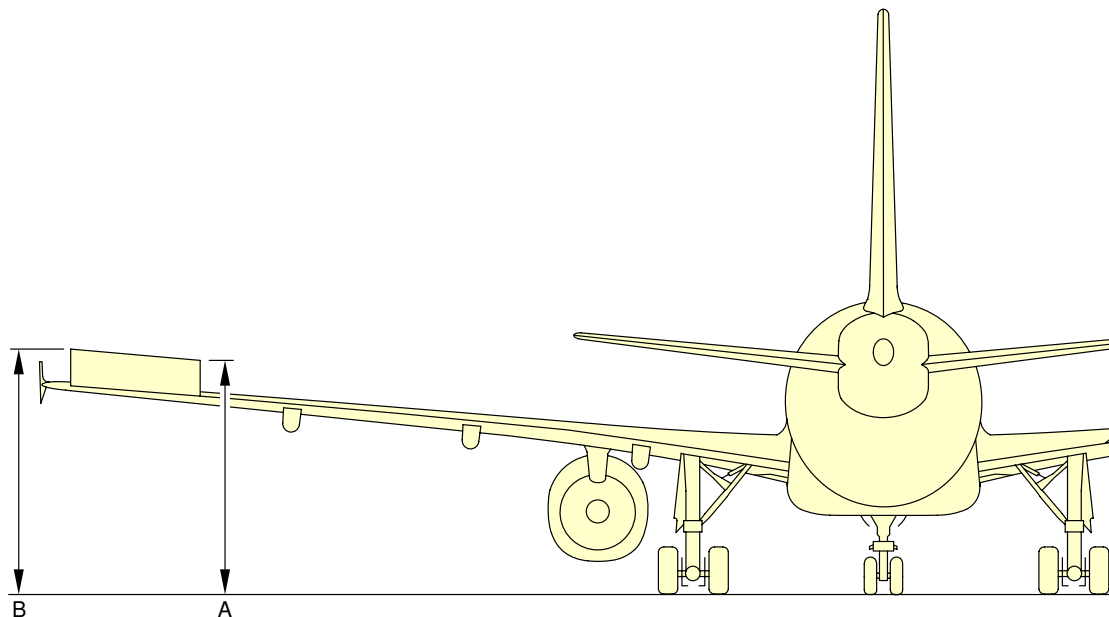


AILERON DOWN							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
AILERON INBD	A	3.83	12.57	3.72	12.21	3.68	12.07
AILERON OUTBD	B	4.17	13.68	4.06	13.32	4.01	13.16

N\_AC\_020300\_1\_0190101\_01\_01

Ground Clearances  
Aileron Down  
FIGURE-2-3-0-991-019-A01

**\*\*ON A/C A320-200 A320neo**



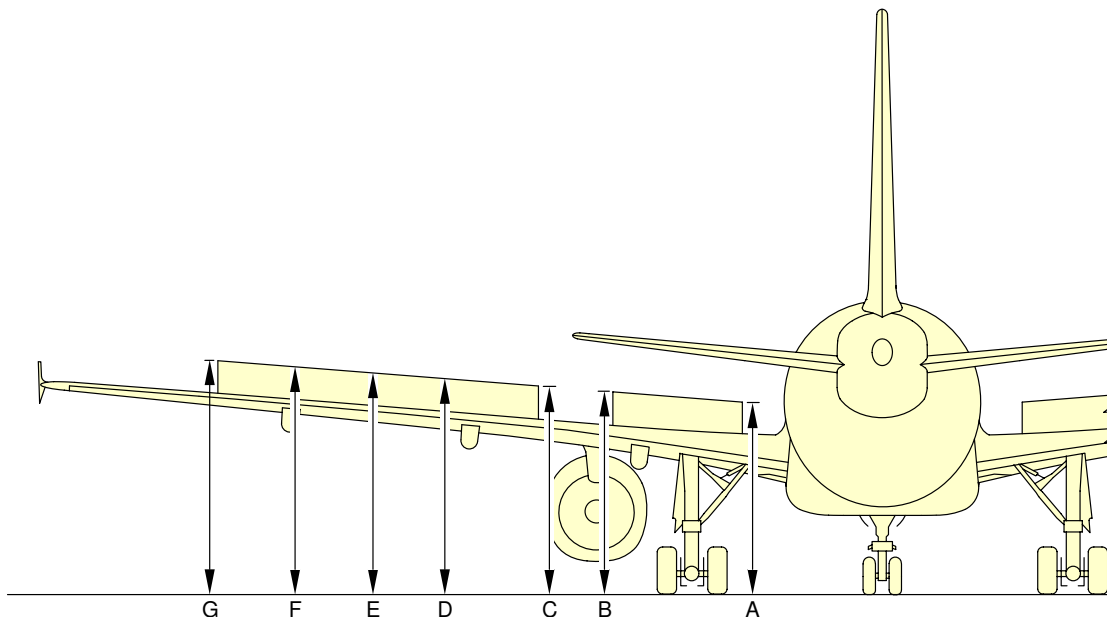
AILERON UP							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
AILERON INBD	A	4.35	14.27	4.24	13.91	4.20	13.78
AILERON OUTBD	B	4.55	14.93	4.44	14.57	4.39	14.40

N\_AC\_020300\_1\_0440101\_01\_00

Ground Clearances  
Aileron Up  
FIGURE-2-3-0-991-044-A01



\*\*ON A/C A320-200 A320neo

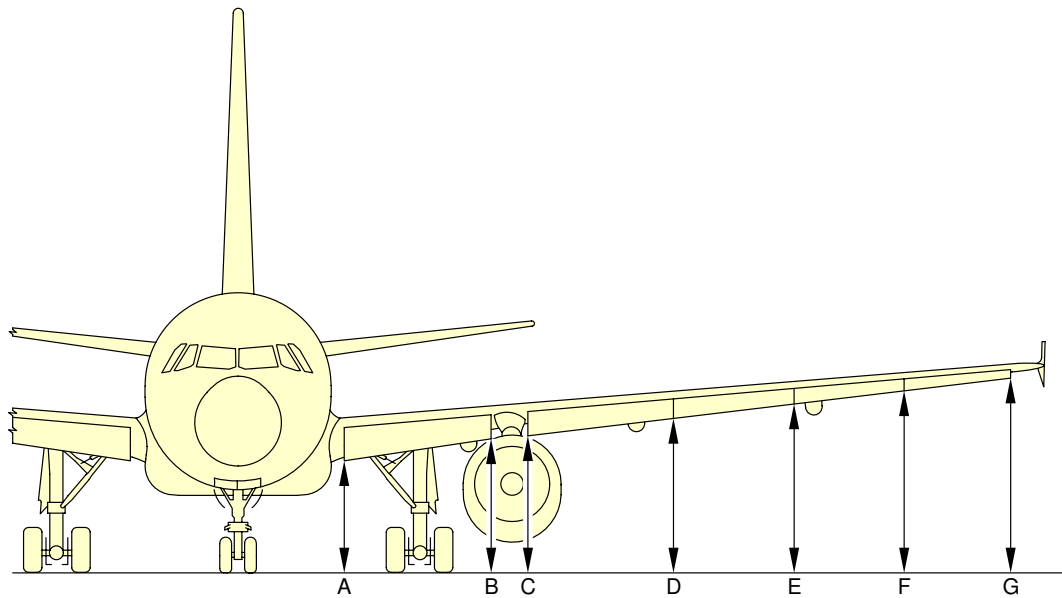


SPOILERS EXTENDED							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		m	ft	m	ft	m	ft
SPOILER 1 INBD	A	3.75	12.30	3.64	11.94	3.63	11.91
SPOILER 1 OUTBD	B	4.01	13.16	3.90	12.80	3.88	12.73
SPOILER 2 INBD	C	4.07	13.35	3.96	12.99	3.94	12.93
SPOILER 2/3	D	4.21	13.81	4.11	13.48	4.08	13.39
SPOILER 3/4	E	4.35	14.27	4.24	13.91	4.21	13.81
SPOILER 4/5	F	4.47	14.67	4.36	14.31	4.33	14.21
SPOILER 5 OUTBD	G	4.59	15.06	4.48	14.70	4.45	14.60

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Ground Clearances  
Spoilers - Extended  
FIGURE-2-3-0-991-020-A01

**\*\*ON A/C A320-200 A320neo**



LEADING EDGE SLATS EXTENDED							
DESCRIPTION		A/C IN MAINTENANCE CONFIGURATION		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
		MID CG					
		m	ft	m	ft	m	ft
SLAT 1 INBD	A	2.57	8.43	2.48	8.14	2.50	8.20
SLAT 1 OUTBD	B	2.98	9.78	2.88	9.45	2.90	9.51
SLAT 2 INBD	C	3.07	10.07	2.97	9.74	2.98	9.78
SLAT 2/3	D	3.36	11.02	3.26	10.70	3.26	10.70
SLAT 3/4	E	3.61	11.84	3.51	11.52	3.50	11.48
SLAT 4/5	F	3.86	12.66	3.76	12.34	3.73	12.24
SLAT 5 OUTBD	G	4.09	13.42	3.98	13.06	3.95	12.96

N\_AC\_020300\_1\_0210101\_01\_01

Ground Clearances  
Leading Edge Slats - Extended  
FIGURE-2-3-0-991-021-A01



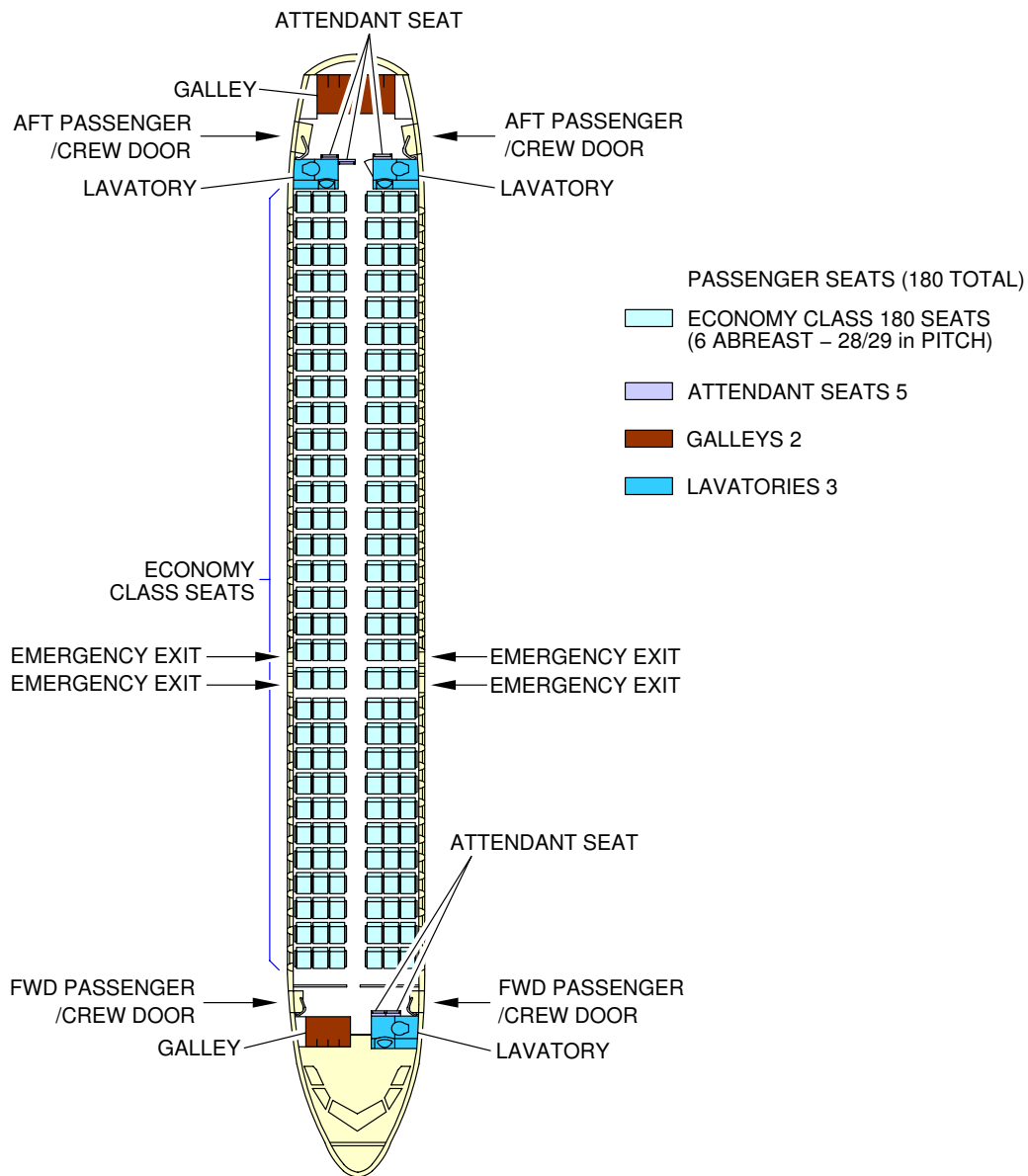
## 2-4-1 Interior Arrangements - Plan View

**\*\*ON A/C A320-200 A320neo**

### Interior Arrangements - Plan View

1. This section provides the typical interior configuration.

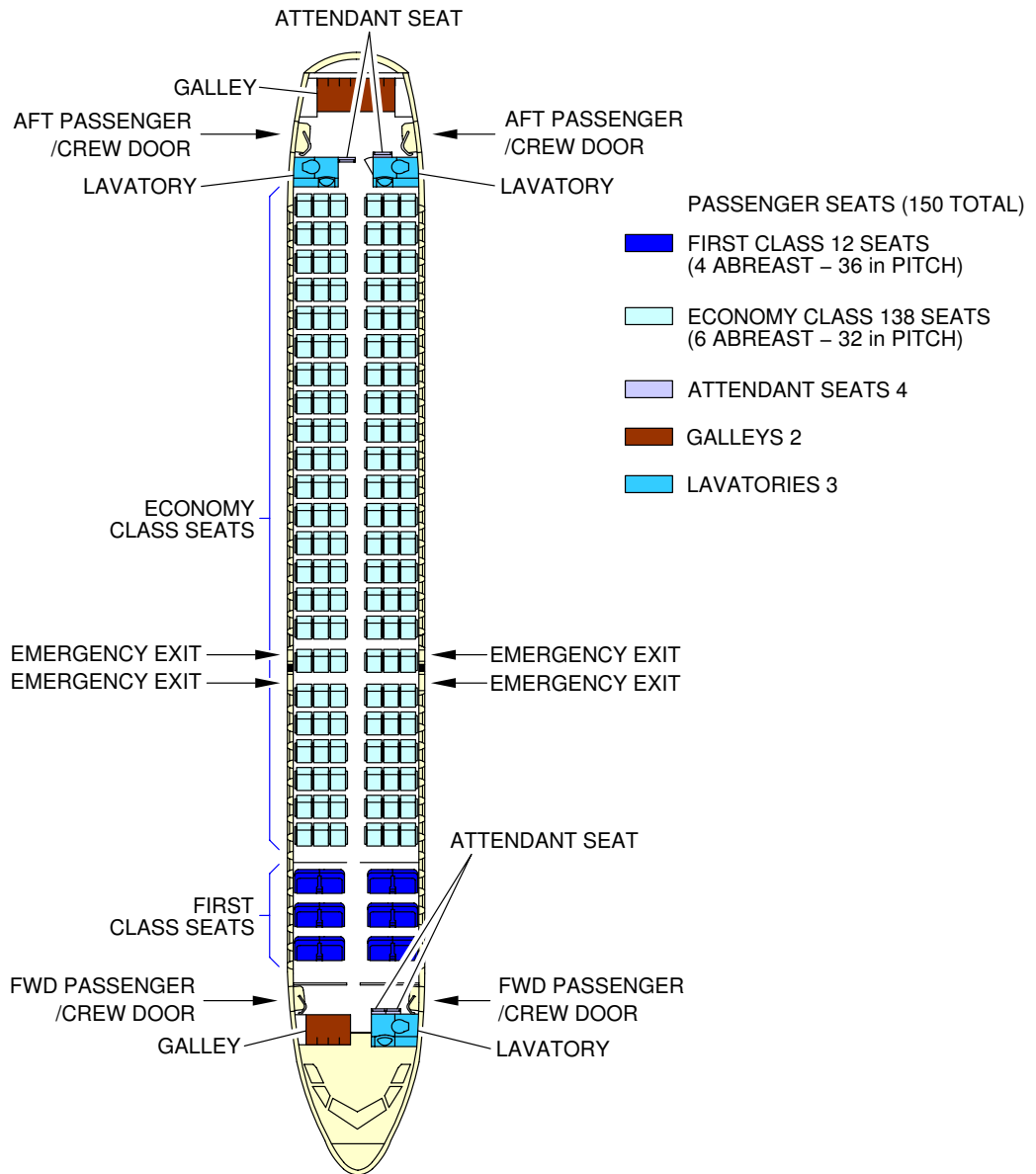
\*\*ON A/C A320-200 A320neo



N\_AC\_020401\_1\_0030101\_01\_03

Interior Arrangements - Plan View  
Typical Configuration - Single-Class, High Density  
FIGURE-2-4-1-991-003-A01

\*\*ON A/C A320-200 A320neo



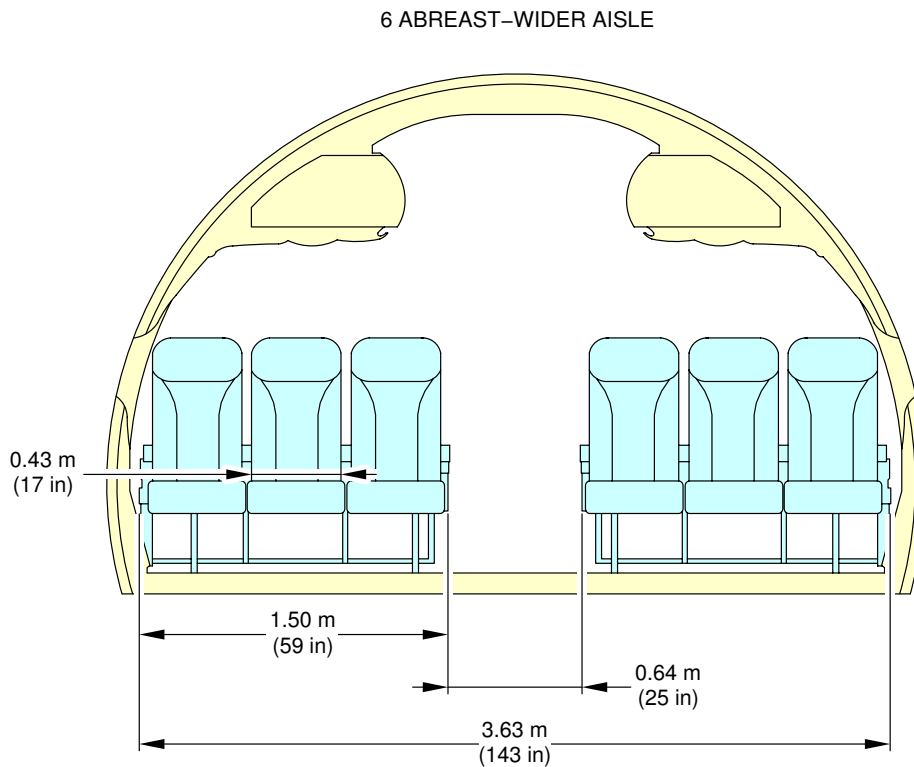
N\_AC\_020401\_1\_0090101\_01\_01

Interior Arrangements - Plan View  
 Typical Configuration - Two-Class  
 FIGURE-2-4-1-991-009-A01

**2-5-0 Interior Arrangements - Cross Section****\*\*ON A/C A320-200 A320neo**Interior Arrangements - Cross Section

1. This section provides the typical configuration.

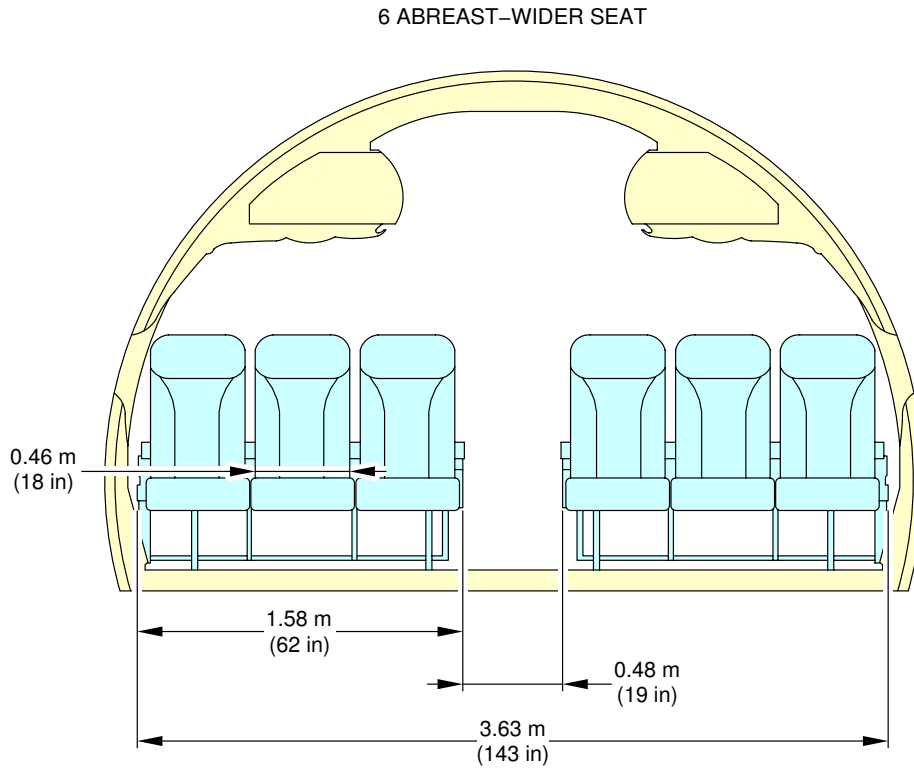
\*\*ON A/C A320-200 A320neo



N\_AC\_020500\_1\_0050101\_01\_01

Interior Arrangements - Cross Section  
Economy Class, 6 Abreast - Wider Aisle (Sheet 1 of 2)  
FIGURE-2-5-0-991-005-A01

\*\*ON A/C A320-200 A320neo

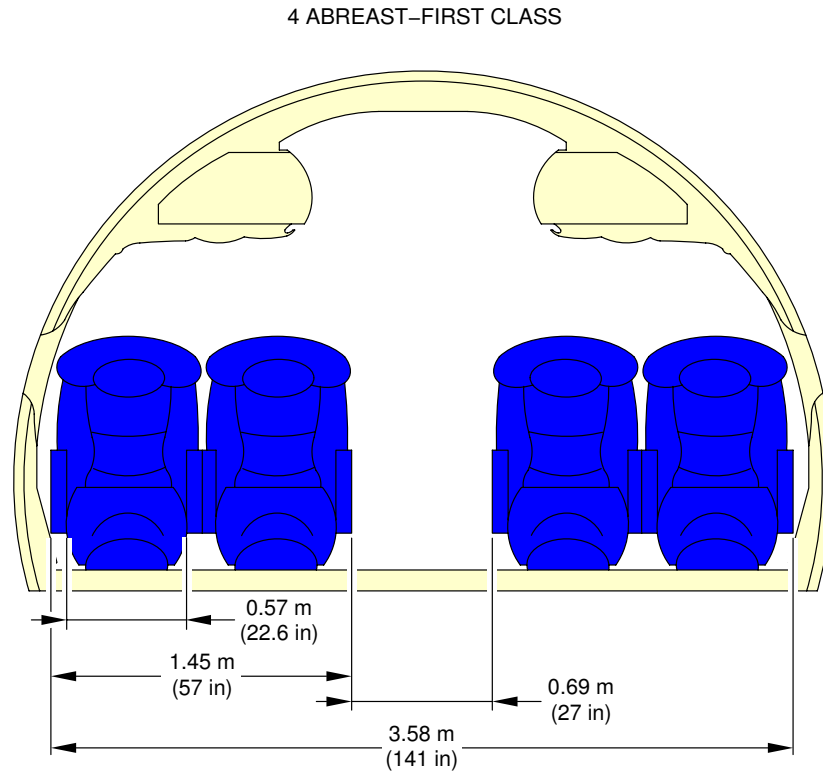


N\_AC\_020500\_1\_0050102\_01\_03

Interior Arrangements - Cross Section  
Economy Class, 6 Abreast - Wider Seat (Sheet 2 of 2)  
FIGURE-2-5-0-991-005-A01



\*\*ON A/C A320-200 A320neo



N\_AC\_020500\_1\_0060101\_01\_01

Interior Arrangements - Cross Section  
First-Class

FIGURE-2-5-0-991-006-A01



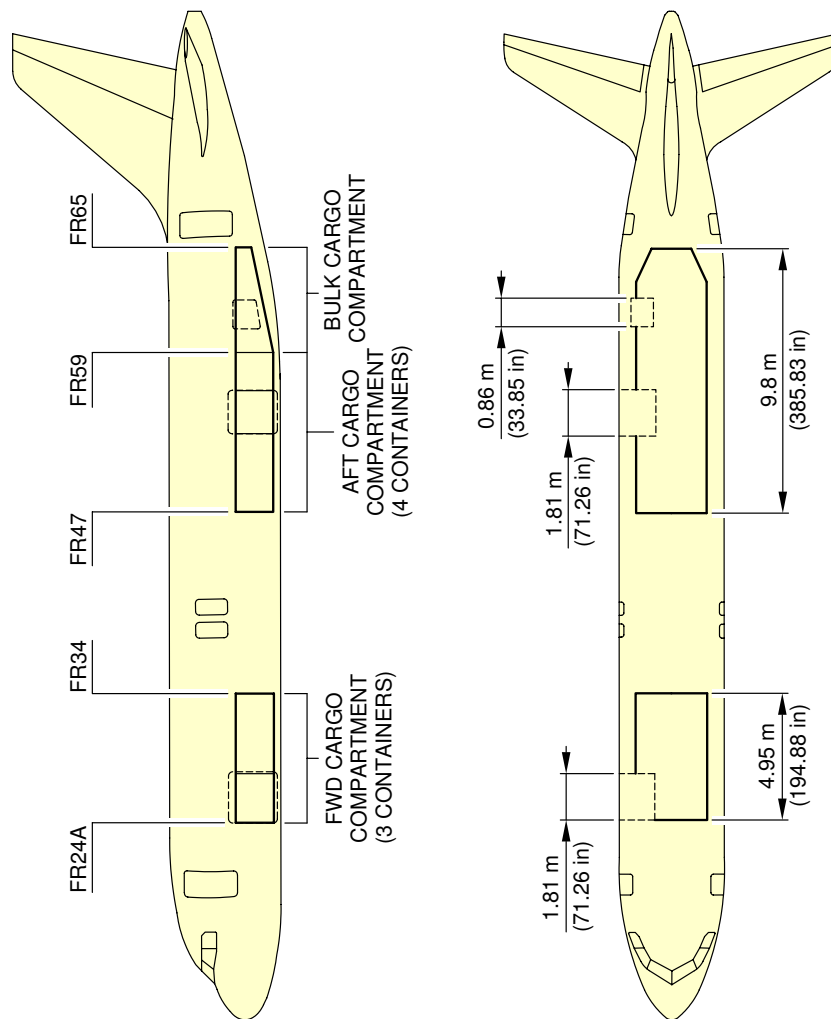
2-6-0 Cargo Compartments

\*\*ON A/C A320-200 A320neo

Cargo Compartments

1. This section provides the cargo compartments locations, dimensions and loading combinations.

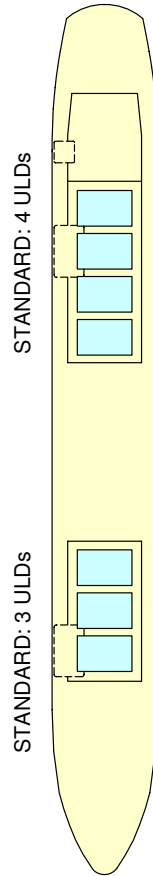
\*\*ON A/C A320-200 A320neo



N\_AC\_020600\_1\_0030101\_01\_00

Cargo Compartments  
Locations and Dimensions  
FIGURE-2-6-0-991-003-A01

\*\*ON A/C A320-200 A320neo



N\_AC\_020600\_1\_0060101\_01\_00

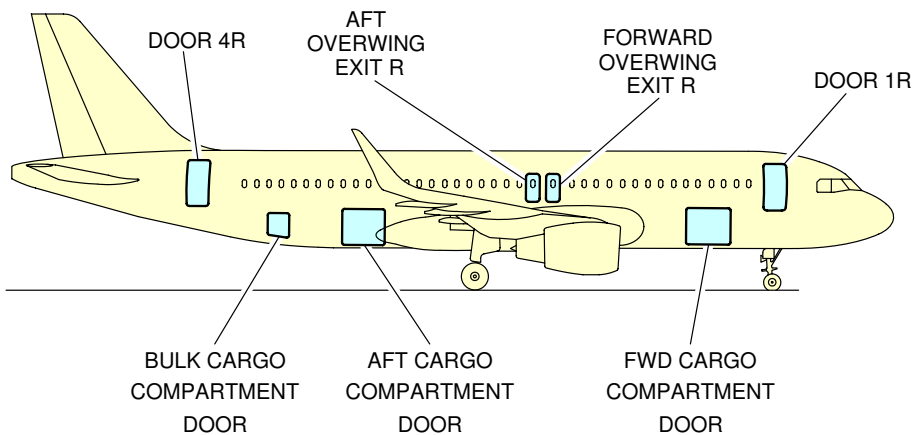
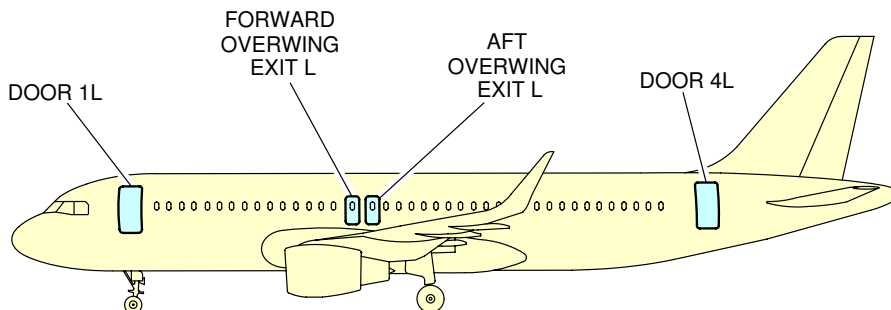
Cargo Compartments  
Loading Combinations  
FIGURE-2-6-0-991-006-A01

**2-7-0 Door Clearances and Location****\*\*ON A/C A320-200 A320neo**Door Clearances

1. This section provides door identification and location.

NOTE : Dimensions of the ground clearances are approximate and will vary with tire type, weight and balance and other special conditions.

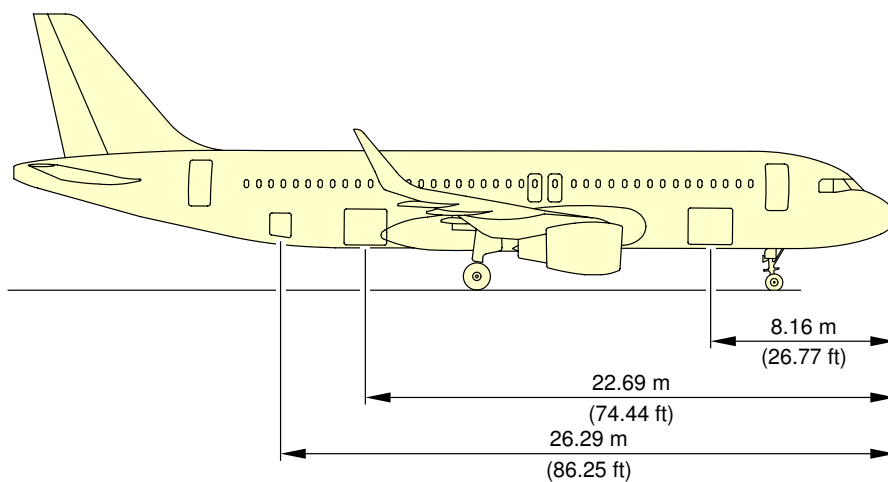
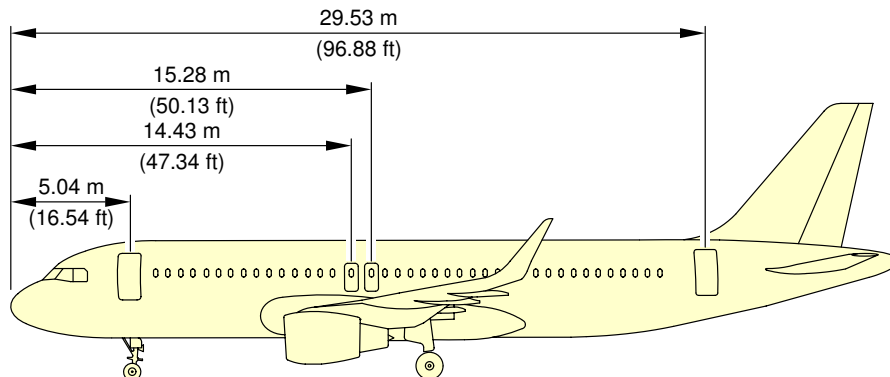
\*\*ON A/C A320-200 A320neo



N\_AC\_020700\_1\_0030101\_01\_01

Door Identification and Location  
Door Identification (Sheet 1 of 2)  
FIGURE-2-7-0-991-003-A01

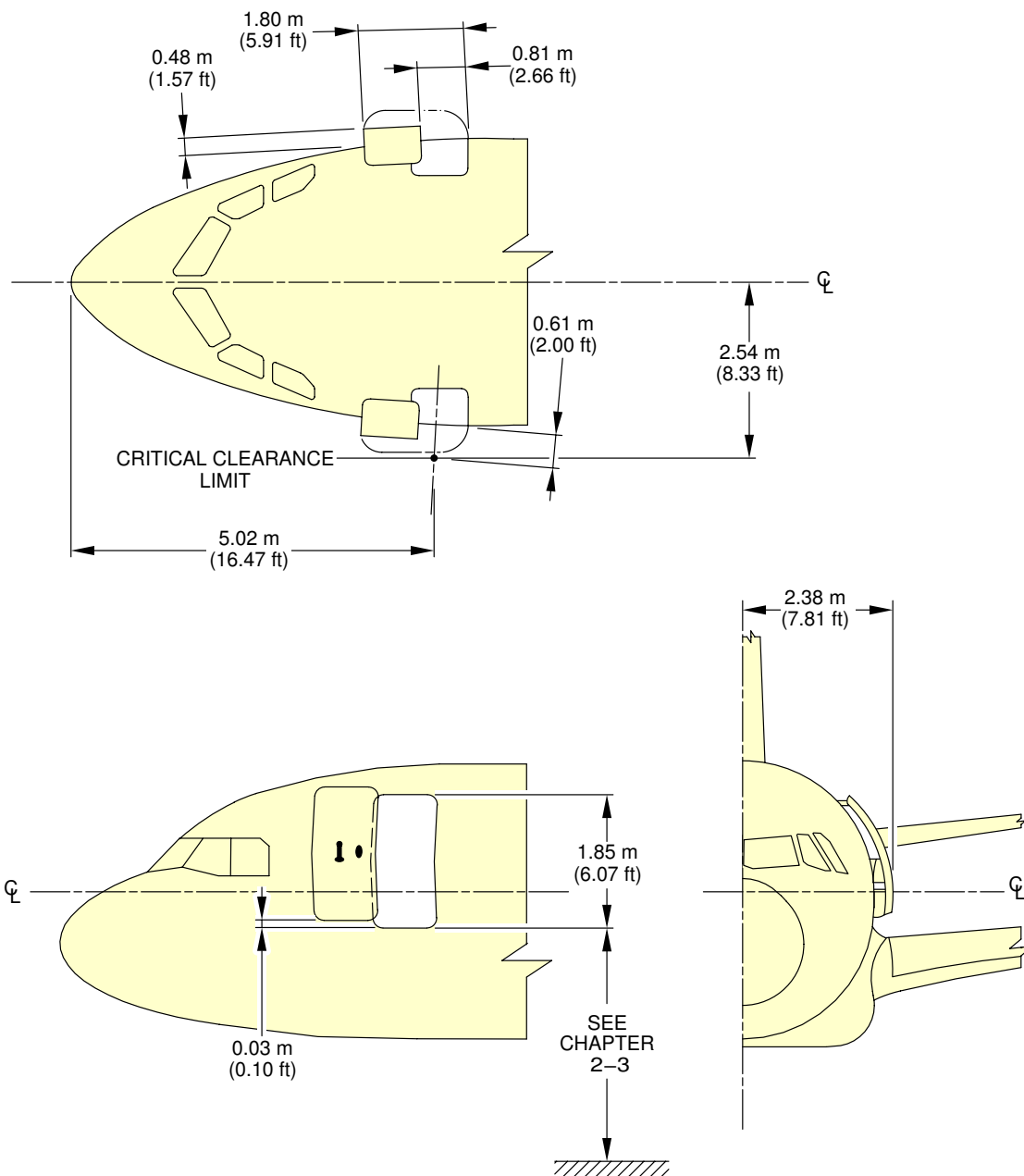
\*\*ON A/C A320-200 A320neo



N\_AC\_020700\_1\_0030102\_01\_00

Door Identification and Location  
Door Location (Sheet 2 of 2)  
FIGURE-2-7-0-991-003-A01

\*\*ON A/C A320-200 A320neo

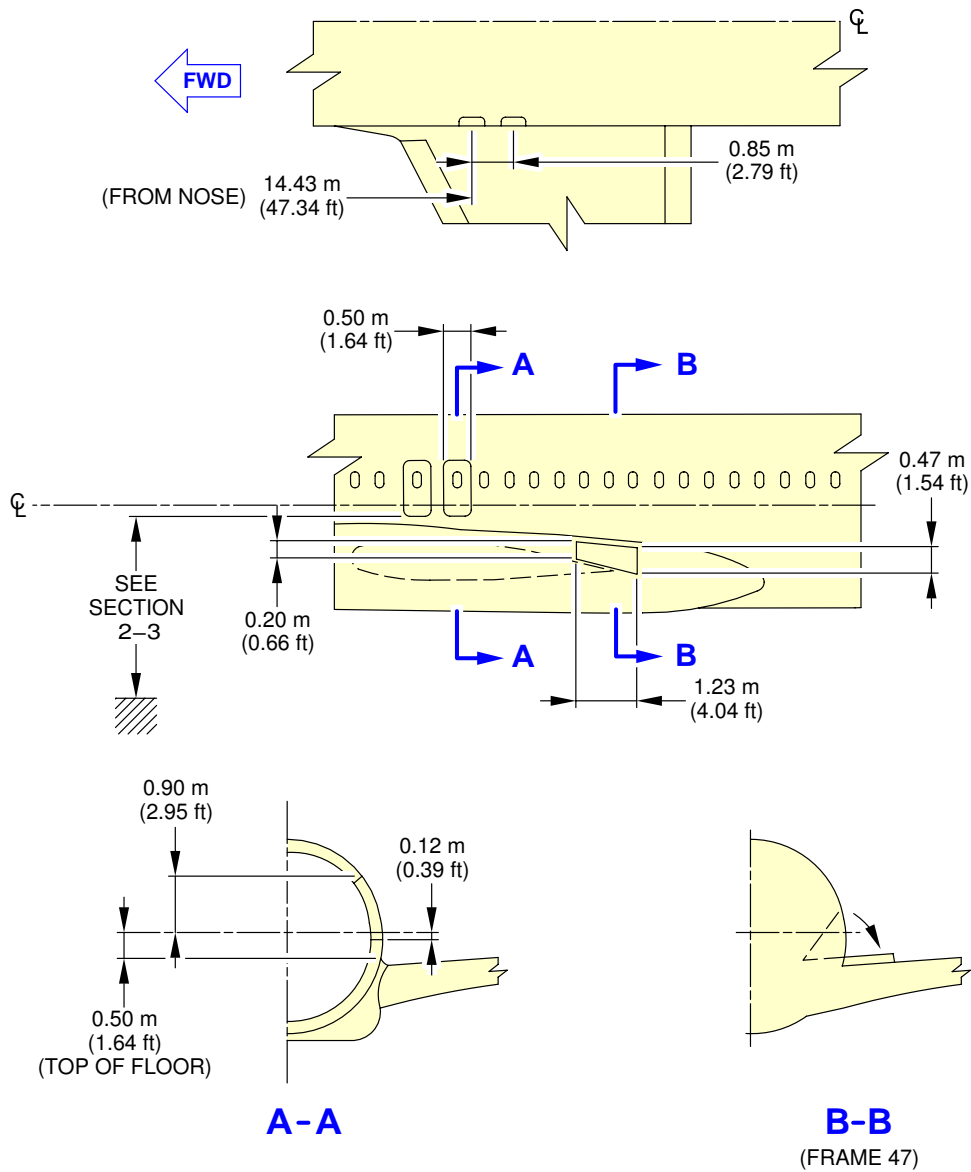


N\_AC\_020700\_1\_0220101\_01\_00

Doors Clearances  
Forward Passenger/Crew Doors  
FIGURE-2-7-0-991-022-A01



\*\*ON A/C A320-200 A320neo

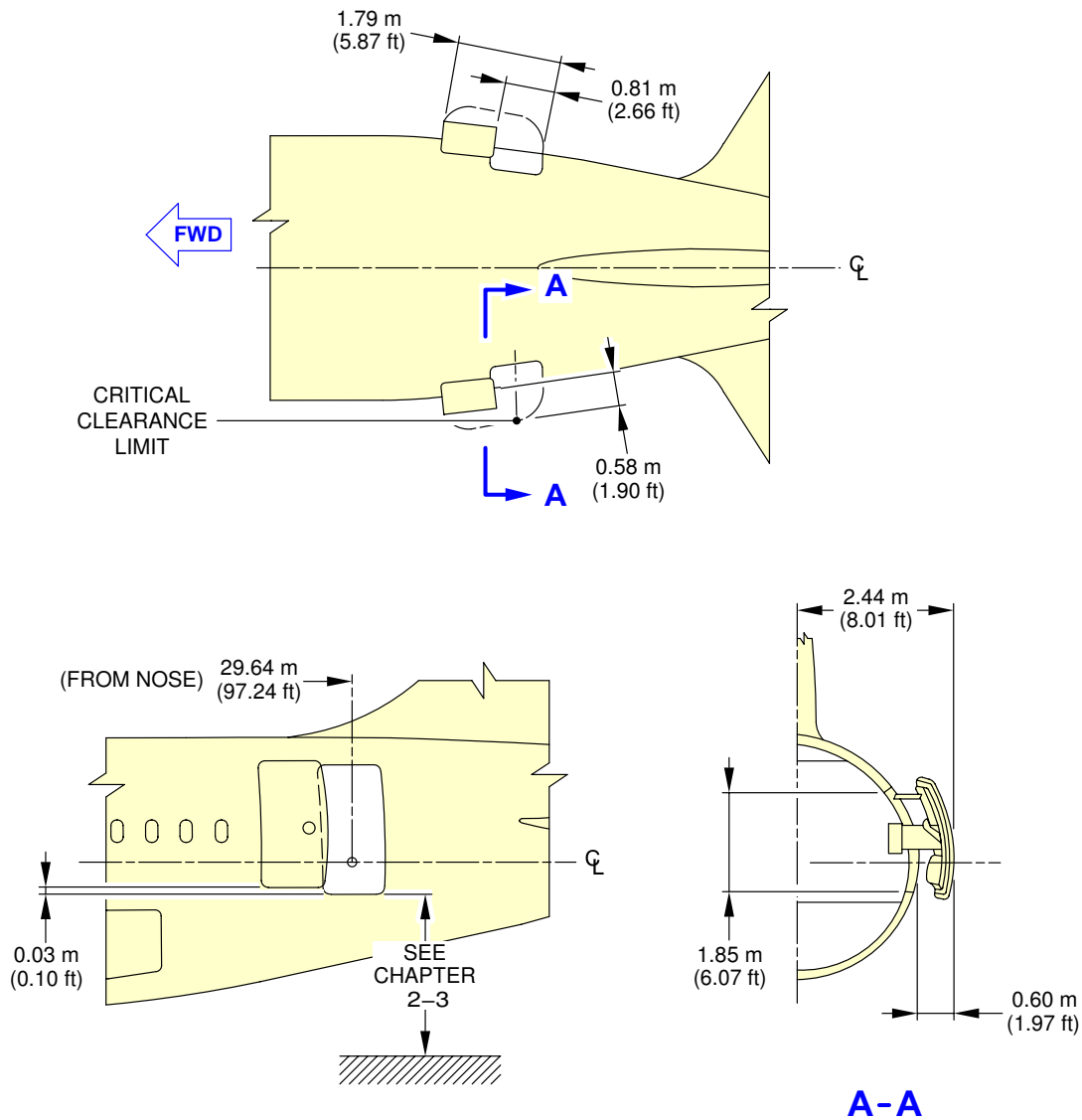


**NOTE:**  
ESCAPE SLIDE COMPARTMENT DOOR OPENS ON WING UPPER SURFACE.

N\_AC\_020700\_1\_0230101\_01\_00

Doors Clearances  
Emergency Exits  
FIGURE-2-7-0-991-023-A01

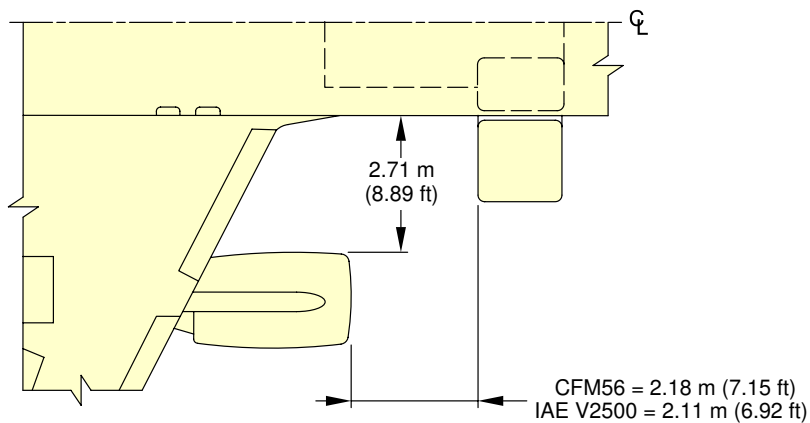
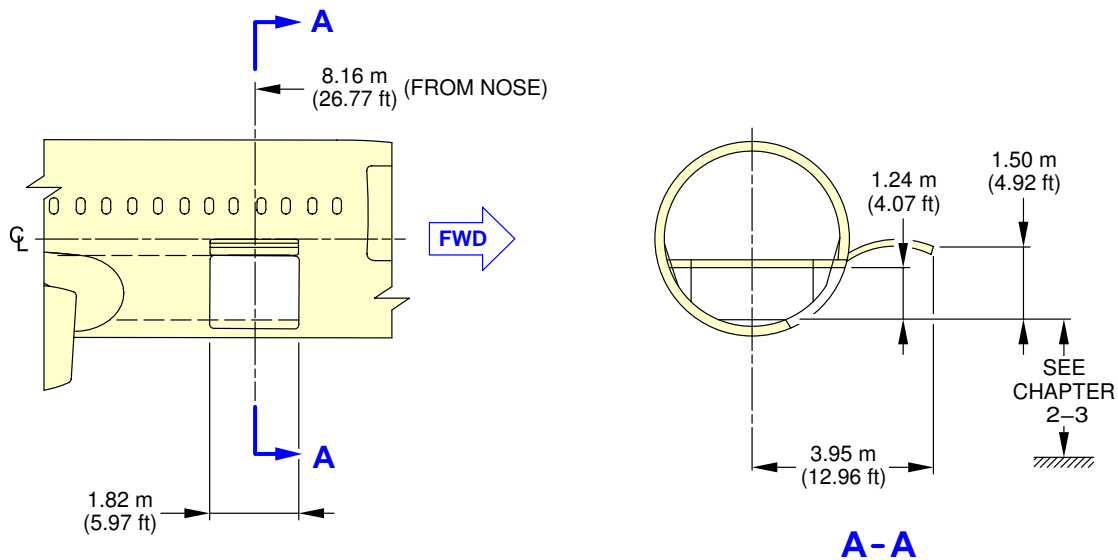
\*\*ON A/C A320-200 A320neo



N\_AC\_020700\_1\_0240101\_01\_00

Doors Clearances  
Aft Passenger/Crew Doors  
FIGURE-2-7-0-991-024-A01

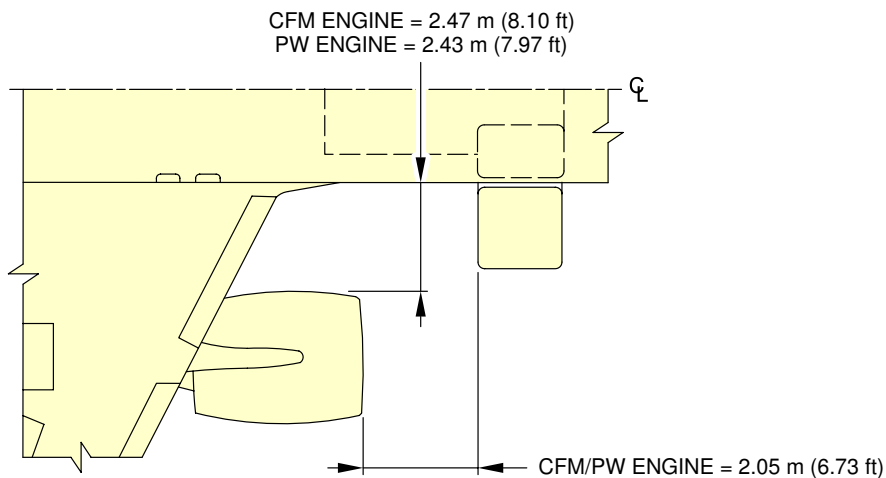
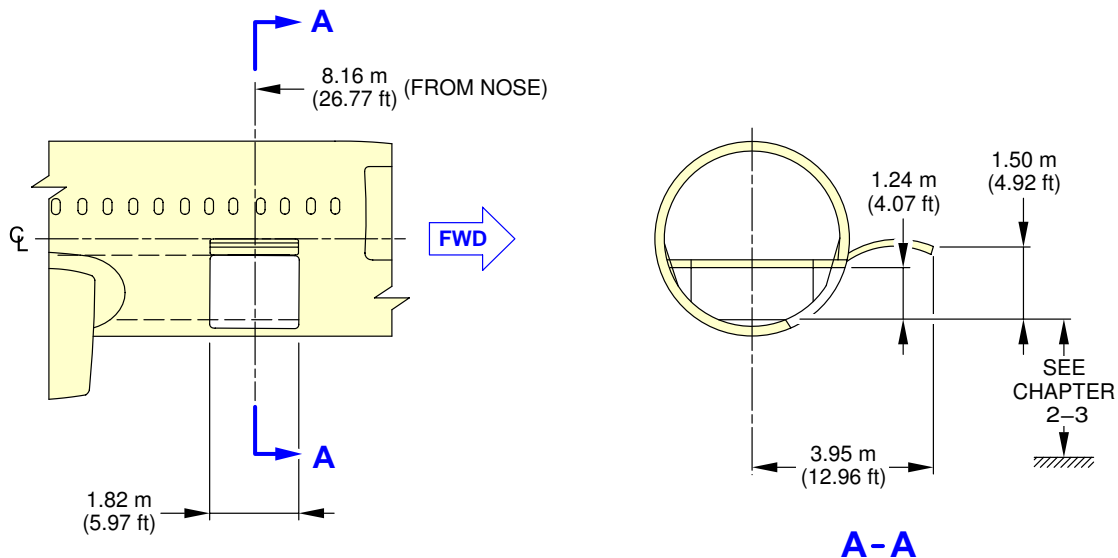
\*\*ON A/C A320-200



N\_AC\_020700\_1\_0250101\_01\_00

Door Clearances  
 Forward Cargo Compartment Door  
 FIGURE-2-7-0-991-025-A01

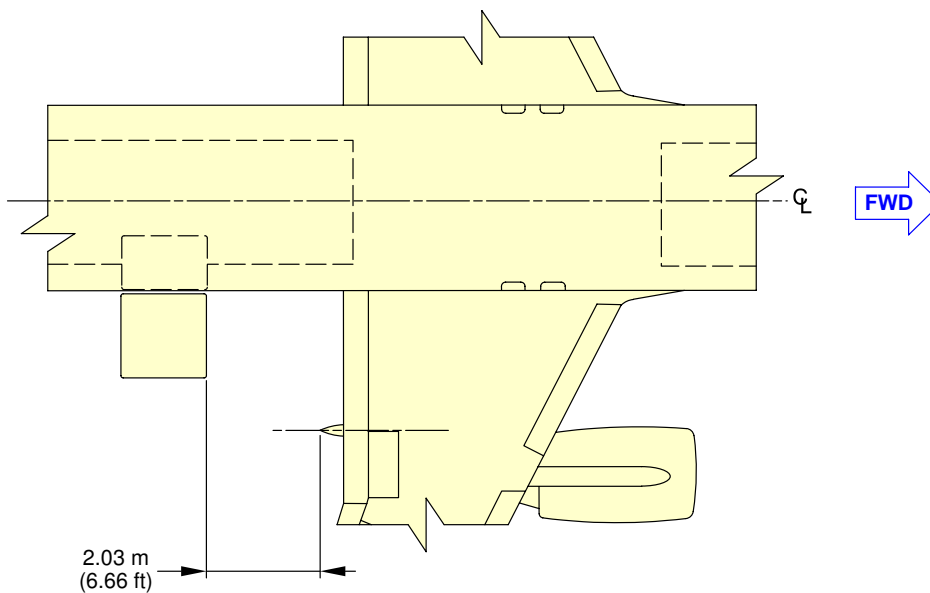
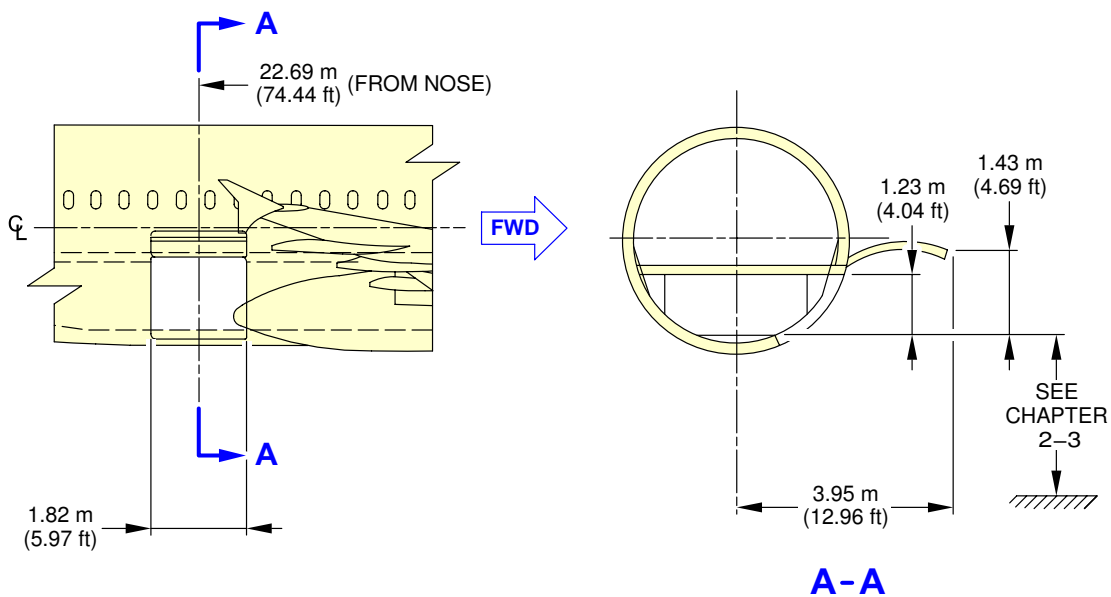
**\*\*ON A/C A320neo**



N\_AC\_020700\_1\_0260101\_01\_00

Door Clearances  
 Forward Cargo Compartment Door  
 FIGURE-2-7-0-991-026-A01

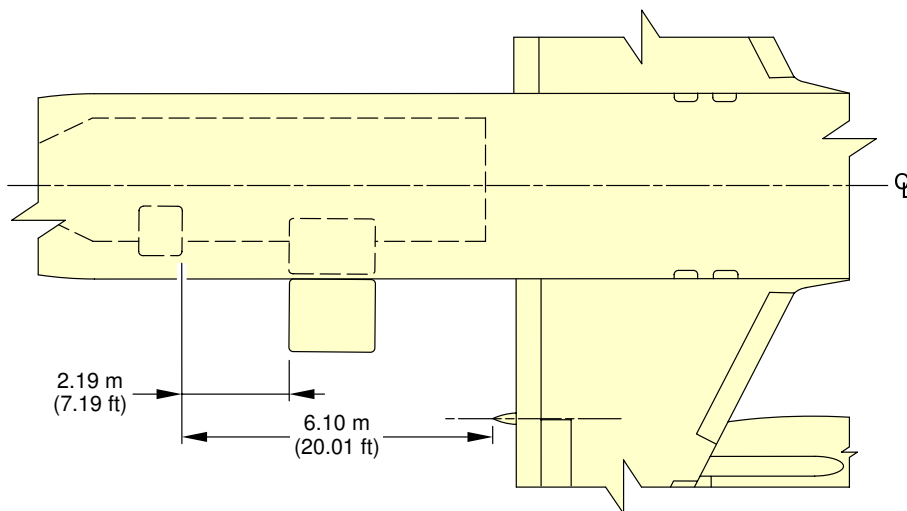
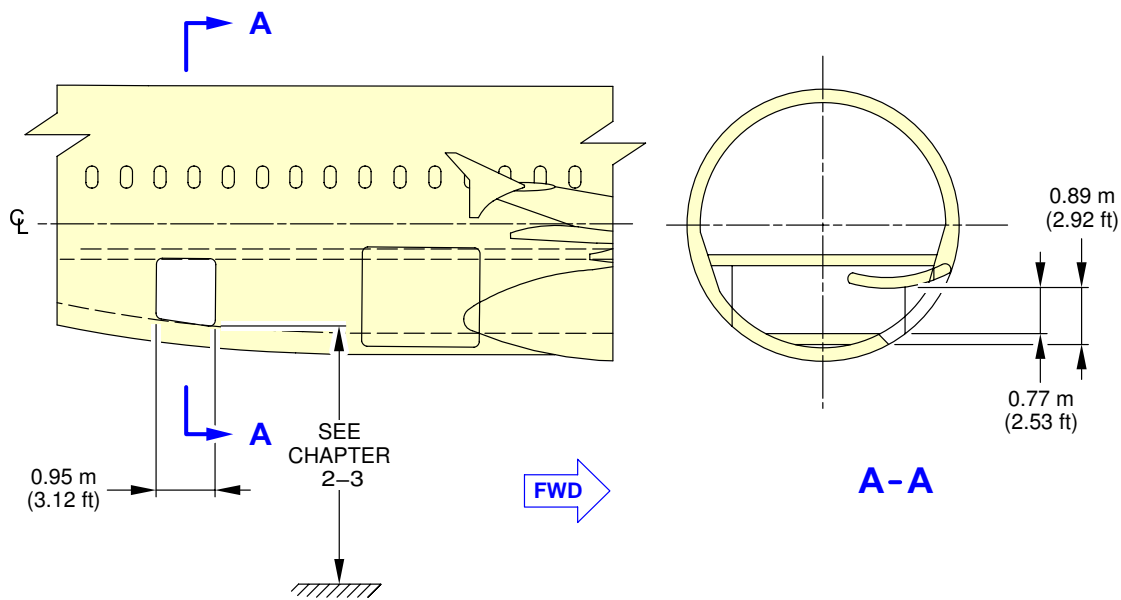
\*\*ON A/C A320-200 A320neo



N\_AC\_020700\_1\_0270101\_01\_00

Doors Clearances  
Aft Cargo Compartment Door  
FIGURE-2-7-0-991-027-A01

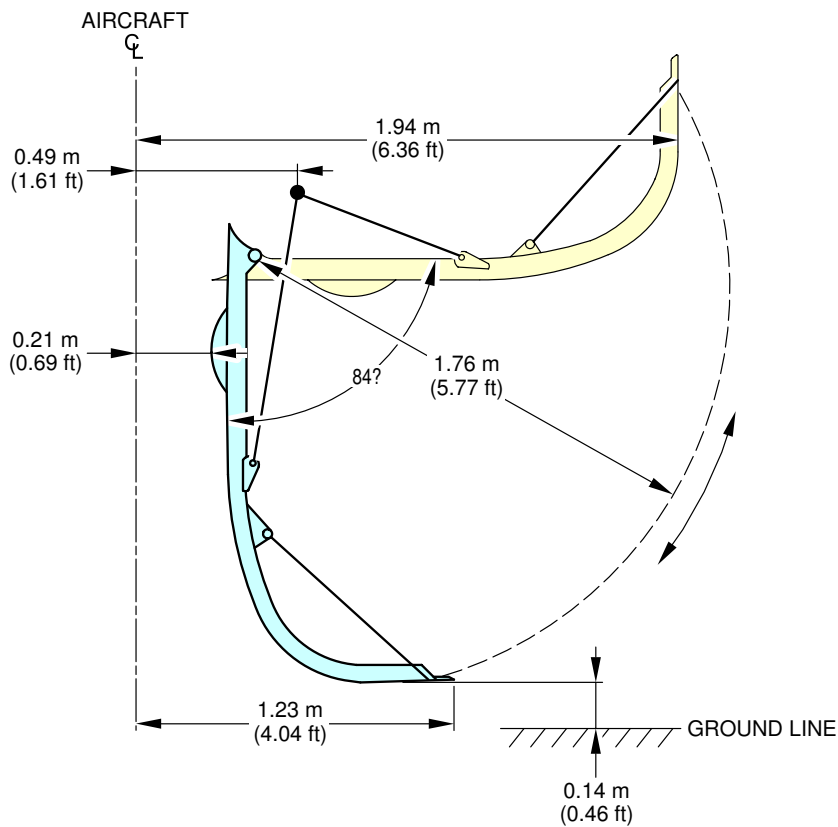
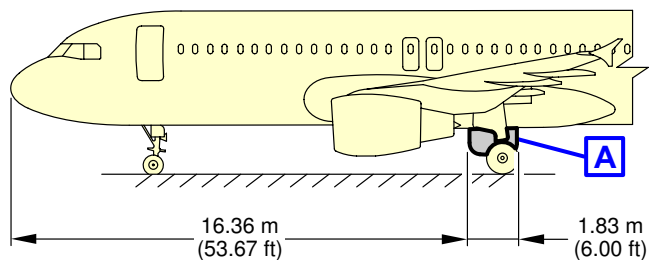
\*\*ON A/C A320-200 A320neo



N\_AC\_020700\_1\_0280101\_01\_00

Doors Clearances  
Bulk Cargo Compartment Door  
FIGURE-2-7-0-991-028-A01

\*\*ON A/C A320-200 A320neo

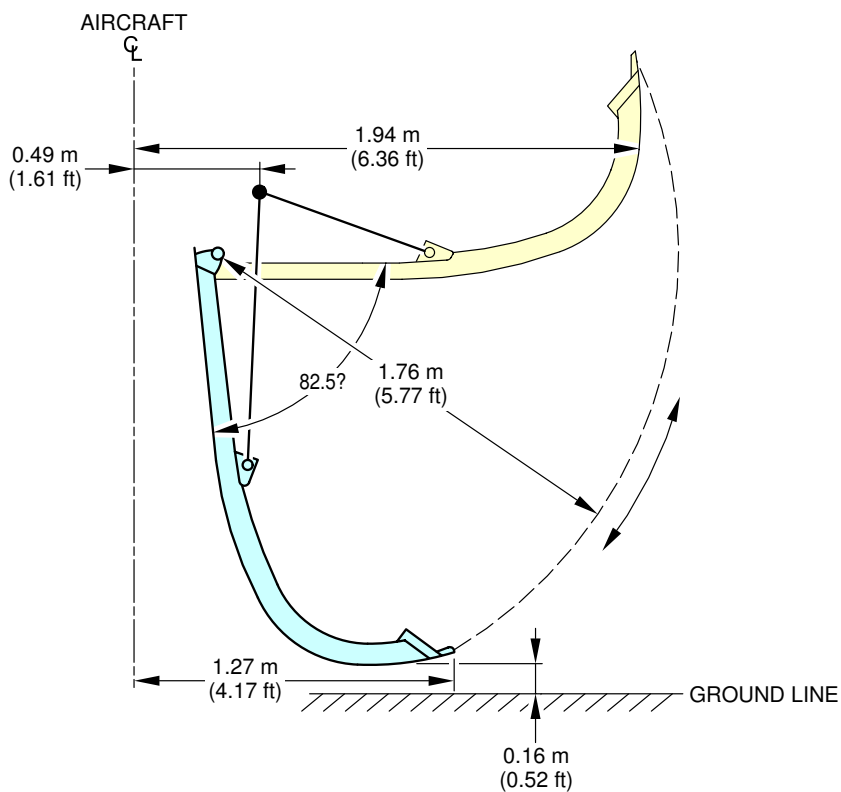
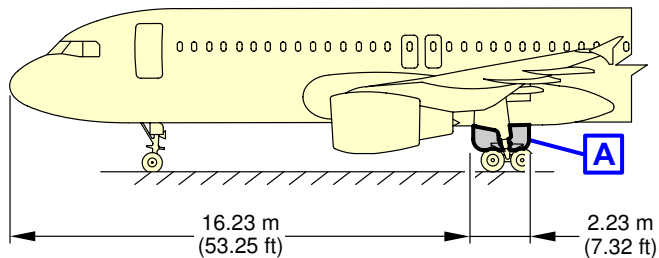


**NOTE:**  
VALUE OF CG: 25% RC.

N\_AC\_020700\_1\_0290101\_01\_00

Doors Clearances  
Main Landing Gear Doors  
FIGURE-2-7-0-991-029-A01

**\*\*ON A/C A320-200**



**NOTE:**  
VALUE OF CG: 25% RC.

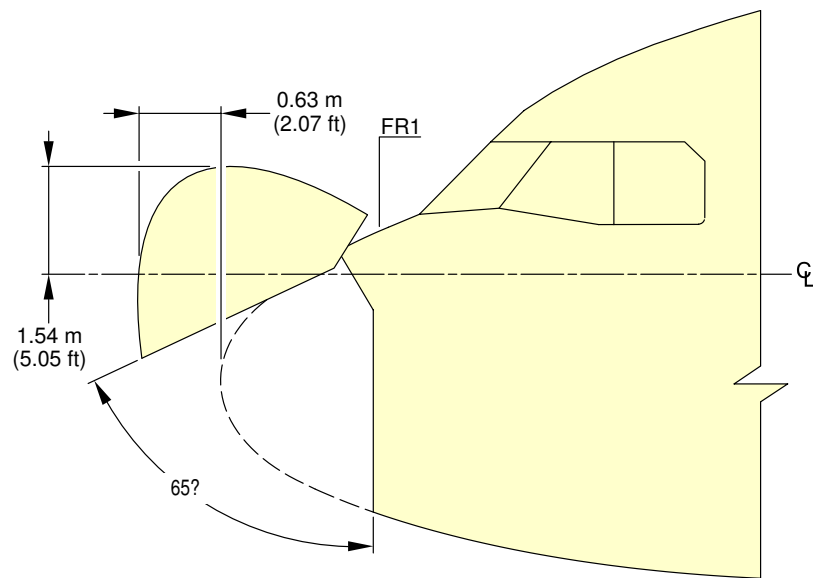
**A**

N\_AC\_020700\_1\_0300101\_01\_00

Doors Clearances  
Main Landing Gear Doors (Bogie)  
FIGURE-2-7-0-991-030-A01



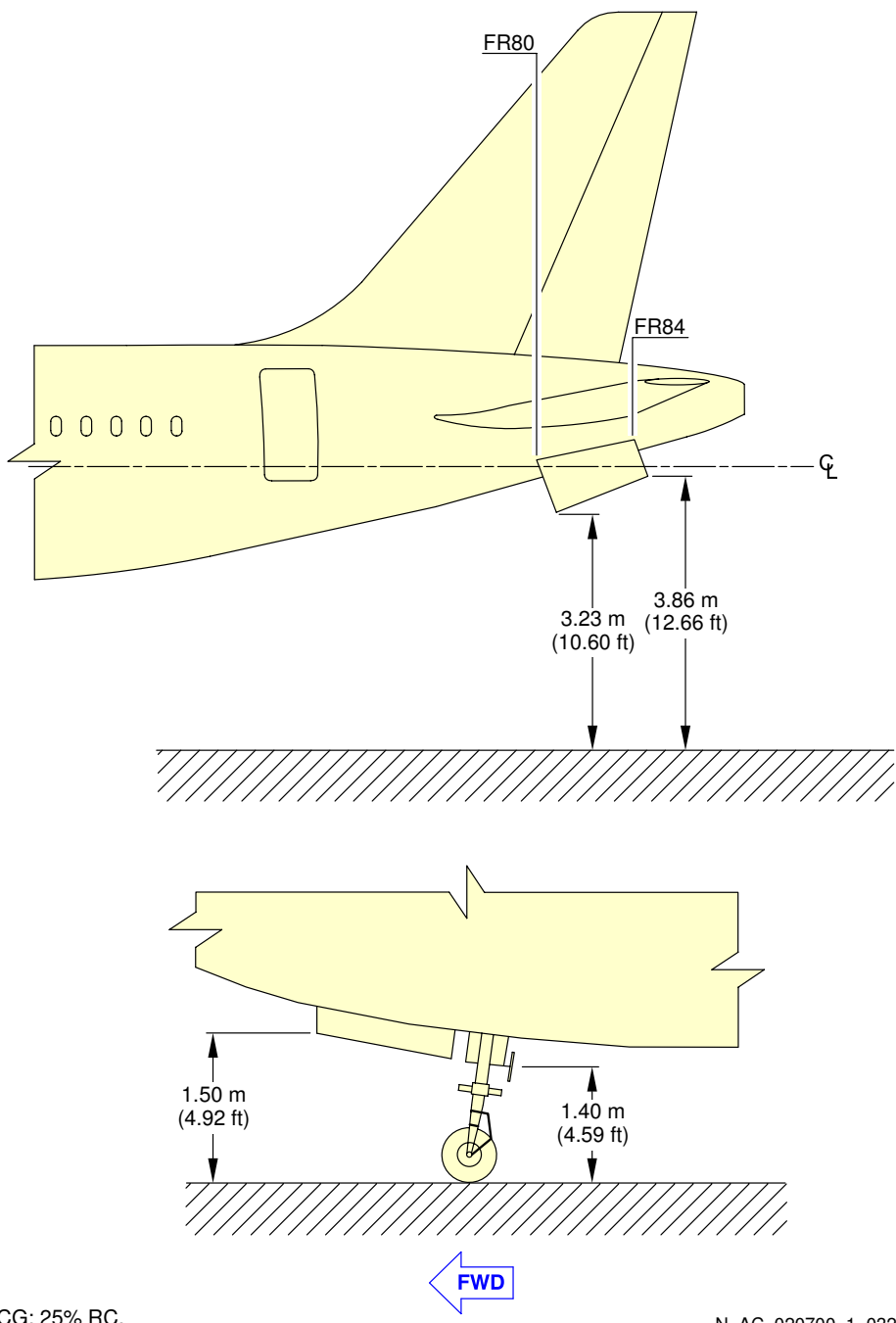
\*\*ON A/C A320-200 A320neo



N\_AC\_020700\_1\_0310101\_01\_00

Doors Clearances  
Radome  
FIGURE-2-7-0-991-031-A01

\*\*ON A/C A320-200 A320neo



**NOTE:**  
VALUE OF CG: 25% RC.

N\_AC\_020700\_1\_0320101\_01\_00

Doors Clearances  
APU and Nose Landing Gear Doors  
FIGURE-2-7-0-991-032-A01

**2-8-0**      **Escape Slides****\*\*ON A/C A320-200 A320neo**Escape Slides

## 1.    General

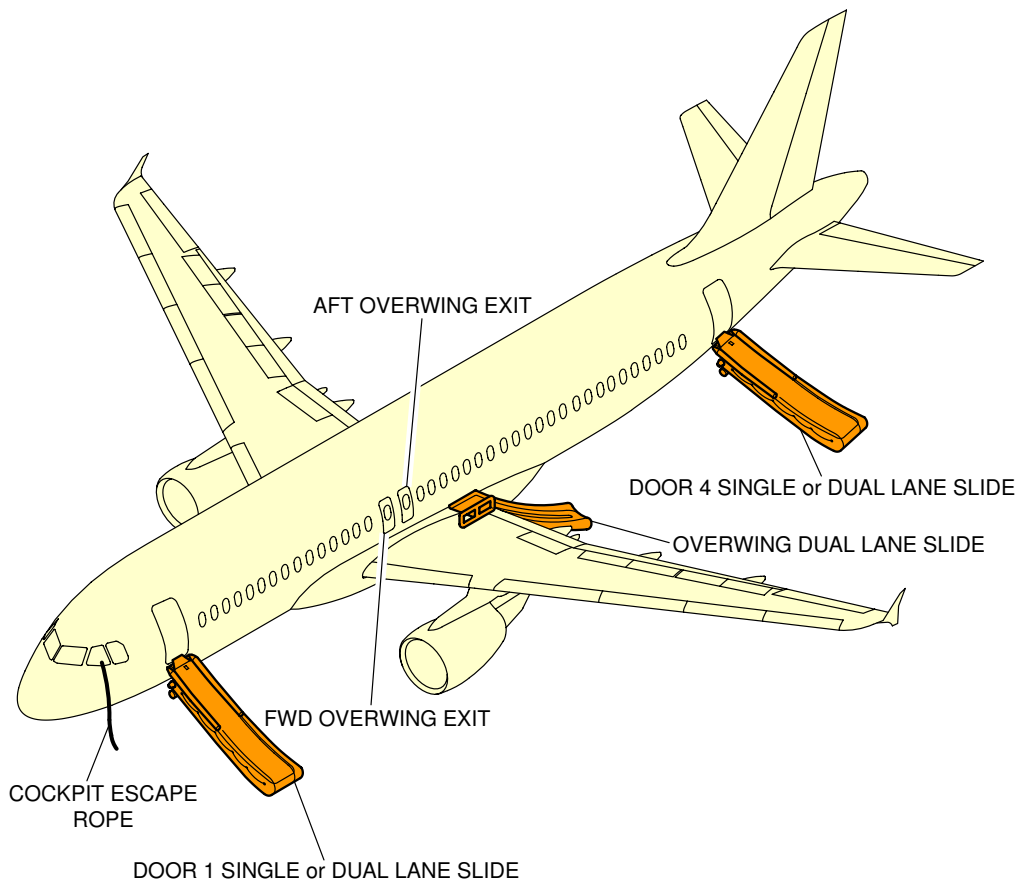
This section provides location of slides/rafts facilities and related clearances.

## 2.    Location

Slides/rafts facilities are provided at the following locations:

- One single or dual lane slide at each door 1 & 4 (total four)
- Dual lane overwing slides are installed above the wings in the left and right wing-to-fuselage fairings for off-the-wing evacuation (total 2).

\*\*ON A/C A320-200 A320neo

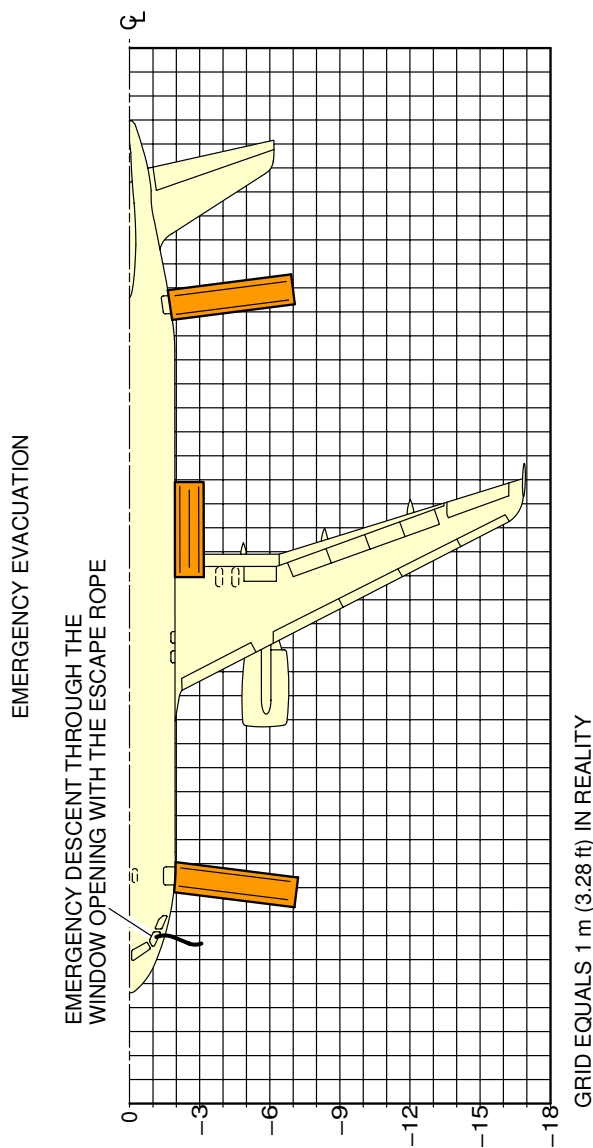


**NOTE:**  
LH SHOWN, RH SYMMETRICAL.

N\_AC\_020800\_1\_0050101\_01\_04

Escape Slides  
Location  
FIGURE-2-8-0-991-005-A01

\*\*ON A/C A320-200 A320neo



**NOTE:**  
 - LH SHOWN, RH SYMMETRICAL.  
 - DIMENSIONS ARE APPROXIMATE.

N\_AC\_020800\_1\_0060101\_01\_02

Escape Slides  
 Dimensions  
 FIGURE-2-8-0-991-006-A01

## 2-9-0 Landing Gear

**\*\*ON A/C A320-200 A320neo**

### Landing Gear

#### 1. General

The landing gear is of the conventional retractable tricycle type comprising:

- Two main gears with twin-wheel or four-wheel bogie assembly,
- A twin-wheel nose gear.

The main landing gears are located under the wing and retract sideways towards the fuselage centerline.

The nose landing gear retracts forward into a fuselage compartment located between FR9 and FR20.

The landing gears and landing gear doors are operated and controlled electrically and hydraulically. In abnormal operation, the landing gear can be extended by gravity.

For landing gear footprint and tire size, refer to 07-02-00.

#### 2. Main Landing Gear

##### A. Twin-Wheel

Each of the two main landing gear assemblies consists of a conventional two-wheel direct type with an integral shock absorber supported in the fore and aft directions by a fixed drag strut and laterally by a folding strut mechanically locked when in the DOWN position.

##### B. Four-Wheel Bogie

Each of the two main landing gear assemblies consists of a direct-action shock absorber on which is installed a four-wheel bogie beam.

The shock absorber is supported in the fore and aft directions by a fixed drag strut and laterally by a folding strut mechanically locked when in the DOWN position.

#### 3. Nose Landing Gear

The nose landing gear consists of a leg with a built-in shock absorber strut, carrying twin wheels with adequate shimmy damping and a folding strut mechanically locked when in the DOWN position.

#### 4. Nose Wheel Steering

Steering is controlled by two hand wheels in the cockpit. For steering angle controlled by the hand wheels, refer to AMM 32-51-00.

For steering angle limitation, refer to AMM 09-10-00.

A steering disconnection box is installed on the nose landing gear to allow steering deactivation for towing purposes.

5. Landing Gear Servicing Points

A. General

Filling of the landing-gear shock absorbers is done through MIL-PRF-6164 standard valves.

Charging of the landing-gear shock absorbers is accomplished with nitrogen through MIL-PRF-6164 standard valves.

B. Charging Pressure

For charging of the landing-gear shock absorbers, refer to AMM 12-14-32.

6. Braking

A. General

The four main wheels are equipped with carbon multidisc brakes.

The braking system is electrically controlled and hydraulically operated.

The braking system has four braking modes plus autobrake and anti-skid systems:

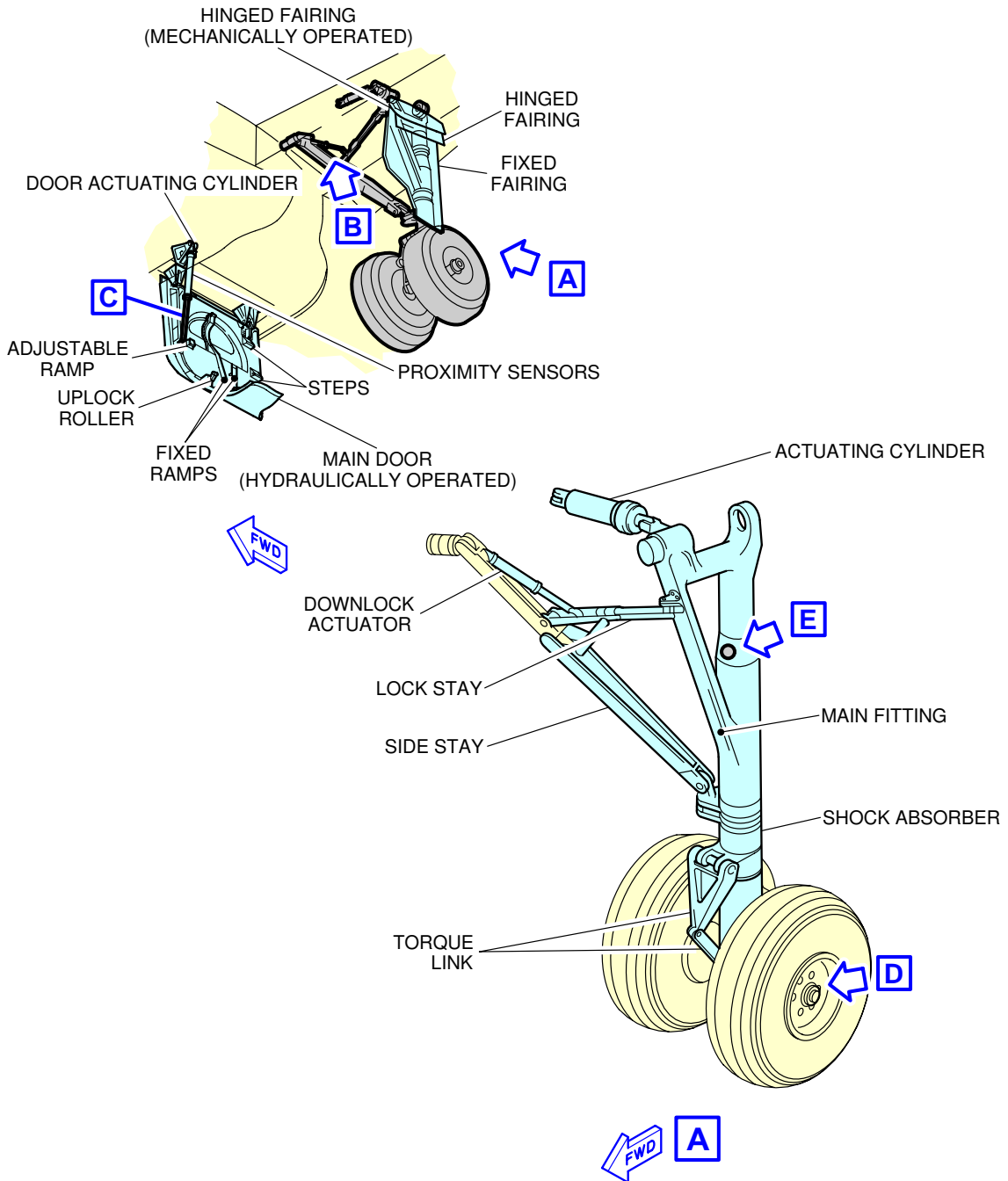
- Normal braking with anti-skid capability,
- Alternative braking with anti-skid capability,
- Alternative braking without anti-skid capability,
- Parking brake with full pressure application capability only.

B. In-Flight Wheel Braking

The main gear wheels are braked automatically before the wheels enter the wheel bay.

The nose gear wheels are stopped by the wheels contacting a rubbing strip (the brake band) when the gear is in the retracted position.

**\*\*ON A/C A320-200 A320neo**



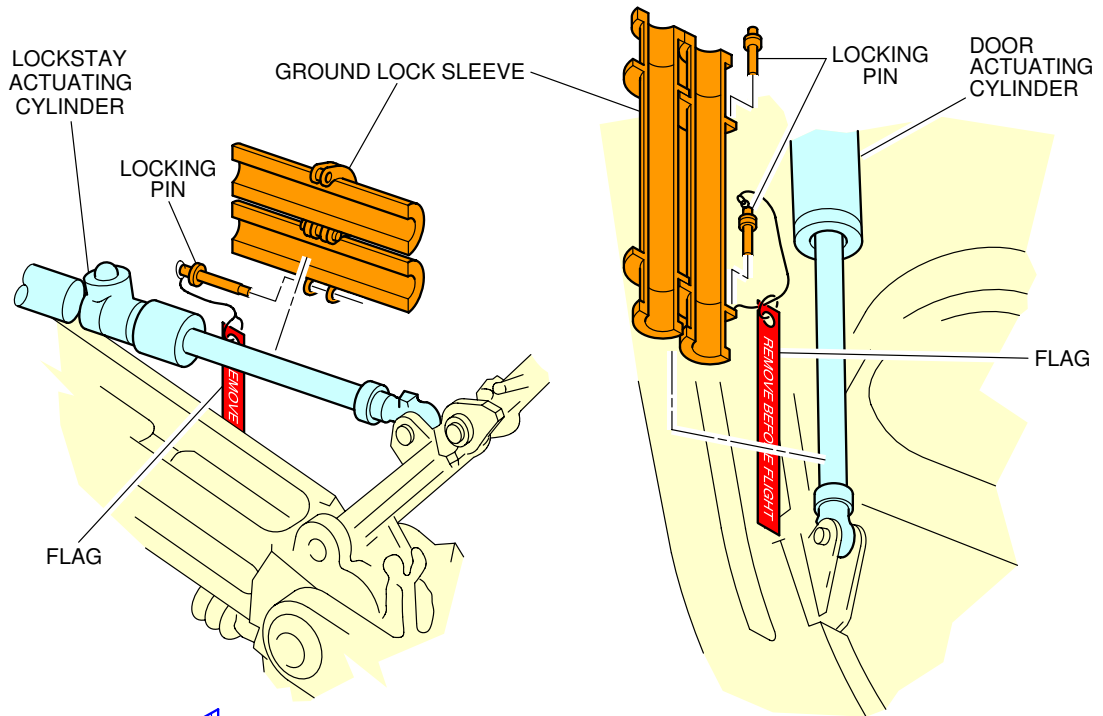
**NOTE:** MAIN DOOR SHOWN OPEN IN GROUND MAINTENANCE POSITION.

N\_AC\_020900\_1\_0100101\_01\_00

Landing Gear  
Main Landing Gear - Twin-Wheel (Sheet 1 of 2)  
FIGURE-2-9-0-991-010-A01

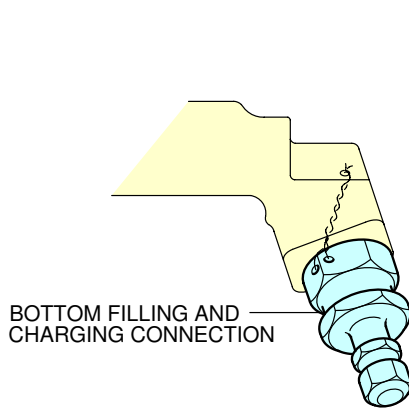


\*\*ON A/C A320-200 A320neo



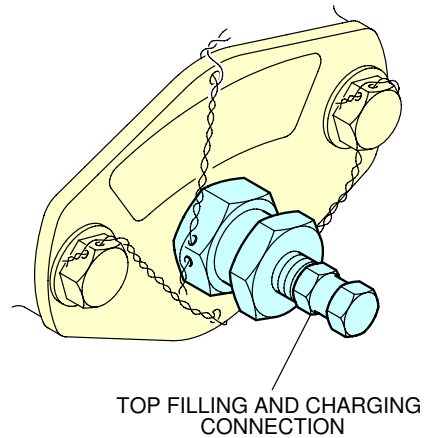
**B**

**C**



**D**

EXAMPLE

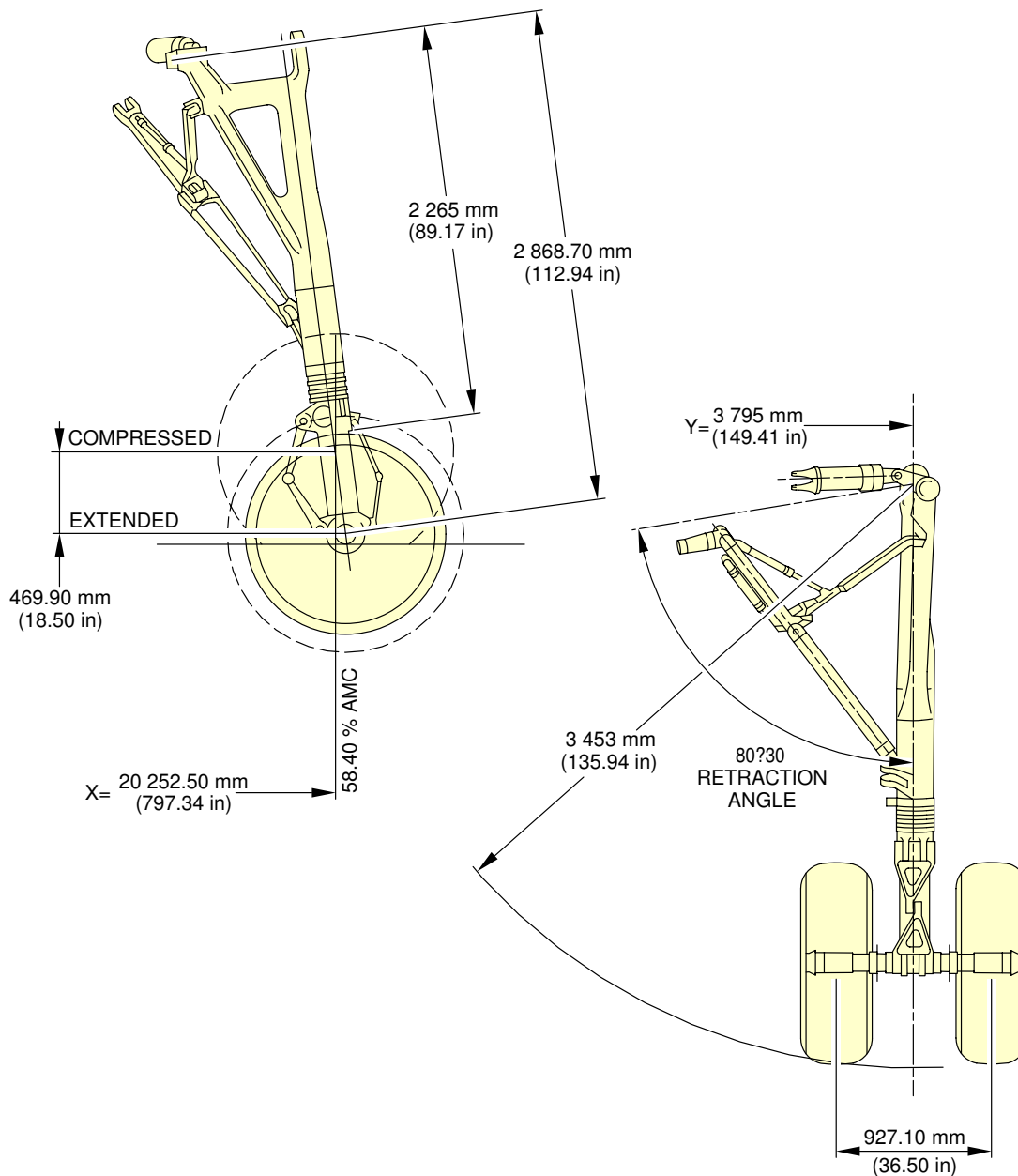


**E**

N\_AC\_020900\_1\_0100102\_01\_01

Landing Gear  
Main Landing Gear - Twin-Wheel (Sheet 2 of 2)  
FIGURE-2-9-0-991-010-A01

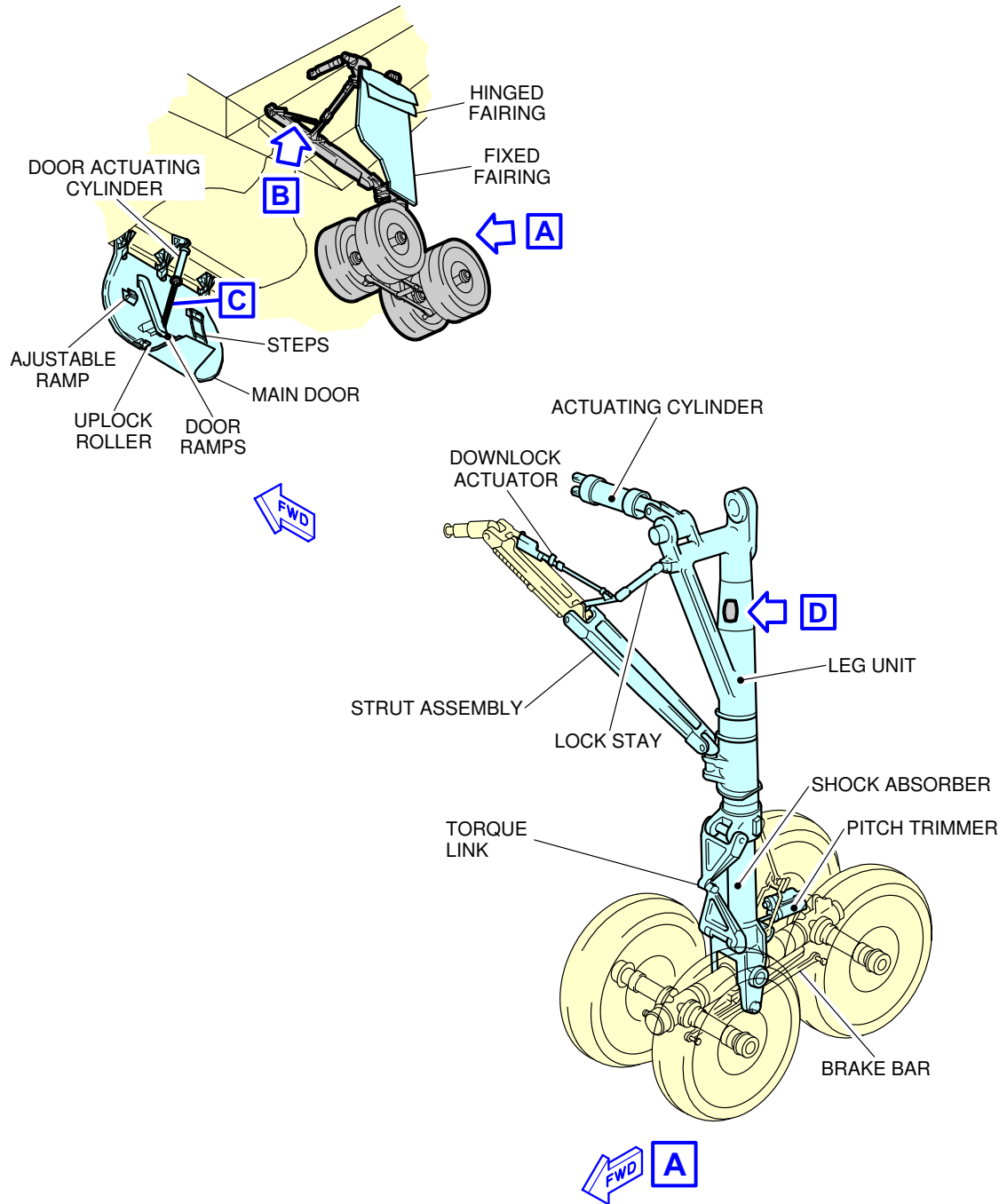
\*\*ON A/C A320-200 A320neo



N\_AC\_020900\_1\_0110101\_01\_00

Landing Gear  
Main Landing Gear Dimensions - Twin-Wheel  
FIGURE-2-9-0-991-011-A01

**\*\*ON A/C A320-200**

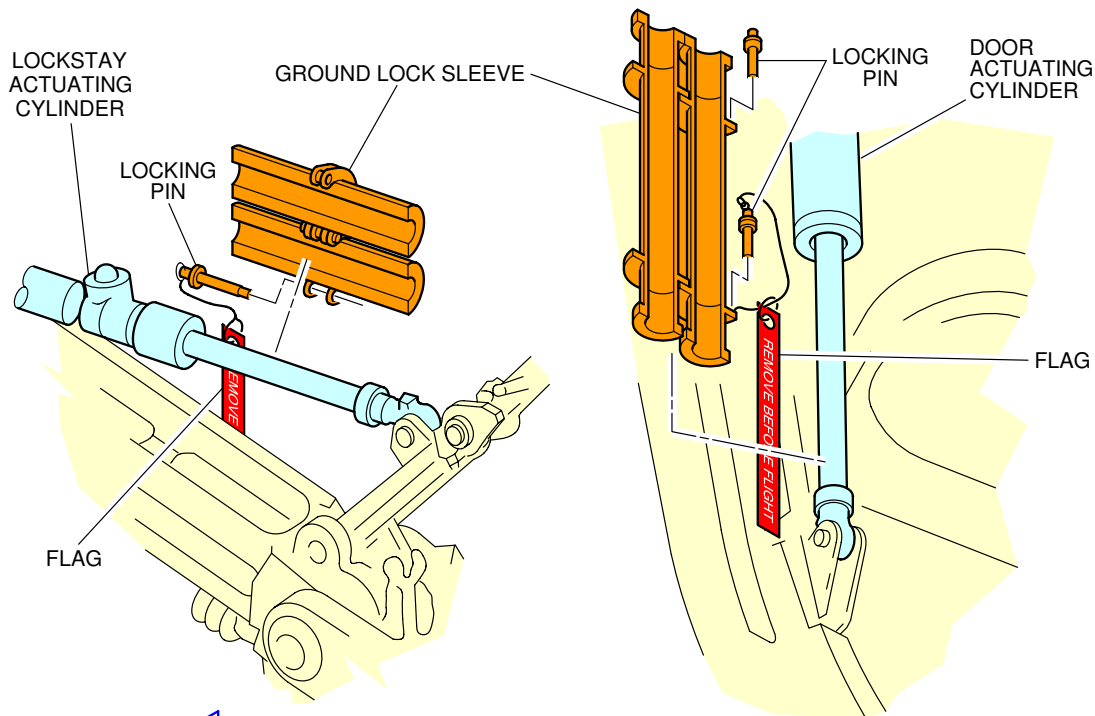


**NOTE:** MAIN DOOR SHOWN OPEN IN GROUND MAINTENANCE POSITION.

N\_AC\_020900\_1\_0120101\_01\_00

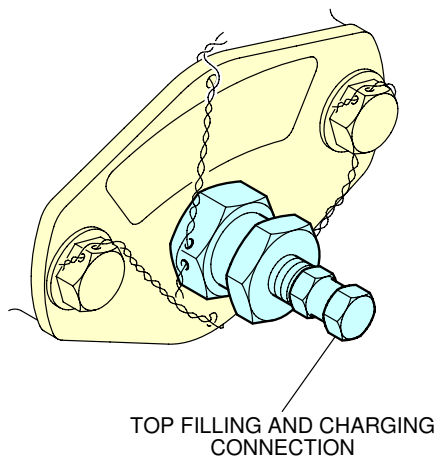
Landing Gear  
Main Landing Gear - Four-Wheel Bogie (Sheet 1 of 2)  
FIGURE-2-9-0-991-012-A01

\*\*ON A/C A320-200



FWD B

C

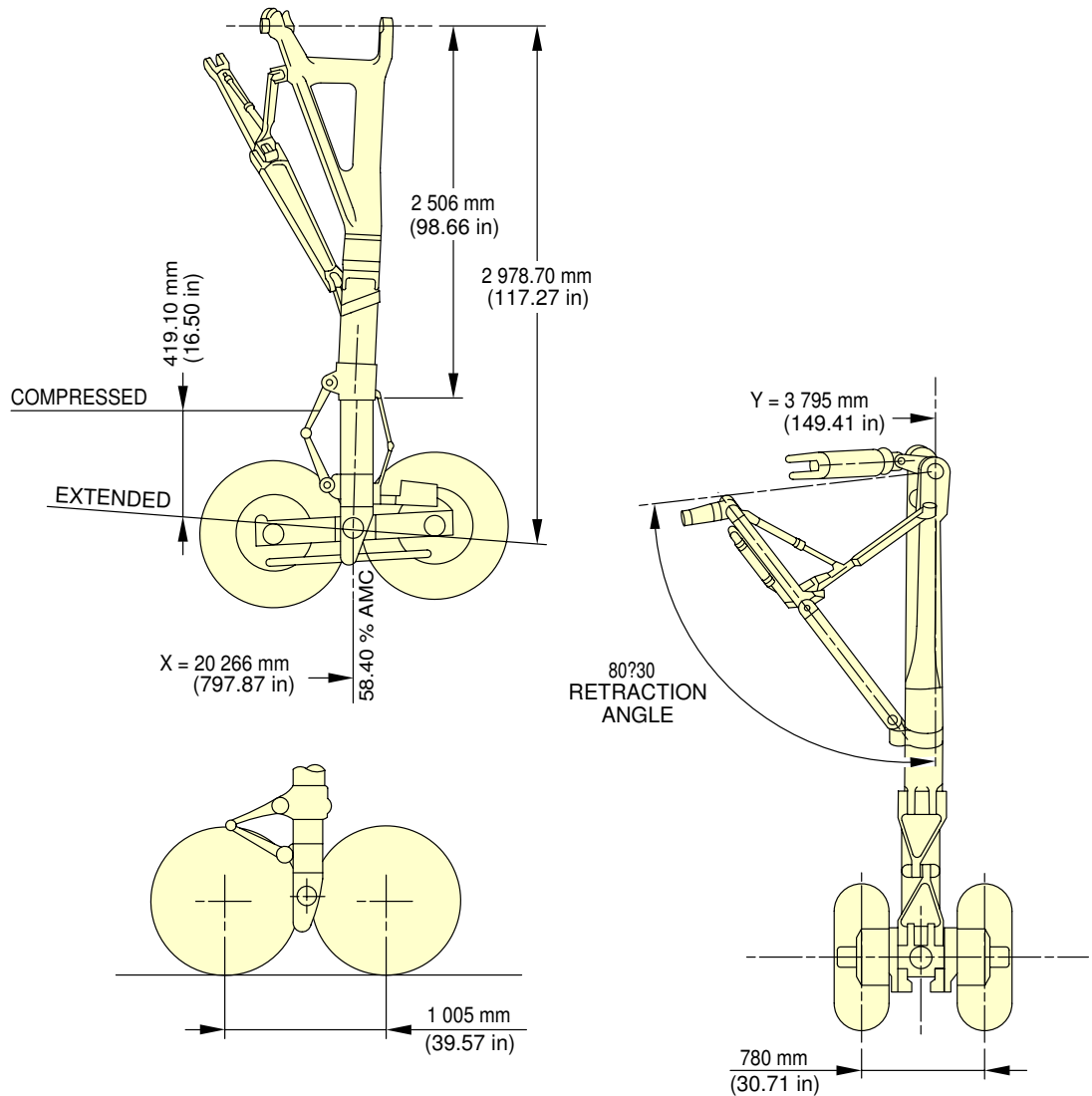


FWD D

N\_AC\_020900\_1\_0120102\_01\_01

Landing Gear  
Main Landing Gear - Four-Wheel Bogie (Sheet 2 of 2)  
FIGURE-2-9-0-991-012-A01

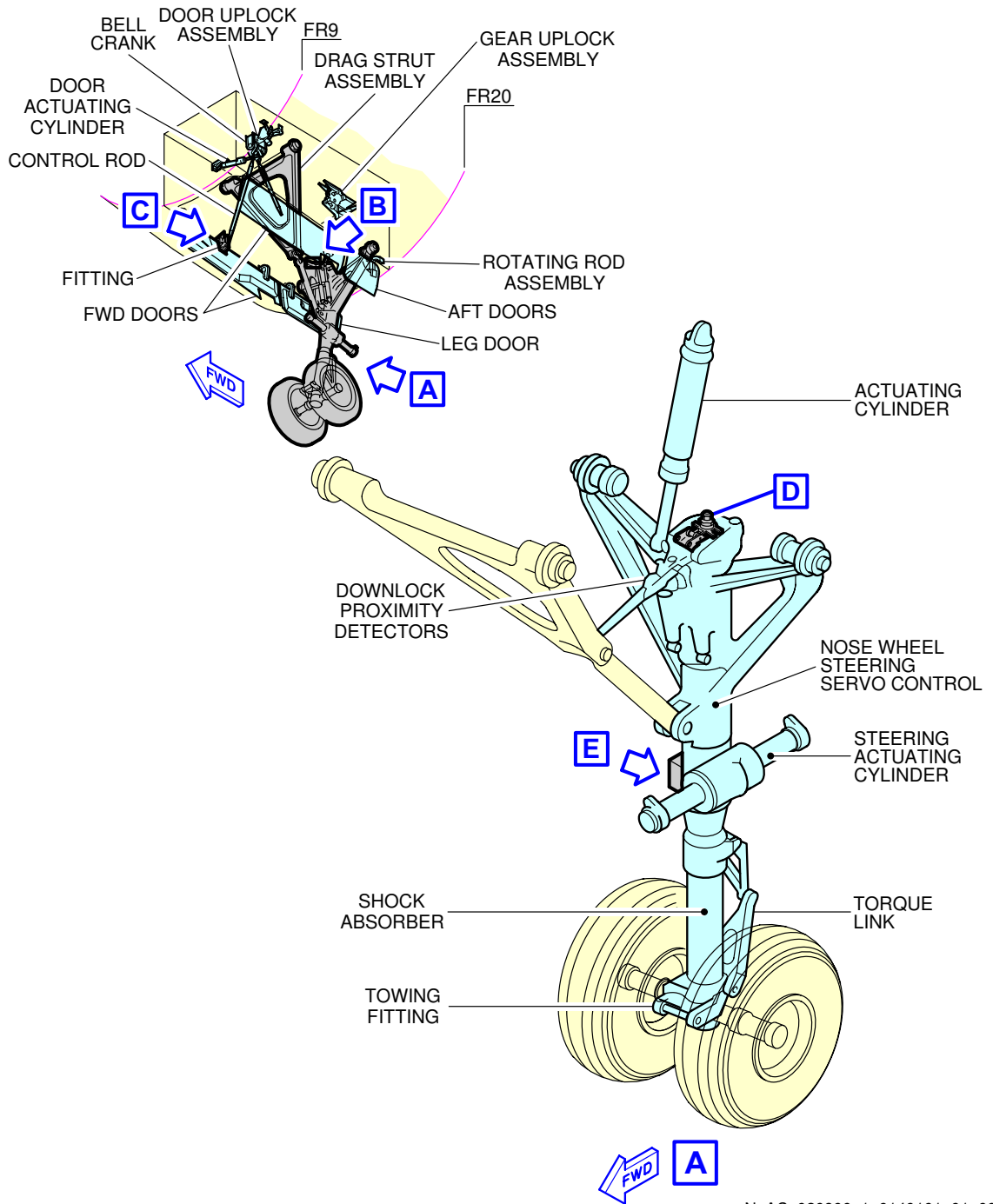
\*\*ON A/C A320-200



N\_AC\_020900\_1\_0130101\_01\_00

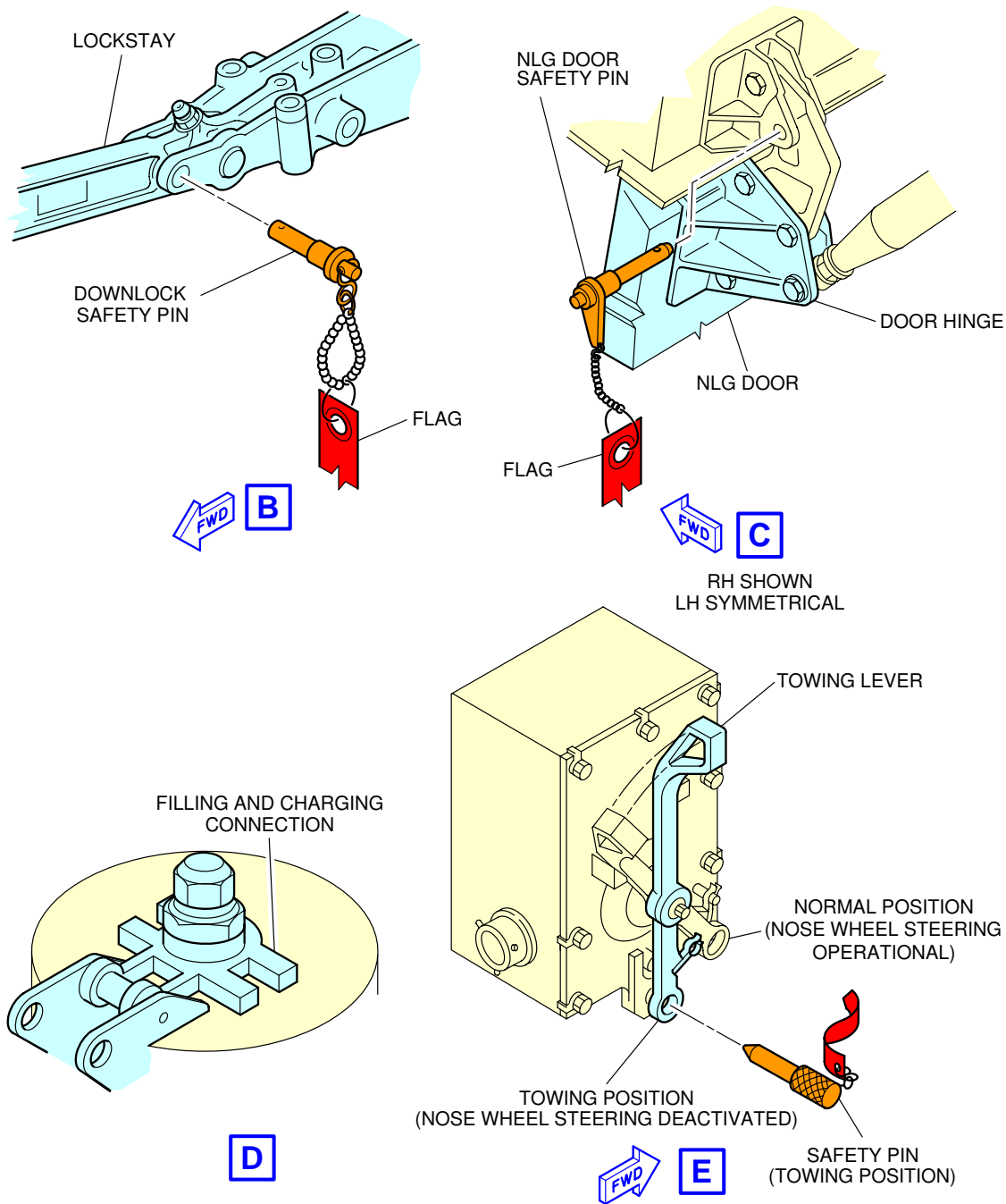
Landing Gear  
Main Landing Gear Dimensions - Four-Wheel Bogie  
FIGURE-2-9-0-991-013-A01

\*\*ON A/C A320-200 A320neo



Landing Gear  
Nose Landing Gear (Sheet 1 of 2)  
FIGURE-2-9-0-991-014-A01

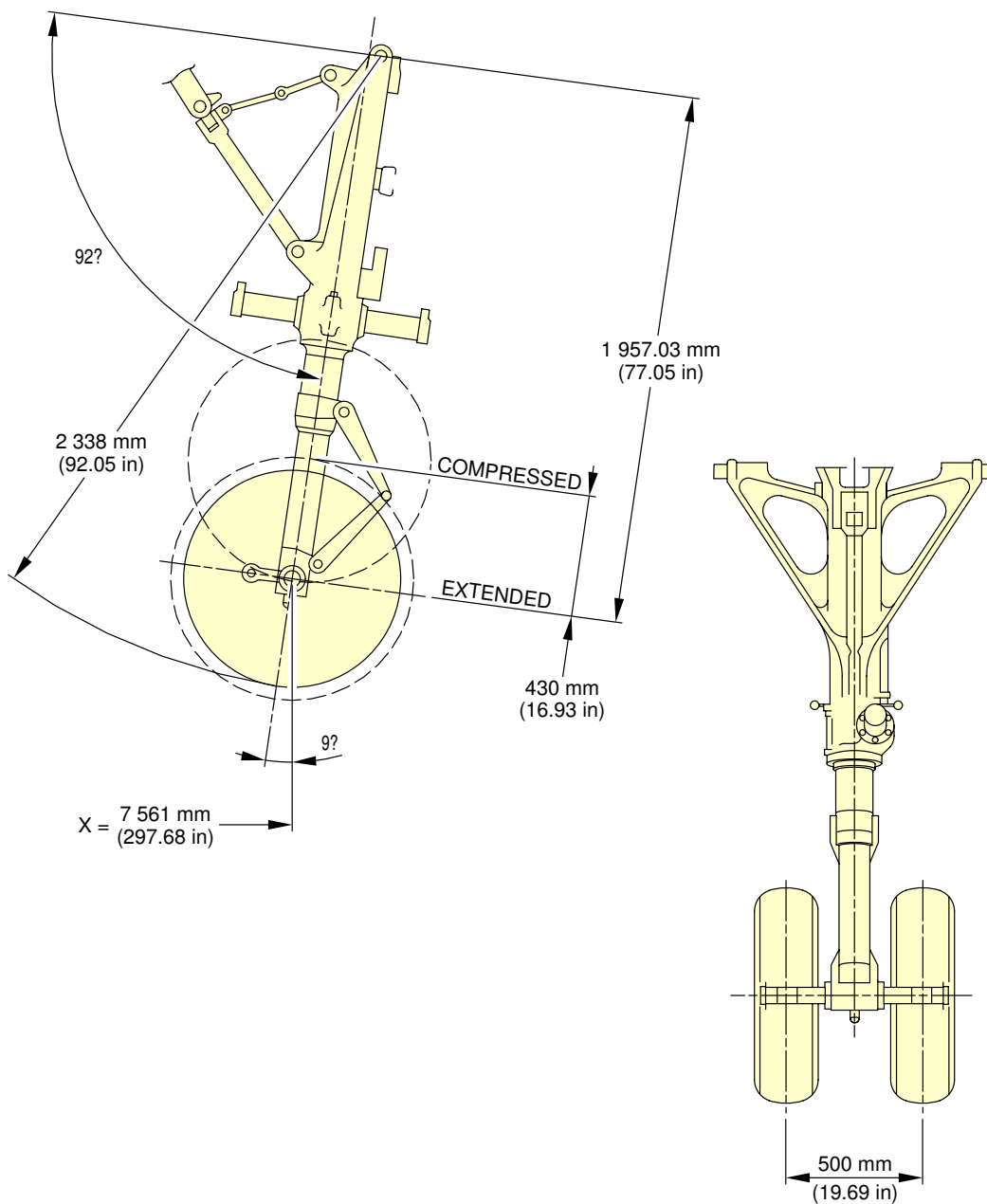
\*\*ON A/C A320-200 A320neo



N\_AC\_020900\_1\_0140102\_01\_01

Landing Gear  
Nose Landing Gear (Sheet 2 of 2)  
FIGURE-2-9-0-991-014-A01

\*\*ON A/C A320-200 A320neo



N\_AC\_020900\_1\_0150101\_01\_00

Landing Gear  
Nose Landing Gear Dimensions  
FIGURE-2-9-0-991-015-A01



**\*\*ON A/C A320-200 A320neo**

Landing Gear Maintenance Pits

1. Description

The minimum maintenance pit envelopes for the landing-gear shock absorber removal are shown in FIGURE 2-9-0-991-024-A and FIGURE 2-9-0-991-025-A.

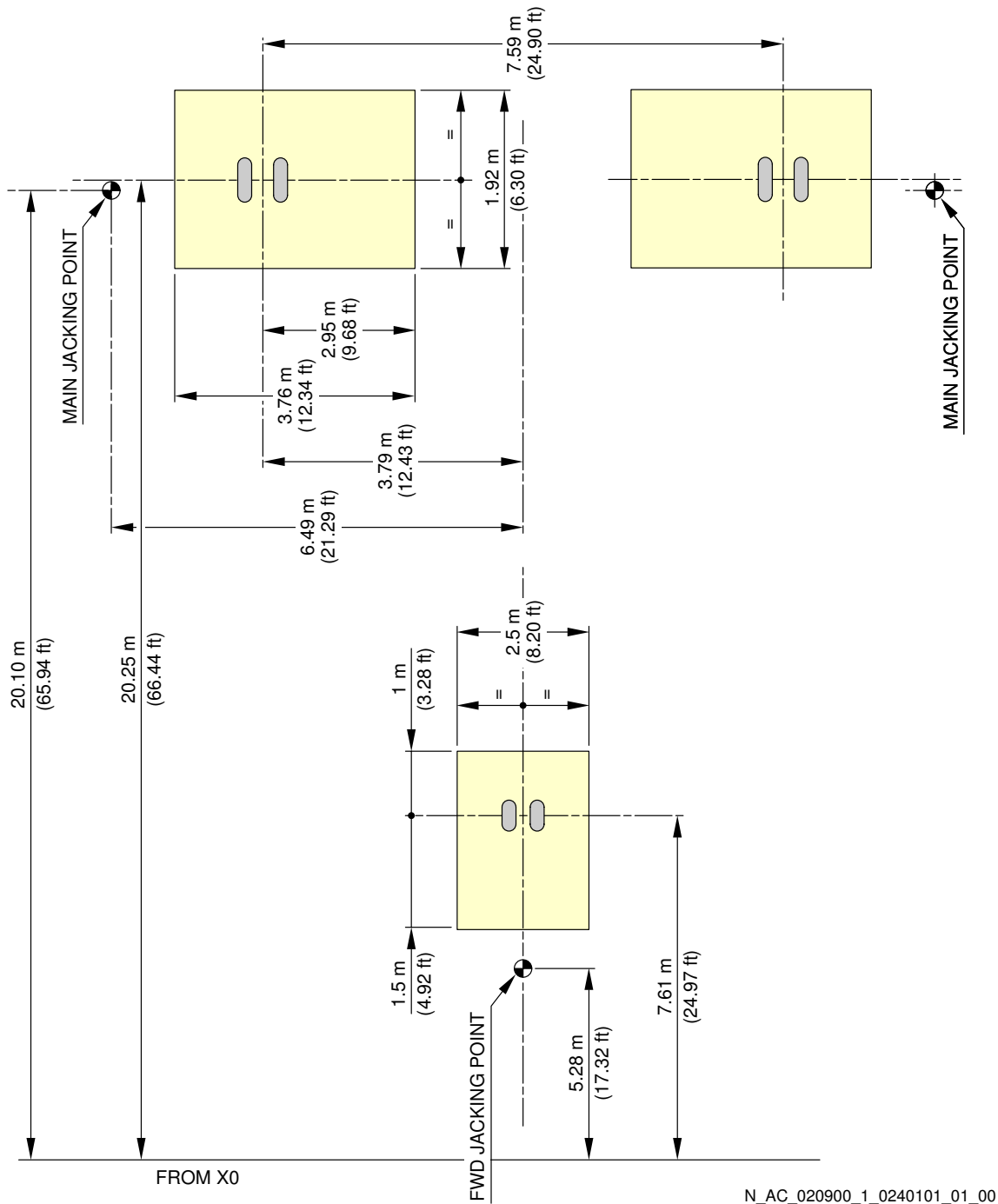
All dimensions shown are minimum dimensions with zero clearances.

The dimensions for the pits have been determined as follows:

- The length and width of the pits allow the gear to rotate as the weight is taken off the landing gear.
- The depth of the pits allows the shock absorber to be removed when all the weight is taken off the landing gear.

Dimensions for elevators and associated mechanisms must be added to those in FIGURE 2-9-0-991-024-A and FIGURE 2-9-0-991-025-A.

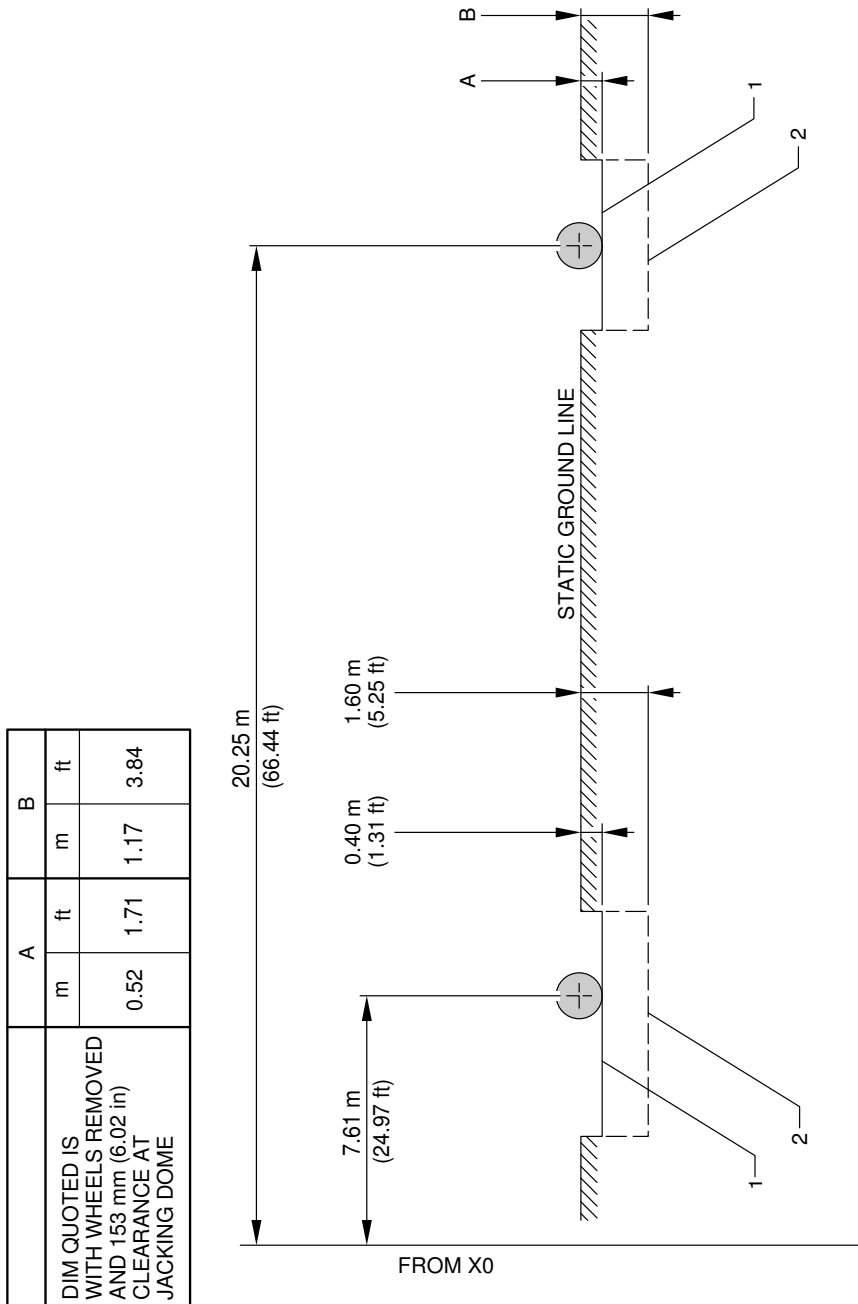
\*\*ON A/C A320-200 A320neo



N\_AC\_020900\_1\_0240101\_01\_00

Landing Gear Maintenance Pits  
Maintenance Pit Envelopes  
FIGURE-2-9-0-991-024-A01

\*\*ON A/C A320-200 A320neo



**NOTE:** 1 REPRESENTS TOP OF MECHANICAL OR HYDRAULIC ELEVATOR, WITH AIRCRAFT WEIGHT SUPPORTED AND LANDING GEAR SHOCK ABSORBERS EXTENDED.  
 2 REPRESENTS TOP OF MECHANICAL OR HYDRAULIC ELEVATOR, SHOWN WITH ZERO CLEARANCE LOWERED FOR SHOCK ABSORBER REMOVAL.

N\_AC\_020900\_1\_0250101\_01\_00

Landing Gear Maintenance Pits  
 Maintenance Pit Envelopes  
 FIGURE-2-9-0-991-025-A01

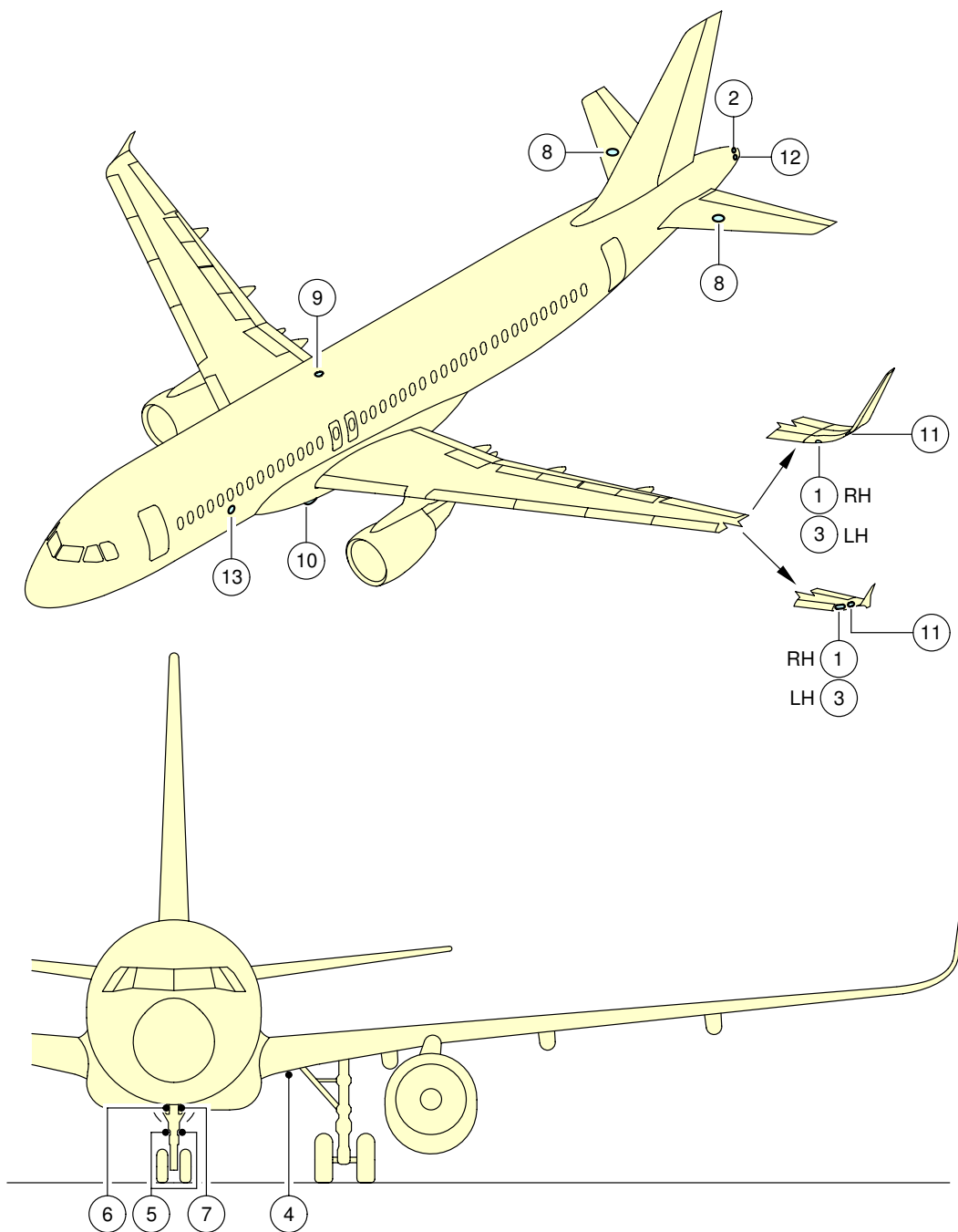
**2-10-0 Exterior Lighting****\*\*ON A/C A320-200 A320neo**Exterior Lighting

## 1. General

This section provides the location of the aircraft exterior lighting.

EXTERIOR LIGHTING	
ITEM	DESCRIPTION
1	RIGHT NAVIGATION LIGHT (GREEN)
2	TAIL NAVIGATION LIGHT (WHITE)
3	LEFT NAVIGATION LIGHT (RED)
4	RETRACTABLE LANDING LIGHT
5	RUNWAY TURN OFF LIGHT
6	TAXI LIGHT
7	TAKE-OFF LIGHT
8	LOGO LIGHT
9	UPPER ANTI-COLLISION LIGHT/BEACON (RED)
10	LOWER ANTI-COLLISION LIGHT/BEACON (RED)
11	WING STROBE LIGHT (HIGH INTENSITY, WHITE)
12	TAIL STROBE LIGHT (HIGH INTENSITY, WHITE)
13	WING/ENGINE SCAN LIGHT
14	WHEEL WELL LIGHT (DOME)
15	CARGO COMPARTMENT FLOOD LIGHT

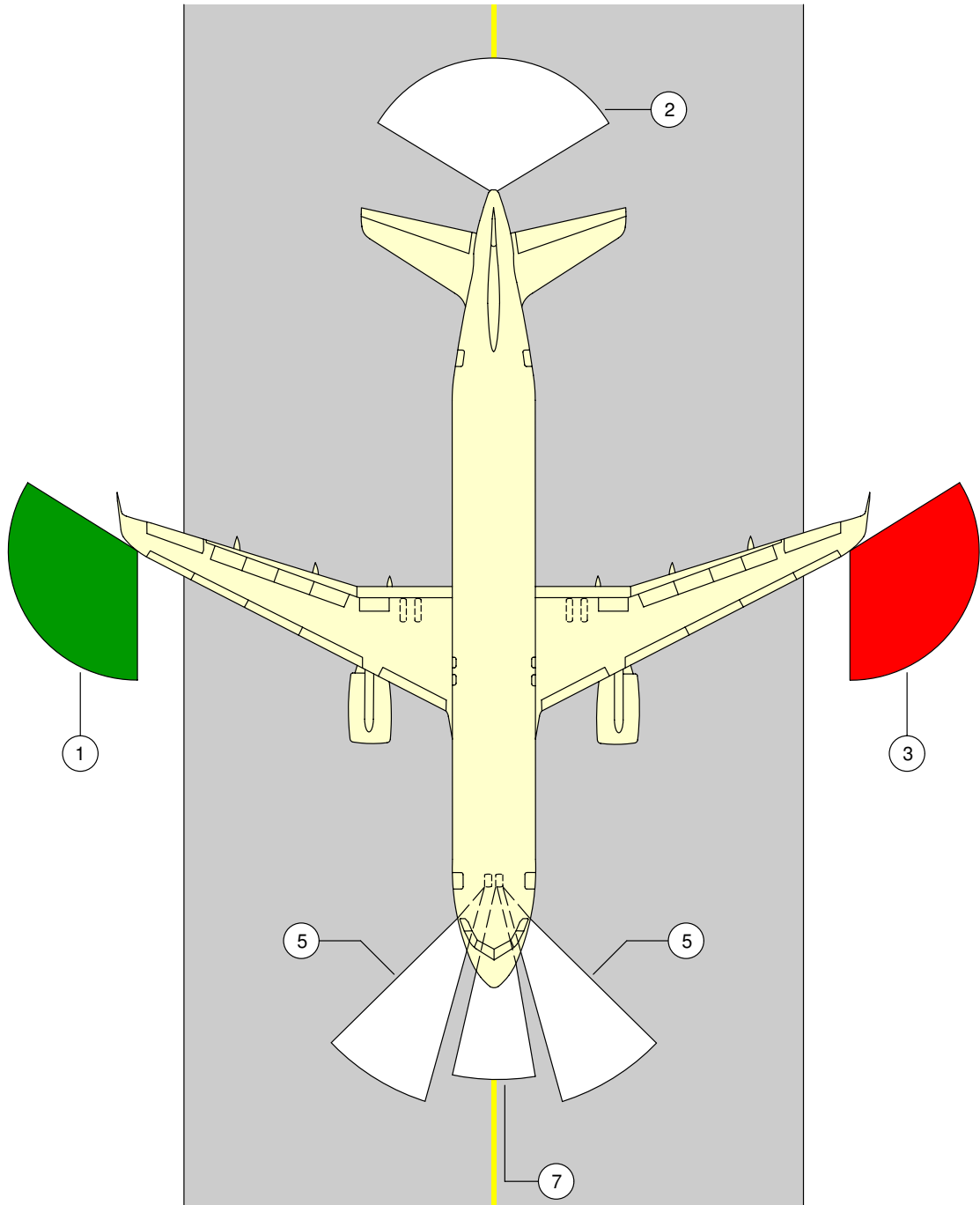
\*\*ON A/C A320-200 A320neo



N\_AC\_021000\_1\_0090101\_01\_00

Exterior Lighting  
FIGURE-2-10-0-991-009-A01

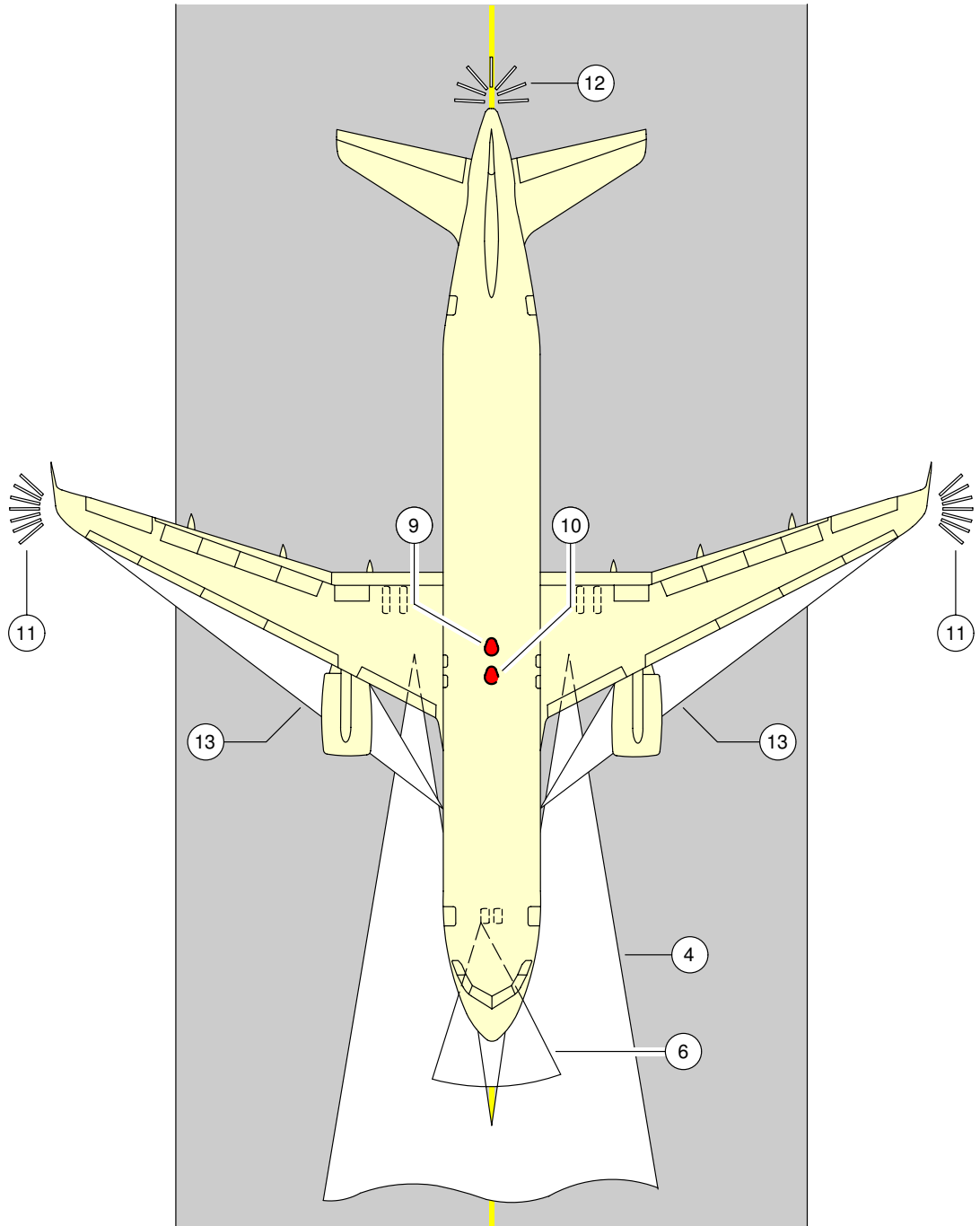
\*\*ON A/C A320-200 A320neo



N\_AC\_021000\_1\_0100101\_01\_00

Exterior Lighting  
FIGURE-2-10-0-991-010-A01

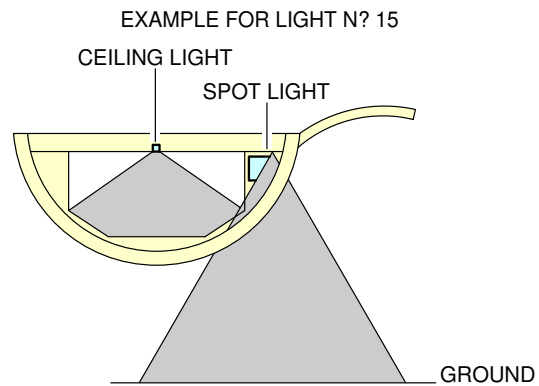
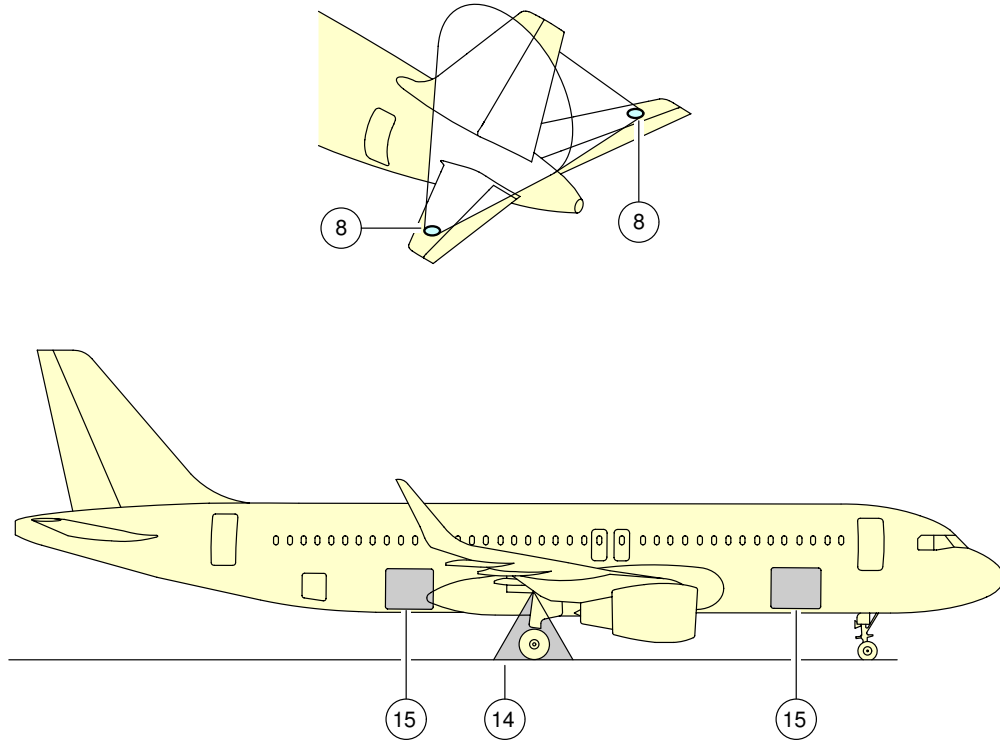
\*\*ON A/C A320-200 A320neo



N\_AC\_021000\_1\_0110101\_01\_00

Exterior Lighting  
FIGURE-2-10-0-991-011-A01

\*\*ON A/C A320-200 A320neo



N\_AC\_021000\_1\_0190101\_01\_00

Exterior Lighting  
FIGURE-2-10-0-991-019-A01





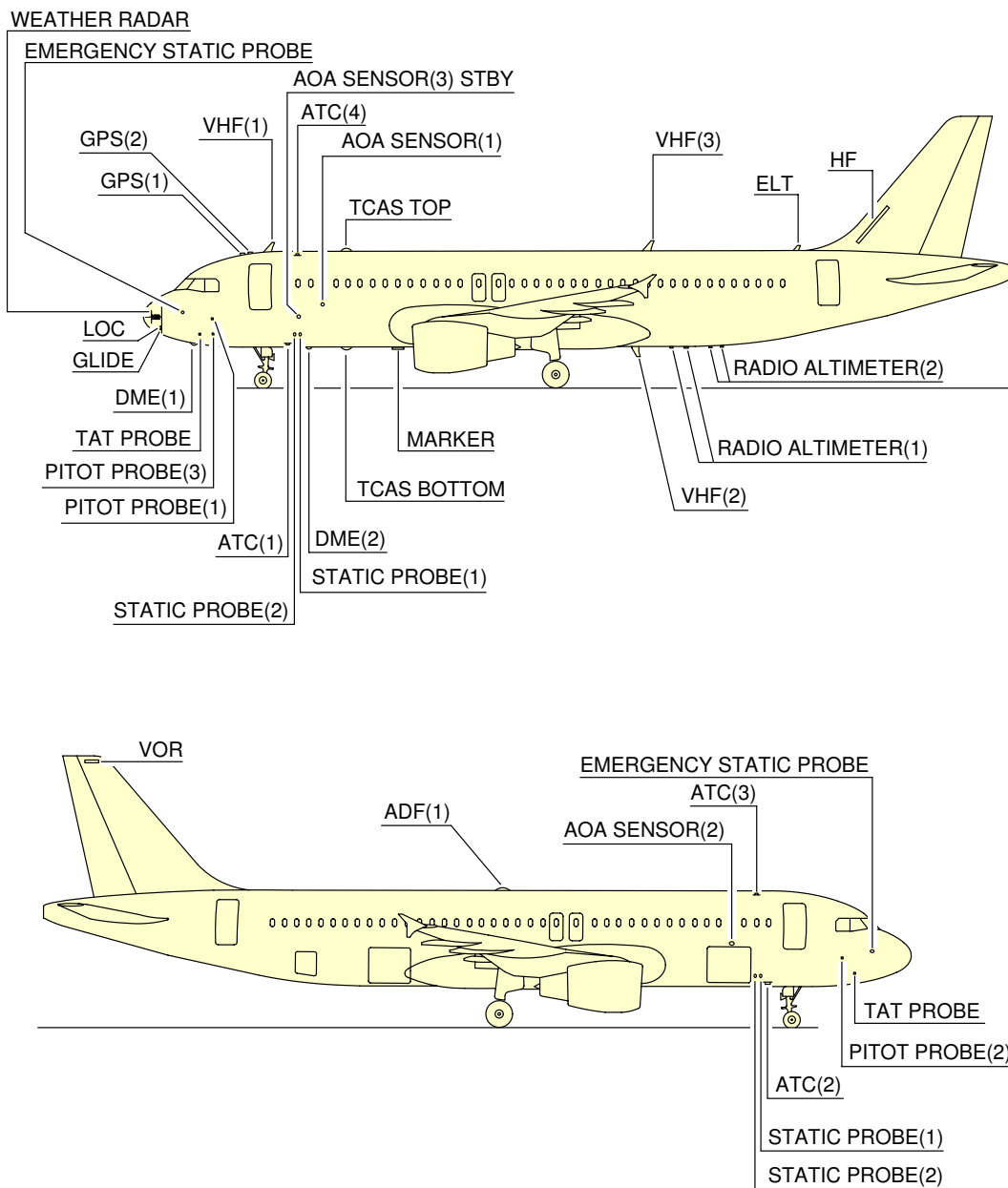
2-11-0      **Antennas and Probes Location**

**\*\*ON A/C A320-200 A320neo**

Antennas and Probes Location

1. This section gives the location of antennas and probes.

**\*\*ON A/C A320-200 A320neo**



**NOTE:** DEPENDING ON AIRCRAFT CONFIGURATION

N\_AC\_021100\_1\_0030101\_01\_00

Antennas and Probes  
Location  
FIGURE-2-11-0-991-003-A01

**2-12-0 Power Plant****\*\*ON A/C A320-200 A320neo**Auxiliary Power Unit

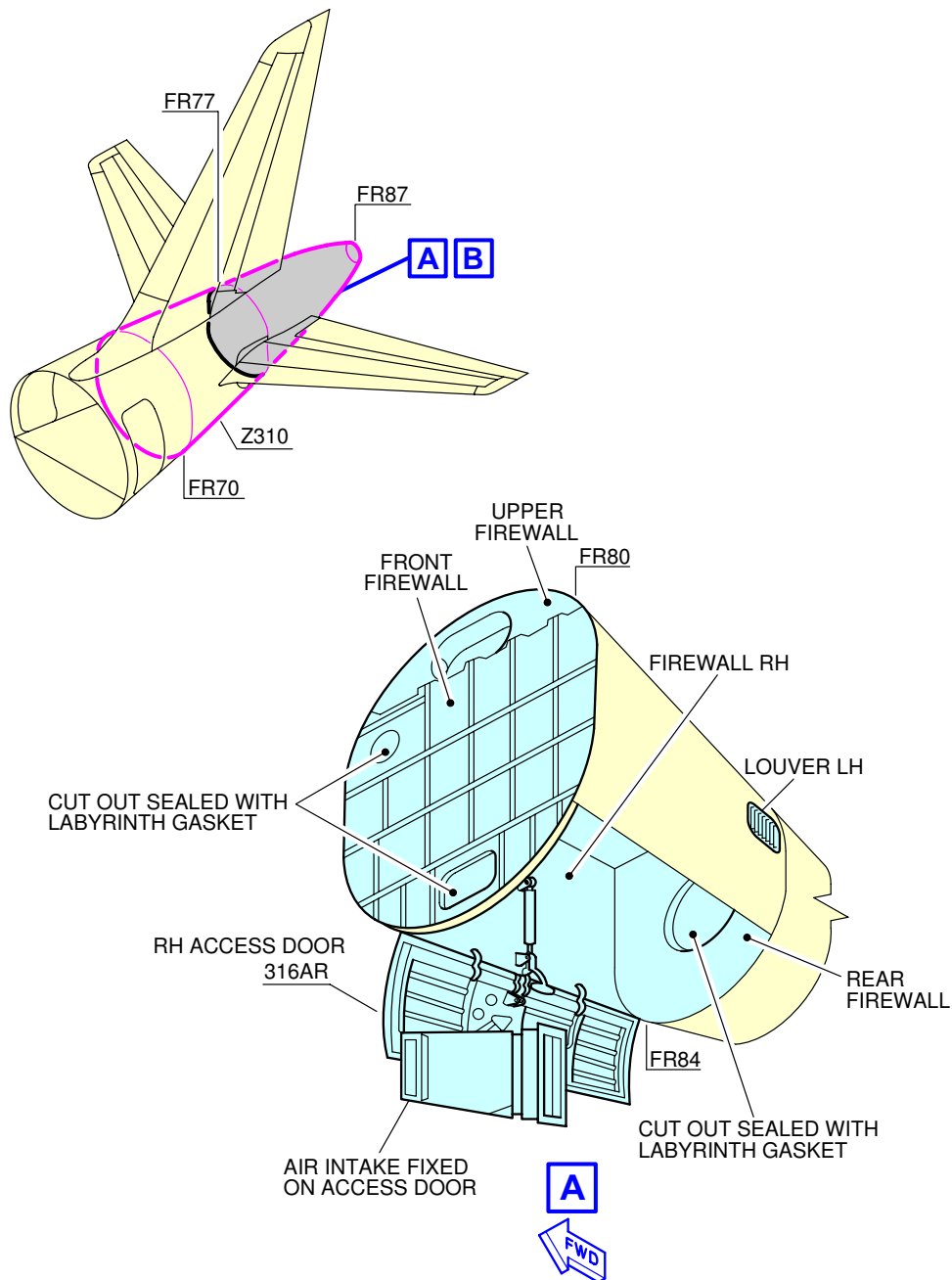
## 1. General

The APU is installed at the rear part of the fuselage in the tail cone. An air intake system with a flap-type door is installed in front of the APU compartment. The exhaust gases pass overboard at the end of the fuselage cone.

## 2. Controls and Indication

The primary APU controls and indications are installed on the overhead panel, on the center pedestal and on the center instrument panel. Additionally, an external APU panel is installed on the nose landing gear to initiate an APU emergency shutdown.

**\*\*ON A/C A320-200 A320neo**

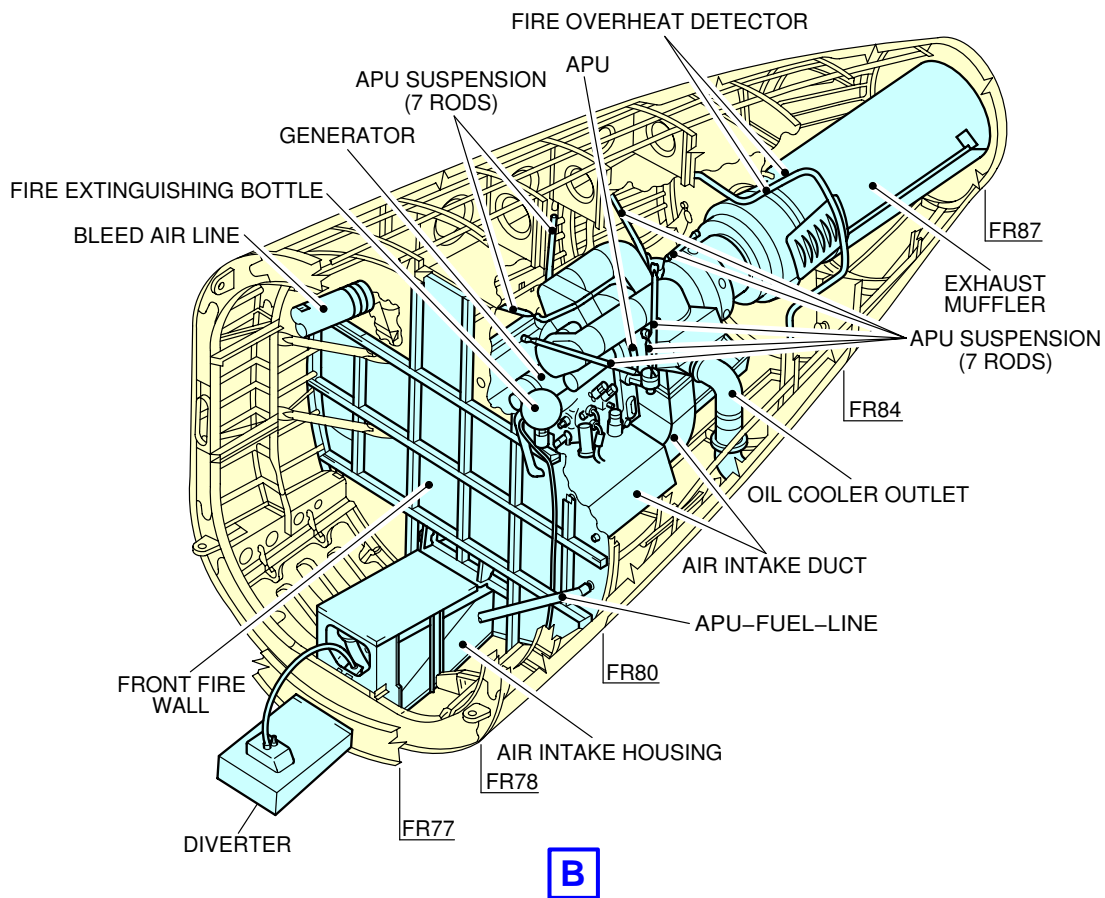


**NOTE:**  
LH ACCESS DOOR 315AL NOT SHOWN FOR CLARITY.

N\_AC\_021200\_1\_0050101\_01\_01

Auxiliary Power Unit  
Access Doors  
FIGURE-2-12-0-991-005-A01

\*\*ON A/C A320-200 A320neo



N\_AC\_021200\_1\_0060101\_01\_01

Auxiliary Power Unit  
General Layout  
FIGURE-2-12-0-991-006-A01

**\*\*ON A/C A320-200 A320neo**Engine and Nacelle**\*\*ON A/C A320-200**

## 1. Engine and Nacelle - CFM Engine

## A. Engine

The engine is a dual-rotor, variable stator, high bypass ratio turbofan powerplant for subsonic services. The principal modules of the engine are:

- low pressure compressor (fan stator and fan rotor)
- high pressure compressor
- turbine frame
- combustion chamber
- high pressure turbine
- low pressure turbine
- accessory drives (gear box).

The 9 stage high pressure compressor is driven by 1 stage high pressure turbine, and the integrated front fan and booster is driven by 4 stage low pressure turbine. An annular combustor converts fuel and compressor discharge air into energy to provide engine thrust part through primary exhaust and to drive the turbines. The accessory drive system extracts energy from the high pressure rotor to drive the engine accessories and the engine mounted aircraft accessories. Reverse thrust for braking the aircraft after landing is supplied by an integrated system which acts on the fan discharge airflow.

## B. Nacelle

The cowls enclose the periphery of the engine so as to form the engine nacelle. Each engine is housed in a nacelle suspended from a pylon attached to the wing lower surface. The nacelle consists of the demountable powerplant, the fan cowls and the thrust reverser cowls.

The nacelle installation is designed to provide cooling and ventilation air for engine accessories mounted along the fan and core casing. The nacelle provides:

- protection for the engine and the accessories
- airflow around the engine during its operation
- lighting protection
- HIRF and EMI attenuation.

## 2. Engine and Nacelle - IAE Engine

## A. Engine

The engine is a two spool, axial flow, high bypass ratio turbofan powerplant for subsonic service. The main modules of the engine are:

- low pressure compressor (fan and booster) assembly
- LP compressor/intermediate case
- No. 4 bearing and combustion section
- high pressure compressor
- HP turbine section
- LP turbine section
- accessory drives (gear box).

The four stage Low Pressure Compressor (LPC) is driven by a five stage Low Pressure Turbine (LPT) and the ten stage High Pressure Compressor (HPC) by a two stage High Pressure Turbine (HPT). The HPT also drives a gearbox which, in turn drives the engines and aircraft mounted accessories. The two shafts are supported by five main bearings.

The V2500 incorporates a Full Authority Digital Engine Control (FADEC) which governs all engine functions, including power management. Reverse thrust for braking the aircraft after landing is supplied by an integrated system which acts on the fan discharge airflow.

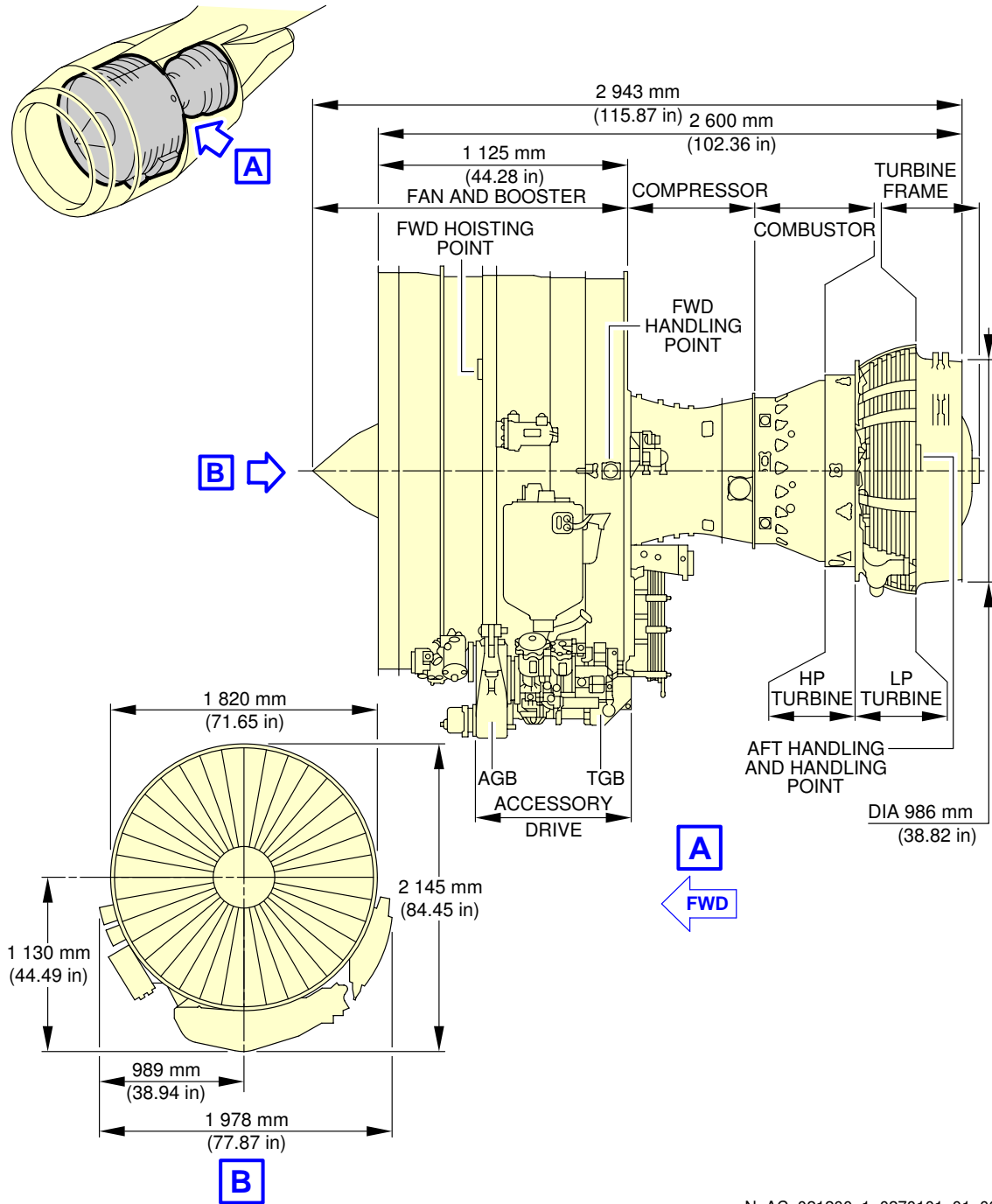
#### B. Nacelle

The cowls enclose the periphery of the engine so as to form the engine nacelle. Each engine is housed in a nacelle suspended from a pylon attached below the wing.

The nacelle installation is designed to provide cooling and ventilation air for engine accessories mounted along the fan and core casing. The nacelle provides:

- protection for the engine and the accessories
- airflow around the engine during its operation
- lighting protection
- HIRF and EMI attenuation.

\*\*ON A/C A320-200

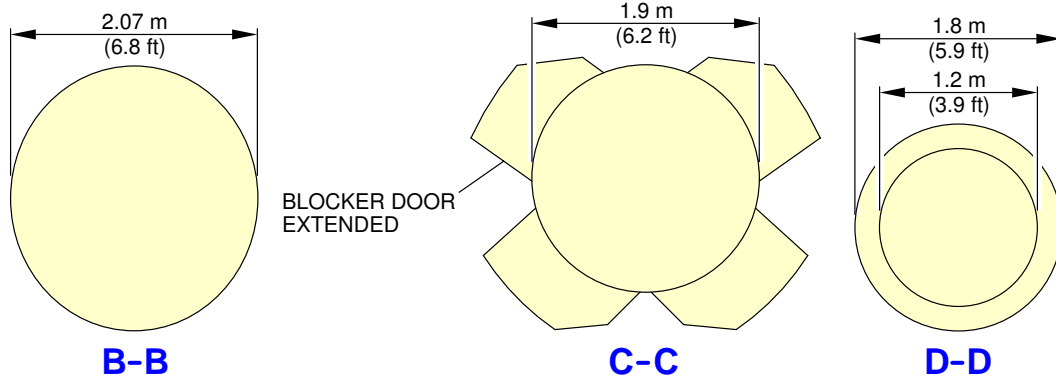
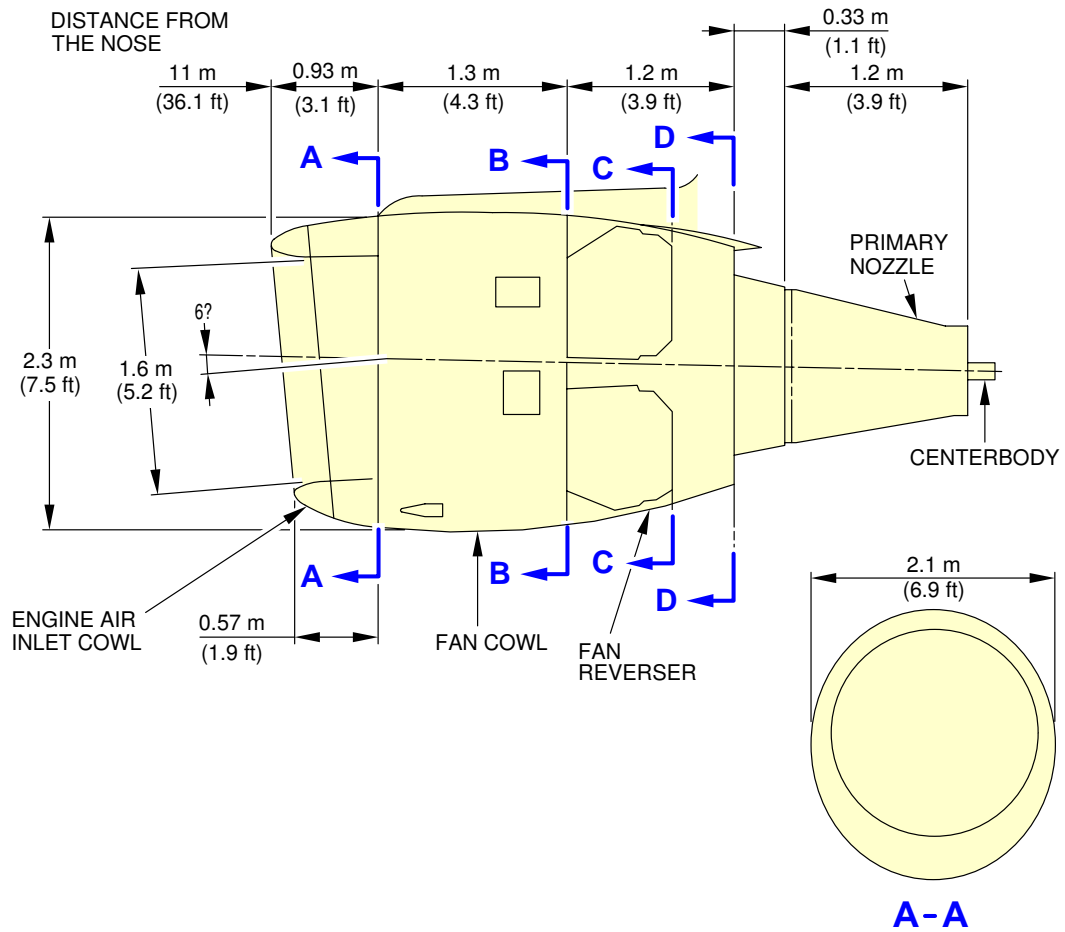


N\_AC\_021200\_1\_0270101\_01\_00

Power Plant Handling  
Major Dimensions - CFM56 Series Engine  
FIGURE-2-12-0-991-027-A01



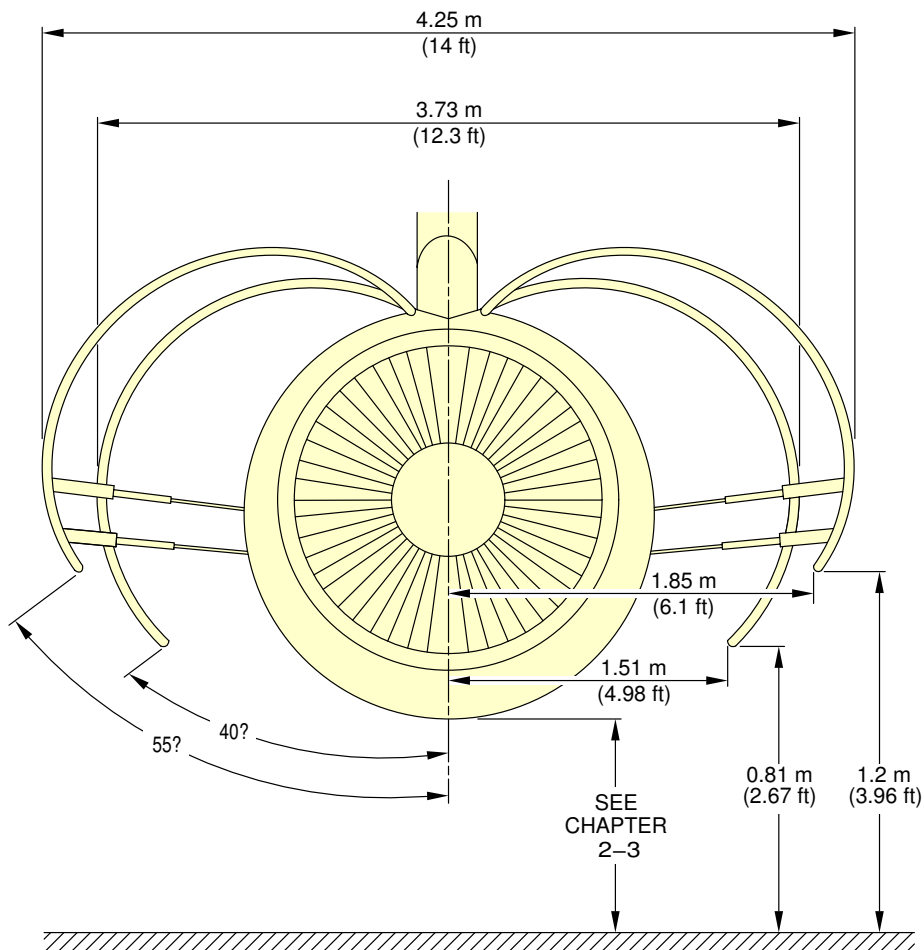
**\*\*ON A/C A320-200**



N\_AC\_021200\_1\_0280101\_01\_00

Power Plant Handling  
Major Dimensions - CFM56 Series Engine  
FIGURE-2-12-0-991-028-A01

\*\*ON A/C A320-200

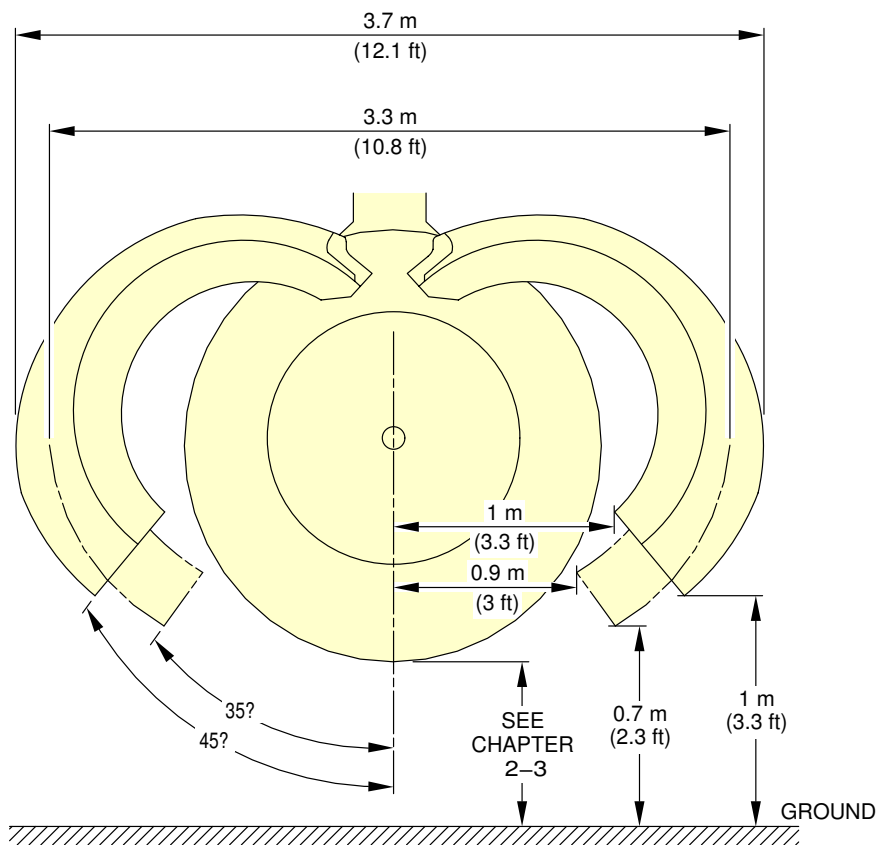


**NOTE:** APPROXIMATE DIMENSIONS.

N\_AC\_021200\_1\_0290101\_01\_01

Power Plant Handling  
Fan Cowls - CFM56 Series Engine  
FIGURE-2-12-0-991-029-A01

**\*\*ON A/C A320-200**



**CAUTION**

**DO NOT ACTUATE SLATS:**

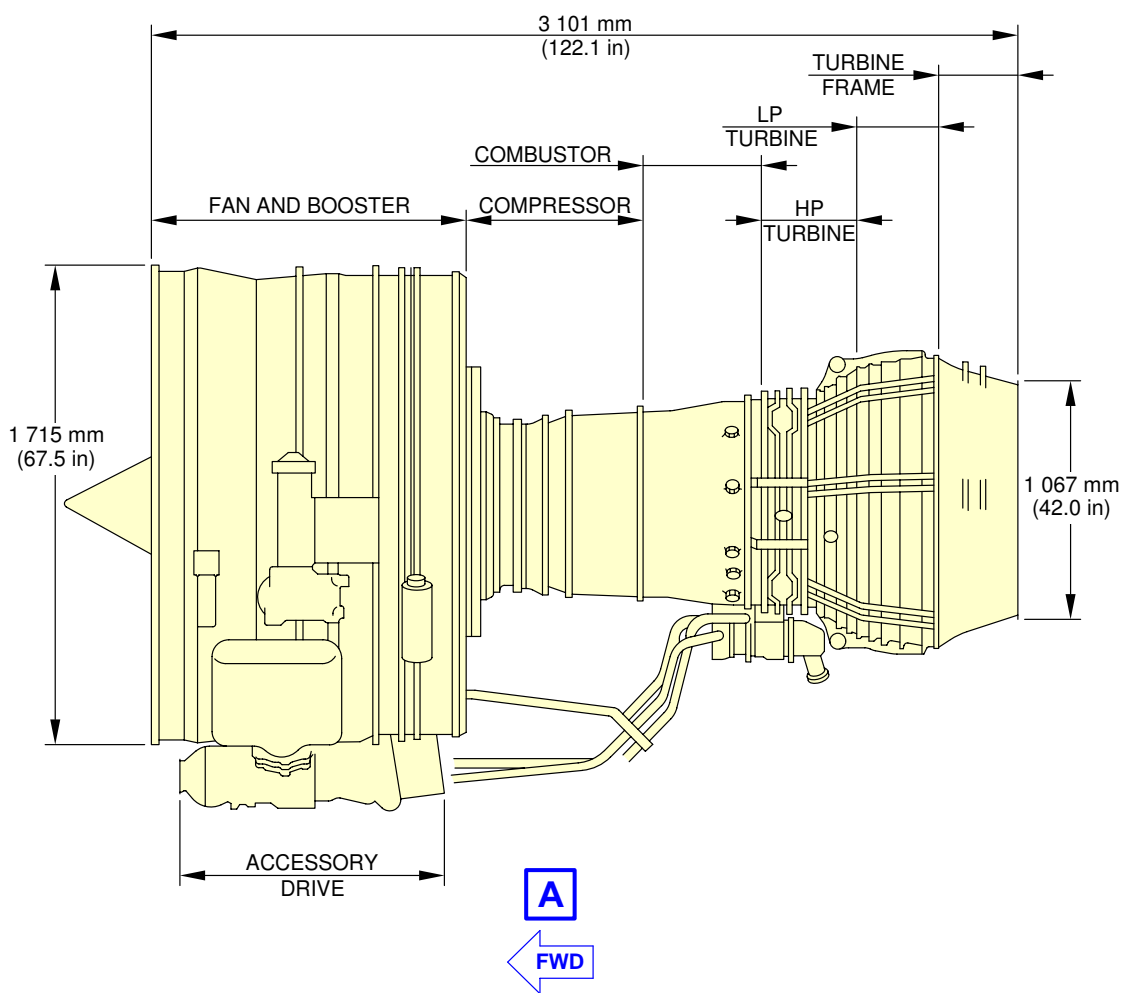
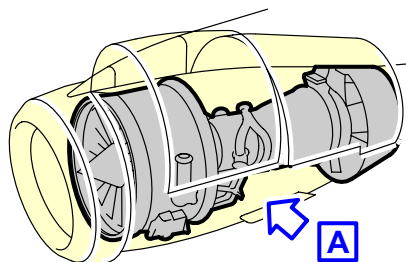
- WITH THRUST REVERSER COWLS 45° OPEN POSITION
- WITH BLOCKER DOORS OPEN AND THRUST REVERSER COWLS AT 35° AND 45° OPEN POSITION.

**NOTE:** APPROXIMATE DIMENSIONS.

N\_AC\_021200\_1\_0300101\_01\_01

Power Plant Handling  
 Thrust Reverser Cowls - CFM56 Series Engine  
 FIGURE-2-12-0-991-030-A01

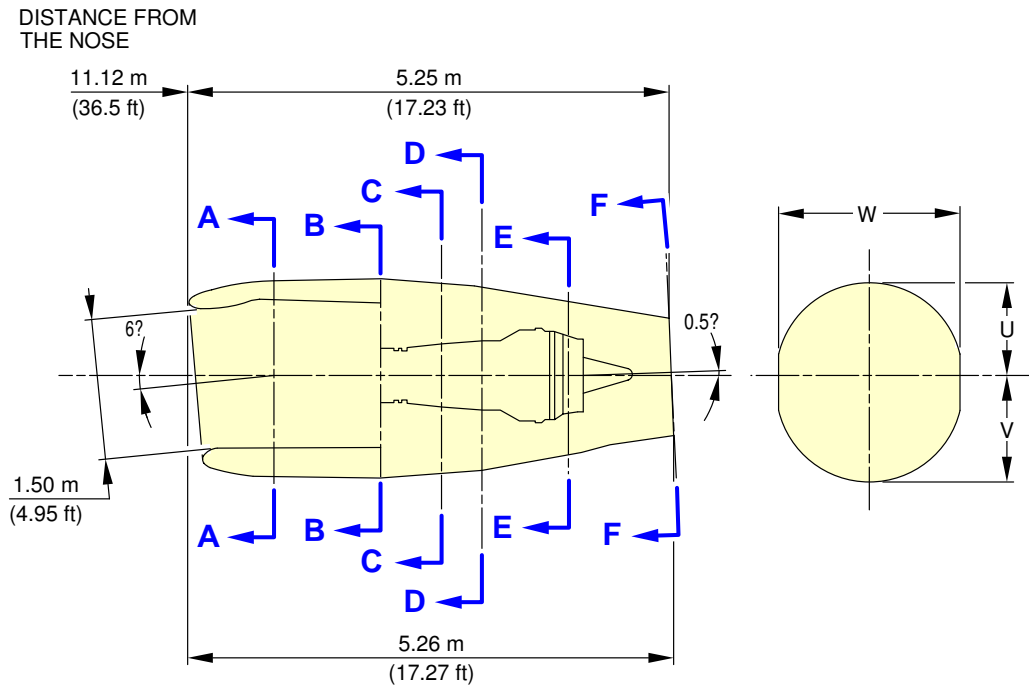
\*\*ON A/C A320-200



N\_AC\_021200\_1\_0310101\_01\_00

Power Plant Handling  
Major Dimensions - IAE V2500 Series Engine  
FIGURE-2-12-0-991-031-A01

**\*\*ON A/C A320-200**

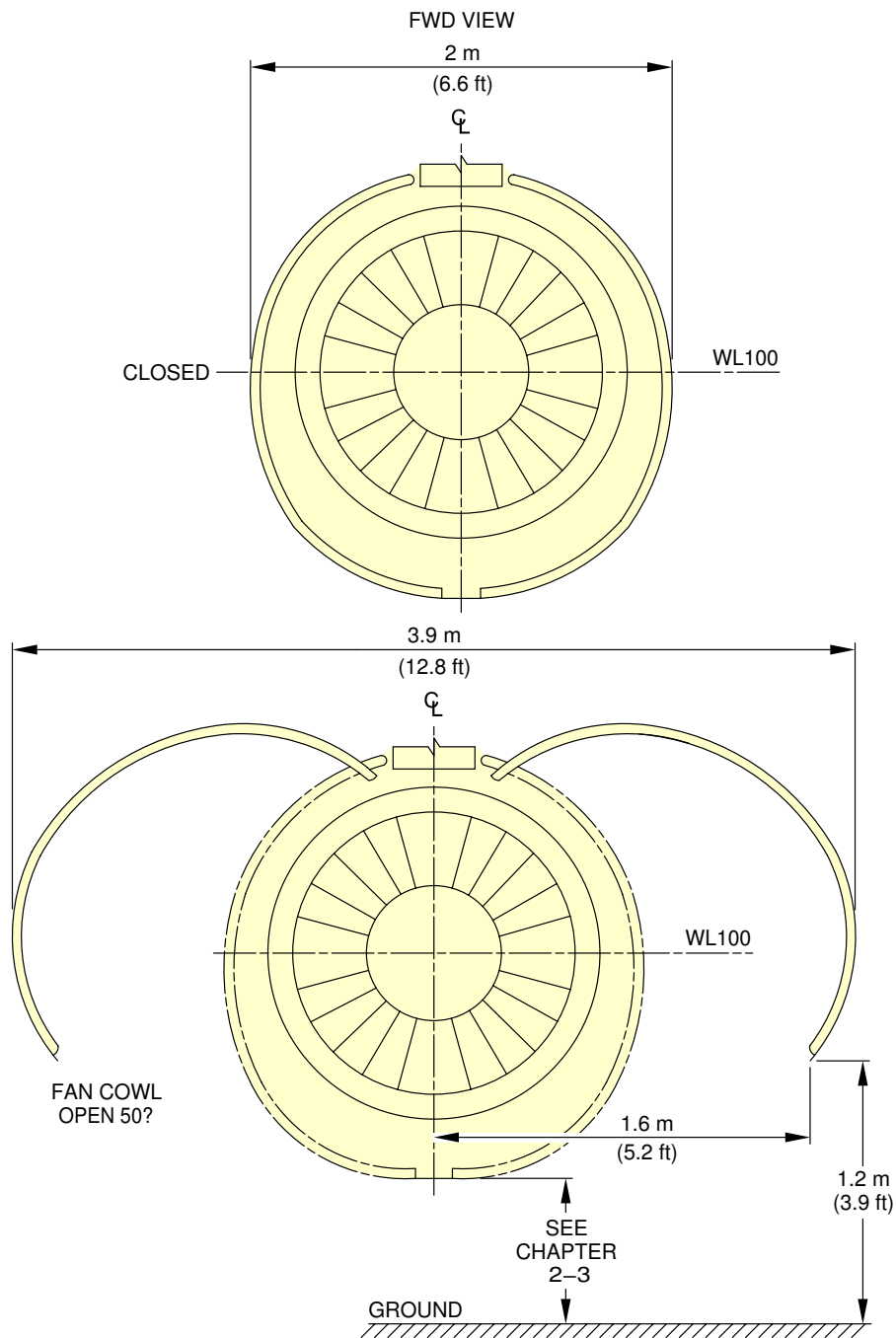


	W		U		V		PPS		AT COMPONENT
	m	ft	m	ft	m	ft	m	ft	
<b>A-A</b>	2.01	6.58	0.99	3.25	1.10	3.63	1.41	4.62	INLET ATTACH FLG
<b>B-B</b>	2.01	6.58	1.00	3.29	1.11	3.64	2.59	8.50	TORQUE BOX "V" BLADE
<b>C-C</b>	1.98	6.50	0.97	3.19	1.07	3.52	3.26	10.70	COMB. CHAMBER ENTRY FLG
<b>D-D</b>	1.93	6.32	0.93	3.06	1.03	3.39	3.63	11.90	COMB. CHAMBER EXIT FLG
<b>E-E</b>	1.64	5.38	0.78	2.57	0.86	2.83	4.60	15.10	TECH FLG TURB. EXIT CASE
<b>F-F</b>	1.24	4.07	0.60	1.96	0.64	2.11	---	---	AFT END CNA

N\_AC\_021200\_1\_0320101\_01\_00

Power Plant Handling  
Major Dimensions - IAE V2500 Series Engine  
FIGURE-2-12-0-991-032-A01

**\*\*ON A/C A320-200**

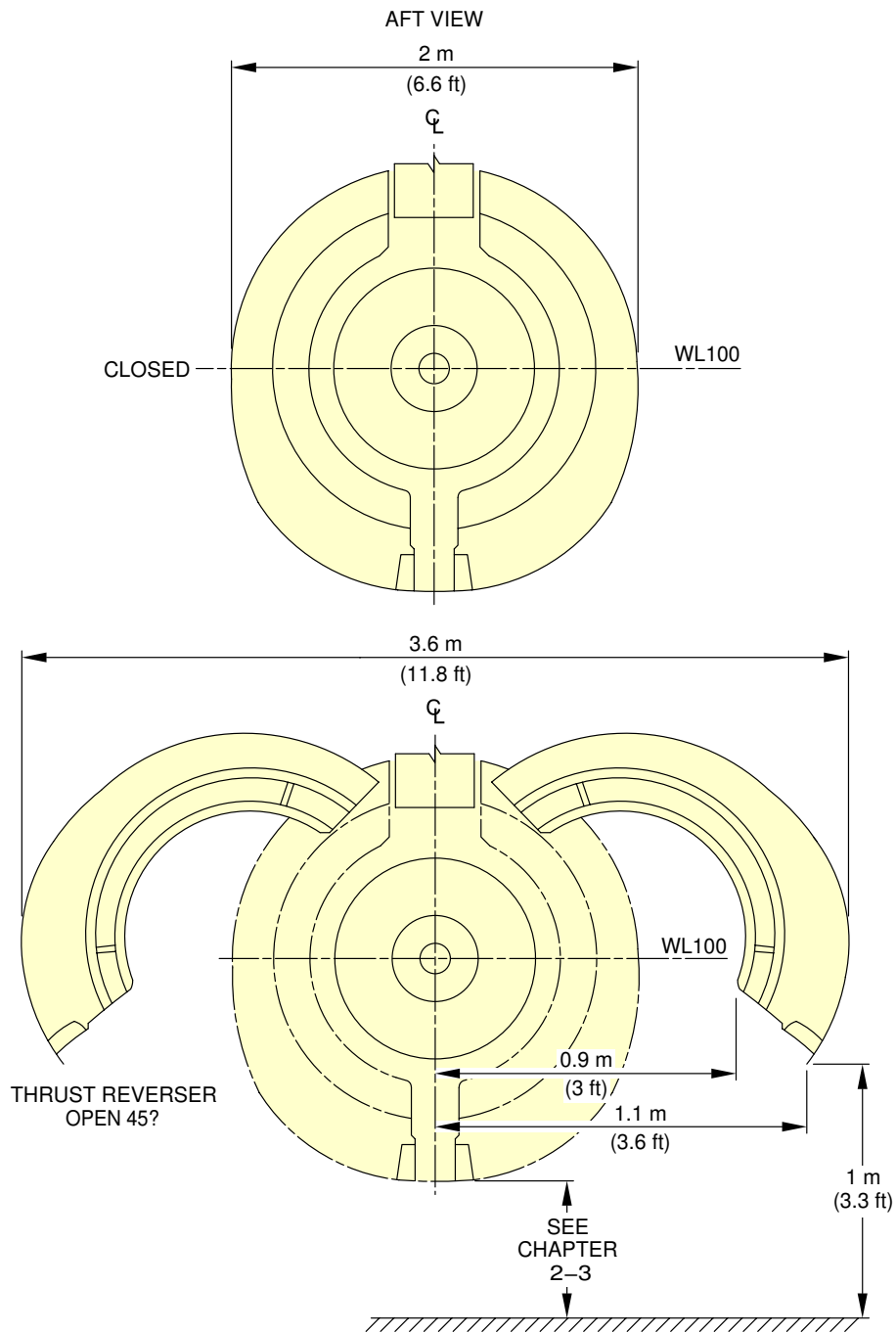


**NOTE:** APPROXIMATE DIMENSIONS.

N\_AC\_021200\_1\_0330101\_01\_01

Power Plant Handling  
Fan Cowls - IAE V2500 Series Engine  
FIGURE-2-12-0-991-033-A01

\*\*ON A/C A320-200

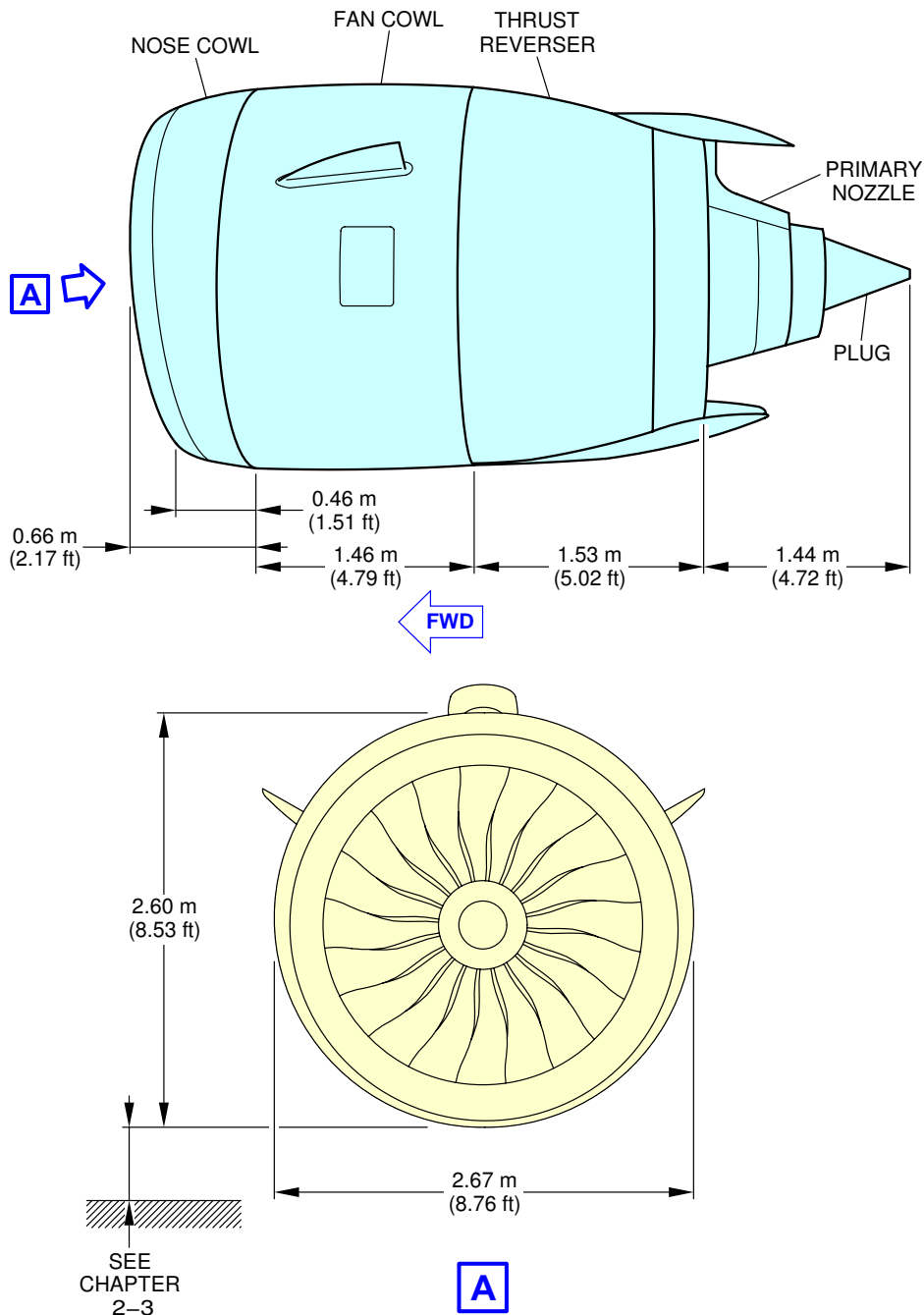


NOTE: APPROXIMATE DIMENSIONS.

N\_AC\_021200\_1\_0340101\_01\_01

Power Plant Handling  
Thrust Reverser Halves - IAE V2500 Series Engine  
FIGURE-2-12-0-991-034-A01

\*\*ON A/C A320neo

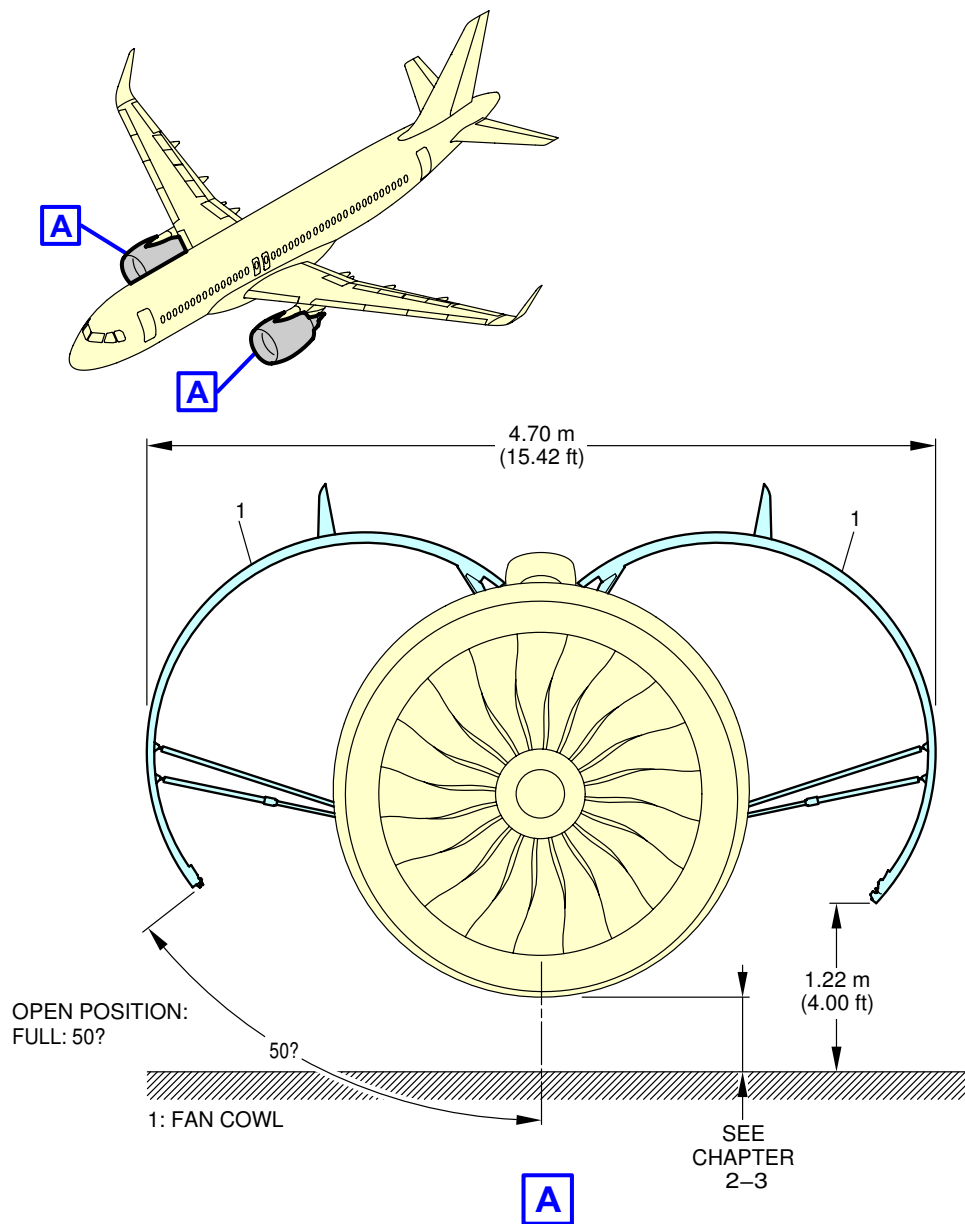


N\_AC\_021200\_1\_0460101\_01\_01

Power Plant Handling  
Major Dimensions - PW 1100G Engine  
FIGURE-2-12-0-991-046-A01



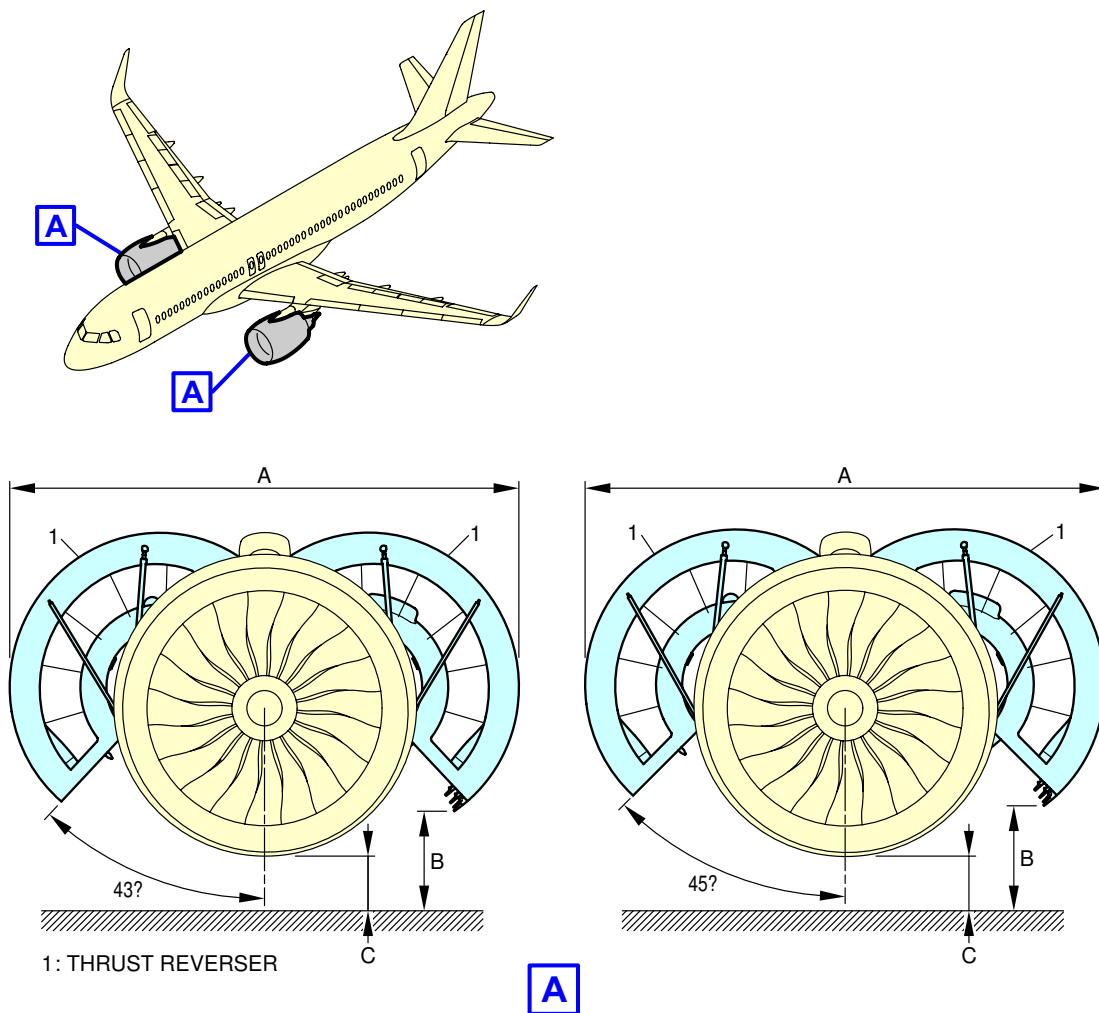
\*\*ON A/C A320neo



N\_AC\_021200\_1\_0470101\_01\_01

Power Plant Handling  
Fan Cowls - PW 1100G Engine  
FIGURE-2-12-0-991-047-A01

\*\*ON A/C A320neo



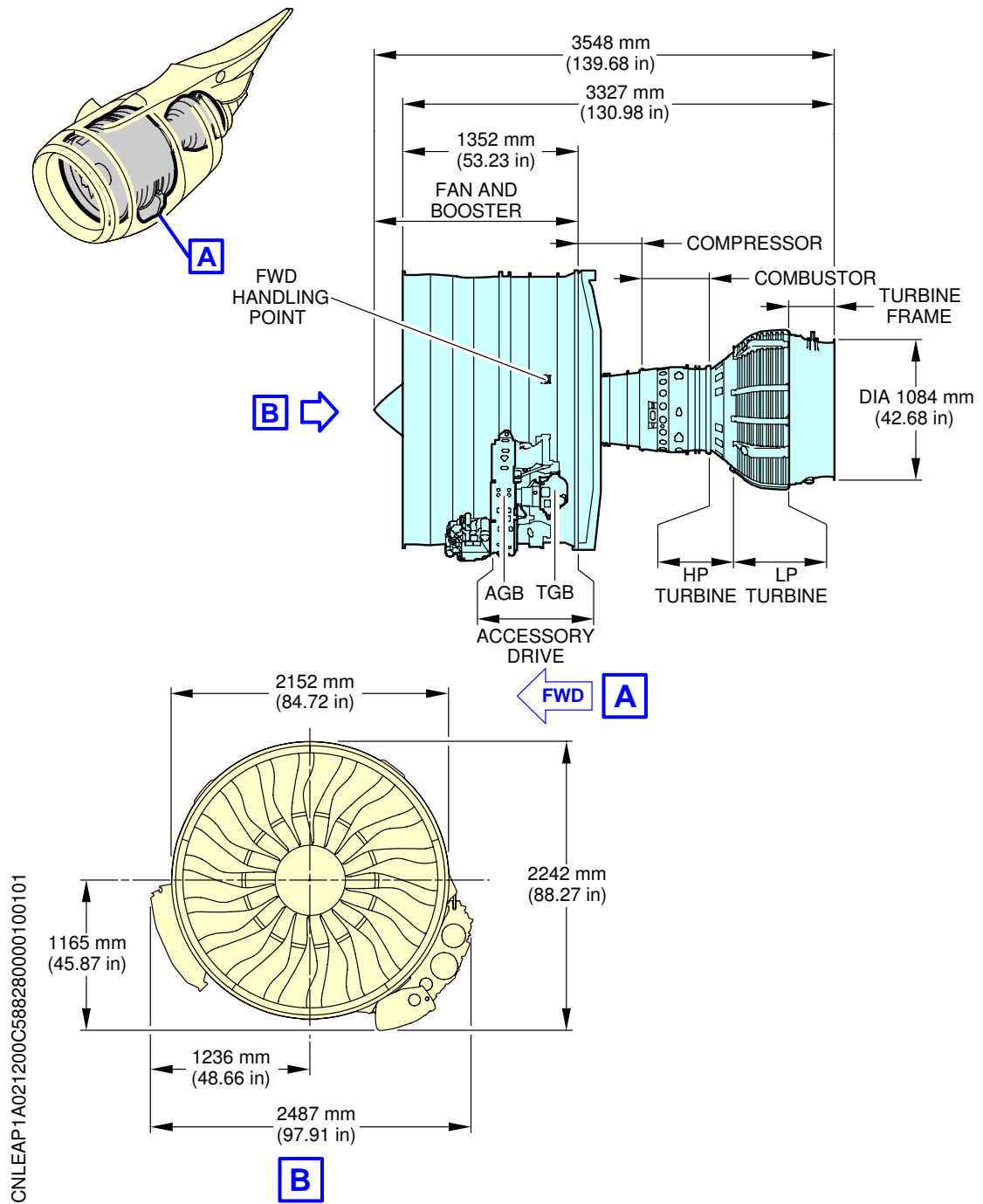
OPEN POSITION	A	B		C
		MIN.	MAX.	
43?	4.26 m (13.98 ft)	0.80 m (2.62 ft)	0.90 m (2.95 ft)	SEE AC SECTION 2-3-0
45?	4.33 m (14.21 ft)	0.84 m (2.76 ft)	0.95 m (3.12 ft)	

**NOTE:**  
B AND C DEPENDING ON AIRCRAFT CONFIGURATION.

N\_AC\_021200\_1\_0480101\_01\_00

Power Plant Handling  
Thrust Reverser Halves - PW 1100G Engine  
FIGURE-2-12-0-991-048-A01

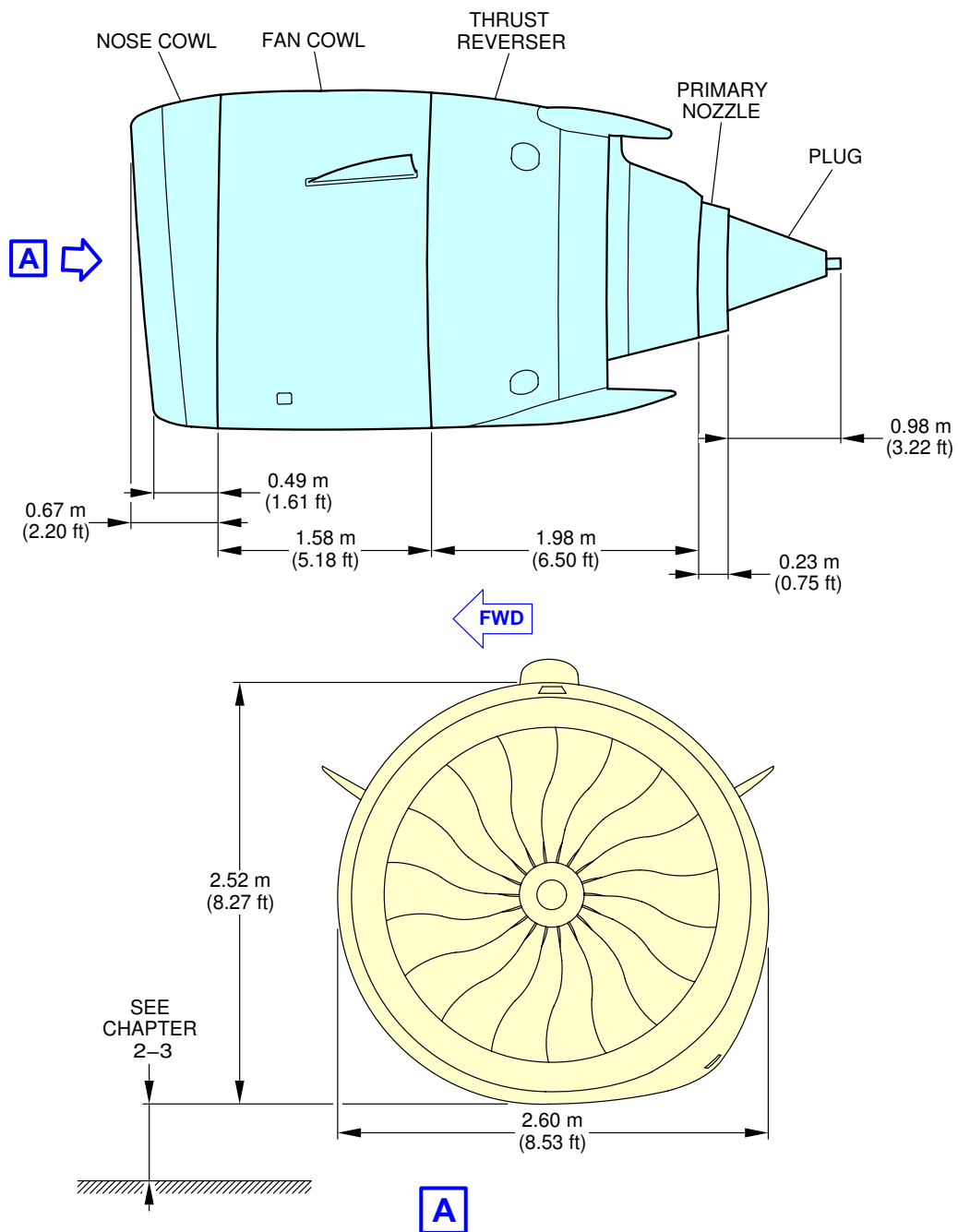
\*\*ON A/C A320neo



N\_AC\_021200\_1\_0540101\_01\_00

Power Plant Handling  
Major Dimensions - CFM LEAP-1A Engine  
FIGURE-2-12-0-991-054-A01

\*\*ON A/C A320neo



N\_AC\_021200\_1\_0550101\_01\_01

Power Plant Handling  
Major Dimensions - CFM LEAP-1A Engine  
FIGURE-2-12-0-991-055-A01

**2-13-0 Leveling, Symmetry and Alignment****\*\*ON A/C A320-200 A320neo**Leveling, Symmetry and Alignment

## 1. Quick Leveling

There are three alternative procedures to level the aircraft:

- Quick leveling procedure with Air Data/Inertial Reference Unit (ADIRU).
- Quick leveling procedure with a spirit level in the passenger compartment.
- Quick leveling procedure with a spirit level in the FWD cargo compartment.

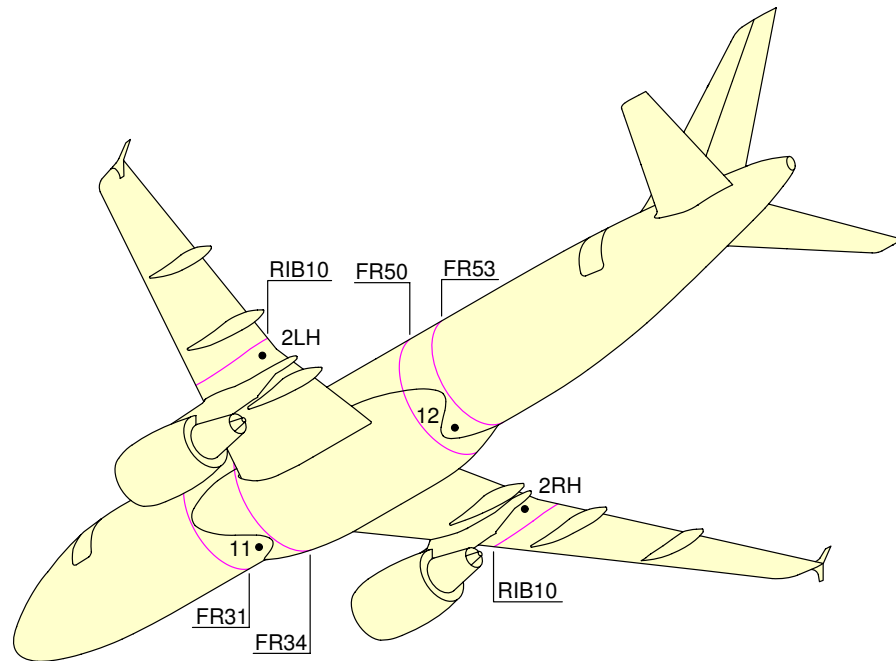
## 2. Precise Leveling

For precise leveling, it is necessary to install sighting rods in the receptacles located under the fuselage (points 11 and 12 for longitudinal leveling) and under the wings (points 2LH and 2RH for lateral leveling) and use a sighting tube. With the aircraft on jacks, adjust the jacks until the reference marks on the sighting rods are aligned in the sighting plane (aircraft level).

## 3. Symmetry and Alignment Check

Possible deformation of the aircraft is measured by photogrammetry.

\*\*ON A/C A320-200 A320neo



N\_AC\_021300\_1\_0040101\_01\_00

Location of the Leveling Points  
FIGURE-2-13-0-991-004-A01

## 2-14-0 Jacking

**\*\*ON A/C A320-200 A320neo**

### Jacking for Maintenance

#### 1. Aircraft Jacking Points for Maintenance

##### A. General

- (1) The A320 can be jacked:
  - At not more than 59 000 kg (130 073 lb),
  - Within the limits of the permissible wind speed when the aircraft is not in a closed environment.

##### B. Primary Jacking Points

- (1) The aircraft is provided with three primary jacking points:
  - One located under the forward fuselage (FR8),
  - Two located under the wings (one under each wing, located at the intersection of RIB9 and the datum of the rear spar).
- (2) Three jack adapters are used as intermediary parts between the aircraft and the jacks:
  - One male spherical jack adapter of 19 mm (0.75 in) radius, forming part of the aircraft structure (FR8),
  - Two wing jack pads (one attached to each wing at RIB9 with 2 bolts) for the location of the jack adaptor.

Wing jack pads are ground equipment.

##### C. Auxiliary Jacking Points (Safety Stay)

- (1) When the aircraft is on jacks, it is recommended that a safety stay be placed under the fuselage, between FR73 and FR74, to prevent tail tipping caused by accidental displacement of the center of gravity.
- (2) The safety stay must not be used to lift the aircraft.
- (3) A male spherical ball pad with a 19 mm (0.75 in) radius, forming part of the aircraft structure, is provided for using the safety stay.

#### 2. Jacks and Safety Stay

##### A. Jack Design

- (1) The maximum permitted loads given in the table in FIGURE 2-14-0-991-030-A are the maximum loads applicable on jack fittings.
- (2) In the fully retracted position (jack stroke at minimum), the height of the jack is such that the jack may be placed beneath the aircraft in the most adverse conditions, namely, tires deflated and shock absorbers depressurized. In addition, there must be a clearance of approximately 50 mm (1.97 in) between the aircraft jacking point and the jack upper end.

- (3) The lifting jack stroke enables the aircraft to be jacked up so that the fuselage longitudinal datum line (aircraft center line) is parallel to the ground, with a clearance of 100 mm (3.94 in) between the main landing gear wheels and the ground. This enables the landing gear extension/retraction tests to be performed.

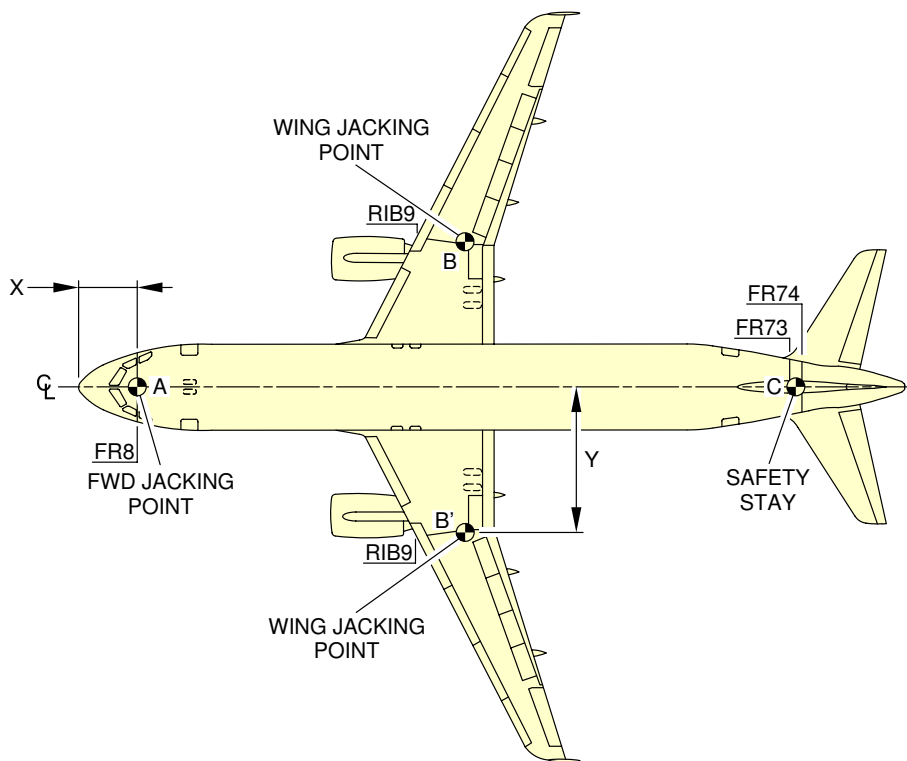
### 3. Shoring Cradles

When it is necessary to support the aircraft in order to relieve the loads on the structure to do modifications or major work, shoring cradles shall be placed under each wing and the fuselage as necessary.

NOTE : The aircraft must not be lifted or supported by the wings or fuselage alone without adequate support of the other.



**\*\*ON A/C A320-200 A320neo**



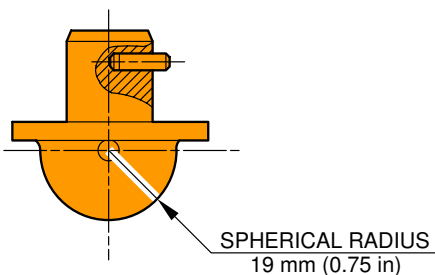
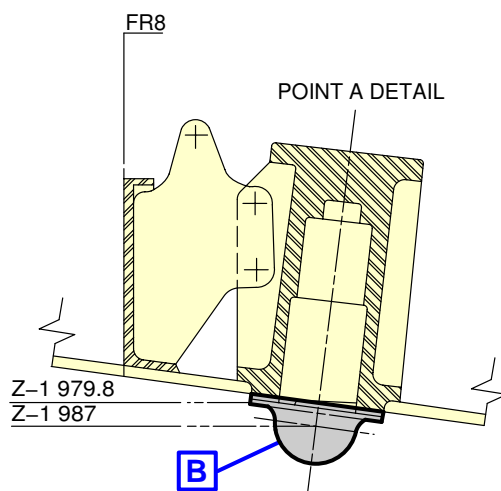
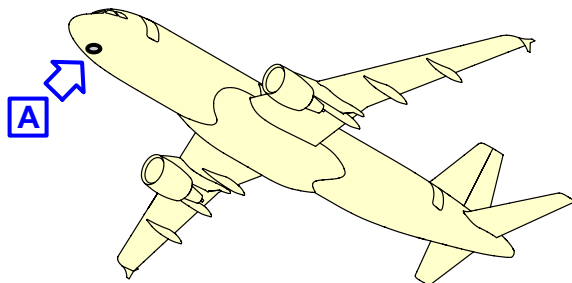
		X		Y		MAXIMUM LOAD ELIGIBLE daN
		m	ft	m	ft	
FORWARD FUSELAGE JACKING POINT	A	2.74	8.99	0	0	6 800
WING JACKING POINT	B	17.56	57.61	6.50	21.33	28 500
	B'	17.56	57.61	-6.50	-21.33	28 500
SAFETY STAY	C	32.57	106.86	0	0	2 000

**NOTE:**  
SAFETY STAY IS NOT USED FOR JACKING.

N\_AC\_021400\_1\_0300101\_01\_02

Jacking for Maintenance  
Jacking Point Locations  
FIGURE-2-14-0-991-030-A01

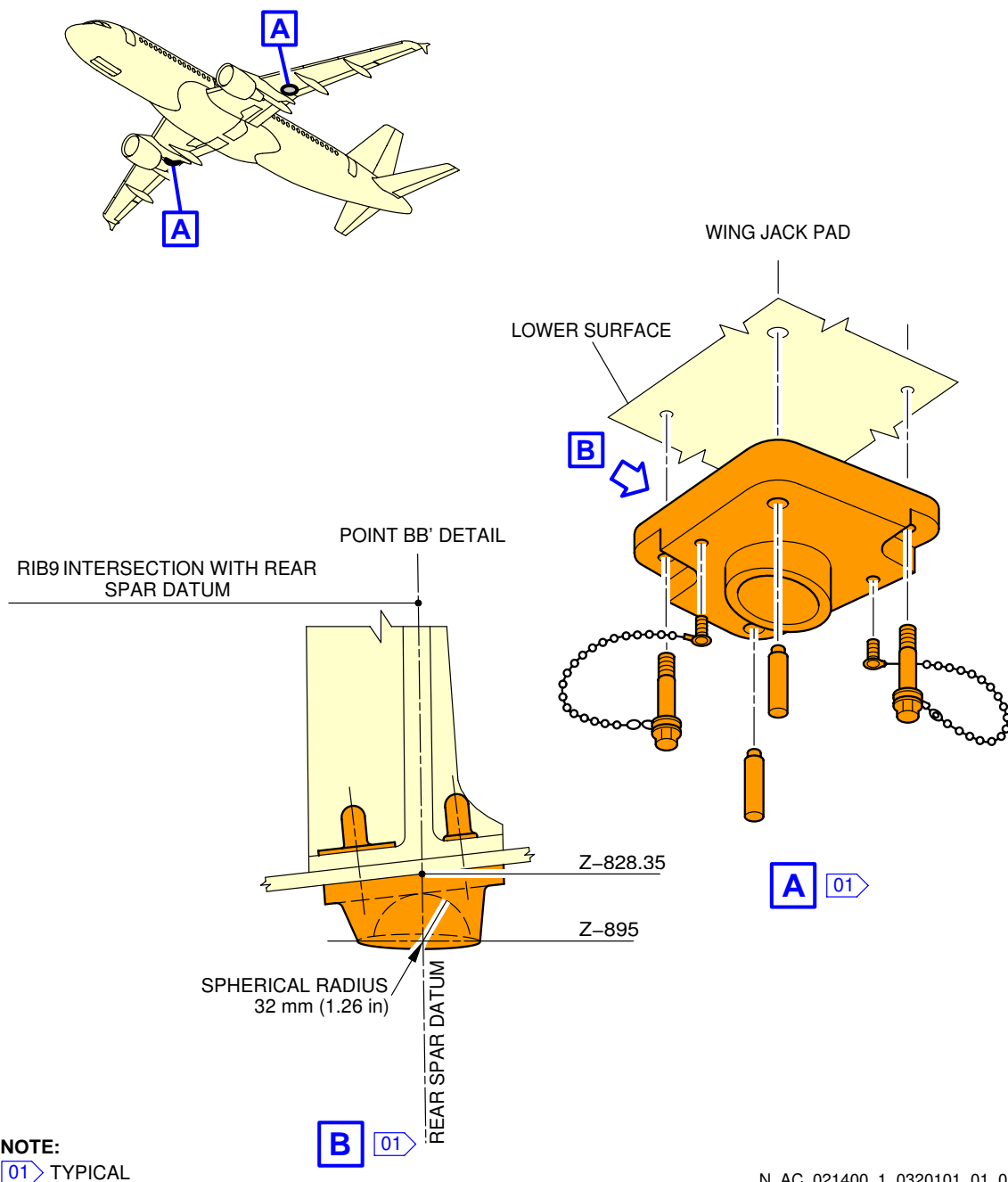
\*\*ON A/C A320-200 A320neo



N\_AC\_021400\_1\_0310101\_01\_00

Jacking for Maintenance  
Forward Jacking Point  
FIGURE-2-14-0-991-031-A01

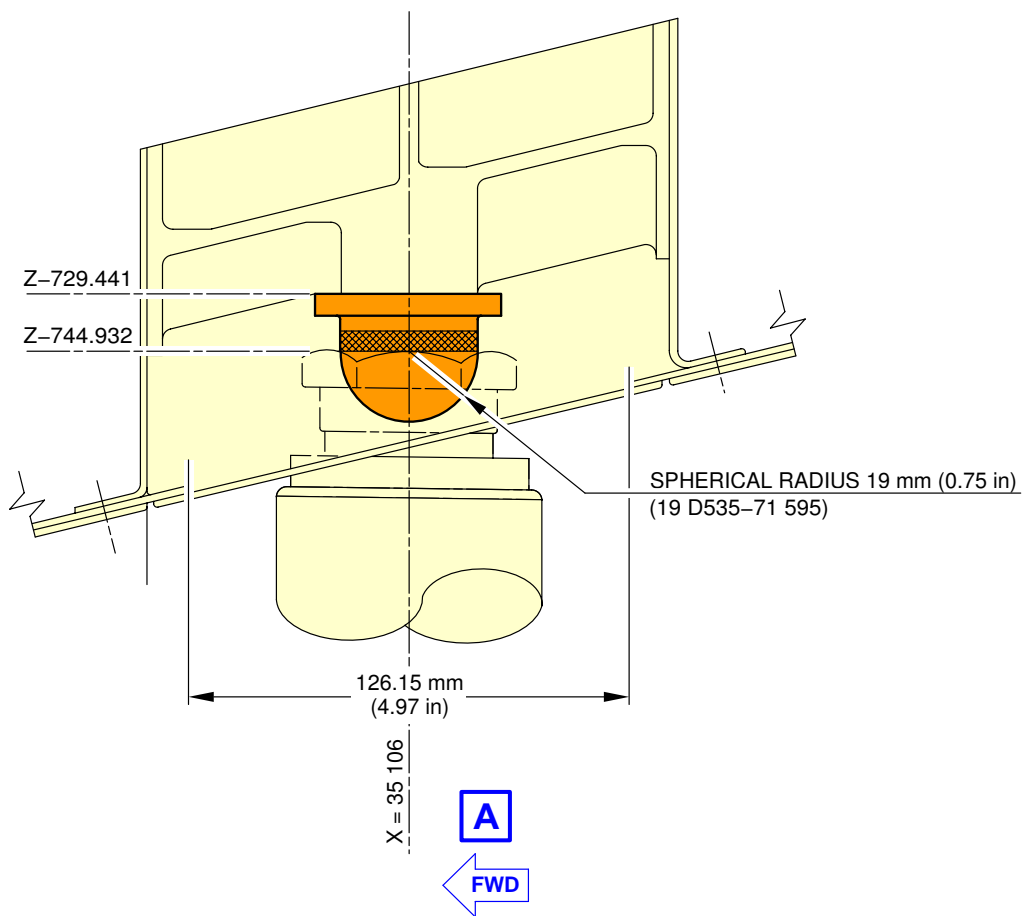
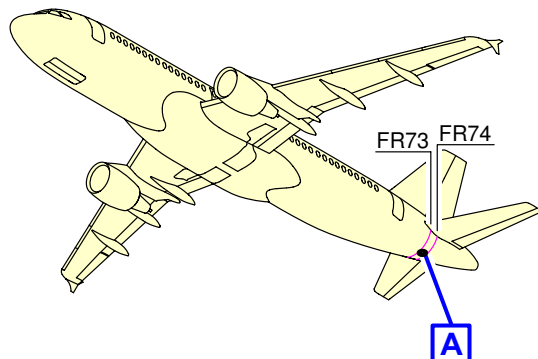
\*\*ON A/C A320-200 A320neo



N\_AC\_021400\_1\_0320101\_01\_01

Jacking for Maintenance  
Wing Jacking Points  
FIGURE-2-14-0-991-032-A01

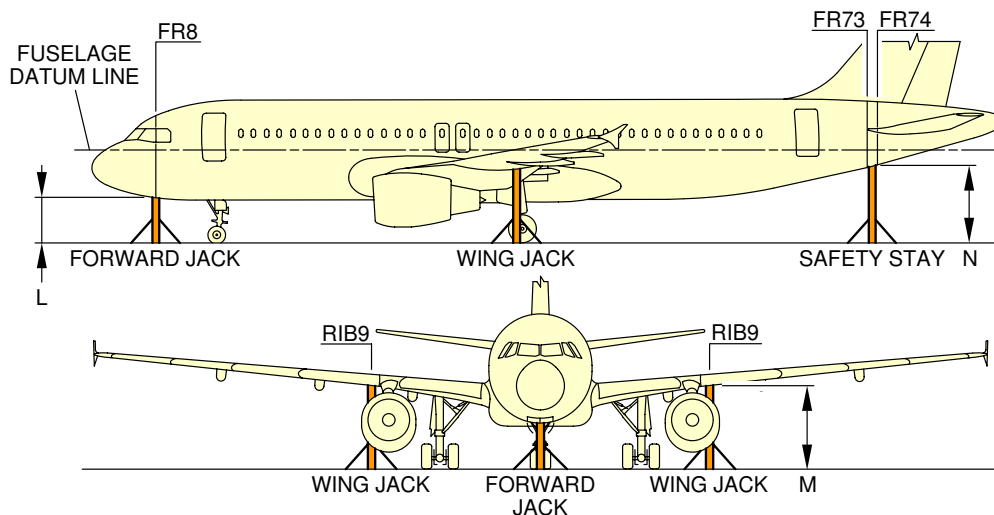
\*\*ON A/C A320-200 A320neo



N\_AC\_021400\_1\_0330101\_01\_01

Jacking for Maintenance  
Safety Stay  
FIGURE-2-14-0-991-033-A01

**\*\*ON A/C A320-200 A320neo**



TYPICAL JACK INSTALLATION SHOWN

CONFIGURATION	DESCRIPTION	DISTANCE BETWEEN JACKING/SAFETY POINTS AND THE GROUND		
		L (FORWARD JACK)	M (WING JACK)	N (SAFETY STAY)
-AIRCRAFT ON WHEELS	- NLG SHOCK ABSORBER DEFLATED AND NLG TIRES FLAT - MLG STANDARD TIRES, WITH STANDARD SHOCK ABSORBERS	1 588 mm (62.52 in)	3 113 mm (122.56 in)	3 656 mm (143.00 in)
	TIRES FLAT SHOCK ABSORBERS DEFLATED	1 660 mm (65.35 in)	2 735 mm (107.68 in)	2 834 mm (111.57 in)
	STANDARD TIRES STANDARD SHOCK ABSORBERS	1 880 mm (74.02 in)	3 112 mm (122.52 in)	3 364 mm (132.44 in)
-AIRCRAFT ON JACKS (FORWARD JACK AND WING JACKS) -FUSELAGE DATUM LINE PARALLEL TO THE GROUND	STANDARD TIRES MLG SHOCK ABSORBERS EXTENDED WITH WHEEL CLEARANCE OF 120 mm (4.72 in) FOR MLG RETRACTION OR EXTENSION	2 554 mm (100.55 in)	3 655 mm (143.90 in)	3 779 mm (148.78 in)
	STANDARD TIRES MLG SHOCK ABSORBERS EXTENDED WITH WHEEL CLEARANCE OF 770 mm (30.31 in) FOR REPLACEMENT OF THE MLG	3 204 mm (126.14 in)	4 305 mm (169.49 in)	4 429 mm (174.37 in)
-AIRCRAFT ON FORWARD JACK -MLG WHEELS ON THE GROUND	STANDARD TIRES NLG SHOCK ABSORBERS EXTENDED WITH WHEEL CLEARANCE OF 60 mm (2.36 in) FOR NLG RETRACTION OR EXTENSION	2 387 mm (93.98 in)	NA	2 854 mm (112.36 in)

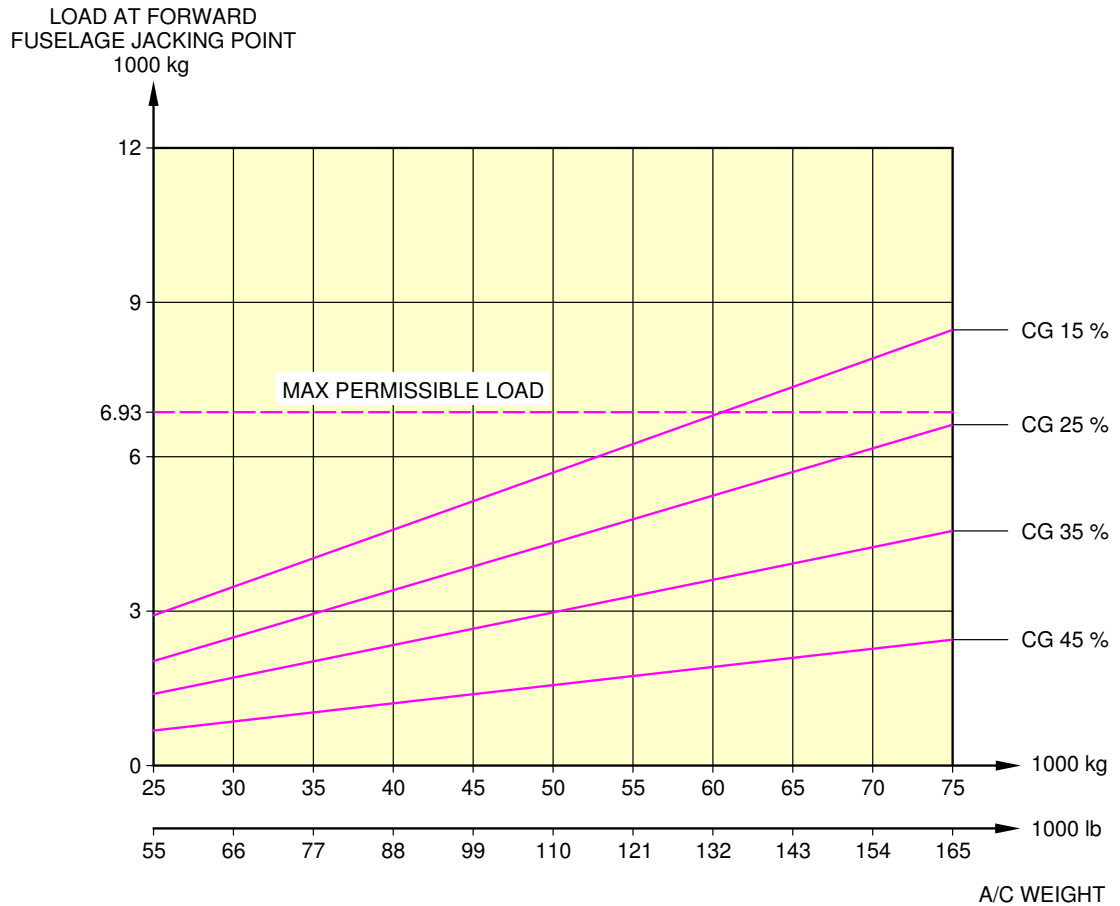
**NOTE:**

THE SAFETY STAY IS NOT USED FOR JACKING.

N\_AC\_021400\_1\_0340101\_01\_02

Jacking for Maintenance  
Jacking Design  
FIGURE-2-14-0-991-034-A01

**\*\*ON A/C A320-200 A320neo**

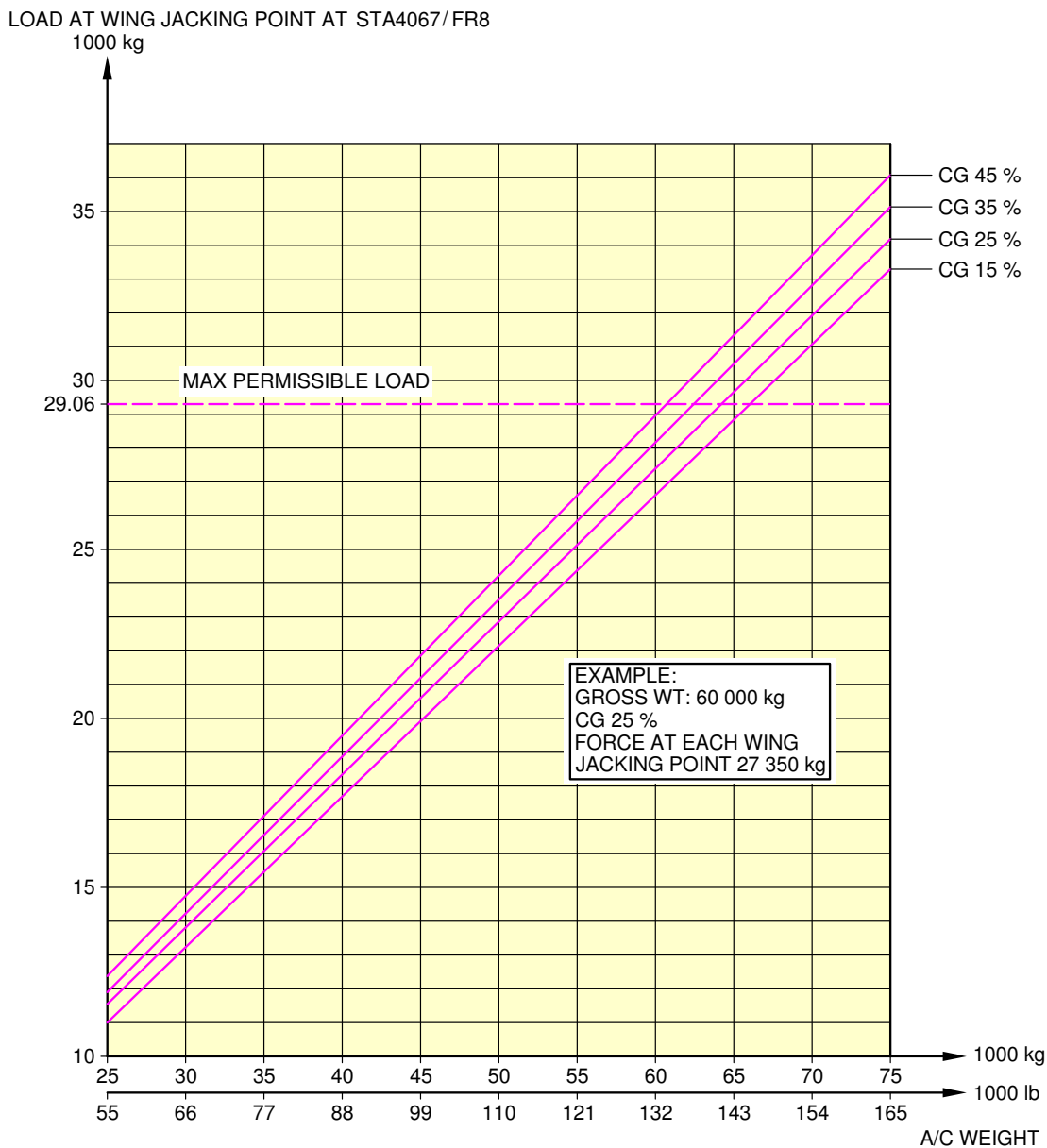


**NOTE:** AS AN EXAMPLE ASSUME THAT THE AIRCRAFT HAS A GROSS WEIGHT OF 66 000 kg AND THE CENTER OF GRAVITY (CG) IS AT 25 %. THUS THE FORCE AT THE FORWARD FUSELAGE JACKING POINT IS 5 300 kg.

N\_AC\_021400\_1\_0350101\_01\_00

Loads at the Aircraft Jacking Points  
 Forward Fuselage Jacking Point - Twin Wheel/Bogie  
 FIGURE-2-14-0-991-035-A01

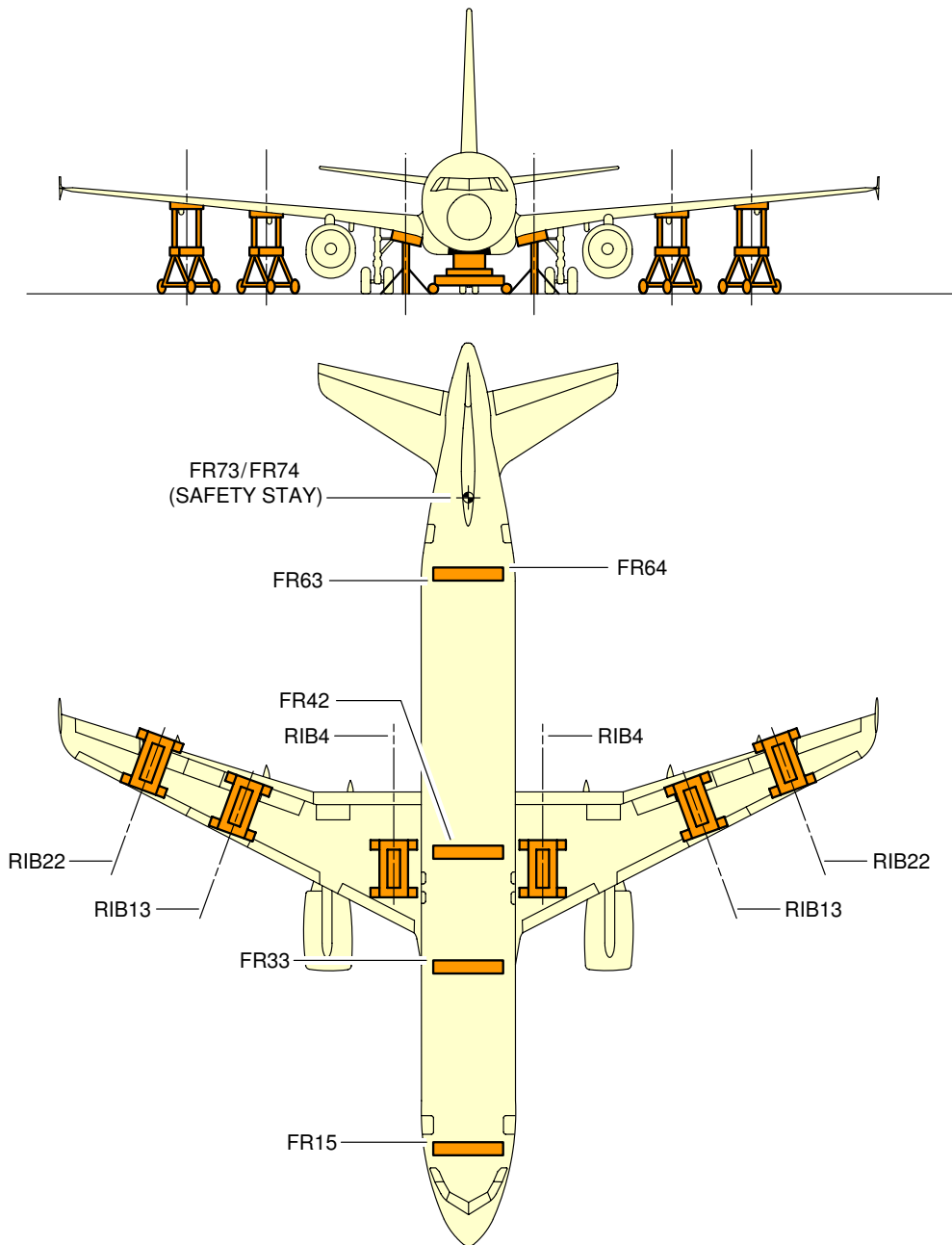
**\*\*ON A/C A320-200 A320neo**



N\_AC\_021400\_1\_0360101\_01\_00

Loads at the Aircraft Jacking Points  
Wing Jacking Point Rib 8 - Twin Wheel/Bogie  
FIGURE-2-14-0-991-036-A01

\*\*ON A/C A320-200 A320neo



**NOTE:** THE SHORING CRADLE MUST BE INSTALLED AT THE EXACT LOCATION OF THE FRAME.

N\_AC\_021400\_1\_0370101\_01\_00

Jacking for Maintenance  
Location of Shoring Cradles  
FIGURE-2-14-0-991-037-A01



**\*\*ON A/C A320-200 A320neo**Jacking of the Landing Gear

## 1. General

Landing gear jacking will be required to lift the landing gear wheels off the ground.

NOTE : You can lift the aircraft at Maximum Ramp Weight (MRW).

NOTE : The load at each jacking position is the load required to give a 25.4 mm (1 in) clearance between the ground and the tire.

**\*\*ON A/C A320-200**

## 2. Main Gear Jacking (Twin Wheel)

The main gears are normally jacked up by placing a jack directly under the ball pad.

The ball spherical radius is 19 mm (0.75 in).

It is also possible to jack the main gear using a cantilever jack.

The reactions at each of the jacking points are shown in the table, see FIGURE 2-14-0-991-060-A.

**\*\*ON A/C A320neo**

## 3. Main Gear Jacking (Twin Wheel)

The main gears are normally jacked up by placing a jack directly under the ball pad.

The ball spherical radius is 19 mm (0.75 in).

It is also possible to jack the main gear using a cantilever jack.

The reactions at each of the jacking points are shown in the table, see FIGURE 2-14-0-991-063-A.

**\*\*ON A/C A320-200**

## 4. Main Gear Jacking (4-Wheel Bogie)

The fore and aft pairs of MLG wheels can be jacked by placing a jack directly under the ball pads located at each end of the bogie beam.

The ball spherical radius is 19 mm (0.75 in).

The leading dimensions and environmental distances of these jacking points are shown on FIGURE 2-14-0-991-048-A, FIGURE 2-14-0-991-049-A and FIGURE 2-14-0-991-050-A.

The reactions at each of the jacking points are shown in the table, see FIGURE 2-14-0-991-060-A.

#### 5. Nose Gear Jacking

For nose gear jacking, a 19 mm (0.75 in) radius ball pad is fitted under the lower end of the shock-absorber sliding tube. Jacking can be accomplished either by placing a jack directly under the ball pad, or using an adapter fitting provided with an identical ball pad.

The reactions at each of the jacking points are shown in the table, see FIGURE 2-14-0-991-060-A.

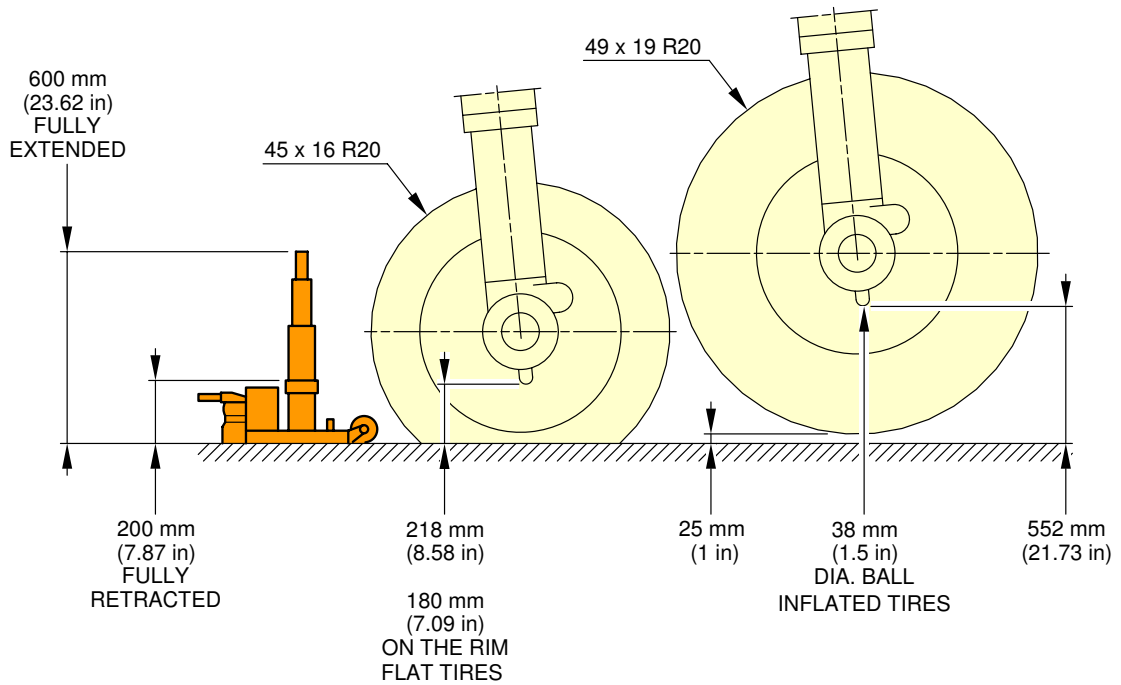
#### **\*\*ON A/C A320neo**

#### 6. Nose Gear Jacking

For nose gear jacking, a 19 mm (0.75 in) radius ball pad is fitted under the lower end of the shock-absorber sliding tube. Jacking can be accomplished either by placing a jack directly under the ball pad, or using an adapter fitting provided with an identical ball pad.

The reactions at each of the jacking points are shown in the table, see FIGURE 2-14-0-991-063-A.

**\*\*ON A/C A320-200 A320neo**

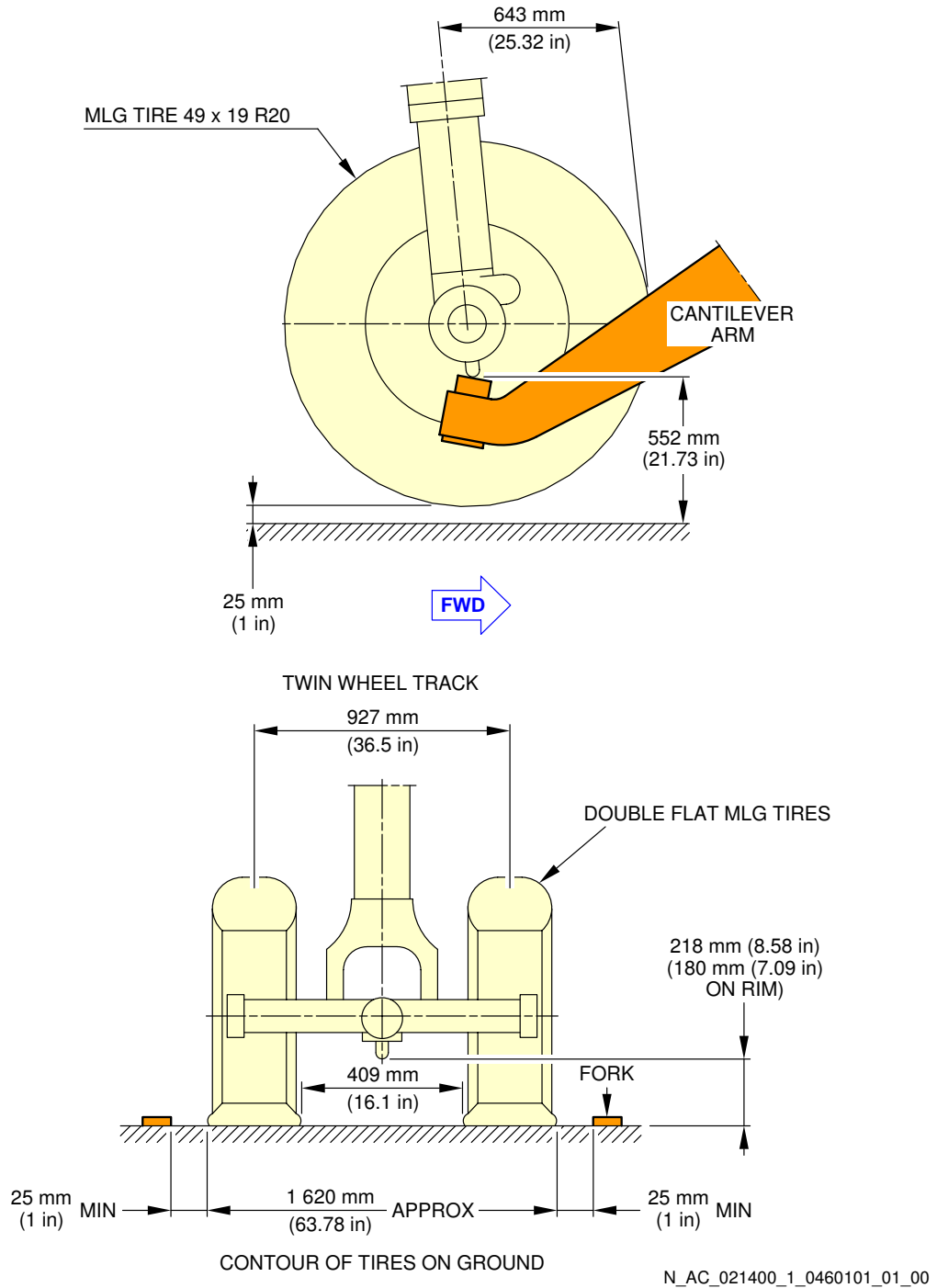


**NOTE:** TWIN WHEEL TRACK IS 927 mm (36.5 in).  
 THE FLAT TIRES VIEW SHOWS THE MINIMUM HEIGHT TO ENGAGE JACK WITH 2 FLAT TIRES.  
 THE INFLATED TIRES VIEW SHOWS THE JACKING HEIGHT TO GIVE 25 mm (1 in) CLEARANCE BETWEEN THE TIRE AND GROUND.

N\_AC\_021400\_1\_0450101\_01\_00

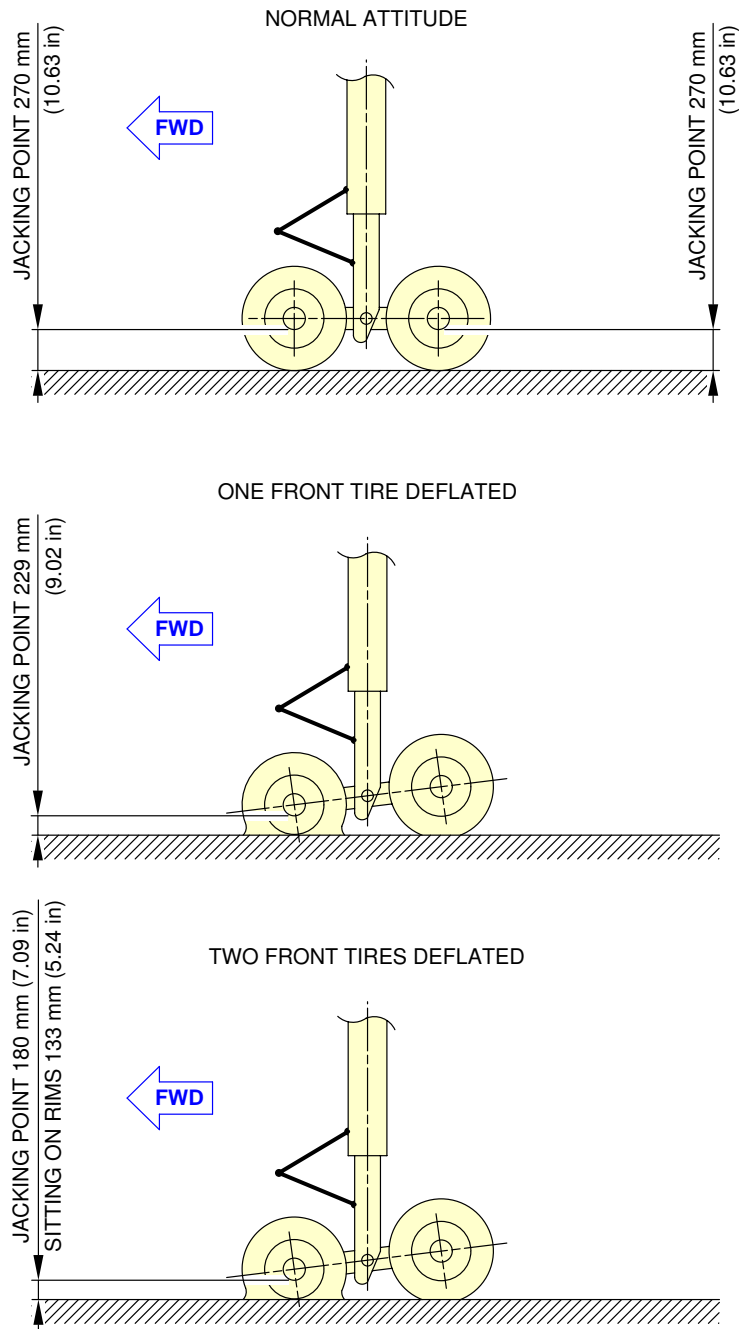
Jacking of the Landing Gear  
 MLG Jacking Point Location - Twin Wheels  
 FIGURE-2-14-0-991-045-A01

**\*\*ON A/C A320-200 A320neo**



Jacking of the Landing Gear  
 MLG Jacking with Cantilever Jack - Twin Wheels  
 FIGURE-2-14-0-991-046-A01

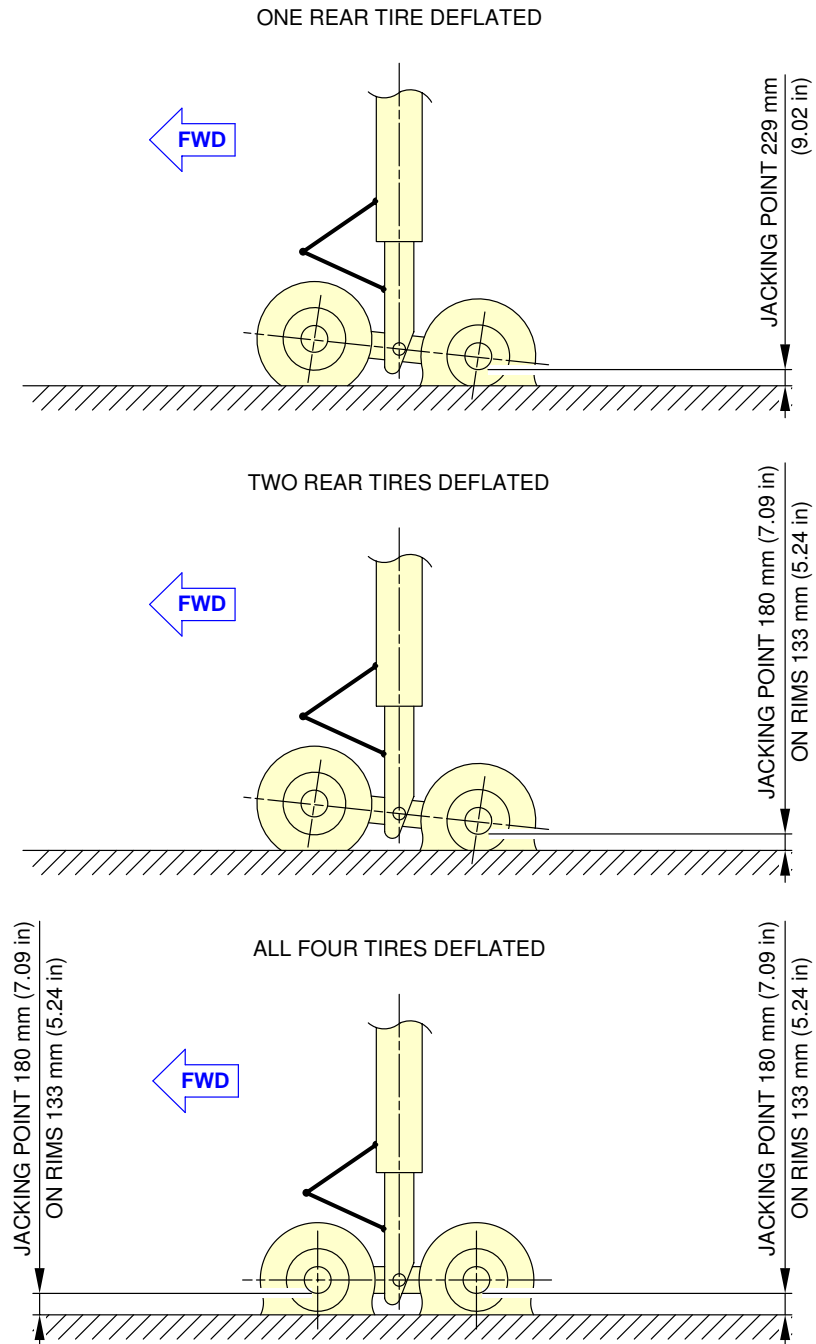
\*\*ON A/C A320-200



N\_AC\_021400\_1\_0480101\_01\_00

Jacking of the Landing Gear  
MLG Jacking Point Location Bogie  
FIGURE-2-14-0-991-048-A01

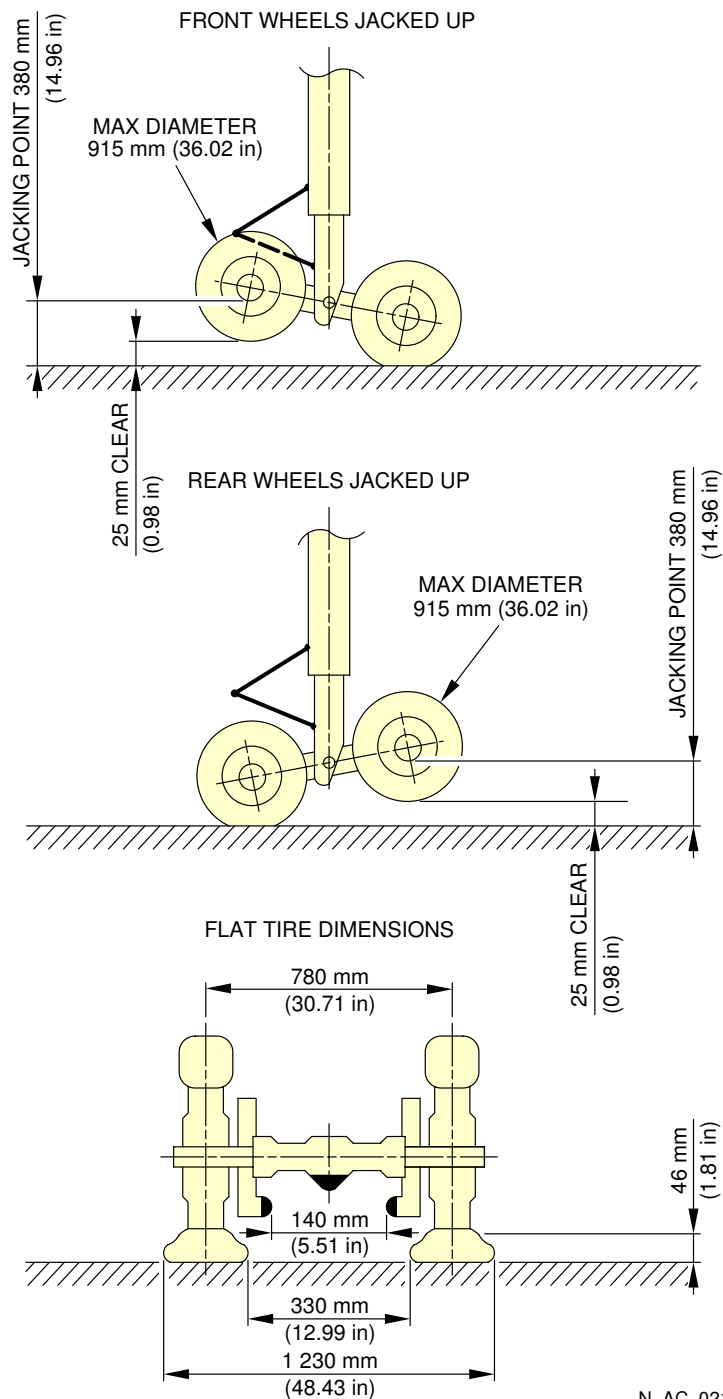
\*\*ON A/C A320-200



N\_AC\_021400\_1\_0490101\_01\_00

Jacking of the Landing Gear  
MLG Jacking Point Location Bogie  
FIGURE-2-14-0-991-049-A01

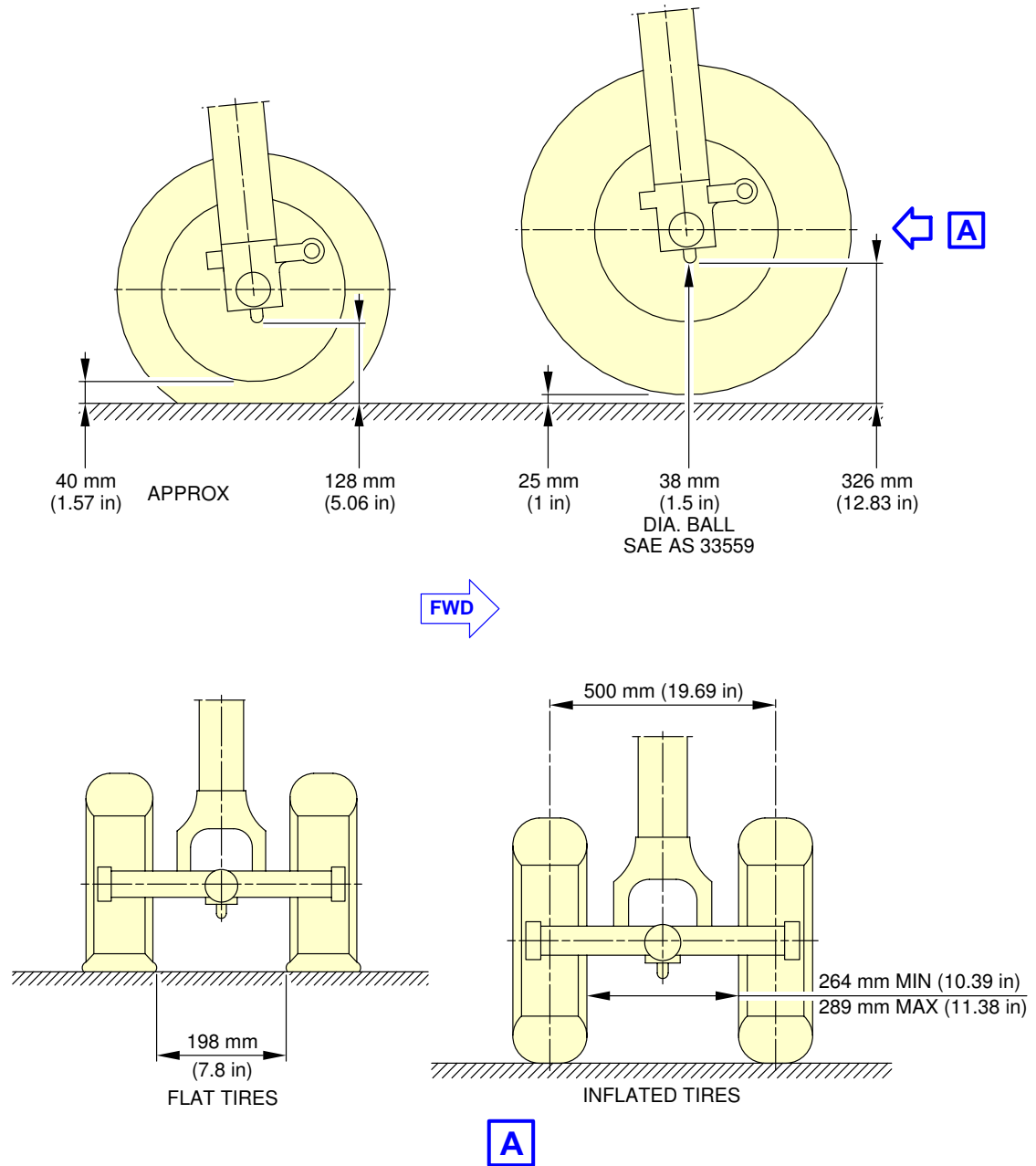
\*\*ON A/C A320-200



N\_AC\_021400\_1\_0500101\_01\_00

Jacking of the Landing Gear  
MLG Jacking Point Location Bogie  
FIGURE-2-14-0-991-050-A01

\*\*ON A/C A320-200 A320neo



**NOTE:** THE FLAT TIRES VIEW SHOWS THE MINIMUM HEIGHT TO ENGAGE JACK WITH 2 FLAT TIRES.  
 THE INFLATED TIRES VIEW SHOWS THE JACKING HEIGHT TO GIVE 25 mm (1 in) CLEARANCE BETWEEN THE TIRE AND GROUND.

N\_AC\_021400\_1\_0530101\_01\_00

Jacking of the Landing Gear  
 NLG Jacking - Point Location  
 FIGURE-2-14-0-991-053-A01



**\*\*ON A/C A320-200**

A320-200 WV017	
MAXIMUM DESIGN TAXI WEIGHT (MTW)	78 400 kg (172 842 lb)
MAXIMUM DESIGN TAKE-OFF WEIGHT (MTOW)	78 000 kg (171 960 lb)
MAXIMUM LOAD VALUE TO BE APPLIED ON NLG JACKING POINT	9 900 kg (21 826 lb)
NUMBER OF JACKING POINTS ON ONE MLG	1
MAXIMUM LOAD VALUE TO BE APPLIED ON MLG JACKING POINT (LEFT OR RIGHT)	36 000 kg (79 366 lb)

**NOTE:**

A320 EQUIPPED WITH BOGIE MLG IS NOT LISTED SINCE JACKING CAPABILITY REQUESTED FOR LIFTING ONE AXLE WILL BE LOWER THAN A320 EQUIPPED WITH TWIN WHEELS.

N\_AC\_021400\_1\_0600101\_01\_01

Jacking of the Landing Gear  
 Maximum Load Capacity to Lift Each Jacking Point  
 FIGURE-2-14-0-991-060-A01

**\*\*ON A/C A320neo**

A320 NEO WV054 AND WV055	
MAXIMUM DESIGN TAXI WEIGHT (MTW)	79 400 kg (175 047 lb)
MAXIMUM DESIGN TAKE-OFF WEIGHT (MTOW)	79 000 kg (174 165 lb)
MAXIMUM LOAD VALUE TO BE APPLIED ON NLG JACKING POINT	9 900 kg (21 826 lb)
NUMBER OF JACKING POINTS ON ONE MLG	1
MAXIMUM LOAD VALUE TO BE APPLIED ON MLG JACKING POINT (LEFT OR RIGHT)	36 250 kg (79 917 lb)

N\_AC\_021400\_1\_0630101\_01\_00

Jacking of the Landing Gear  
Maximum Load Capacity to Lift Each Jacking Point  
FIGURE-2-14-0-991-063-A01

AIRCRAFT PERFORMANCE

## 3-1-0 General Information

**\*\*ON A/C A320-200 A320neo**General Information

1. Standard day temperatures for the altitudes shown are tabulated below:

Standard Day Temperatures for the Altitudes			
Altitude		Standard Day Temperature	
FEET	METERS	°F	°C
0	0	59.0	15.0
2 000	610	51.9	11.1
4 000	1 220	44.7	7.1
6 000	1 830	37.6	3.1
8 000	2 440	30.5	-0.8



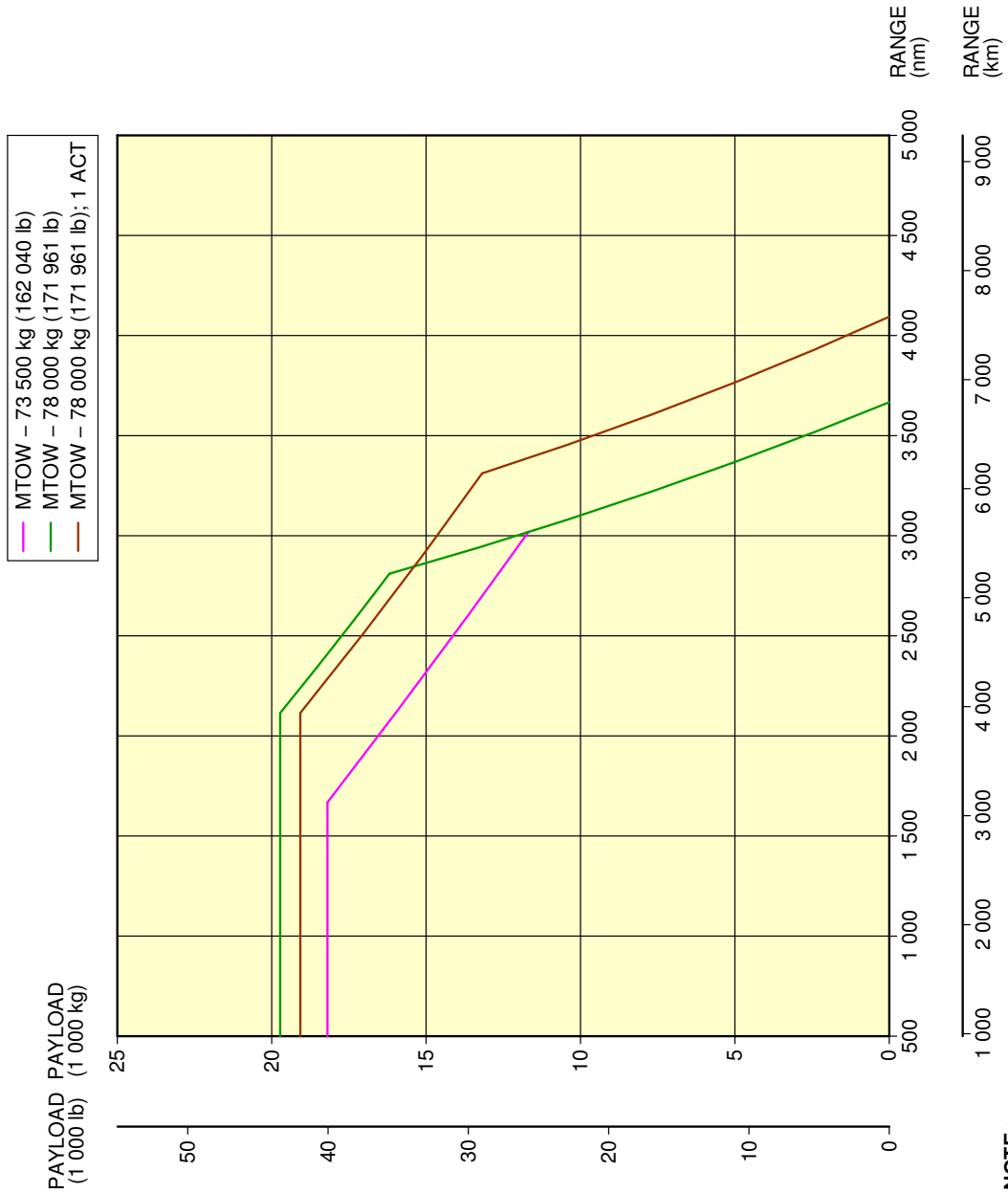
### 3-2-1 Payload / Range - ISA Conditions

**\*\*ON A/C A320-200 A320neo**

#### Payload/Range - ISA Conditions

1. This section provides the payload/range at ISA conditions.

\*\*ON A/C A320-200

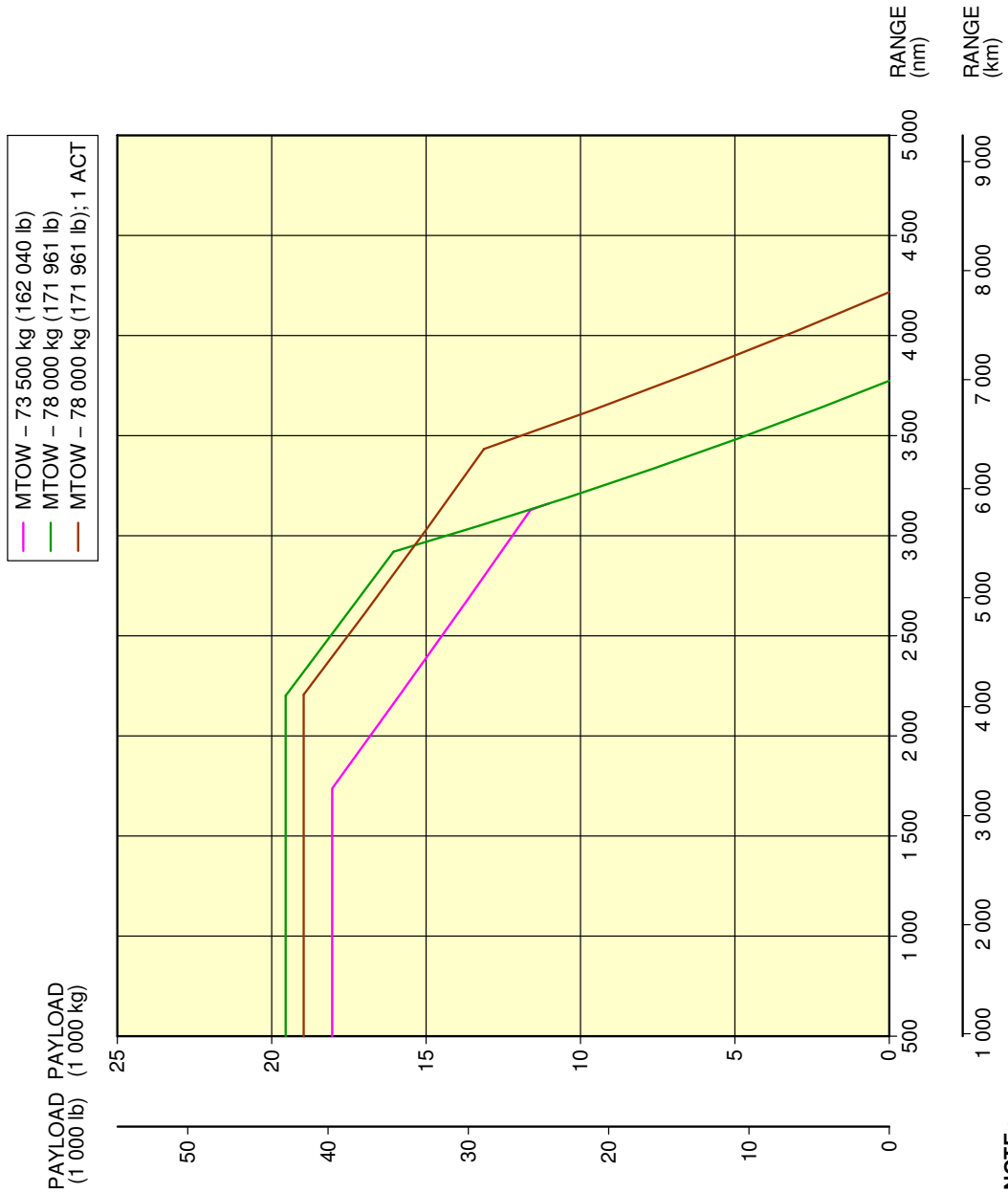


**NOTE:**  
 THESE CURVES ARE GIVEN FOR INFORMATION ONLY.  
 THE APPROVED VALUES ARE STATED IN THE "OPERATING  
 MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N\_AC\_030201\_1\_0160101\_01\_00

Payload/Range - ISA Conditions  
 FIGURE-3-2-1-991-016-A01

\*\*ON A/C A320-200

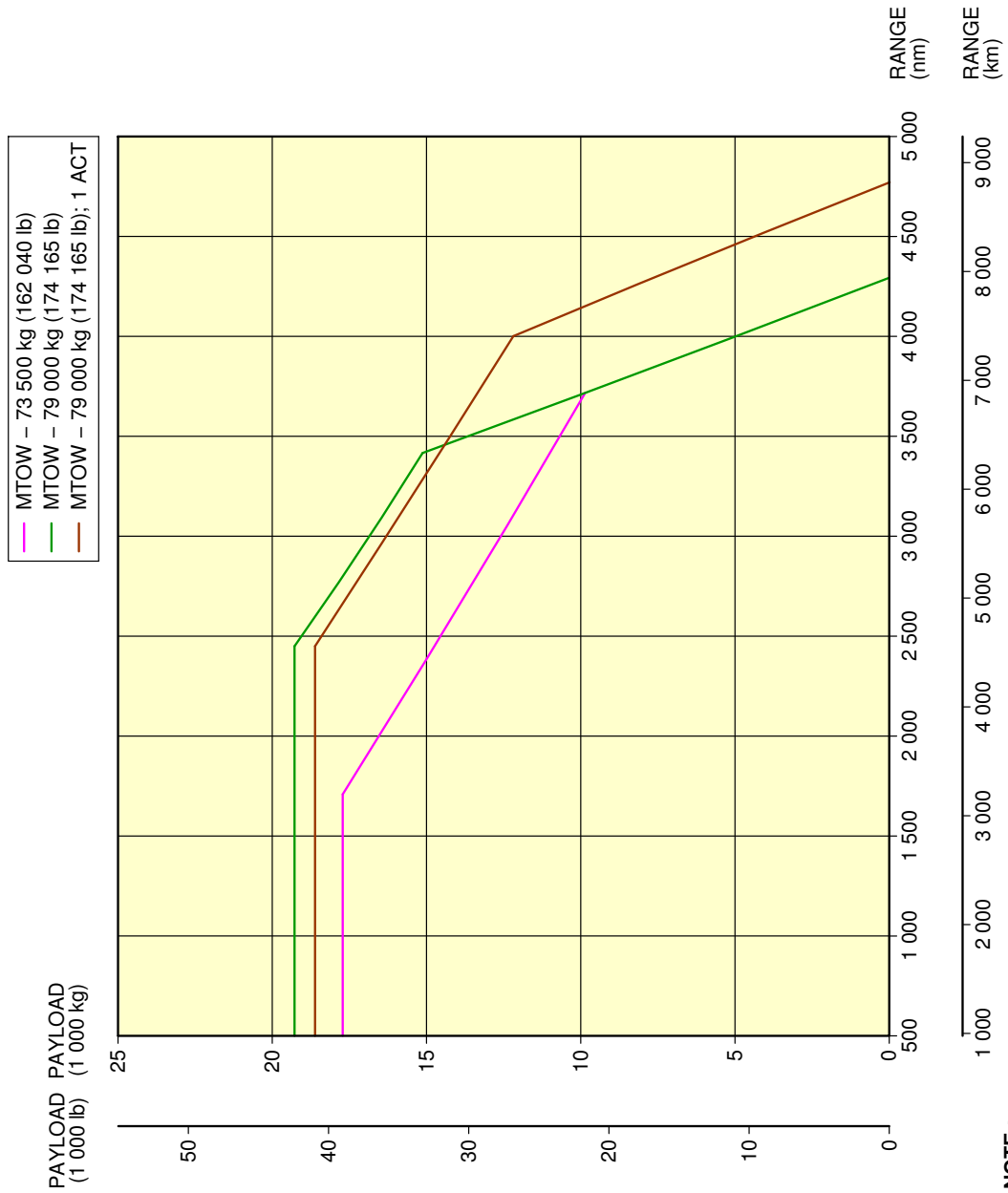


**NOTE :**  
 THESE CURVES ARE GIVEN FOR INFORMATION ONLY.  
 THE APPROVED VALUES ARE STATED IN THE "OPERATING  
 MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N\_AC\_030201\_1\_0170101\_01\_00

Payload/Range - ISA Conditions  
 Sharklet  
 FIGURE-3-2-1-991-017-A01

**\*\*ON A/C A320neo**



**NOTE :**  
 THESE CURVES ARE GIVEN FOR INFORMATION ONLY.  
 THE APPROVED VALUES ARE STATED IN THE "OPERATING  
 MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N\_AC\_030201\_1\_0180101\_01\_01

Payload/Range - ISA Conditions  
 FIGURE-3-2-1-991-018-A01



### 3-3-1 Take-off Weight Limitation - ISA Conditions

**\*\*ON A/C A320-200 A320neo**

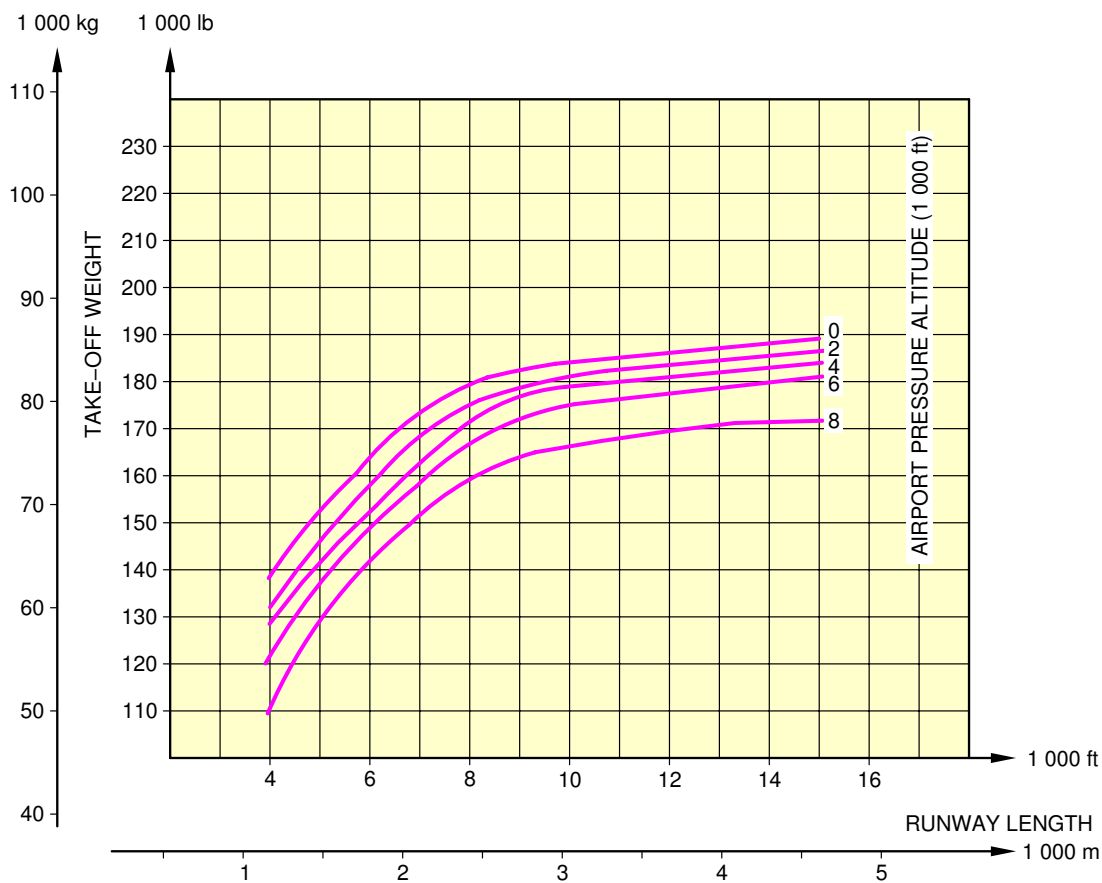
#### Take-Off Weight Limitation - ISA Conditions

1. This section gives the take-off weight limitation at ISA conditions.



**\*\*ON A/C A320-200**

**NOTE:** THESE CURVES ARE GIVEN FOR INFORMATION ONLY  
THE APPROVED VALUES ARE STATED IN THE "OPERATING  
MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

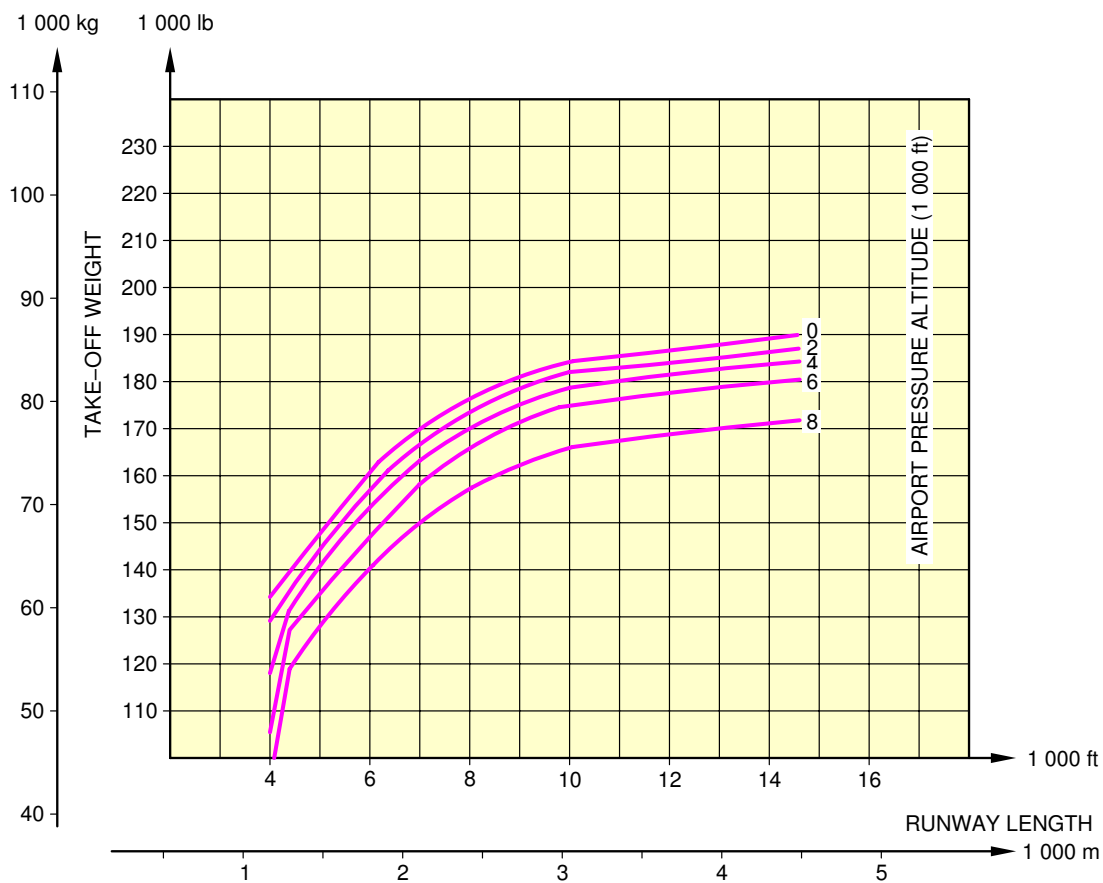


N\_AC\_030301\_1\_0050101\_01\_01

Take-Off Weight Limitation - ISA Conditions  
CFM56 Series Engine  
FIGURE-3-3-1-991-005-A01

**\*\*ON A/C A320-200**

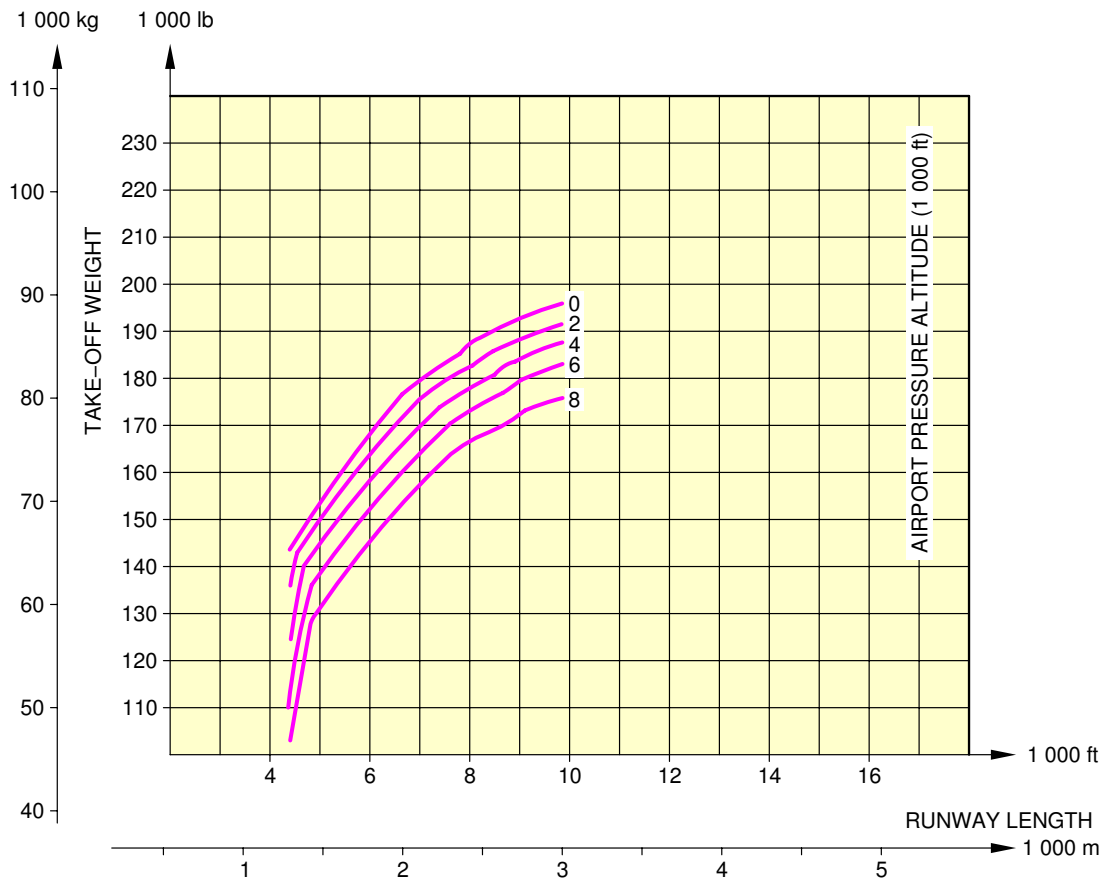
**NOTE:** THESE CURVES ARE GIVEN FOR INFORMATION ONLY  
THE APPROVED VALUES ARE STATED IN THE "OPERATING  
MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.



N\_AC\_030301\_1\_0060101\_01\_01

Take-Off Weight Limitation - ISA Conditions  
IAE V2500 Series Engine  
FIGURE-3-3-1-991-006-A01

**\*\*ON A/C A320neo**



**NOTE:**  
 THESE CURVES ARE GIVEN FOR INFORMATION ONLY  
 THE APPROVED VALUES ARE STATED IN THE "OPERATING  
 MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N\_AC\_030301\_1\_0090101\_01\_00

Take-Off Weight Limitation - ISA Conditions  
 LEAP-1A Series Engine  
 FIGURE-3-3-1-991-009-A01



**3-3-2 Take-off Weight Limitation - ISA +15 °C (+59 °F) Conditions**

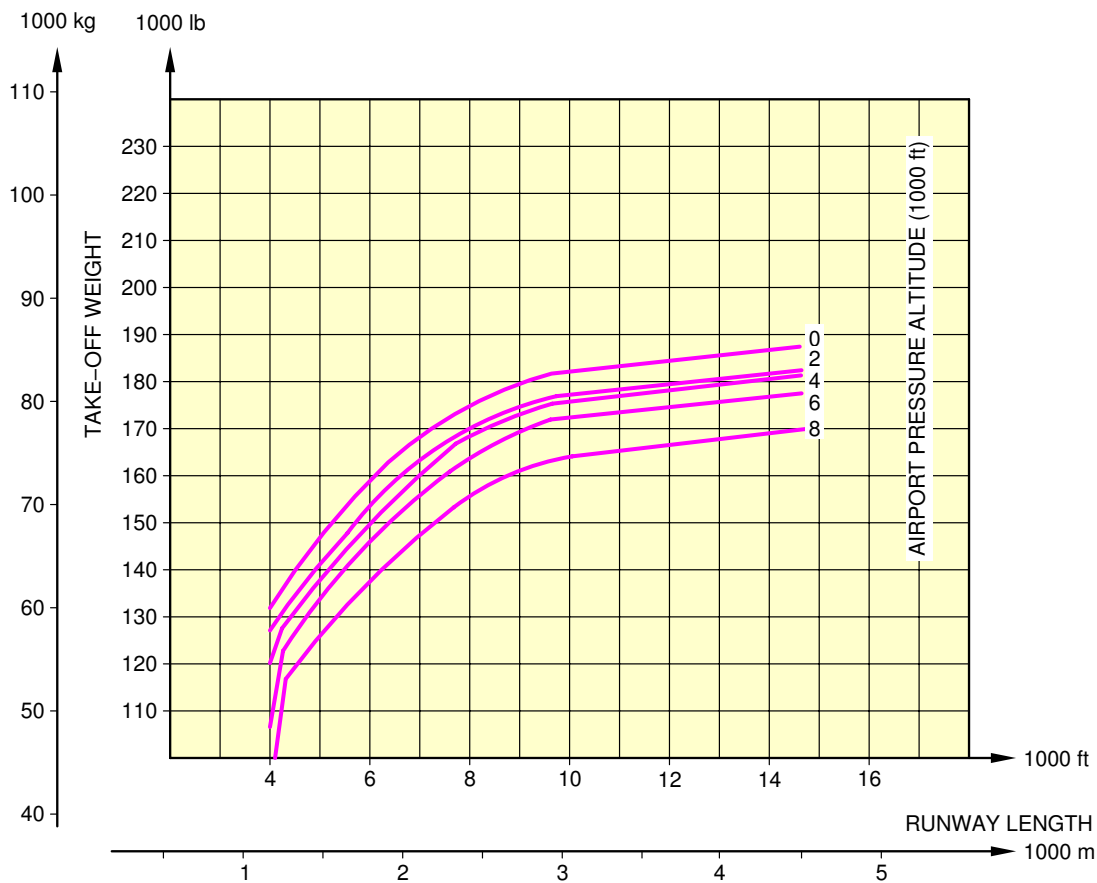
**\*\*ON A/C A320-200 A320neo**

Take-Off Weight Limitation - ISA +15 °C (+27 °F) Conditions

1. This section gives the take-off weight limitation at ISA +15 °C (+27 °F) conditions.

**\*\*ON A/C A320-200**

**NOTE:** THESE CURVES ARE GIVEN FOR INFORMATION ONLY  
THE APPROVED VALUES ARE STATED IN THE "OPERATING  
MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

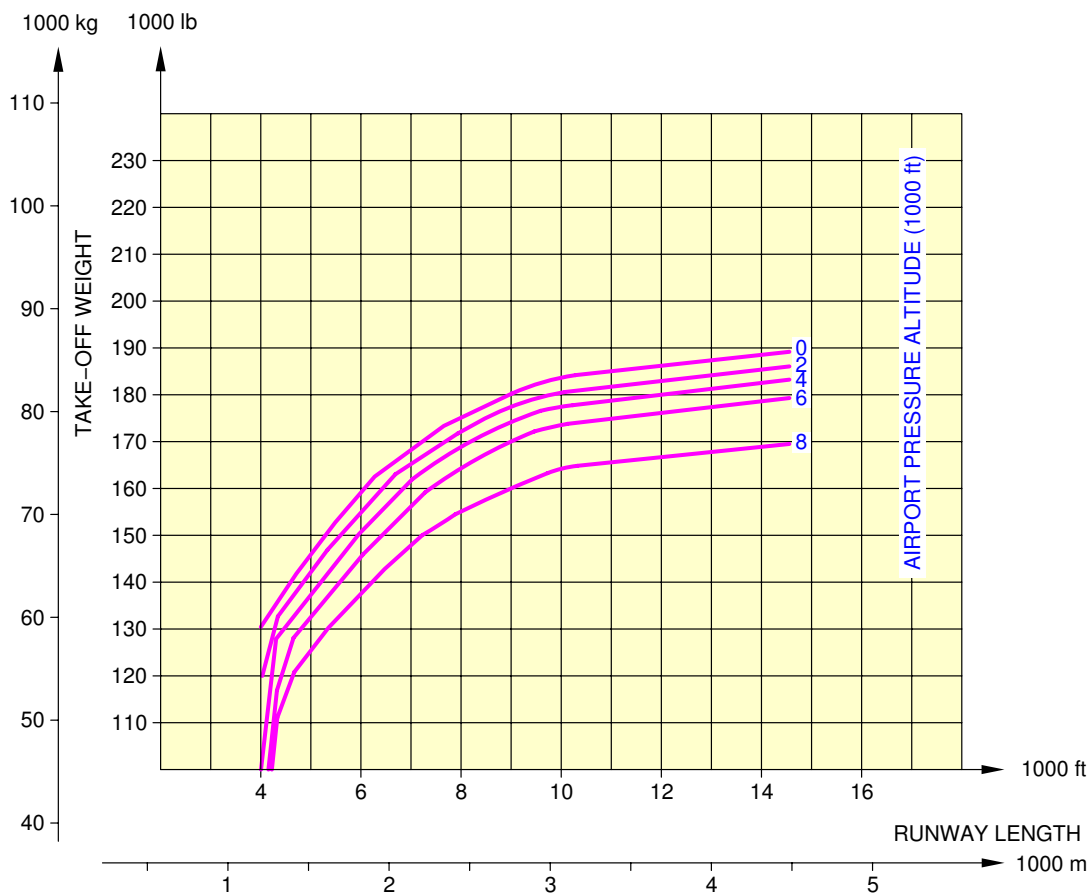


N\_AC\_030302\_1\_0050101\_01\_01

Take-Off Weight Limitation - ISA +15° C (+27° F) Conditions  
CFM56 Series Engine  
FIGURE-3-3-2-991-005-A01

**\*\*ON A/C A320-200**

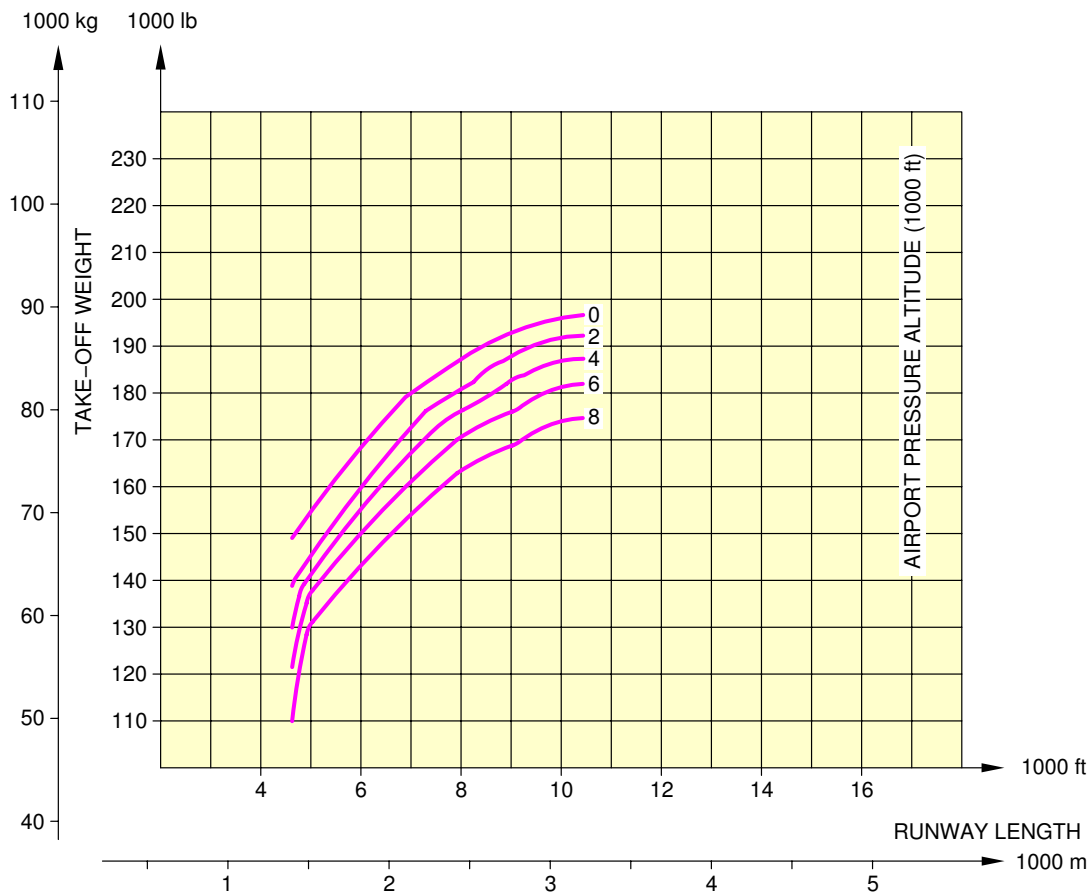
**NOTE:** THESE CURVES ARE GIVEN FOR INFORMATION ONLY  
THE APPROVED VALUES ARE STATED IN THE "OPERATING  
MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.



N\_AC\_030302\_1\_0060101\_01\_00

Take-Off Weight Limitation - ISA +15° C (+27° F) Conditions  
IAE V2500 Series Engine  
FIGURE-3-3-2-991-006-A01

**\*\*ON A/C A320neo**



**NOTE:**  
 THESE CURVES ARE GIVEN FOR INFORMATION ONLY  
 THE APPROVED VALUES ARE STATED IN THE "OPERATING  
 MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N\_AC\_030302\_1\_0090101\_01\_00

Take-Off Weight Limitation - ISA +15° C (+27° F) Conditions  
 LEAP-1A Series Engine  
 FIGURE-3-3-2-991-009-A01

### 3-3-3 Aerodrome Reference Code

**\*\*ON A/C A320-200 A320neo**

#### Aerodrome Reference Code

1. For A320-200:
  - If the aircraft take-off weight is less than or equal to 73 500 kg (162 040 lb), the aircraft is classified as code 3C as per ICAO Aerodrome Reference Code.
  - If the aircraft take-off weight is more than 73 500 kg (162 040 lb), the aircraft is classified as code 4C as per ICAO Aerodrome Reference Code.
2. A320neo is classified as code 3C as per ICAO Aerodrome Reference Code.





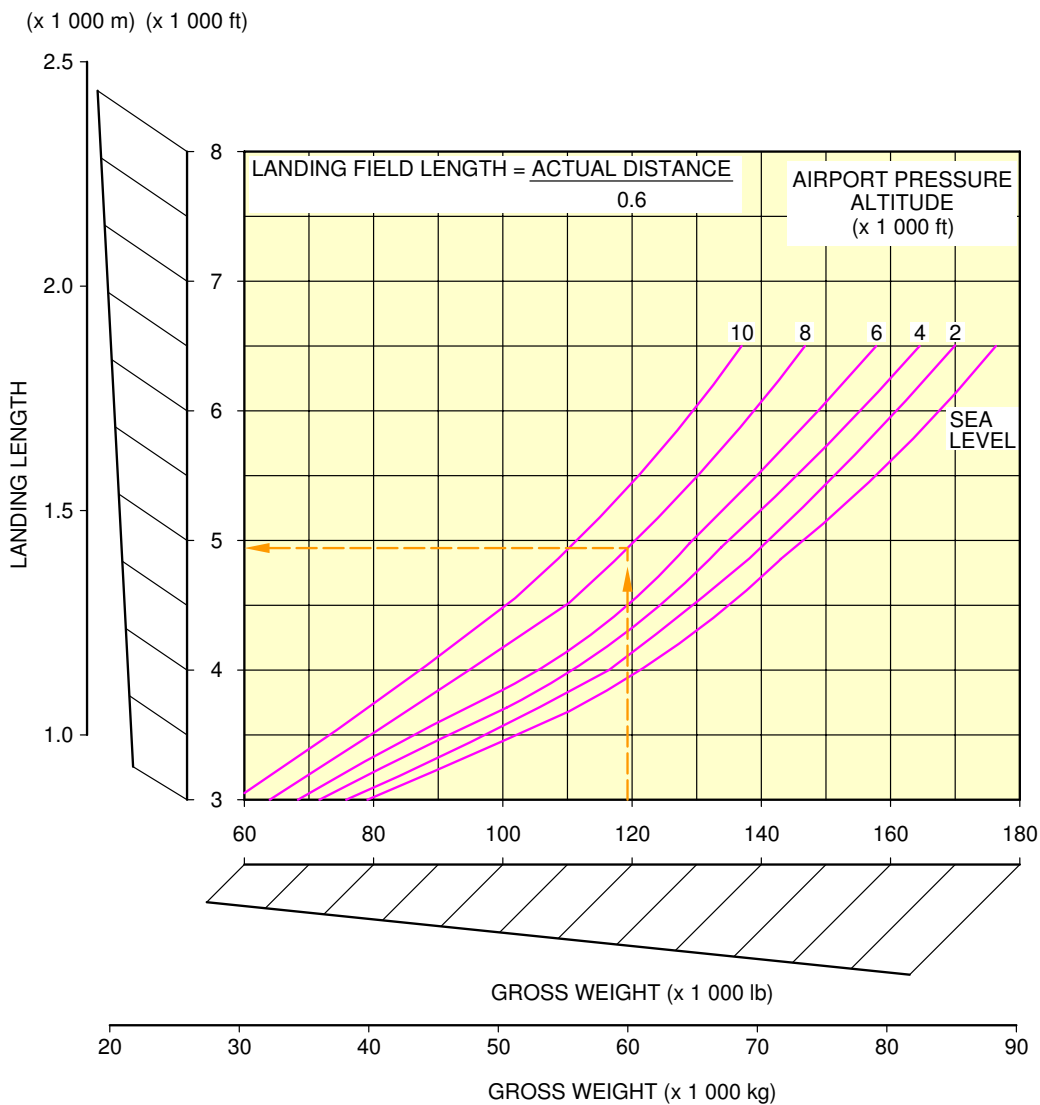
### 3-4-1 Landing Field Length - ISA Conditions

**\*\*ON A/C A320-200**

#### Landing Field Length - ISA Conditions

1. This section provides the landing field length.

**\*\*ON A/C A320-200**

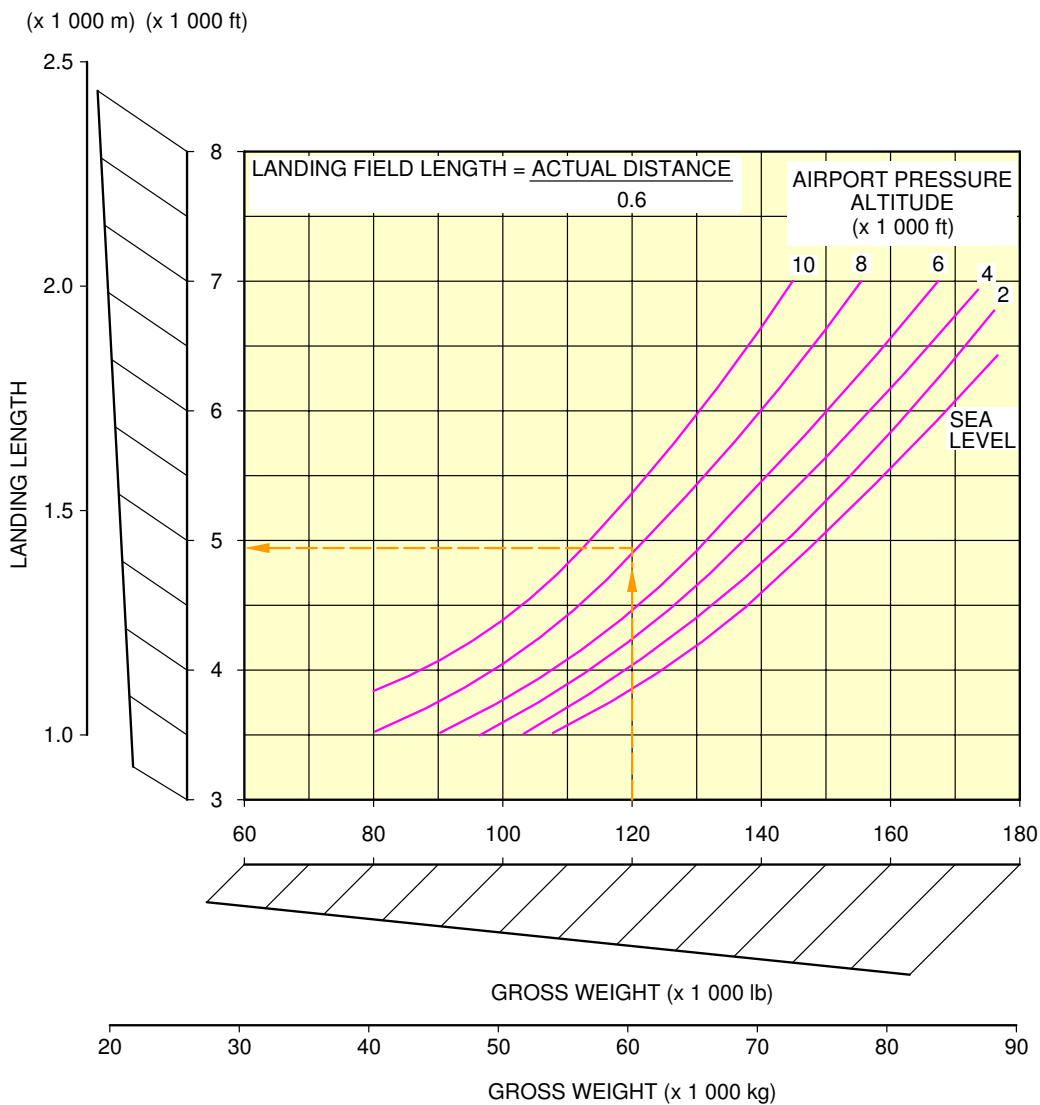


**NOTE:**  
 THESE CURVES ARE GIVEN FOR INFORMATION ONLY.  
 THE APPROVED VALUES ARE STATED IN THE "OPERATING  
 MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N\_AC\_030401\_1\_0050101\_01\_01

Landing Field Length - ISA Conditions  
 CFM56 Series Engine  
 FIGURE-3-4-1-991-005-A01

**\*\*ON A/C A320-200**



**NOTE:**  
 THESE CURVES ARE GIVEN FOR INFORMATION ONLY.  
 THE APPROVED VALUES ARE STATED IN THE "OPERATING  
 MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N\_AC\_030401\_1\_0060101\_01\_01

Landing Field Length - ISA Conditions  
 IAE V2500 Series Engine  
 FIGURE-3-4-1-991-006-A01

**3-5-0 Final Approach Speed****\*\*ON A/C A320-200 A320neo**Final Approach Speed

1. This section provides the final approach speed. It is defined as the indicated airspeed at threshold in the landing configuration, at the certificated maximum flap setting and Maximum Landing Weight (MLW), in standard atmospheric conditions. The approach speed is used to classify the aircraft into an Aircraft Approach Category, a grouping of aircraft based on the indicated airspeed at threshold.

**\*\*ON A/C A320-200**

2. The final approach speed is 136 kt at a MLW of 66 000 kg (145 505 lb) and classifies the aircraft into the Aircraft Approach Category C.

NOTE : This value is given for information only.

**\*\*ON A/C A320neo**

3. The final approach speed is 131.5 kt at a MLW of 67 400 kg (148 592 lb) and classifies the aircraft into the Aircraft Approach Category C.

NOTE : This value is given for information only.

## GROUND MANEUVERING

### 4-1-0 General Information

**\*\*ON A/C A320-200 A320neo**

#### General Information

1. This section provides aircraft turning capability and maneuvering characteristics.

For ease of presentation, this data has been determined from the theoretical limits imposed by the geometry of the aircraft, and where noted, provides for a normal allowance for tire slippage. As such, it reflects the turning capability of the aircraft in favorable operating circumstances. This data should only be used as a guideline for the method of determination of such parameters and for the maneuvering characteristics of this aircraft type.

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



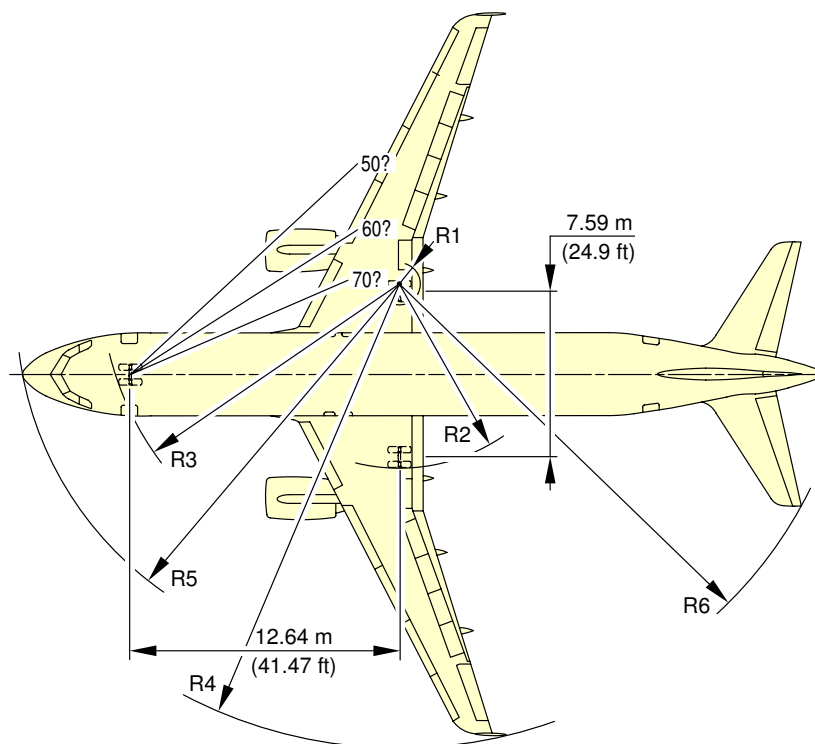
## 4-2-0 Turning Radii

**\*\*ON A/C A320-200 A320neo**

### Turning Radii

1. This section provides the turning radii.

\*\*ON A/C A320-200 A320neo



**NOTE:** FOR STEERING DIMENSION TABLE SEE SHEET 2.

TURN TYPE:

1. ASYMMETRIC THRUST DIFFERENTIAL BRAKING (PIVOTTING ON ONE MAIN GEAR).
2. SYMMETRIC THRUST NO BRAKING.

N\_AC\_040200\_1\_0050101\_01\_01

Turning Radii, No Slip Angle  
Dual Landing Gear (Sheet 1)  
FIGURE-4-2-0-991-005-A01

\*\*ON A/C A320-200 A320neo

TYPE OF TURN	MAXIMUM RAMP WEIGHT		R1 RMLG	R2 LMLG		R3 NLG		R4 - WING				R5 NOSE		R6 THS		
	STEERING ANGLE (deg)	EFFECTIVE STEERING ANGLE (deg)		m	ft	m	ft	WING TIP FENCE	SHARKLET	m	ft	m	ft	m	ft	
2	20	19.5	32.6	107	40.2	132	38.2	125	52.9	174	53.8	176	39.8	131	46.0	151
2	25	24.4	24.8	81	32.3	106	30.9	101	45.1	148	46.0	151	33.0	108	39.0	128
2	30	29.3	19.4	64	27.0	89	26.2	86	39.8	131	40.7	133	28.7	94	34.4	113
2	35	34.2	15.5	51	23.1	76	22.8	75	35.9	118	36.8	121	25.7	84	31.3	103
2	40	39.0	12.5	41	20.1	66	20.4	67	32.9	108	33.8	111	23.6	77	28.9	95
2	45	43.8	10.1	33	17.6	58	18.5	61	30.5	100	31.4	103	22.1	72	27.1	89
2	50	48.6	8.0	26	15.6	51	17.1	56	28.5	94	29.4	96	20.9	69	25.7	84
2	55	53.3	6.3	21	13.9	46	16.0	52	26.8	88	27.7	91	20.1	66	24.6	81
2	60	57.9	4.8	16	12.4	41	15.1	50	25.4	83	26.2	86	19.4	64	23.7	78
2	65	62.4	3.5	12	11.1	36	14.4	47	24.1	79	24.9	82	18.9	62	22.9	75
2	70	66.8	2.4	8	9.9	33	13.9	46	22.9	75	23.7	78	18.5	61	22.3	73
2	75 (MAX)	70.2	1.5	5	9.0	30	13.6	44	22.0	72	22.9	75	18.3	60	21.8	72
1	50	48.8	8.0	26	15.5	51	17.0	56	28.4	93	29.3	96	20.9	68	25.6	84
1	55	53.6	6.2	20	13.8	45	15.9	52	26.7	88	27.6	90	20.0	66	24.5	80
1	60	58.4	4.7	15	12.3	40	15.0	49	25.2	83	26.0	85	19.3	63	23.6	77
1	65	63.1	3.3	11	10.9	36	14.3	47	23.9	78	24.7	81	18.8	62	22.8	75
1	70	67.8	2.1	7	9.6	32	13.8	45	22.6	74	23.5	77	18.4	61	22.1	73
1	75 (MAX)	71.9	1.1	4	8.6	28	13.4	44	21.6	71	22.5	74	18.2	60	21.6	71

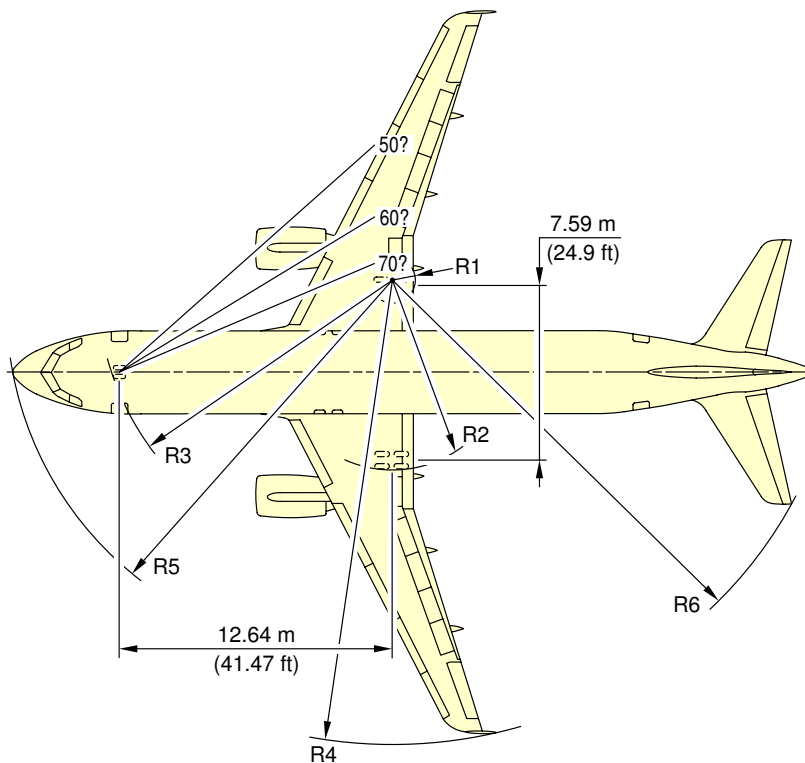
**NOTE:** ABOVE 50?, AIRLINES MAY USE TYPE 1 OR TYPE 2 TURNS DEPENDING ON THE SITUATION.  
 TYPE 1 TURNS USE: ASYMMETRIC THRUST DURING THE WHOLE TURN; AND DIFFERENTIAL BRAKING TO INITIATE THE TURN ONLY.  
 TYPE 2 TURNS USE: SYMMETRIC THRUST DURING THE WHOLE TURN; AND NO DIFFERENTIAL BRAKING AT ALL.  
 IT IS POSSIBLE TO GET LOWER VALUES THAN THOSE FROM TYPE 1 BY APPLYING DIFFERENTIAL BRAKING DURING THE WHOLE TURN.

N\_AC\_040200\_1\_0100101\_01\_00

Turning Radii, No Slip Angle  
 Dual Landing Gear (Sheet 2)  
 FIGURE-4-2-0-991-010-A01



\*\*ON A/C A320-200



**NOTE:** FOR STEERING DIMENSION TABLE SEE SHEET 2.

N\_AC\_040200\_1\_0060101\_01\_02

Turning Radii, No Slip Angle  
Bogie Landing Gear (Sheet 1)  
FIGURE-4-2-0-991-006-A01

\*\*ON A/C A320-200

STEERING ANGLE (deg)	R1		R2		R3		R4		R5		R6	
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
30	17.55	58	26.23	86	25.64	84	39.1	128	28.16	92	33.96	111
35	13.71	45	22.39	73	22.40	73	35.28	116	25.29	83	30.86	101
40	10.72	35	19.40	64	20.02	66	32.32	106	23.25	76	28.56	94
45	8.3	27	16.98	56	18.24	60	29.92	98	21.76	71	26.81	88
50	6.27	21	14.95	49	16.86	55	27.90	92	20.65	68	25.42	83
55	4.51	15	13.19	43	15.79	52	26.17	86	19.80	65	24.29	80
60	2.96	10	11.64	38	14.95	49	24.64	81	19.16	63	23.36	77
65	1.55	5	10.23	34	14.31	47	23.26	78	18.67	61	22.58	74
70	0.26	1	8.94	29	13.81	45	21.99	72	18.3	60	21.91	72

N\_AC\_040200\_1\_0110101\_01\_00

Turning Radii, No Slip Angle  
 Bogie Landing Gear (Sheet 2)  
 FIGURE-4-2-0-991-011-A01



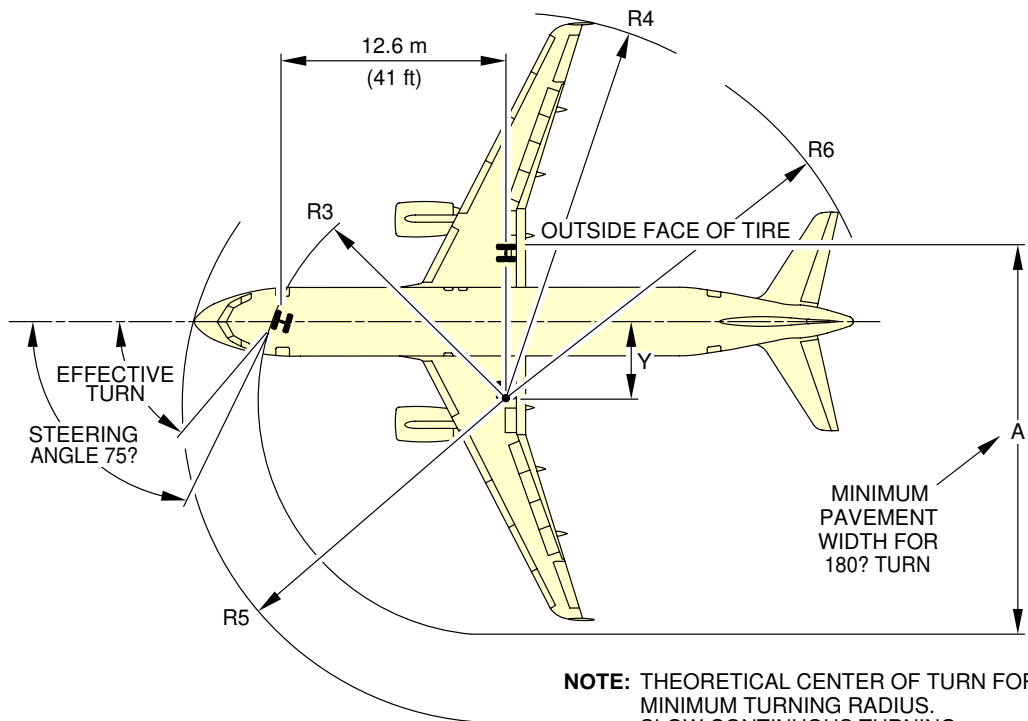
#### 4-3-0 Minimum Turning Radii

**\*\*ON A/C A320-200 A320neo**

##### Minimum Turning Radii

1. This section provides the minimum turning radii.

**\*\*ON A/C A320-200 A320neo**



**NOTE:** THEORETICAL CENTER OF TURN FOR MINIMUM TURNING RADIUS. SLOW CONTINUOUS TURNING. APPROXIMATELY IDLE THRUST ON ALL ENGINES. NO DIFFERENTIAL BRAKING. NOSE GEAR RADII TRACK MEASURED FROM OUTSIDE FACE OF TIRE.

### DUAL LANDING GEAR

TYPE OF TURN	STEERING ANGLE (DEG)	EFFECTIVE STEERING ANGLE		Y	A	R3 NLG	R4 WING		R5 NOSE	R6 THS
							WING TIP FENCE	SHARKLET		
1	75 (MAX)	71.9?	m	4.1	22.3	13.4	21.6	22.5	18.2	21.6
			ft	14	73	44	71	74	60	71
2	75 (MAX)	70.2?	m	4.5	22.8	13.6	22.0	22.9	18.3	21.8
			ft	15	75	44	72	75	60	72

**NOTE:** IT IS POSSIBLE TO GET LOWER VALUES THAN THOSE FROM TYPE 1 BY APPLYING DIFFERENTIAL BRAKING DURING THE WHOLE TURN.

### BOGIE LANDING GEAR

STEERING ANGLE (DEG)	EFFECTIVE STEERING ANGLE		Y	A	R3 NLG	R4 WING	R5 NOSE	R6 THS
						WING TIP FENCE		
75 (MAX)	70.0?	m	4.6	22.8	13.8	22.0	18.3	21.9
		ft	15	75	45	72	60	72

N\_AC\_040300\_1\_0030101\_01\_01

Minimum Turning Radii  
FIGURE-4-3-0-991-003-A01

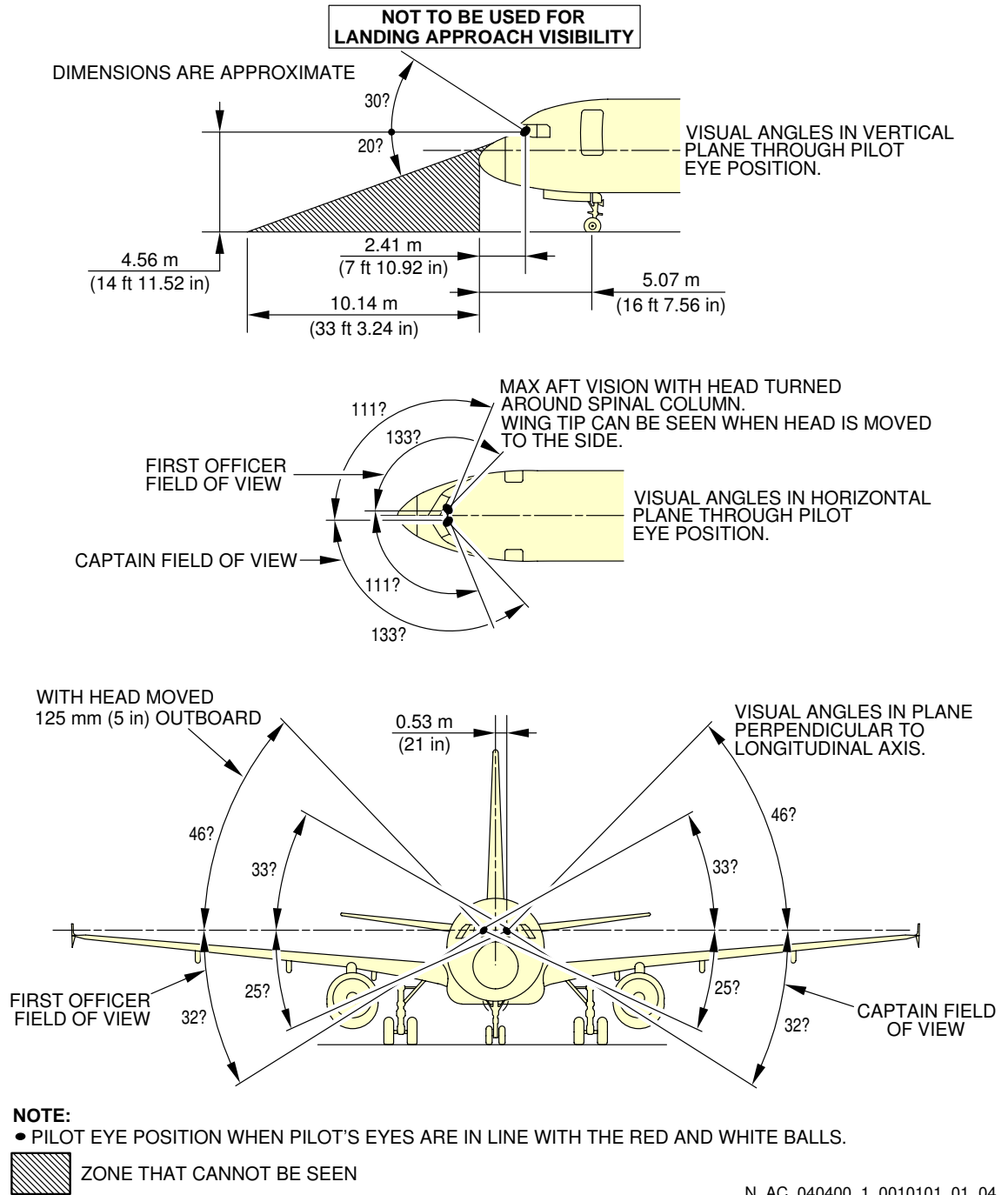
#### 4-4-0 Visibility from Cockpit in Static Position

**\*\*ON A/C A320-200 A320neo**

##### Visibility from Cockpit in Static Position

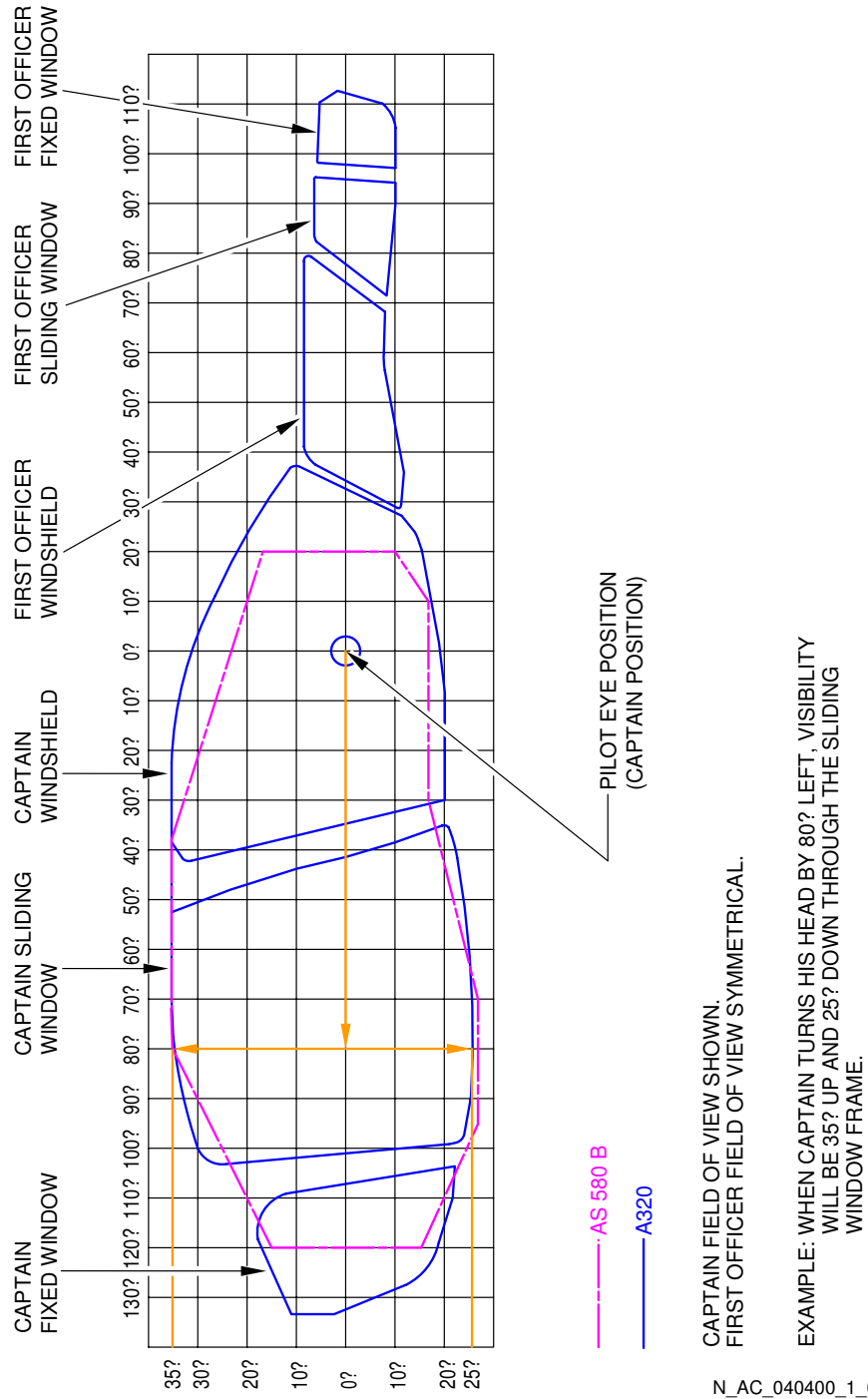
1. This section gives the visibility from cockpit in static position.

\*\*ON A/C A320-200 A320neo



Visibility from Cockpit in Static Position  
FIGURE-4-4-0-991-001-A01

\*\*ON A/C A320-200 A320neo



N\_AC\_040400\_1\_0050101\_01\_00

Binocular Visibility Through Windows from Captain Eye Position  
 FIGURE-4-4-0-991-005-A01



4-5-0 Runway and Taxiway Turn Paths

\*\*ON A/C A320-200 A320neo

Runway and Taxiway Turn Paths

1. Runway and Taxiway Turn Paths.





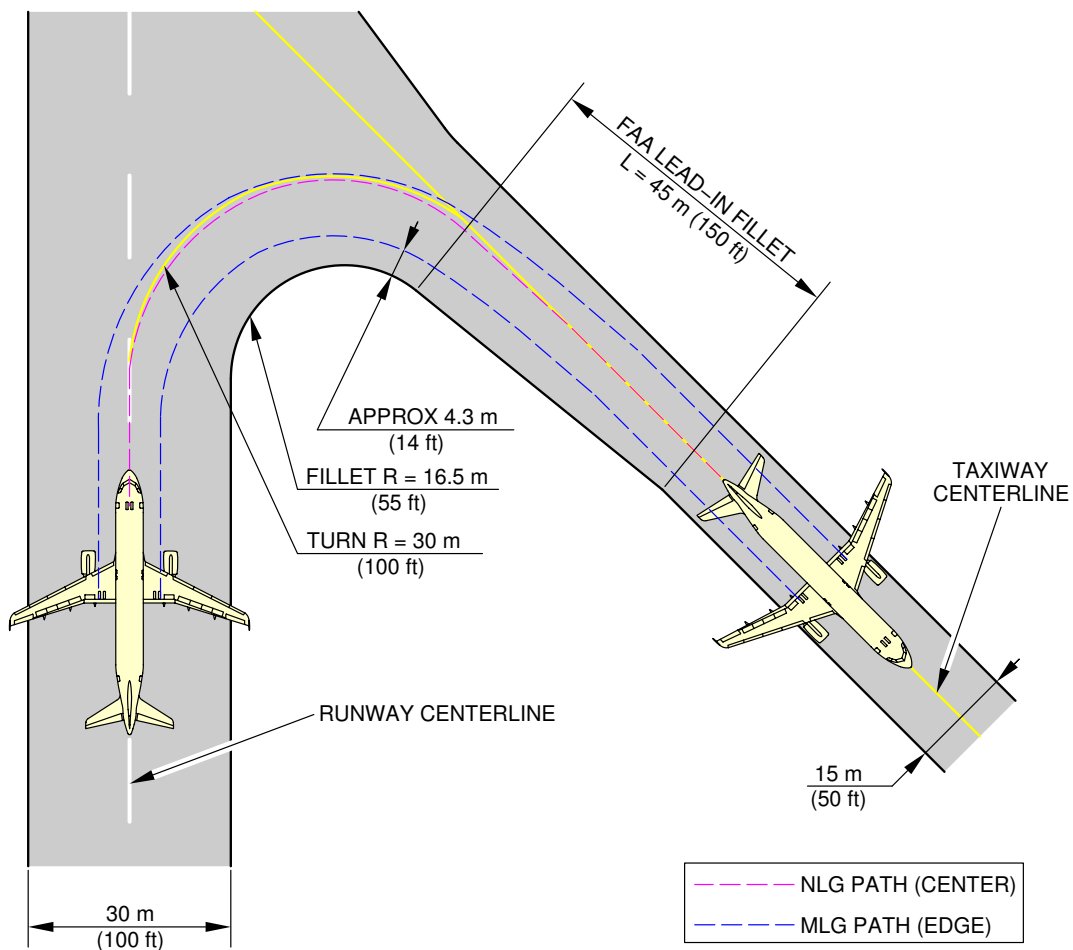
4-5-1 135° Turn - Runway to Taxiway

**\*\*ON A/C A320-200 A320neo**

135° Turn - Runway to Taxiway

1. This section gives the 135° turn - runway to taxiway.

\*\*ON A/C A320-200 A320neo

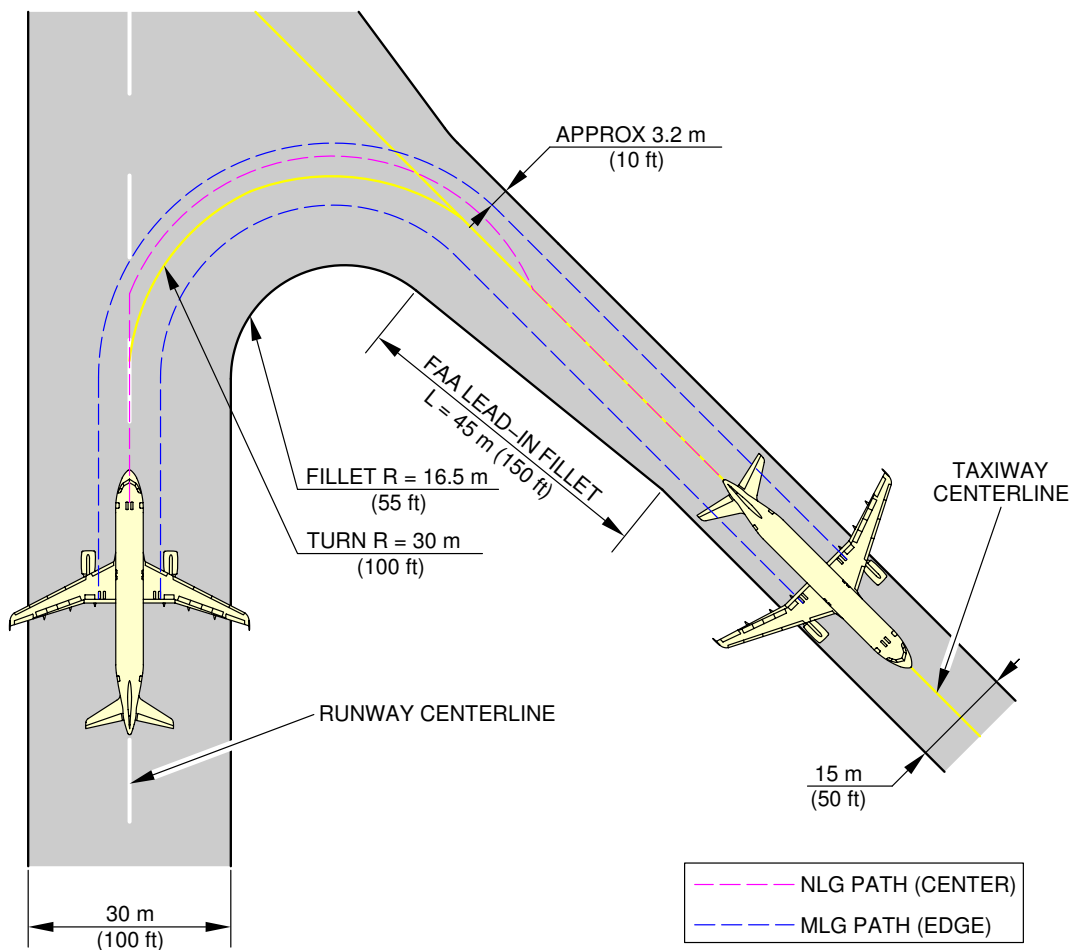


**NOTE:**  
FAA GROUP III FACILITIES.

N\_AC\_040501\_1\_0040101\_01\_02

135° Turn - Runway to Taxiway  
Cockpit Over Centerline Method  
FIGURE-4-5-1-991-004-A01

\*\*ON A/C A320-200 A320neo



**NOTE:**  
FAA GROUP III FACILITIES.

N\_AC\_040501\_1\_0120101\_01\_01

135° Turn - Runway to Taxiway  
Judgemental Oversteering Method  
FIGURE-4-5-1-991-012-A01



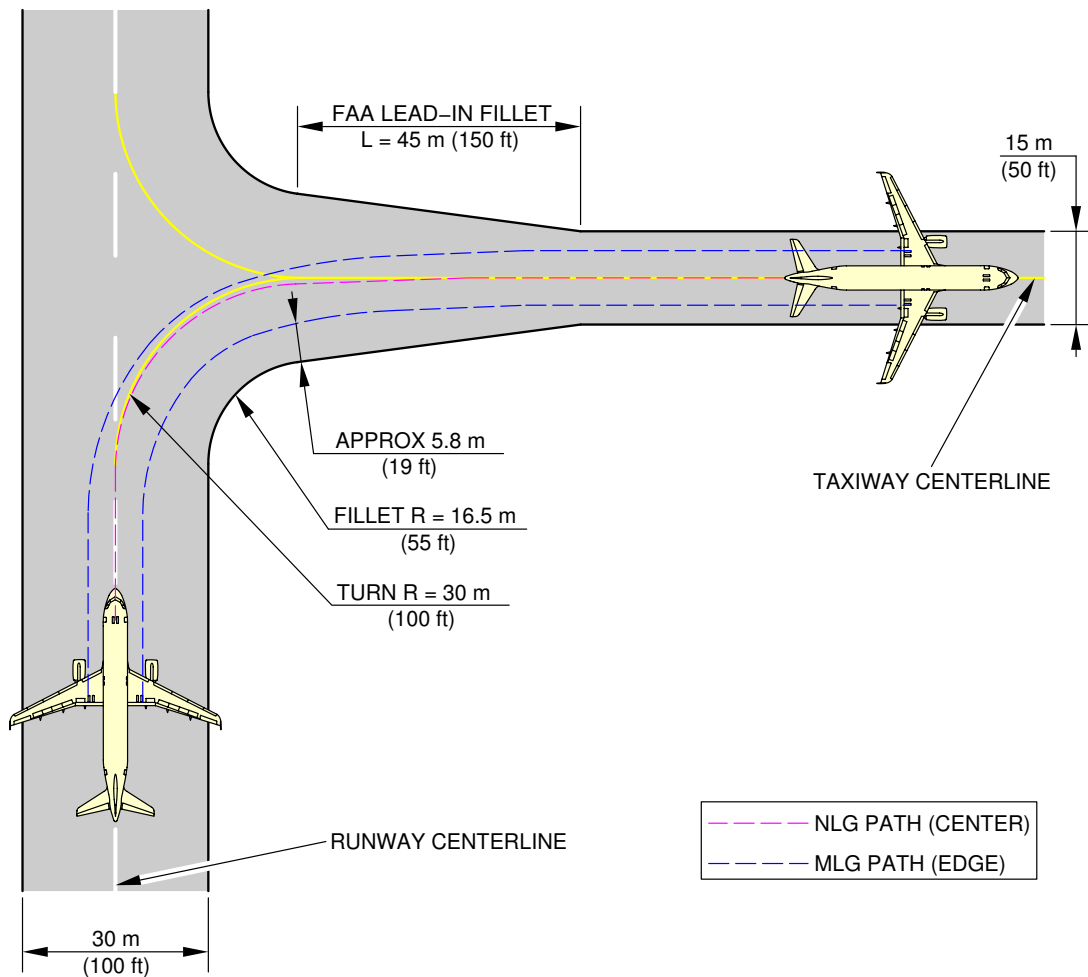
4-5-2 90 ° Turn - Runway to Taxiway

**\*\*ON A/C A320-200 A320neo**

90 ° Turn - Runway to Taxiway

1. This section gives the 90 ° turn - runway to taxiway.

\*\*ON A/C A320-200 A320neo

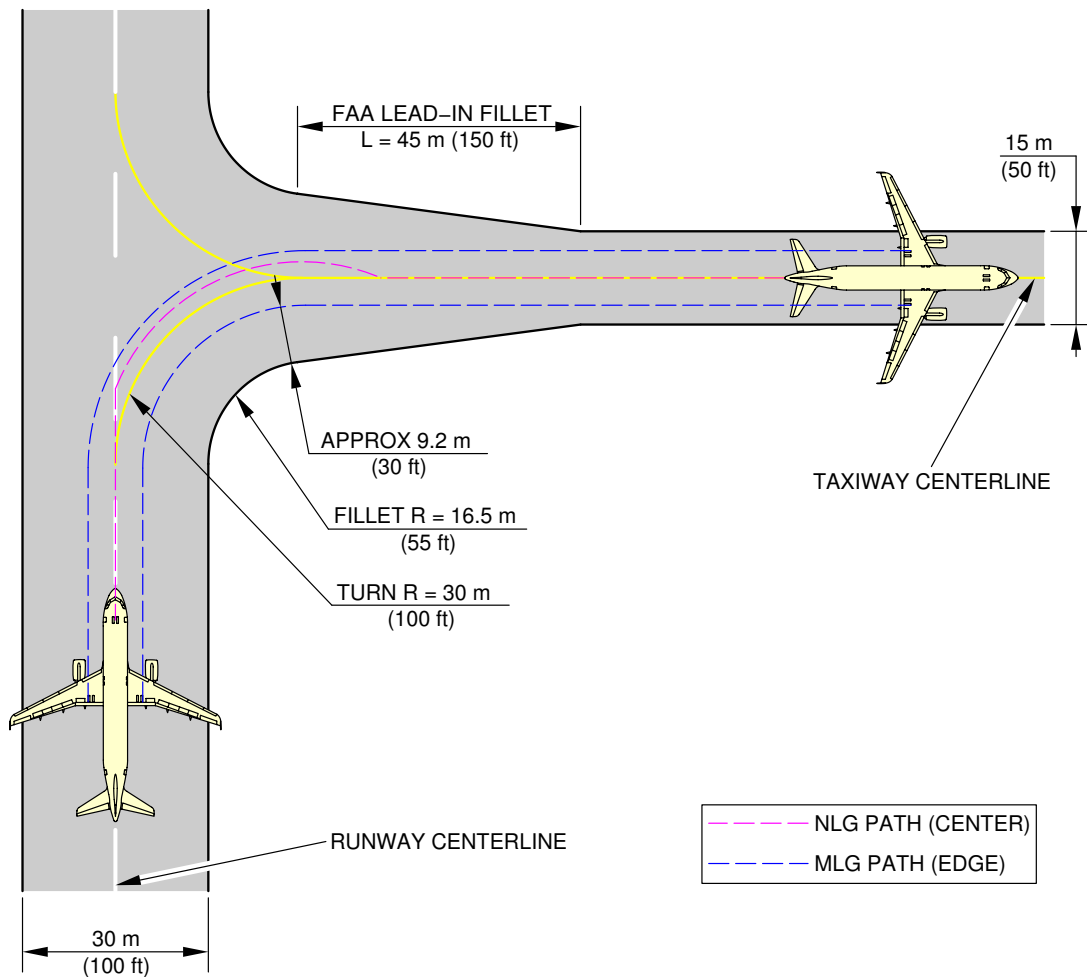


**NOTE:**  
FAA GROUP III FACILITIES.

N\_AC\_040502\_1\_0040101\_01\_02

90° Turn - Runway to Taxiway  
Cockpit Over Centerline Method  
FIGURE-4-5-2-991-004-A01

\*\*ON A/C A320-200 A320neo



**NOTE:**  
FAA GROUP III FACILITIES.

N\_AC\_040502\_1\_0090101\_01\_01

90° Turn - Runway to Taxiway  
Judgemental Oversteering Method  
FIGURE-4-5-2-991-009-A01



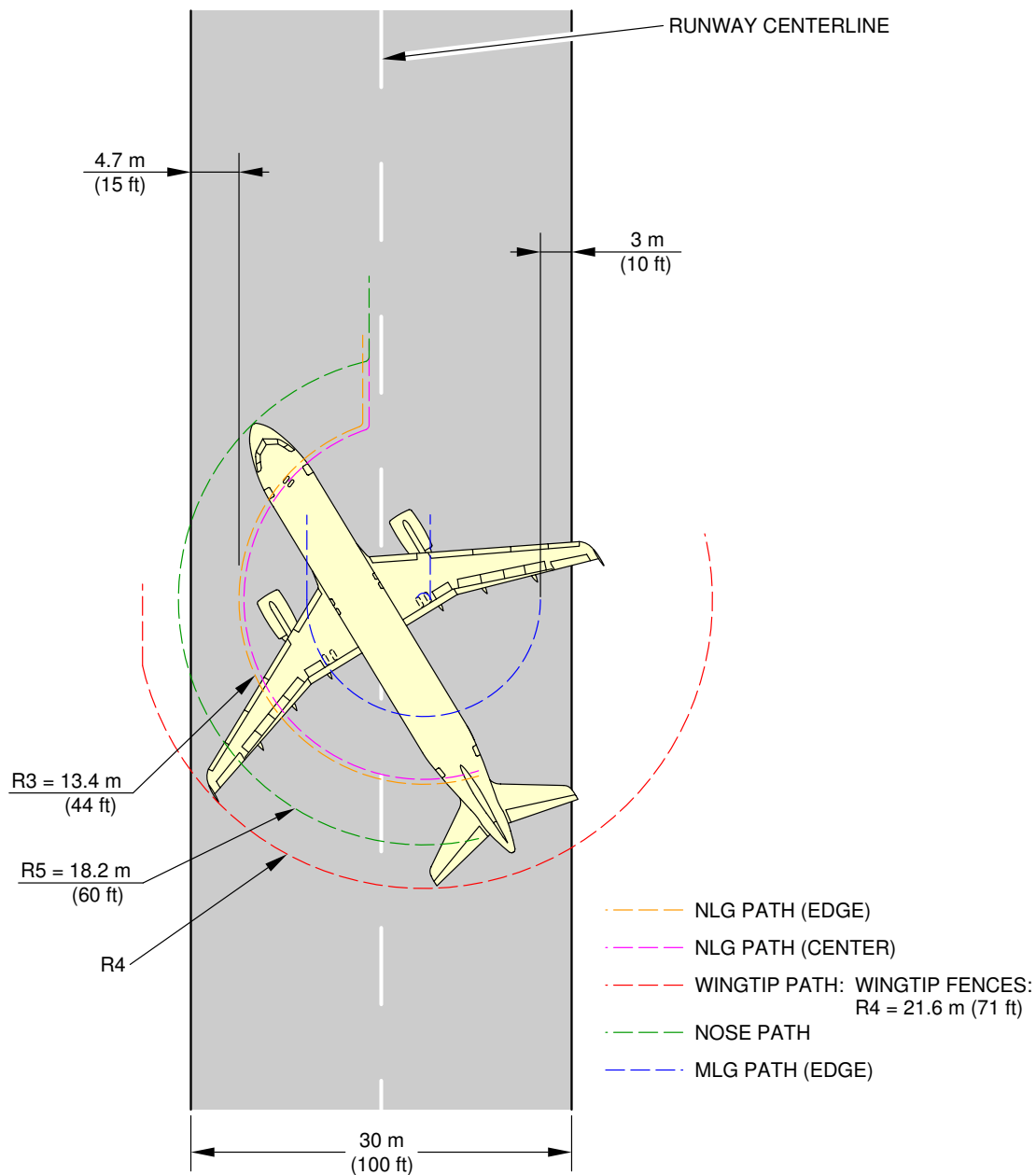
4-5-3 180° Turn on a Runway

**\*\*ON A/C A320-200 A320neo**

180° Turn on a Runway

1. This section provides the 180° turn on a runway.

**\*\*ON A/C A320-200**



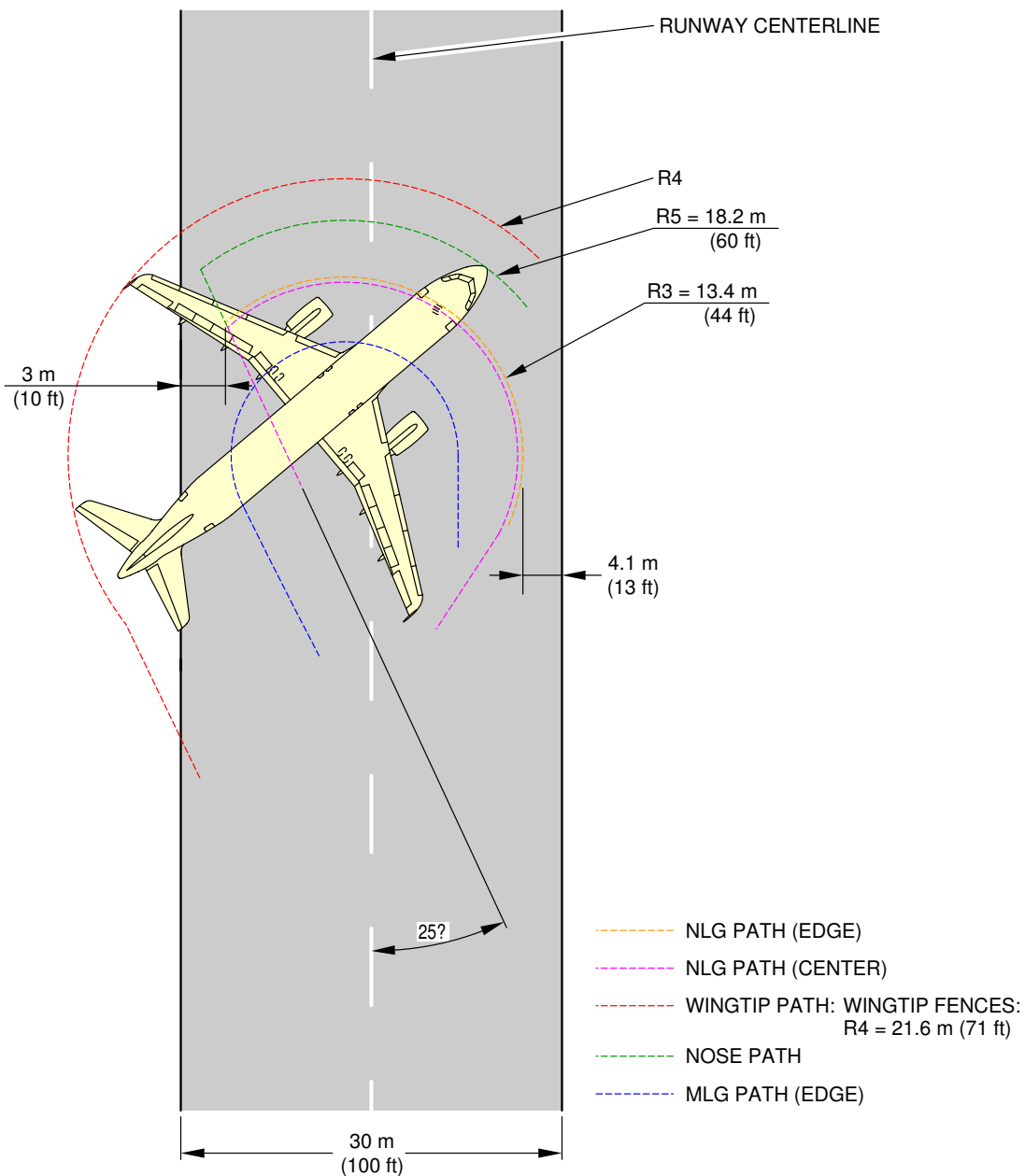
**NOTE:**  
TYPE 1 VALUES.

N\_AC\_040503\_1\_0060101\_01\_02

180° Turn on a Runway  
Edge of Runway Method (Sheet 1 of 2)  
FIGURE-4-5-3-991-006-A01



**\*\*ON A/C A320-200**

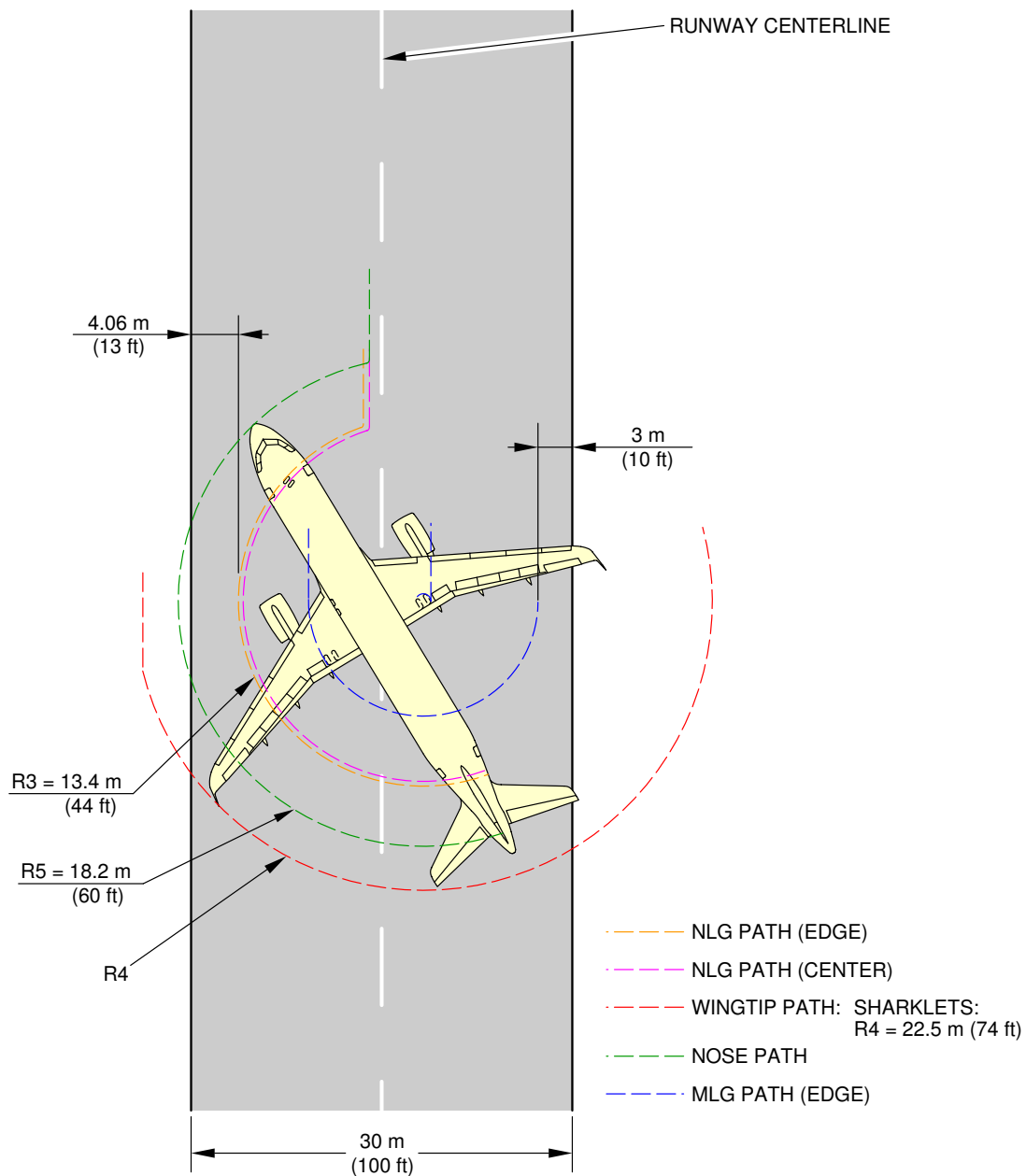


**NOTE:**  
TYPE 1 VALUES.

N\_AC\_040503\_1\_0060102\_01\_02

180° Turn on a Runway  
Center of Runway Method (Sheet 2 of 2)  
FIGURE-4-5-3-991-006-A01

**\*\*ON A/C A320neo**

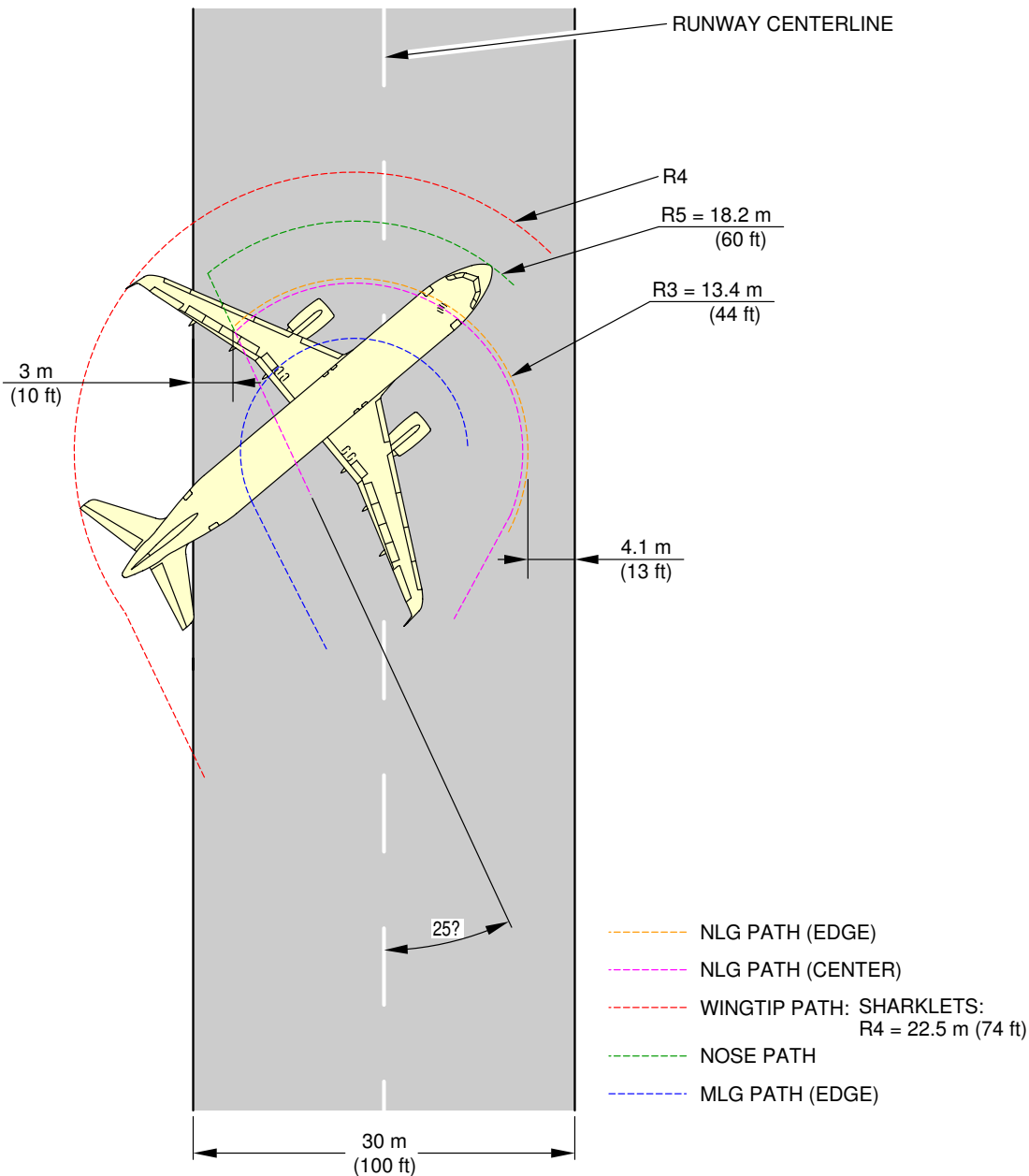


**NOTE:**  
TYPE 1 VALUES.

N\_AC\_040503\_1\_0090101\_01\_00

180° Turn on a Runway  
Edge of Runway Method (Sheet 1 of 2)  
FIGURE-4-5-3-991-009-A01

**\*\*ON A/C A320neo**



**NOTE:**  
TYPE 1 VALUES.

N\_AC\_040503\_1\_0090102\_01\_00

180° Turn on a Runway  
Center of Runway Method (Sheet 2 of 2)  
FIGURE-4-5-3-991-009-A01



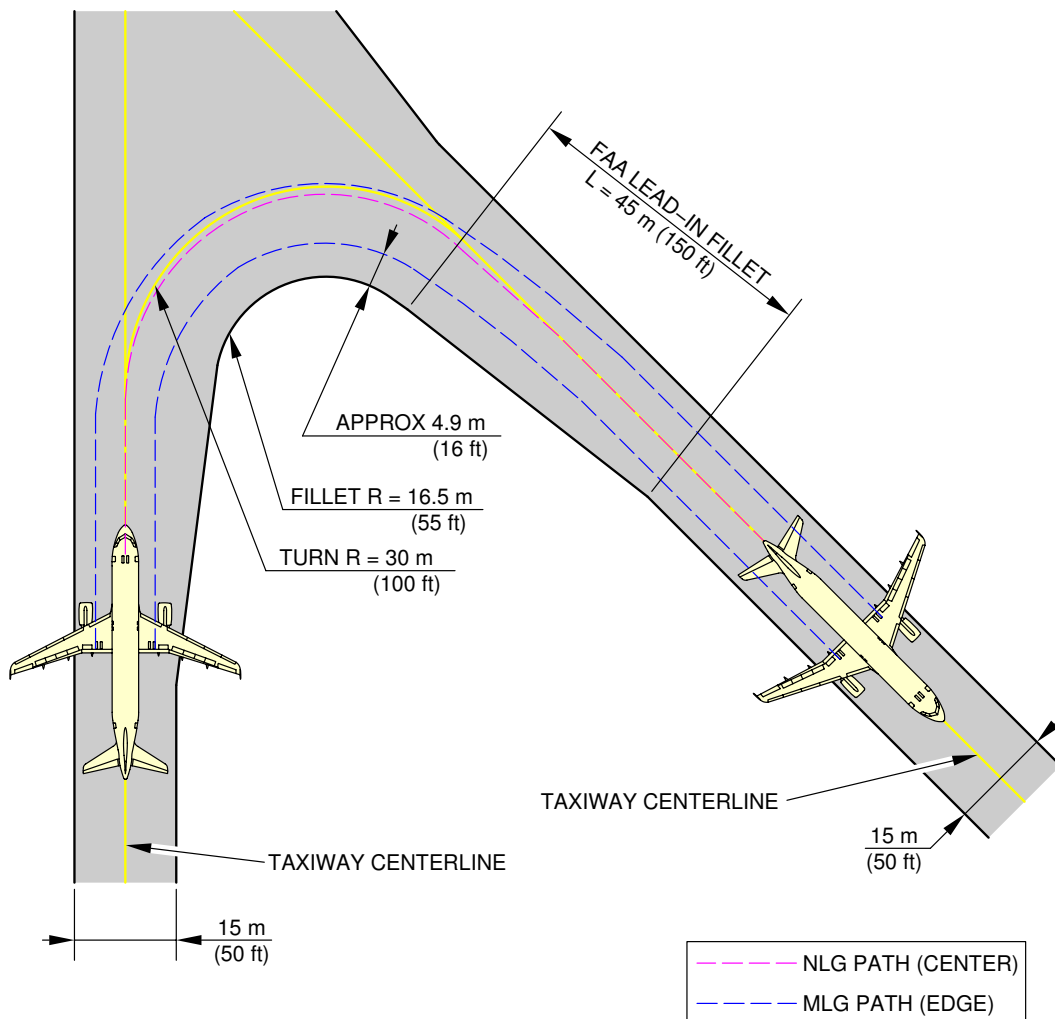
4-5-4 135 ° Turn - Taxiway to Taxiway

\*\*ON A/C A320-200 A320neo

135 ° Turn - Taxiway to Taxiway

1. This section gives the 135 ° turn - taxiway to taxiway.

\*\*ON A/C A320-200 A320neo

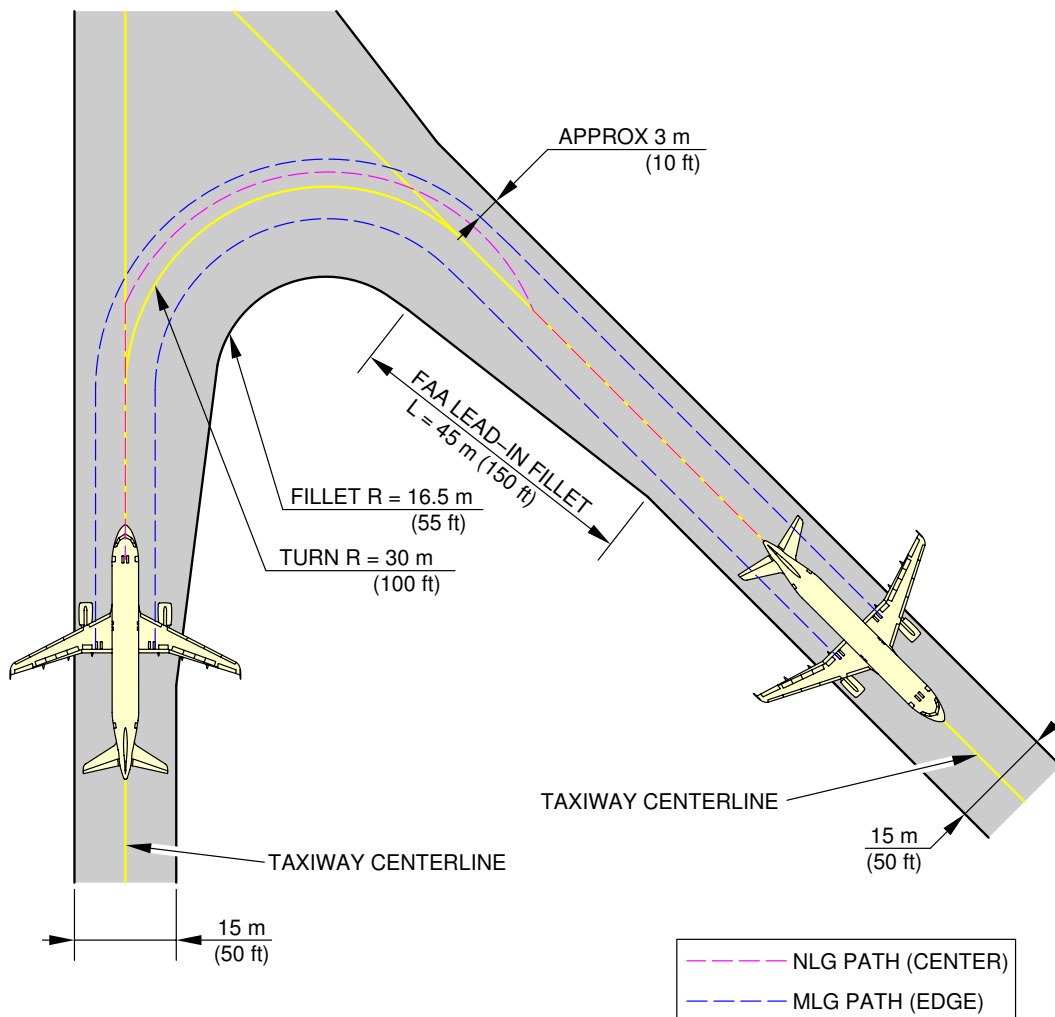


**NOTE:**  
FAA GROUP III FACILITIES.

N\_AC\_040504\_1\_0060101\_01\_01

135° Turn - Taxiway to Taxiway  
Cockpit Over Centerline Method (Sheet 1 of 2)  
FIGURE-4-5-4-991-006-A01

\*\*ON A/C A320-200 A320neo



**NOTE:**  
FAA GROUP III FACILITIES.

N\_AC\_040504\_1\_0060102\_01\_01

135° Turn - Taxiway to Taxiway  
Judgemental Oversteering Method (Sheet 2 of 2)  
FIGURE-4-5-4-991-006-A01



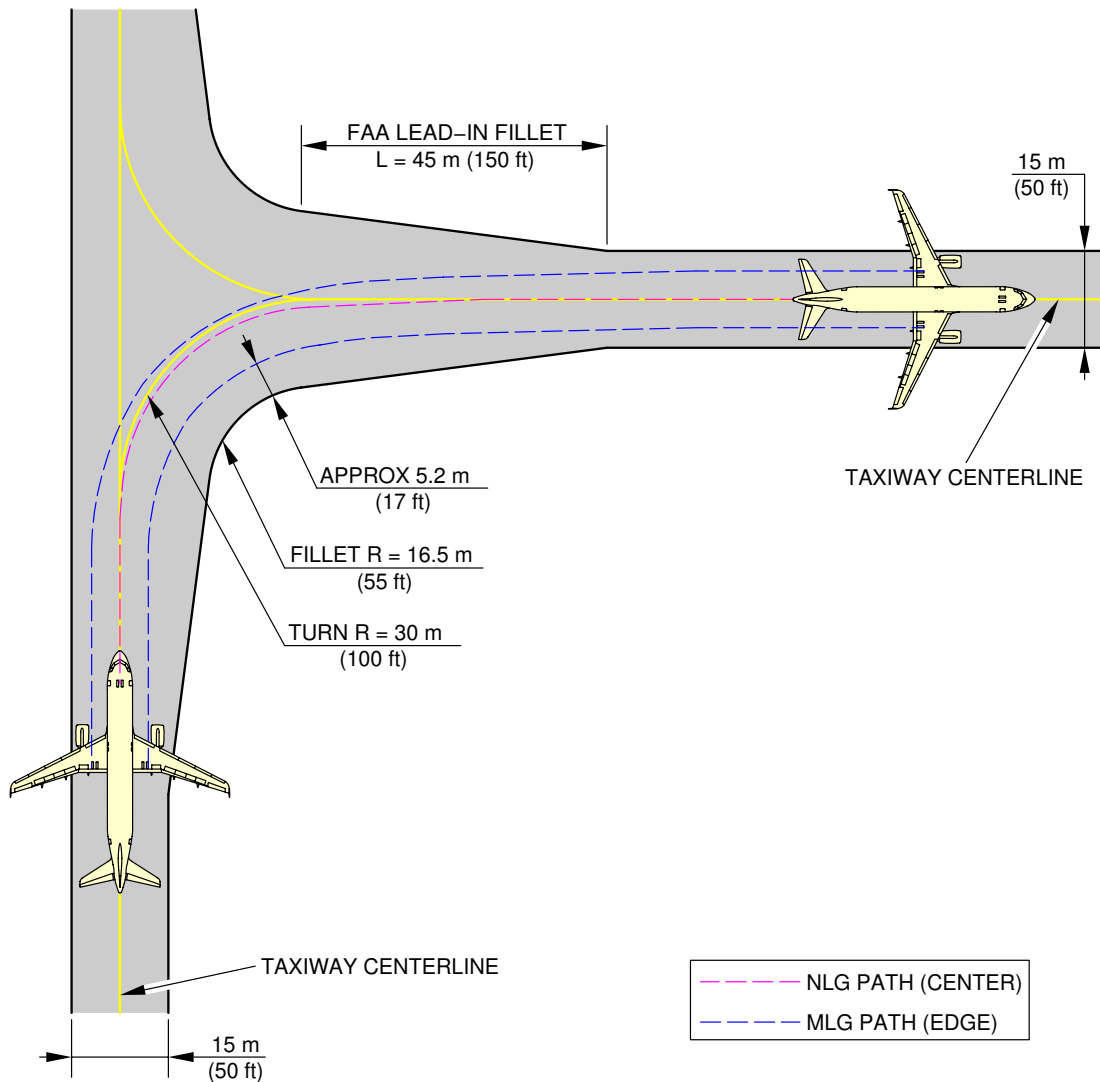
4-5-5 90° Turn - Taxiway to Taxiway

**\*\*ON A/C A320-200 A320neo**

90° Turn - Taxiway to Taxiway

1. This section gives the 90° turn - taxiway to taxiway.

\*\*ON A/C A320-200 A320neo



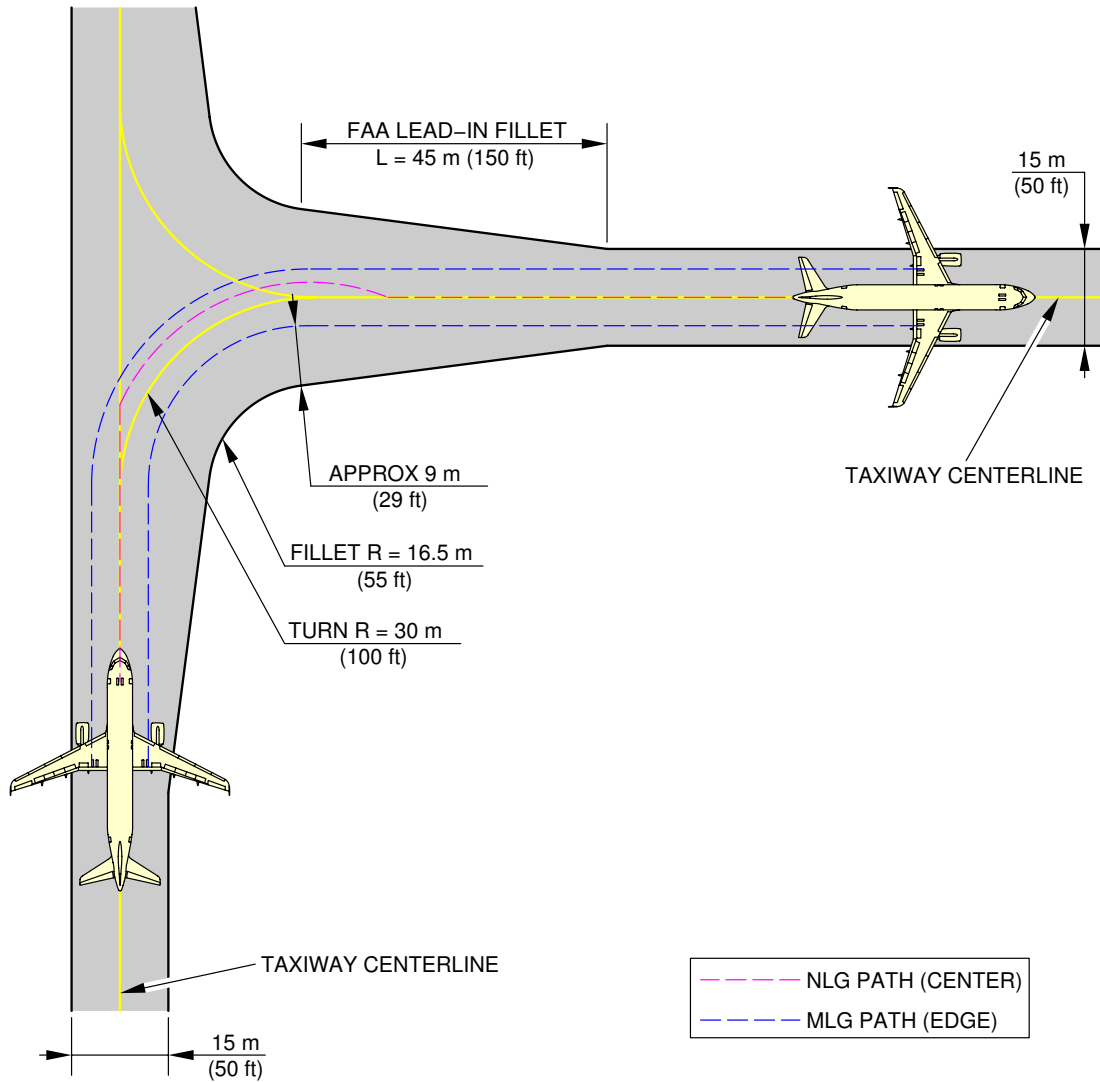
**NOTE:**  
FAA GROUP III FACILITIES.

N\_AC\_040505\_1\_0020101\_01\_02

90° Turn - Taxiway to Taxiway  
Cockpit Over Centerline Method (Sheet 1 of 2)  
FIGURE-4-5-5-991-002-A01



\*\*ON A/C A320-200 A320neo



**NOTE:**  
FAA GROUP III FACILITIES.

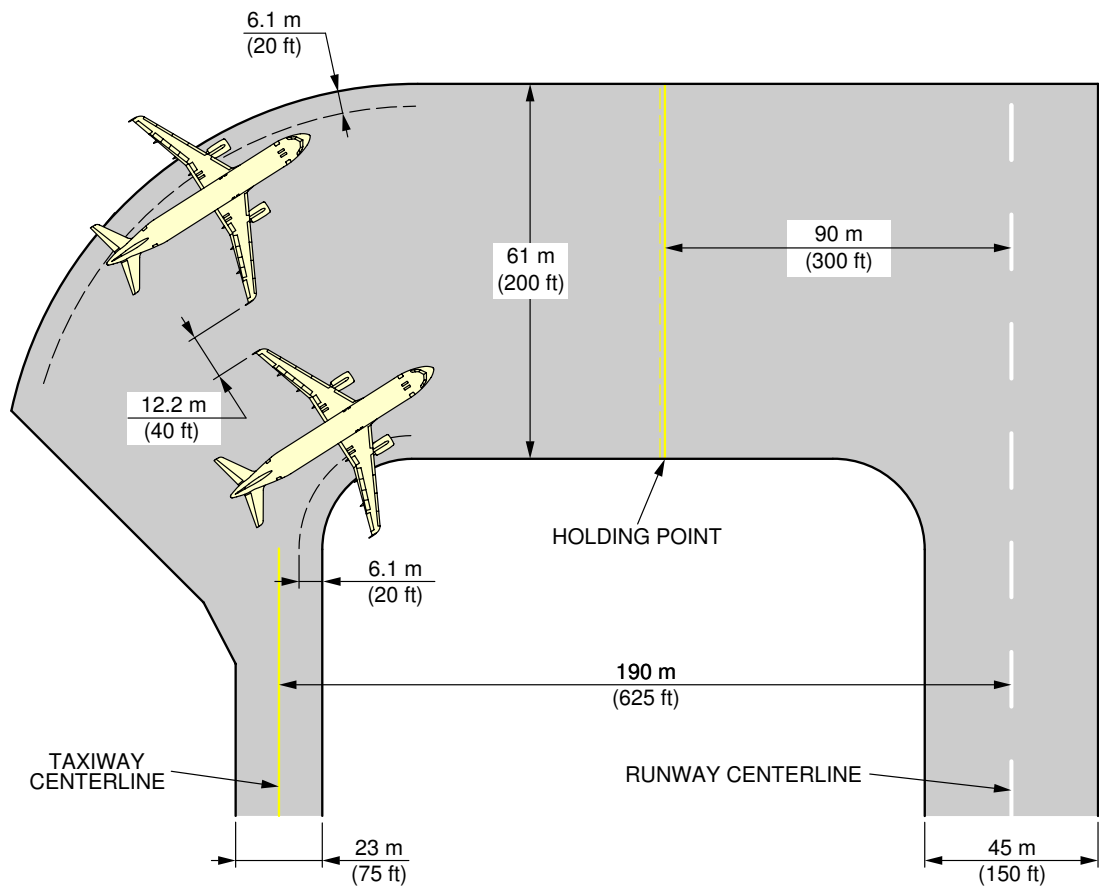
N\_AC\_040505\_1\_0020102\_01\_01

90° Turn - Taxiway to Taxiway  
Judgemental Oversteering Method (Sheet 2 of 2)  
FIGURE-4-5-5-991-002-A01

**4-6-0 Runway Holding Bay (Apron)****\*\*ON A/C A320-200 A320neo**Runway Holding Bay (Apron)

1. This section gives the runway holding bay (Apron).

**\*\*ON A/C A320-200 A320neo**



**NOTE:** COORDINATE WITH USING AIRLINE FOR SPECIFIC PLANNED OPERATING PROCEDURES.

N\_AC\_040600\_1\_0030101\_01\_01

Runway Holding Bay (Apron)  
FIGURE-4-6-0-991-003-A01

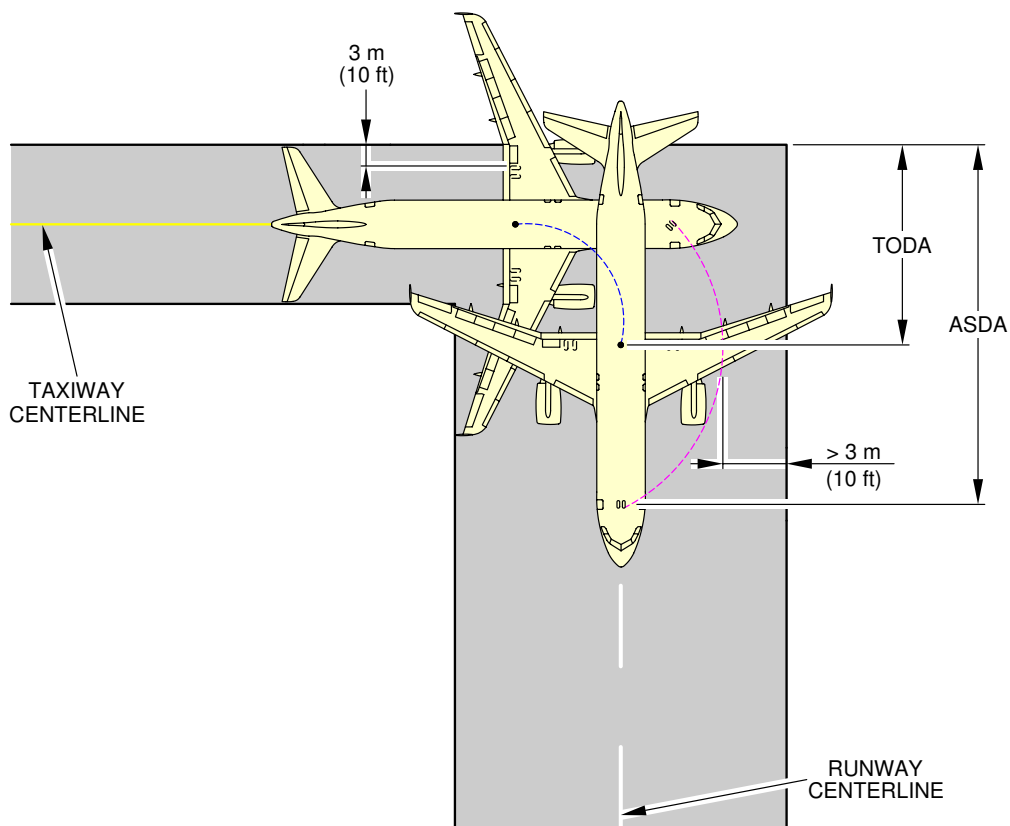
#### 4-7-0 Minimum Line-Up Distance Corrections

**\*\*ON A/C A320-200 A320neo**

##### Minimum Line-Up Distance Corrections

1. The ground maneuvers were performed using asymmetric thrust and differential braking only to initiate the turn.  
TODA: Take-Off Distance Available  
ASDA: Acceleration-Stop Distance Available
2. 90° Turn on Runway Entry  
This section gives the minimum line-up distance correction for a 90° turn on runway entry. This maneuver consists in a 90° turn at minimum turn radius. It starts with the edge of the MLG at a distance of 3 m (10 ft) from the taxiway edge, and finishes with the aircraft aligned on the centerline of the runway, see FIGURE 4-7-0-991-023-A.  
During the turn, all the clearances must meet the minimum value of 3 m (10 ft) for this category of aircraft as recommended in ICAO Annex 14.
3. 180° Turn on Runway Turn Pad  
This section gives the minimum line-up distance correction for a 180° turn on the runway turn pad. This maneuver consists in a 180° turn at minimum turn radius on a runway turn pad with standard ICAO geometry.  
It starts with the edge of the MLG at a distance of 3 m (10 ft) from the pavement edge, and it finishes with the aircraft aligned on the centerline of the runway, see FIGURE 4-7-0-991-024-A.  
During the turn, all the clearances must meet the minimum value of 3 m (10 ft) for this category of aircraft as recommended in ICAO Annex 14.
4. 180° Turn on Runway Width  
This section gives the minimum line-up distance correction for a 180° turn on the runway width. For this maneuver, the pavement width is considered to be the runway width, which is a frozen parameter (30 m (100 ft), 45 m (150 ft) and 60 m (200 ft)).  
As per the standard operating procedures for the "180° turn on runway" (described in the Flight Crew Operating Manual), the aircraft is initially angled with respect to the runway centerline when starting the 180° turn, see FIGURE 4-7-0-991-025-A.  
The value of this angle depends on the aircraft type and is mentioned in the FCOM.  
During the turn, all the clearances must meet the minimum value of 3 m (10 ft) for this category of aircraft as recommended in ICAO Annex 14.

\*\*ON A/C A320-200 A320neo



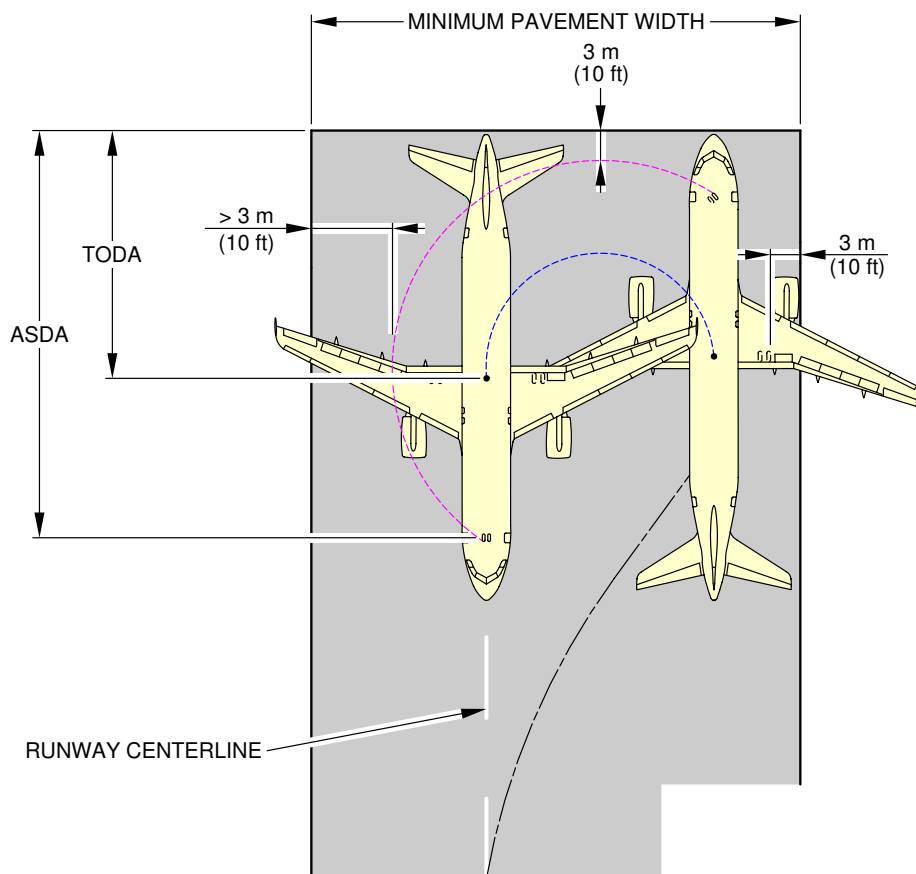
--- ASDA: ACCELERATION-STOP DISTANCE AVAILABLE  
 --- TODA: TAKE-OFF DISTANCE AVAILABLE

90° TURN ON RUNWAY ENTRY					
AIRCRAFT TYPE	MAX STEERING ANGLE	30 m (100 ft)/45 m (150 ft)/60 m (200 ft) WIDE RUNWAY			
		MINIMUM LINE-UP DISTANCE CORRECTION			
		ON TODA		ON ASDA	
A320	75°	11.7 m	38 ft	24.3 m	80 ft

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Minimum Line-Up Distance Corrections  
 90° Turn on Runway Entry  
 FIGURE-4-7-0-991-023-A01

**\*\*ON A/C A320-200 A320neo**



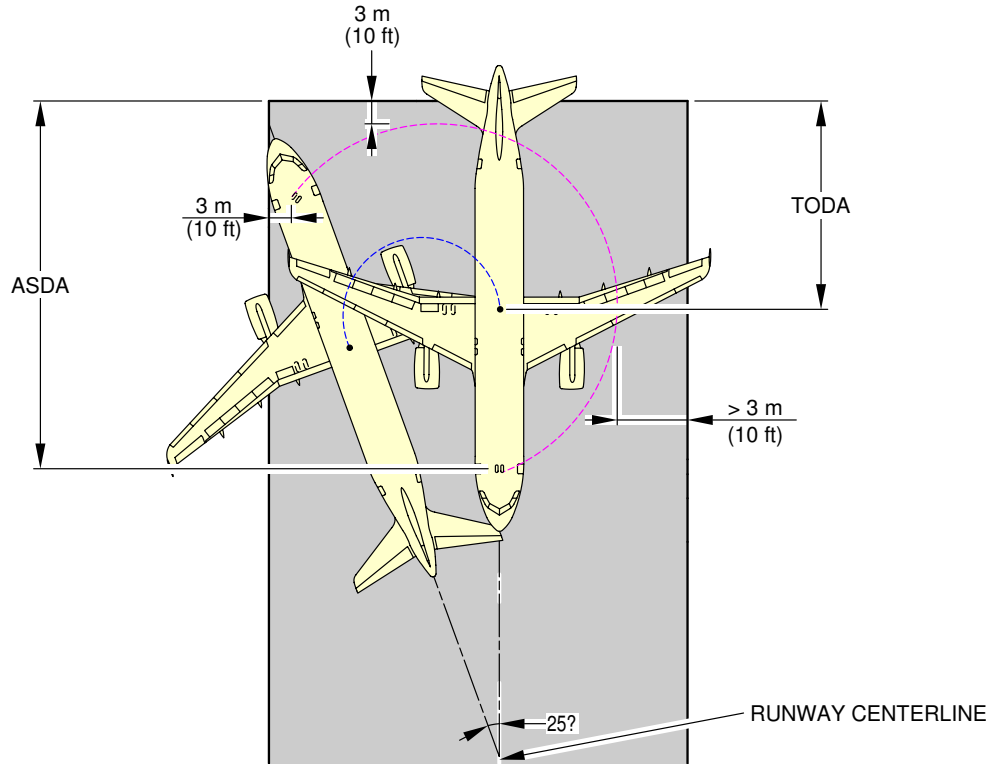
--- ASDA: ACCELERATION-STOP DISTANCE AVAILABLE  
--- TODA: TAKE-OFF DISTANCE AVAILABLE

180° TURN ON RUNWAY TURN PAD							
AIRCRAFT TYPE	MAX STEERING ANGLE	30 m (100 ft)/45 m (150 ft)/60 m (200 ft) WIDE RUNWAY					
		MINIMUM LINE-UP DISTANCE CORRECTION				REQUIRED MINIMUM PAVEMENT WIDTH	
		ON TODA		ON ASDA			
A320	75°	16.7 m	55 ft	29.3 m	96 ft	30.8 m	101 ft

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Minimum Line-Up Distance Corrections  
 180° Turn on Runway Turn Pad  
 FIGURE-4-7-0-991-024-A01

\*\*ON A/C A320-200 A320neo



--- ASDA: ACCELERATION-STOP DISTANCE AVAILABLE  
 --- TODA: TAKE-OFF DISTANCE AVAILABLE

180° TURN ON RUNWAY WIDTH									
AIRCRAFT TYPE	MAX STEERING ANGLE	30 m (100 ft) WIDE RUNWAY				45 m (150 ft)/60 m (200 ft) WIDE RUNWAY			
		MINIMUM LINE-UP DISTANCE CORRECTION				MINIMUM LINE-UP DISTANCE CORRECTION			
		ON TODA		ON ASDA		ON TODA		ON ASDA	
A320	75°	21.3 m	70 ft	33.9 m	111 ft	16.7 m	55 ft	29.3 m	96 ft

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Minimum Line-Up Distance Corrections  
 180° Turn on Runway Width  
 FIGURE-4-7-0-991-025-A01



4-8-0 Aircraft Mooring

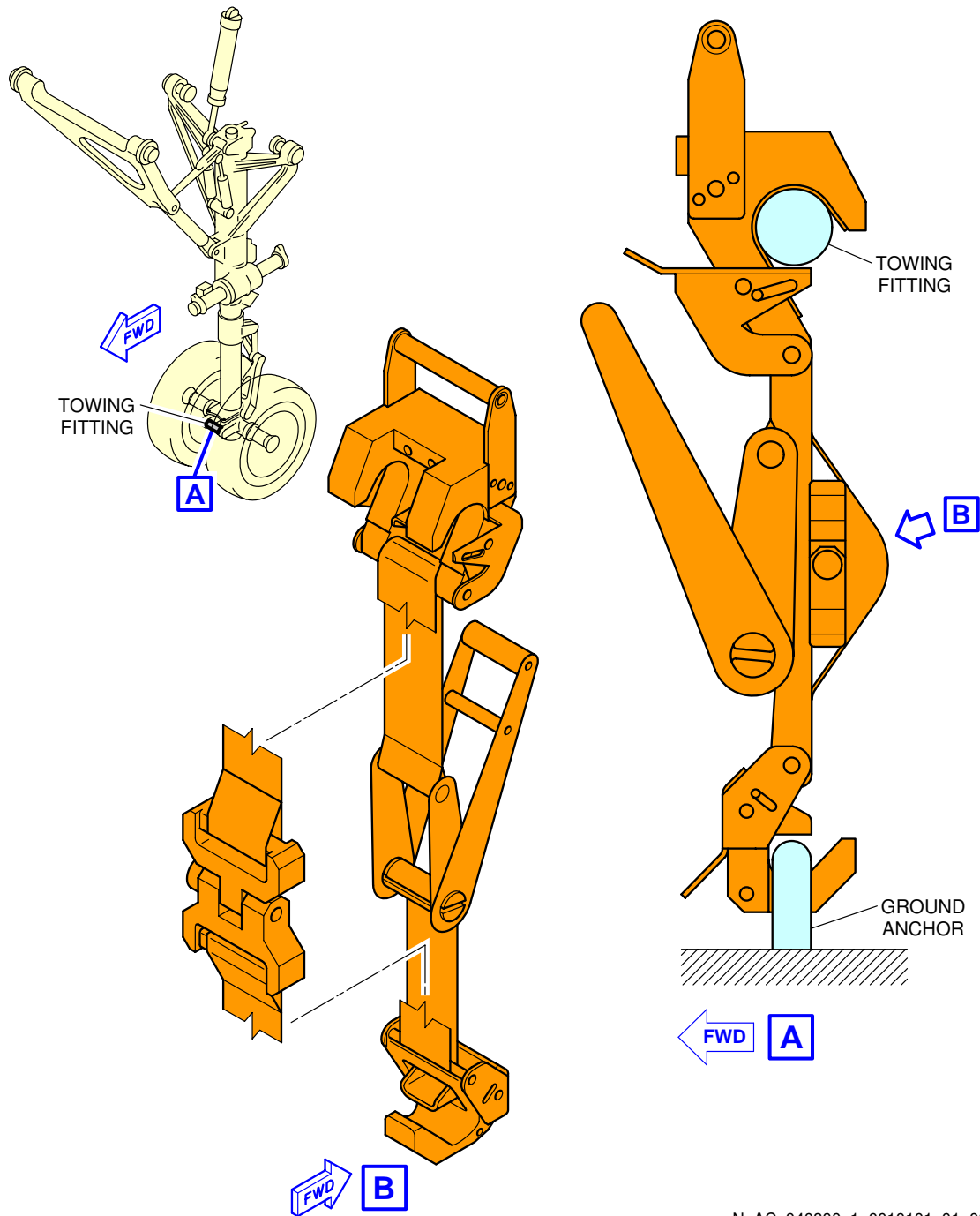
\*\*ON A/C A320-200 A320neo

Aircraft Mooring

1. This section provides information on aircraft mooring.



\*\*ON A/C A320-200 A320neo



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Aircraft Mooring  
FIGURE-4-8-0-991-001-A01

TERMINAL SERVICING

## 5-1-1 Aircraft Servicing Arrangements

**\*\*ON A/C A320-200 A320neo**Aircraft Servicing Arrangements

1. This section provides typical ramp layouts, showing the various GSE items in position during typical turn-round scenarios.

These ramp layouts show typical arrangements only. Each operator will have its own specific requirements/regulations for positioning and operation on the ramp.

This table gives the symbols used on servicing diagrams.

Ground Support Equipment	
AC	AIR CONDITIONING UNIT
AS	AIR START UNIT
BULK	BULK TRAIN
CAT	CATERING TRUCK
CB	CONVEYOR BELT
CLEAN	CLEANING TRUCK
FUEL	FUEL HYDRANT DISPENSER or TANKER
GPU	GROUND POWER UNIT
LDCL	LOWER DECK CARGO LOADER
LV	LAVATORY VEHICLE
PBB	PASSENGER BOARDING BRIDGE
PS	PASSENGER STAIRS
TOW	TOW TRACTOR
ULD	ULD TRAIN
WV	POTABLE WATER VEHICLE

## 5-1-2 Typical Ramp Layout - Open Apron

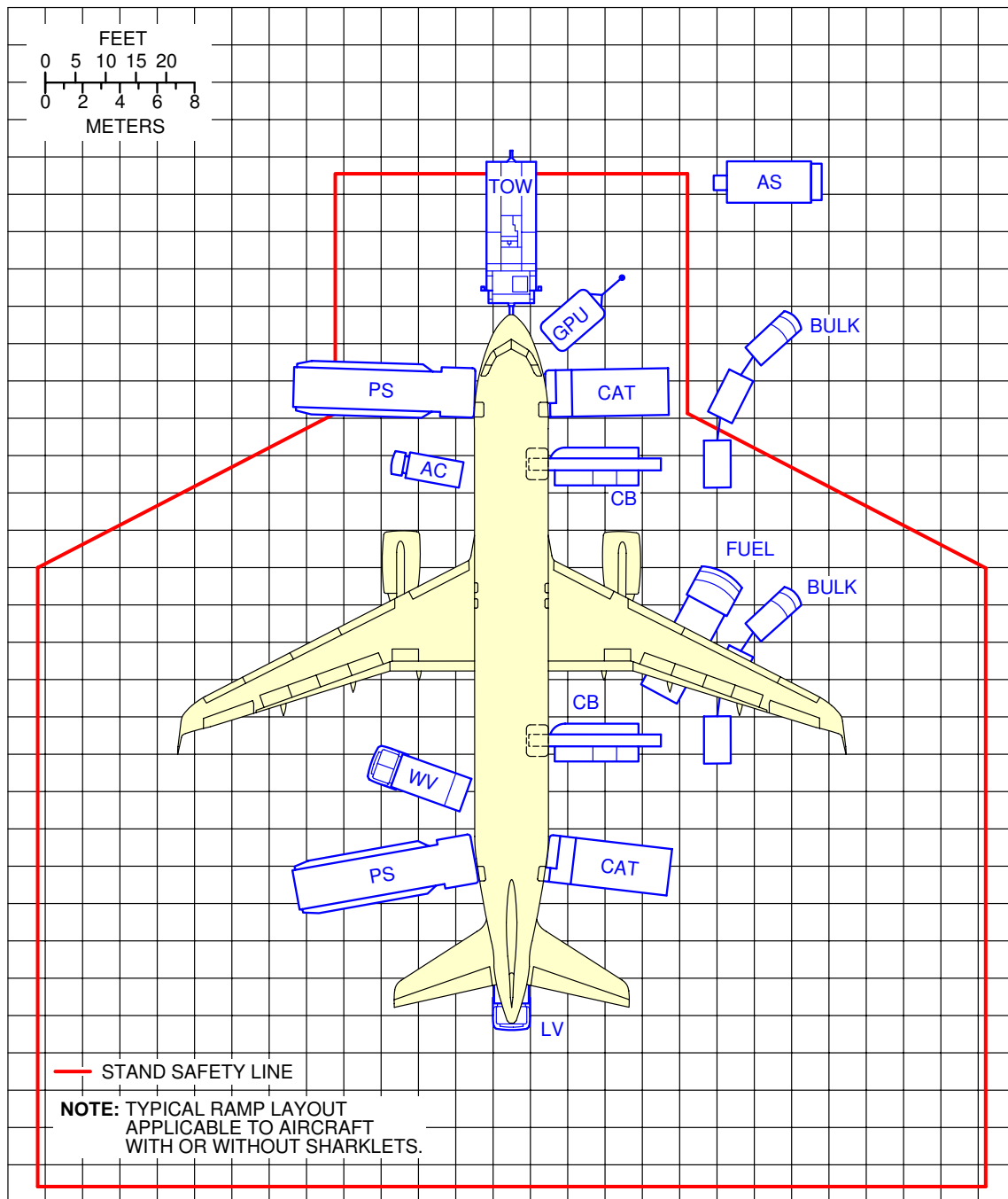
**\*\*ON A/C A320-200 A320neo**

### Typical Ramp Layout - Open Apron

1. This section gives the typical servicing arrangement for pax version (Open Apron).

The Stand Safety Line delimits the Aircraft Safety Area (minimum distance of 7.5 m from the aircraft). No vehicle must be parked in this area before complete stop of the aircraft (wheel chocks in position on landing gears).

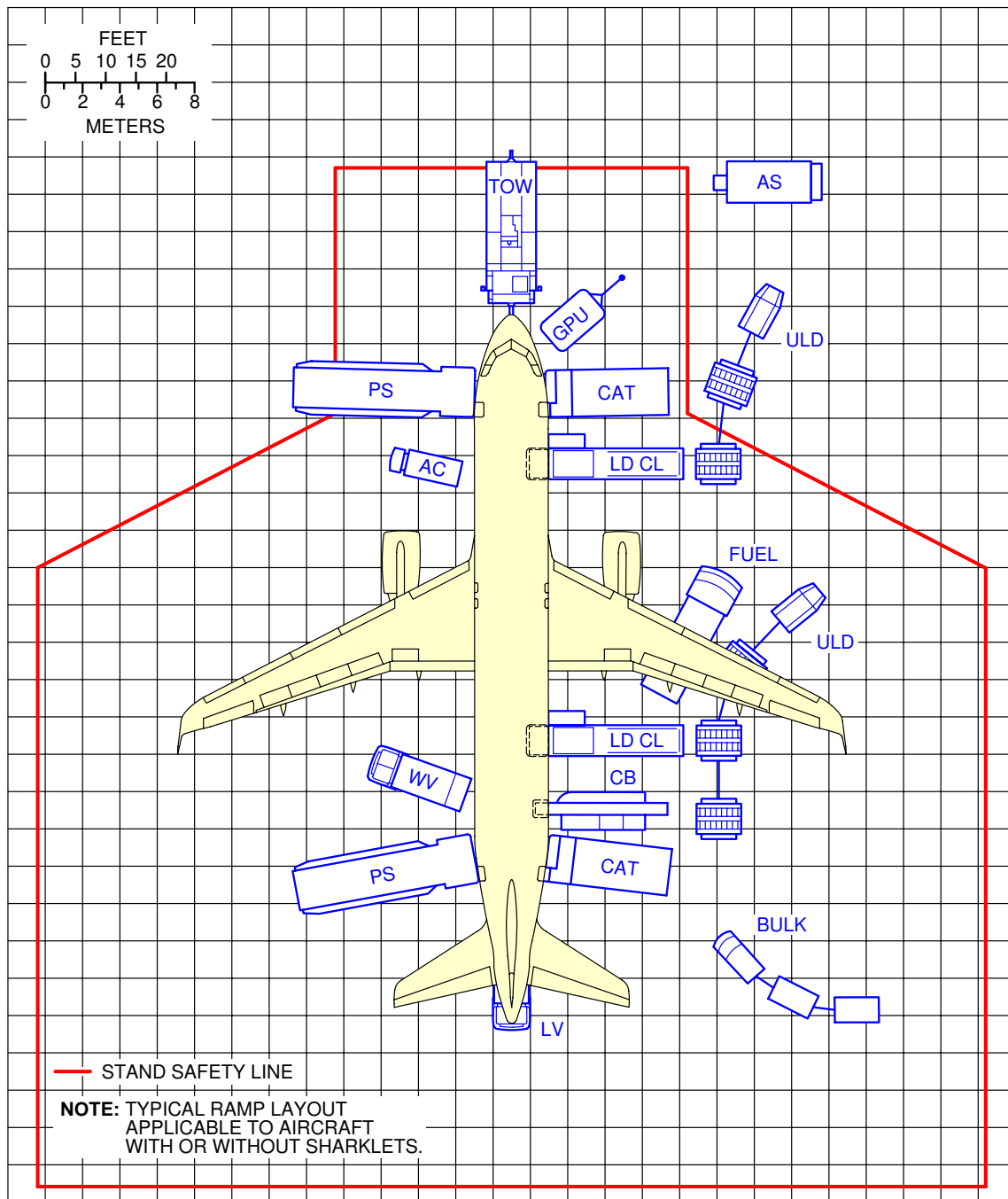
\*\*ON A/C A320-200 A320neo



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Typical Ramp Layout  
Open Apron - Bulk Loading  
FIGURE-5-1-2-991-003-A01

\*\*ON A/C A320-200 A320neo



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Typical Ramp Layout  
Open Apron - ULD Loading  
FIGURE-5-1-2-991-009-A01

### 5-1-3 Typical Ramp Layout - Gate

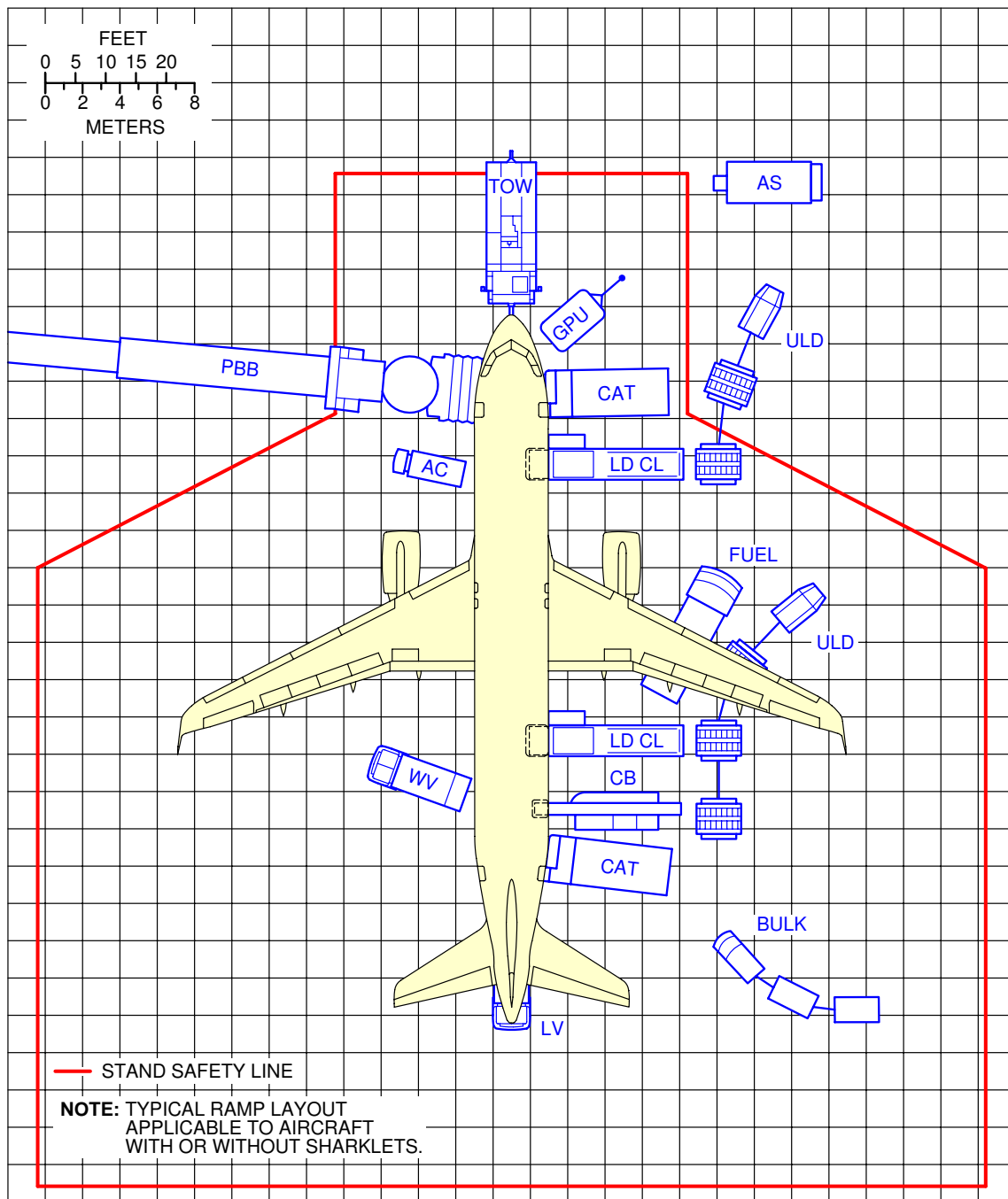
**\*\*ON A/C A320-200 A320neo**

#### Typical Ramp Layout - Gate

1. This section gives the typical servicing arrangement for pax version (Passenger Bridge).

The Stand Safety Line delimits the Aircraft Safety Area (minimum distance of 7.5 m from the aircraft). No vehicle must be parked in this area before complete stop of the aircraft (wheel chocks in position on landing gears).

\*\*ON A/C A320-200 A320neo



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Typical Ramp Layout  
Gate  
FIGURE-5-1-3-991-002-A01

## 5-2-0 Terminal Operations - Full Servicing Turn Round Time Chart

**\*\*ON A/C A320-200 A320neo**

### Terminal Operations - Full Servicing Turn Round Time

1. This section provides a typical turn round time chart showing the typical time for ramp activities during aircraft turn round.  
Actual times may vary due to each operator's specific practices, resources, equipment and operating conditions.

2. Assumptions used for full servicing turn round time chart

#### A. PASSENGER HANDLING

150 pax: 12 F/C + 138 Y/C.

All passengers deplane and board the aircraft.

1 Passenger Boarding Bridge (PBB) used at door 1L.

Equipment positioning + opening door = +2 min.

Closing door + equipment removal = +1.5 min.

No Passenger with Reduced Mobility (PRM) on board.

Deplaning:

- 150 pax at door 1L
- Deplaning rate = 20 pax/min per door
- Priority deplaning for premium passengers.

Boarding:

- 150 pax at door 1L
- Boarding rate = 12 pax/min per door
- Last Pax Seating allowance (LPS) + headcounting = +2 min.

#### B. CARGO

2 cargo loaders + 1 belt loader.

Opening door + equipment positioning = +2 min.

Equipment removal + closing door = +1.5 min.

100% cargo exchange (baggage only):

- FWD cargo compartment: 3 containers
- AFT cargo compartment: 4 containers
- Bulk compartment: 500 kg (1 102 lb).

Container unloading/loading times:

- Unloading = 1.5 min/container
- Loading = 1.5 min/container.

Bulk unloading/loading times:



- Unloading = 150 kg/min (331 lb/min)
- Loading = 120 kg/min (265 lb/min).

**C. REFUELING**

Uplifted quantity: 20 000 l (5 283 US gal) at 50 psig (3.45 bars-rel), one hose (right wing).  
Truck positioning/removal + connection/disconnection times = +2.5 min.  
No refuel with pax on board

**D. CLEANING**

Cleaning is performed in available time.

**E. CATERING**

1 catering truck for servicing galleys sequentially at doors 1R and 4R.  
Equipment positioning + opening door = +2 min.  
Closing door + equipment removal = +1.5 min.  
Time to drive from one door to the other = +2 min.

Full Size Trolley Equivalent (FSTE) to unload and load: 11 FSTE

- 4 FSTE at door 1R
- 7 FSTE at door 4R.

Time for trolley exchange = 1.2 min per FSTE.

**F. GROUND HANDLING/GENERAL SERVICING**

Start of operations:

- Bridges/stairs:  $t_0 = 0$
- Other equipment:  $t = t_0$

Ground Power Unit (GPU): up to 90 kVA.

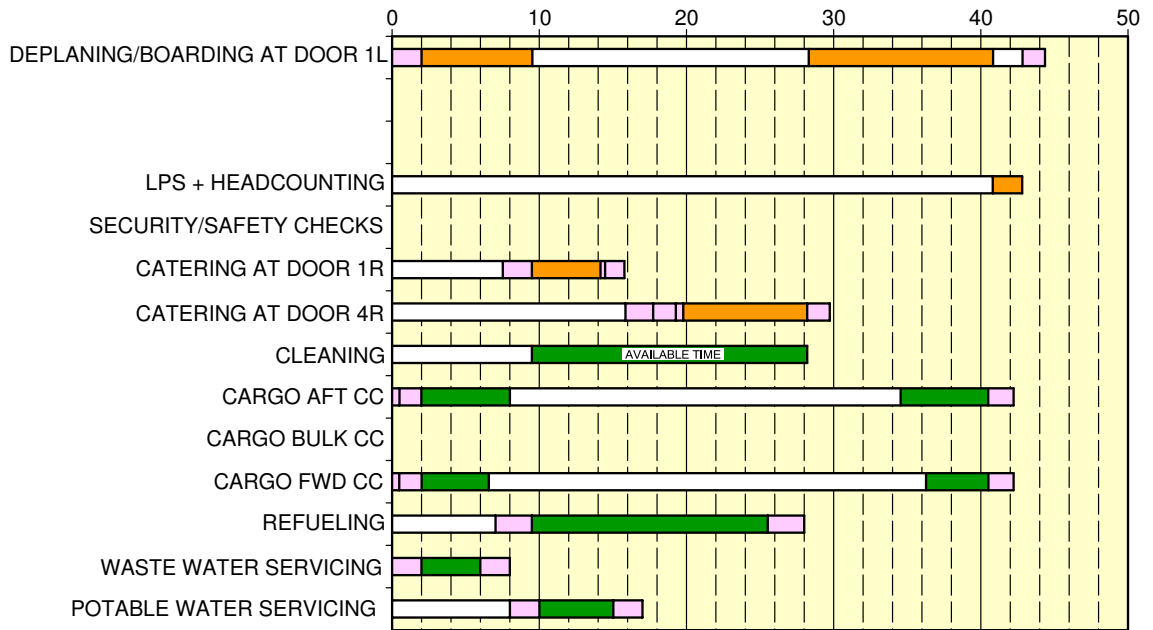
Air conditioning: one hose.

Toilet servicing: draining + rinsing.

Potable water servicing: 100% uplift, 200 l (53 US gal).

\*\*ON A/C A320-200 A320neo

TRT: 44 min



- GSE POSITIONING/REMOVAL
- ACTIVITY
- CRITICAL PATH

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Full Servicing Turn Round Time Chart  
FIGURE-5-2-0-991-006-A01

### 5-3-0 Terminal Operation - Outstation Turn Round Time Chart

**\*\*ON A/C A320-200 A320neo**

#### Terminal Operations - Outstation Turn Round Time

1. This section provides a typical turn round time chart showing the typical time for ramp activities during aircraft turn round.  
Actual times may vary due to each operator's specific practices, resources, equipment and operating conditions.

2. Assumptions used for outstation turn round time chart

#### A. PASSENGER HANDLING

180 pax (all Y/C).

All passengers deplane and board the aircraft.

2 stairways used at doors 1L and 4L.

Equipment positioning + opening door = +2 min.

Closing door + equipment removal = +1.5 min.

No Passenger with Reduced Mobility (PRM) on board.

Deplaning:

- 90 pax at door 1L
- 90 pax at door 4L
- Deplaning rate = 18 pax/min per door.

Boarding:

- 90 pax at door 1L
- 90 pax at door 4L
- Boarding rate = 12 pax/min per door
- Last Pax Seating allowance (LPS) + headcounting = +2 min.

#### B. CARGO

2 cargo loaders.

Opening door + equipment positioning = +2 min.

Equipment removal + closing door = +1.5 min.

100% cargo exchange:

- FWD cargo compartment: 3 containers
- AFT cargo compartment: 4 containers.

Container unloading/loading times:

- Unloading = 1.5 min/container
- Loading = 1.5 min/container.

#### C. REFUELING

No refueling.

## D. CLEANING

Cleaning is performed in available time.

## E. CATERING

One catering truck for servicing the galleys as required.

## F. GROUND HANDLING/GENERAL SERVICING

Start of operations:

- Bridges/stairs:  $t_0 = 0$
- Other equipment:  $t = t_0$ .

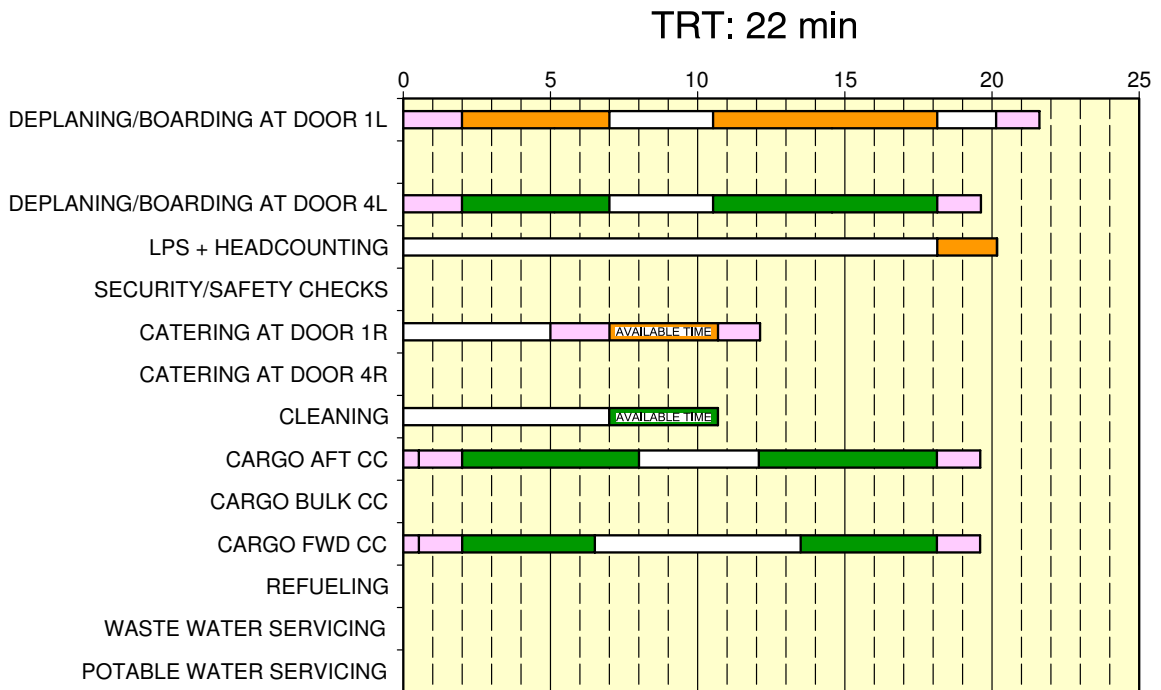
Ground Power Unit (GPU): up to 90 kVA.

Air conditioning: one hose.

No toilet servicing.

No potable water servicing.

\*\*ON A/C A320-200 A320neo



- GSE POSITIONING/REMOVAL
- ACTIVITY
- CRITICAL PATH

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Outstation Turn Round Time Chart  
FIGURE-5-3-0-991-003-A01



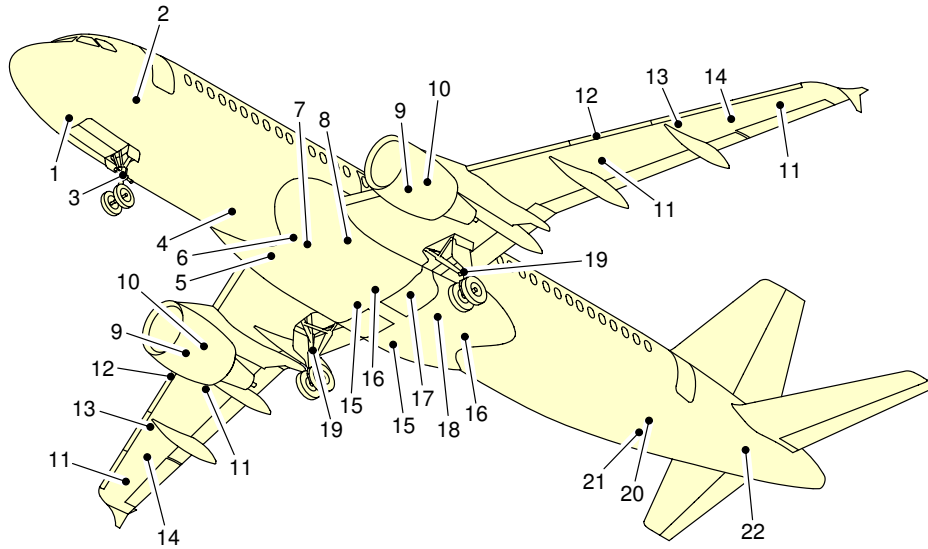
## 5-4-1 Ground Service Connections

**\*\*ON A/C A320-200 A320neo**

### Ground Service Connections Layout

1. This section provides the ground service connections layout.

\*\*ON A/C A320-200 A320neo



- |   |   |
|---|---|
| 1 – GROUND ELECTRICAL POWER CONNECTOR           | 13 – OVERWING REFUEL (IF INSTALLED)   |
| 2 – OXYGEN SYSTEM                               | 14 – NACA VENT INTAKE   |
| 3 – NLG GROUNDING (EARTHING) POINT              | 15 – YELLOW HYDRAULIC-SYSTEM SERVICE PANEL                                  |
| 4 – POTABLE WATER DRAIN PANEL (OPTIONAL)        | 16 – BLUE HYDRAULIC-SYSTEM SERVICE PANEL                                    |
| 5 – POTABLE WATER DRAIN PANEL                   | 17 – ACCUMULATOR CHARGING (GREEN SYSTEM) AND RESERVOIR DRAIN (GREEN SYSTEM) |
| 6 – LOW PRESSURE AIR PRE-CONDITIONING           | 18 – GREEN HYDRAULIC-SYSTEM SERVICE PANEL                                   |
| 7 – HIGH PRESSURE AIR PRE-CONDITIONING          | 19 – MLG GROUNDING (EARTHING) POINT   |
| 8 – REFUEL/DEFUEL INTEGRATED PANEL              | 20 – WASTE WATER SERVICE PANEL  |
| 9 – IDG/STARTER OIL SERVICING                   | 21 – POTABLE WATER SERVICE PANEL  |
| 10 – ENGINE OIL SERVICING                       | 22 – APU OIL SERVICING  |
| 11 – OVERPRESSURE PROTECTOR                     |   |
| 12 – REFUEL/DEFUEL COUPLINGS (OPTIONAL-LH WING) |   |

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Ground Service Connections Layout  
FIGURE-5-4-1-991-005-A01

5-4-2 Grounding Points

**\*\*ON A/C A320-200 A320neo**

Grounding (Earthing) Points

1. Grounding (Earthing) Points

	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
On Nose Landing Gear leg:	5.07 m (16.63 ft)	On Centerline		0.94 m (3.08 ft)
On left Main Landing Gear leg:	20.25 m (66.44 ft)	3.79 m (12.43 ft)	-	1.07 m (3.51 ft)
On right Main Landing Gear leg:	20.25 m (66.44 ft)	-	3.79 m (12.43 ft)	1.07 m (3.51 ft)

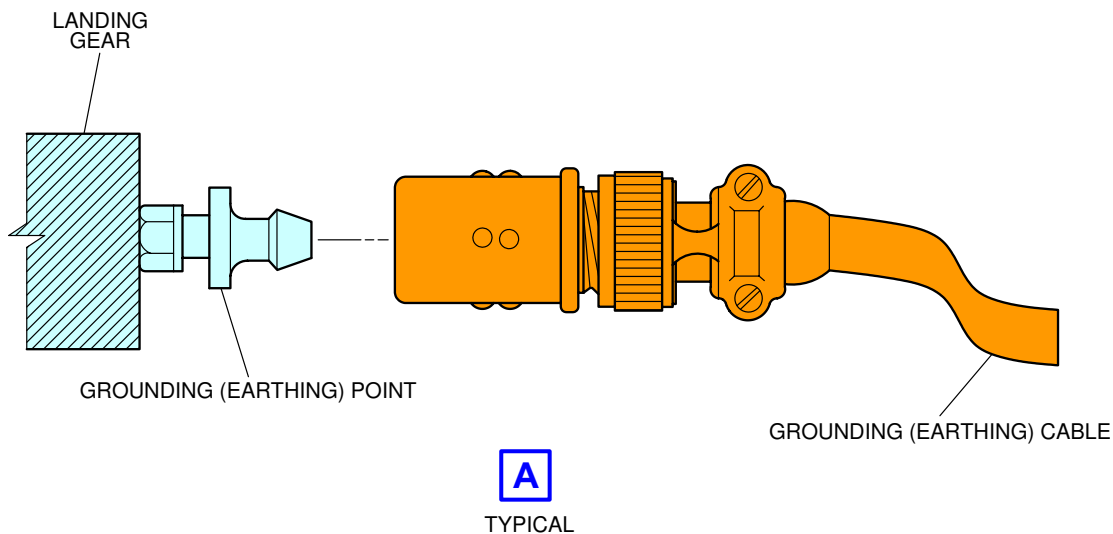
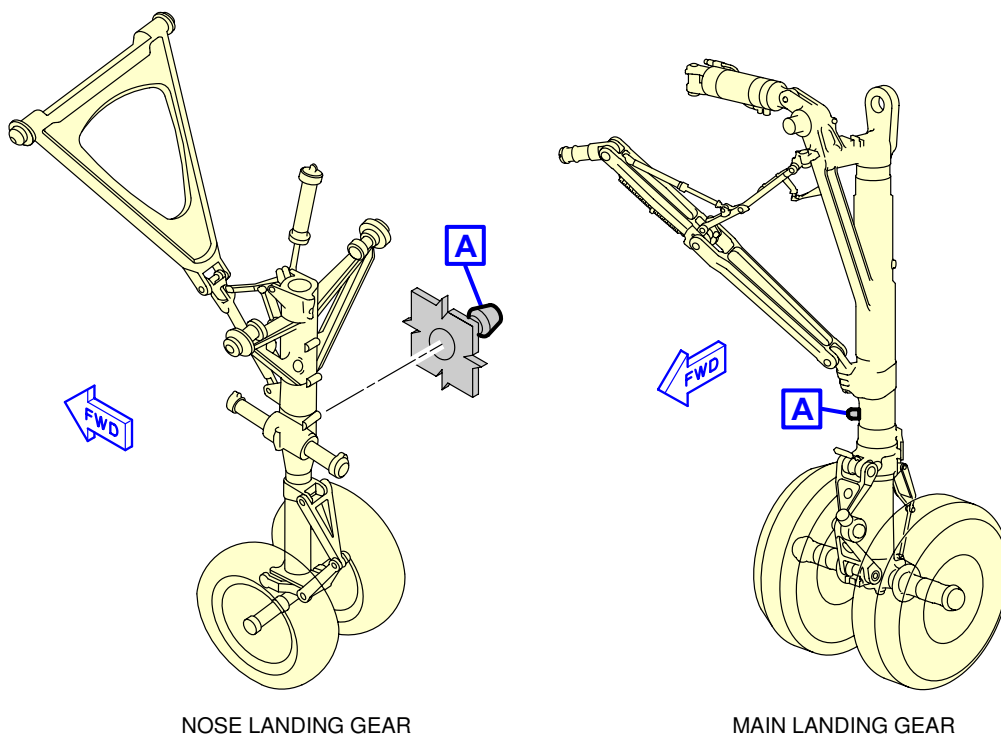
- A. The grounding (earthing) stud on each landing gear leg is designed for use with a clip-on connector (such as Appleton TGR).
- B. The grounding (earthing) studs are used to connect the aircraft to an approved ground (earth) connection on the ramp or in the hangar for:
  - Refuel/defuel operations,
  - Maintenance operations,
  - Bad weather conditions.

**NOTE :** In all other conditions, the electrostatic discharge through the tire is sufficient. If the aircraft is on jacks for retraction and extension checks or for the removal/installation of the landing gear, the grounding (earthing) alternative points (if installed) are:

- In the hole on the avionics-compartment lateral right door-frame (on FR14),
- On the engine nacelles,
- Adjacent to the high-pressure connector,
- On the wing upper surfaces.



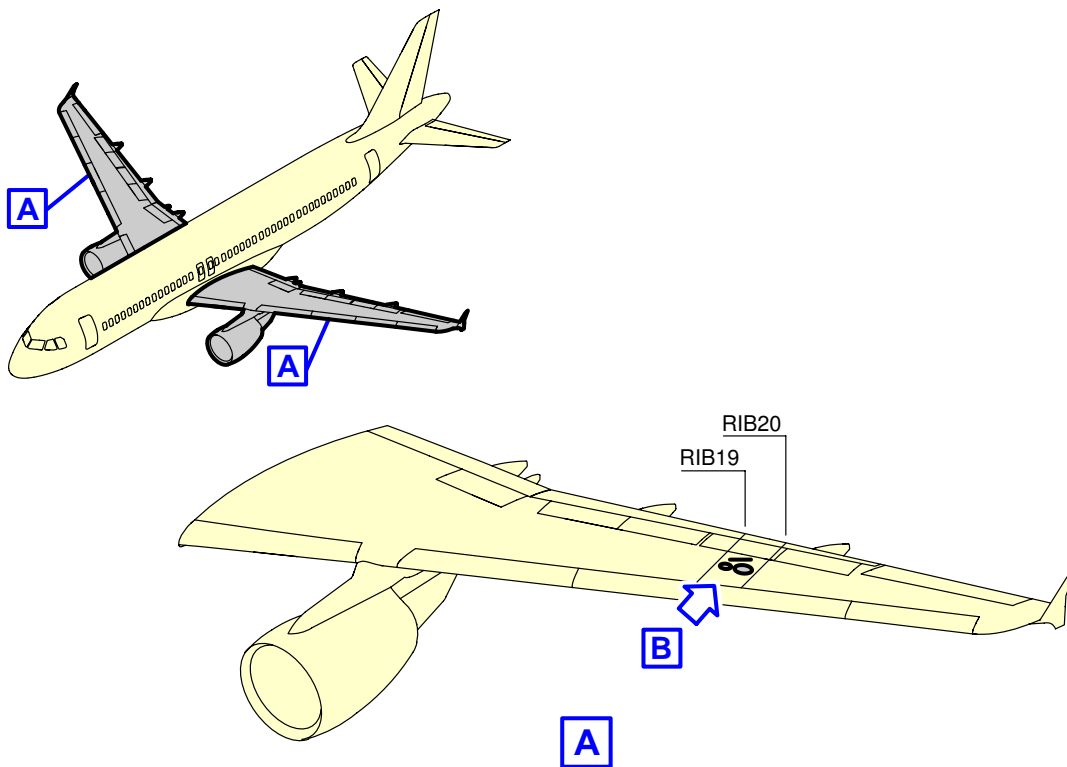
\*\*ON A/C A320-200 A320neo



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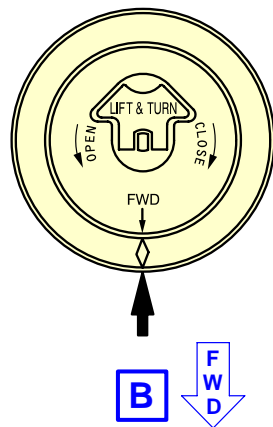
Ground Service Connections  
Grounding (Earthing) Points - Landing Gear  
FIGURE-5-4-2-991-005-A01

\*\*ON A/C A320-200 A320neo



### JET FUEL

FOR SPECIFICATIONS REFER TO FLIGHT MANUAL

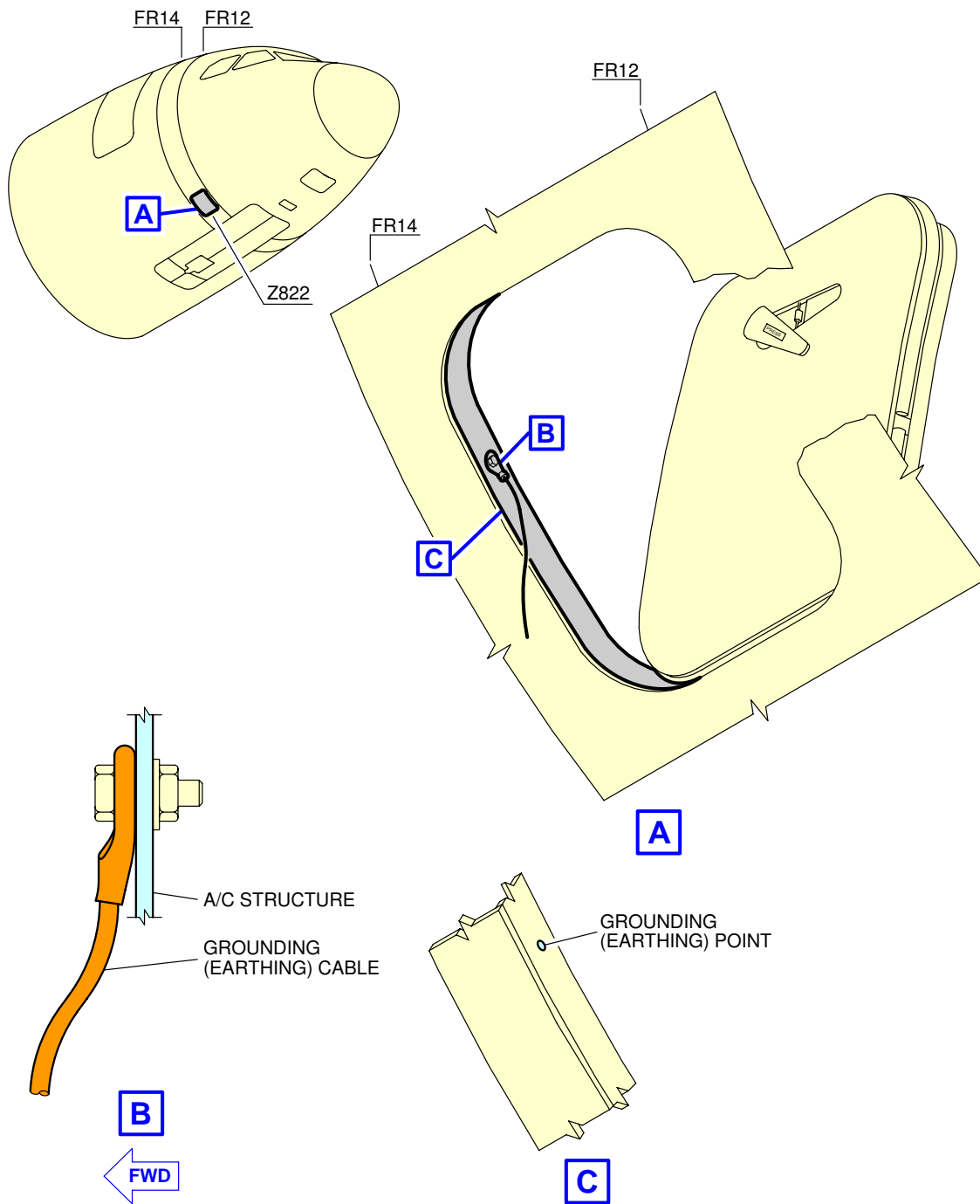


NOTE: R SIDE SYMMETRICAL

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Ground Service Connections  
Grounding (Earthing) Points - Wing (If Installed)  
FIGURE-5-4-2-991-006-A01

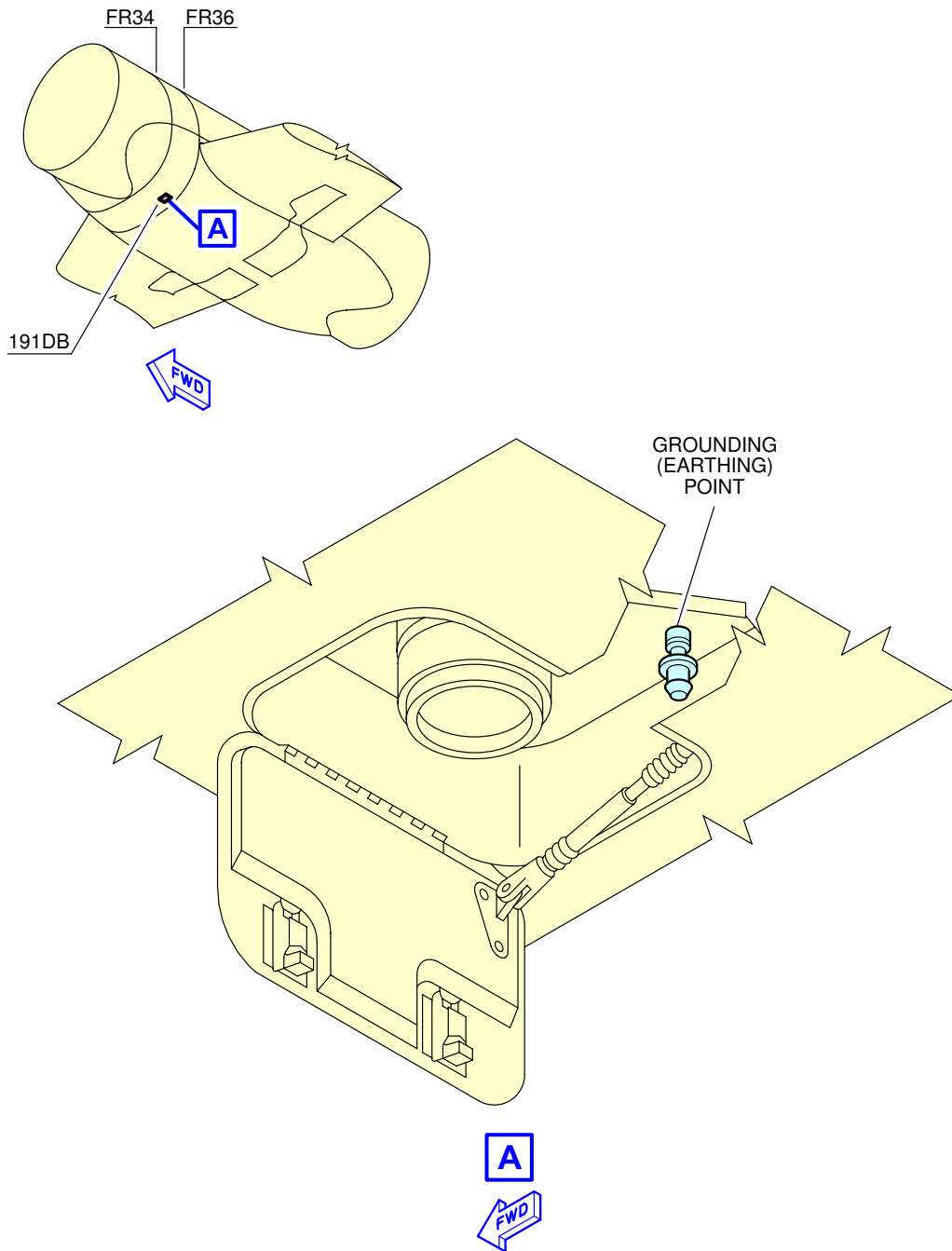
\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Grounding (Earthing) Point - Avionics Compartment Door-Frame  
FIGURE-5-4-2-991-015-A01

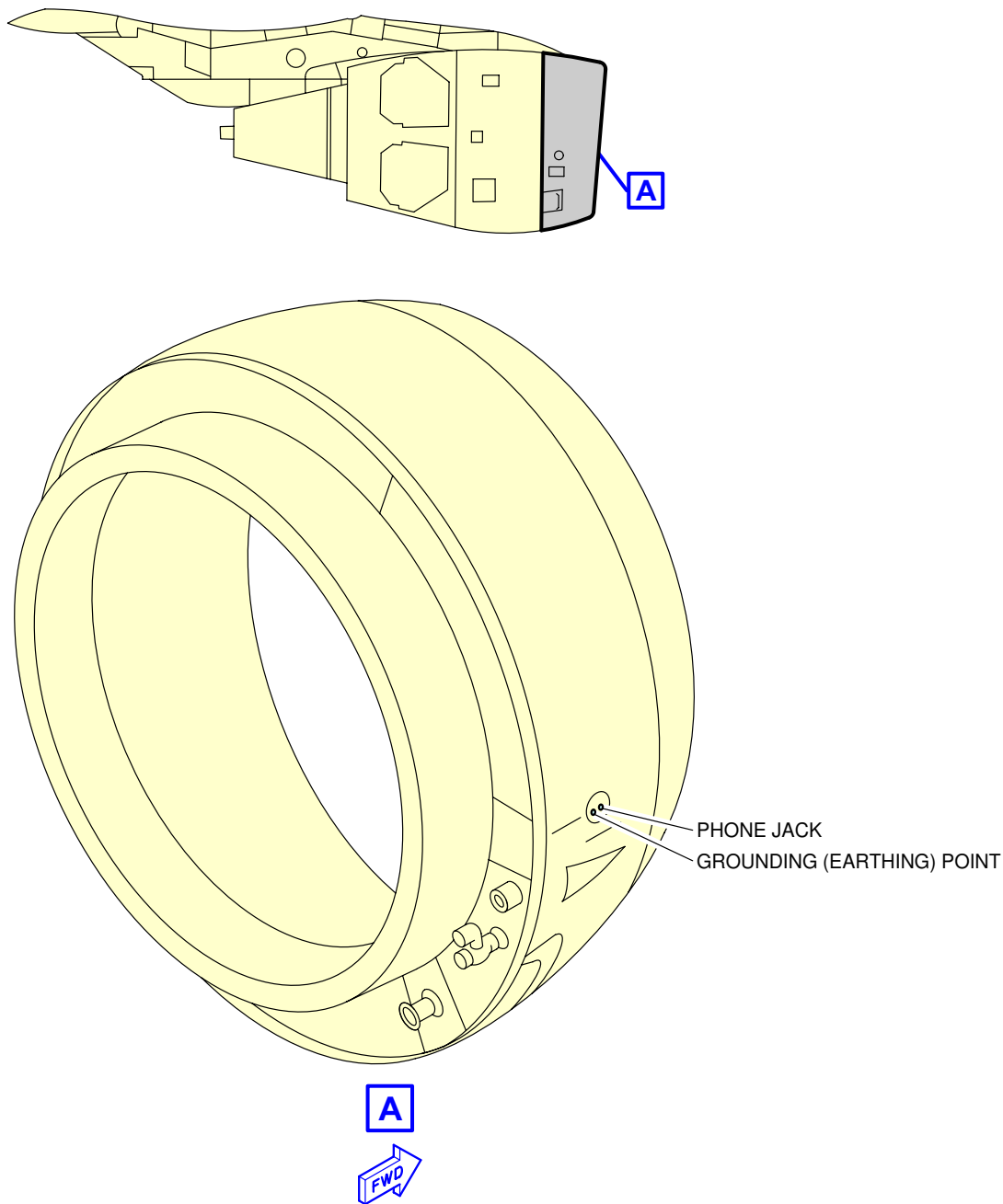
\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Grounding (Earthing) Point - High-Pressure Connector (If Installed)  
FIGURE-5-4-2-991-016-A01

\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Grounding (Earthing) Point - Engine Air Intake (If Installed)  
FIGURE-5-4-2-991-017-A01

5-4-3 Hydraulic System

\*\*ON A/C A320-200 A320neo

Hydraulic Servicing

1. Access

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Green System: Access Door 197CB	19.17 m (62.89 ft)	1.27 m (4.17 ft)		1.76 m (5.77 ft)
Yellow System: Access Door 198CB	19.17 m (62.89 ft)		1.27 m (4.17 ft)	1.76 m (5.77 ft)
Blue System: Access Door 197EB	20.22 m (66.34 ft)	1.27 m (4.17 ft)		1.76 m (5.77 ft)

2. Reservoir Pressurization

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Access Door 195BB	15.65 m (51.35 ft)	0.25 m (0.82 ft)		1.74 m (5.71 ft)

3. Accumulator Charging

Four MIL-PRF-6164 connections:

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Yellow System Accumulator: Access Door 196BB	15.65 m (51.35 ft)		0.25 m (0.82 ft)	1.74 m (5.71 ft)

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		LH SIDE	RH SIDE	
Green System Accumulator: Left MLG Door	16.77 m (55.02 ft)	0.25 m (0.82 ft)		3.20 m (10.50 ft)
Blue System Accumulator: Access Door 195BB	15.65 m (51.35 ft)	0.25 m (0.82 ft)		1.74 m (5.71 ft)
Yellow System Braking Accumulator: Access Door 196BB	15.65 m (51.35 ft)		0.25 m (0.82 ft)	1.74 m (5.71 ft)

#### 4. Reservoir Filling

Centralized filling capability on the Green System ground service panel:

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		LH SIDE	RH SIDE	
Access Door 197CB	19.17 m (62.89 ft)	1.27 m (4.17 ft)		1.76 m (5.77 ft)

Filling: Ground pressurized supply or hand pump.

#### 5. Reservoir Drain

Three 3/8 in. self-sealing connections:

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		LH SIDE	RH SIDE	
Yellow System: Access Door 196BB	15.65 m (51.35 ft)		0.25 m (0.82 ft)	1.74 m (5.71 ft)
Green System: Left MLG Door	16.77 m (55.02 ft)	0.25 m (0.82 ft)		3.20 m (10.50 ft)

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Blue System: Access Door 197EB	20.22 m (66.34 ft)	1.27 m (4.17 ft)		1.76 m (5.77 ft)

NOTE : The drain valve is on the Blue System ground service panel for the reservoir of the Blue hydraulic system.

The drain valve is on the reservoir for the Green and Yellow Hydraulic Systems.

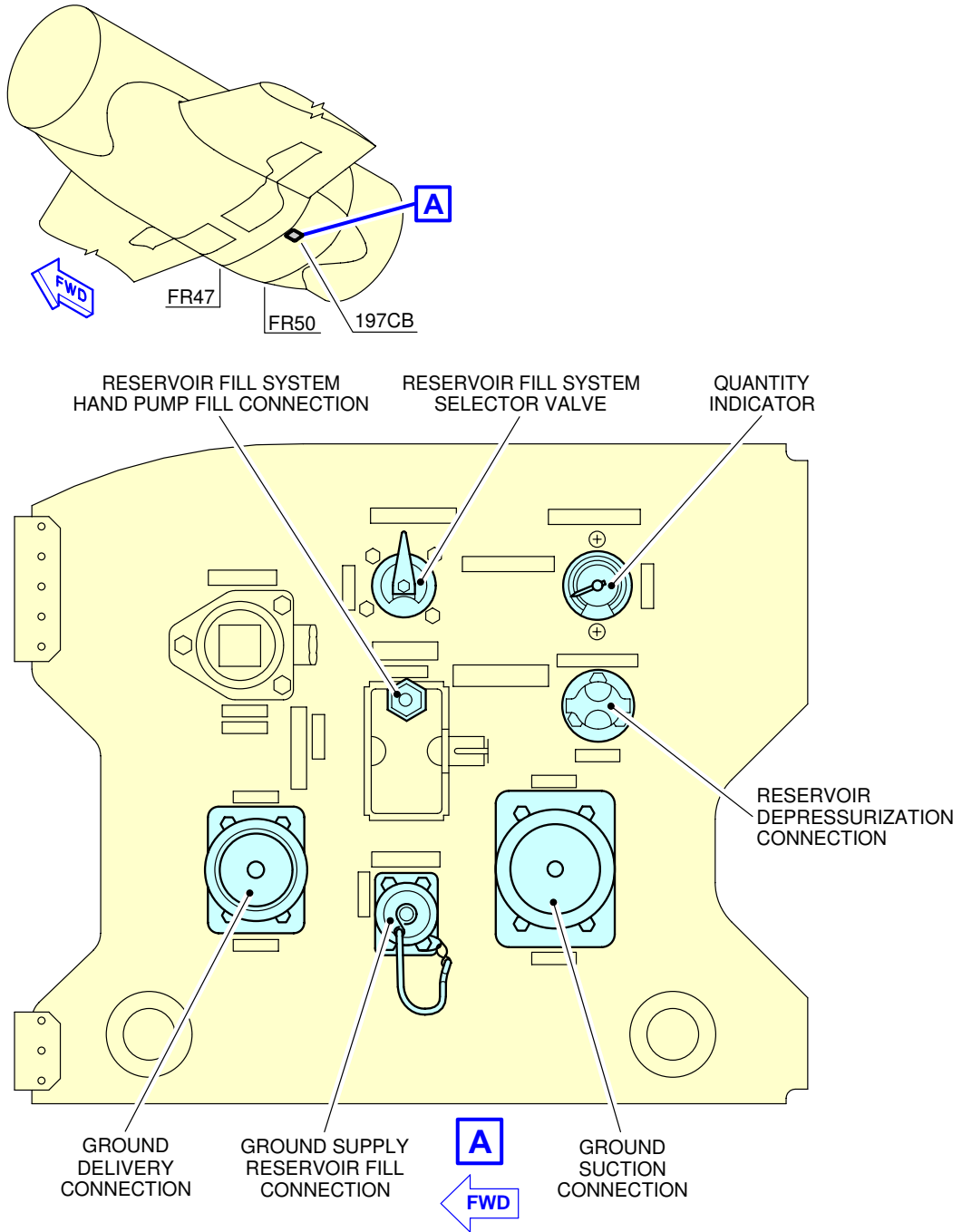
6. Ground Test

On each ground service panel:

- One self-sealing connector (suction).
- One self-sealing connector (delivery).



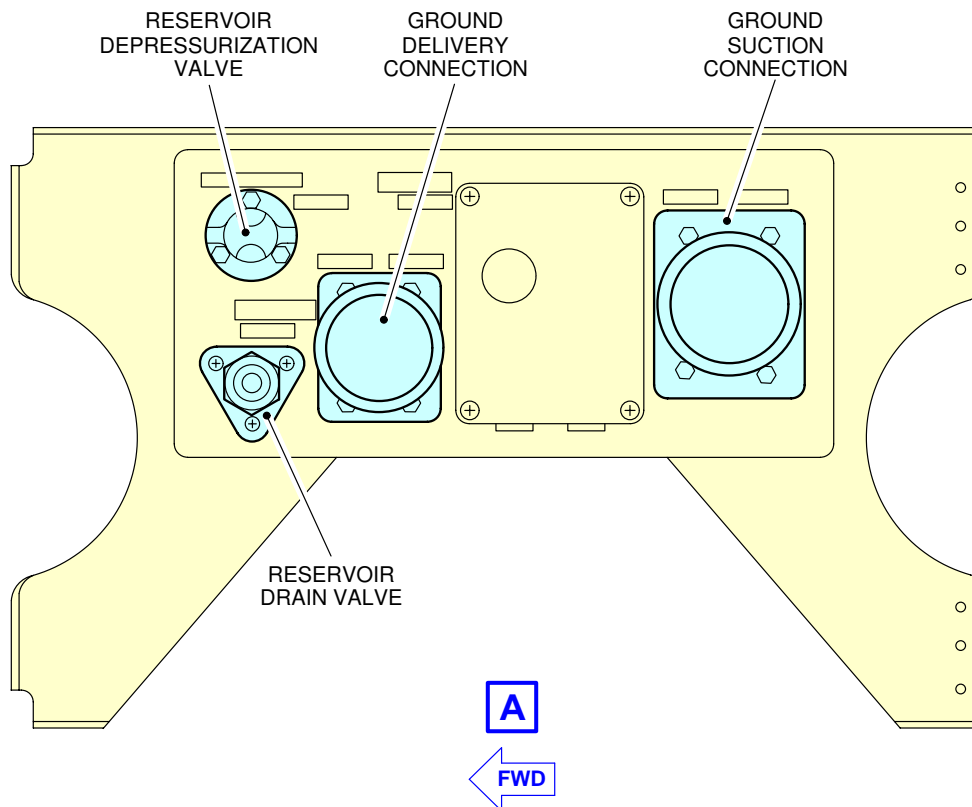
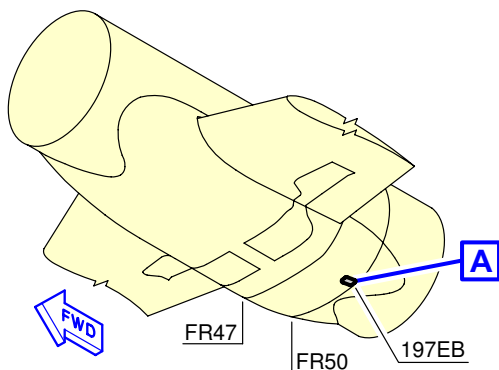
**\*\*ON A/C A320-200 A320neo**



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Ground Service Connections  
 Green System Ground Service Panel  
 FIGURE-5-4-3-991-004-A01

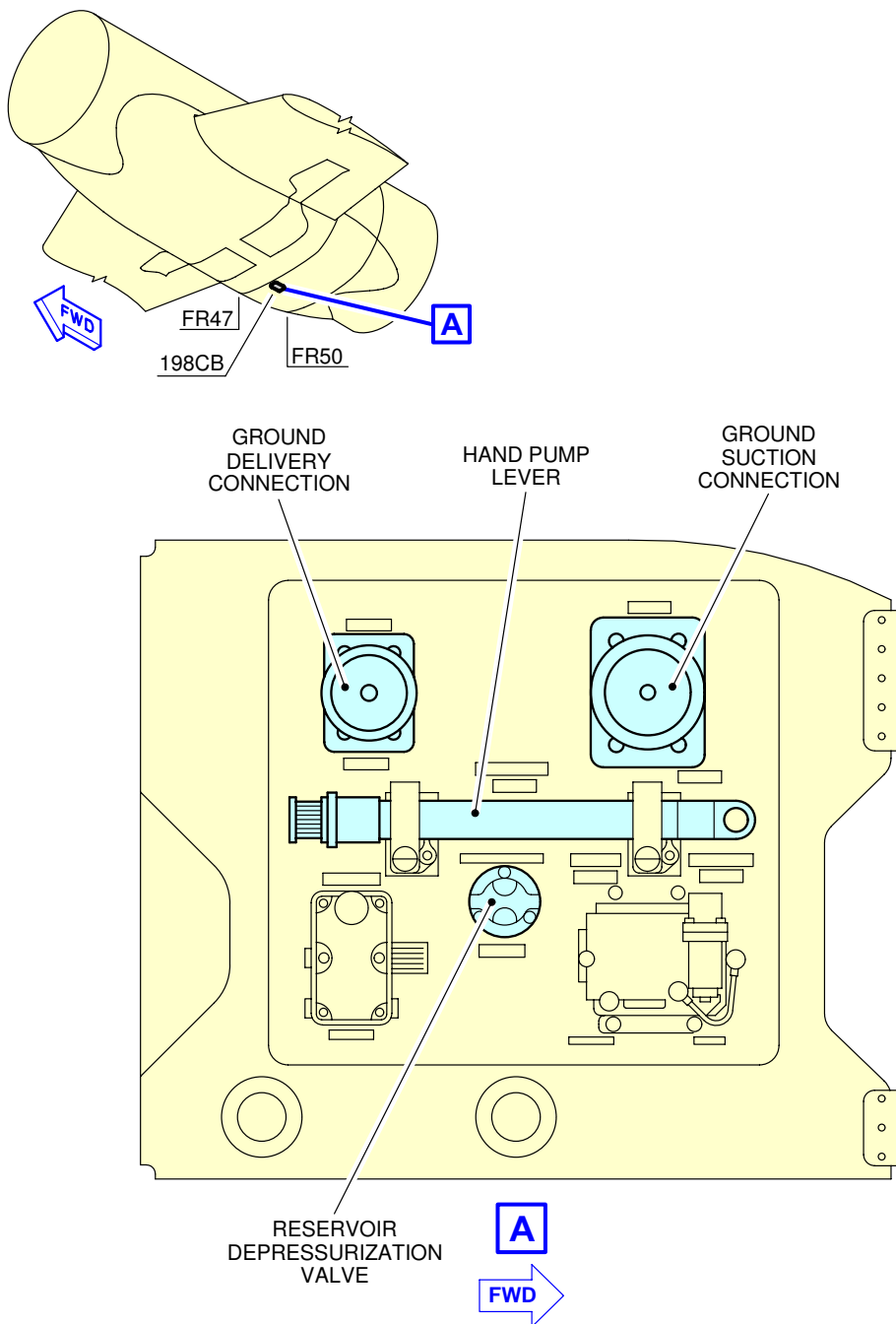
\*\*ON A/C A320-200 A320neo



N\_AC\_050403\_1\_0050101\_01\_01

Ground Service Connections  
Blue System Ground Service Panel  
FIGURE-5-4-3-991-005-A01

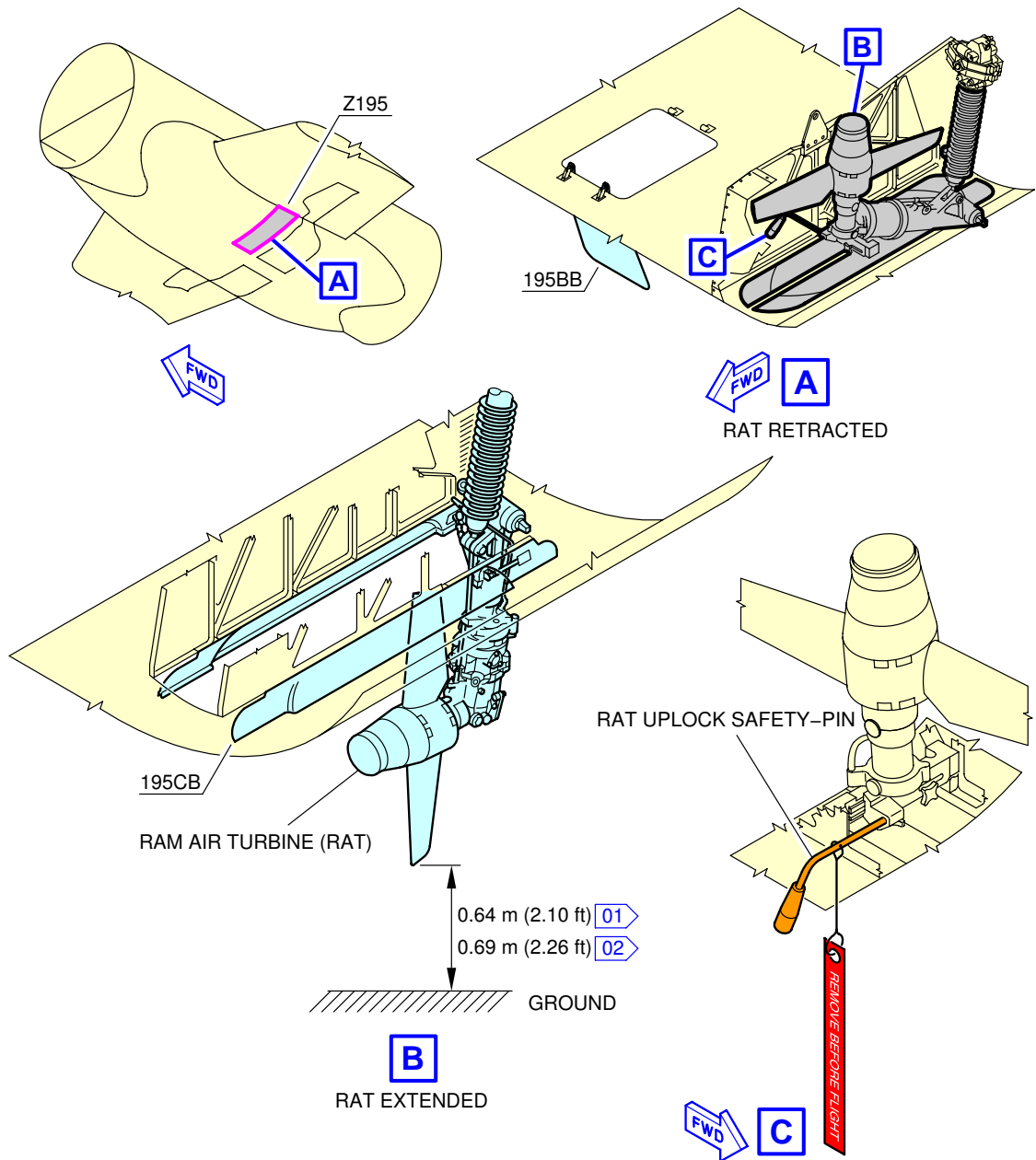
\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Yellow System Ground Service Panel  
FIGURE-5-4-3-991-006-A01

\*\*ON A/C A320-200 A320neo



**NOTE:**

[01] FOR A318, A319 AND A320

[02] FOR A321

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Ground Service Connections  
RAT  
FIGURE-5-4-3-991-007-A01

5-4-4 Electrical System

**\*\*ON A/C A320-200 A320neo**

Electrical System

1. Electrical System

This chapter provides data related to the location of the ground service connections.

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
A/C External Power: Access Door 121AL	2.55 m (8.37 ft)	On centerline		2.00 m (6.56 ft)

NOTE : Distances are approximate.

2. Technical Specifications

A. External Power Receptacle:

- One receptacle according to MS 90362-3 (without shield MS 17845-1) – 90 kVA.

NOTE : Make sure that for connectors featuring micro switches, the connector is chamfered to properly engage in the receptacle.

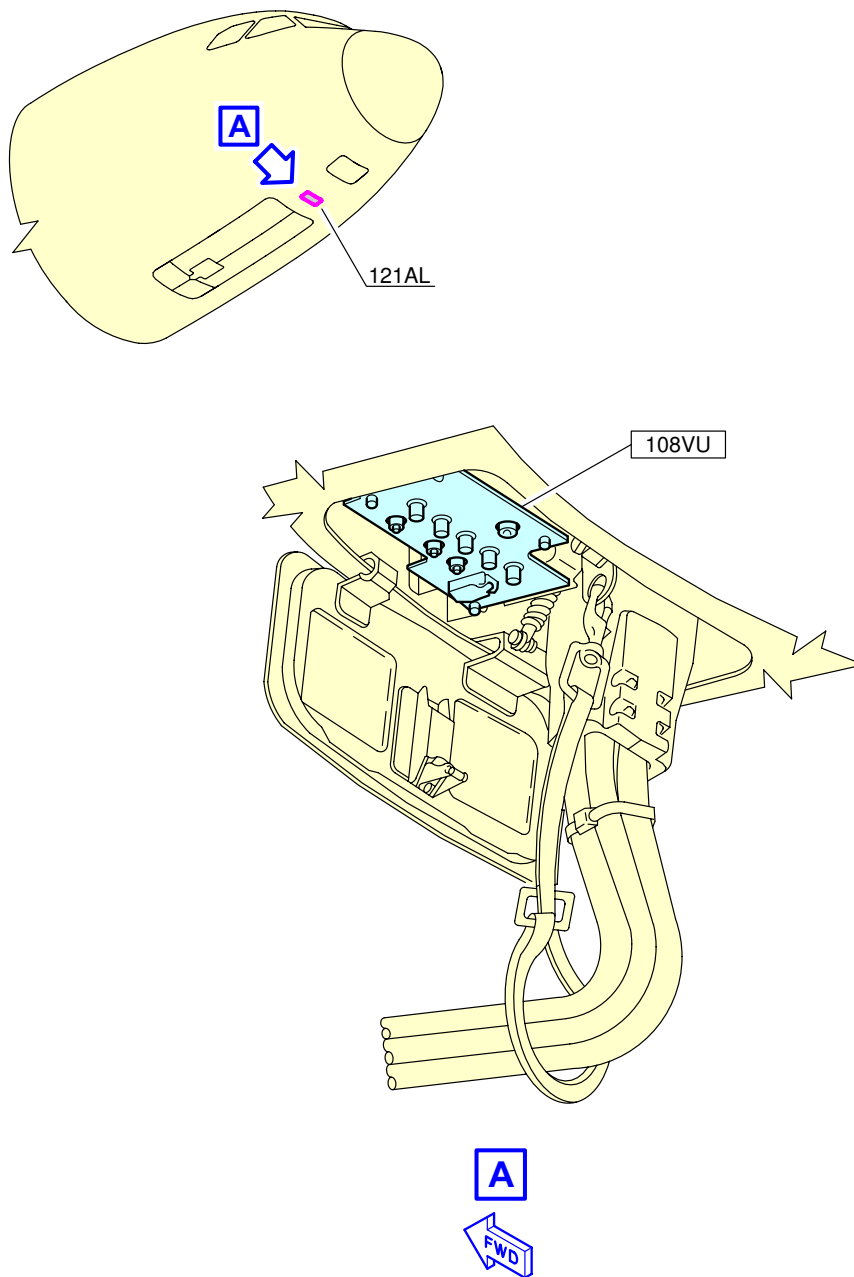
B. Power Supply:

- Three-phase, 115/200V, 400 Hz.

C. Electrical Connectors for Servicing:

- AC outlets: HUBBELL 5258
- DC outlets: HUBBELL 7472.

\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
External Power Receptacles  
FIGURE-5-4-4-991-001-A01

5-4-5 Oxygen System

**\*\*ON A/C A320-200 A320neo**

Oxygen System

1. Oxygen System

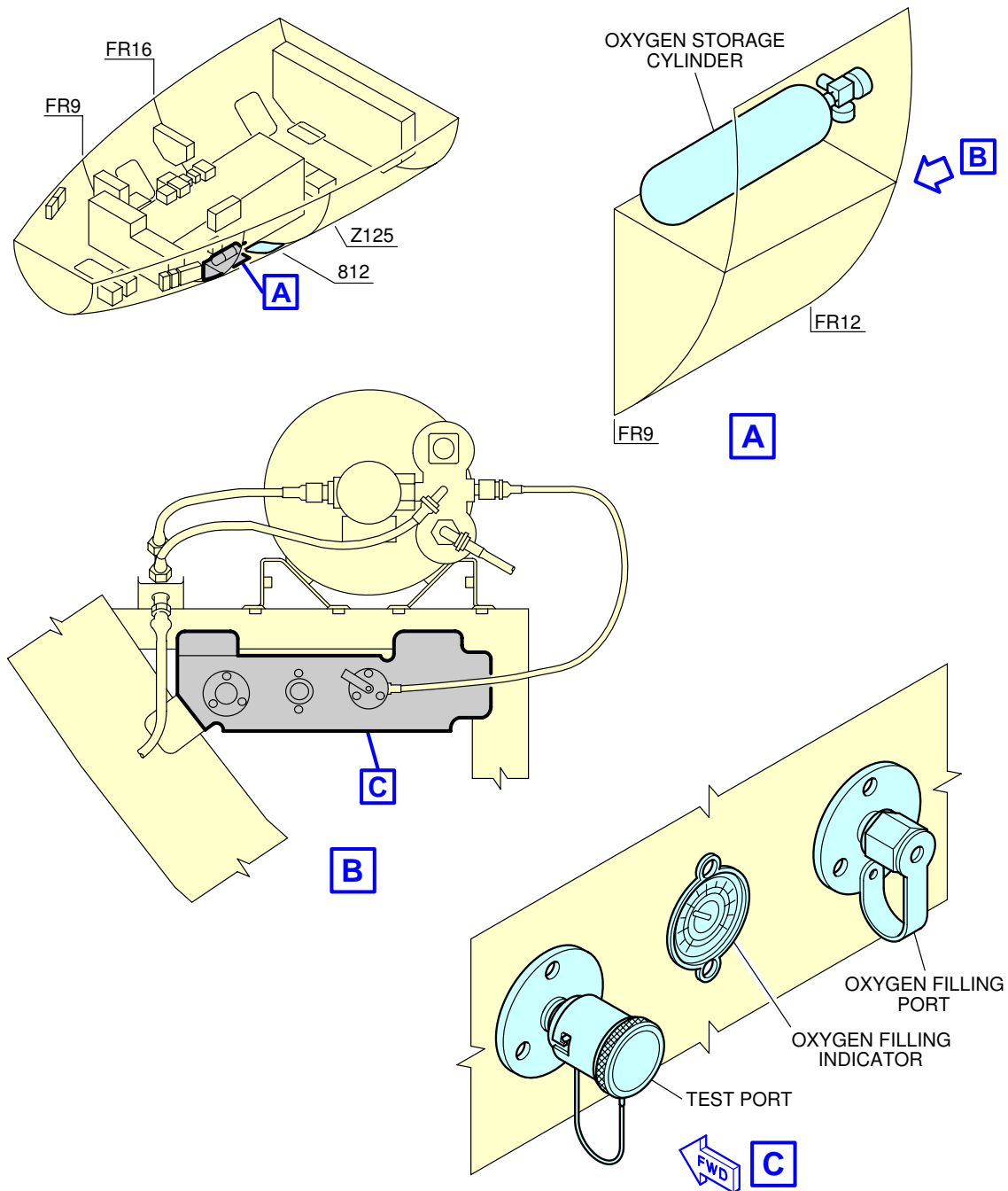
ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		LH SIDE	RH SIDE	
Oxygen Replenishment: Access Door 812	3.45 m (11.32 ft)	1.15 m (3.77 ft)	-	2.60 m (8.53 ft)

2. Technical Specifications

- One 3/8 in. MIL-DTL 7891 standard service connection.

NOTE : External charging in the avionics compartment.

\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Oxygen System  
FIGURE-5-4-5-991-001-A01



5-4-6 Fuel System

**\*\*ON A/C A320-200 A320neo**

Fuel System

1. Refuel/Defuel Control Panel

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	POSITION FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Refuel/Defuel Integrated Panel: Access Door 192MB	16.4 m (53.81 ft)	-	1.8 m (5.91 ft)	1.8 m (5.91 ft)

2. Refuel/Defuel Connectors

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	POSITION FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Refuel/Defuel Coupling, Left: Access Panel 522HB (Optional)	17.59 m (57.71 ft)	9.83 m (32.25 ft)	-	3.65 m (11.98 ft)
Refuel/Defuel Coupling, Right: Access Panel 622HB	17.59 m (57.71 ft)	-	9.83 m (32.25 ft)	3.65 m (11.98 ft)
Overwing Gravity- Refuel Cap	19.1 m (62.66 ft)	12.4 m (40.68 ft)	12.4 m (40.68 ft)	3.7 m (12.14 ft)

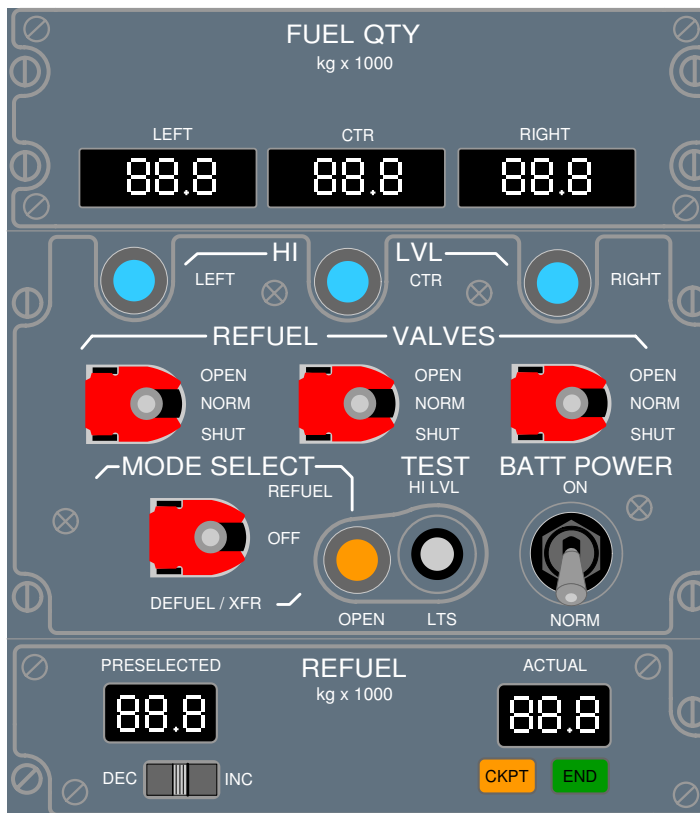
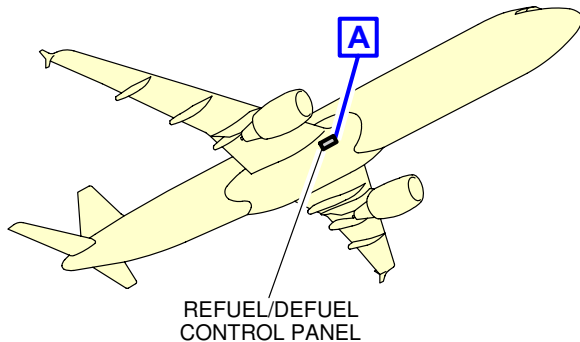
- A. Refuel/Defuel Couplings:
  - Right wing: one standard ISO 45, 2.5 in.
  - Left wing: one optional standard ISO 45, 2.5 in.
- B. Refuel Pressure:
  - Maximum pressure: 3.45 bar (50 psi).
- C. Average Flow Rate:
  - 1250 l/min (330 US gal/min).

3. Overpressure Protectors and NACA Vent Intake

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	POSITION FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Surge Tank Overpressure-Protector: Access Panel 550CB (650CB)	20.36 m (66.80 ft)	14.9 m (48.88 ft)	14.9 m (48.88 ft)	4.32 m (14.17 ft)
Inner Cell Overpressure-Protector: Access Panel 540HB (640HB)	19.5 m (63.98 ft)	9.19 m (30.15 ft)	9.19 m (30.15 ft)	4.1 m (13.45 ft)
NACA Vent Intake: Access Panel 550AB (650AB)	19.8 m (64.96 ft)	13.7 m (44.95 ft)	13.7 m (44.95 ft)	4.02 m (13.19 ft)

NOTE : Distances are approximate.

\*\*ON A/C A320-200 A320neo



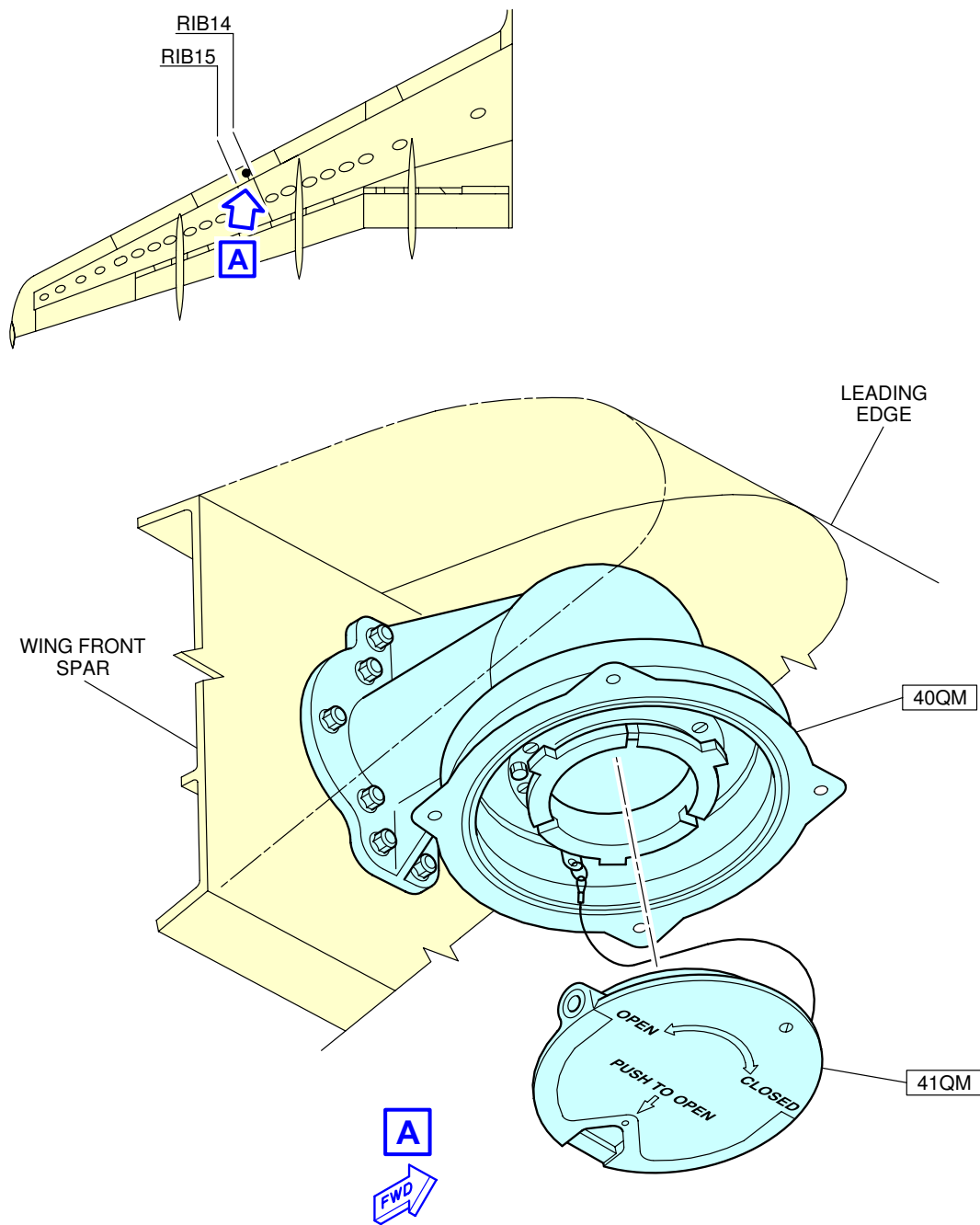
A

**NOTE:** STANDARD CONFIGURATION OF REFUEL/DEFUEL PANEL.

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Ground Service Connections  
Refuel/Defuel Control Panel  
FIGURE-5-4-6-991-001-A01

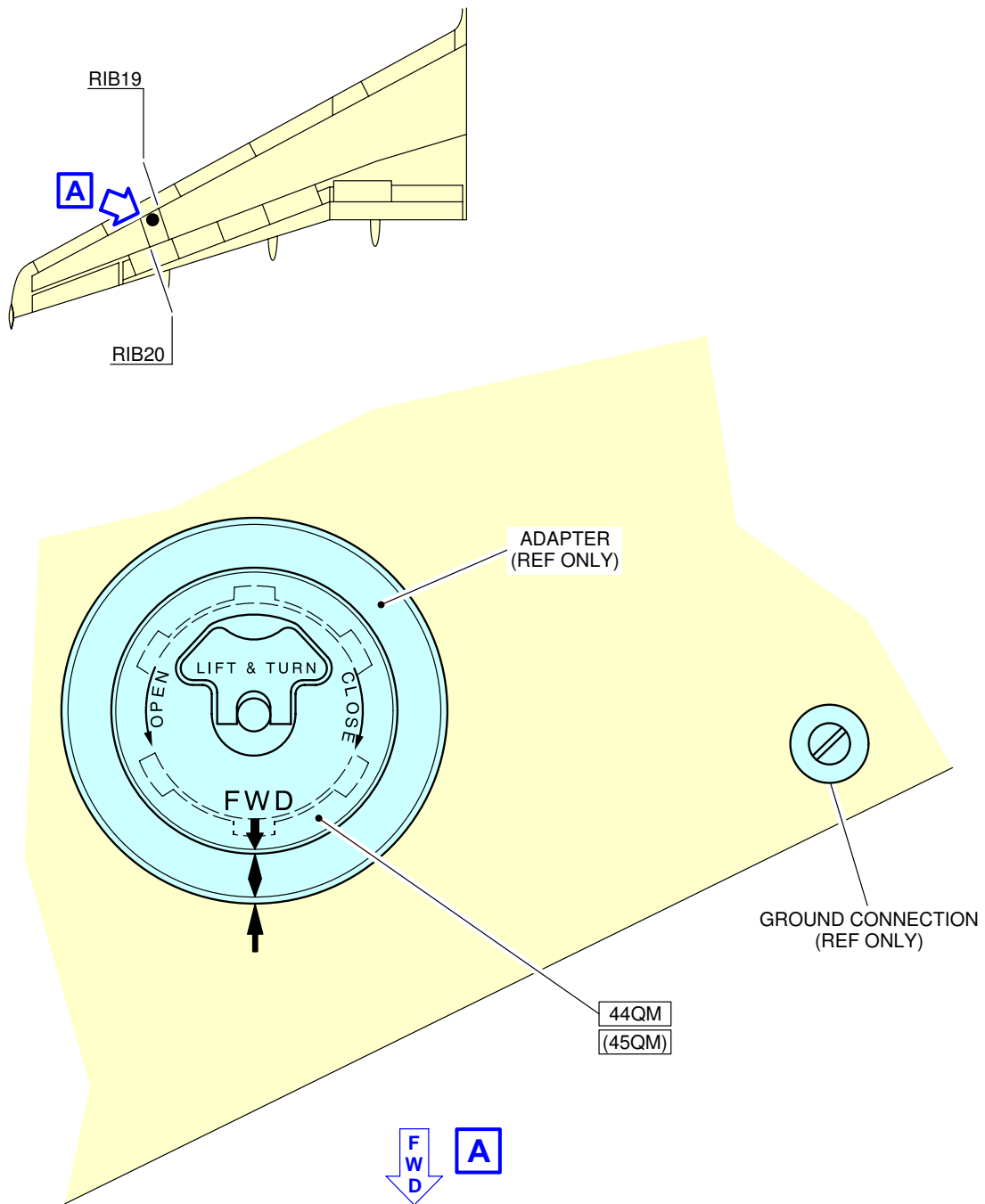
\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Refuel/Defuel Couplings  
FIGURE-5-4-6-991-002-A01

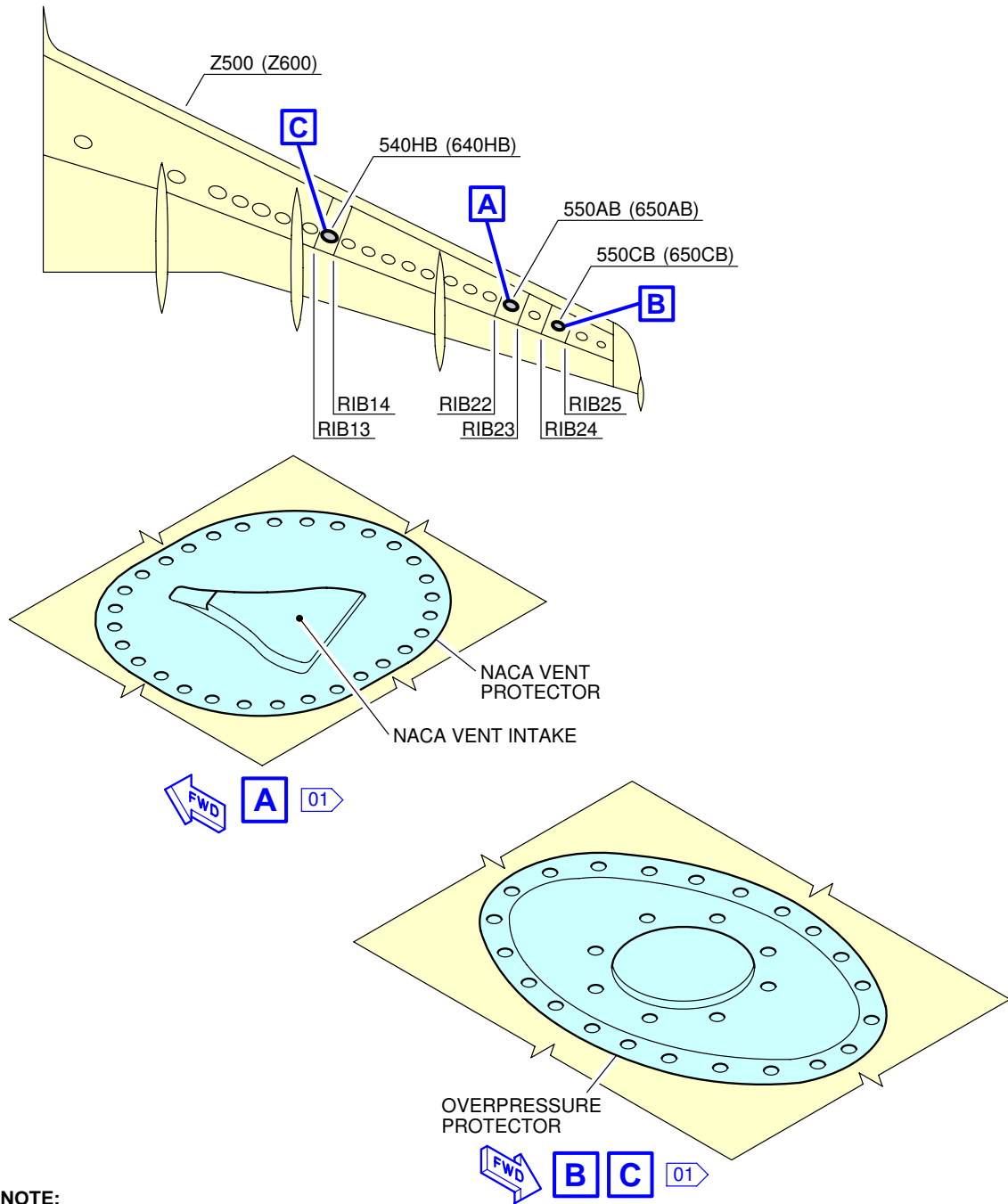
\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Overwing Gravity-Refuel Cap (If Installed)  
FIGURE-5-4-6-991-003-A01

\*\*ON A/C A320-200 A320neo



**NOTE:**  
 01 LH SHOWN, RH SYMMETRICAL

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Ground Service Connections  
 Overpressure Protectors and NACA Vent Intake  
 FIGURE-5-4-6-991-004-A01

5-4-7 Pneumatic System

**\*\*ON A/C A320-200 A320neo**

Pneumatic System

1. High Pressure Air Connector

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
HP Connector: Access Door 191DB	12.98 m (42.59 ft)	0.84 m (2.76 ft)	-	1.76 m (5.77 ft)

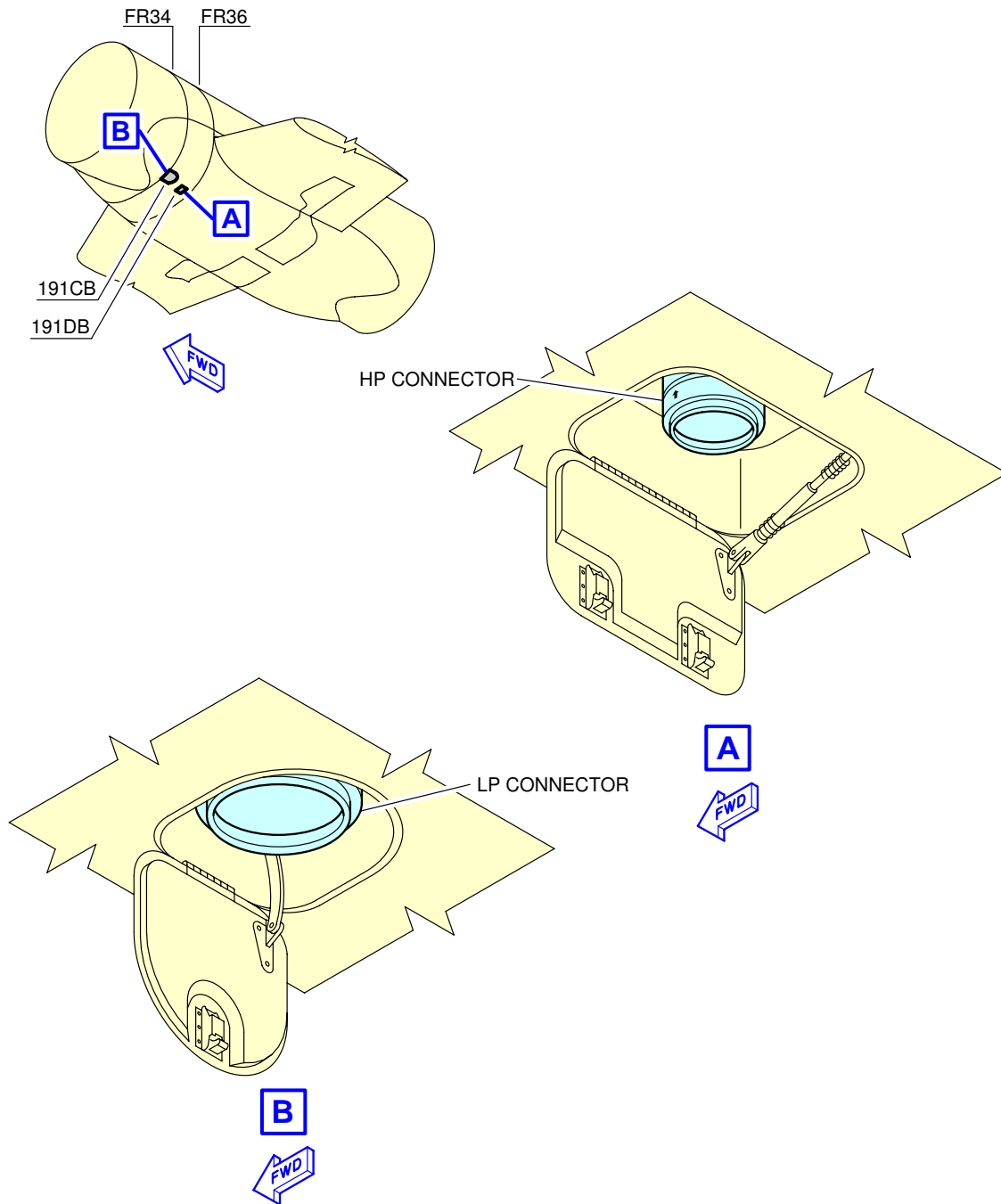
- A. Connector:  
- One standard 3 in. ISO 2026 connection.

2. Low Pressure Air Connector

ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
LP Connector: Access Door 191CB	12.45 m (40.85 ft)	1.11 m (3.64 ft)	-	1.73 m (5.68 ft)

- A. Connector:  
- One standard 8 in. SAE AS4262 connection.

\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
LP and HP Ground Connectors  
FIGURE-5-4-7-991-001-A01



5-4-8 Oil System

**\*\*ON A/C A320-200 A320neo**

Oil System

**\*\*ON A/C A320-200**

1. Engine Oil Replenishment for CFM56 Series Engine (See FIGURE 5-4-8-991-003-A):  
One gravity filling cap and one pressure filling connection per engine.

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		ENGINE 1 (LH)	ENGINE 2 (RH)	
Engine Oil Gravity Filling Cap: Access door: 437BL (LH), 447BL (RH)	13.12 m (43.04 ft)	6.63 m (21.75 ft)	4.82 m (15.81 ft)	1.46 m (4.79 ft)
Engine Oil Pressure Filling Port:	13.00 m (42.65 ft)	6.49 m (21.29 ft)	4.74 m (15.55 ft)	1.42 m (4.66 ft)

NOTE : Distances are approximate.

- A. Tank capacity:
    - Full level: 19.6 l (5 US gal),
    - Usable: 9.46 l (3 US gal).
  - B. Maximum delivery pressure required: 1.72 bar (25 psi).  
Maximum delivery flow required: 180 l/h (48 US gal/h).
2. IDG Oil Replenishment for CFM56 Series Engine (See FIGURE 5-4-8-991-004-A):  
One pressure filling connection per engine: OMP 2506-18 plus one connection overflow: OMP 2505-18.

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		ENGINE 1 (LH)	ENGINE 2 (RH)	
IDG Oil Pressure Filling Connection: Access door: 438AR (LH), 448AR (RH)	12.20 m (40.03 ft)	6.90 m (22.64 ft)	5.52 m (18.11 ft)	0.68 m (2.23 ft)

NOTE : Distances are approximate.

- A. Tank capacity: 5 l (1 US gal).
  - B. Delivery pressure required: 0.34 bar (5 psi) to 2.76 bar (40 psi) at the IDG inlet.
3. Starter Oil Replenishment for CFM56 Series Engine (See FIGURE 5-4-8-991-005-A):  
One gravity filling cap per engine.

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		ENGINE 1 (LH)	ENGINE 2 (RH)	
Starter Oil Filling Connection:	12.70 m (41.67 ft)	5.30 m (17.39 ft)	6.20 m (20.34 ft)	0.76 m (2.49 ft)

NOTE : Distances are approximate.

- A. Tank capacity: 0.8 l (0.21 US gal).
4. Engine Oil Replenishment for IAE V2500 Series Engine (See FIGURE 5-4-8-991-006-B):  
One gravity filling cap per engine.

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		ENGINE 1 (LH)	ENGINE 2 (RH)	
Engine Oil Gravity Filling Cap: Access door: 437BL (LH), 447BL (RH)	12.24 m (40.16 ft)	6.56 m (21.52 ft)	4.92 m (16.14 ft)	1.22 m (4.00 ft)

NOTE : Distances are approximate.

- A. Tank capacity:
    - Full level: 28 l (7 US gal),
    - Usable: 23.50 l (6 US gal).
5. IDG Oil Replenishment for IAE V2500 Series Engine (See FIGURE 5-4-8-991-007-B):  
One pressure filling connection per engine: OMP 2506-2 plus one overflow connection: OMP 2505-2.

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		ENGINE 1 (LH)	ENGINE 2 (RH)	
IDG Oil Pressure Filling Connection:	12.80 m (41.99 ft)	5.42 m (17.78 ft)	6.04 m (19.82 ft)	0.80 m (2.62 ft)

NOTE : Distances are approximate.

A. Tank capacity: 4.10 l (1 US gal).

6. Starter Oil Replenishment for IAE V2500 Series Engine (See FIGURE 5-4-8-991-008-B):  
One gravity filling cap per engine.

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		ENGINE 1 (LH)	ENGINE 2 (RH)	
Starter Oil Filling Connection:	15.40 m (50.52 ft)	5.30 m (17.39 ft)	6.14 m (20.14 ft)	0.75 m (2.46 ft)

NOTE : Distances are approximate.

A. Tank capacity: 0.35 l (0.09 US gal).

**\*\*ON A/C A320-200 A320neo**

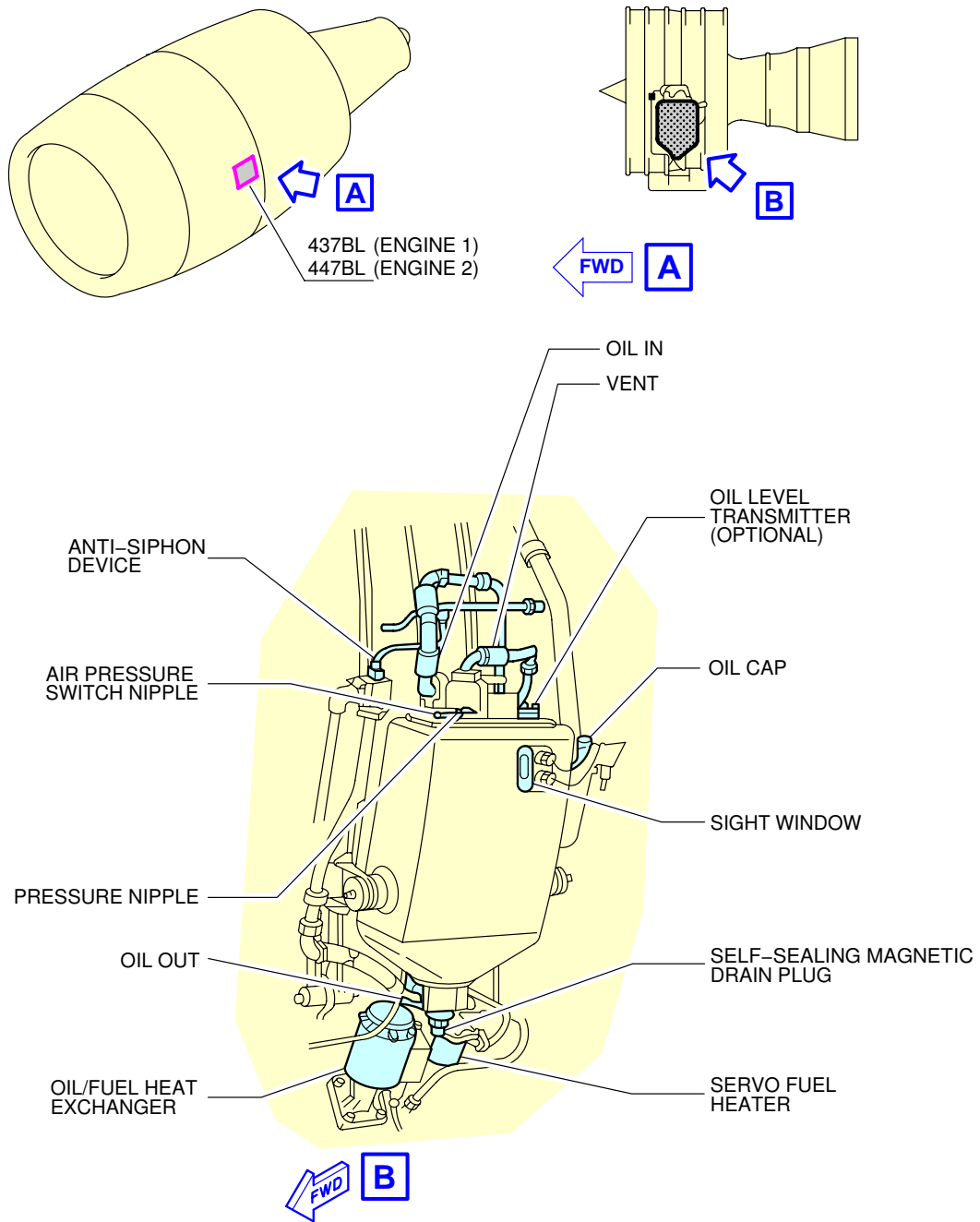
7. APU Oil System (See FIGURE 5-4-8-991-009-A):  
APU oil gravity filling cap.

ACCESS	DISTANCE			
	AFT OF NOSE	FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		ENGINE 1 (LH)	ENGINE 2 (RH)	
GTCP 36-300	35.49 m (116.44 ft)	0.30 m (0.98 ft)	-	4.83 m (15.85 ft)
APS 3200	35.49 m (116.44 ft)	0.30 m (0.98 ft)	-	4.78 m (15.68 ft)
131-9	35.39 m (116.11 ft)	0.35 m (1.15 ft)	-	4.32 m (14.17 ft)

NOTE : Distances are approximate.

- A. Tank capacity (usable):
- APU type GTCP 36-300: 6.20 l (2 US gal),
  - APU type APS 3200: 5.40 l (1 US gal),
  - APU type 131-9: 6.25 l (2 US gal).

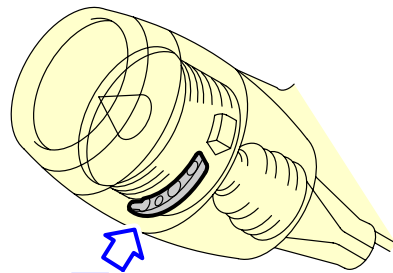
\*\*ON A/C A320-200



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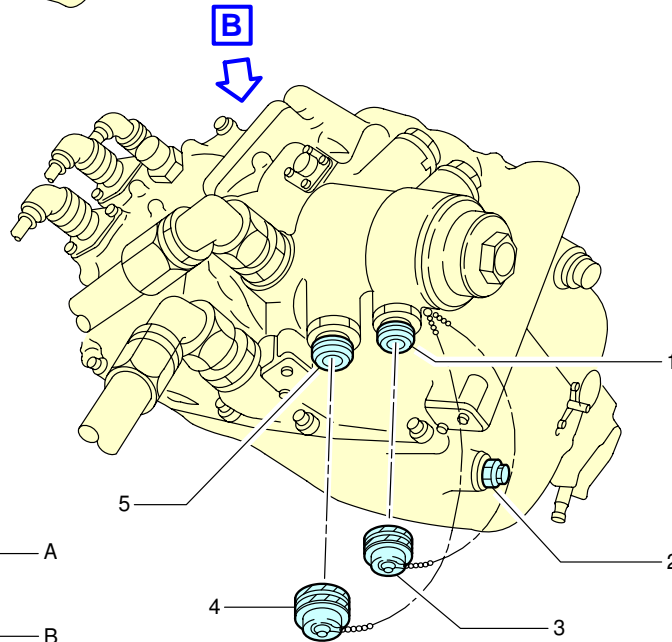
Ground Service Connections  
Engine Oil Tank – CFM56 Series Engine  
FIGURE-5-4-8-991-003-A01

\*\*ON A/C A320-200

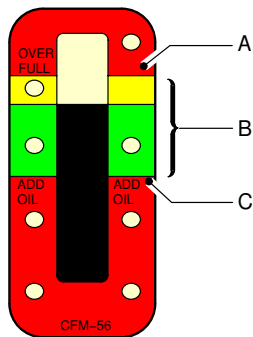


**A**

- 1 - PRESSURE FILL VALVE
- 2 - CASE DRAIN PLUG
- 3 - DUST CAP
- 4 - DUST CAP
- 5 - OVERFLOW DRAIN VALVE



**B**



SIGHT GLASS

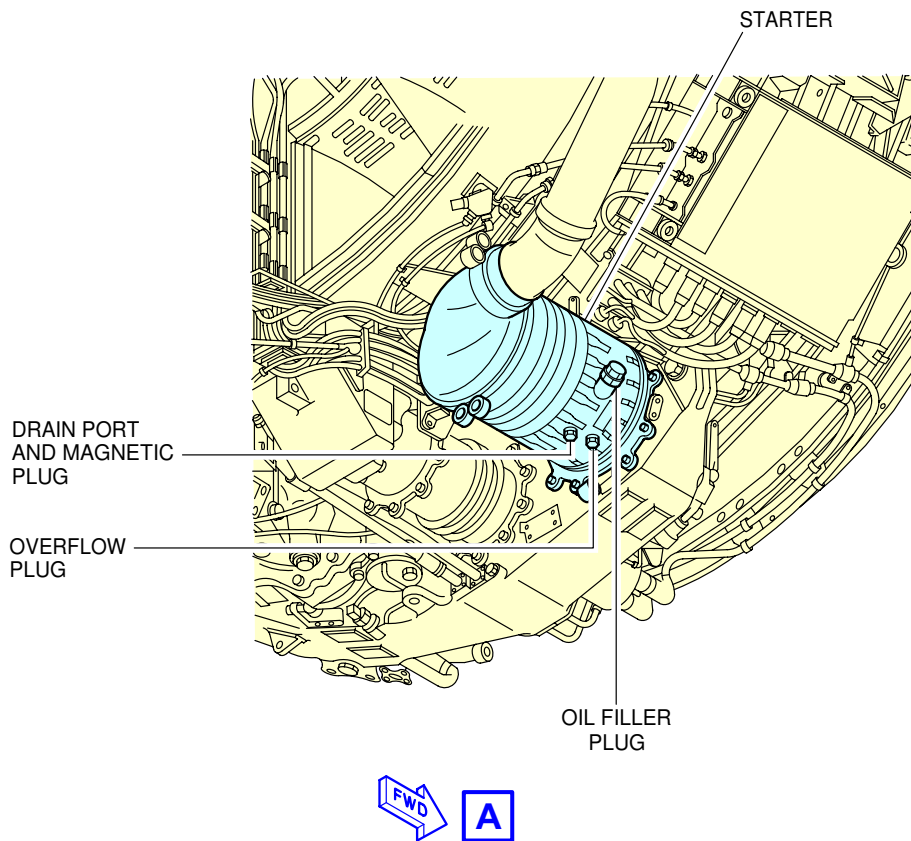
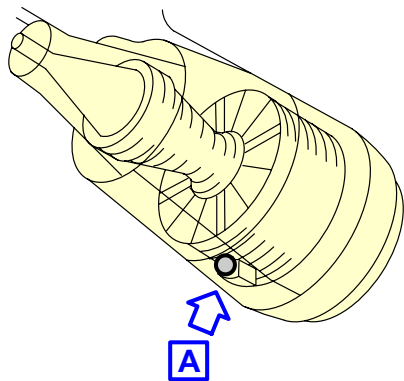
**B**

- NOTE:**
- A IF THE OIL LEVEL IS ABOVE THE YELLOW BAND, OIL SERVICING IS REQUIRED.
  - B IF THE OIL LEVEL IS WITHIN THE GREEN AND YELLOW BANDS, OIL SERVICING IS NOT REQUIRED.
  - C IF THE OIL LEVEL IS BELOW THE GREEN BAND, OIL SERVICING IS REQUIRED.

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Ground Service Connections  
 IDG Oil Tank – CFM56 Series Engine  
 FIGURE-5-4-8-991-004-A01

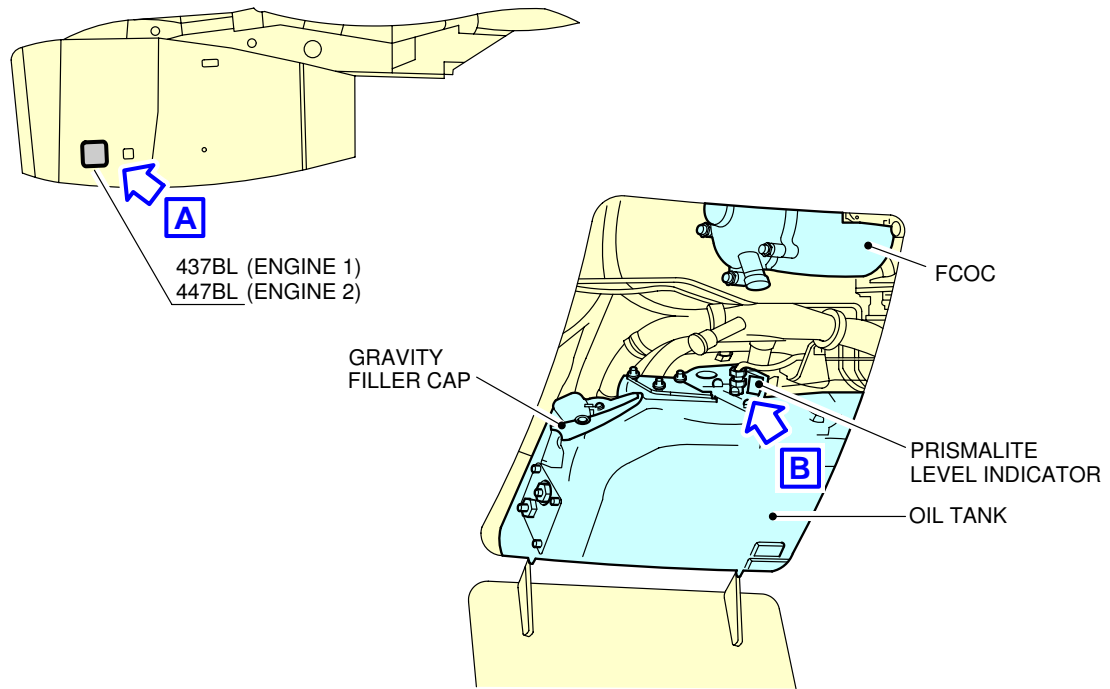
\*\*ON A/C A320-200



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Ground Service Connections  
Starter Oil Tank – CFM56 Series Engine  
FIGURE-5-4-8-991-005-A01

**\*\*ON A/C A320-200**

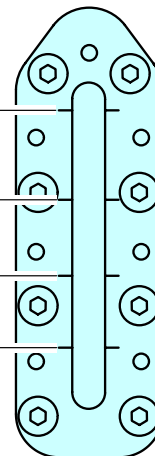


'FULL' LEVEL NOTCH  
27.3 LT  
29.0 US QTS  
6.0 IMP GAL  
(WITHIN 60 MIN FROM SHUTDOWN)

NOTCH '1'  
26 LT  
27 US QTS  
5.7 IMP GAL

NOTCH '2'  
23 LT  
24 US QTS  
5.1 IMP GAL

NOTCH '3'  
20 LT  
22 US QTS  
4.5 IMP GAL

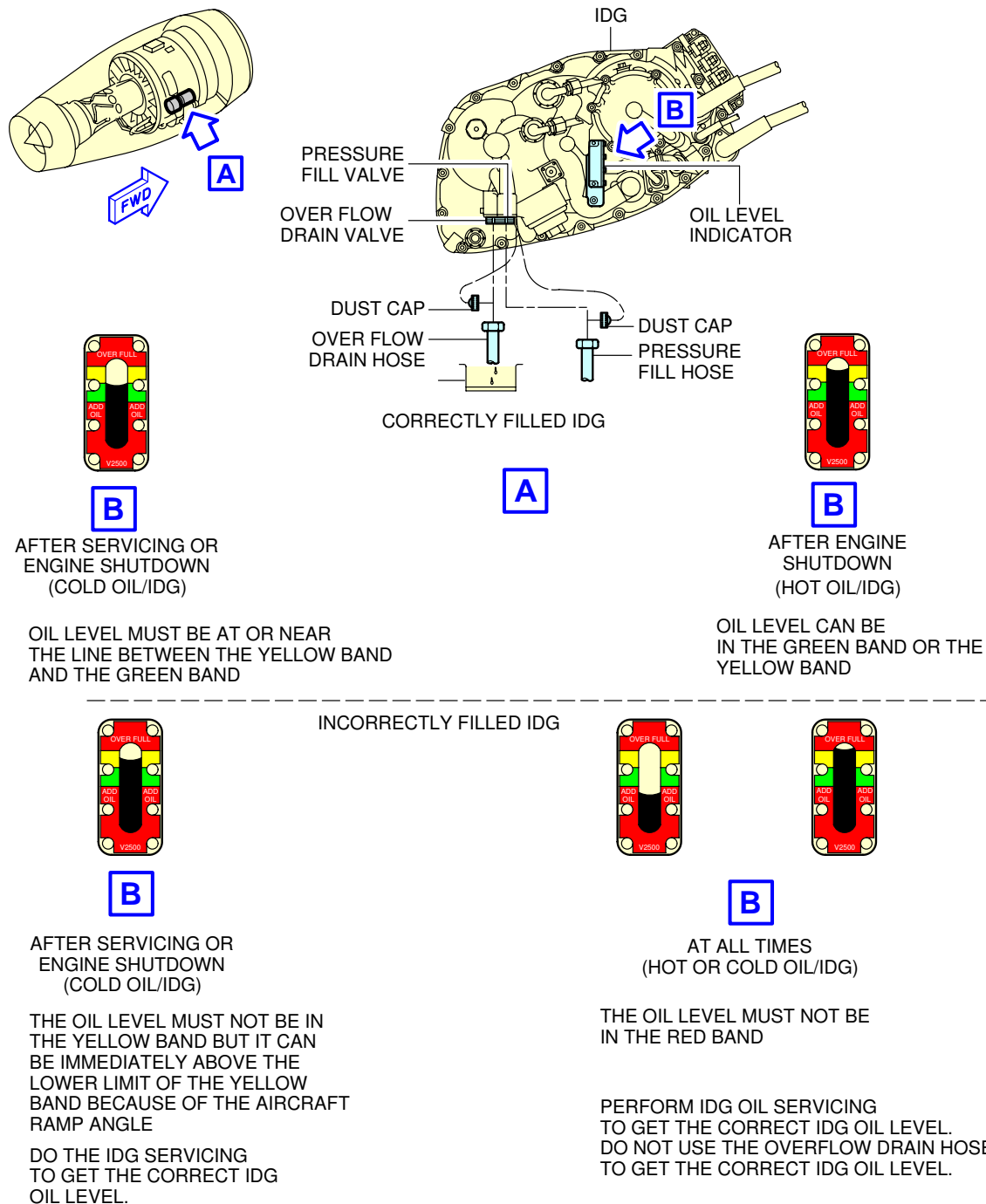


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Ground Service Connections  
Engine Oil Tank – IAE V2500 Series Engine  
FIGURE-5-4-8-991-006-B01



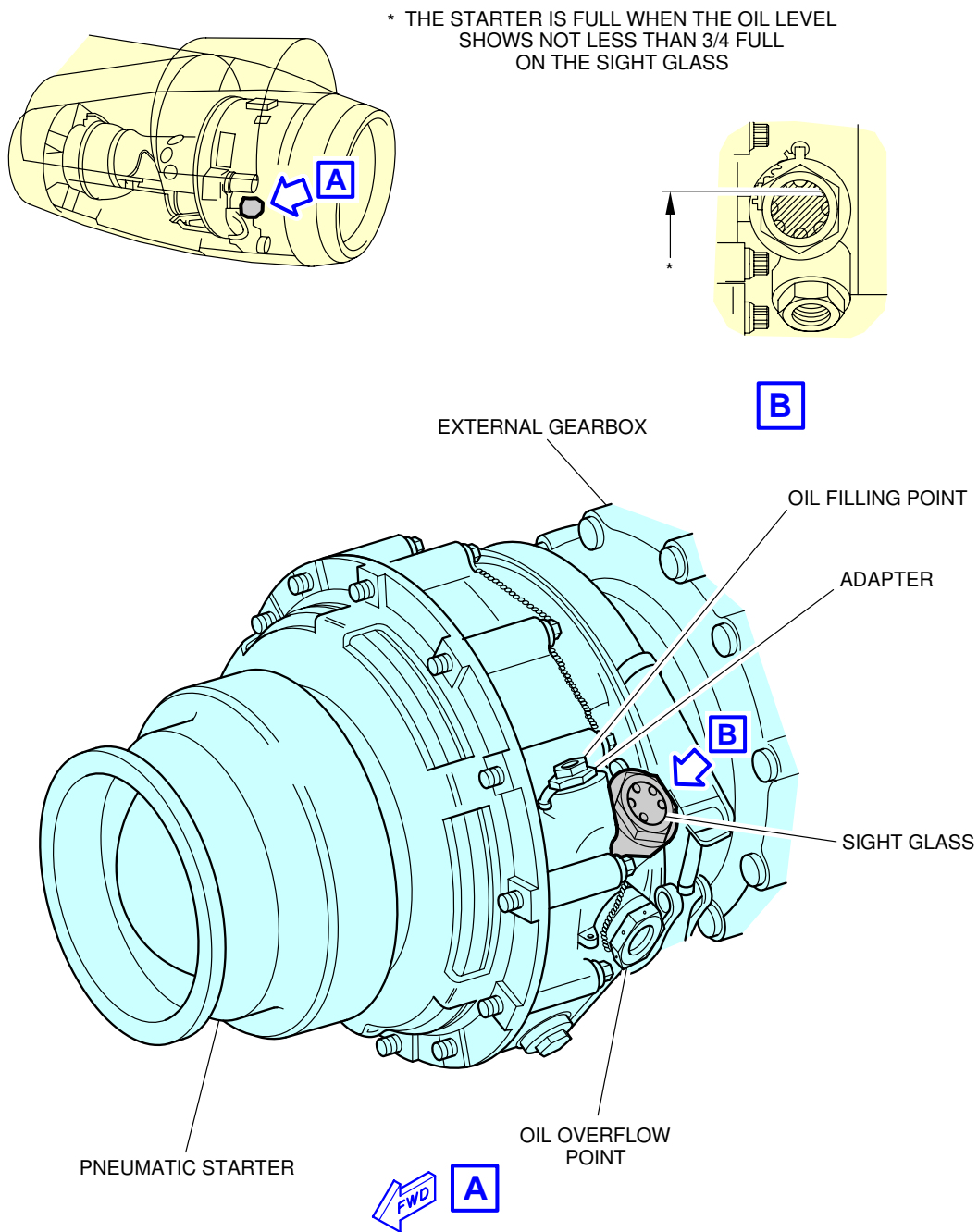
**\*\*ON A/C A320-200**



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Ground Service Connections  
 IDG Oil Tank – IAE V2500 Series Engine  
 FIGURE-5-4-8-991-007-B01

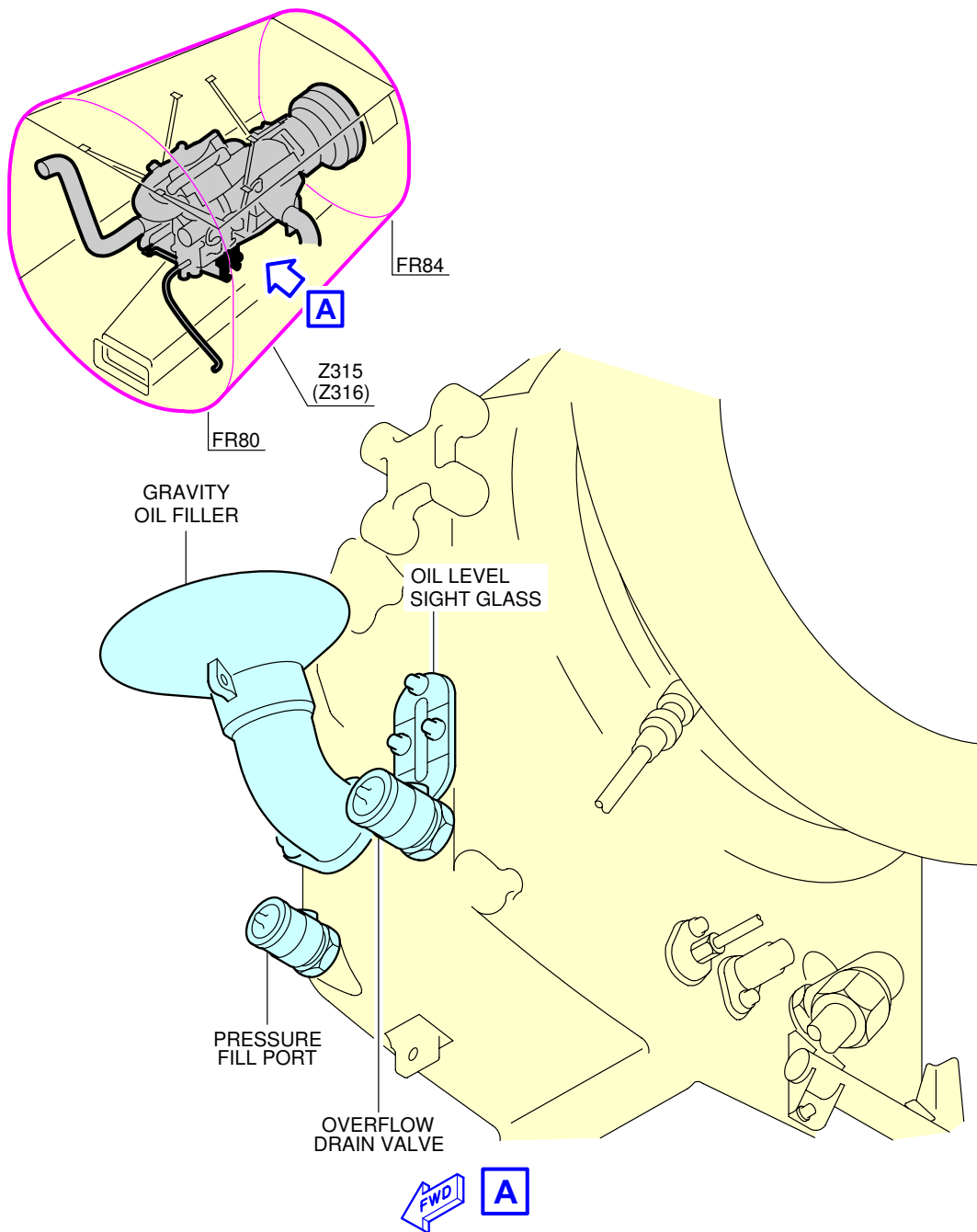
\*\*ON A/C A320-200



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Ground Service Connections  
Starter Oil Tank – IAE V2500 Series Engine  
FIGURE-5-4-8-991-008-B01

\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
APU Oil Tank  
FIGURE-5-4-8-991-009-A01

5-4-9 Potable Water System

**\*\*ON A/C A320-200 A320neo**

Potable Water System

1. Potable Water Ground Service Panels

ACCESS	DISTANCE			
	AFT OF NOSE	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND
		LH SIDE	RH SIDE	
Potable-Water Service Panel: Access Door 171AL	31.3 m (102.69 ft)	0.3 m (0.98 ft)	-	2.6 m (8.53 ft)
Potable-Water Drain Panel: Access Door 133AL (Optional)	11.8 m (38.71 ft)	0.15 m (0.49 ft)	-	1.75 m (5.74 ft)
Potable-Water Drain Panel: Access Door 192NB	12.5 m (41.01 ft)	-	0.51 m (1.67 ft)	1.75 m (5.74 ft)

NOTE : Distances are approximate.

2. Technical Specifications

A. Connectors:

- (1) On the potable-water service panel (Access Door 171AL)
  - Fill/Drain Nipple 3/4 in. (ISO 17775).
  - One ground air-pressure connector.
- (2) On the potable-water drain panel (Access Door 133AL and/or 192NB)
  - Drain Nipple 3/4 in. (ISO 17775).

B. Usable capacity:

- Standard configuration - one tank: 200 l (53 US gal).

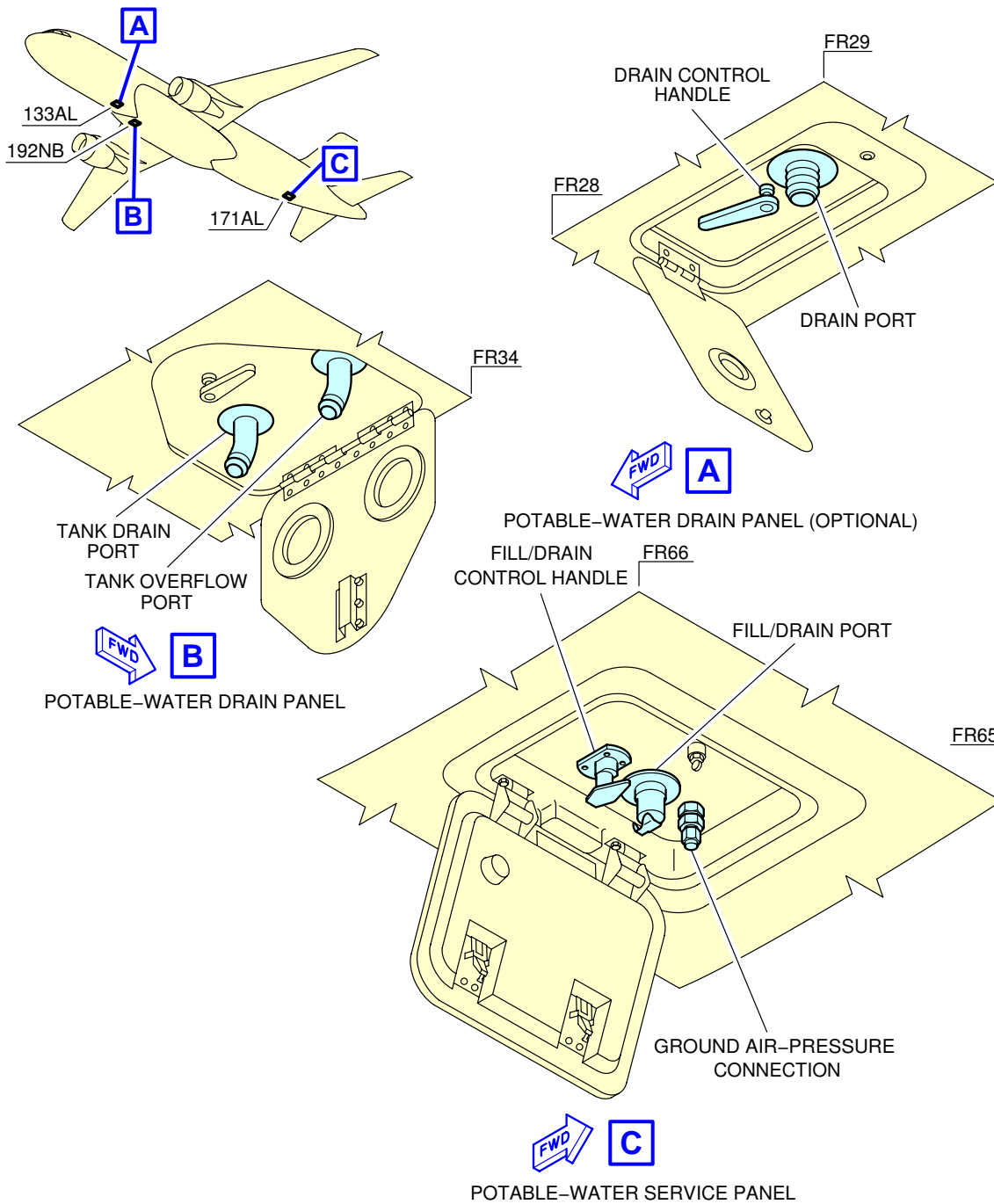
C. Filling pressure:

- 3.45 bar (50 psi).

D. Typical flow rate:

- 50 l/min (13 US gal/min).

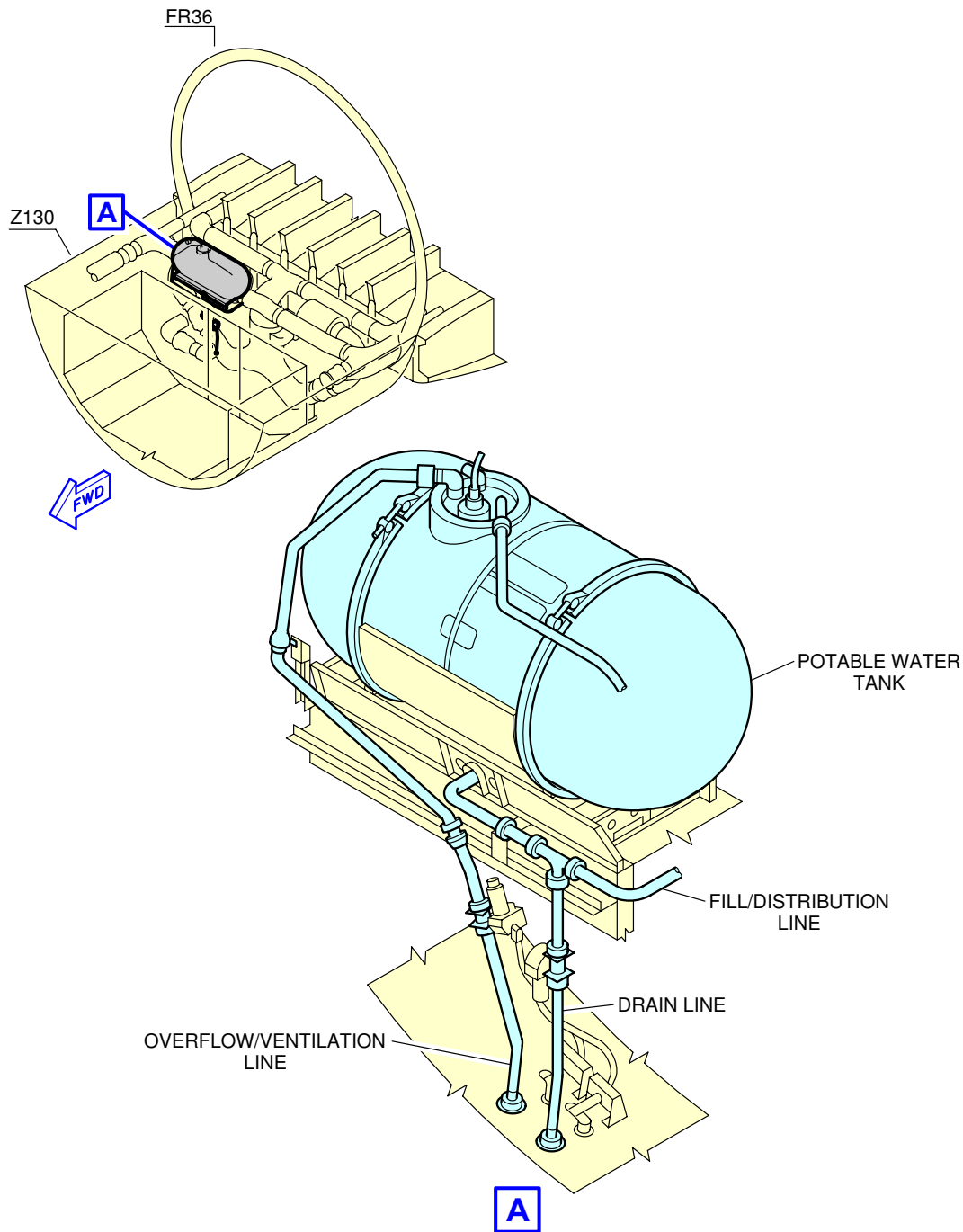
\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Potable Water Ground Service Panels  
FIGURE-5-4-9-991-029-B01

\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Potable Water Tank Location  
FIGURE-5-4-9-991-030-B01

5-4-10 Waste Water System

**\*\*ON A/C A320-200 A320neo**

Waste Water System

1. Waste Water System

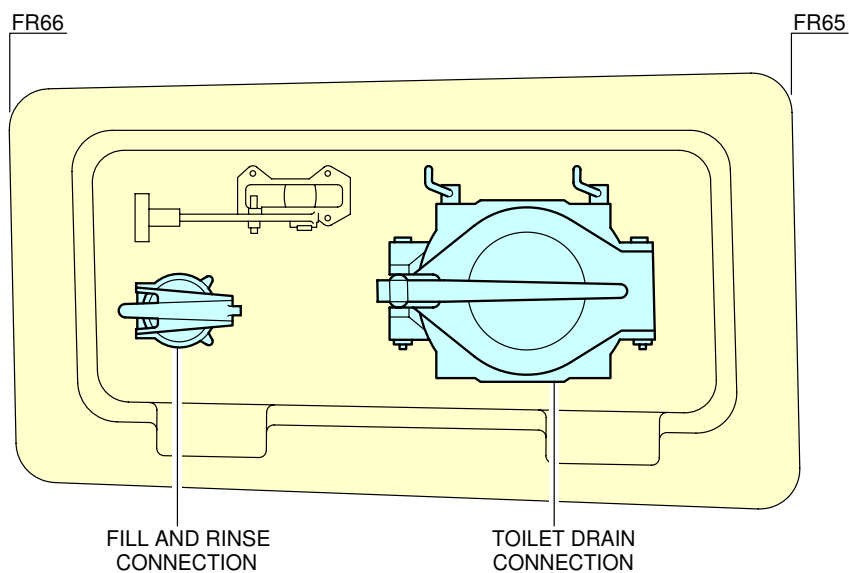
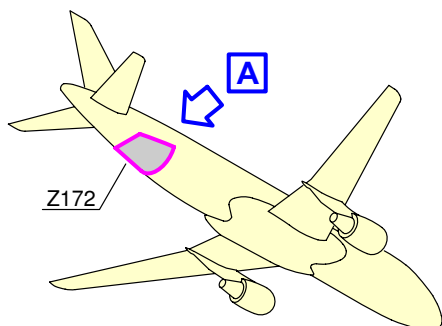
ACCESS	DISTANCE			MEAN HEIGHT FROM GROUND
	AFT OF NOSE	POSITION FROM AIRCRAFT CENTERLINE		
		LH SIDE	RH SIDE	
Waste-Water Ground Service Panel: Access door 172AR	31.3 m (102.69 ft)	-	0.8 m (2.62 ft)	2.8 m (9.19 ft)

NOTE : Distances are approximate.

2. Technical Specifications

- A. Connectors:
  - Draining: 4 in. (ISO 17775).
  - Flushing and filling: 1 in. (ISO 17775).
- B. Usable waste tank capacity:
  - Standard configuration - one tank: 177 l (47 US gal).
- C. Waste tank - Rinsing:
  - Operating pressure: 3.45 bar (50 psi).
- D. Waste tank - Precharge:
  - 10 l (3 US gal).

\*\*ON A/C A320-200 A320neo

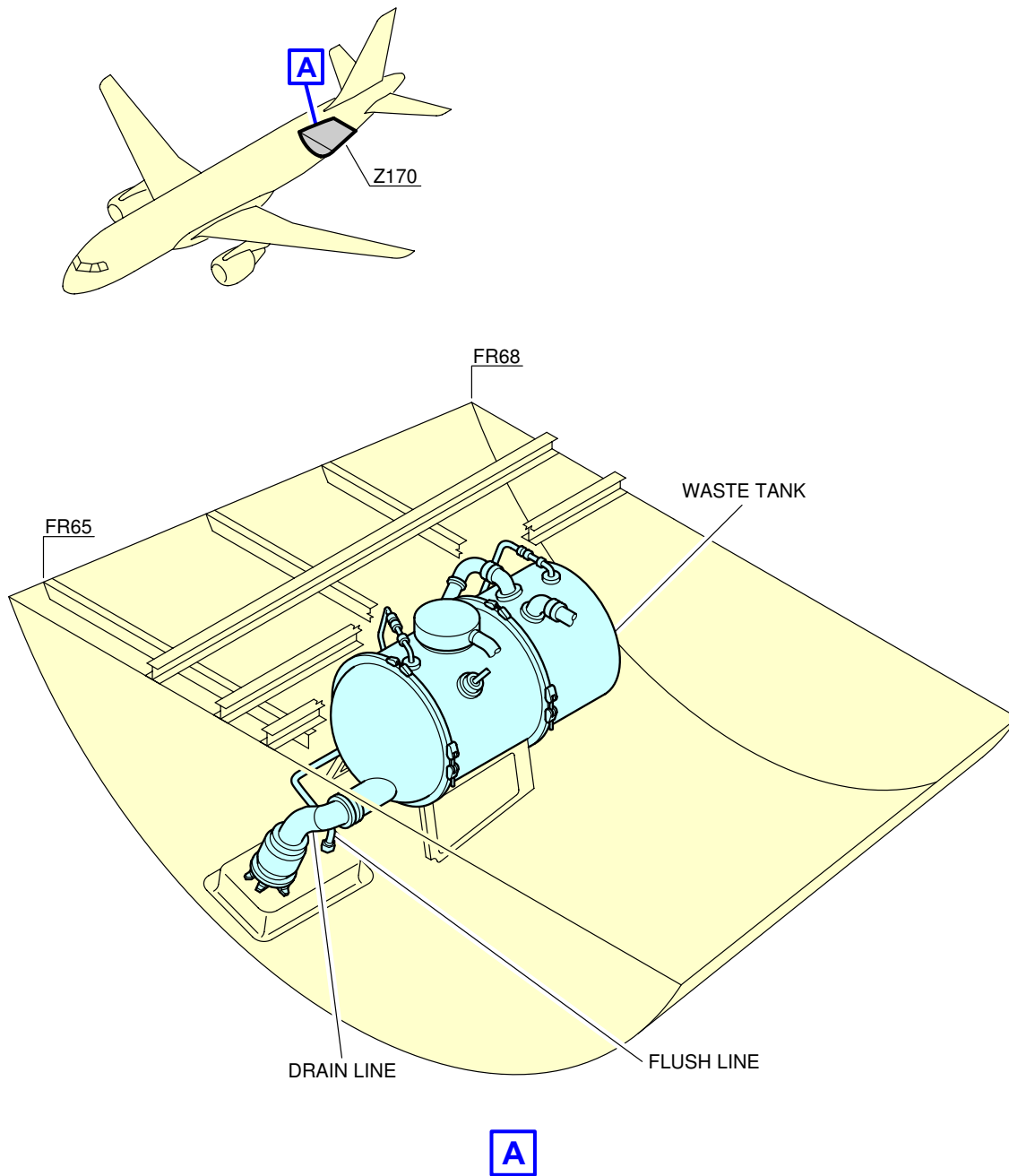


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Ground Service Connections  
Waste Water Ground Service Panel  
FIGURE-5-4-10-991-001-A01



\*\*ON A/C A320-200 A320neo



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Ground Service Connections  
Waste Tank Location  
FIGURE-5-4-10-991-004-A01

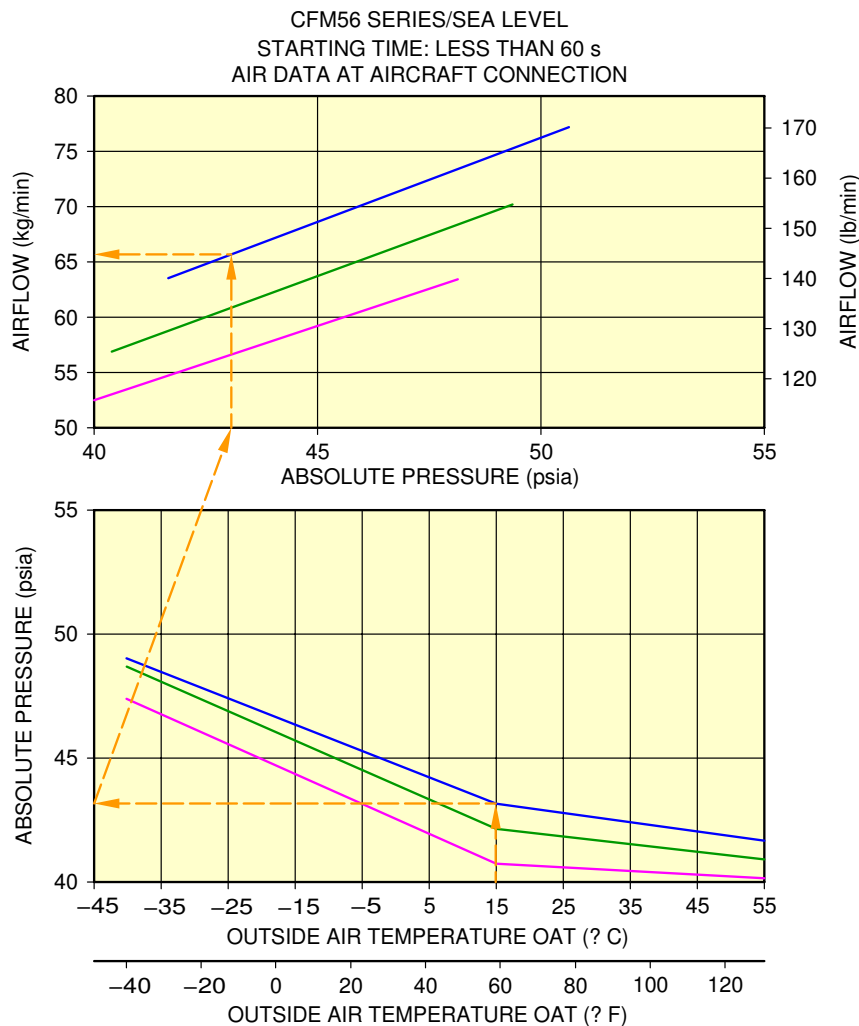
**5-5-0 Engine Starting Pneumatic Requirements****\*\*ON A/C A320-200 A320neo**Engine Starting Pneumatic Requirements

1. The purpose of this section is to provide the minimum air data requirements at the aircraft connection, needed to start the engine within no more than 60 seconds, at sea level (0 feet), for a set of Outside Air Temperatures (OAT).

ABBREVIATION	DEFINITION
A/C	Aircraft
ASU	Air Start Unit
HPGC	High Pressure Ground Connection
OAT	Outside Air Temperature

- A. Air data (discharge temperature, absolute discharge pressure) are given at the HPGC.
- B. For a given OAT the following charts are used to determine an acceptable combination for air discharge temperature, absolute discharge pressure and mass flow rate.
- C. This section addresses requirements for the ASU only, and is not representative of the start performance of the aircraft using the APU or engine cross bleed procedure.
- D. To protect the A/C, the charts feature, if necessary:
  - The maximum discharge pressure at the HPGC
  - The maximum discharge temperature at the HPGC.

**\*\*ON A/C A320-200 A320neo**



ASU DISCHARGE TEMPERATURE:  
 — 100° C (212° F)  
 — 150° C (302° F)  
 — 220° C (428° F) MAX.

**EXAMPLE:**

FOR AN OAT OF 15° C (59° F) AND AN ASU PROVIDING A DISCHARGE TEMPERATURE OF 100° C (212° F) AT HPGC:  
 — THE REQUIRED PRESSURE AT HPGC IS 43 psia  
 — THE REQUIRED AIRFLOW AT A/C CONNECTION IS 66 kg/min.

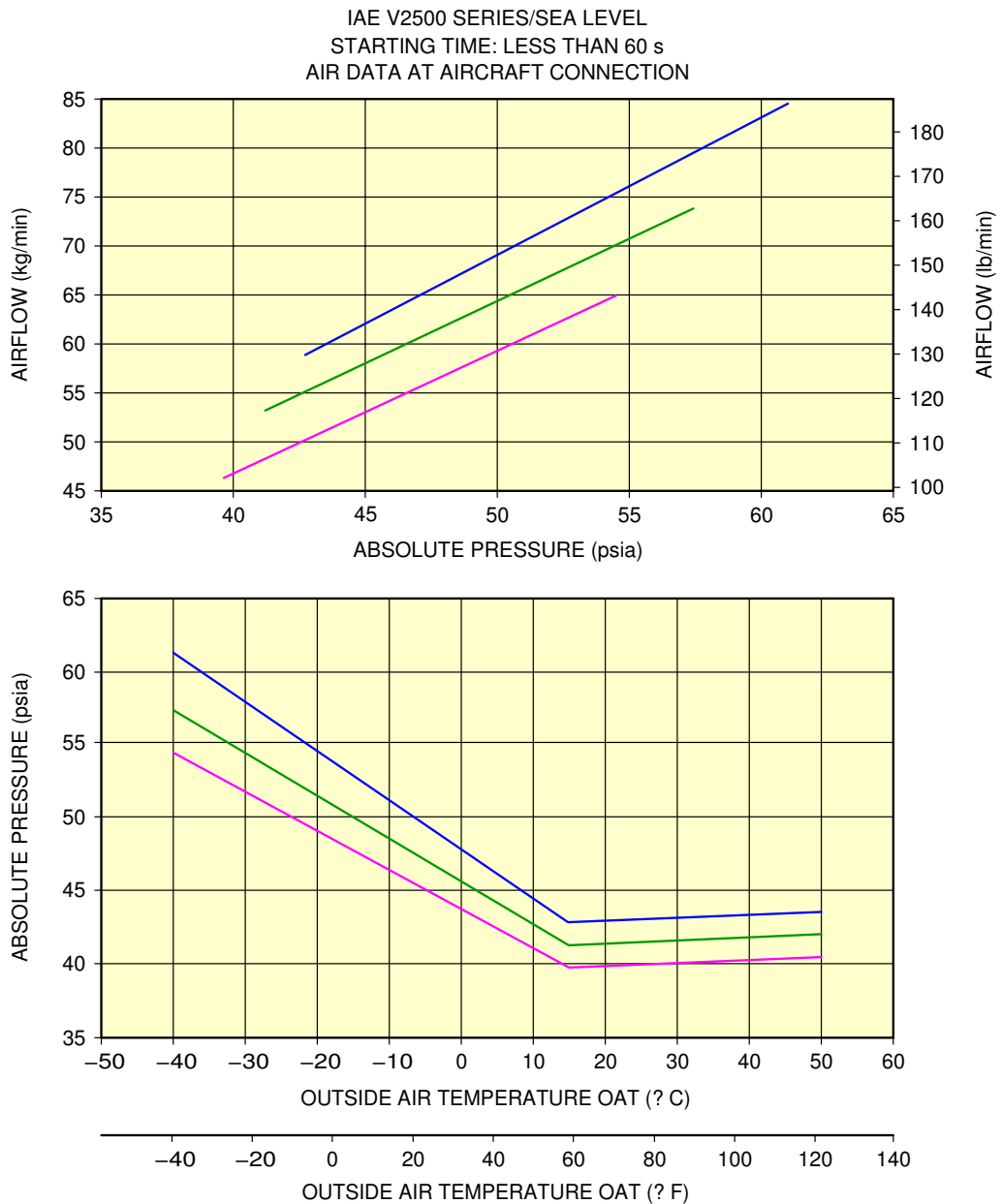
**NOTE:**

IN CASE THE ACTUAL DISCHARGE TEMPERATURE OF THE ASU DIFFERS SUBSTANTIALLY FROM THE ONES GIVEN IN THE CHARTS, A SIMPLE INTERPOLATION (LINEAR) IS SUFFICIENT TO DETERMINE THE REQUIRED AIR DATA.

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Example for Use of the Charts  
 FIGURE-5-5-0-991-012-A01

**\*\*ON A/C A320-200**

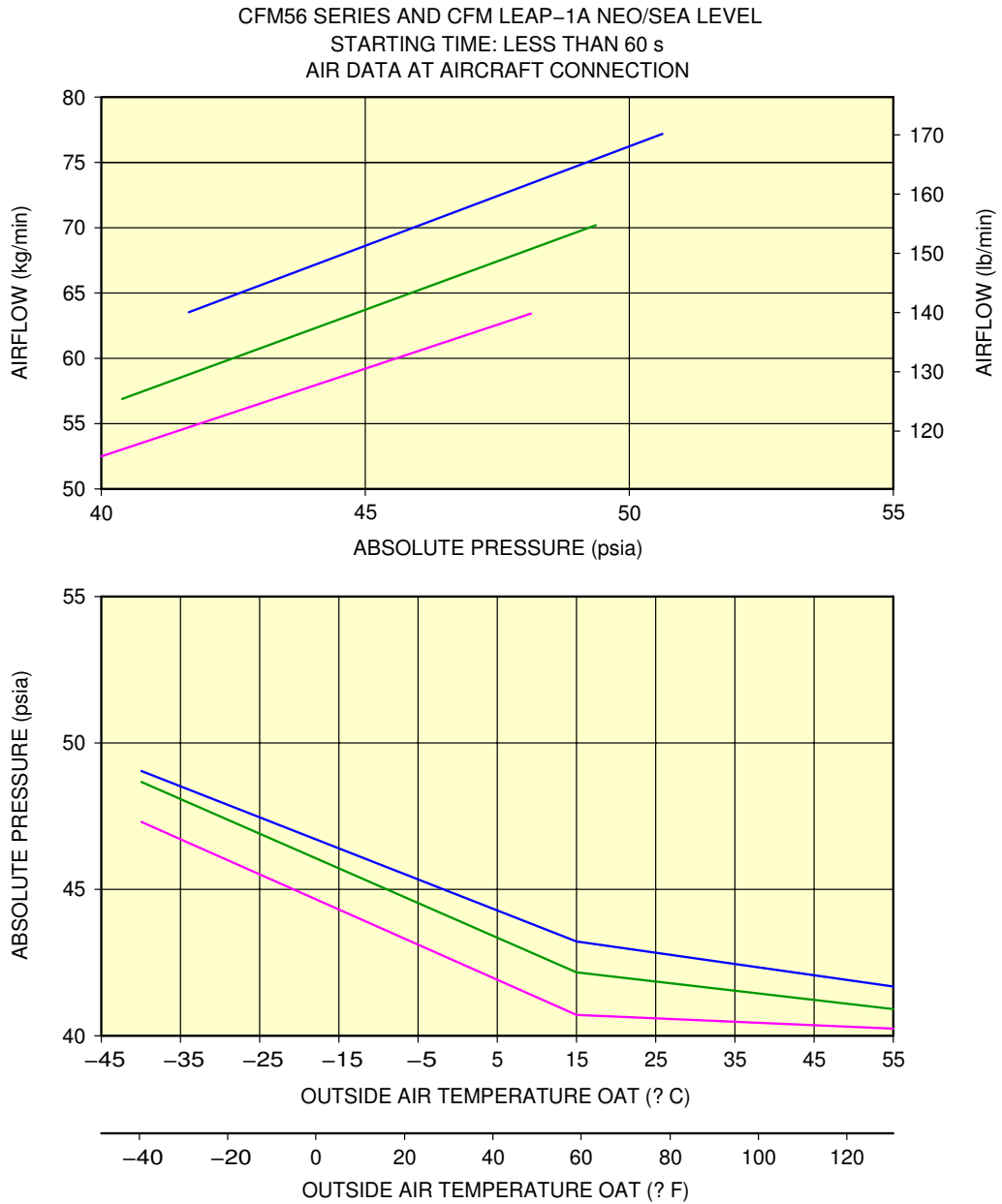


ASU DISCHARGE TEMPERATURE:  
 — 100° C (212° F)  
 — 150° C (302° F)  
 — 220° C (428° F) MAX.

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Engine Starting Pneumatic Requirements  
IAE V2500 Series Engine  
FIGURE-5-5-0-991-013-A01

\*\*ON A/C A320-200 A320neo

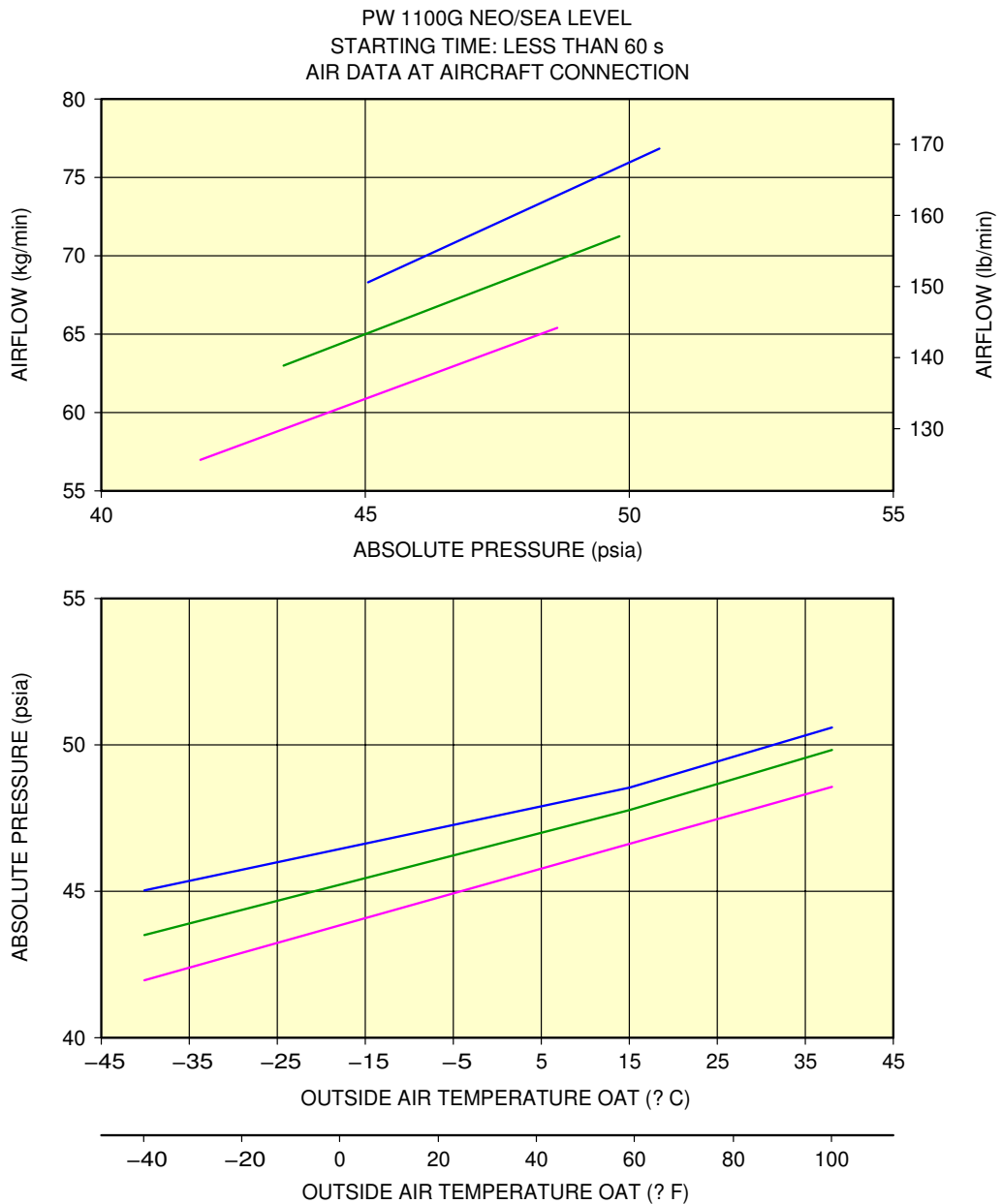


ASU DISCHARGE TEMPERATURE:  
 - 100°C (212°F)  
 - 150°C (302°F)  
 - 220°C (428°F) MAX.

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Engine Starting Pneumatic Requirements  
 CFM56 Series and CFM LEAP-1A NEO Engine  
 FIGURE-5-5-0-991-014-A01

**\*\*ON A/C A320neo**



ASU DISCHARGE TEMPERATURE:  
 — 100° C (212° F)  
 — 150° C (302° F)  
 — 220° C (428° F) MAX.

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Engine Starting Pneumatic Requirements  
 PW 1100G NEO Engine  
 FIGURE-5-5-0-991-015-A01

5-6-0 Ground Pneumatic Power Requirements

**\*\*ON A/C A320-200 A320neo**

Ground Pneumatic Power Requirements

1. General

This section describes the required performance for the ground equipment to maintain the cabin temperature at 27 °C (80.6 °F) for the cooling or 21 °C (69.8 °F) for heating cases after boarding (Section 5.7 - steady state), and provides the time needed to cool down or heat up the aircraft cabin to the required temperature (Section 5.6 - dynamic cases with aircraft empty).

ABBREVIATION	DEFINITION
A/C	Aircraft
AHM	Aircraft Handling Manual
AMM	Aircraft Maintenance Manual
GC	Ground Connection
GSE	Ground Service Equipment
IFE	In-Flight Entertainment
OAT	Outside Air Temperature
PCA	Pre-Conditioned Air

- A. The air flow rates and temperature requirements for the GSE, provided in Sections 5.6 and 5.7, are given at A/C ground connection.

**NOTE :** The cooling capacity of the equipment (kW) is only indicative and is not sufficient by itself to ensure the performance (outlet temperature and flow rate combinations are the requirements needed for ground power). An example of cooling capacity calculation is given in Section 5.7.

**NOTE :** The maximum air flow is driven by pressure limitation at the ground connection.

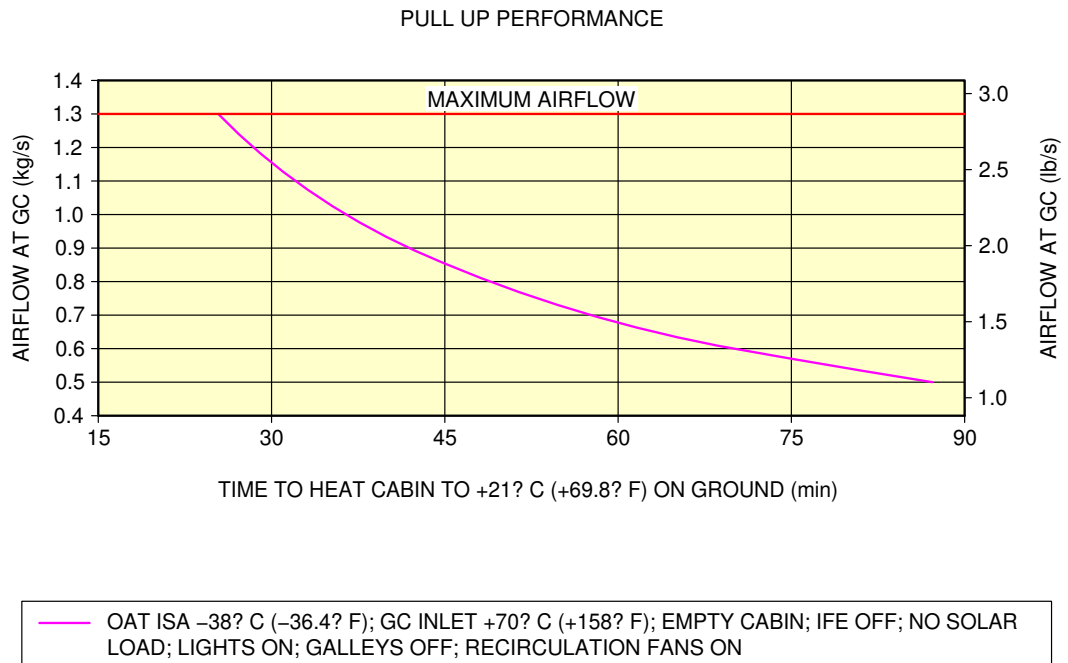
- B. For temperatures at ground connection below 2 °C (35.6 °F) (Subfreezing), the ground equipment shall be compliant with the Airbus document "Subfreezing PCA Carts - Compliance Document for Suppliers" (contact Airbus to obtain this document) defining all the requirements with which Subfreezing Pre-Conditioning Air equipment must comply to allow its use on Airbus aircraft. These requirements are in addition to the functional specifications included in the IATA AHM997.

2. Ground Pneumatic Power Requirements

This section provides the ground pneumatic power requirements for:

- Heating (pull up) the cabin, initially at OAT, up to 21 °C (69.8 °F) (see FIGURE 5-6-0-991-001-A)
- Cooling (pull down) the cabin, initially at OAT, down to 27 °C (80.6 °F) (see FIGURE 5-6-0-991-002-A).

\*\*ON A/C A320-200 A320neo

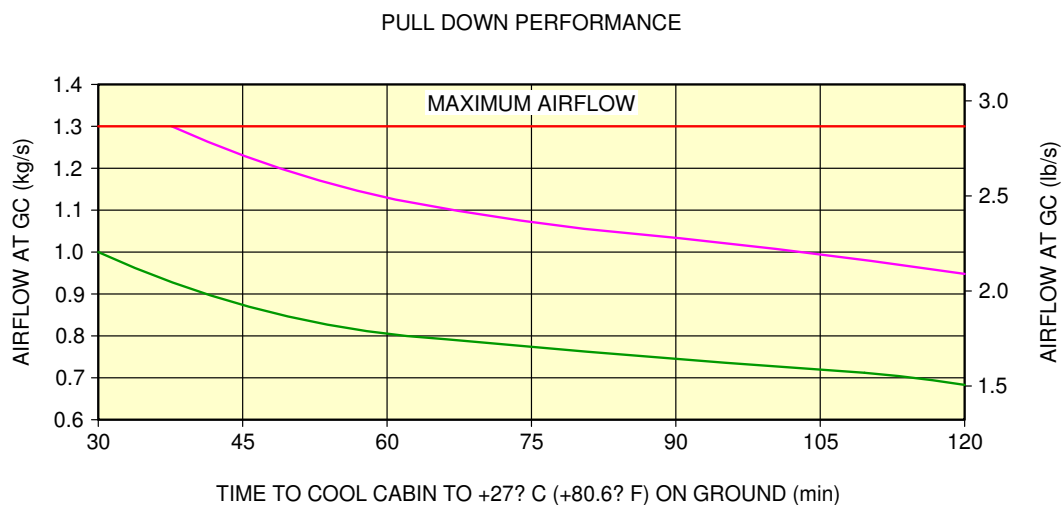


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Ground Pneumatic Power Requirements  
Heating  
FIGURE-5-6-0-991-001-A01



\*\*ON A/C A320-200 A320neo



- OAT ISA +23° C (+73.4° F); GC INLET +2° C (+35.6° F); EMPTY CABIN; IFE OFF; NO SOLAR LOAD; LIGHTS ON; GALLEYS OFF; RECIRCULATION FANS ON
- OAT ISA +23° C (+73.4° F); GC INLET -10° C (+14° F); EMPTY CABIN; IFE OFF; NO SOLAR LOAD; LIGHTS ON; GALLEYS OFF; RECIRCULATION FANS ON

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Ground Pneumatic Power Requirements  
Cooling  
FIGURE-5-6-0-991-002-A01

## 5-7-0 Preconditioned Airflow Requirements

**\*\*ON A/C A320-200 A320neo**

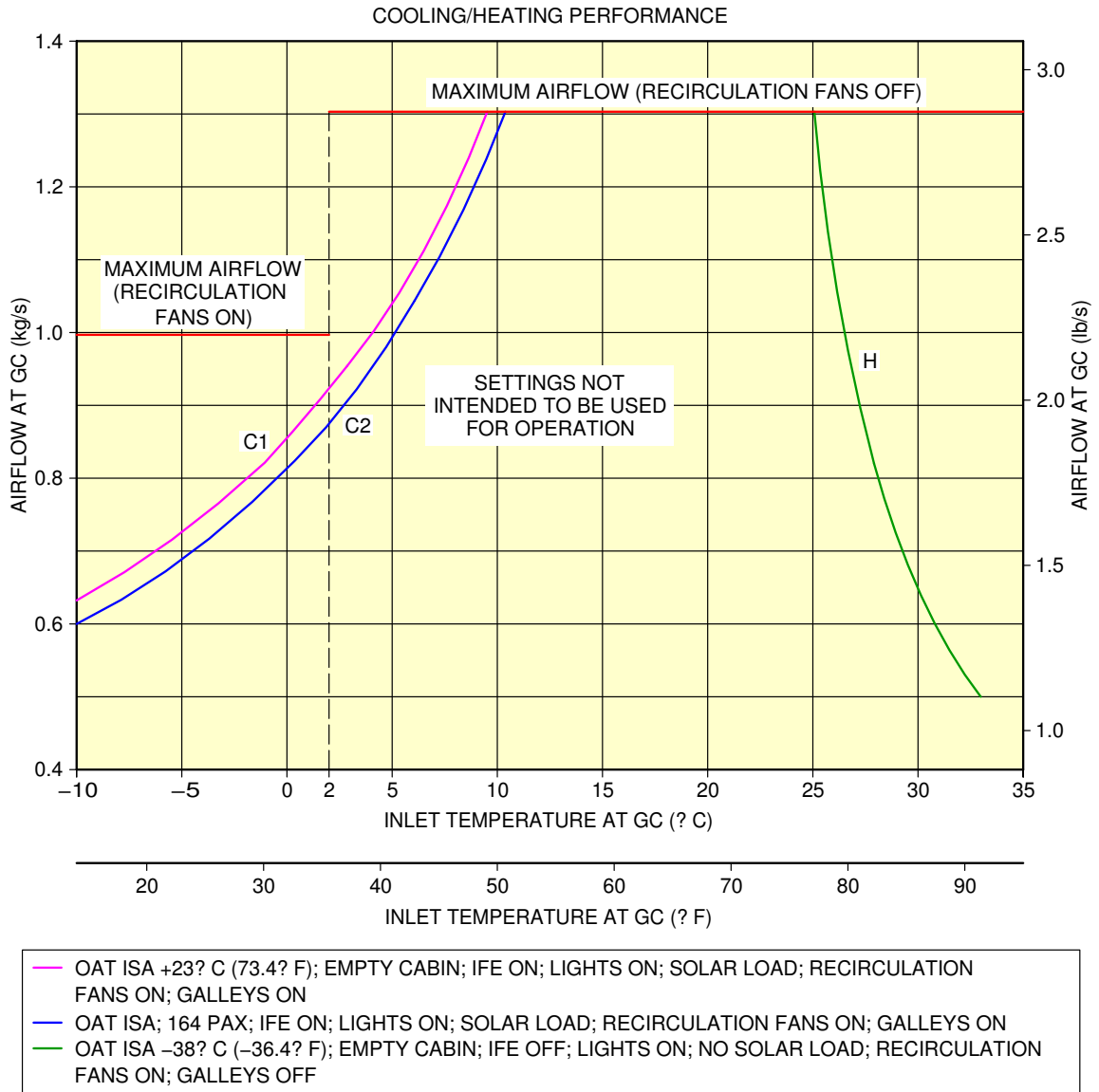
### Preconditioned Airflow Requirements

1. This section provides the preconditioned airflow rate and temperature needed to maintain the cabin temperature at 27 °C (80.6 °F) for the cooling or 21 °C (69.8 °F) for the heating cases.

These settings are not intended to be used for operation (they are not a substitute for the settings given in the AMM). They are based on theoretical simulations and give the picture of a real steady state.

The purpose of the air conditioning (cooling) operation (described in the AMM) is to maintain the cabin temperature below 27 °C (80.6 °F) during boarding (therefore it is not a steady state).

\*\*ON A/C A320-200 A320neo



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Preconditioned Airflow Requirements  
FIGURE-5-7-0-991-003-A01

## 5-8-0 Ground Towing Requirements

**\*\*ON A/C A320-200 A320neo**

### Ground Towing Requirements

1. This section provides information on aircraft towing.  
This aircraft is designed with means for conventional or towbarless towing. Information/procedures can be found for both in AMM 09.  
Status on towbarless towing equipment qualification can be found in ISI 09.11.00001.

NOTE : The NLG steering deactivation pin has the same design for all Airbus programs.

One towbar fitting is installed at the front of the leg.

The main landing gears have attachment points for towing or debogging (for details, refer ARM 07).

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

- Aircraft weight,
- Number of engines at idle,
- Slope.

The chart is based on the engine type with the highest idle thrust level.

2. Towbar design guidelines

The aircraft towbar shall comply with the following standards:

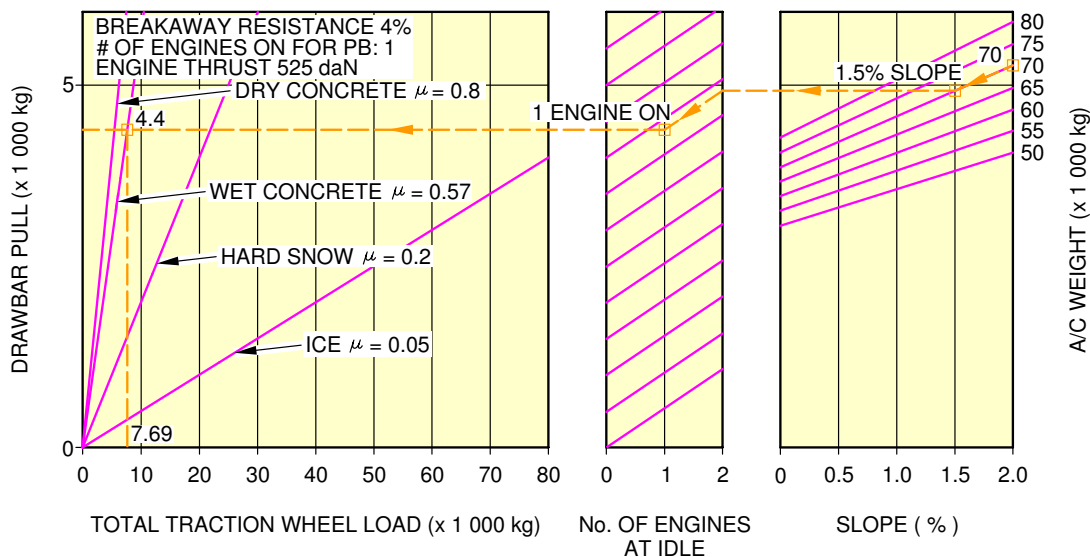
- ISO 8267-1, "Aircraft - Towbar Attachment Fitting - Interface Requirements - Part 1: Main Line Aircraft",
- SAE AS 1614, "Main Line Aircraft Towbar Attach Fitting Interface",
- SAE ARP 1915, "Aircraft Towbar",
- ISO 9667, "Aircraft Ground Support Equipment - Towbar - Connection to Aircraft and Tractor",
- EN 12312-7, "Aircraft Ground Support Equipment - Specific Requirements - Part 7: Aircraft Movement Equipment",
- IATA Airport Handling Manual AHM 958, "Functional Specification for an Aircraft Towbar".

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

- A traction shear pin calibrated at 9 425 daN (21 188 lbf),
- A torsion pin calibrated at 826 m.daN (6 092 lbf.ft).

The towing head is designed according to ISO 8267-1, cat. I.

**\*\*ON A/C A320-200**



EXAMPLE HOW TO DETERMINE THE MASS REQUIREMENT TO TOW A A320 AT 70 000 kg, AT 1.5% SLOPE, 1 ENGINE AT IDLE AND FOR WET TARMAC CONDITIONS:

- ON THE RIGHT HAND SIDE OF THE GRAPH, CHOOSE THE RELEVANT AIRCRAFT WEIGHT (70 000 kg),
- FROM THIS POINT DRAW A PARALLEL LINE TO THE REQUIRED SLOPE PERCENTAGE (1.5%),
- FROM THE POINT OBTAINED DRAW A STRAIGHT HORIZONTAL LINE UNTIL No. OF ENGINES AT IDLE = 2,
- FROM THIS POINT DRAW A PARALLEL LINE TO THE REQUESTED No. OF ENGINES (1),
- FROM THIS POINT DRAW A STRAIGHT HORIZONTAL LINE TO THE DRAWBAR PULL AXIS,
- THE Y-COORDINATE OBTAINED IS THE NECESSARY DRAWBAR PULL FOR THE TRACTOR (4 400 kg),
- SEARCH THE INTERSECTION WITH THE "WET CONCRETE" LINE.
- THE OBTAINED X-COORDINATE IS THE TOTAL TRACTION WHEEL LOAD (7 690 kg).

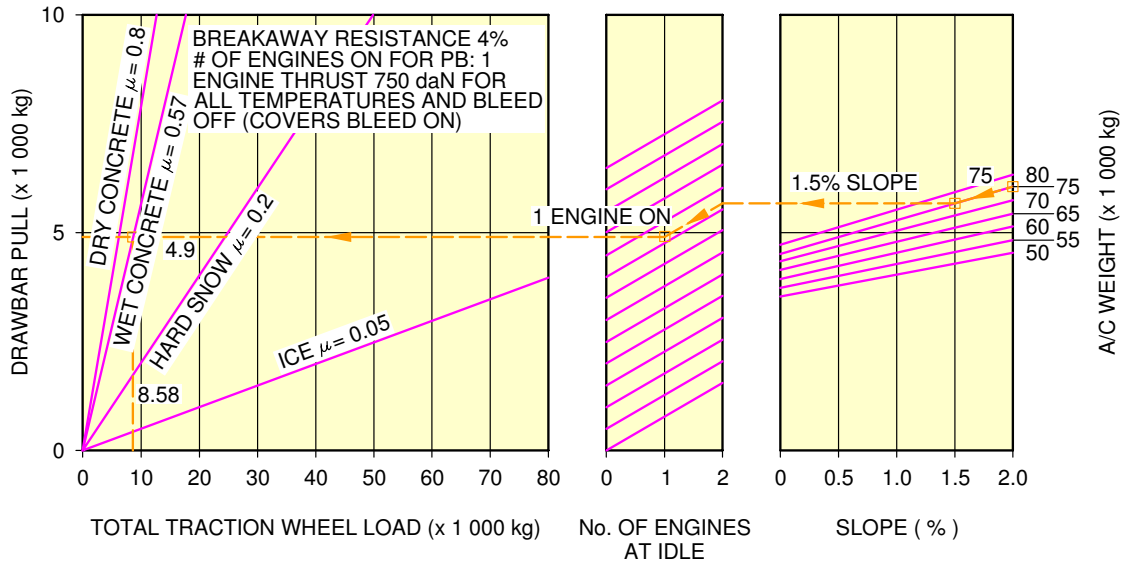
**NOTE:**

USE A TRACTOR WITH A LIMITED DRAWBAR PULL TO PREVENT LOADS ABOVE THE TOW-BAR SHEAR-PIN CAPACITY.

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Ground Towing Requirements  
FIGURE-5-8-0-991-001-C01

**\*\*ON A/C A320neo**



EXAMPLE HOW TO DETERMINE THE MASS REQUIREMENT TO TOW A A320 AT 75 000 kg, AT 1.5% SLOPE, 1 ENGINE AT IDLE AND FOR WET TARMAC CONDITIONS:

- ON THE RIGHT HAND SIDE OF THE GRAPH, CHOOSE THE RELEVANT AIRCRAFT WEIGHT (75 000 kg),
- FROM THIS POINT DRAW A PARALLEL LINE TO THE REQUIRED SLOPE PERCENTAGE (1.5%),
- FROM THE POINT OBTAINED DRAW A STRAIGHT HORIZONTAL LINE UNTIL No. OF ENGINES AT IDLE = 2,
- FROM THIS POINT DRAW A PARALLEL LINE TO THE REQUESTED No. OF ENGINES (1),
- FROM THIS POINT DRAW A STRAIGHT HORIZONTAL LINE TO THE DRAWBAR PULL AXIS,
- THE Y-COORDINATE OBTAINED IS THE NECESSARY DRAWBAR PULL FOR THE TRACTOR (4 900 kg),
- SEARCH THE INTERSECTION WITH THE "WET CONCRETE" LINE.
- THE OBTAINED X-COORDINATE IS THE TOTAL TRACTION WHEEL LOAD (8 580 kg).

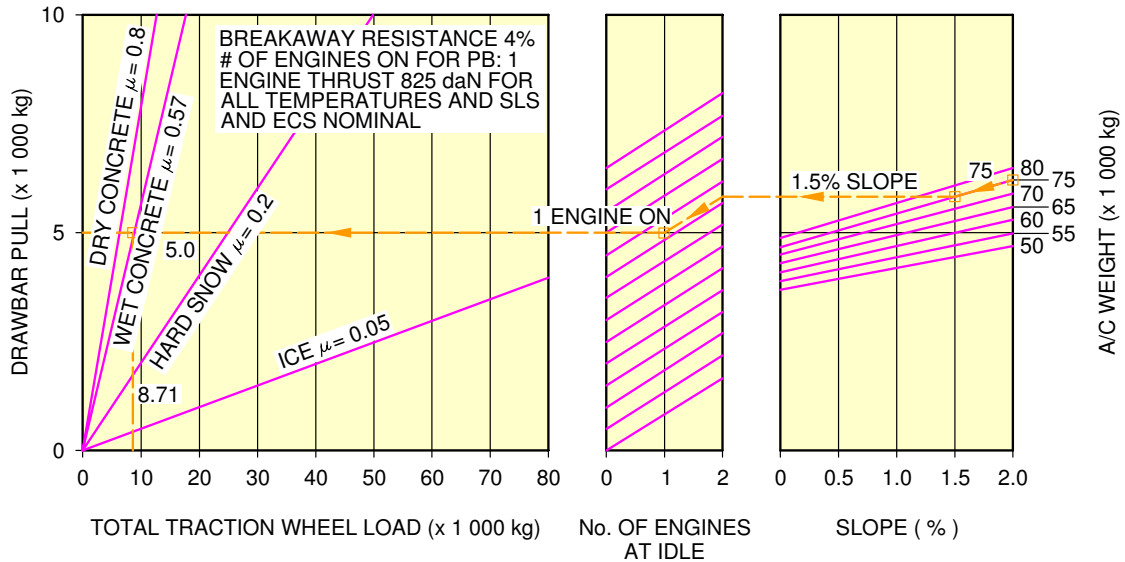
**NOTE:**

USE A TRACTOR WITH A LIMITED DRAWBAR PULL TO PREVENT LOADS ABOVE THE TOW-BAR SHEAR-PIN CAPACITY.

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Ground Towing Requirements  
PW 1100G Engine (Sheet 1 of 2)  
FIGURE-5-8-0-991-001-E01

**\*\*ON A/C A320neo**



EXAMPLE HOW TO DETERMINE THE MASS REQUIREMENT TO TOW A A320 AT 75 000 kg, AT 1.5% SLOPE, 1 ENGINE AT IDLE AND FOR WET TARMAC CONDITIONS:

- ON THE RIGHT HAND SIDE OF THE GRAPH, CHOOSE THE RELEVANT AIRCRAFT WEIGHT (75 000 kg),
- FROM THIS POINT DRAW A PARALLEL LINE TO THE REQUIRED SLOPE PERCENTAGE (1.5%),
- FROM THE POINT OBTAINED DRAW A STRAIGHT HORIZONTAL LINE UNTIL No. OF ENGINES AT IDLE = 2,
- FROM THIS POINT DRAW A PARALLEL LINE TO THE REQUESTED No. OF ENGINES (1),
- FROM THIS POINT DRAW A STRAIGHT HORIZONTAL LINE TO THE DRAWBAR PULL AXIS,
- THE Y-COORDINATE OBTAINED IS THE NECESSARY DRAWBAR PULL FOR THE TRACTOR (5 000 kg),
- SEARCH THE INTERSECTION WITH THE "WET CONCRETE" LINE.
- THE OBTAINED X-COORDINATE IS THE TOTAL TRACTION WHEEL LOAD (8 710 kg).

**NOTE:**

USE A TRACTOR WITH A LIMITED DRAWBAR PULL TO PREVENT LOADS ABOVE THE TOW-BAR SHEAR-PIN CAPACITY.

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Ground Towing Requirements  
CFM LEAP-1A Engine (Sheet 2 of 2)  
FIGURE-5-8-0-991-001-E01

5-9-0 De-Icing and External Cleaning

**\*\*ON A/C A320-200 A320neo**

De-Icing and External Cleaning

1. De-Icing and External Cleaning on Ground

The mobile equipment for aircraft de-icing and external cleaning must be capable of reaching heights up to approximately 13 m (43 ft).

2. De-Icing

AIRCRAFT TYPE	Wing Top Surface (Both Sides)		Wingtip Devices (Both Inside and Outside Surfaces) (Both Sides)		HTP Top Surface (Both Sides)		VTP (Both Sides)	
	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
A320	100	1 076	2	22	27	291	43	463
A320 Sharklet/neo	100	1 076	10	108	27	291	43	463

AIRCRAFT TYPE	Fuselage Top Surface (Top Third - 120° Arc)		Nacelle and Pylon (Top Third - 120° Arc) (All Engines)		Total De-Iced Area	
	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
A320	138	1 485	24	258	333	3 584
A320 Sharklet/neo	138	1 485	24	258	341	3 670

NOTE : Dimensions are approximate.

3. External Cleaning

AIRCRAFT TYPE	Wing Top Surface (Both Sides)		Wing Lower Surface (Including Flap Track Fairing) (Both Sides)		Wingtip Devices (Both Inside and Outside Surfaces) (Both Sides)	
	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
A320	100	1 076	103	1 109	2	22
A320 Sharklet/neo	100	1 076	103	1 109	10	108

AIRCRAFT TYPE	HTP Top Surface (Both Sides)		HTP Lower Surface (Both Sides)		VTP (Both Sides)	
	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
A320	27	291	27	291	43	463



AIRCRAFT TYPE	HTP Top Surface (Both Sides)		HTP Lower Surface (Both Sides)		VTP (Both Sides)	
	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
A320 Sharklet/neo	27	291	27	291	43	463

AIRCRAFT TYPE	Fuselage and Belly Fairing		Nacelle and Pylon (All Engines)		Total Cleaned Area	
	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>
A320	421	4 532	73	786	796	8 568
A320 Sharklet/neo	421	4 532	73	786	804	8 654

NOTE : Dimensions are approximate.

## OPERATING CONDITIONS

### 6-1-0 Engine Exhaust Velocities and Temperatures

**\*\*ON A/C A320-200 A320neo**

#### Engine Exhaust Velocities and Temperatures

**\*\*ON A/C A320-200**

#### 1. General

This section provides the estimated engine exhaust efflux velocities and temperatures contours for Ground Idle, Breakaway and Maximum Take-Off (MTO) conditions.

**\*\*ON A/C A320neo**

#### 2. General

This section provides the estimated engine exhaust velocity and temperature contours for MTO, Breakaway 12% MTO, Breakaway 24% MTO and Ground Idle conditions for the CFM LEAP-1A and PW 1100G engines.

The MTO data are presented at the maximum thrust rating. The Breakaway data are presented at a rating that corresponds to the minimum thrust level necessary to start the movement of the A/C from a static position at its maximum ramp weight. Breakaway thrust corresponds to 12% MTO if applied on both engines and 24% MTO when applied on a single engine (Idle thrust on the other engine).

The Idle data, provided by the engine manufacturer, are calculated for operational conditions ISA +15K (+15 °C), Sea Level, Static and no headwind. In the charts, the longitudinal distances are measured from the inboard engine core-nozzle exit section. The lateral distances are measured from the aircraft fuselage centerline.

The effects of on-wing installation are not taken into account. The effects of ground proximity are not taken into account for PW 1100G engines, but they are taken into account for the CFM LEAP-1A engines.

The velocity contours are presented at 50 ft/s (15 m/s), 100 ft/s (30 m/s) and 150 ft/s (46 m/s). The temperature contours are shown at 313K (+40 °C), 323K (+50 °C) and 333K (+60 °C). The velocity and temperature contours do not take into account possible variations affecting performance, such as ambient temperature, field elevation or failure cases leading to an abnormal bleed configuration. To evaluate the impact of these specific variables on the exhaust contours, a specific study of the airport where the aircraft is intended to operate should be carried out.



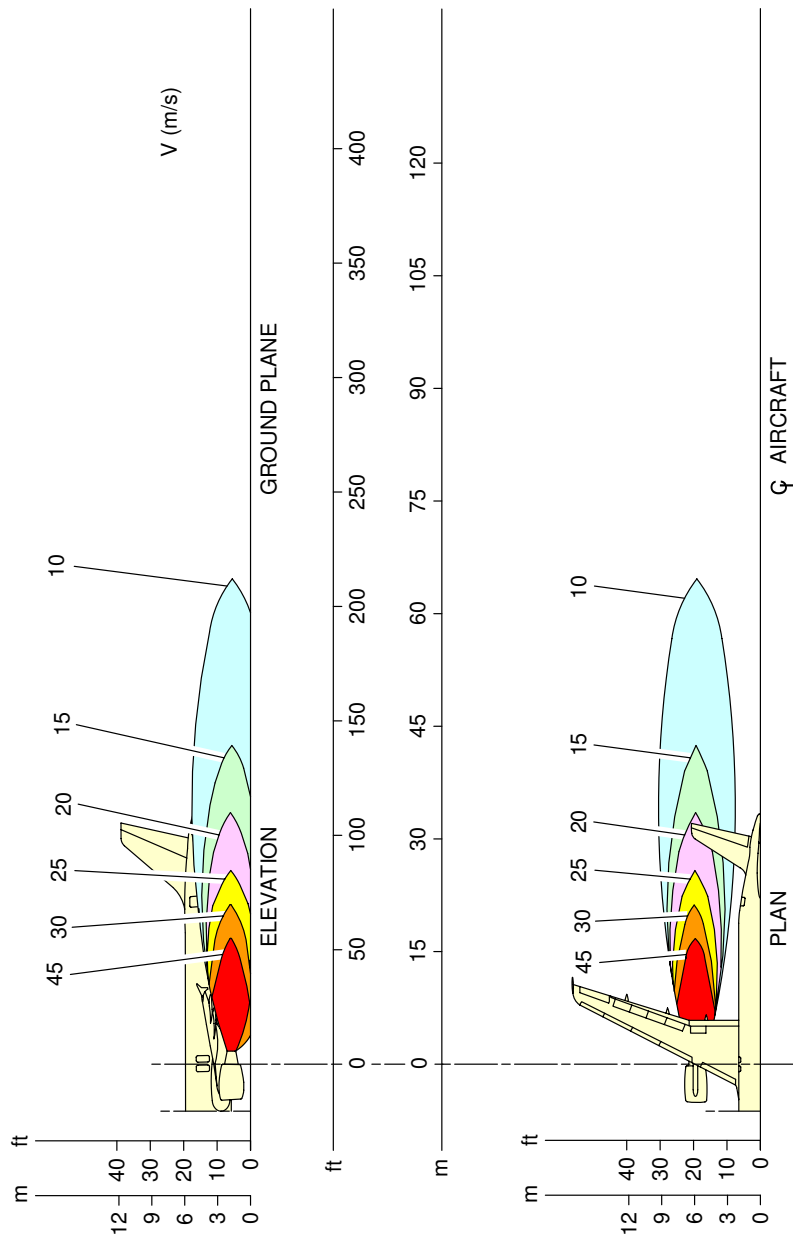
## 6-1-1 Engine Exhaust Velocities Contours - Ground Idle Power

**\*\*ON A/C A320-200 A320neo**

### Engine Exhaust Velocities Contours - Ground Idle Power

1. This section provides engine exhaust velocities contours at ground idle power.

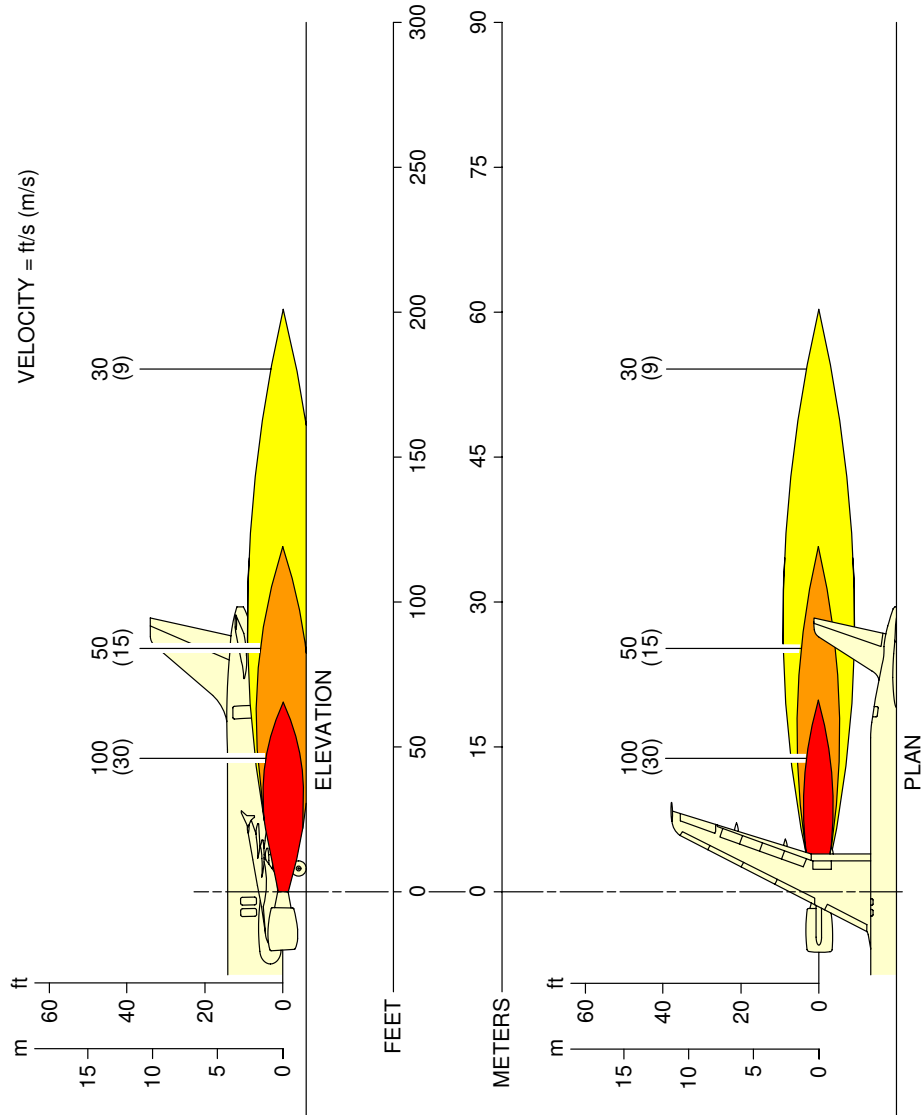
\*\*ON A/C A320-200



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Engine Exhaust Velocities  
 Ground Idle Power – CFM56 Series Engine  
 FIGURE-6-1-1-991-005-A01

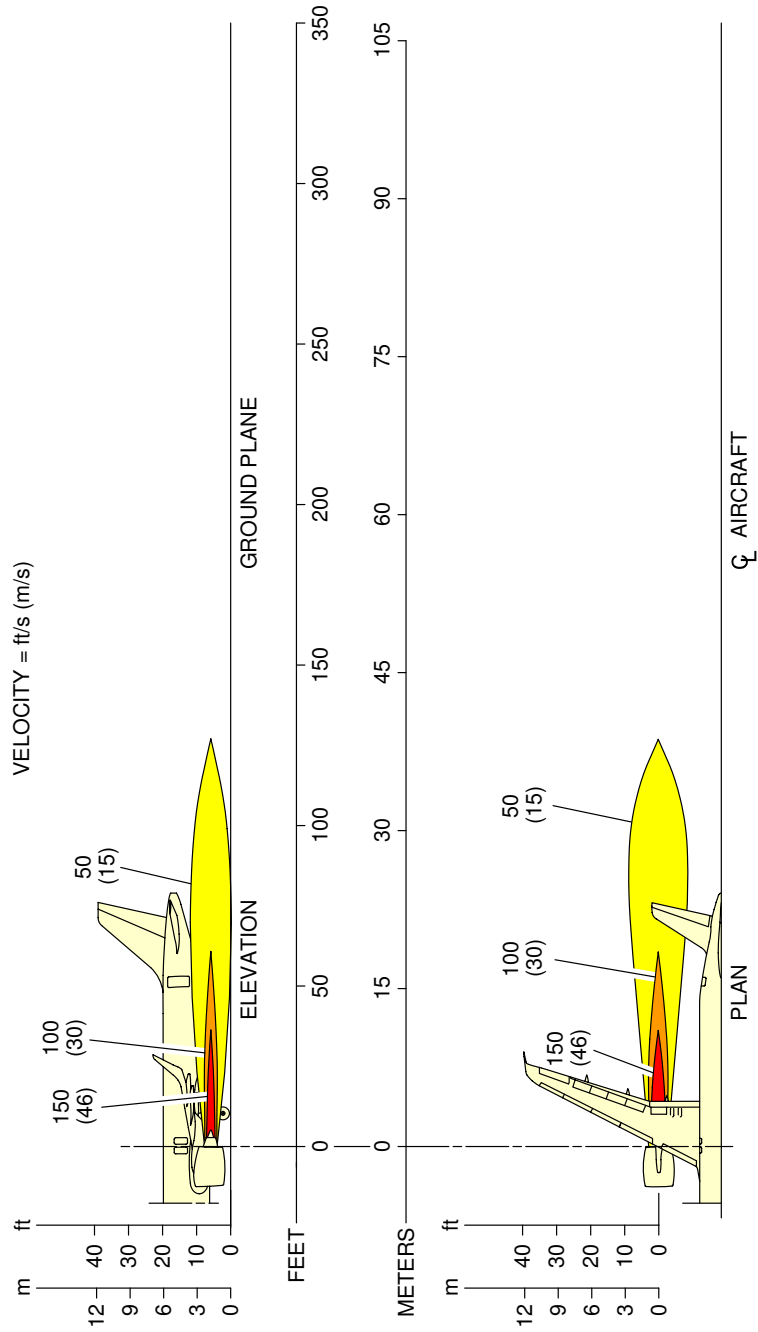
**\*\*ON A/C A320-200**



N\_AC\_060101\_1\_0060101\_01\_00

Engine Exhaust Velocities  
 Ground Idle Power – IAE V2500 Series Engine  
 FIGURE-6-1-1-991-006-A01

\*\*ON A/C A320neo

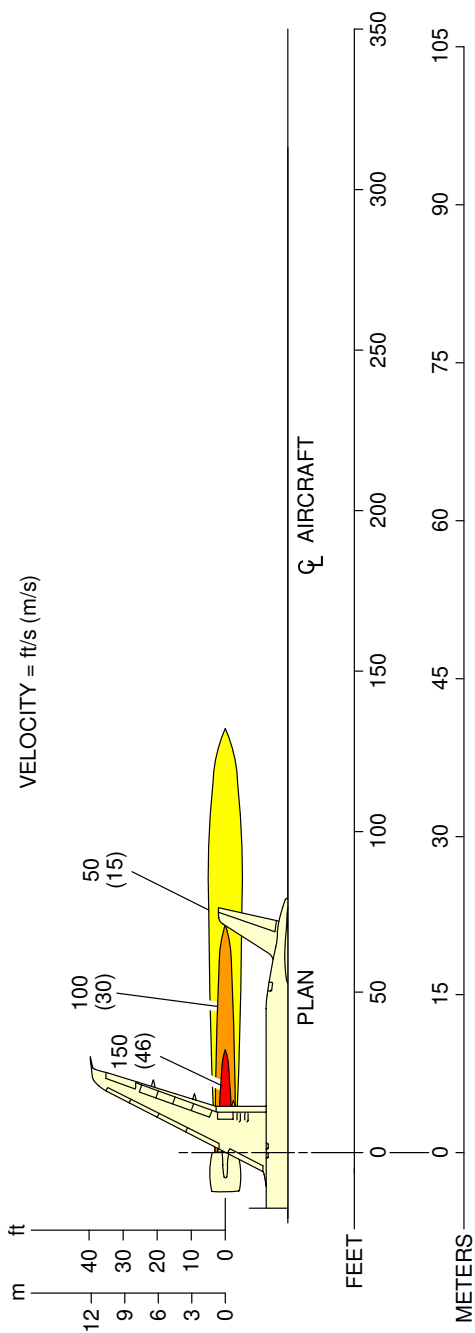


**NOTE:**  
GROUND IDLE, SEA LEVEL, ISA+15K DAY, FN = 1 591 lbf.

N\_AC\_060101\_1\_0110101\_01\_00

Engine Exhaust Velocities  
Ground Idle Power – CFM LEAP-1A Engine  
FIGURE-6-1-1-991-011-A01

**\*\*ON A/C A320neo**



N\_AC\_060101\_1\_0120101\_01\_00

Engine Exhaust Velocities  
 Ground Idle Power – PW 1100G Engine  
 FIGURE-6-1-1-991-012-A01

## 6-1-2 Engine Exhaust Temperatures Contours - Ground Idle Power

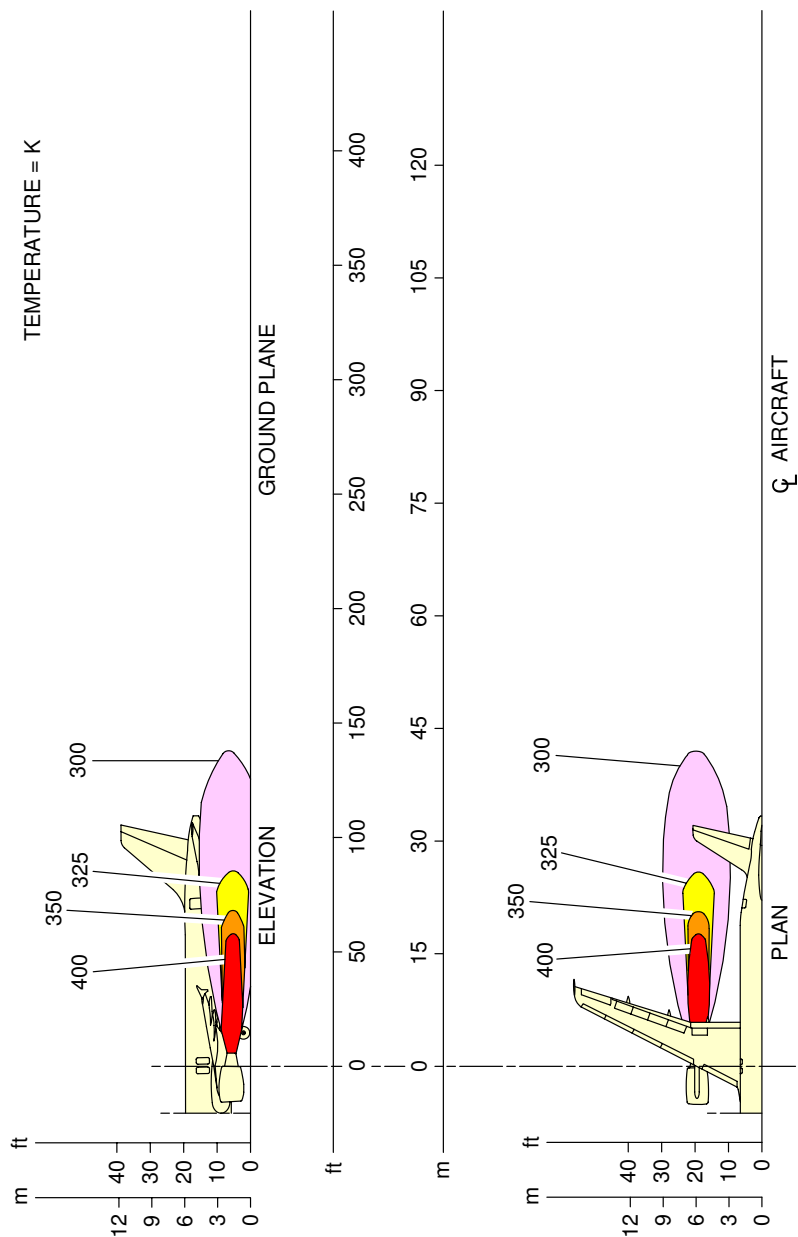
**\*\*ON A/C A320-200 A320neo**

### Engine Exhaust Temperatures Contours - Ground Idle Power

1. This section provides engine exhaust temperatures contours at ground idle power.



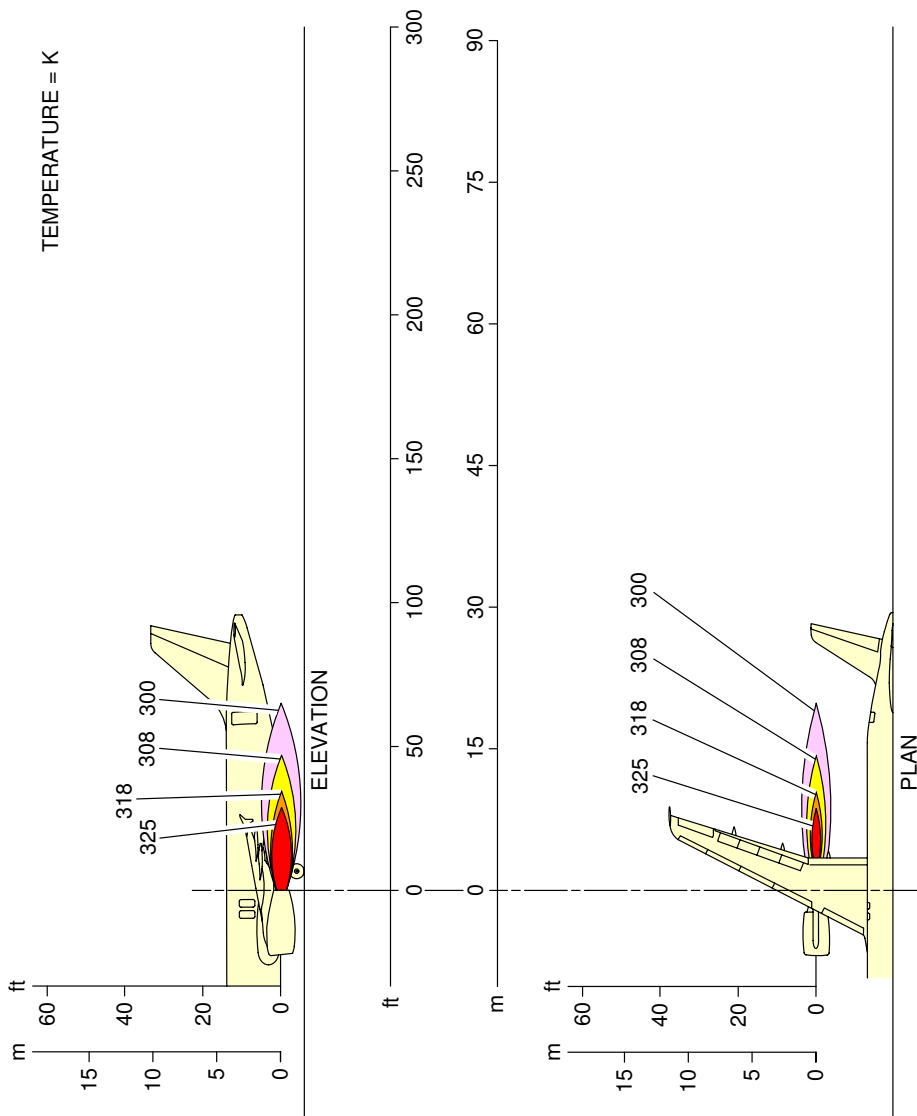
\*\*ON A/C A320-200



N\_AC\_060102\_1\_0050101\_01\_01

Engine Exhaust Temperatures  
 Ground Idle Power – CFM56 Series Engine  
 FIGURE-6-1-2-991-005-A01

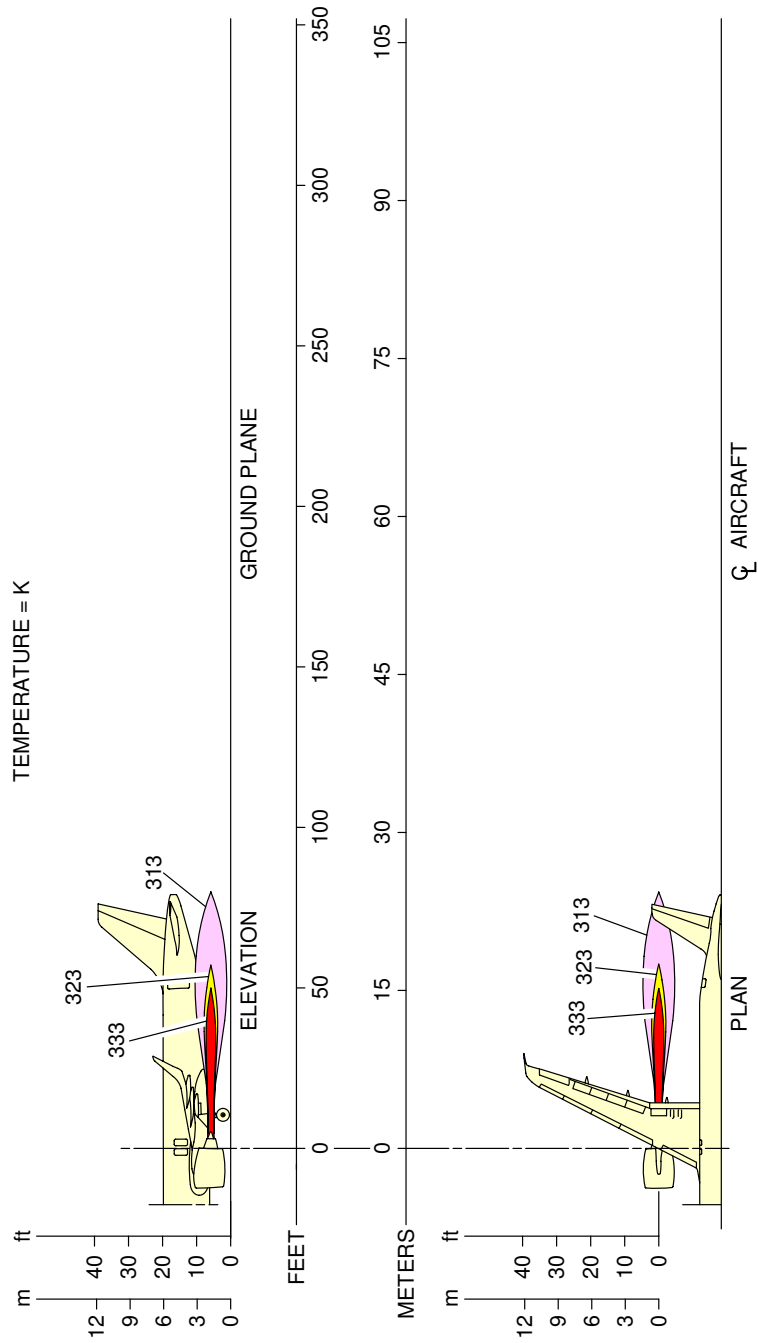
**\*\*ON A/C A320-200**



N\_AC\_060102\_1\_0060101\_01\_01

Engine Exhaust Temperatures  
 Ground Idle Power – IAE V2500 Series Engine  
 FIGURE-6-1-2-991-006-A01

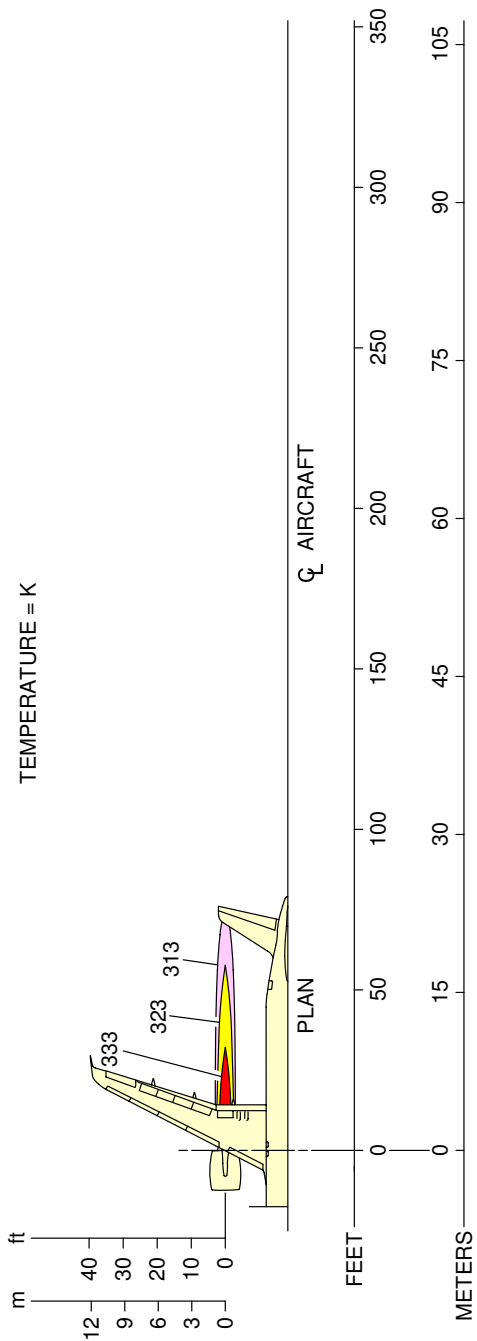
**\*\*ON A/C A320neo**



N\_AC\_060102\_1\_0110101\_01\_00

Engine Exhaust Temperatures  
 Ground Idle Power – CFM LEAP-1A Engine  
 FIGURE-6-1-2-991-011-A01

**\*\*ON A/C A320neo**



N\_AC\_060102\_1\_0120101\_01\_00

Engine Exhaust Temperatures  
 Ground Idle Power – PW 1100G Engine  
 FIGURE-6-1-2-991-012-A01



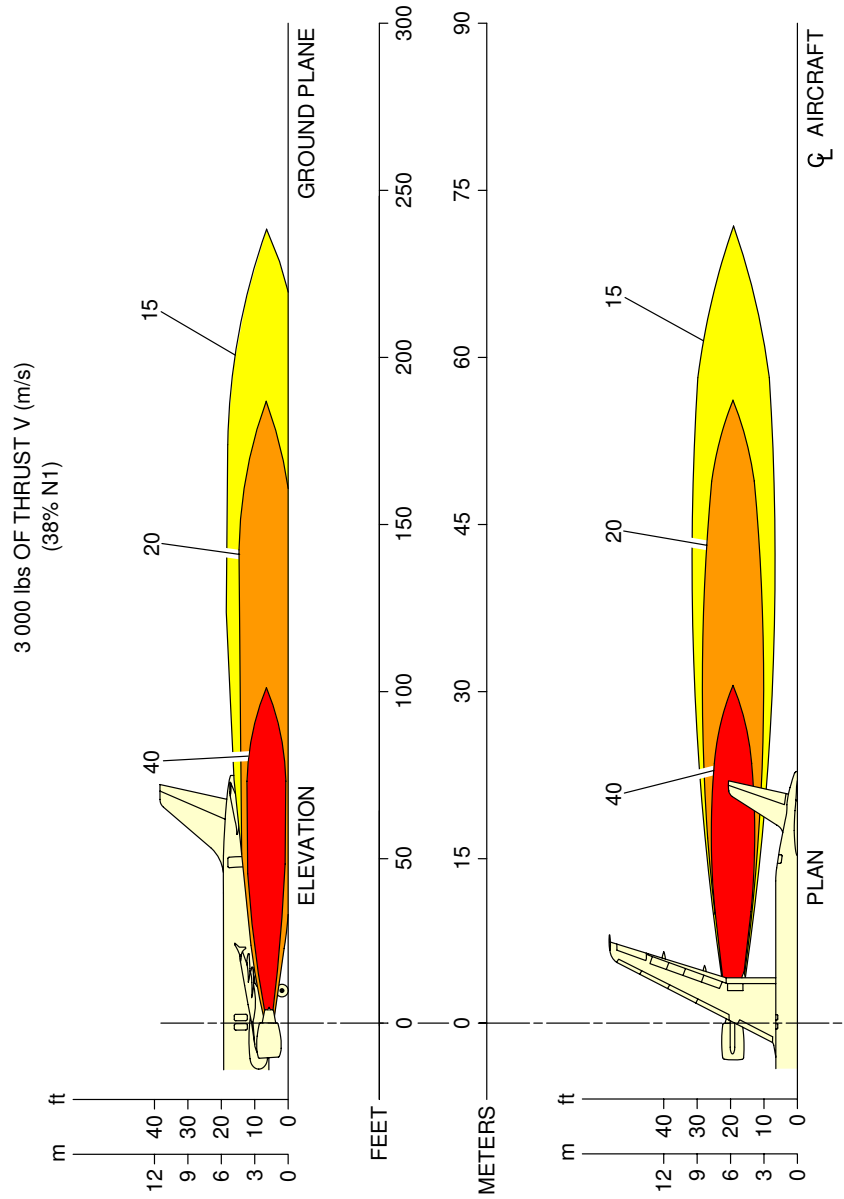
### 6-1-3 Engine Exhaust Velocities Contours - Breakaway Power

**\*\*ON A/C A320-200 A320neo**

#### Engine Exhaust Velocities Contours - Breakaway Power

1. This section provides engine exhaust velocities contours at breakaway power.

\*\*ON A/C A320-200

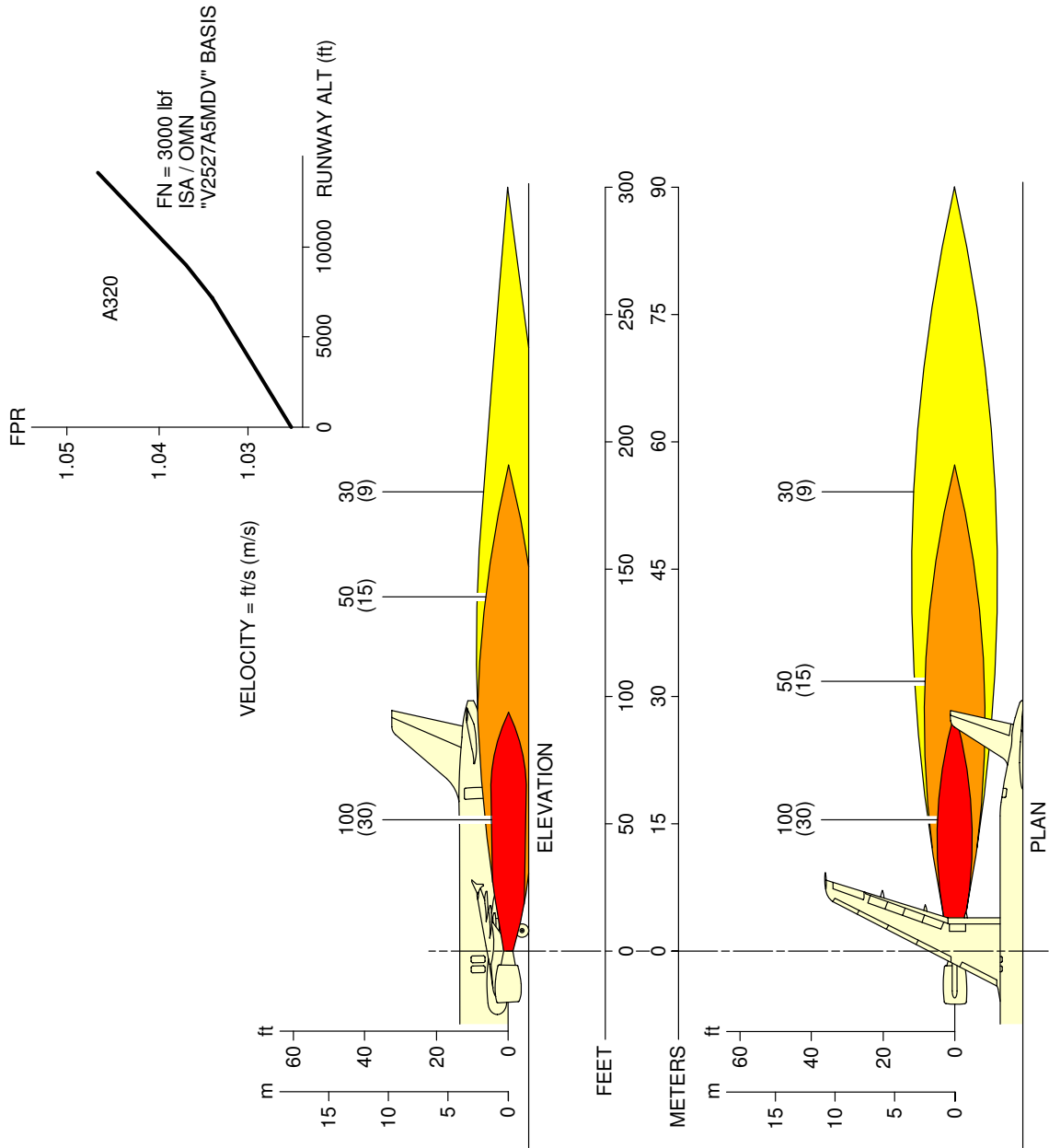


**NOTE:**  
 - ADD + 1% N1 PER + 15°C (27°F) ABOVE ISA TEMPERATURE CONDITIONS  
 - ADD + 1% N1 PER 2 000 ft

N\_AC\_060103\_1\_0030101\_01\_01

Engine Exhaust Velocities  
 Breakaway Power – CFM56 Series Engine  
 FIGURE-6-1-3-991-003-A01

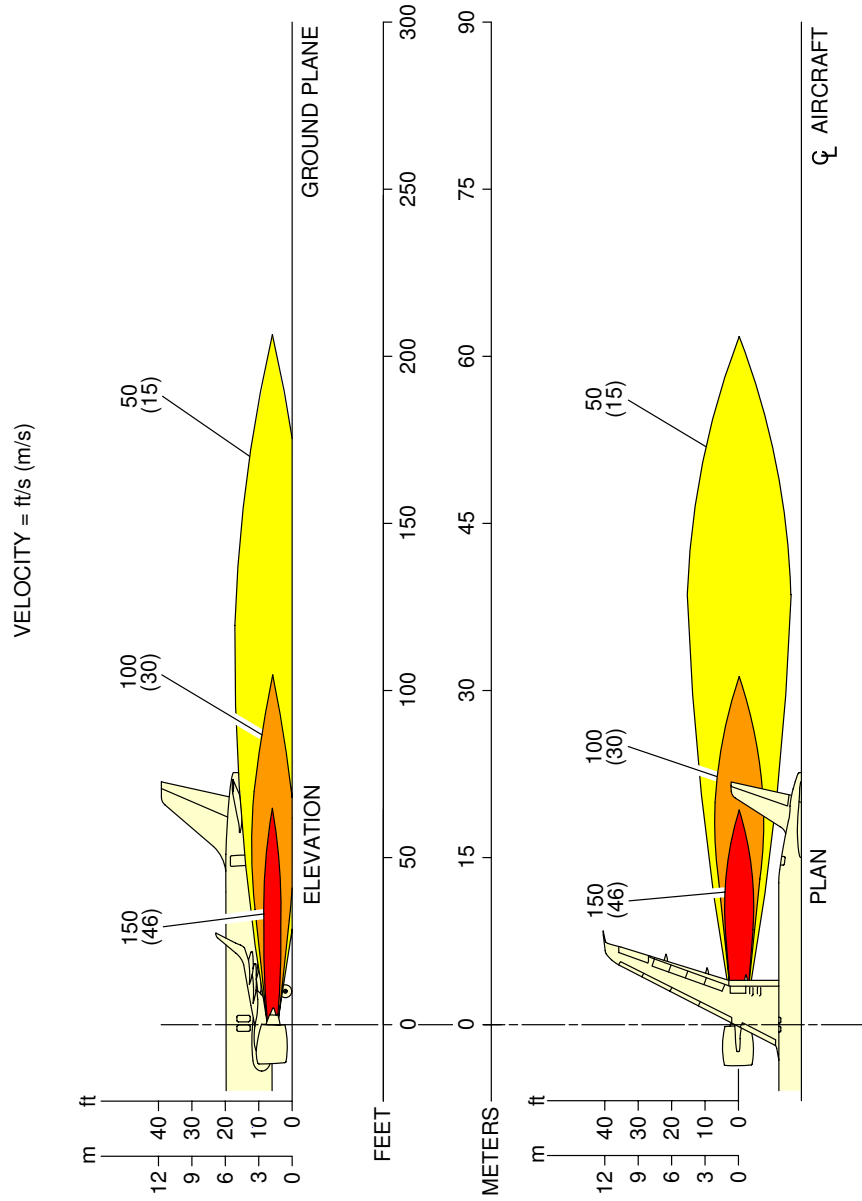
**\*\*ON A/C A320-200**



N\_AC\_060103\_1\_0040101\_01\_00

Engine Exhaust Velocities  
 Breakaway Power – IAE V2500 Series Engine  
 FIGURE-6-1-3-991-004-A01

**\*\*ON A/C A320neo**



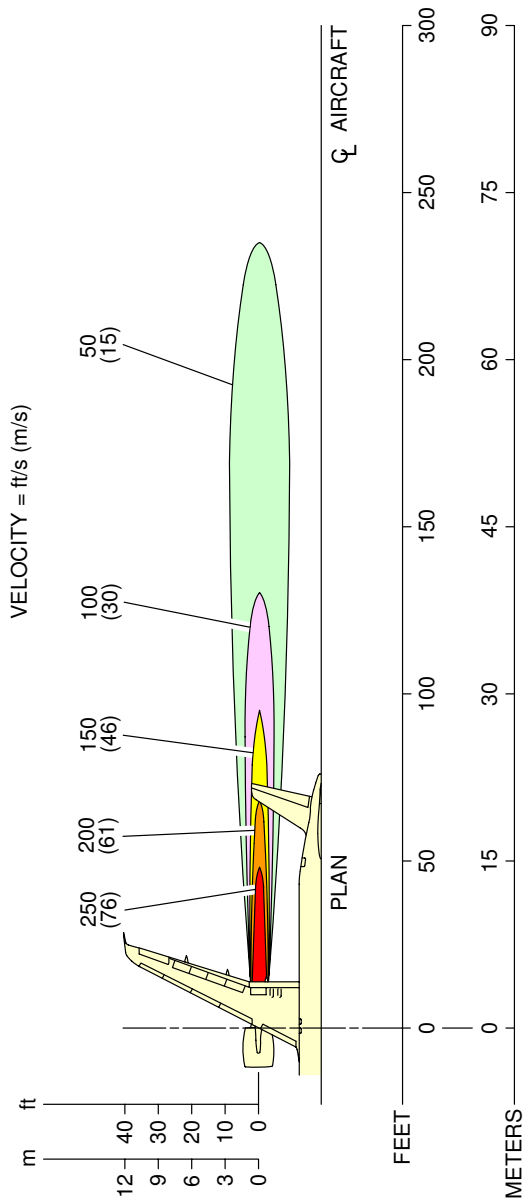
**NOTE:**  
TWO-ENGINE BREAKAWAY, SEA LEVEL, ISA+15K DAY, FN = 3 873 lbf.

N\_AC\_060103\_1\_0130101\_01\_00

Engine Exhaust Velocities  
Breakaway Power 12% MTO – CFM LEAP-1A Engine  
FIGURE-6-1-3-991-013-A01



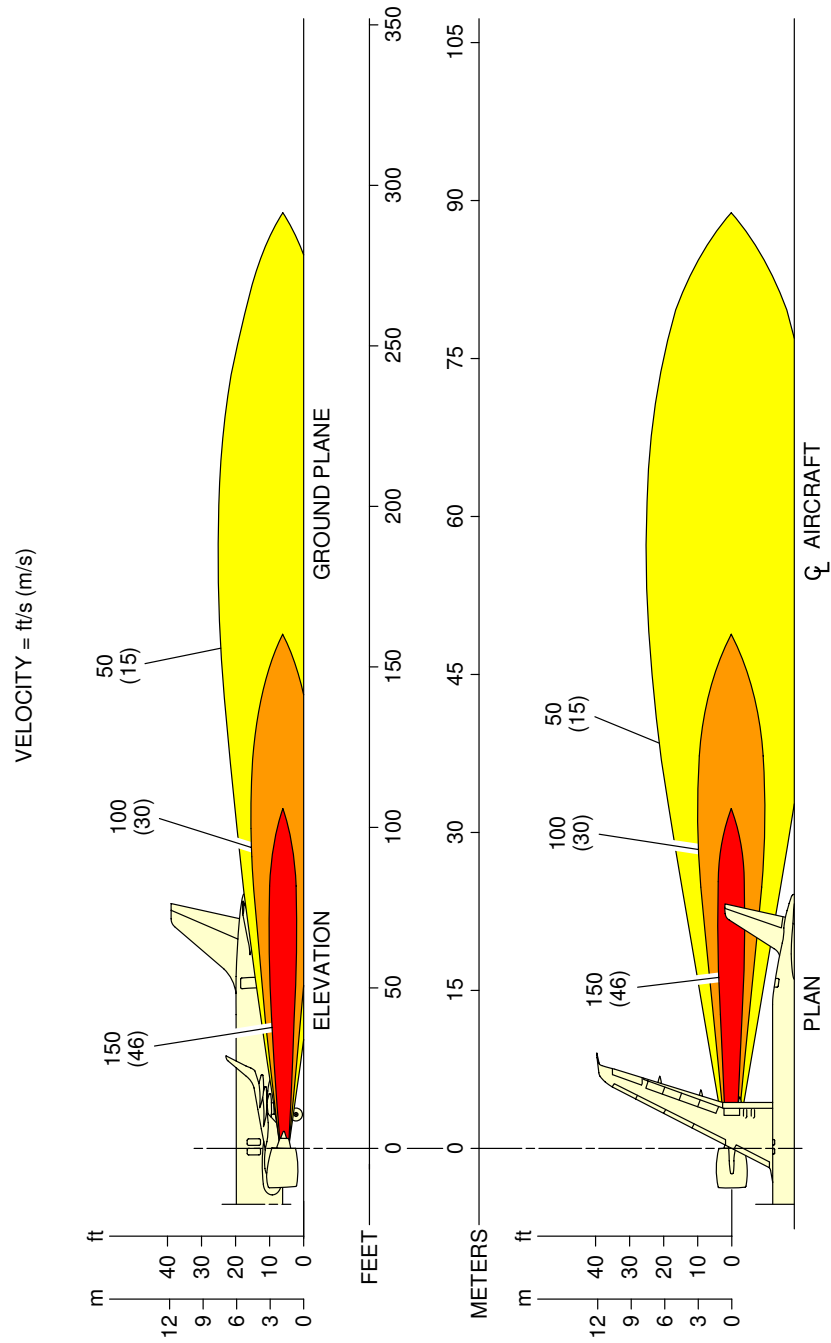
**\*\*ON A/C A320neo**



N\_AC\_060103\_1\_0140101\_01\_00

Engine Exhaust Velocities  
 Breakaway Power 12% MTO – PW 1100G Engine  
 FIGURE-6-1-3-991-014-A01

**\*\*ON A/C A320neo**

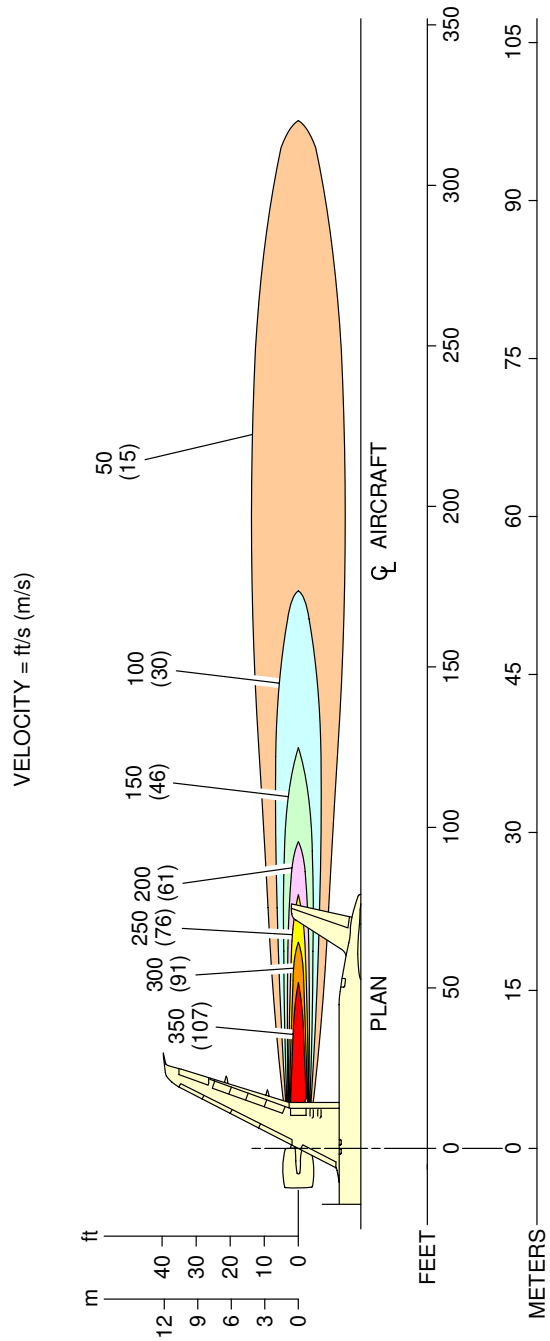


**NOTE:**  
ONE-ENGINE BREAKAWAY, SEA LEVEL, ISA+15K DAY, FN = 7 747 lbf.

N\_AC\_060103\_1\_0150101\_01\_00

Engine Exhaust Velocities  
Breakaway Power 24% MTO – CFM LEAP-1A Engine  
FIGURE-6-1-3-991-015-A01

**\*\*ON A/C A320neo**



N\_AC\_060103\_1\_0160101\_01\_00

Engine Exhaust Velocities  
 Breakaway Power 24% MTO – PW 1100G Engine  
 FIGURE-6-1-3-991-016-A01

#### 6-1-4 Engine Exhaust Temperatures Contours - Breakaway Power

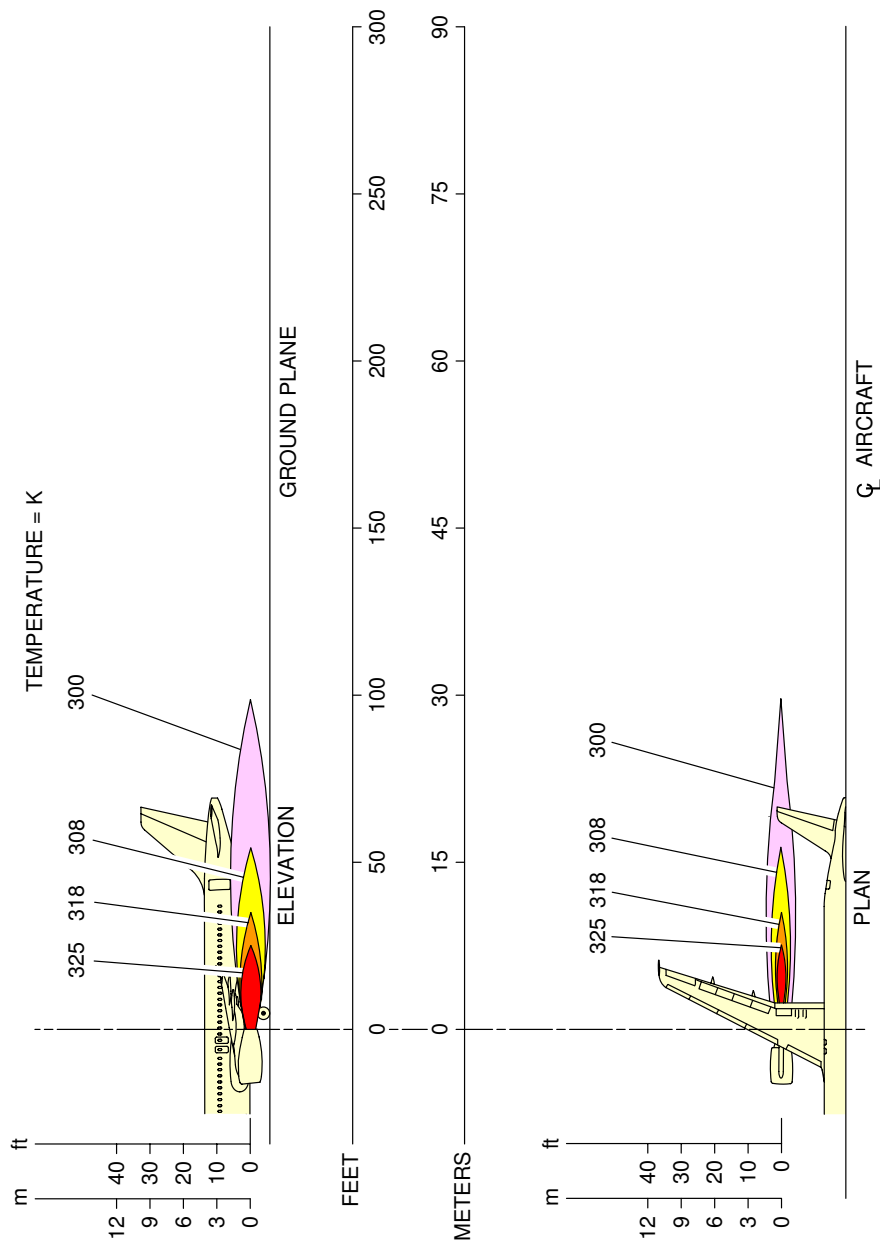
**\*\*ON A/C A320-200 A320neo**

##### Engine Exhaust Temperatures Contours - Breakaway Power

1. This section provides engine exhaust temperatures contours at breakaway power.



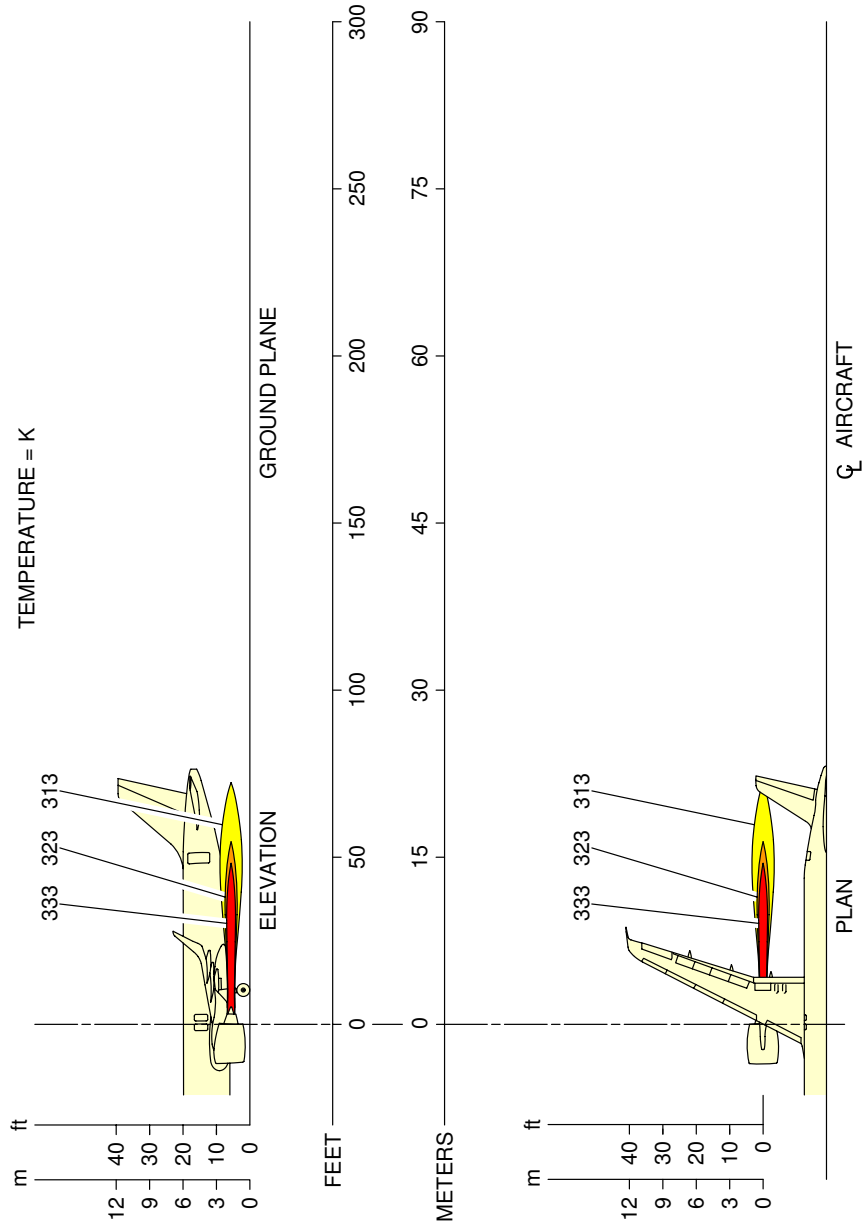
\*\*ON A/C A320-200



N\_AC\_060104\_1\_0040101\_01\_01

Engine Exhaust Temperatures  
 Breakaway Power – IAE V2500 Series Engine  
 FIGURE-6-1-4-991-004-A01

**\*\*ON A/C A320neo**

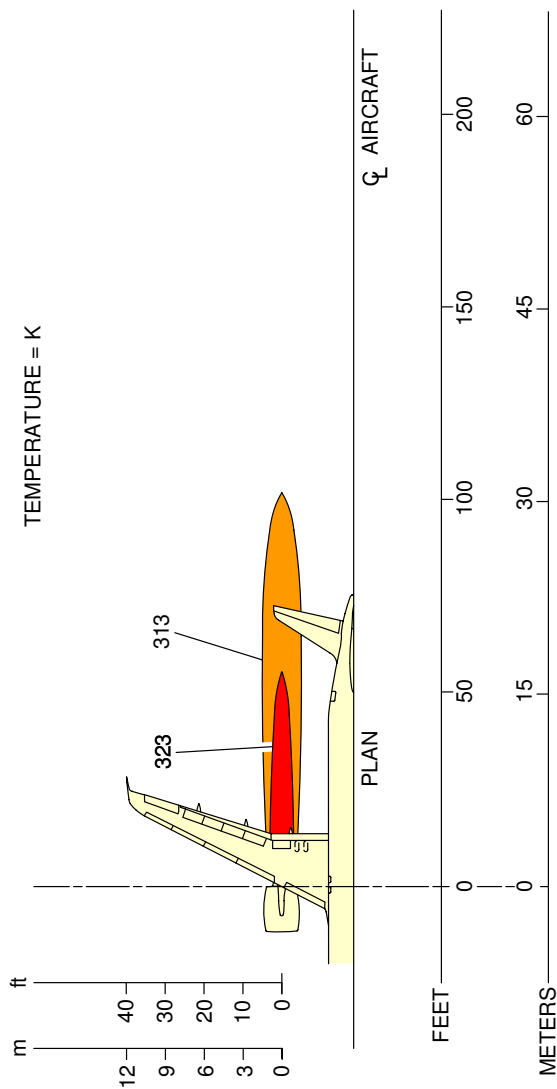


**NOTE:**  
TWO-ENGINE BREAKAWAY, SEA LEVEL, ISA+15K DAY, FN = 3 873 lbf.

N\_AC\_060104\_1\_0090101\_01\_00

Engine Exhaust Temperatures  
Breakaway Power 12% MTO - CFM LEAP-1A Engine  
FIGURE-6-1-4-991-009-A01

**\*\*ON A/C A320neo**

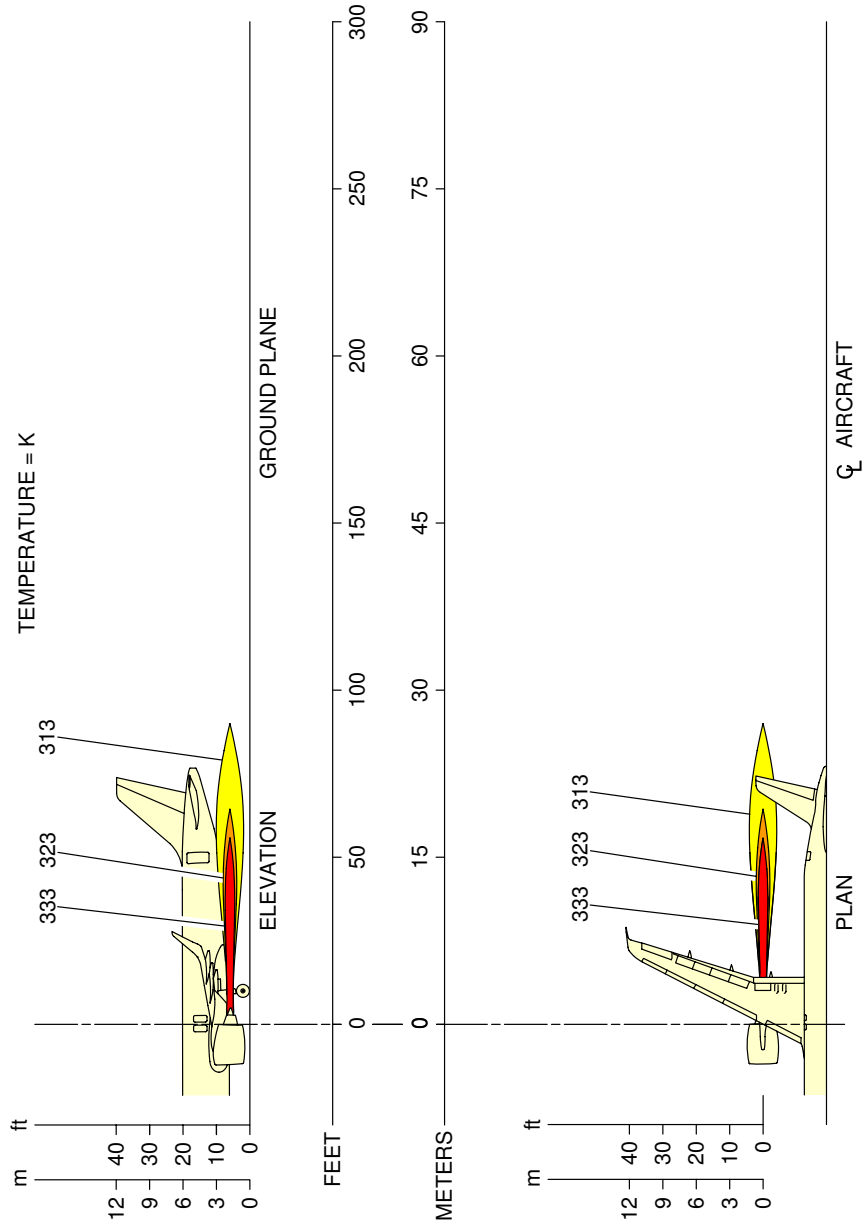


N\_AC\_060104\_1\_0100101\_01\_00

Engine Exhaust Temperatures  
 Breakaway Power 12% MTO - PW 1100G Engine  
 FIGURE-6-1-4-991-010-A01



**\*\*ON A/C A320neo**

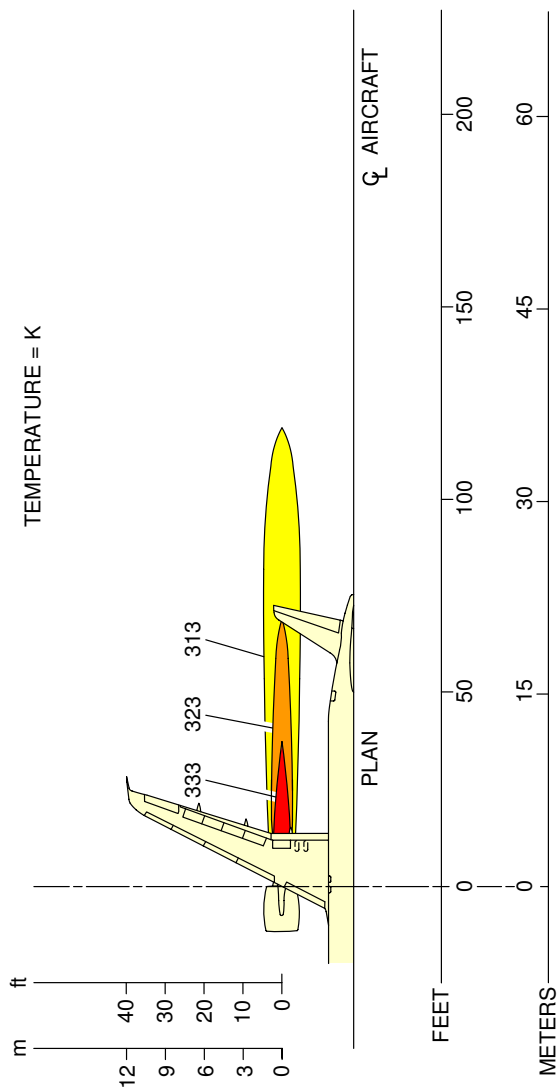


**NOTE:** ONE-ENGINE BREAKAWAY, SEA LEVEL, ISA+15K DAY, FN = 7 747 lbf.

N\_AC\_060104\_1\_0110101\_01\_00

Engine Exhaust Temperatures  
Breakaway Power 24% MTO - CFM LEAP-1A Engine  
FIGURE-6-1-4-991-011-A01

**\*\*ON A/C A320neo**



N\_AC\_060104\_1\_0120101\_01\_00

Engine Exhaust Temperatures  
 Breakaway Power 24% MTO - PW 1100G Engine  
 FIGURE-6-1-4-991-012-A01



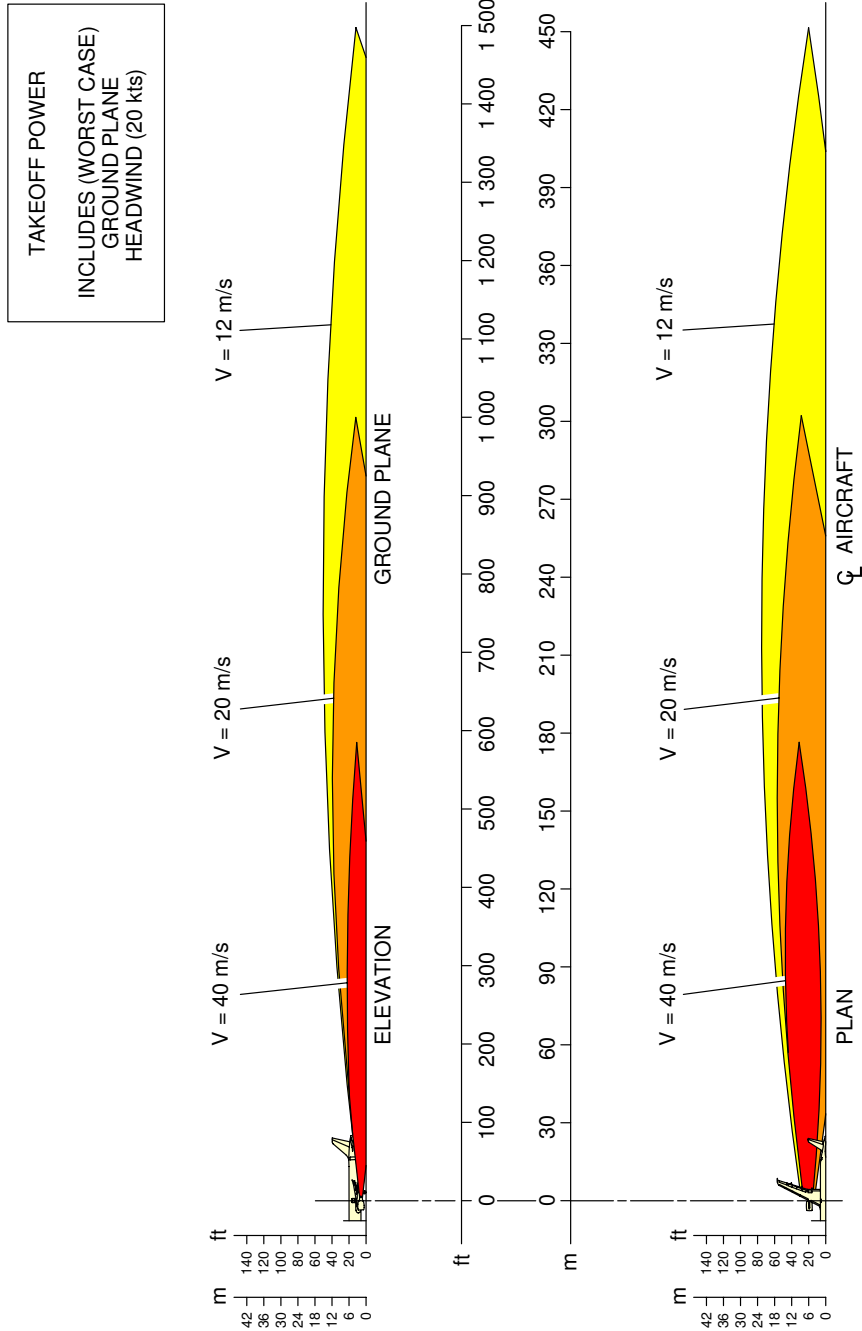
## 6-1-5 Engine Exhaust Velocities Contours - Takeoff Power

**\*\*ON A/C A320-200 A320neo**

### Engine Exhaust Velocities Contours - Takeoff Power

1. This section provides engine exhaust velocities contours at takeoff power.

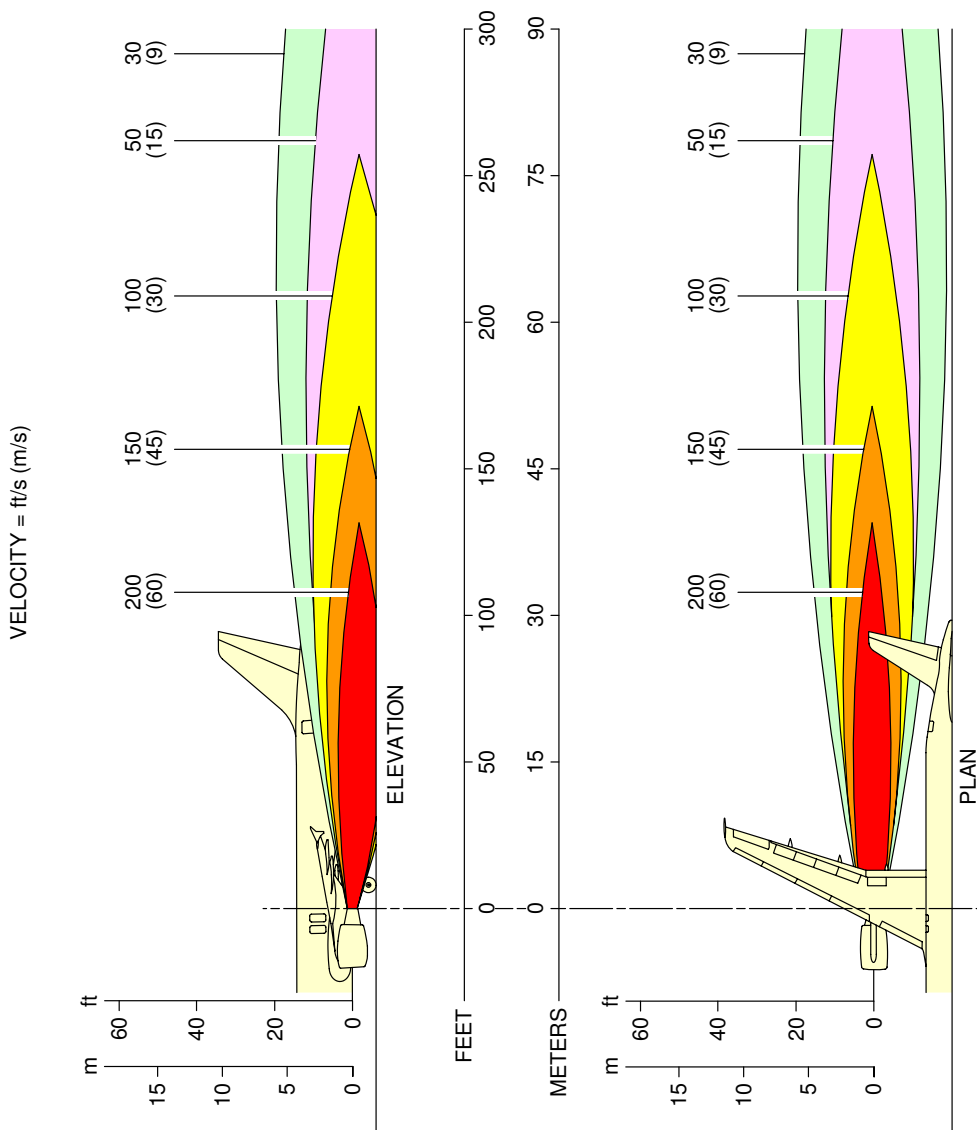
**\*\*ON A/C A320-200**



N\_AC\_060105\_1\_0050101\_01\_01

Engine Exhaust Velocities  
Takeoff Power – CFM56 Series Engine  
FIGURE-6-1-5-991-005-A01

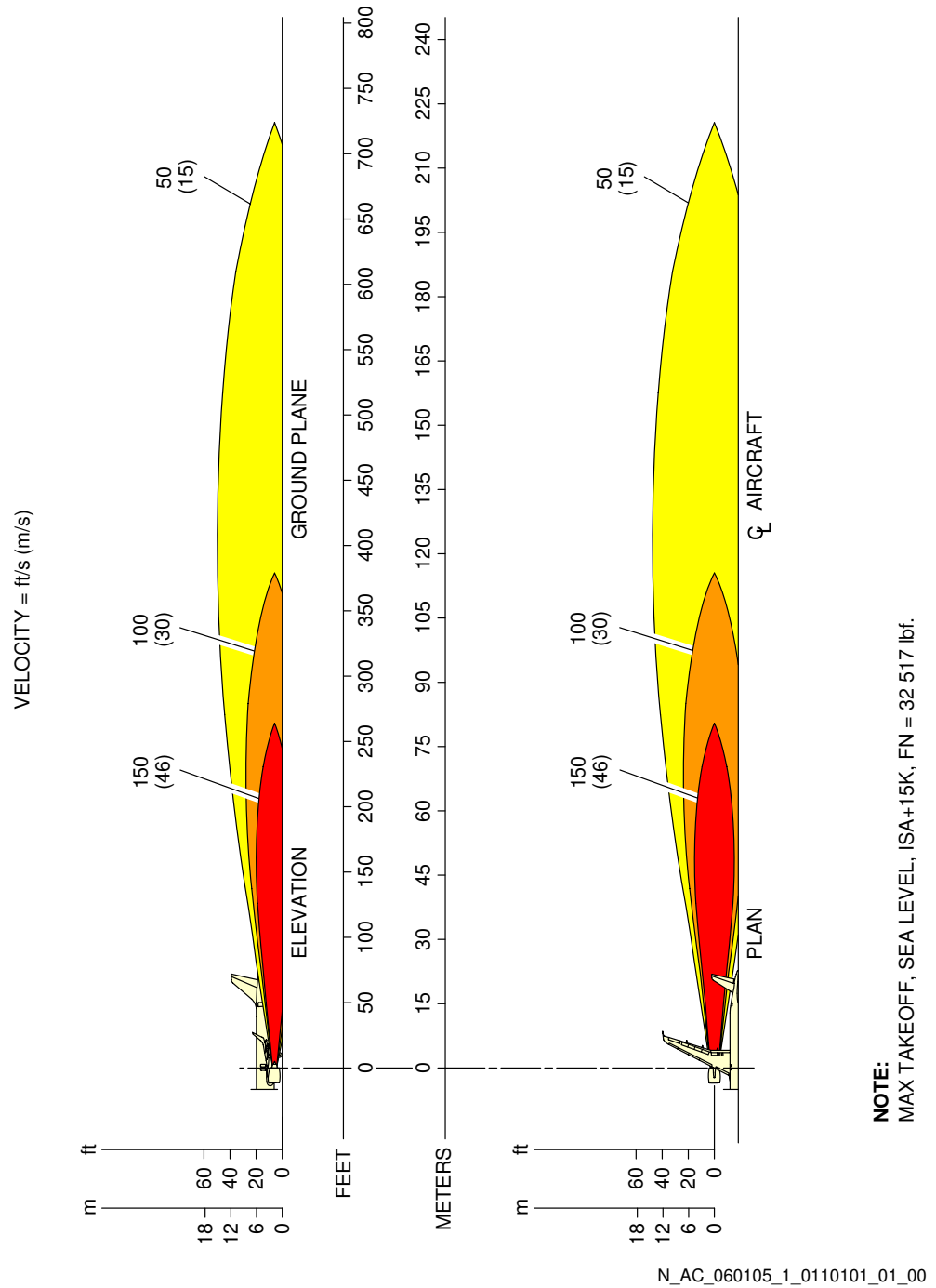
\*\*ON A/C A320-200



N\_AC\_060105\_1\_0060101\_01\_01

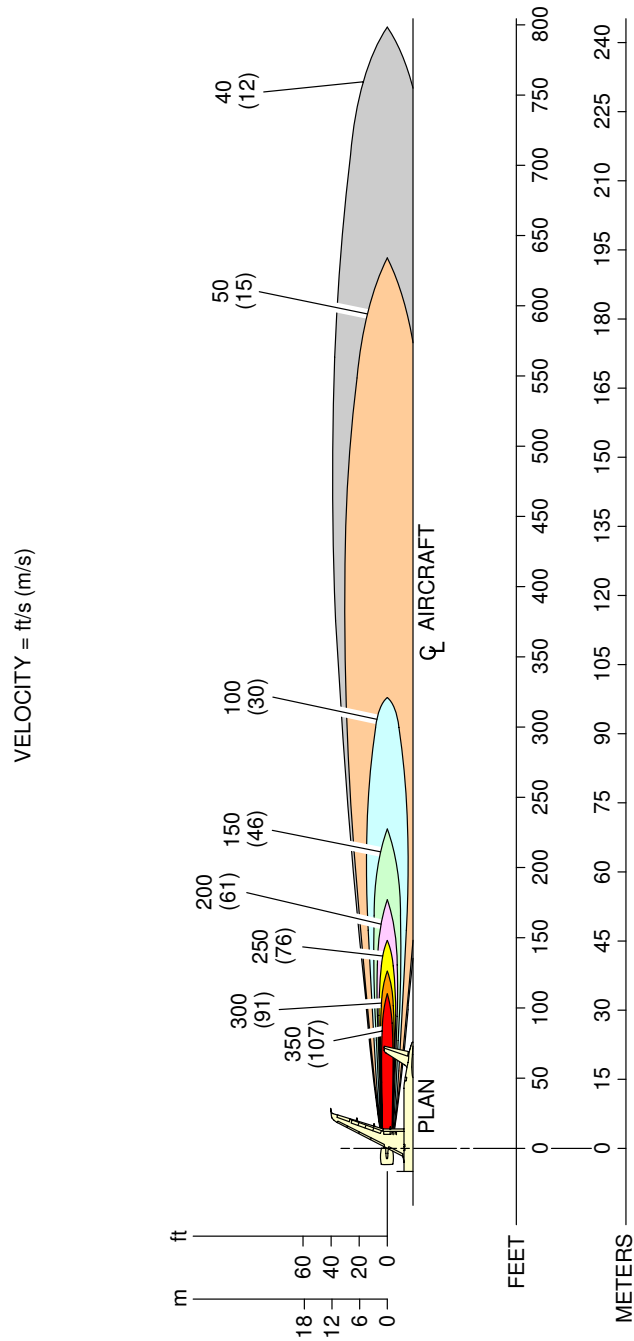
Engine Exhaust Velocities  
 Takeoff Power – IAE V2500 Series Engine  
 FIGURE-6-1-5-991-006-A01

\*\*ON A/C A320neo



Engine Exhaust Velocities  
Takeoff Power – CFM LEAP-1A Engine  
FIGURE-6-1-5-991-011-A01

**\*\*ON A/C A320neo**



N\_AC\_060105\_1\_0120101\_01\_00

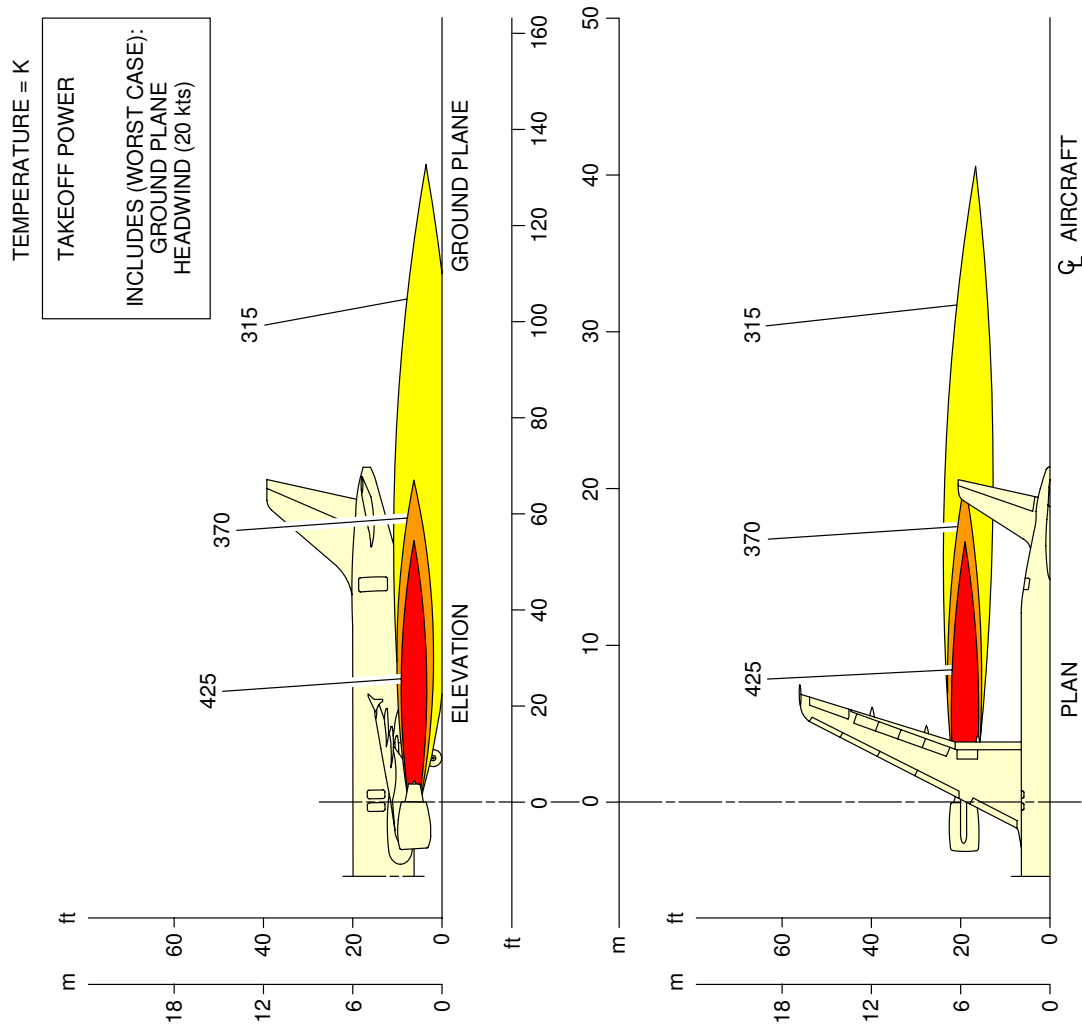
Engine Exhaust Velocities  
 Takeoff Power - PW 1100G Engine  
 FIGURE-6-1-5-991-012-A01

**6-1-6 Engine Exhaust Temperatures Contours - Takeoff Power****\*\*ON A/C A320-200 A320neo**Engine Exhaust Temperatures Contours - Takeoff Power

1. This section provides engine exhaust temperatures contours at takeoff power.



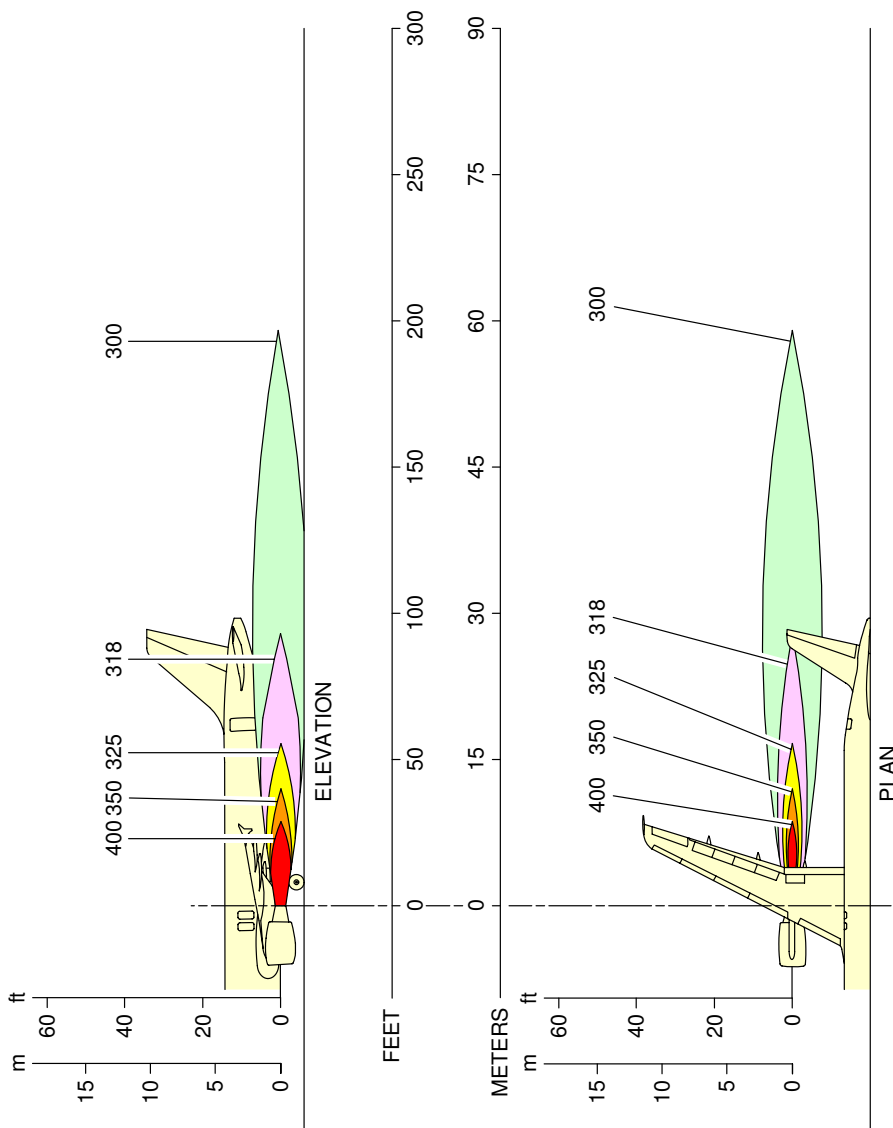
\*\*ON A/C A320-200



N\_AC\_060106\_1\_0050101\_01\_01

Engine Exhaust Temperatures  
 Takeoff Power – CFM56 Series Engine  
 FIGURE-6-1-6-991-005-A01

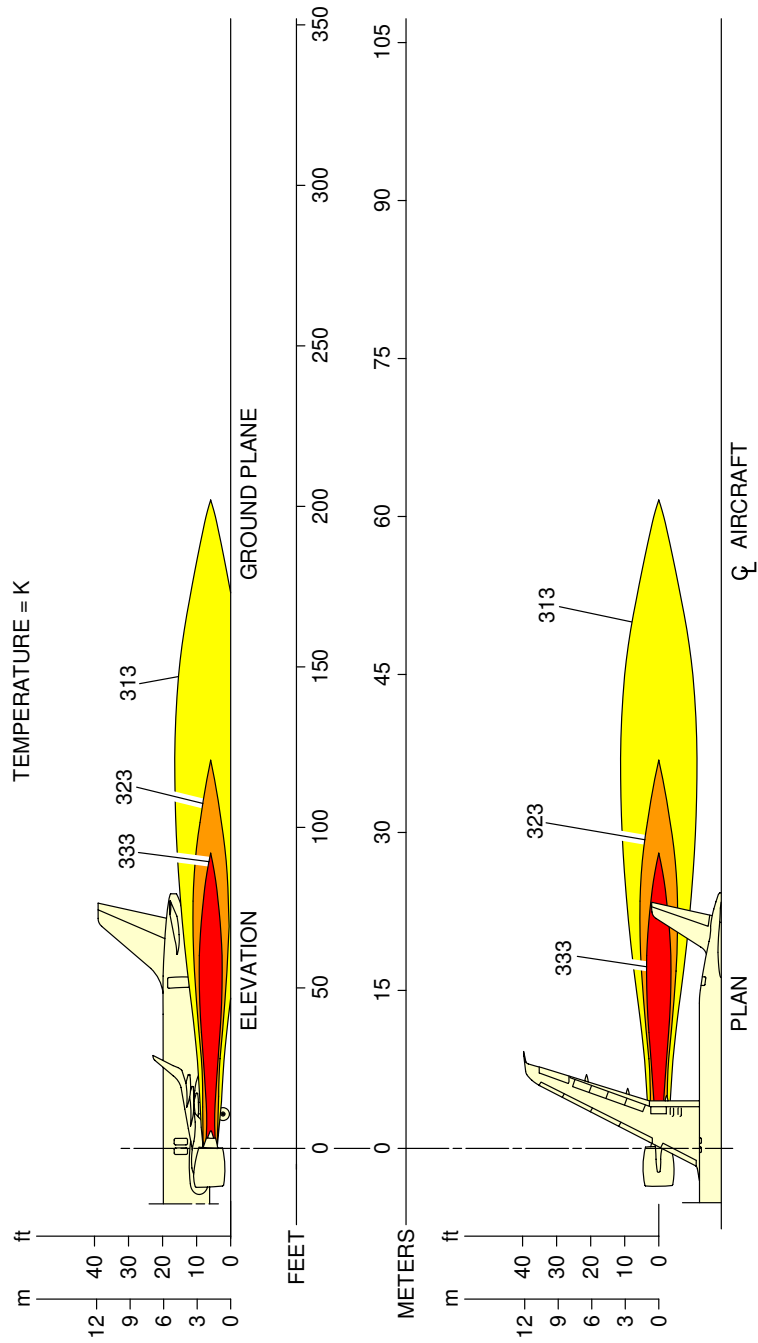
\*\*ON A/C A320-200



N\_AC\_060106\_1\_0060101\_01\_00

Engine Exhaust Temperatures  
 Takeoff Power – IAE V2500 Series Engine  
 FIGURE-6-1-6-991-006-A01

\*\*ON A/C A320neo

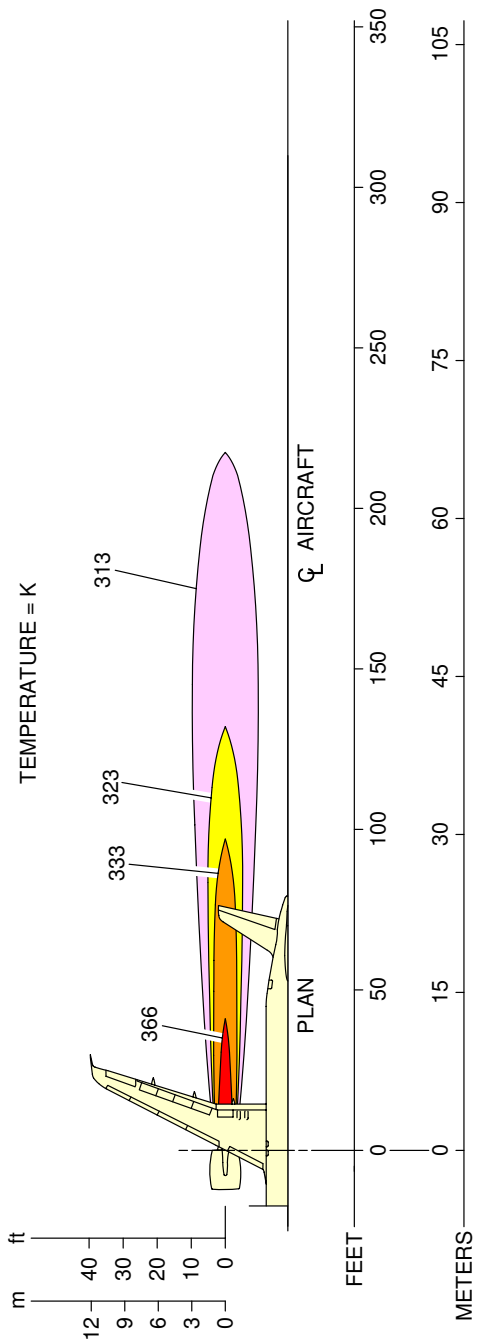


**NOTE:**  
MAX TAKEOFF, SEA LEVEL, ISA+15K DAY, FN = 32 517 lbf.

N\_AC\_060106\_1\_0110101\_01\_00

Engine Exhaust Temperatures  
Takeoff Power - CFM LEAP-1A Engine  
FIGURE-6-1-6-991-011-A01

\*\*ON A/C A320neo



N\_AC\_060106\_1\_0120101\_01\_00

Engine Exhaust Temperatures  
 Takeoff Power - PW 1100G Engine  
 FIGURE-6-1-6-991-012-A01

**6-3-0 Danger Areas of Engines****\*\*ON A/C A320-200 A320neo**Danger Areas of Engines

## 1. Danger Areas of the Engines

- A. The danger areas of the engines shown below are given in the normalized format:
- Entry corridors are only available at ground idle.
  - Do not go into the areas between the engines.
  - The exhaust danger areas are given for 0 kt headwind (if not specified otherwise).



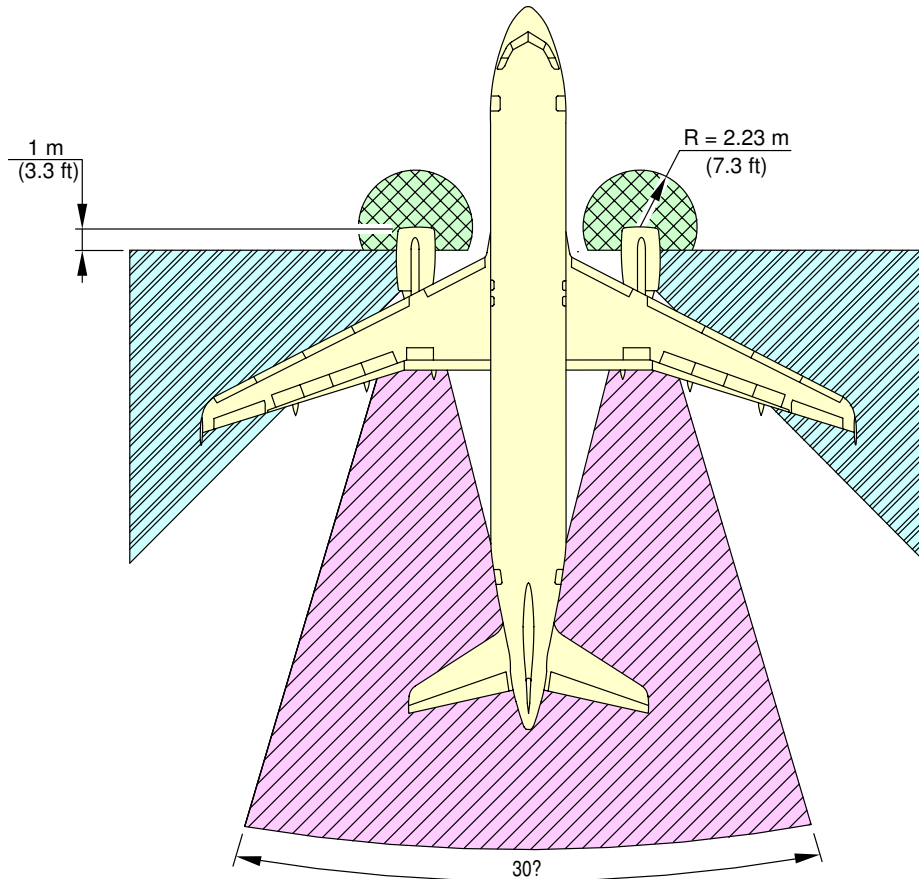
6-3-1 Ground Idle Power

\*\*ON A/C A320-200 A320neo

Ground Idle Power




1. This section provides danger areas of the engines at ground idle power conditions.

\*\*ON A/C A320-200



TO 55 m (180 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

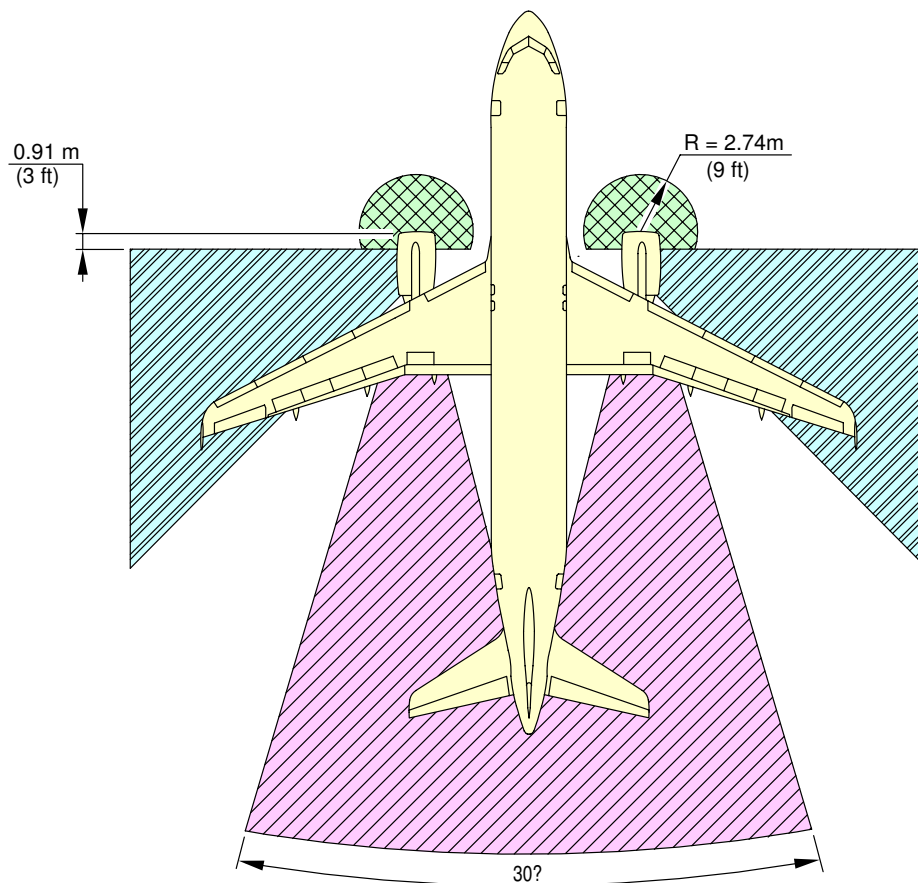
**NOTE:**

-  INLET SUCTION DANGER AREA
-  ENTRY CORRIDOR
-  EXHAUST WAKE DANGER AREA

N\_AC\_060301\_1\_0050101\_01\_04




Danger Areas of the Engines  
CFM56 Series Engine  
FIGURE-6-3-1-991-005-A01

**\*\*ON A/C A320-200**



TO 55 m (180 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

**NOTE:**

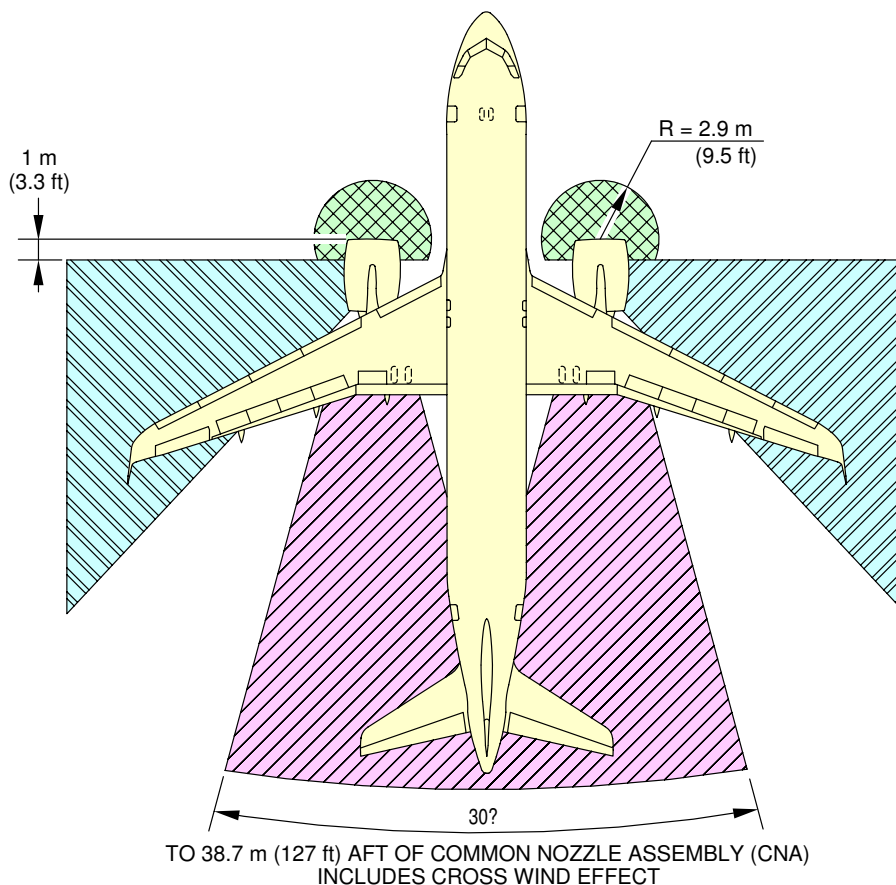
-  INTAKE SUCTION DANGER AREA MINIMUM IDLE POWER
-  ENTRY CORRIDOR
-  EXHAUST DANGER AREA

N\_AC\_060301\_1\_0060101\_01\_04




Danger Areas of the Engines  
IAE V2500 Series Engine  
FIGURE-6-3-1-991-006-A01



**\*\*ON A/C A320neo**



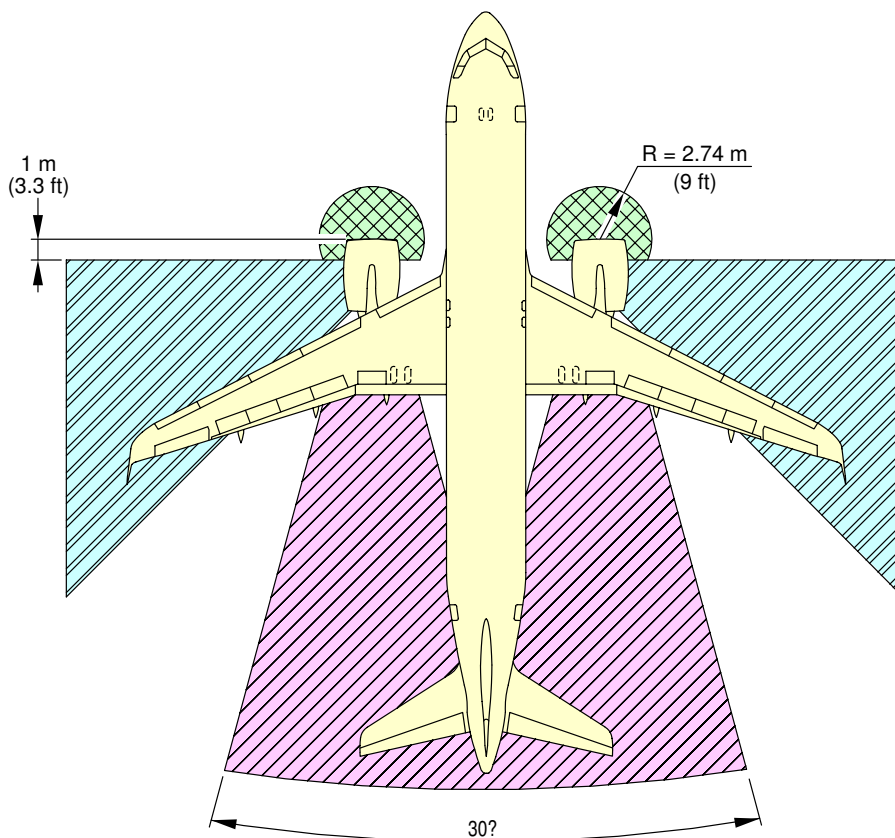
**NOTE:**

-  INTAKE SUCTION DANGER AREA MINIMUM IDLE POWER
-  ENTRY CORRIDOR
-  EXHAUST DANGER AREA

N\_AC\_060301\_1\_0130101\_01\_02




Danger Areas of the Engines  
CFM LEAP-1A Engine  
FIGURE-6-3-1-991-013-A01

\*\*ON A/C A320neo



TO 40.3 m (132 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

**NOTE:**

-  INTAKE SUCTION DANGER AREA MINIMUM IDLE POWER
-  ENTRY CORRIDOR
-  EXHAUST DANGER AREA

N\_AC\_060301\_1\_0140101\_01\_02

Danger Areas of the Engines  
PW 1100G Engine  
FIGURE-6-3-1-991-014-A01



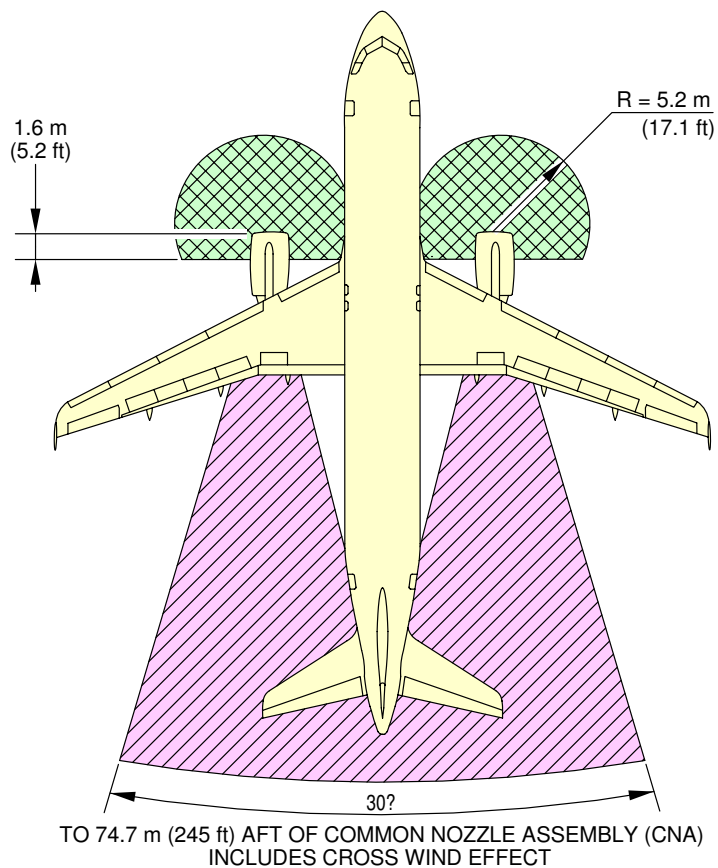
6-3-2 Breakaway Power

\*\*ON A/C A320-200 A320neo

Breakaway Power

1. This section provides danger areas of the engines at breakaway power.

**\*\*ON A/C A320-200**



**NOTE:**

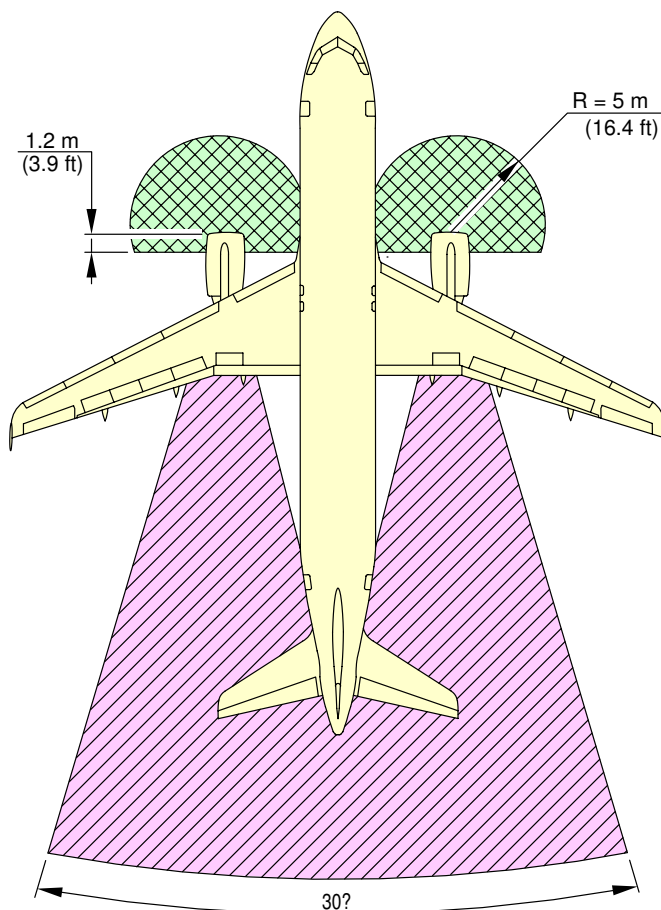
 INTAKE SUCTION DANGER AREA MAX. TAKEOFF POWER

 EXHAUST WAKE DANGER AREA

N\_AC\_060302\_1\_0050101\_01\_03

Danger Areas of the Engines  
CFM56 Series Engine  
FIGURE-6-3-2-991-005-A01

**\*\*ON A/C A320-200**



TO 91.4 m (300 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

**NOTE:**



INTAKE SUCTION DANGER AREA MAX. TAKEOFF POWER

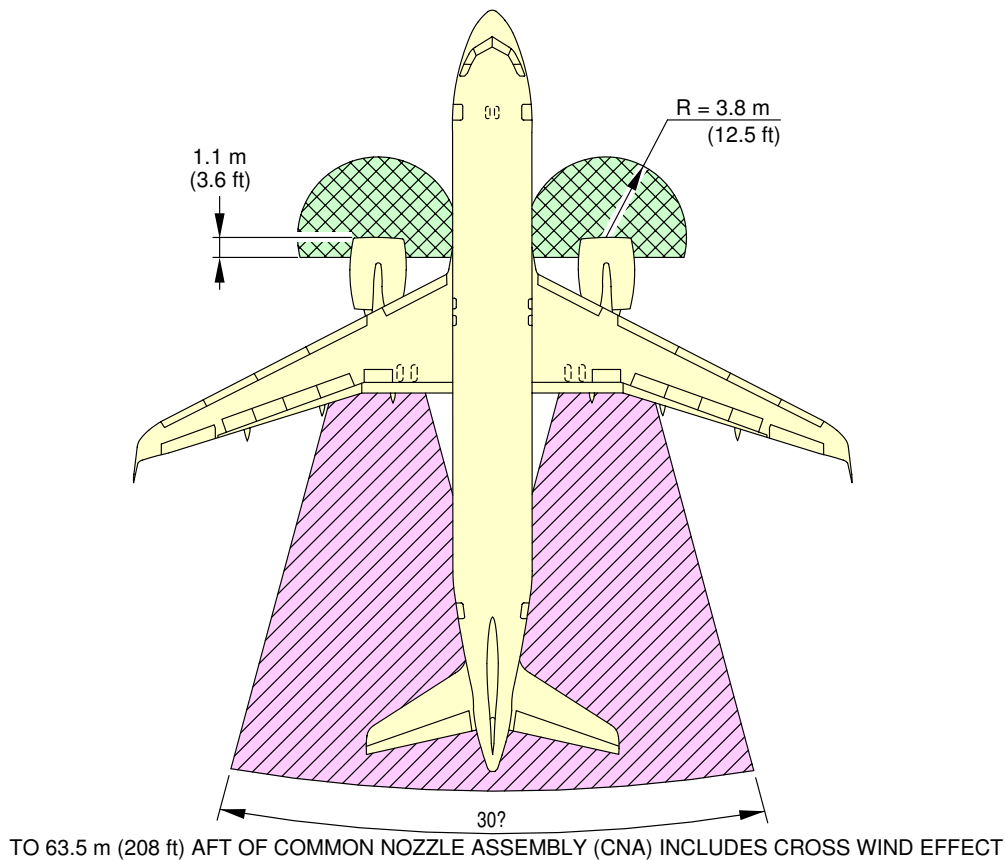


EXHAUST DANGER AREA


N\_AC\_060302\_1\_0060101\_01\_03


Danger Areas of the Engines  
IAE V2500 Series Engine  
FIGURE-6-3-2-991-006-A01

**\*\*ON A/C A320neo**



**NOTE:**

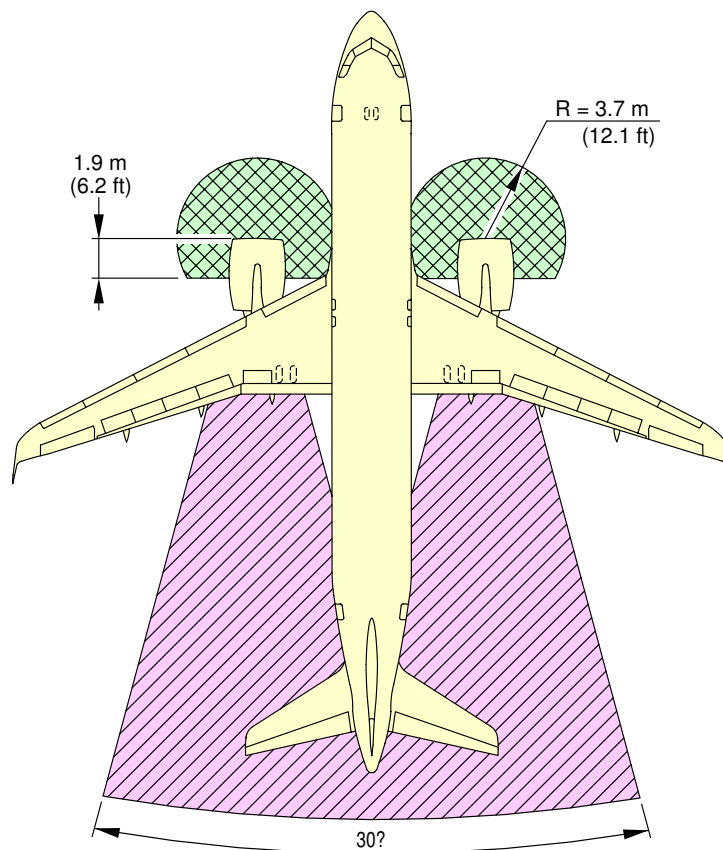
 INTAKE SUCTION DANGER AREA MAX. TAKEOFF POWER

 EXHAUST DANGER AREA

N\_AC\_060302\_1\_0110101\_01\_02

Danger Areas of the Engines  
CFM LEAP-1A Engine  
FIGURE-6-3-2-991-011-A01

**\*\*ON A/C A320neo**



TO 71.6 m (235 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

**NOTE:**



INTAKE SUCTION DANGER AREA MAX. TAKEOFF POWER



EXHAUST DANGER AREA

N\_AC\_060302\_1\_0120101\_01\_02

Danger Areas of the Engines  
PW 1100G Engine  
FIGURE-6-3-2-991-012-A01



**6-3-3 Max Take Off Power**

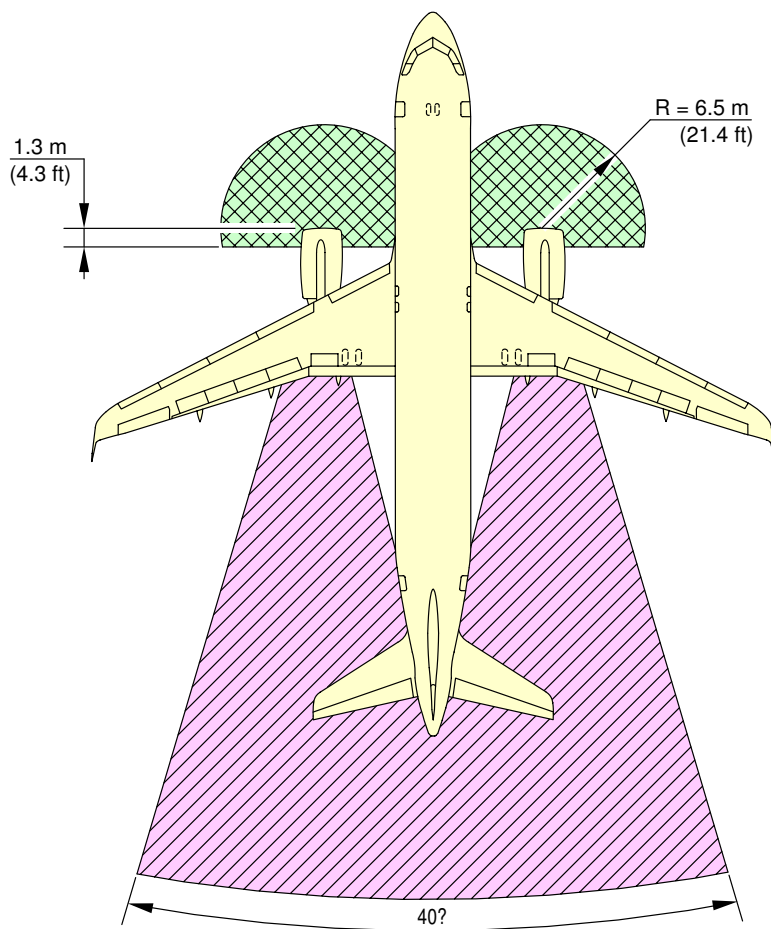
**\*\*ON A/C A320-200 A320neo**

Take Off Power

1. This section provides danger areas of the engines at maximum take-off power conditions.





\*\*ON A/C A320-200



TO 275 m (900 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

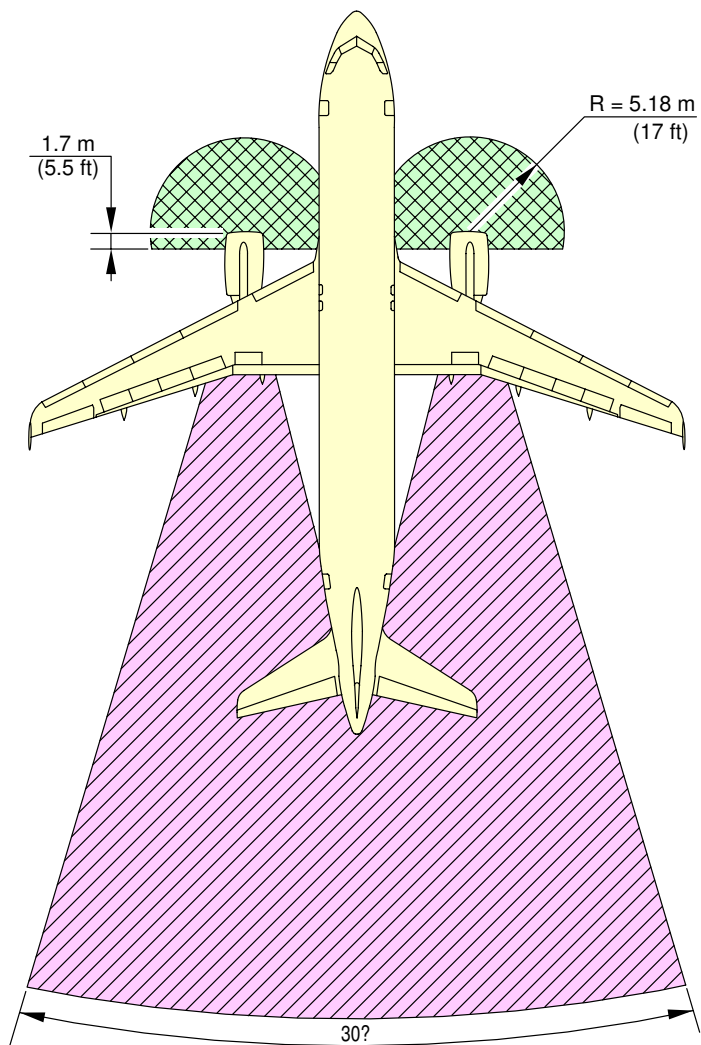
**NOTE:**

-  INTAKE SUCTION DANGER AREA
-  EXHAUST WAKE DANGER

N\_AC\_060303\_1\_0070101\_01\_01



Danger Areas of the Engine  
CFM56 Series Engine  
FIGURE-6-3-3-991-007-A01

**\*\*ON A/C A320-200**



TO 348 m (1150 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

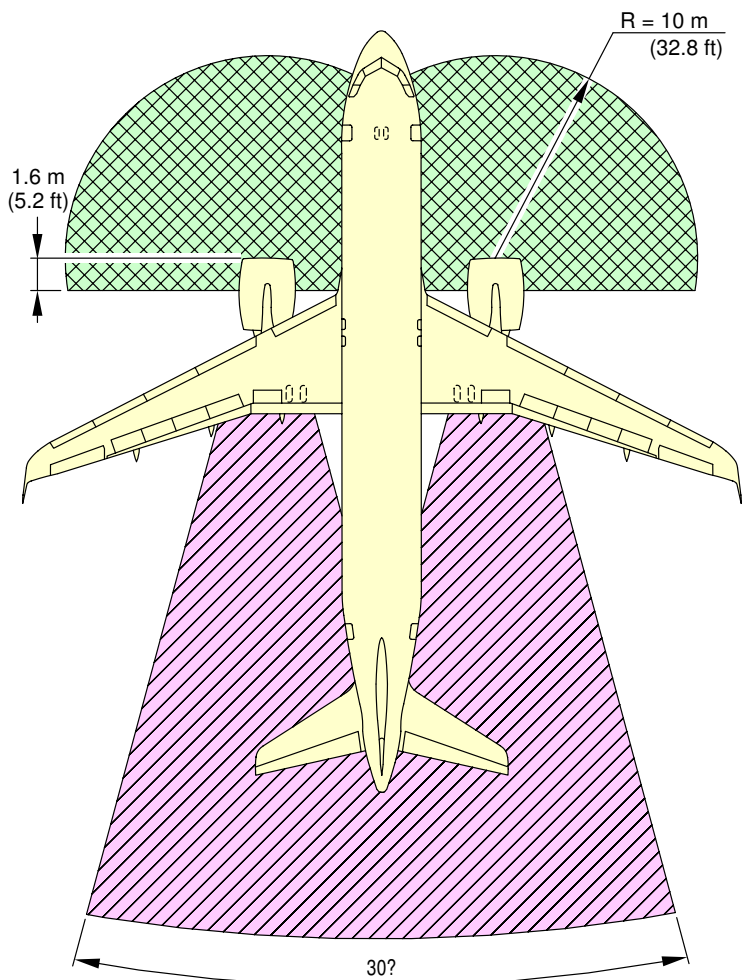
**NOTE:**

-  INTAKE SUCTION DANGER AREA MAX. TAKEOFF POWER
-  EXHAUST DANGER AREA

N\_AC\_060303\_1\_0080101\_01\_01

Danger Areas of the Engine  
IAE V2500 Series Engine  
FIGURE-6-3-3-991-008-A01

**\*\*ON A/C A320neo**



TO 220.7 m (724 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

**NOTE:**



INTAKE SUCTION DANGER AREA MAX. TAKEOFF POWER

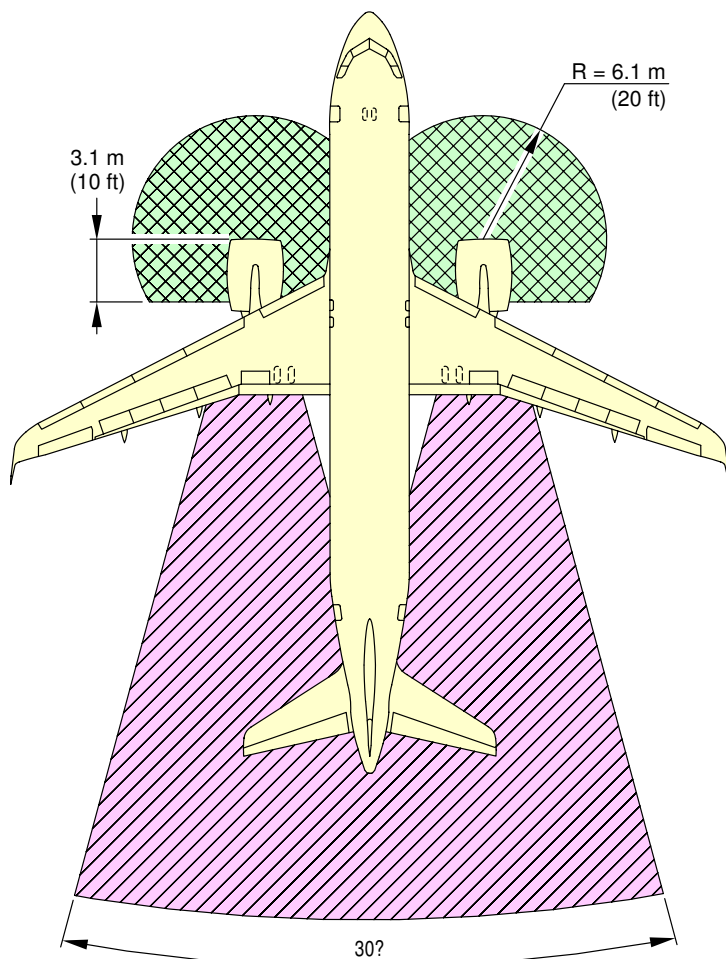


EXHAUST DANGER AREA

N\_AC\_060303\_1\_0090101\_01\_01

Danger Areas of the Engine  
CFM LEAP-1A Engine  
FIGURE-6-3-3-991-009-A01

**\*\*ON A/C A320neo**



TO 243 m (797.4 ft) AFT OF COMMON NOZZLE ASSEMBLY (CNA) INCLUDES CROSS WIND EFFECT

**NOTE:**



INTAKE SUCTION DANGER AREA MAX. TAKEOFF POWER



EXHAUST DANGER AREA

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Danger Areas of the Engine  
PW 1100G Engine  
FIGURE-6-3-3-991-010-A01



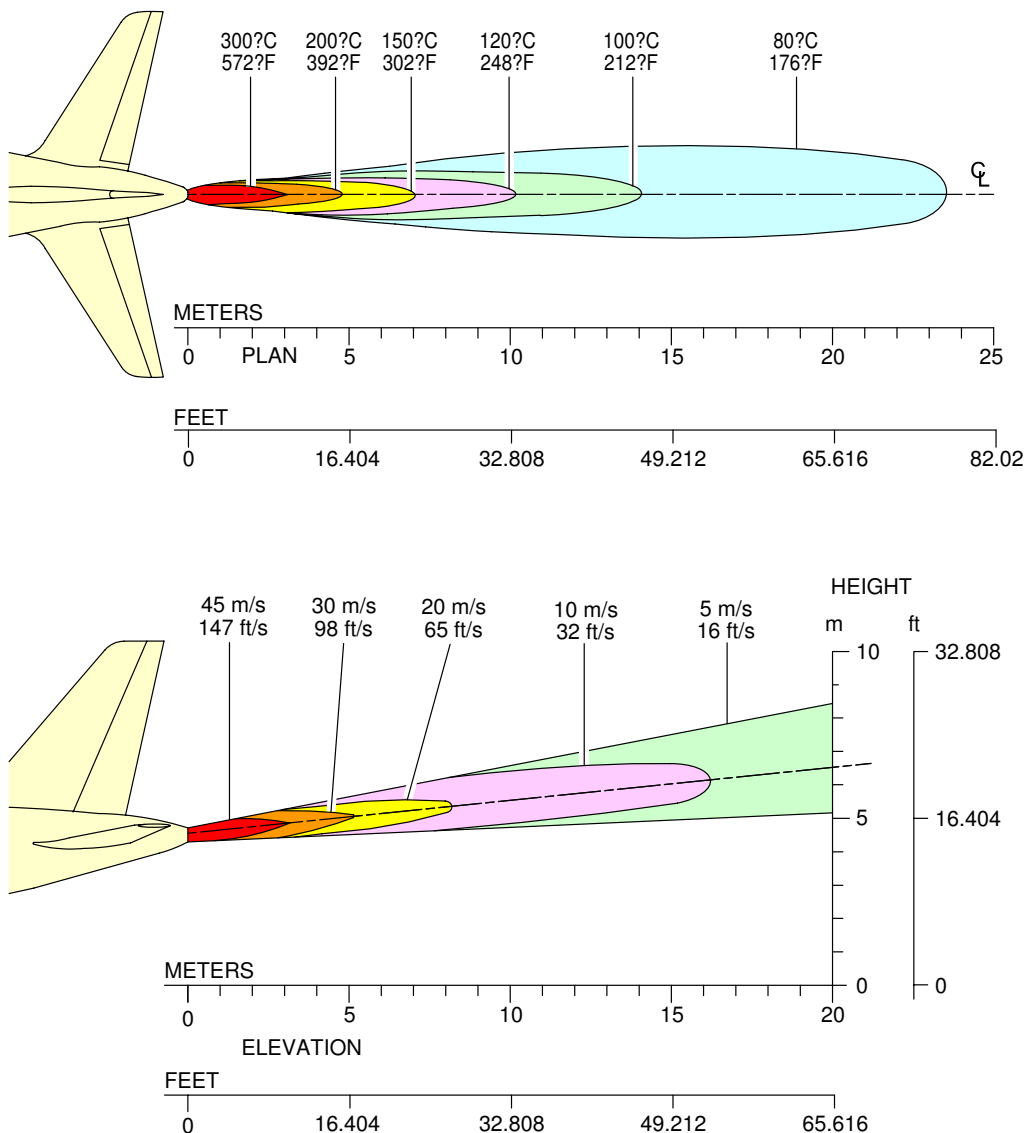
6-4-1 APU

\*\*ON A/C A320-200 A320neo

APU - APIC & GARRETT

1. This section gives APU exhaust velocities and temperatures.

\*\*ON A/C A320-200 A320neo



N\_AC\_060401\_1\_0030101\_01\_00

Exhaust Velocities and Temperatures  
 APU – APIC & GARRETT  
 FIGURE-6-4-1-991-003-A01

## PAVEMENT DATA

### 7-1-0 General Information

**\*\*ON A/C A320-200 A320neo**

#### General Information

1. A brief description of the pavement charts that follow will help in airport planning.

To aid in the interpolation between the discrete values shown, each aircraft configuration is shown with a minimum range of five loads on the Main Landing Gear (MLG).

All curves on the charts represent data at a constant specified tire pressure with:

- The aircraft loaded to the Maximum Ramp Weight (MRW),
- The CG at its maximum permissible aft position.

Pavement requirements for commercial aircraft are derived from the static analysis of loads imposed on the MLG struts.

Landing Gear Footprint:

Section 07-02-00 presents basic data on the landing gear footprint configuration, MRW and tire sizes and pressures.

Maximum Pavement Loads:

Section 07-03-00 shows maximum vertical and horizontal pavement loads for certain critical conditions at the tire-ground interfaces.

Landing Gear Loading on Pavement:

Section 07-04-00 contains charts to find these loads throughout the stability limits of the aircraft at rest on the pavement.

These MLG loads are used as the point of entry to the pavement design charts which follow, interpolating load values where necessary.

Flexible Pavement Requirements - US Army Corps of Engineers Design Method:

Section 07-05-00 uses procedures in Instruction Report No. S-77-1 "Procedures for Development of CBR Design Curves", dated June 1977 and as modified according to the methods described in ICAO Aerodrome Design Manual, Part 3. Pavements, 2nd Edition, 1983, Section 1.1 (The ACN-PCN Method), and utilizing the alpha factors approved by ICAO in October 2007.

The report was prepared by the "U.S. Army Corps Engineers Waterways Experiment Station, Soils and Pavement Laboratory, Vicksburg, Mississippi".

The line showing 10 000 coverages is used to calculate the Aircraft Classification Number (ACN).

Flexible Pavement Requirements - LCN Conversion Method:

The Load Classification Number (LCN) curves are no longer provided in section 07-06-00 since the LCN system for reporting pavement strength is obsolete, having been replaced by the ICAO recommended ACN/PCN system in 1983.

For questions regarding the LCN system, contact Airbus.

Rigid Pavement Requirements - PCA (Portland Cement Association) Design Method:

Section 07-07-00 gives the rigid pavement design curves that have been prepared with the use of the Westergaard Equation.

This is in general accordance with the procedures outlined in the Portland Cement Association publications, "Design of Concrete Airport Pavement", 1973 and "Computer Program for Airport Pavement Design" (Program PDILB), 1967 both by Robert G. Packard.

Rigid Pavement Requirements - LCN Conversion:

The Load Classification Number (LCN) curves are no longer provided in section 07-08-00 since the LCN system for reporting pavement strength is obsolete, having been replaced by the ICAO recommended ACN/PCN system in 1983.

For questions regarding the LCN system, contact Airbus.

ACN/PCN Reporting System:

Section 07-09-00 provides ACN data prepared according to the ACN/PCN system as referenced in ICAO Annex 14, "Aerodromes", Volume 1 "Aerodrome Design and Operations" Fourth Edition, July 2004, incorporating Amendments 1 to 6.

The ACN/PCN system provides a standardized international aircraft/pavement rating system replacing the various S, T, TT, LCN, AUW, ISWL, etc., rating systems used throughout the world. ACN is the Aircraft Classification Number and PCN is the corresponding Pavement Classification Number.

An aircraft having an ACN less than or equal to the PCN can operate without restriction on the pavement.

Numerically the ACN is two times the derived single wheel load expressed in thousands of kilograms. The derived single wheel load is defined as the load on a single tire inflated to 1.25 MPa (181 psi) that would have the same pavement requirements as the aircraft.

Computationally the ACN/PCN system uses PCA program PDILB for rigid pavements and S-77-1 for flexible pavements to calculate ACN values.

The Airport Authority must decide on the method of pavement analysis and the results of their evaluation shown as follows:

PCN			
PAVEMENT TYPE	SUBGRADE CATEGORY	TIRE PRESSURE CATEGORY	EVALUATION METHOD
R – Rigid	A – High	W – No pressure limit	T – Technical
F – Flexible	B – Medium	X – High pressure limited to 1.75 MPa (254 psi)	U – Using Aircraft



PCN			
PAVEMENT TYPE	SUBGRADE CATEGORY	TIRE PRESSURE CATEGORY	EVALUATION METHOD
	C – Low	Y – Medium pressure limited to 1.25 MPa (181 psi)	
	D – Ultra Low	Z – Low pressure limited to 0.5 MPa (73 psi)	

For flexible pavements, the four subgrade categories (CBR) are:

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

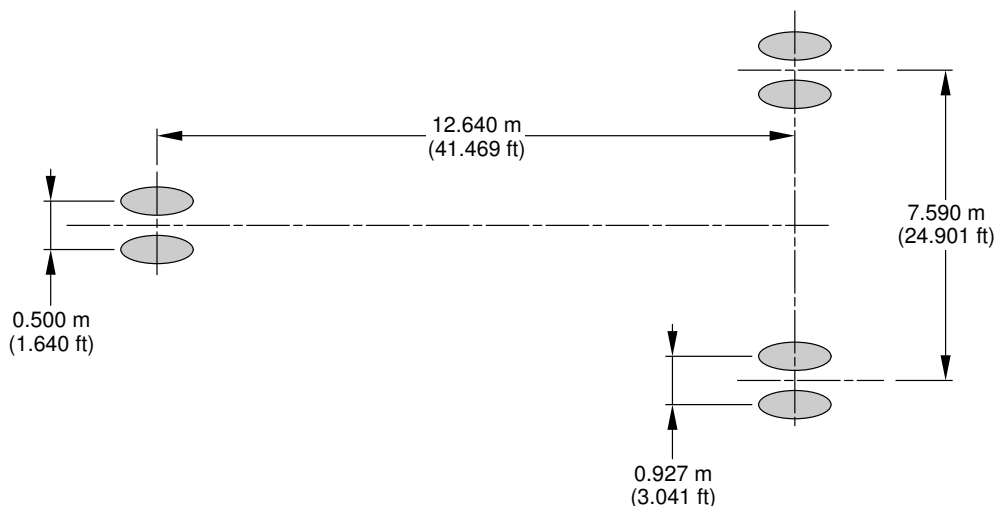
For rigid pavements, the four subgrade categories (k) are:

- A. High Strength                      k = 150 MN/m<sup>3</sup> (550 pci)
- B. Medium Strength                 k = 80 MN/m<sup>3</sup> (300 pci)
- C. Low Strength                      k = 40 MN/m<sup>3</sup> (150 pci)
- D. Ultra Low Strength              k = 20 MN/m<sup>3</sup> (75 pci)

**7-2-0 Landing Gear Footprint****\*\*ON A/C A320-200 A320neo**Landing Gear Footprint

1. This section provides data about the landing gear footprint in relation to the aircraft MRW and tire sizes and pressures.  
The landing-gear footprint information is given for all the operational weight variants of the aircraft.

**\*\*ON A/C A320-200**



WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320-200 WV000	73 900 kg (162 925 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV001	68 400 kg (150 800 lb)	95.0%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)

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Landing Gear Footprint  
(Sheet 1 of 6)  
FIGURE-7-2-0-991-010-A01

**\*\*ON A/C A320-200**

WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320-200 WV002 (CG 42.6%)	70 400 kg (155 200 lb)	94.9%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)
A320-200 WV002 (CG 41%)	70 400 kg (155 200 lb)	94.3%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)
A320-200 WV003	75 900 kg (167 325 lb)	93.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV004	71 900 kg (158 500 lb)	94.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV005	67 400 kg (148 600 lb)	95.0%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)
A320-200 WV006	66 400 kg (146 375 lb)	95.0%	30x8.8R15 (30x8.8-15)	11 bar (160 psi)	46x17R20 (46x16-20)	12.3 bar (178 psi)
					49x17-20	10.2 bar (148 psi)
					49x19-20	9.2 bar (133 psi)

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Landing Gear Footprint  
(Sheet 2 of 6)  
FIGURE-7-2-0-991-010-A01

**\*\*ON A/C A320-200**

WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320-200 WV007 (CG 37.5%)	77 400 kg (170 650 lb)	93.1%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
					49x17-20	12 bar (174 psi)
					1 270x455R22 (49x18-22)	12.3 bar (178 psi)
					49x19-20	10.7 bar (155 psi)
A320-200 WV007 (CG 33%)	77 400 kg (170 650 lb)	91.6%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
					49x17-20	12 bar (174 psi)
					1 270x455R22 (49x18-22)	12.3 bar (178 psi)
					49x19-20	10.7 bar (155 psi)
A320-200 WV008	73 900 kg (162 925 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV009	75 900 kg (167 325 lb)	93.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV010 (CG 37.5%)	77 400 kg (170 650 lb)	93.1%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
					49x17-20	12 bar (174 psi)
					1 270x455R22 (49x18-22)	12.3 bar (178 psi)
					49x19-20	10.7 bar (155 psi)
A320-200 WV010 (CG 33%)	77 400 kg (170 650 lb)	91.6%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
					49x17-20	12 bar (174 psi)
					1 270x455R22 (49x18-22)	12.3 bar (178 psi)
					49x19-20	10.7 bar (155 psi)

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Landing Gear Footprint  
(Sheet 3 of 6)  
FIGURE-7-2-0-991-010-A01

**\*\*ON A/C A320-200**

WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320-200 WV011 (CG 38.7%)	75 900 kg (167 325 lb)	93.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV011 (CG 38.5%)	75 900 kg (167 325 lb)	93.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV012	77 400 kg (170 650 lb)	93.1%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
					49x17-20	12 bar (174 psi)
					1 270x455R22 (49x18-22)	12.3 bar (178 psi)
					49x19-20	10.7 bar (155 psi)
A320-200 WV013 (CG 41.42%)	71 900 kg (158 500 lb)	94.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV013 (CG 41%)	71 900 kg (158 500 lb)	94.3%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV014	73 900 kg (162 925 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV015	78 400 kg (172 850 lb)	92.9%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)

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Landing Gear Footprint  
(Sheet 4 of 6)  
FIGURE-7-2-0-991-010-A01

**\*\*ON A/C A320-200**

WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320-200 WV016	73 900 kg (162 925 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV017	78 400 kg (172 850 lb)	92.9%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
A320-200 WV018 (CG 41.46%)	71 900 kg (158 500 lb)	94.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV018 (CG 41%)	71 900 kg (158 500 lb)	94.3%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV018 (CG 41.4%)	71 900 kg (158 500 lb)	94.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)
A320-200 WV018 (CG 41.47%)	71 900 kg (158 500 lb)	94.5%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
					49x17-20	11.4 bar (165 psi)
					1 270x455R22 (49x18-22)	11.8 bar (171 psi)
					49x19-20	10.3 bar (149 psi)

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Landing Gear Footprint  
(Sheet 5 of 6)  
FIGURE-7-2-0-991-010-A01

**\*\*ON A/C A320-200**

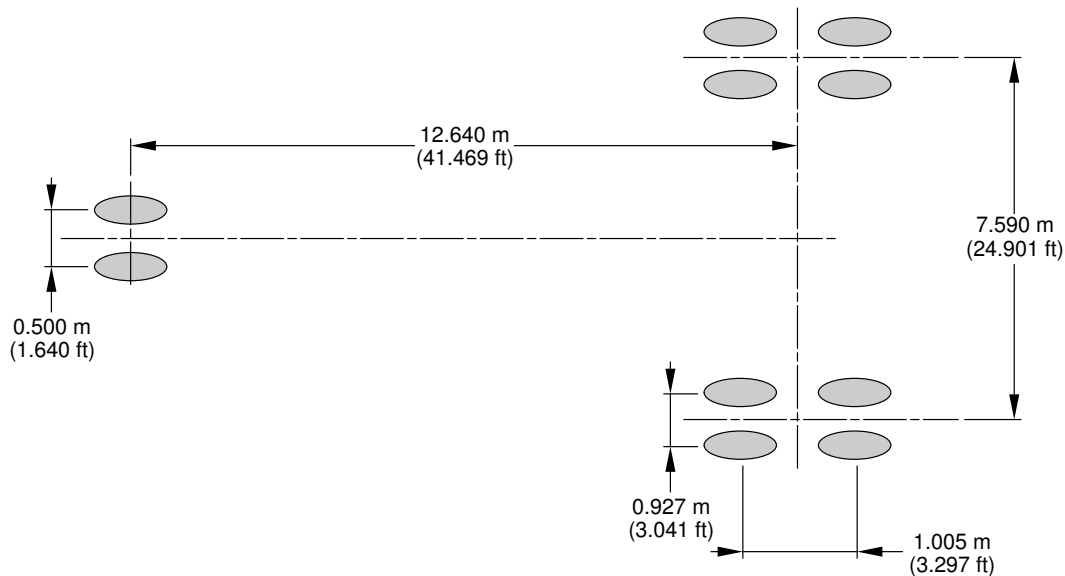
WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320-200 WV019 (CG 42%)	70 400 kg (155 200 lb)	94.7%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)
A320-200 WV019 (CG 41%)	70 400 kg (155 200 lb)	94.3%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)
A320-200 WV019 (CG 42.61%)	70 400 kg (155 200 lb)	94.9%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)
A320-200 WV019 (CG 40%)	70 400 kg (155 200 lb)	94.0%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
					49x17-20	10.6 bar (154 psi)
					1 270x455R22 (49x18-22)	10.9 bar (158 psi)
					49x19-20	9.6 bar (139 psi)

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Landing Gear Footprint  
(Sheet 6 of 6)  
FIGURE-7-2-0-991-010-A01



**\*\*ON A/C A320-200**

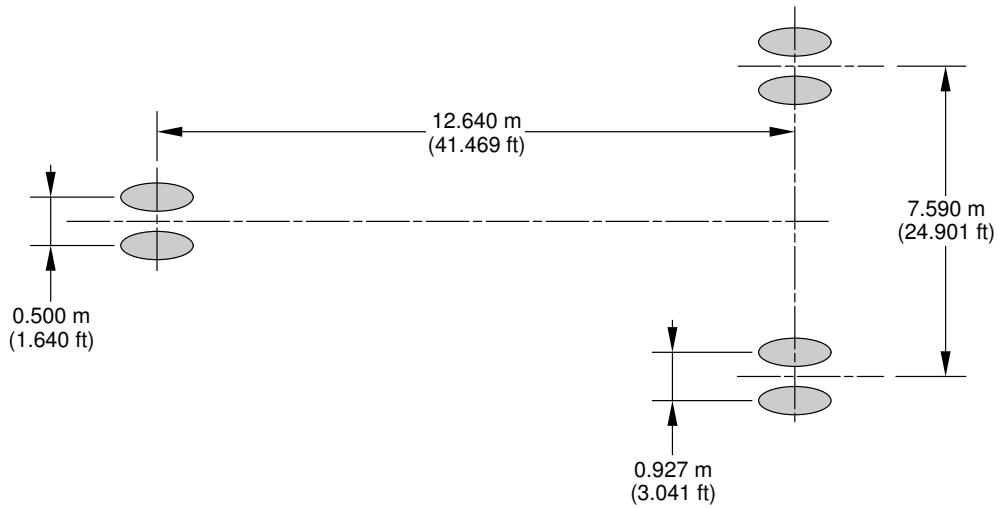


WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320-200 WV000 BOGIE	73 900 kg (162 925 lb)	93.9%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	915x300R16 (36x11-16)	12.2 bar (177 psi)

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Landing Gear Footprint  
FIGURE-7-2-0-991-033-A01

**\*\*ON A/C A320neo**



WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320NEO WV050	73 900 kg (162 925 lb)	93.9%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV051	73 900 kg (162 925 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV052	77 400 kg (170 650 lb)	93.1%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
A320NEO WV053	77 400 kg (170 650 lb)	93.1%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
A320NEO WV054	79 400 kg (175 050 lb)	92.6%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
A320NEO WV055	79 400 kg (175 050 lb)	92.6%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	14.4 bar (209 psi)
A320NEO WV056	70 400 kg (155 200 lb)	94.3%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)
A320NEO WV057	70 400 kg (155 200 lb)	94.0%	30x8.8R15 (30x8.8-15)	11.4 bar (165 psi)	46x17R20 (46x16-20)	12.8 bar (186 psi)

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Landing Gear Footprint  
(Sheet 1 of 2)  
FIGURE-7-2-0-991-036-A01

**\*\*ON A/C A320neo**

WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	NOSE GEAR TIRE SIZE	NOSE GEAR TIRE PRESSURE	MAIN GEAR TIRE SIZE	MAIN GEAR TIRE PRESSURE
A320NEO WV068	75 900 kg (167 325 lb)	93.4%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV069	75 900 kg (167 325 lb)	93.4%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV071	75 400 kg (166 225 lb)	93.6%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV075	74 400 kg (164 025 lb)	93.8%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV078	72 900 kg (160 725 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV082	71 900 kg (158 500 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV083	71 900 kg (158 500 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)
A320NEO WV085	71 400 kg (157 400 lb)	94.0%	30x8.8R15 (30x8.8-15)	12.3 bar (178 psi)	46x17R20 (46x16-20)	13.8 bar (200 psi)

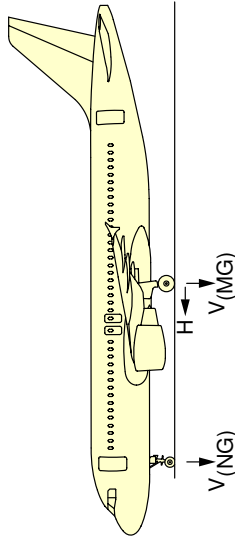
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Landing Gear Footprint  
(Sheet 2 of 2)  
FIGURE-7-2-0-991-036-A01

**7-3-0 Maximum Pavement Loads****\*\*ON A/C A320-200 A320neo**Maximum Pavement Loads

1. This section provides maximum vertical and horizontal pavement loads for some critical conditions at the tire-ground interfaces.  
The maximum pavement loads are given for all the operational weight variants of the aircraft.

**\*\*ON A/C A320-200**



V(NG) MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT FWD CG  
 V(MG) MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT AFT CG  
 H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

1	2	3		4		5		6	
		V(NG)		V(MG)		H (PER STRUT)		STEADY BRAKING AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	STATIC LOAD AT FWD CG	STATIC BRAKING AT 10 ft/s? DECELERATION	STATIC LOAD AT AFT CG	STATIC BRAKING AT 10 ft/s? DECELERATION	STATIC LOAD AT AFT CG	STEADY BRAKING AT 10 ft/s? DECELERATION	STEADY BRAKING AT 10 ft/s? DECELERATION	STEADY BRAKING AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8
A320-200 WV000	73 900 kg (162 925 lb)	10 000 kg (22 050 lb) 17% MAC (b)	15 830 kg (34 900 lb)	34 720 kg (76 550 lb) 40% MAC (a)	11 480 kg (25 325 lb)	27 780 kg (61 250 lb)	11 480 kg (25 325 lb)	27 780 kg (61 250 lb)	27 780 kg (61 250 lb)
A320-200 WV001	68 400 kg (150 800 lb)	9 510 kg (20 975 lb) 17% MAC (a)	15 070 kg (33 225 lb)	32 500 kg (71 650 lb) 43% MAC (a)	10 630 kg (23 425 lb)	26 000 kg (57 300 lb)	10 630 kg (23 425 lb)	26 000 kg (57 300 lb)	26 000 kg (57 300 lb)
A320-200 WV002 (CG 42.6%)	70 400 kg (155 200 lb)	9 780 kg (21 575 lb) 17% MAC (a)	15 500 kg (34 175 lb)	33 400 kg (73 625 lb) 42.6% MAC (a)	10 940 kg (24 125 lb)	26 720 kg (58 900 lb)	10 940 kg (24 125 lb)	26 720 kg (58 900 lb)	26 720 kg (58 900 lb)
A320-200 WV002 (CG 41%)	70 400 kg (155 200 lb)	9 780 kg (21 575 lb) 17% MAC (a)	15 500 kg (34 175 lb)	33 200 kg (73 200 lb) 41% MAC (a)	10 940 kg (24 125 lb)	26 560 kg (58 550 lb)	10 940 kg (24 125 lb)	26 560 kg (58 550 lb)	26 560 kg (58 550 lb)
A320-200 WV003	75 900 kg (167 325 lb)	10 000 kg (22 050 lb) 17% MAC (b)	15 820 kg (34 875 lb)	35 490 kg (78 250 lb) 38.7% MAC (a)	11 800 kg (26 000 lb)	28 390 kg (62 600 lb)	11 800 kg (26 000 lb)	28 390 kg (62 600 lb)	28 390 kg (62 600 lb)

**NOTE:**

- (a) LOADS CALCULATED USING AIRCRAFT AT MRW.
- (b) LOADS CALCULATED USING AIRCRAFT AT 72 000 kg (158 725 lb).

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Maximum Pavement Loads  
(Sheet 1 of 3)

FIGURE-7-3-0-991-010-A01

\*\*ON A/C A320-200

1	2	3		4		5		6	
		V (NG)		STATIC BRAKING AT 10ft/s? DECELERATION		V (MG) (PER STRUT)			STeady BRAKING AT 10ft/s? DECELERATION
WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	STATIC LOAD AT FWD CG	MAC (a)	STATIC BRAKING AT 10ft/s? DECELERATION	MAC (a)	STATIC LOAD AT AFT CG	MAC (a)	H (PER STRUT)	
A320-200 WV004	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17% MAC (a)	15 820 kg (34 875 lb)	41.5% MAC (a)	33 970 kg (74 900 lb)	41.5% MAC (a)	11 170 kg (24 625 lb)	27 180 kg (59 925 lb)
A320-200 WV005	67 400 kg (148 600 lb)	9 380 kg (20 675 lb)	17% MAC (a)	14 860 kg (32 750 lb)	43% MAC (a)	32 020 kg (70 600 lb)	43% MAC (a)	10 470 kg (23 100 lb)	25 620 kg (56 475 lb)
A320-200 WV006	66 400 kg (146 375 lb)	9 240 kg (20 375 lb)	17% MAC (a)	14 650 kg (32 300 lb)	43% MAC (a)	31 540 kg (69 550 lb)	43% MAC (a)	10 320 kg (22 750 lb)	25 230 kg (55 625 lb)
A320-200 WV007 (CG 37.5%)	77 400 kg (170 650 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 875 lb)	37.5% MAC (a)	36 030 kg (79 450 lb)	37.5% MAC (a)	12 030 kg (26 525 lb)	28 830 kg (63 550 lb)
A320-200 WV007 (CG 33%)	77 400 kg (170 650 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 875 lb)	33% MAC (a)	35 440 kg (78 125 lb)	33% MAC (a)	12 030 kg (26 525 lb)	28 350 kg (62 500 lb)
A320-200 WV008	73 900 kg (162 925 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 830 kg (34 900 lb)	40% MAC (a)	34 720 kg (76 550 lb)	40% MAC (a)	11 480 kg (25 325 lb)	27 780 kg (61 250 lb)
A320-200 WV009	75 900 kg (167 325 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 900 lb)	38.7% MAC (a)	35 490 kg (78 250 lb)	38.7% MAC (a)	11 800 kg (26 000 lb)	28 390 kg (62 600 lb)
A320-200 WV010 (CG 37.5%)	77 400 kg (170 650 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 875 lb)	37.5% MAC (a)	36 030 kg (79 450 lb)	37.5% MAC (a)	12 030 kg (26 525 lb)	28 830 kg (63 550 lb)
A320-200 WV010 (CG 33%)	77 400 kg (170 650 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 875 lb)	33% MAC (a)	35 440 kg (78 125 lb)	33% MAC (a)	12 030 kg (26 525 lb)	28 350 kg (62 500 lb)
A320-200 WV011 (CG 38.7%)	75 900 kg (167 325 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 900 lb)	38.7% MAC (a)	35 490 kg (78 250 lb)	38.7% MAC (a)	11 800 kg (26 000 lb)	28 390 kg (62 600 lb)
A320-200 WV011 (CG 38.5%)	75 900 kg (167 325 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 900 lb)	38.5% MAC (a)	35 470 kg (78 200 lb)	38.5% MAC (a)	11 800 kg (26 000 lb)	28 370 kg (62 550 lb)
A320-200 WV012	77 400 kg (170 650 lb)	10 000 kg (22 050 lb)	17% MAC (b)	15 820 kg (34 875 lb)	37.5% MAC (a)	36 030 kg (79 450 lb)	37.5% MAC (a)	12 030 kg (26 525 lb)	28 830 kg (63 550 lb)

**NOTE:**

(a) LOADS CALCULATED USING AIRCRAFT AT MRW.

(b) LOADS CALCULATED USING AIRCRAFT AT 72 000 kg (158 725 lb).

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Maximum Pavement Loads  
(Sheet 2 of 3)

FIGURE-7-3-0-991-010-A01

\*\*ON A/C A320-200

1	2	3		4		5		6
		WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	STATIC LOAD AT FWD CG	V (NG)	STATIC BRAKING AT 10 ft/s <sup>2</sup> DECELERATION	V (MG) (PER STRUT)	
A320-200 WV013 (CG 41.42 %)	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17 % MAC (a)	15 820 kg (34 875 lb)	33 960 kg (74 875 lb)	41.42 % MAC (a)	11 170 kg (24 625 lb)	27 170 kg (59 900 lb)
A320-200 WV013 (CG 41 %)	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17 % MAC (a)	15 820 kg (34 875 lb)	33 910 kg (74 750 lb)	41 % MAC (a)	11 170 kg (24 625 lb)	27 130 kg (59 800 lb)
A320-200 WV014	73 900 kg (162 925 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 830 kg (34 900 lb)	34 720 kg (76 550 lb)	40 % MAC (a)	11 480 kg (25 325 lb)	27 780 kg (61 250 lb)
A320-200 WV015	78 400 kg (172 850 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 820 kg (34 875 lb)	36 410 kg (80 250 lb)	36.8 % MAC (a)	12 180 kg (26 850 lb)	29 120 kg (64 200 lb)
A320-200 WV016	73 900 kg (162 925 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 830 kg (34 900 lb)	34 720 kg (76 550 lb)	40 % MAC (a)	11 480 kg (25 325 lb)	27 780 kg (61 250 lb)
A320-200 WV017	78 400 kg (172 850 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 820 kg (34 875 lb)	36 410 kg (80 250 lb)	36.8 % MAC (a)	12 180 kg (26 850 lb)	29 120 kg (64 200 lb)
A320-200 WV018 (CG 41.46 %)	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17 % MAC (a)	15 820 kg (34 875 lb)	33 970 kg (74 875 lb)	41.46 % MAC (a)	11 170 kg (24 625 lb)	27 170 kg (59 900 lb)
A320-200 WV018 (CG 41.4 %)	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17 % MAC (a)	15 820 kg (34 875 lb)	33 910 kg (74 750 lb)	41 % MAC (a)	11 170 kg (24 625 lb)	27 130 kg (59 800 lb)
A320-200 WV018 (CG 41.4 %)	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17 % MAC (a)	15 820 kg (34 875 lb)	33 960 kg (74 875 lb)	41.4 % MAC (a)	11 170 kg (24 625 lb)	27 170 kg (59 900 lb)
A320-200 WV019 (CG 42 %)	70 400 kg (155 200 lb)	9 780 kg (21 575 lb)	17 % MAC (a)	15 490 kg (34 150 lb)	33 330 kg (73 475 lb)	42 % MAC (a)	10 940 kg (24 125 lb)	26 660 kg (58 775 lb)
A320-200 WV019 (CG 41 %)	70 400 kg (155 200 lb)	9 780 kg (21 575 lb)	17 % MAC (a)	15 490 kg (34 150 lb)	33 200 kg (73 200 lb)	41 % MAC (a)	10 940 kg (24 125 lb)	26 560 kg (58 550 lb)
A320-200 WV019 (CG 42.61 %)	70 400 kg (155 200 lb)	9 780 kg (21 575 lb)	17 % MAC (a)	15 500 kg (34 175 lb)	33 400 kg (73 625 lb)	42.61 % MAC (a)	10 940 kg (24 125 lb)	26 720 kg (58 900 lb)

**NOTE:**

(a) LOADS CALCULATED USING AIRCRAFT AT MRW.

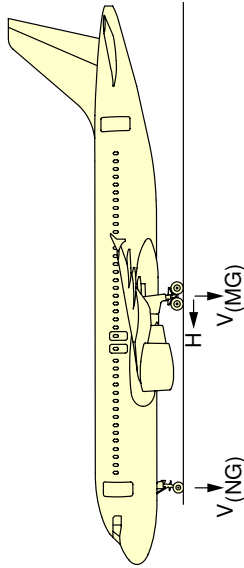
(b) LOADS CALCULATED USING AIRCRAFT AT 72 000 kg (158 725 lb).

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Maximum Pavement Loads  
(Sheet 3 of 3)

FIGURE-7-3-0-991-010-A01

**\*\*ON A/C A320-200**



V(NG) MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT FWD CG  
 V(MG) MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT AFT CG  
 H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

1	2	3		4		5		6	
		V(NG)		STATIC BRAKING AT 10 ft/s? DECELERATION		V(MG)(PER STRUT)		H (PER STRUT)	
WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	STATIC LOAD AT FWD CG	17% MAC (a)	15 500 kg (34 175 lb)	STATIC BRKING AT 10 ft/s? DECELERATION	STATIC LOAD AT AFT CG	40% MAC (a)	STEADY BRAKING AT 10 ft/s? DECELERATION	AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8
A320-200 WV019 (CG 40 %)	70 400 kg (155 200 lb)	9 780 kg (21 575 lb)	17% MAC (a)	15 500 kg (34 175 lb)	15 500 kg (34 175 lb)	33 080 kg (72 925 lb)	40% MAC (a)	10 940 kg (24 125 lb)	26 460 kg (58 350 lb)
A320-200 WV000 BOGIE	73 900 kg (162 925 lb)	10 050 kg (22 150 lb)	17% MAC (b)	15 940 kg (35 150 lb)	15 940 kg (35 150 lb)	34 700 kg (76 500 lb)	40% MAC (a)	11 480 kg (25 325 lb)	27 760 kg (61 200 lb)

**NOTE:**

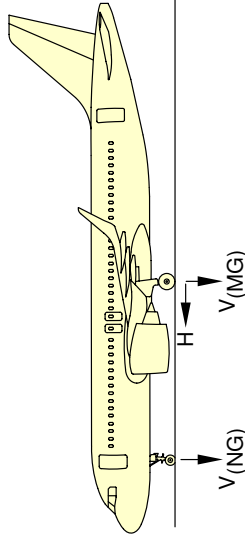
- (a) LOADS CALCULATED USING AIRCRAFT AT MRW.
- (b) LOADS CALCULATED USING AIRCRAFT AT 72 000 kg (158 725 lb).

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Maximum Pavement Loads  
 FIGURE-7-3-0-991-014-A01



**\*\*ON A/C A320neo**



V(NG) MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT FWD CG  
 V(MG) MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT AFT CG  
 H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

1	2	3		4		5		6	
		V(NG)		V(MG)		H (PER STRUT)		H (PER STRUT)	
WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	STATIC LOAD AT FWD CG	MAC (b)	STATIC BRAKING AT 10 ft/s? DECELERATION	STATIC LOAD AT AFT CG	MAC (a)	STEADY BRAKING AT 10 ft/s? DECELERATION	STEADY BRAKING AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
A320NEO WV050	73 900 kg (162 925 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 830 kg (34 900 lb)	34 710 kg (76 525 lb)	39.87 % MAC (a)	11 480 kg (25 300 lb) (c)	27 760 kg (61 200 lb) (c)	
A320NEO WV051	73 900 kg (162 925 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 830 kg (34 900 lb)	34 720 kg (76 550 lb)	40 % MAC (a)	11 480 kg (25 300 lb) (c)	27 780 kg (61 250 lb) (c)	
A320NEO WV052	77 400 kg (170 650 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 820 kg (34 875 lb)	36 020 kg (79 400 lb)	37.4 % MAC (a)	12 030 kg (26 525 lb) (c)	28 820 kg (63 525 lb) (c)	
A320NEO WV053	77 400 kg (170 650 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 820 kg (34 875 lb)	36 020 kg (79 400 lb)	37.4 % MAC (a)	12 030 kg (26 525 lb) (c)	28 820 kg (63 525 lb) (c)	
A320NEO WV054	79 400 kg (175 050 lb)	9 900 kg (21 825 lb)	17 % MAC (b)	15 710 kg (34 625 lb)	36 760 kg (81 050 lb)	36.1 % MAC (a)	12 340 kg (27 200 lb) (c)	29 410 kg (64 850 lb) (c)	
A320NEO WV055	79 400 kg (175 050 lb)	9 900 kg (21 825 lb)	17 % MAC (b)	15 710 kg (34 625 lb)	36 760 kg (81 050 lb)	36.1 % MAC (a)	12 340 kg (27 200 lb) (c)	29 410 kg (64 850 lb) (c)	
A320NEO WV056	70 400 kg (155 200 lb)	9 780 kg (21 550 lb)	17 % MAC (a)	15 500 kg (34 175 lb)	33 200 kg (73 200 lb)	41 % MAC (a)	10 940 kg (24 125 lb) (c)	26 560 kg (58 550 lb) (c)	
A320NEO WV057	70 400 kg (155 200 lb)	9 780 kg (21 550 lb)	17 % MAC (a)	15 500 kg (34 175 lb)	33 050 kg (72 925 lb)	40 % MAC (a)	10 940 kg (24 125 lb) (c)	26 460 kg (58 325 lb) (c)	

**NOTE:**  
 (a) LOADS CALCULATED USING AIRCRAFT AT MRW.  
 (b) LOADS CALCULATED USING AIRCRAFT AT 72 000 kg (158 725 lb).  
 (c) BRAKED MAIN GEAR.

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Maximum Pavement Loads  
 (Sheet 1 of 2)  
 FIGURE-7-3-0-991-041-A01

\*\*ON A/C A320neo

1	2	3		4	5		6	
		V (NG)			V (MG) (PER STRUT)			H (PER STRUT)
WEIGHT VARIANT	MAXIMUM RAMP WEIGHT	STATIC LOAD AT FWD CG	MAC (b)	STATIC BRAKING AT 10 ffs? DECELERATION	STATIC LOAD AT AFT CG	MAC (a)	STEADY BRAKING AT 10 ffs? DECELERATION	AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8
A320NEO WV068	75 900 kg (167 325 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 820 kg (34 875 lb)	35 460 kg (78 175 lb)	38.44 % MAC (a)	11 800 kg (26 025 lb) (c)	28 370 kg (62 550 lb) (c)
A320NEO WV069	75 900 kg (167 325 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 820 kg (34 875 lb)	35 460 kg (78 175 lb)	38.44 % MAC (a)	11 800 kg (26 025 lb) (c)	28 370 kg (62 550 lb) (c)
A320NEO WV071	75 400 kg (166 225 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 830 kg (34 900 lb)	35 270 kg (77 750 lb)	38.79 % MAC (a)	11 720 kg (25 850 lb) (c)	28 220 kg (62 225 lb) (c)
A320NEO WV075	74 400 kg (164 025 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 830 kg (34 900 lb)	34 890 kg (76 925 lb)	39.51 % MAC (a)	11 560 kg (25 475 lb) (c)	27 920 kg (61 550 lb) (c)
A320NEO WV078	72 900 kg (160 725 lb)	10 000 kg (22 050 lb)	17 % MAC (b)	15 840 kg (34 925 lb)	34 250 kg (75 500 lb)	40 % MAC (a)	11 330 kg (24 975 lb) (c)	27 400 kg (60 400 lb) (c)
A320NEO WV082	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17 % MAC (a)	15 820 kg (34 875 lb)	33 780 kg (74 475 lb)	40 % MAC (a)	11 170 kg (24 625 lb) (c)	27 030 kg (59 600 lb) (c)
A320NEO WV083	71 900 kg (158 500 lb)	9 990 kg (22 025 lb)	17 % MAC (a)	15 820 kg (34 875 lb)	33 780 kg (74 475 lb)	40 % MAC (a)	11 170 kg (24 625 lb) (c)	27 030 kg (59 600 lb) (c)
A320NEO WV085	71 400 kg (157 400 lb)	9 920 kg (21 875 lb)	17 % MAC (a)	15 710 kg (34 625 lb)	33 550 kg (73 975 lb)	40 % MAC (a)	11 100 kg (24 475 lb) (c)	26 840 kg (59 175 lb) (c)

**NOTE:**  
 (a) LOADS CALCULATED USING AIRCRAFT AT MRW.  
 (b) LOADS CALCULATED USING AIRCRAFT AT 72 000 kg (158 725 lb).  
 (c) BRAKED MAIN GEAR.

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Maximum Pavement Loads  
 (Sheet 2 of 2)  
 FIGURE-7-3-0-991-041-A01

## 7-4-0 Landing Gear Loading on Pavement

**\*\*ON A/C A320-200 A320neo**

### Landing Gear Loading on Pavement

#### 1. Landing Gear Loading on Pavement

This section provides data about the landing gear loading on pavement.

The MLG loading on pavement graphs are given for the weight variants that produce (at the MRW and maximum aft CG) the lowest MLG load and the highest MLG load for each type of aircraft.

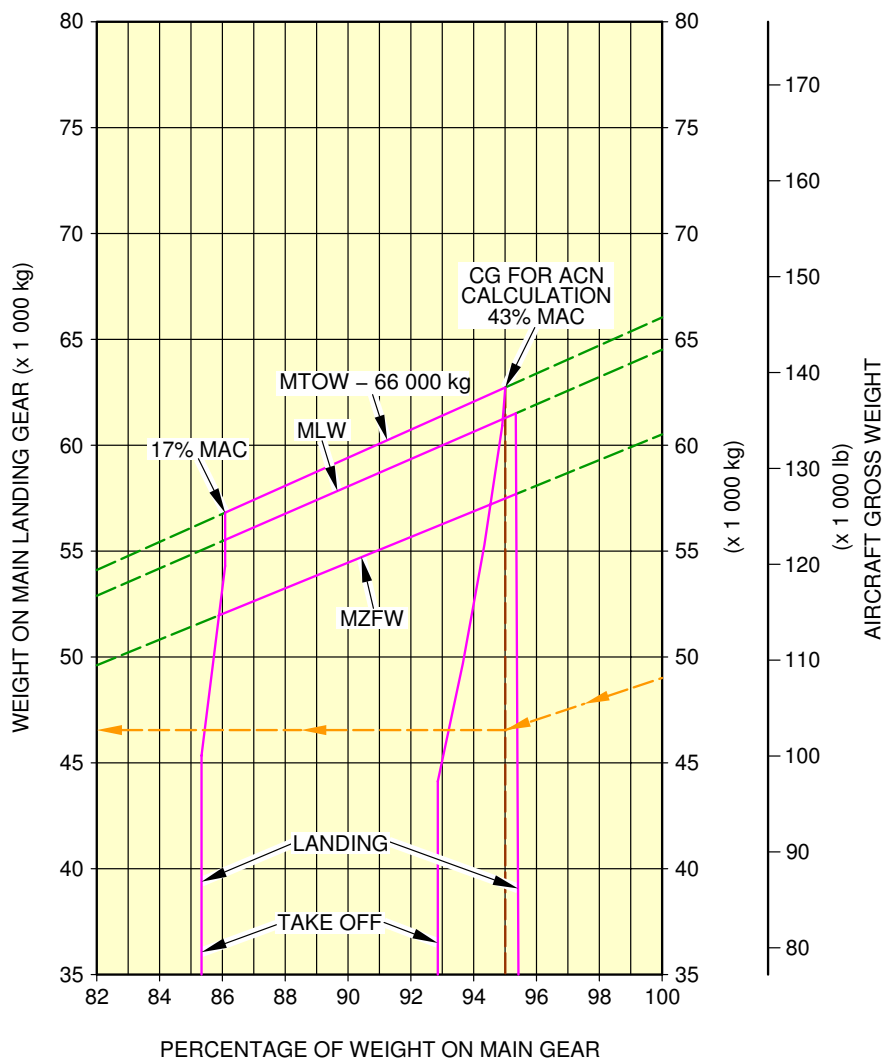
Example, see FIGURE 7-4-0-991-009-A, calculation of the total weight on the MLG for:

- An aircraft with a MRW of 66 400 kg (146 375 lb),
- The aircraft gross weight is 49 000 kg (108 025 lb),
- A percentage of weight on the MLG of 95.0% (percentage of weight on the MLG at MRW and maximum aft CG).

The total weight on the MLG group is 46 550 kg (102 625 lb).

NOTE : The CG in the figure title is the CG used for ACN/LCN calculation.

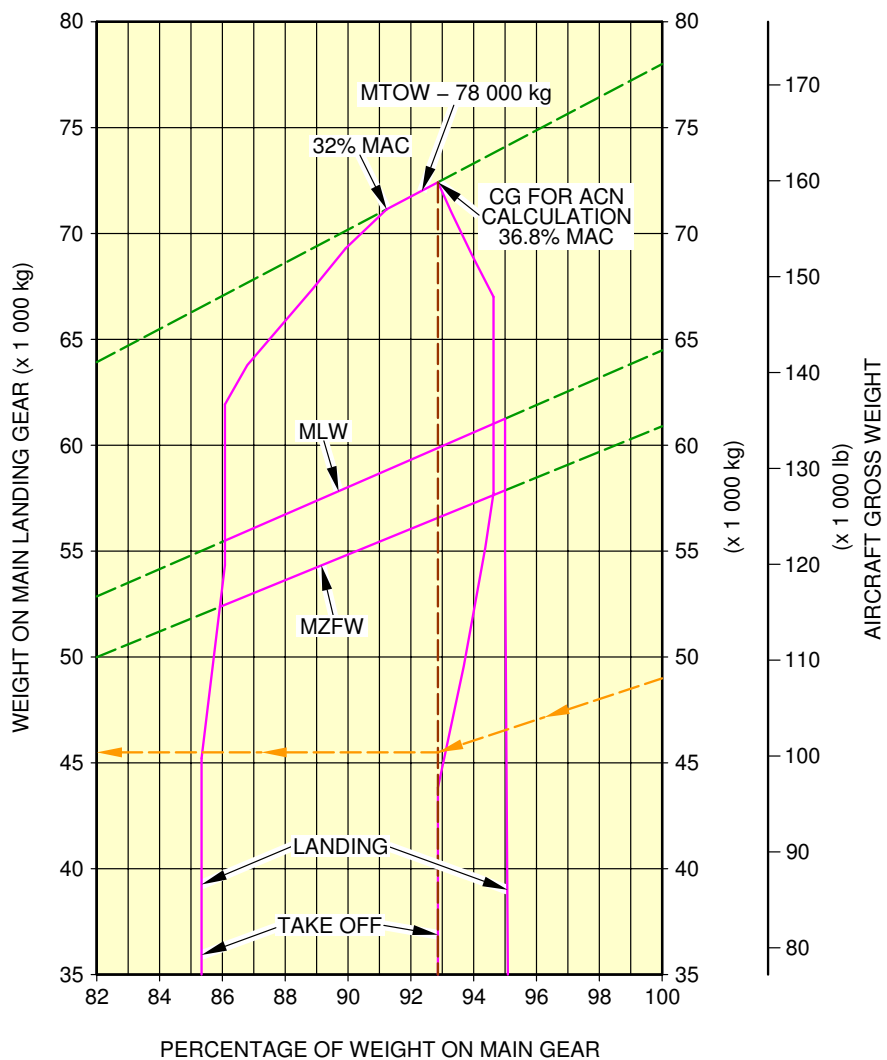
\*\*ON A/C A320-200



N\_AC\_070400\_1\_0090101\_01\_00

Landing Gear Loading on Pavement  
 WV006, MRW 66 400 kg, CG 43%  
 FIGURE-7-4-0-991-009-A01

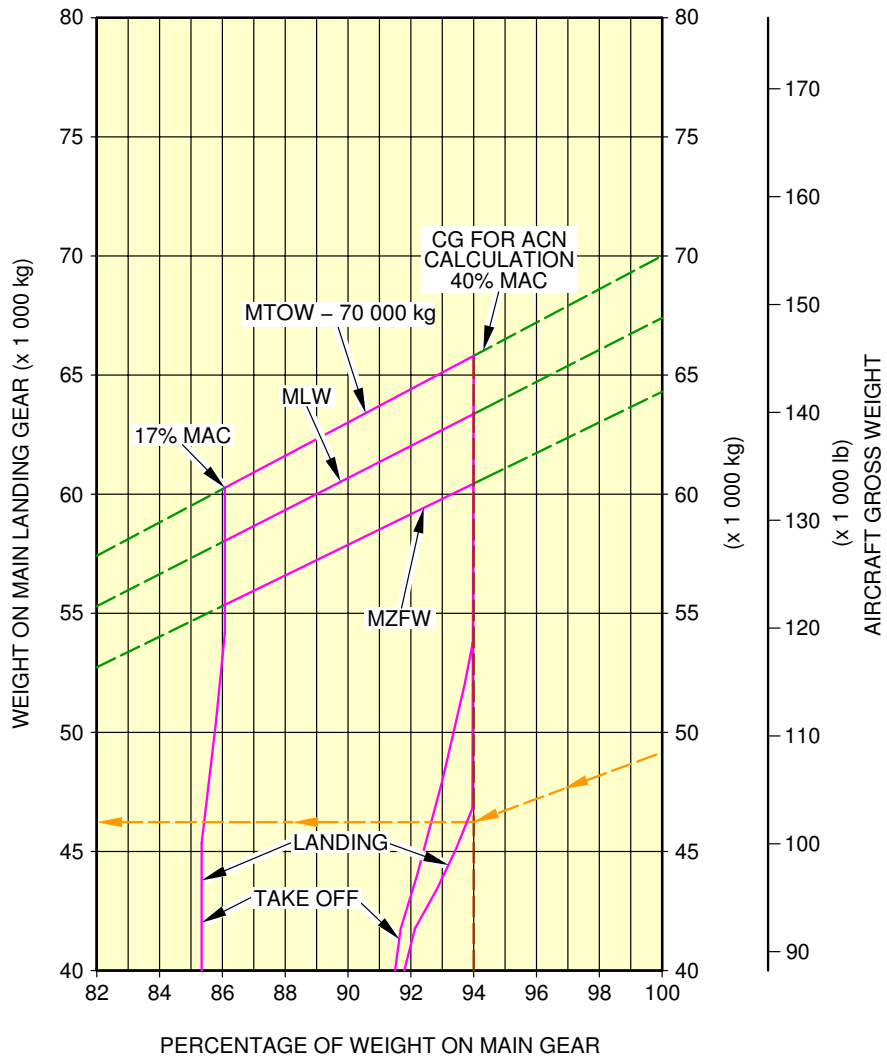
**\*\*ON A/C A320-200**



N\_AC\_070400\_1\_0100101\_01\_00

Landing Gear Loading on Pavement  
 WV015, MRW 78 400 kg, CG 36.8%  
 FIGURE-7-4-0-991-010-A01

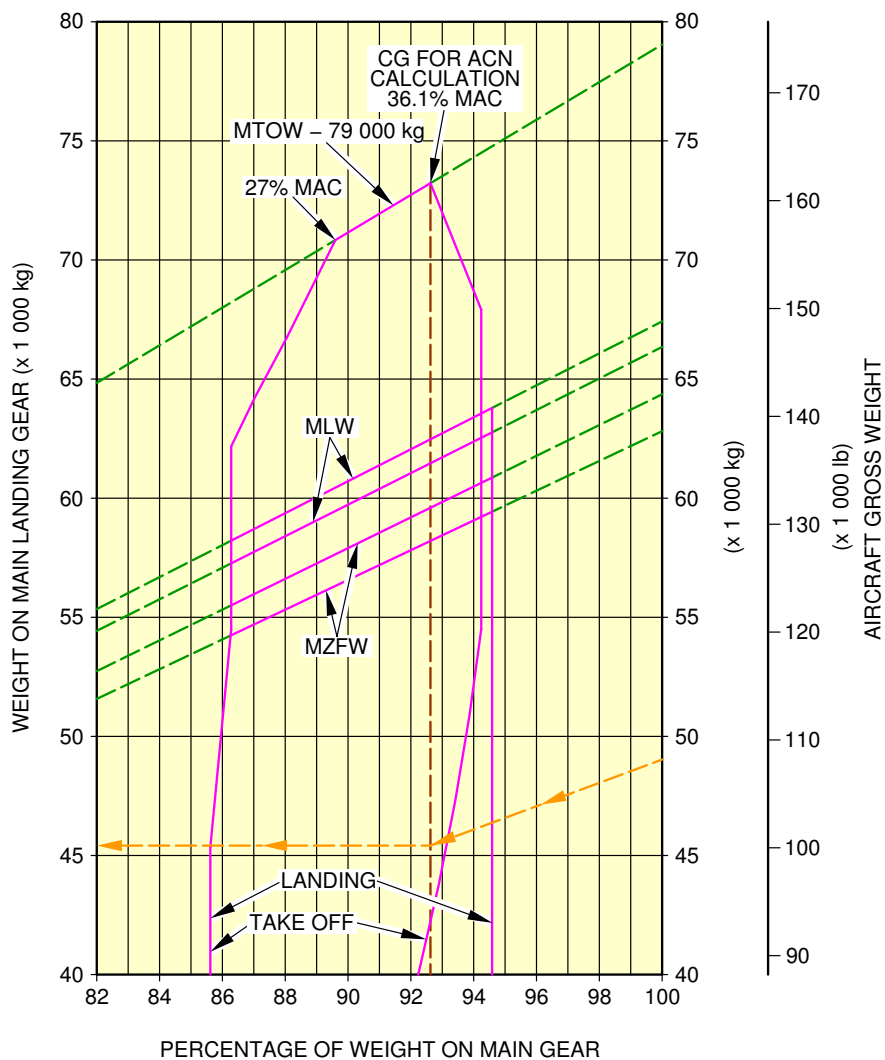
\*\*ON A/C A320neo



N\_AC\_070400\_1\_0110101\_01\_01

Landing Gear Loading on Pavement  
 WV057, MRW 70 400 kg, CG 40%  
 FIGURE-7-4-0-991-011-A01

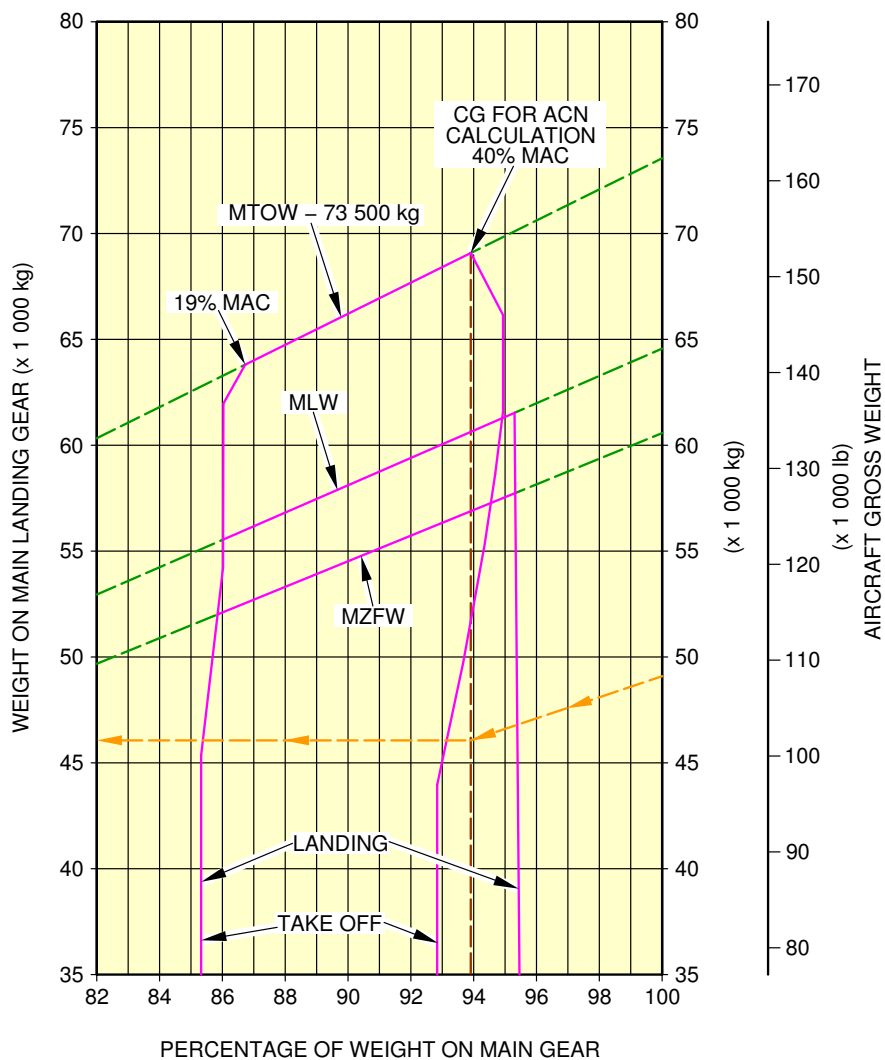
\*\*ON A/C A320neo



N\_AC\_070400\_1\_0120101\_01\_00

Landing Gear Loading on Pavement  
 WV054, MRW 79 400 kg, CG 36.1%  
 FIGURE-7-4-0-991-012-A01

\*\*ON A/C A320-200



N\_AC\_070400\_1\_0130101\_01\_00

Landing Gear Loading on Pavement  
 WV000 (Bogie), MRW 73 900 kg, CG 40%  
 FIGURE-7-4-0-991-013-A01



**7-5-0 Flexible Pavement Requirements - U.S. Army Corps of Engineers Design Method****\*\*ON A/C A320-200 A320neo**Flexible Pavement Requirements - US Army Corps of Engineers Design Method

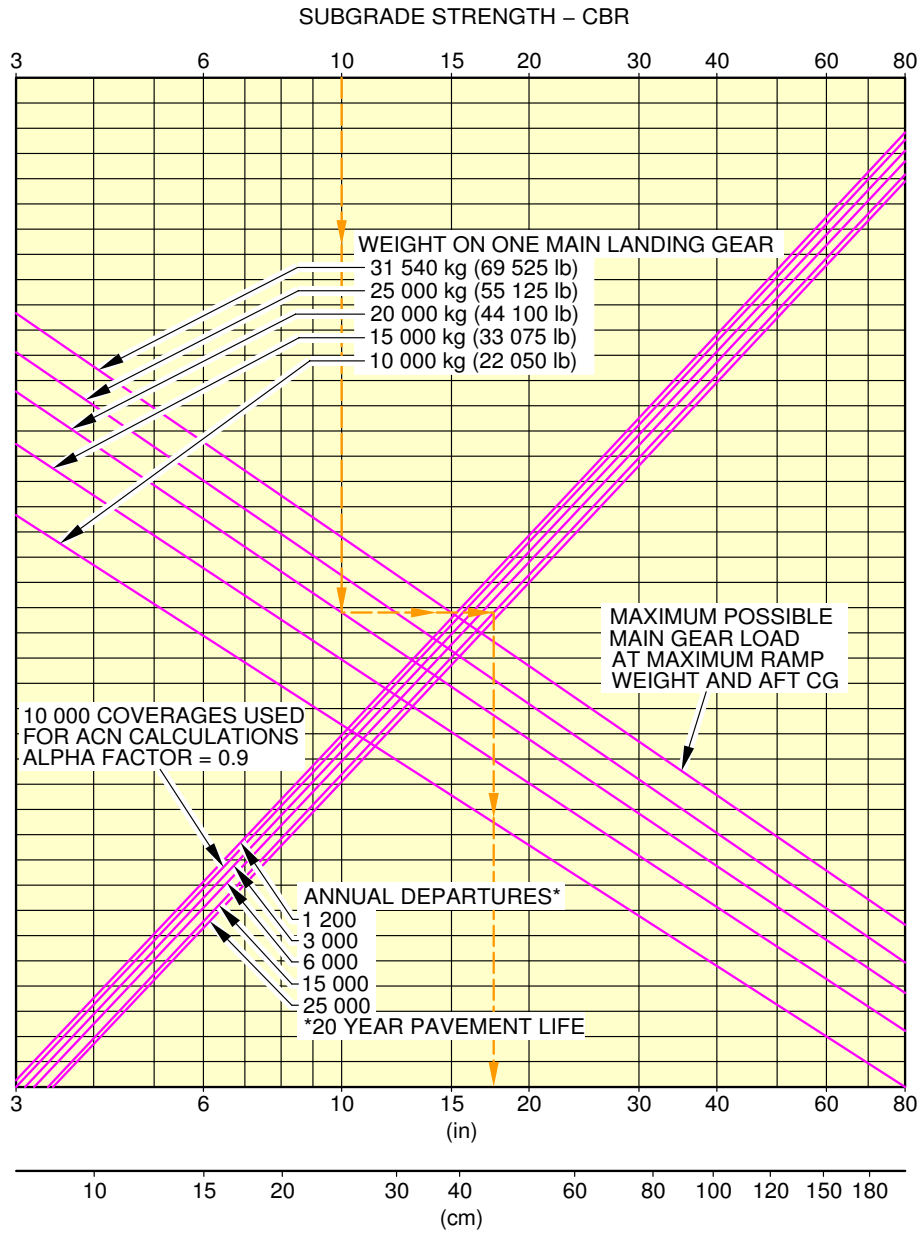
1. This section provides data about the flexible pavement requirements.  
The flexible pavement requirement graphs are given at standard tire pressure for the weight variants producing (at the MRW and maximum aft CG) the lowest MLG load and the highest MLG load for each type of aircraft.  
They are calculated with the US Army Corps of Engineers Design Method.  
To find a flexible pavement thickness, you must know the Subgrade Strength (CBR), the annual departure level and the weight on one MLG.  
The line that shows 10 000 coverages is used to calculate the Aircraft Classification Number (ACN).  
The procedure that follows is used to develop flexible pavement design curves:
  - With the scale for pavement thickness at the bottom and the scale for CBR at the top, a random line is made to show 10 000 coverages,
  - A plot is then made of the incremental values of the weight on the MLG,
  - Annual departure lines are made based on the load lines of the weight on the MLG that is shown on the graph.

Example, see FIGURE 7-5-0-991-009-A, calculation of the thickness of the flexible pavement for MLG:

- An aircraft with a MRW of 66 400 kg (146 375 lb),
  - A "CBR" value of 10,
  - An annual departure level of 15 000,
  - The load on one MLG of 20 000 kg (44 100 lb).
- The required flexible pavement thickness is 44.4 cm (17 in).

NOTE : The CG in the figure title is the CG used for ACN calculation.

**\*\*ON A/C A320-200**



FLEXIBLE PAVEMENT THICKNESS

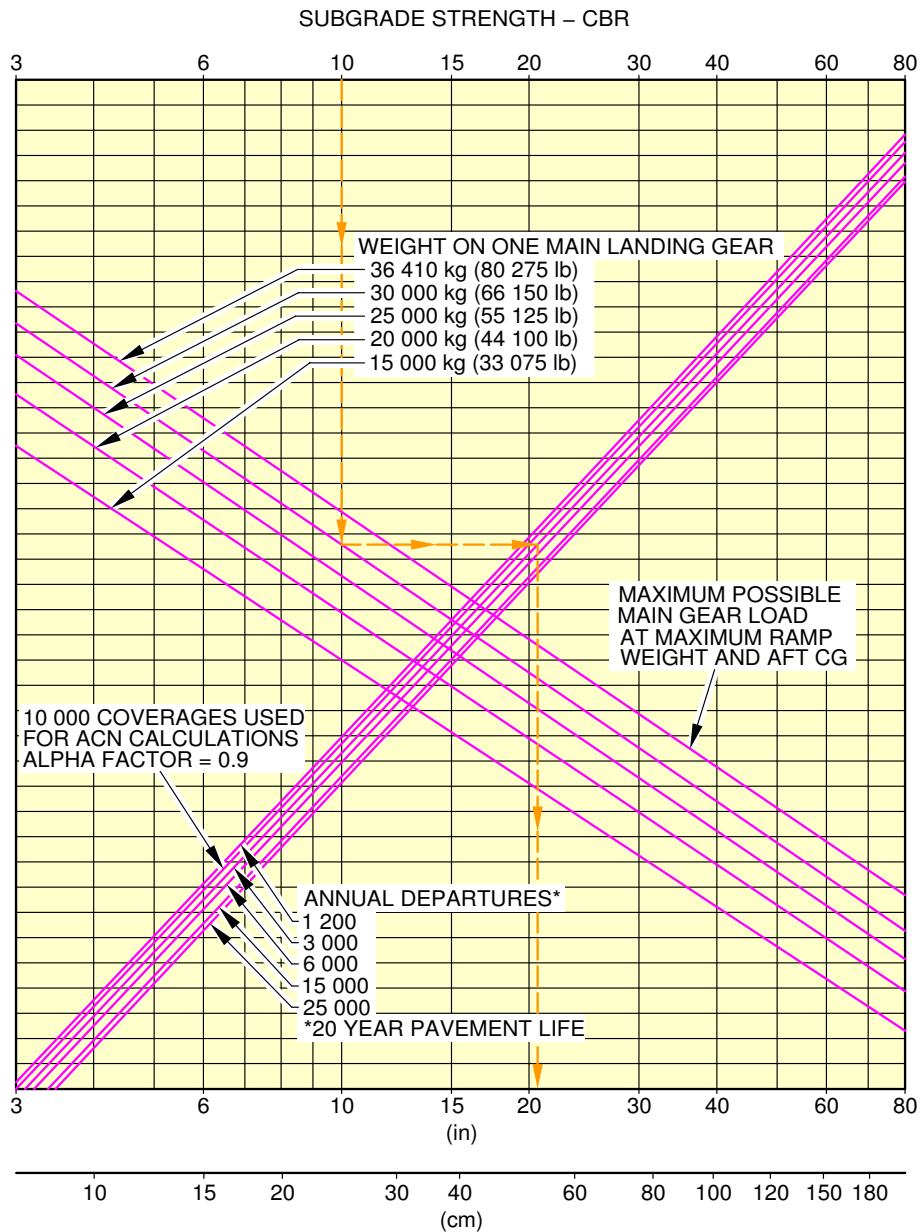
46x17R20 (46x16-20) TIRES

TIRE PRESSURE CONSTANT AT 12.3 bar (178 psi)

N\_AC\_070500\_1\_0090101\_01\_00

Flexible Pavement Requirements  
WV006, MRW 66 400 kg, CG 43 %  
FIGURE-7-5-0-991-009-A01

\*\*ON A/C A320-200



FLEXIBLE PAVEMENT THICKNESS

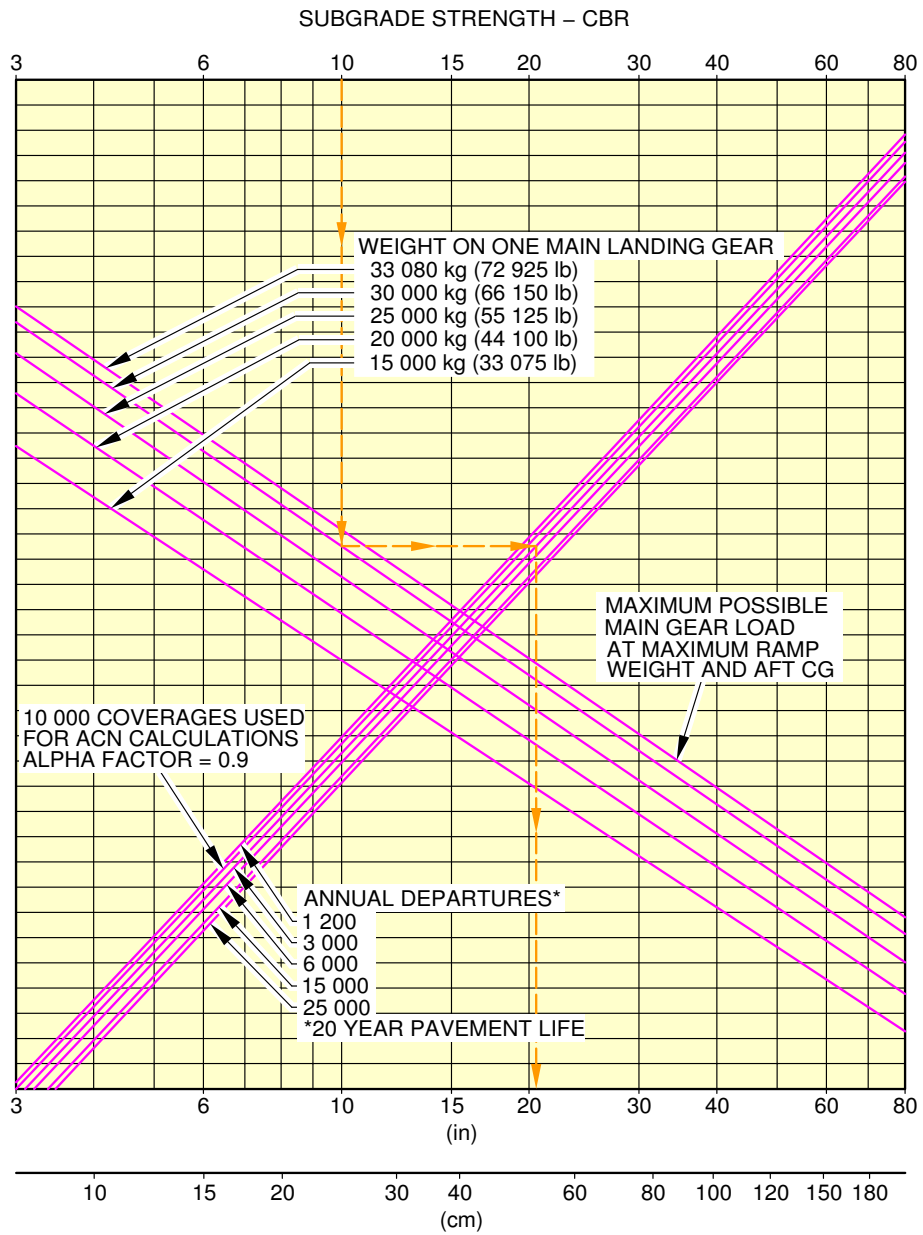
46x17R20 (46x16-20) TIRES

TIRE PRESSURE CONSTANT AT 14.4 bar (209 psi)

N\_AC\_070500\_1\_0100101\_01\_00

Flexible Pavement Requirements  
WV015, MRW 78 400 kg, CG 36.8 %  
FIGURE-7-5-0-991-010-A01

\*\*ON A/C A320neo

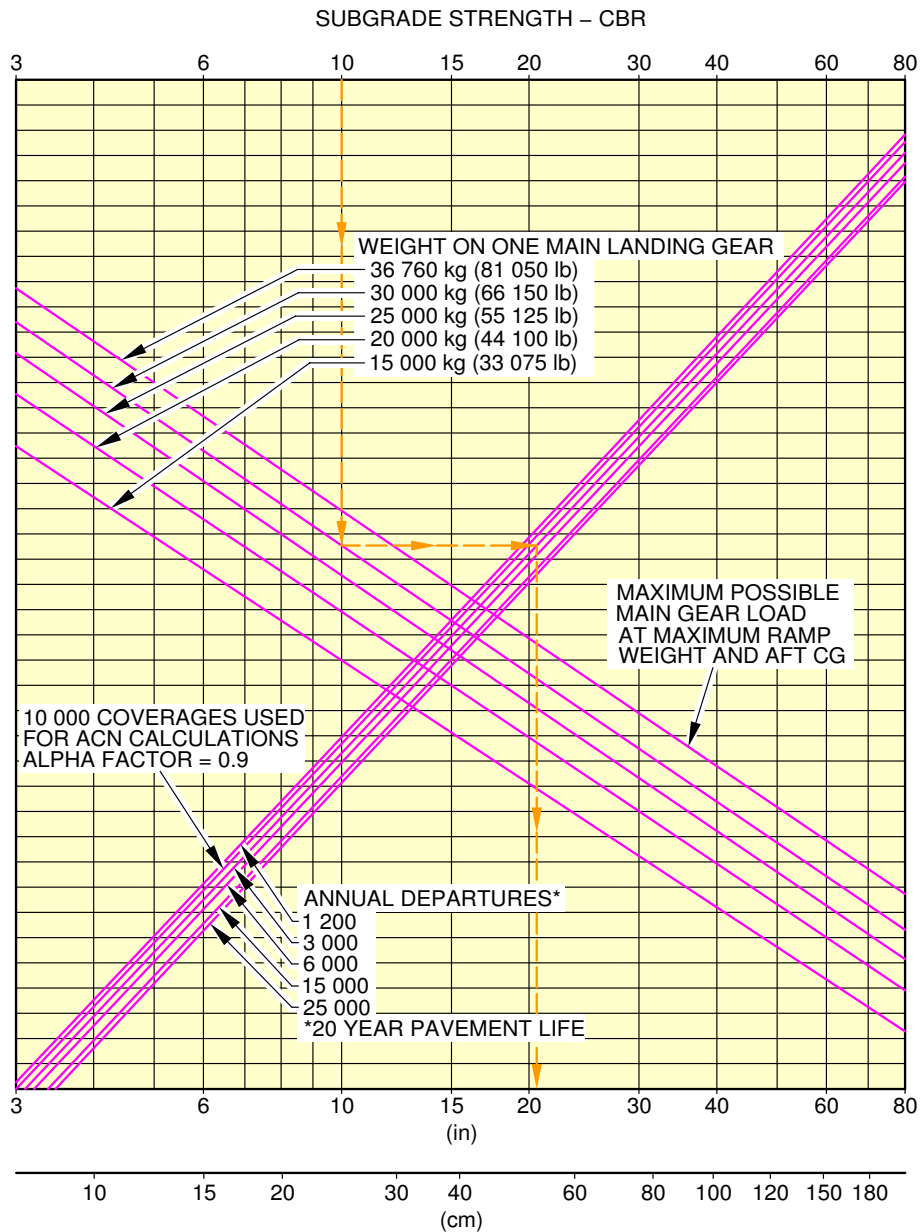


FLEXIBLE PAVEMENT THICKNESS  
 46x17R20 (46x16-20) TIRES  
 TIRE PRESSURE CONSTANT AT 12.8 bar (186 psi)

N\_AC\_070500\_1\_0110101\_01\_01

Flexible Pavement Requirements  
 WV057, MRW 70 400 kg, CG 40 %  
 FIGURE-7-5-0-991-011-A01

\*\*ON A/C A320neo



FLEXIBLE PAVEMENT THICKNESS

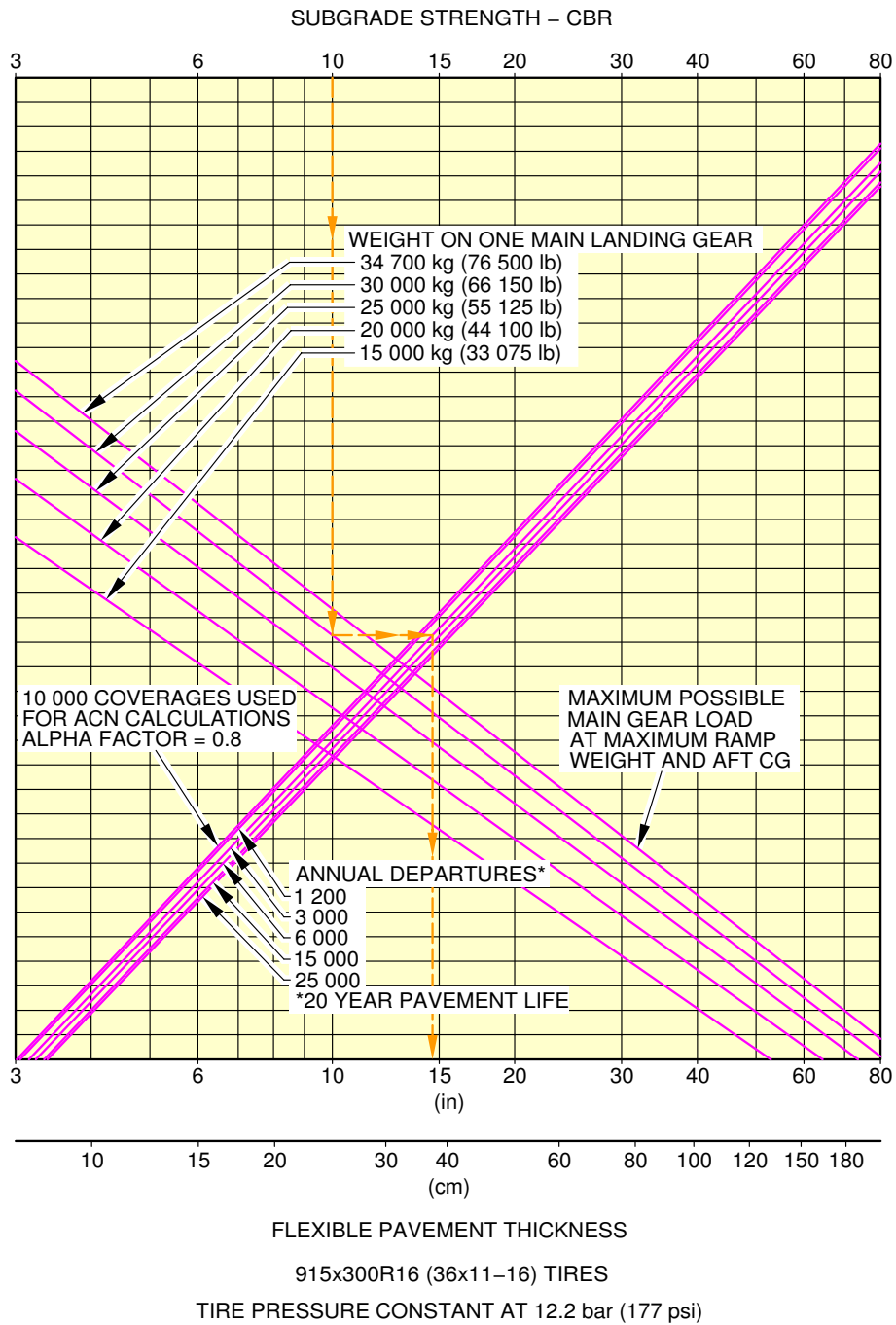
46x17R20 (46x16-20) TIRES

TIRE PRESSURE CONSTANT AT 14.4 bar (209 psi)

N\_AC\_070500\_1\_0120101\_01\_01

Flexible Pavement Requirements  
 WV054, MRW 79 400 kg, CG 36.1 %  
 FIGURE-7-5-0-991-012-A01

\*\*ON A/C A320-200



N\_AC\_070500\_1\_0130101\_01\_00

Flexible Pavement Requirements  
WV000 (Bogie), MRW 73 900 kg, CG 40 %  
FIGURE-7-5-0-991-013-A01

**7-6-0 Flexible Pavement Requirements - LCN Conversion****\*\*ON A/C A320-200 A320neo**Flexible Pavement Requirements - LCN Conversion

1. The Load Classification Number (LCN) curves are no longer provided in section 07-06-00 since the LCN system for reporting pavement strength is obsolete, having been replaced by the ICAO recommended ACN/PCN system in 1983.  
For questions regarding the LCN system, contact Airbus.

## 7-7-0 Rigid Pavement Requirements - Portland Cement Association Design Method

**\*\*ON A/C A320-200 A320neo**

### Rigid Pavement Requirements - Portland Cement Association Design Method

1. This section provides data about the rigid pavement requirements for the PCA (Portland Cement Association) design method.  
The rigid pavement requirement graphs are given at standard tire pressure for the weight variants producing (at the MRW and maximum aft CG) the lowest MLG load and the highest MLG load for each A/C type.  
They are calculated with the PCA design method.  
To find a rigid pavement thickness, you must know the Subgrade Modulus ( $k$ ), the permitted working stress and the weight on one MLG.  
The procedure that follows is used to develop rigid pavement design curves:
  - With the scale for pavement thickness on the left and the scale for permitted working stress on the right, a random load line is made. This represents the MLG maximum weight to be shown,
  - A plot is then made of all values of the subgrade modulus ( $k$  values),
  - More load lines for the incremental values of the weight on the MLG are made based on the curve for  $k = 150 \text{ MN/m}^3$ , which is already shown on the graph.

Example, see FIGURE 7-7-0-991-011-A, calculation of the thickness of the rigid pavement for the MLG:

- An aircraft with a MRW of 66 400 kg (146 375 lb),
- A  $k$  value of  $80 \text{ MN/m}^3$  ( $300 \text{ lbf/in}^3$ ),
- A permitted working stress of  $31.64 \text{ kg/cm}^2$  ( $450 \text{ lb/in}^2$ ),
- The load on one MLG is 25 000 kg (55 125 lb).

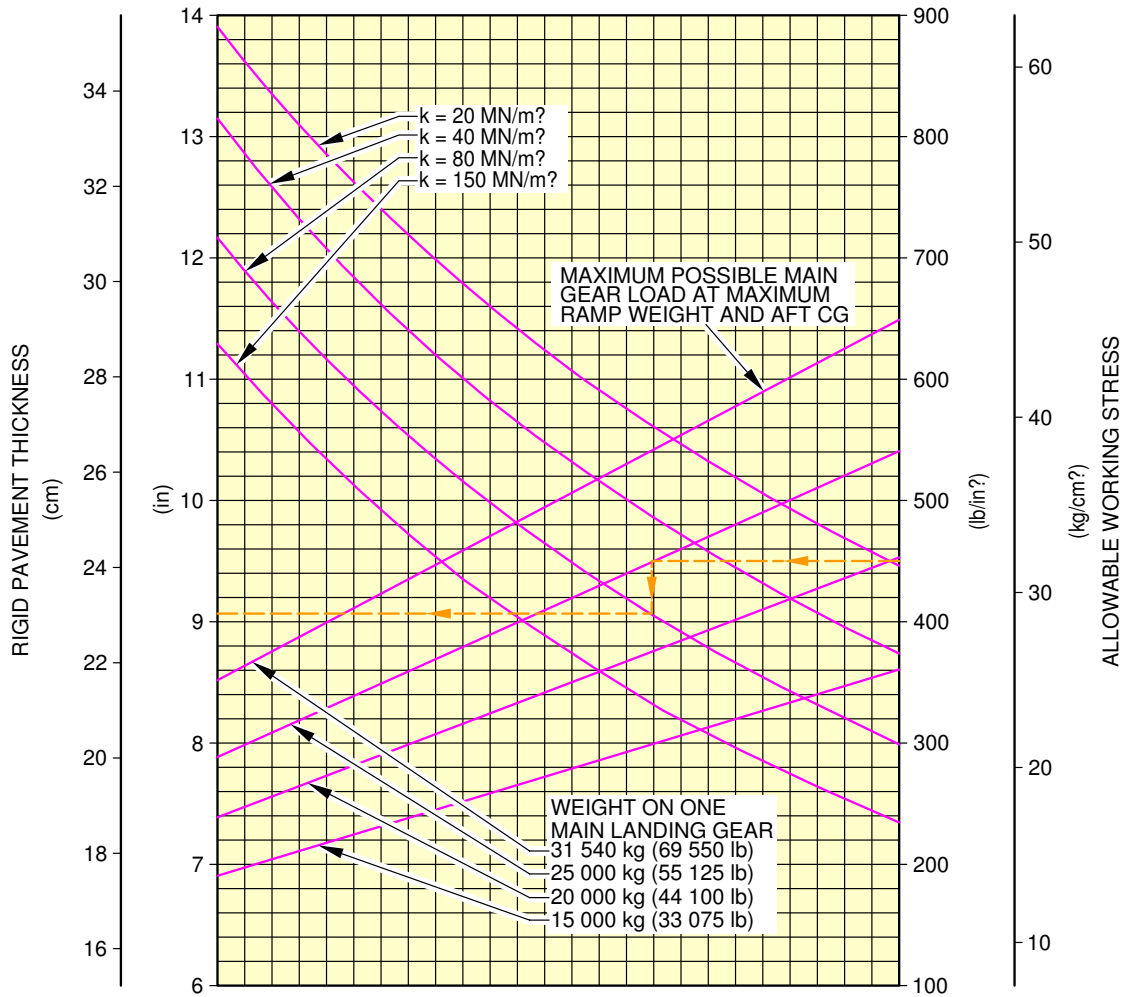
The required rigid pavement thickness is 230 mm (9 in).

NOTE : The CG in the figure title is the CG used for ACN calculation.



**\*\*ON A/C A320-200**

46x17R20 (46x16-20) TIRES  
TIRE PRESSURE CONSTANT AT 12.3 bar (178 psi)



**NOTE:**  
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUES FOR k ARE EXACT. FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 80 MN/m² BUT DEVIATE SLIGHTLY FOR ANY OTHER VALUES OF k.

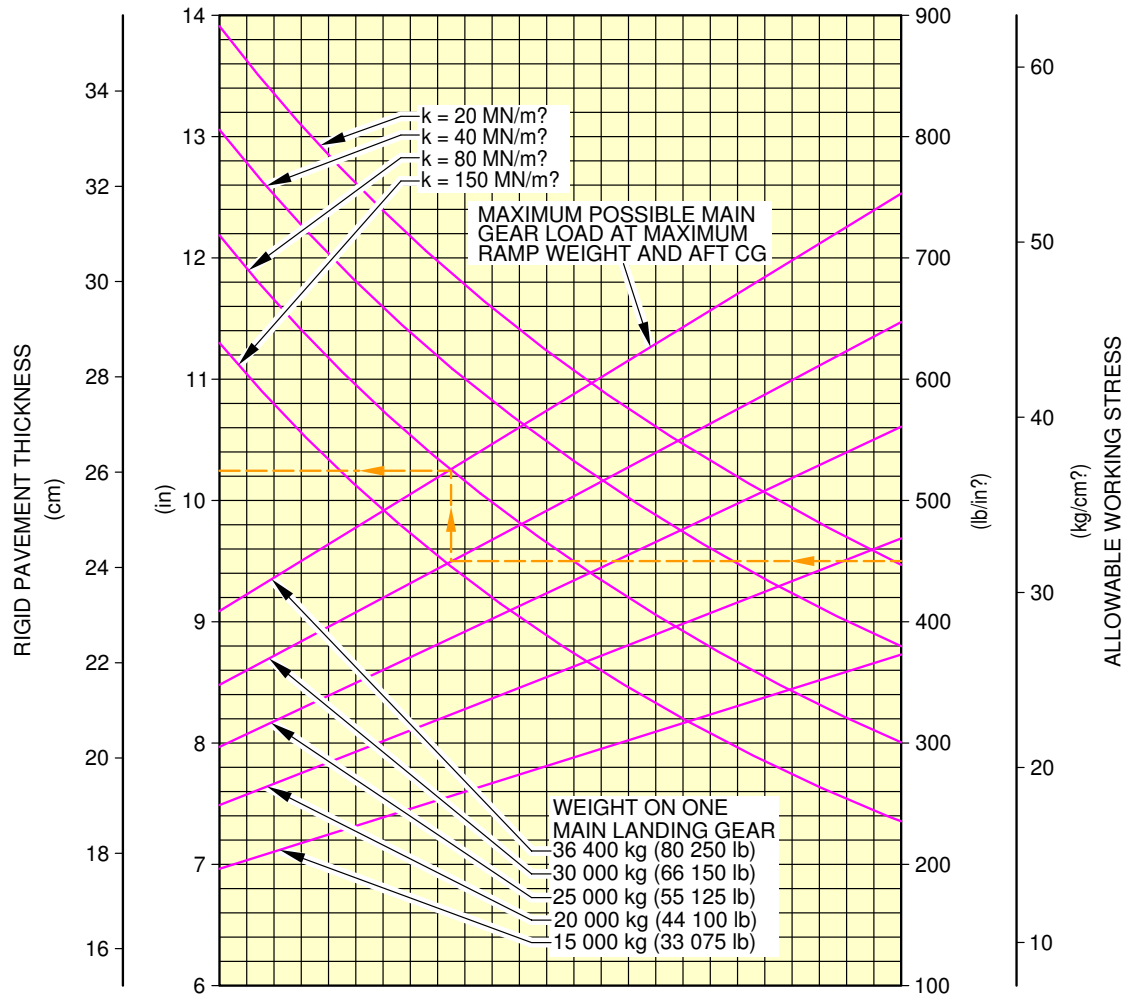
**REFERENCE:**  
"DESIGN OF CONCRETE AIRPORT PAVEMENTS" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDILB" PORTLAND CEMENT ASSOCIATION.

N\_AC\_070700\_1\_0110101\_01\_00

Rigid Pavement Requirements  
WV006, MRW 66 400 kg, CG 43 %  
FIGURE-7-7-0-991-011-A01

**\*\*ON A/C A320-200**

46x17R20 (46x16-20) TIRES  
TIRE PRESSURE CONSTANT AT 14.4 bar (209 psi)



**NOTE:**  
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUES FOR k ARE EXACT. FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 80 MN/m² BUT DEVIATE SLIGHTLY FOR ANY OTHER VALUES OF k.

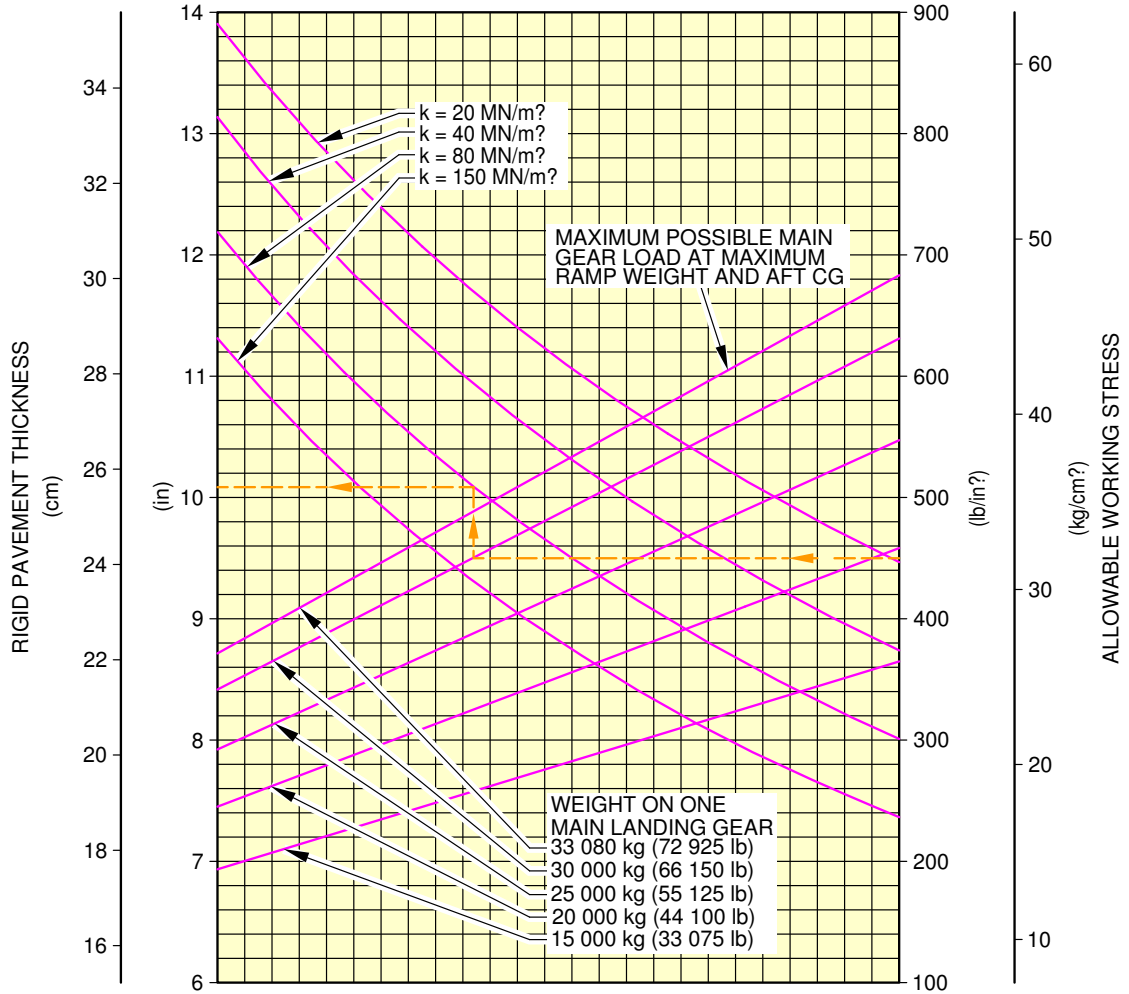
**REFERENCE:**  
"DESIGN OF CONCRETE AIRPORT PAVEMENTS" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDILB" PORTLAND CEMENT ASSOCIATION.

N\_AC\_070700\_1\_0120101\_01\_00

Rigid Pavement Requirements  
WV015, MRW 78 400 kg, CG 36.8 %  
FIGURE-7-7-0-991-012-A01

**\*\*ON A/C A320neo**

46x17R20 (46x16-20) TIRES  
TIRE PRESSURE CONSTANT AT 12.8 bar (186 psi)



**NOTE:**  
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUES FOR k ARE EXACT.  
FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 80 MN/m<sup>2</sup> BUT DEVIATE SLIGHTLY FOR ANY OTHER VALUES OF k.

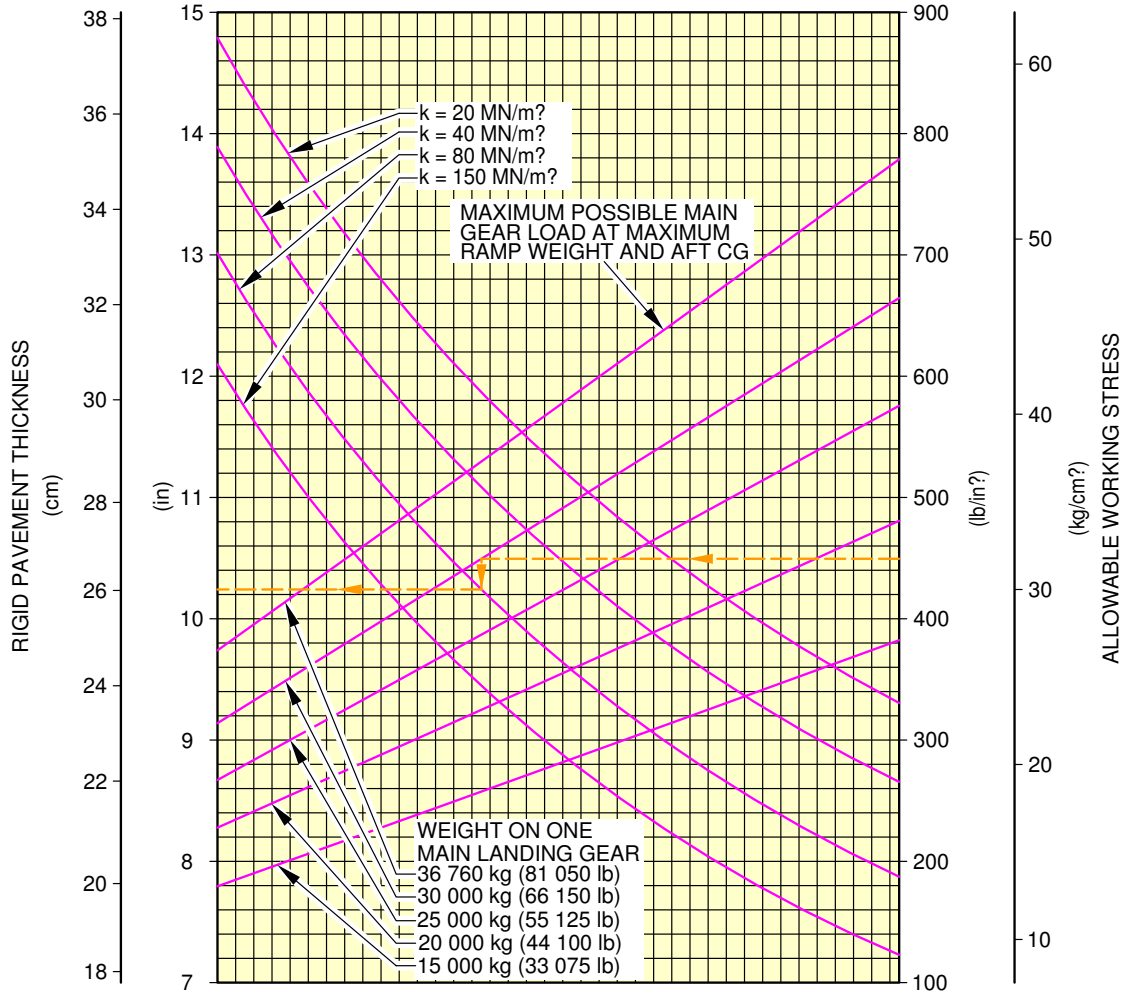
**REFERENCE:**  
"DESIGN OF CONCRETE AIRPORT PAVEMENTS" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDILB" PORTLAND CEMENT ASSOCIATION.

N\_AC\_070700\_1\_0130101\_01\_01

Rigid Pavement Requirements  
WV057, MRW 70 400 kg, CG 40 %  
FIGURE-7-7-0-991-013-A01

**\*\*ON A/C A320neo**

46x17R20 (46x16-20) TIRES  
TIRE PRESSURE CONSTANT AT 14.4 bar (209 psi)



**NOTE:**  
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUES FOR k ARE EXACT.  
FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 80 MN/m² BUT DEVIATE SLIGHTLY FOR ANY OTHER VALUES OF k.

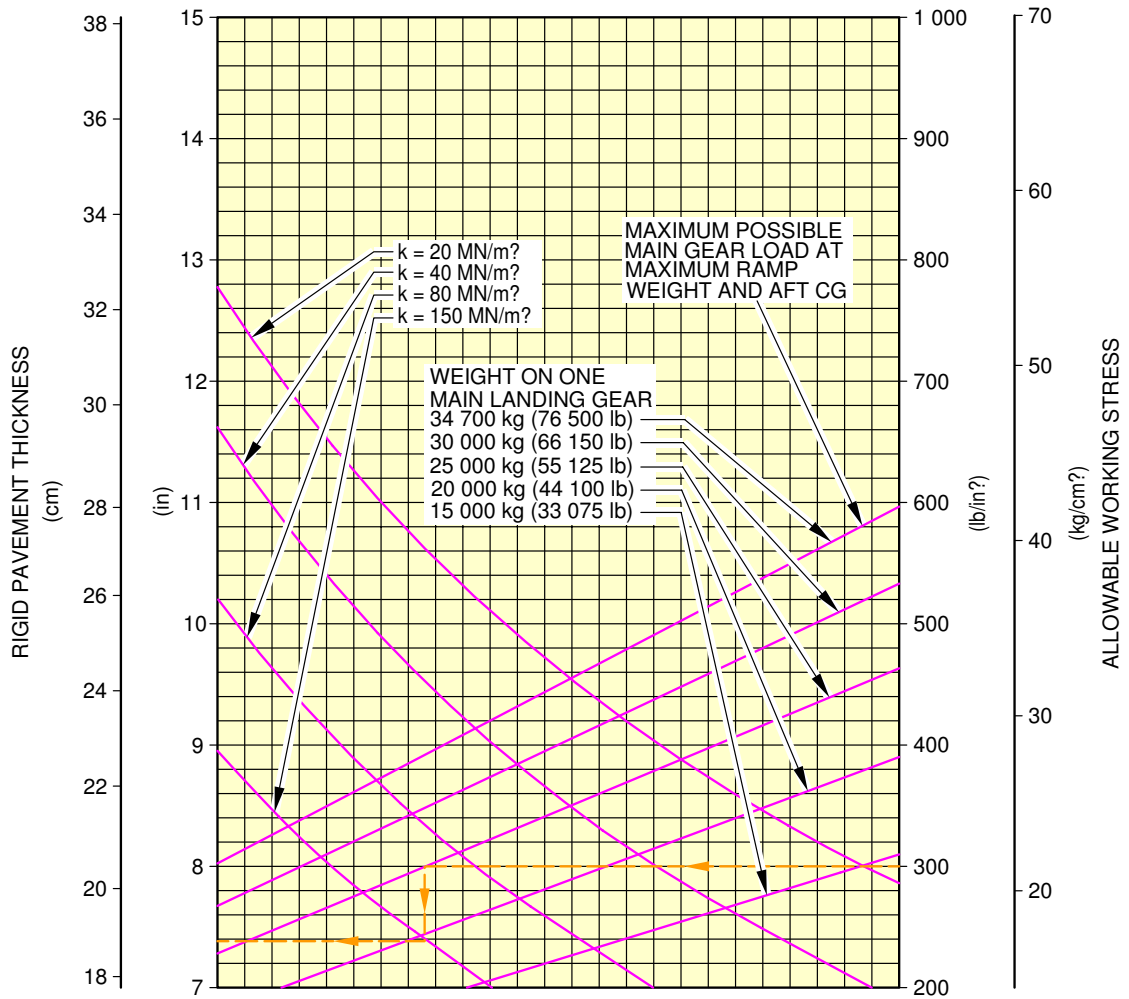
**REFERENCE:**  
"DESIGN OF CONCRETE AIRPORT PAVEMENTS" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDILB" PORTLAND CEMENT ASSOCIATION.

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Rigid Pavement Requirements  
WV054, MRW 79 400 kg, CG 36.1 %  
FIGURE-7-7-0-991-014-A01

**\*\*ON A/C A320-200**

915x300R16 (36x11-16) TIRES  
TIRE PRESSURE CONSTANT AT 12.2 bar (177 psi)



**NOTE:**  
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUES FOR k ARE EXACT.  
FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR k = 80 MN/m<sup>2</sup> BUT DEVIATE SLIGHTLY FOR ANY OTHER VALUES OF k.

**REFERENCE:**  
"DESIGN OF CONCRETE AIRPORT PAVEMENTS" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN - PROGRAM PDILB" PORTLAND CEMENT ASSOCIATION.

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Rigid Pavement Requirements  
WV000 (Bogie), MRW 73 900 kg, CG 40 %  
FIGURE-7-7-0-991-015-A01

**7-8-0 Rigid Pavement Requirements - LCN Conversion****\*\*ON A/C A320-200 A320neo**Rigid Pavement Requirements - LCN Conversion

1. The Load Classification Number (LCN) curves are no longer provided in section 07-08-00 since the LCN system for reporting pavement strength is obsolete, having been replaced by the ICAO recommended ACN/PCN system in 1983.  
For questions regarding the LCN system, contact Airbus.

## 7-9-0 ACN/PCN Reporting System - Flexible and Rigid Pavements

**\*\*ON A/C A320-200 A320neo**

### Aircraft Classification Number - Flexible and Rigid Pavements

1. This section provides data about the Aircraft Classification Number (ACN) for an aircraft gross weight in relation to a subgrade strength value for flexible and rigid pavement.  
The flexible and rigid pavement requirement graphs are given at standard tire pressure for the weight variants producing (at the MRW and maximum aft CG) the lowest MLG load and the highest MLG load for each type of aircraft.  
To find the ACN of an aircraft on flexible and rigid pavement, you must know the aircraft gross weight and the subgrade strength.

**NOTE :** An aircraft with an ACN equal to or less than the reported PCN can operate on that pavement, subject to any limitation on the tire pressure.  
(Ref: ICAO Aerodrome Design Manual, Part 3, Chapter 1, Second Edition 1983).

Example, see FIGURE 7-9-0-991-013-A (sheet 1), calculation of the ACN for flexible pavement for:

- An aircraft with a MRW of 66 400 kg (146 375 lb),
- An aircraft gross weight of 55 000 kg (121 250 lb),
- A medium subgrade strength (code B).

The ACN for flexible pavement is 28.

Example, see FIGURE 7-9-0-991-013-A (sheet 2), calculation of the ACN for rigid pavement for:

- An aircraft with a MRW of 66 400 kg (146 375 lb),
- An aircraft gross weight of 55 000 kg (121 250 lb),
- A medium subgrade strength (code B).

The ACN for rigid pavement is 32.

2. Aircraft Classification Number - ACN table

The tables in FIGURE 7-9-0-991-012-A and FIGURE 7-9-0-991-016-A provide ACN data in tabular format similar to the one used by ICAO in the "Aerodrome Design Manual Part 3, Pavements - Edition 1983" for all the operational weight variants of the aircraft.

As an approximation, use a linear interpolation in order to get the ACN at the required operating weight using the following equation:

- $ACN = ACN \text{ min} + (ACN \text{ max} - ACN \text{ min}) \times (\text{Operating weight} - 42\,000 \text{ kg}) / (\text{MRW} - 42\,000 \text{ kg})$

As an approximation, also use a linear interpolation in order to get the aircraft weight at the pavement PCN using the following equation:

- $\text{Operating weight} = 42\,000 \text{ kg} + (\text{MRW} - 42\,000 \text{ kg}) \times (\text{PCN} - ACN \text{ min}) / (ACN \text{ max} - ACN \text{ min})$

With ACN max: ACN calculated at the MRW in the table and with ACN min: ACN calculated at 42 000 kg.



AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

NOTE : The CG in the figure title is the CG used for ACN calculation.





AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

\*\*ON A/C A320-200

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES – MN/m?				ACN FOR FLEXIBLE PAVEMENT SUBGRADES – CBR			
				High 150	Medium 80	Low 40	Ultra-low 20	High 15	Medium 10	Low 6	Ultra-low 3
A320-200 WV000	73 900	47.0	1.38	44	46	48	50	39	40	44	50
	42 000	46.9		22	24	25	26	20	20	22	26
A320-200 WV000	73 900	47.0	1.14	41	44	46	49	38	39	44	50
	42 000	46.9		21	23	24	25	20	20	22	25
A320-200 WV000	73 900	47.0	1.18	41	44	47	49	38	39	44	50
	42 000	46.9		21	23	24	26	20	20	22	25
A320-200 WV000	73 900	47.0	1.03	40	43	45	48	37	39	44	50
	42 000	46.9		20	22	23	25	19	20	22	25
A320-200 WV001	68 400	47.5	1.28	39	42	44	46	35	36	41	47
	42 000	47.5		22	24	25	26	20	21	22	26
A320-200 WV001	68 400	47.5	1.06	37	40	42	44	34	36	40	46
	42 000	47.5		21	22	24	25	20	20	22	26
A320-200 WV001	68 400	47.5	1.09	37	40	43	45	35	36	40	46
	42 000	47.5		21	23	24	25	20	20	22	26
A320-200 WV001	68 400	47.5	0.96	36	39	41	44	34	35	40	46
	42 000	47.5		20	22	23	25	19	20	22	26
A320-200 WV002 (CG 42.6%)	70 400	47.4	1.28	41	43	46	48	37	38	42	48
	42 000	47.4		22	24	25	26	20	21	22	26
A320-200 WV002 (CG 42.6%)	70 400	47.4	1.06	38	41	44	46	36	37	42	48
	42 000	47.4		21	22	24	25	20	20	22	26
A320-200 WV002 (CG 42.6%)	70 400	47.4	1.09	38	41	44	46	36	37	42	48
	42 000	47.4		21	22	24	25	20	20	22	26
A320-200 WV002 (CG 42.6%)	70 400	47.4	0.96	37	40	43	45	35	37	41	48
	42 000	47.4		20	22	23	25	19	20	22	26
A320-200 WV002 (CG 41%)	70 400	47.2	1.28	40	43	45	47	36	37	42	48
	42 000	47.1		22	23	25	26	20	20	22	26
A320-200 WV002 (CG 41%)	70 400	47.2	1.06	38	41	43	46	35	37	41	47
	42 000	47.1		21	22	24	25	20	20	22	25
A320-200 WV002 (CG 41%)	70 400	47.2	1.09	38	41	44	46	36	37	41	47
	42 000	47.1		21	22	24	25	20	20	22	25
A320-200 WV002 (CG 41%)	70 400	47.2	0.96	37	40	42	45	35	36	41	47
	42 000	47.1		20	21	23	25	19	20	22	25

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Aircraft Classification Number  
ACN Table (Sheet 1 of 7)  
FIGURE-7-9-0-991-012-A01



AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

\*\*ON A/C A320-200

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES – MN/m?				ACN FOR FLEXIBLE PAVEMENT SUBGRADES – CBR			
				High 150	Medium 80	Low 40	Ultra-low 20	High 15	Medium 10	Low 6	Ultra-low 3
A320-200 WV003	75 900	46.8	1.38	45	47	50	52	40	41	46	52
	42 000	46.7		22	24	25	26	20	20	22	25
A320-200 WV003	75 900	46.8	1.14	42	45	48	50	39	40	45	51
	42 000	46.7		21	22	24	25	20	20	22	25
A320-200 WV003	75 900	46.8	1.18	43	45	48	50	39	40	45	51
	42 000	46.7		21	23	24	25	20	20	22	25
A320-200 WV003	75 900	46.8	1.03	41	44	47	49	38	40	45	51
	42 000	46.7		20	22	23	25	19	20	22	25
A320-200 WV004	71 900	47.3	1.38	42	45	47	49	38	39	43	49
	42 000	47.2		23	24	25	26	20	21	22	26
A320-200 WV004	71 900	47.3	1.14	40	43	45	47	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-200 WV004	71 900	47.3	1.18	40	43	46	48	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-200 WV004	71 900	47.3	1.03	39	42	44	47	36	38	43	49
	42 000	47.2		20	22	24	25	19	20	22	25
A320-200 WV005	67 400	47.5	1.28	39	41	43	45	35	36	40	46
	42 000	47.5		22	24	25	26	20	21	22	26
A320-200 WV005	67 400	47.5	1.06	36	39	42	44	34	35	40	46
	42 000	47.5		21	22	24	25	20	20	22	26
A320-200 WV005	67 400	47.5	1.09	37	39	42	44	34	35	40	46
	42 000	47.5		21	23	24	25	20	20	22	26
A320-200 WV005	67 400	47.5	0.96	35	38	41	43	33	35	39	45
	42 000	47.5		20	22	23	25	19	20	22	26
A320-200 WV006	66 400	47.5	1.23	37	40	42	44	34	35	39	45
	42 000	47.5		22	23	25	26	20	21	22	26
A320-200 WV006	66 400	47.5	1.02	35	38	40	43	33	34	39	45
	42 000	47.5		20	22	24	25	19	20	22	26
A320-200 WV006	66 400	47.5	0.92	34	37	40	42	32	34	38	45
	42 000	47.5		20	21	23	25	19	20	22	26
A320-200 WV007 (CG 37.5%)	77 400	46.6	1.44	46	49	51	53	41	42	47	53
	42 000	46.5		22	24	25	26	20	20	22	25

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Aircraft Classification Number  
ACN Table (Sheet 2 of 7)  
FIGURE-7-9-0-991-012-A01



AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

\*\*ON A/C A320-200

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES – MN/m²				ACN FOR FLEXIBLE PAVEMENT SUBGRADES – CBR			
				High 150	Medium 80	Low 40	Ultra-low 20	High 15	Medium 10	Low 6	Ultra-low 3
A320-200	77 400	46.6	1.20	44	46	49	51	40	41	46	52
WV007 (CG 37.5%)	42 000	46.5		21	23	24	25	20	20	22	25
A320-200	77 400	46.6	1.23	44	47	49	52	40	41	46	52
WV007 (CG 37.5%)	42 000	46.5		21	23	24	25	20	20	22	25
A320-200	77 400	46.6	1.07	42	45	48	50	39	41	46	52
WV007 (CG 37.5%)	42 000	46.5		20	22	23	25	19	20	22	25
A320-200	77 400	45.8	1.44	45	48	50	52	40	41	46	52
WV007 (CG 33%)	42 000	45.7		22	23	25	26	20	20	21	25
A320-200	77 400	45.8	1.20	43	45	48	50	39	40	45	51
WV007 (CG 33%)	42 000	45.7		21	22	24	25	19	20	21	25
A320-200	77 400	45.8	1.23	43	46	48	51	39	40	45	51
WV007 (CG 33%)	42 000	45.7		21	22	24	25	20	20	21	25
A320-200	77 400	45.8	1.07	41	44	47	49	39	40	45	51
WV007 (CG 33%)	42 000	45.7		20	21	23	24	19	19	21	25
A320-200	73 900	47.0	1.38	44	46	48	50	39	40	44	50
WV008	42 000	46.9		22	24	25	26	20	20	22	26
A320-200	73 900	47.0	1.14	41	44	46	49	38	39	44	50
WV008	42 000	46.9		21	23	24	25	20	20	22	25
A320-200	73 900	47.0	1.18	41	44	47	49	38	39	44	50
WV008	42 000	46.9		21	23	24	26	20	20	22	25
A320-200	73 900	47.0	1.03	40	43	45	48	37	39	44	50
WV008	42 000	46.9		20	22	23	25	19	20	22	25
A320-200	75 900	46.8	1.38	45	47	50	52	40	41	46	52
WV009	42 000	46.7		22	24	25	26	20	20	22	25
A320-200	75 900	46.8	1.14	42	45	48	50	39	40	45	51
WV009	42 000	46.7		21	22	24	25	20	20	22	25
A320-200	75 900	46.8	1.18	43	45	48	50	39	40	45	51
WV009	42 000	46.7		21	23	24	25	20	20	22	25
A320-200	75 900	46.8	1.03	41	44	47	49	38	40	45	51
WV009	42 000	46.7		20	22	23	25	19	20	22	25
A320-200	77 400	46.6	1.44	46	49	51	53	41	42	47	53
WV010 (CG 37.5%)	42 000	46.5		22	24	25	26	20	20	22	25

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Aircraft Classification Number  
ACN Table (Sheet 3 of 7)  
FIGURE-7-9-0-991-012-A01



AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

\*\*ON A/C A320-200

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES – MN/m?				ACN FOR FLEXIBLE PAVEMENT SUBGRADES – CBR			
				High 150	Medium 80	Low 40	Ultra-low 20	High 15	Medium 10	Low 6	Ultra-low 3
A320-200	77 400	46.6	1.20	44	46	49	51	40	41	46	52
WV010 (CG 37.5%)	42 000	46.5		21	23	24	25	20	20	22	25
A320-200	77 400	46.6	1.23	44	47	49	52	40	41	46	52
WV010 (CG 37.5%)	42 000	46.5		21	23	24	25	20	20	22	25
A320-200	77 400	46.6	1.07	42	45	48	50	39	41	46	52
WV010 (CG 37.5%)	42 000	46.5		20	22	23	25	19	20	22	25
A320-200	77 400	45.8	1.44	45	48	50	52	40	41	46	52
WV010 (CG 33%)	42 000	45.7		22	23	25	26	20	20	21	25
A320-200	77 400	45.8	1.20	43	45	48	50	39	40	45	51
WV010 (CG 33%)	42 000	45.7		21	22	24	25	19	20	21	25
A320-200	77 400	45.8	1.23	43	46	48	51	39	40	45	51
WV010 (CG 33%)	42 000	45.7		21	22	24	25	20	20	21	25
A320-200	77 400	45.8	1.07	41	44	47	49	39	40	45	51
WV010 (CG 33%)	42 000	45.7		20	21	23	24	19	19	21	25
A320-200	75 900	46.8	1.38	45	47	50	52	40	41	46	52
WV011 (CG 38.7%)	42 000	46.7		22	24	25	26	20	20	22	25
A320-200	75 900	46.8	1.14	42	45	48	50	39	40	45	51
WV011 (CG 38.7%)	42 000	46.7		21	22	24	25	20	20	22	25
A320-200	75 900	46.8	1.18	43	45	48	50	39	40	45	51
WV011 (CG 38.7%)	42 000	46.7		21	23	24	25	20	20	22	25
A320-200	75 900	46.8	1.03	41	44	47	49	38	40	45	51
WV011 (CG 38.7%)	42 000	46.7		20	22	23	25	19	20	22	25
A320-200	75 900	46.7	1.38	45	47	50	52	40	41	46	52
WV011 (CG 38.5%)	42 000	46.7		22	24	25	26	20	20	22	25
A320-200	75 900	46.7	1.14	42	45	48	50	39	40	45	51
WV011 (CG 38.5%)	42 000	46.7		21	22	24	25	20	20	22	25
A320-200	75 900	46.7	1.18	42	45	48	50	39	40	45	51
WV011 (CG 38.5%)	42 000	46.7		21	23	24	25	20	20	22	25
A320-200	75 900	46.7	1.03	41	44	47	49	38	40	45	51
WV011 (CG 38.5%)	42 000	46.7		20	22	23	25	19	20	22	25
A320-200	77 400	46.6	1.44	46	49	51	53	41	42	47	53
WV012	42 000	46.5		22	24	25	26	20	20	22	25
A320-200	77 400	46.6	1.20	44	46	49	51	40	41	46	52
WV012	42 000	46.5		21	23	24	25	20	20	22	25
A320-200	77 400	46.6	1.23	44	47	49	52	40	41	46	52
WV012	42 000	46.5		21	23	24	25	20	20	22	25
A320-200	77 400	46.6	1.07	42	45	48	50	39	41	46	52
WV012	42 000	46.5		20	22	23	25	19	20	22	25
A320-200	71 900	47.2	1.38	42	45	47	49	38	39	43	49
WV013 (CG 41.42%)	42 000	47.2		23	24	25	26	20	21	22	26

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Aircraft Classification Number  
ACN Table (Sheet 4 of 7)  
FIGURE-7-9-0-991-012-A01

\*\*ON A/C A320-200

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES – MN/m?				ACN FOR FLEXIBLE PAVEMENT SUBGRADES – CBR			
				High 150	Medium 80	Low 40	Ultra-low 20	High 15	Medium 10	Low 6	Ultra-low 3
A320-200 WV013 (CG 41.42%)	71 900	47.2	1.14	40	43	45	47	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-200 WV013 (CG 41.42%)	71 900	47.2	1.18	40	43	46	48	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-200 WV013 (CG 41.42%)	71 900	47.2	1.03	39	41	44	47	36	38	43	49
	42 000	47.2		20	22	24	25	19	20	22	25
A320-200 WV013 (CG 41%)	71 900	47.2	1.38	42	45	47	49	38	39	43	49
	42 000	47.1		22	24	25	26	20	21	22	26
A320-200 WV013 (CG 41%)	71 900	47.2	1.14	40	43	45	47	37	38	43	49
	42 000	47.1		21	23	24	25	20	20	22	26
A320-200 WV013 (CG 41%)	71 900	47.2	1.18	40	43	46	48	37	38	43	49
	42 000	47.1		21	23	24	26	20	20	22	26
A320-200 WV013 (CG 41%)	71 900	47.2	1.03	38	41	44	46	36	38	42	49
	42 000	47.1		20	22	24	25	19	20	22	25
A320-200 WV014	73 900	47.0	1.38	44	46	48	50	39	40	44	50
	42 000	46.9		22	24	25	26	20	20	22	26
A320-200 WV014	73 900	47.0	1.14	41	44	46	49	38	39	44	50
	42 000	46.9		21	23	24	25	20	20	22	25
A320-200 WV014	73 900	47.0	1.18	41	44	47	49	38	39	44	50
	42 000	46.9		21	23	24	26	20	20	22	25
A320-200 WV014	73 900	47.0	1.03	40	43	45	48	37	39	44	50
	42 000	46.9		20	22	23	25	19	20	22	25
A320-200 WV015	78 400	46.4	1.44	47	49	52	54	41	43	47	53
	42 000	46.4		22	24	25	26	20	20	22	25
A320-200 WV016	73 900	47.0	1.38	44	46	48	50	39	40	44	50
	42 000	46.9		22	24	25	26	20	20	22	26
A320-200 WV016	73 900	47.0	1.14	41	44	46	49	38	39	44	50
	42 000	46.9		21	23	24	25	20	20	22	25
A320-200 WV016	73 900	47.0	1.18	41	44	47	49	38	39	44	50
	42 000	46.9		21	23	24	26	20	20	22	25

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Aircraft Classification Number  
ACN Table (Sheet 5 of 7)  
FIGURE-7-9-0-991-012-A01



AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

\*\*ON A/C A320-200

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES – MN/m?				ACN FOR FLEXIBLE PAVEMENT SUBGRADES – CBR			
				High 150	Medium 80	Low 40	Ultra-low 20	High 15	Medium 10	Low 6	Ultra-low 3
A320-200 WV016	73 900	47.0	1.03	40	43	45	48	37	39	44	50
	42 000	46.9		20	22	23	25	19	20	22	25
A320-200 WV017	78 400	46.4	1.44	47	49	52	54	41	43	47	53
	42 000	46.4		22	24	25	26	20	20	22	25
A320-200 WV018 (CG 41.46%)	71 900	47.2	1.38	42	45	47	49	38	39	43	49
	42 000	47.2		23	24	25	26	20	21	22	26
A320-200 WV018 (CG 41.46%)	71 900	47.2	1.14	40	43	45	47	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-200 WV018 (CG 41.46%)	71 900	47.2	1.18	40	43	46	48	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-200 WV018 (CG 41.46%)	71 900	47.2	1.03	39	41	44	47	36	38	43	49
	42 000	47.2		20	22	24	25	19	20	22	25
A320-200 WV018 (CG 41%)	71 900	47.2	1.38	42	45	47	49	38	39	43	49
	42 000	47.1		22	24	25	26	20	21	22	26
A320-200 WV018 (CG 41%)	71 900	47.2	1.14	40	43	45	47	37	38	43	49
	42 000	47.1		21	23	24	25	20	20	22	26
A320-200 WV018 (CG 41%)	71 900	47.2	1.18	40	43	46	48	37	38	43	49
	42 000	47.1		21	23	24	26	20	20	22	26
A320-200 WV018 (CG 41%)	71 900	47.2	1.03	38	41	44	46	36	38	42	49
	42 000	47.1		20	22	24	25	19	20	22	25
A320-201 WV018 (CG 41.4%)	71 900	47.2	1.38	42	45	47	49	38	39	43	49
	42 000	47.2		23	24	25	26	20	21	22	26
A320-201 WV018 (CG 41.4%)	71 900	47.2	1.14	40	43	45	47	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-201 WV018 (CG 41.4%)	71 900	47.2	1.18	40	43	46	48	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-201 WV018 (CG 41.4%)	71 900	47.2	1.03	39	41	44	47	36	38	43	49
	42 000	47.2		20	22	24	25	19	20	22	25
A320-202 WV018 (CG 41.47%)	71 900	47.2	1.38	42	45	47	49	38	39	43	49
	42 000	47.2		23	24	25	26	20	21	22	26
A320-202 WV018 (CG 41.47%)	71 900	47.2	1.14	40	43	45	47	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-202 WV018 (CG 41.47%)	71 900	47.2	1.18	40	43	46	48	37	38	43	49
	42 000	47.2		21	23	24	26	20	20	22	26
A320-202 WV018 (CG 41.47%)	71 900	47.2	1.03	39	41	44	47	36	38	43	49
	42 000	47.2		20	22	24	25	19	20	22	25
A320-200 WV019 (CG 42%)	70 400	47.3	1.28	40	43	45	47	36	37	42	48
	42 000	47.3		22	23	25	26	20	21	22	26
A320-200 WV019 (CG 42%)	70 400	47.3	1.06	38	41	44	46	35	37	42	48
	42 000	47.3		21	22	24	25	20	20	22	26

N\_AC\_070900\_1\_0120106\_01\_03

Aircraft Classification Number  
ACN Table (Sheet 6 of 7)  
FIGURE-7-9-0-991-012-A01



AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

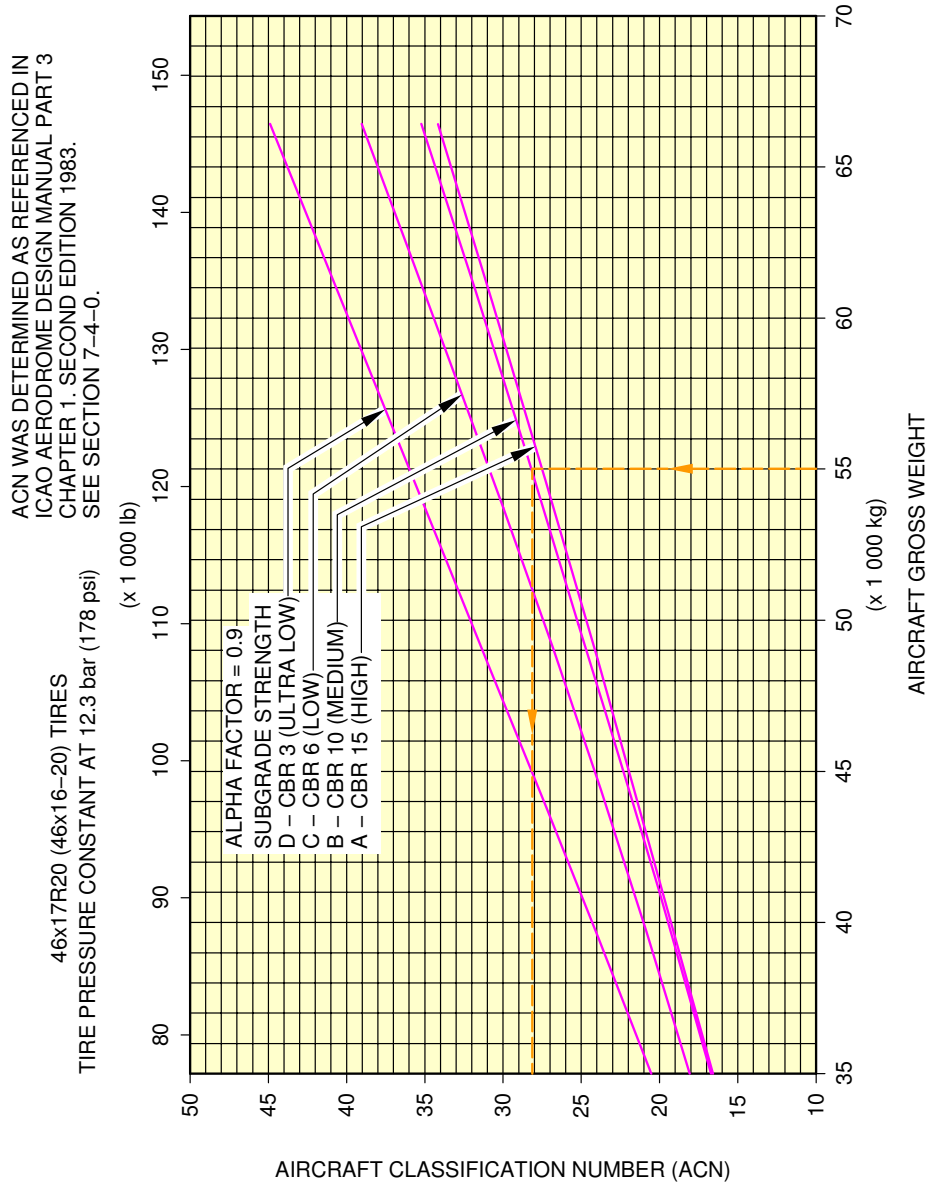
\*\*ON A/C A320-200

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES - MN/m <sup>2</sup>				ACN FOR FLEXIBLE PAVEMENT SUBGRADES - CBR			
				High 150	Medium 80	Low 40	Ultra-low 20	High 15	Medium 10	Low 6	Ultra-low 3
A320-200	70 400	47.3	1.09	38	41	44	46	36	37	42	48
WV019 (CG 42%)	42 000	47.3		21	22	24	25	20	20	22	26
A320-200	70 400	47.3	0.96	37	40	43	45	35	36	41	48
WV019 (CG 42%)	42 000	47.3		20	22	23	25	19	20	22	26
A320-200	70 400	47.2	1.28	40	43	45	47	36	37	42	48
WV019 (CG 41%)	42 000	47.1		22	23	25	26	20	20	22	26
A320-200	70 400	47.2	1.06	38	41	43	46	35	37	41	47
WV019 (CG 41%)	42 000	47.1		21	22	24	25	20	20	22	25
A320-200	70 400	47.2	1.09	38	41	44	46	36	37	41	47
WV019 (CG 41%)	42 000	47.1		21	22	24	25	20	20	22	25
A320-200	70 400	47.2	0.96	37	40	42	45	35	36	41	47
WV019 (CG 41%)	42 000	47.1		20	21	23	25	19	20	22	25
A320-200	70 400	47.4	1.28	41	43	46	48	37	38	42	48
WV019 (CG 42.61%)	42 000	47.4		22	24	25	26	20	21	22	26
A320-200	70 400	47.4	1.06	38	41	44	46	36	37	42	48
WV019 (CG 42.61%)	42 001	47.4		21	22	24	25	20	20	22	26
A320-200	70 400	47.4	1.09	38	41	44	46	36	37	42	48
WV019 (CG 42.61%)	42 002	47.4		21	22	24	25	20	20	22	26
A320-200	70 400	47.4	0.96	37	40	43	45	35	37	41	48
WV019 (CG 42.61%)	42 003	47.4		20	22	23	25	19	20	22	26
A320-200	70 400	47.0	1.28	40	43	45	47	36	37	42	47
WV019 (CG 40%)	42 000	46.9		22	23	25	26	20	20	22	25
A320-200	70 400	47.0	1.06	38	41	43	45	35	37	41	47
WV019 (CG 40%)	42 001	46.9		20	22	24	25	20	20	22	25
A320-200	70 400	47.0	1.09	38	41	43	46	36	37	41	47
WV019 (CG 40%)	42 002	46.9		21	22	24	25	20	20	22	25
A320-200	70 400	47.0	0.96	36	39	42	45	34	36	41	47
WV019 (CG 40%)	42 003	46.9		20	21	23	24	19	20	22	25
A320-200	73 900	46.9	1.22	18	21	25	28	17	19	22	31
WV000 BOGIE	42 000	46.9		9	10	11	13	9	9	10	13

N\_AC\_070900\_1\_0120107\_01\_02

Aircraft Classification Number  
 ACN Table (Sheet 7 of 7)  
 FIGURE-7-9-0-991-012-A01

**\*\*ON A/C A320-200**

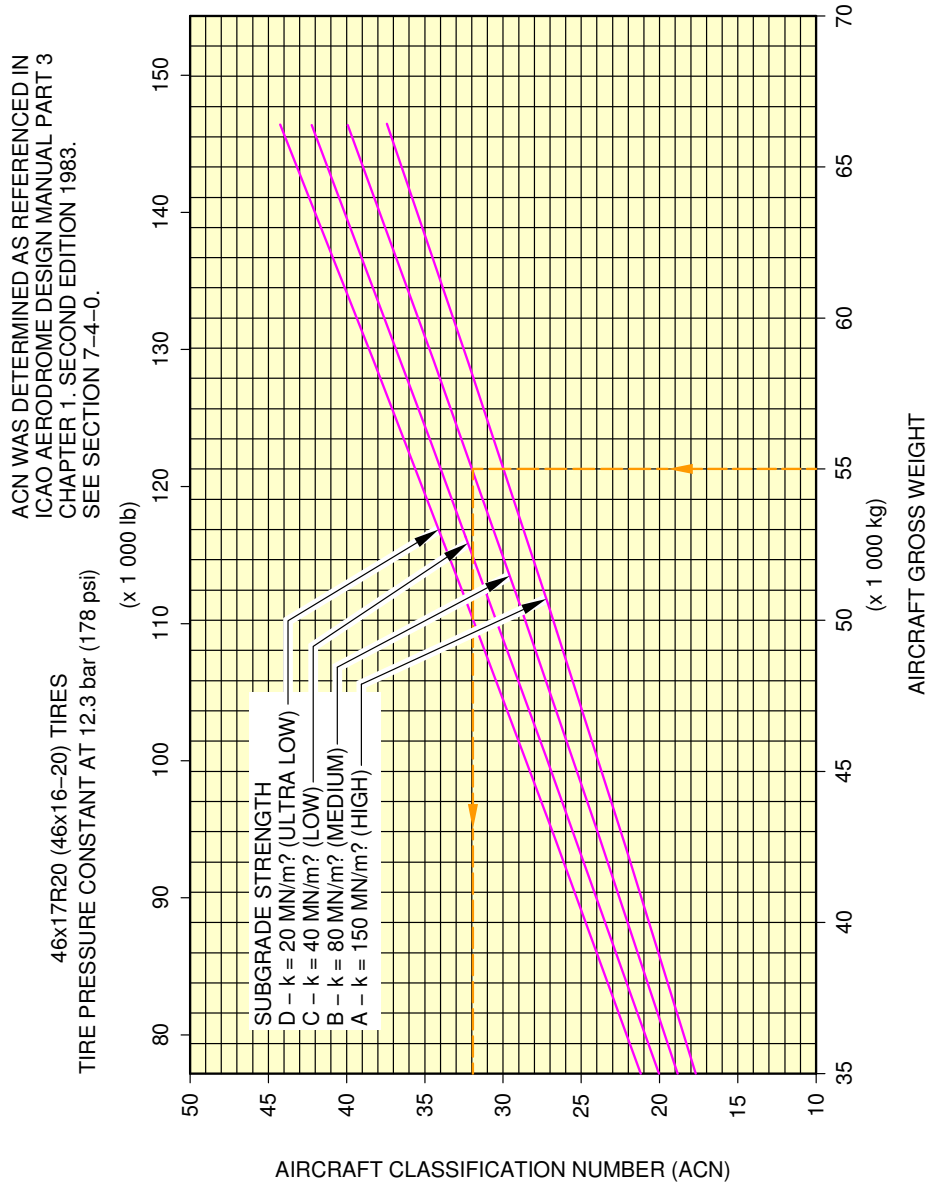


N\_AC\_070900\_1\_0130101\_01\_00

Aircraft Classification Number  
Flexible Pavement - WV006, MRW 66 400 kg, CG 43 % (Sheet 1 of 2)  
FIGURE-7-9-0-991-013-A01



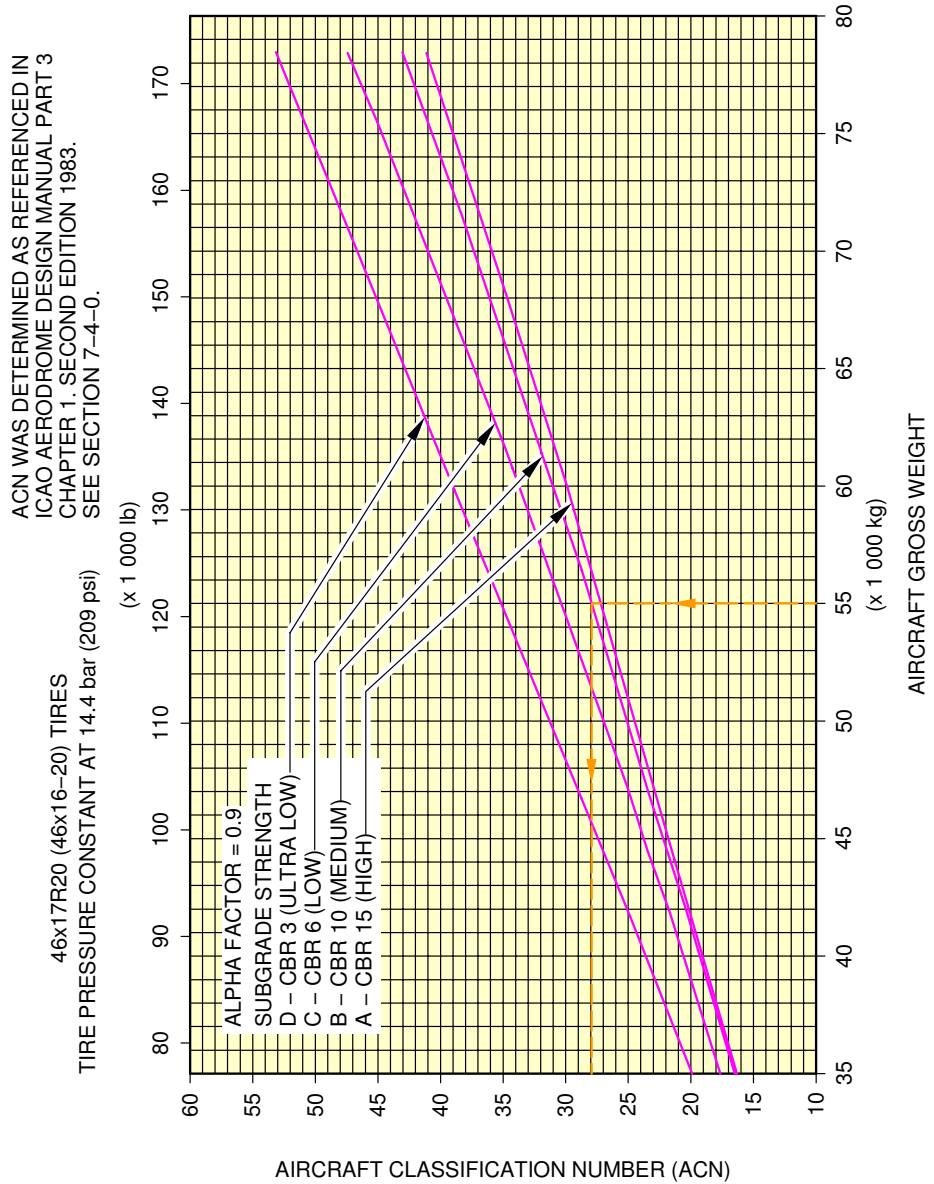
\*\*ON A/C A320-200



N\_AC\_070900\_1\_0130102\_01\_00

Aircraft Classification Number  
Rigid Pavement - WV006, MRW 66 400 kg, CG 43 % (Sheet 2 of 2)  
FIGURE-7-9-0-991-013-A01

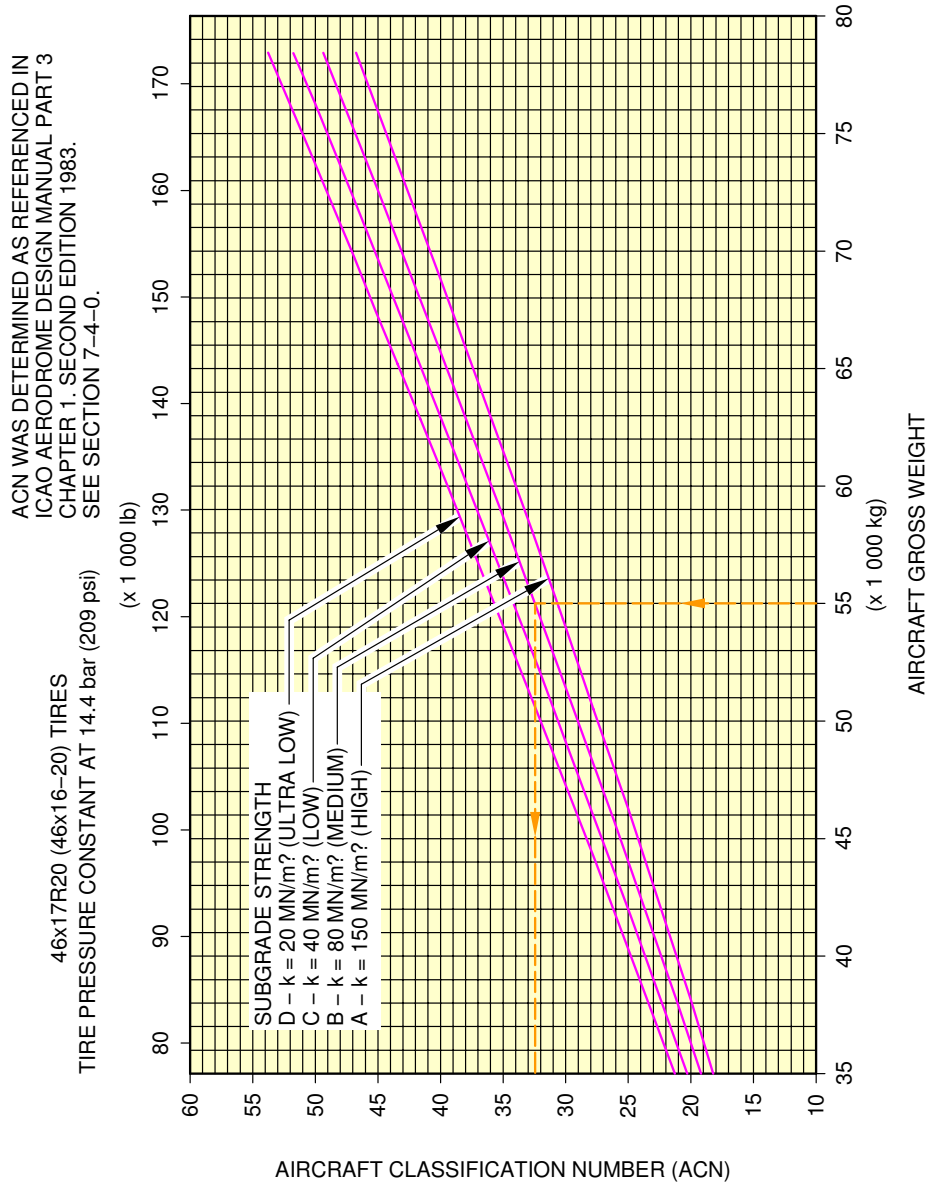
**\*\*ON A/C A320-200**



N\_AC\_070900\_1\_0140101\_01\_00

Aircraft Classification Number  
Flexible Pavement - WV015, MRW 78 400 kg, CG 36.8 % (Sheet 1 of 2)  
FIGURE-7-9-0-991-014-A01

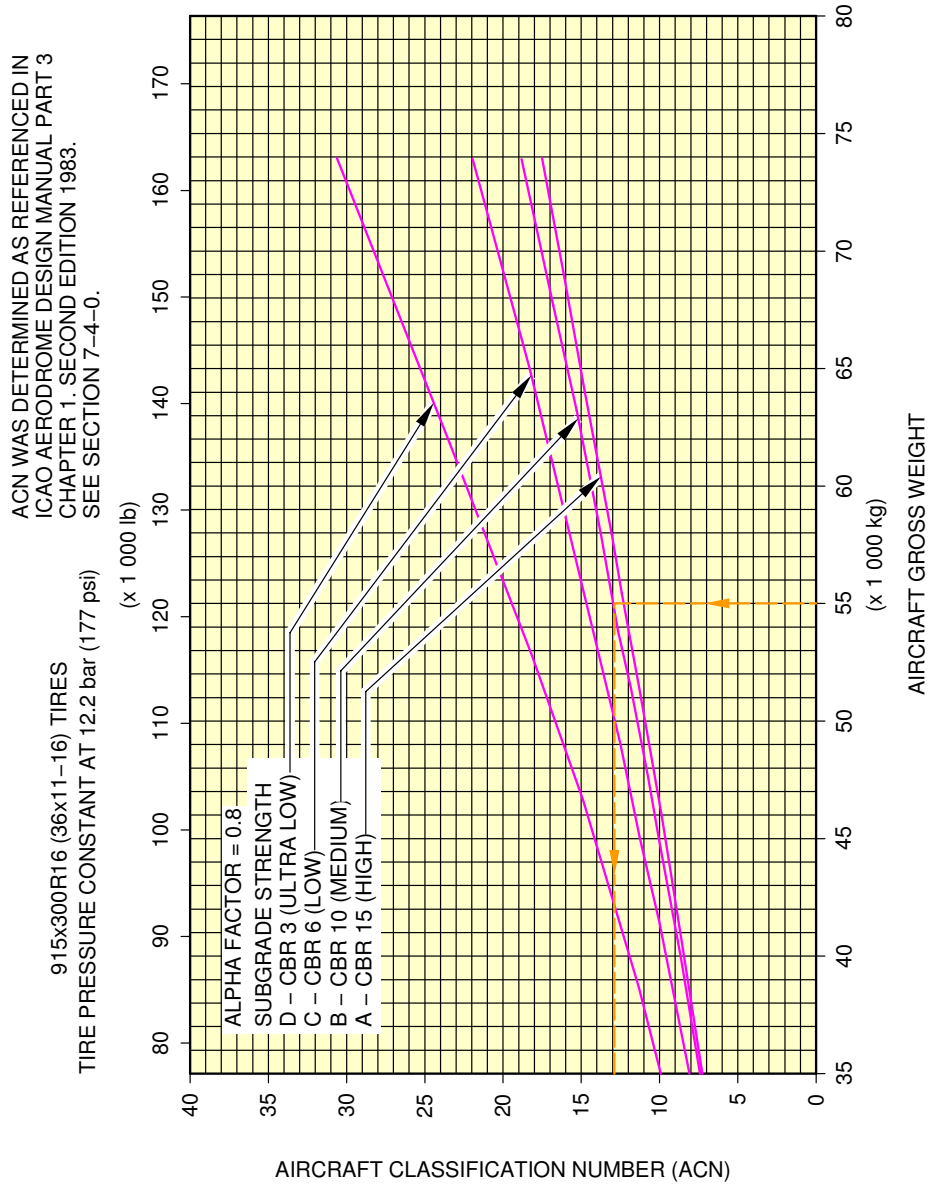
\*\*ON A/C A320-200



N\_AC\_070900\_1\_0140102\_01\_00

Aircraft Classification Number  
Rigid Pavement - WV015, MRW 78 400 kg, CG 36.8 % (Sheet 2 of 2)  
FIGURE-7-9-0-991-014-A01

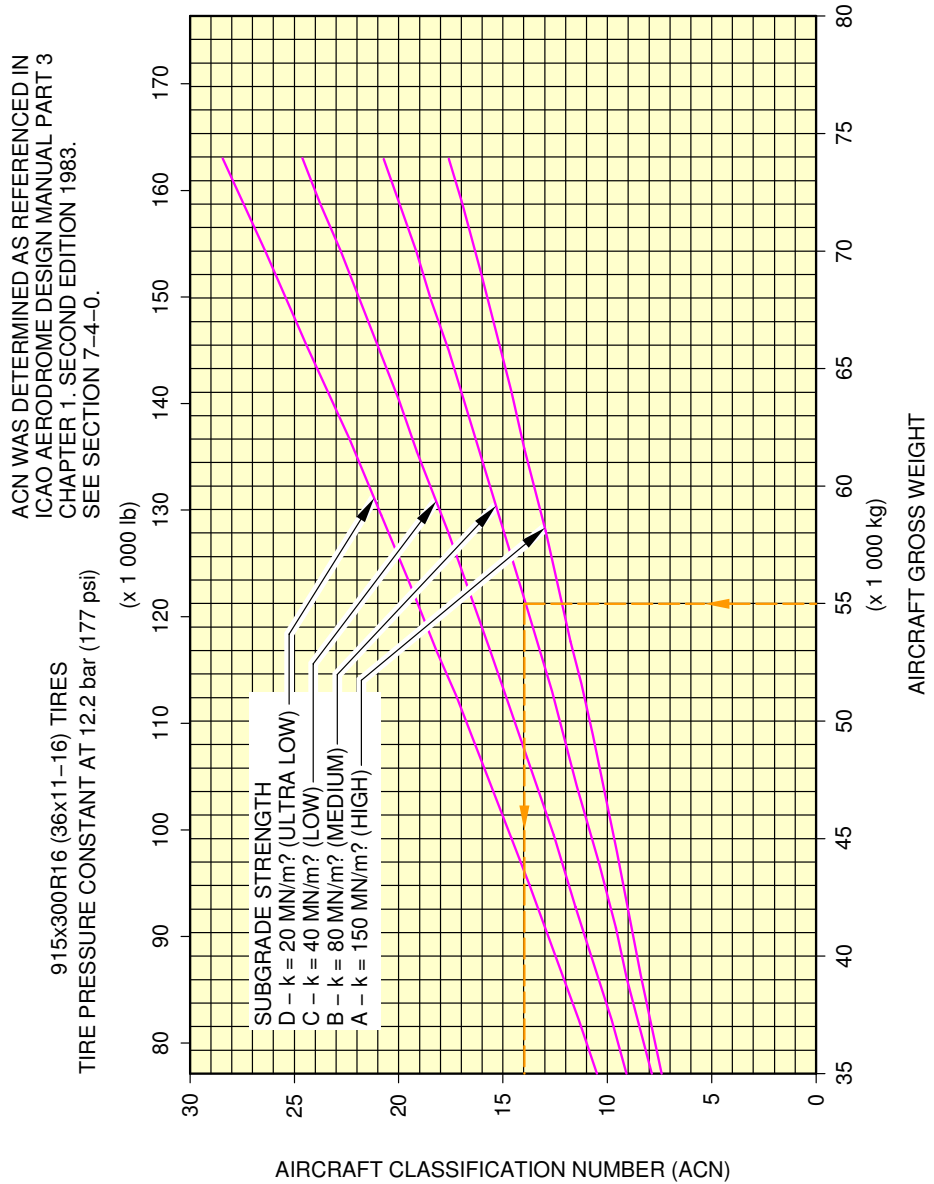
\*\*ON A/C A320-200



N\_AC\_070900\_1\_0150101\_01\_00

Aircraft Classification Number  
Flexible Pavement - WV000 (Bogie), MRW 73 900 kg, CG 40 % (Sheet 1 of 2)  
FIGURE-7-9-0-991-015-A01

\*\*ON A/C A320-200



N\_AC\_070900\_1\_0150102\_01\_00

Aircraft Classification Number  
Rigid Pavement - WV000 (Bogie), MRW 73 900 kg, CG 40 % (Sheet 2 of 2)  
FIGURE-7-9-0-991-015-A01



AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING

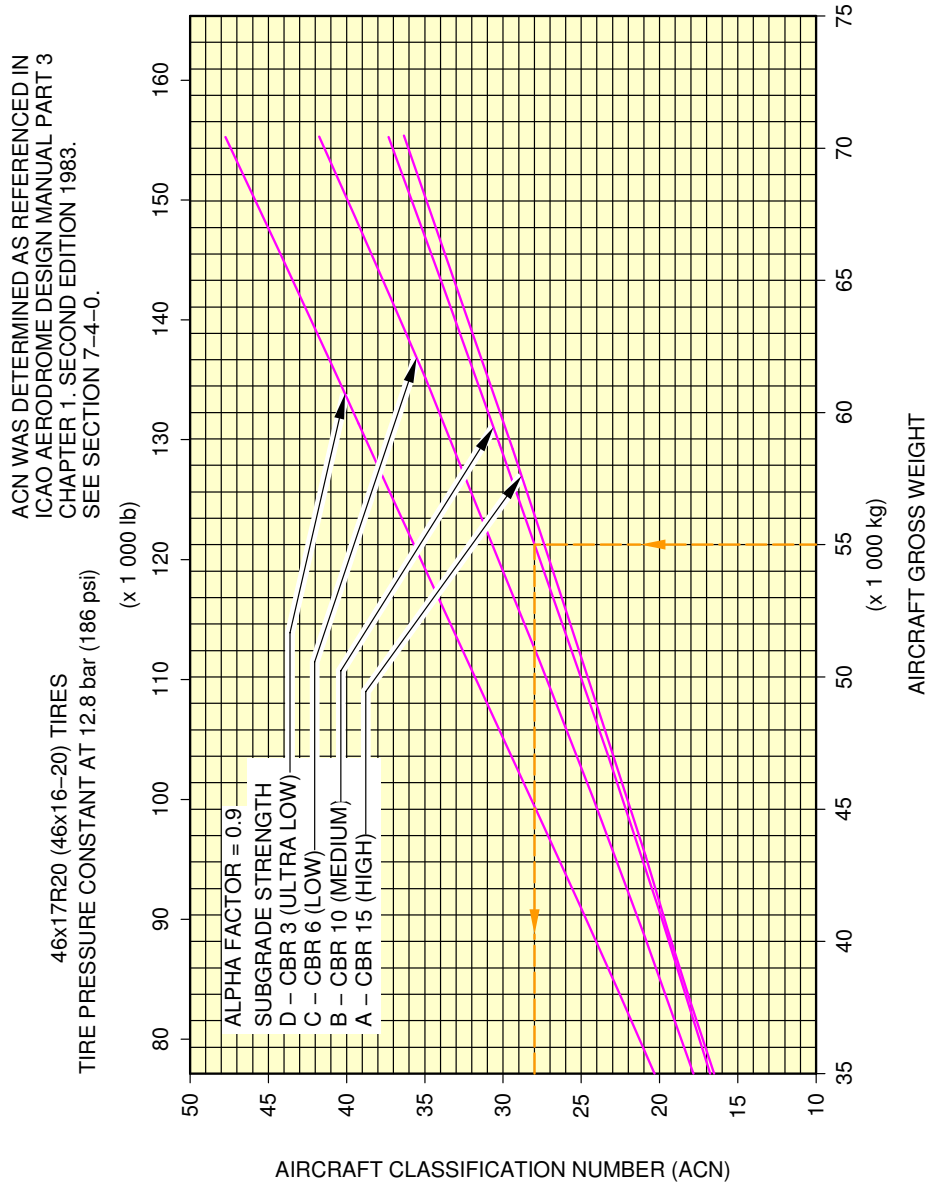
\*\*ON A/C A320neo

WEIGHT VARIANT	ALL UP MASS (kg)	LOAD ON ONE MAIN GEAR LEG (%)	TIRE PRESSURE (MPa)	ACN FOR RIGID PAVEMENT SUBGRADES – MN/m <sup>2</sup>				ACN FOR FLEXIBLE PAVEMENT SUBGRADES – CBR			
				High 150	Medium 80	Low 40	Ultra –low 20	High 15	Medium 10	Low 6	Ultra –low 3
A320NEO WV050	73 900	47.0	1.38	44	46	48	50	39	40	44	50
	42 000	46.9		22	24	25	26	20	20	22	25
A320NEO WV051	73 900	47.0	1.38	44	46	48	50	39	40	44	50
	42 000	46.9		22	24	25	26	20	20	22	26
A320NEO WV052	77 400	46.5	1.44	46	49	51	53	41	42	47	52
	42 000	46.5		22	24	25	26	20	20	22	25
A320NEO WV053	77 400	46.5	1.44	46	49	51	53	41	42	47	52
	42 000	46.5		22	24	25	26	20	20	22	25
A320NEO WV054	79 400	46.3	1.44	47	50	52	54	41	43	48	54
	42 000	46.3		22	24	25	26	20	20	22	25
A320NEO WV055	79 400	46.3	1.44	47	50	52	54	41	43	48	54
	42 000	46.3		22	24	25	26	20	20	22	25
A320NEO WV056	70 400	47.2	1.28	40	43	45	47	36	37	42	48
	42 000	47.1		22	23	25	26	20	20	22	26
A320NEO WV057	70 400	47.0	1.28	40	43	45	47	36	37	42	47
	42 000	46.9		22	23	25	26	20	20	22	25
A320NEO WV068	75 900	46.7	1.38	45	47	50	52	40	41	46	52
	42 000	46.7		22	24	25	26	20	20	22	25
A320NEO WV069	75 900	46.7	1.38	45	47	50	52	40	41	46	52
	42 000	46.7		22	24	25	26	20	20	22	25
A320NEO WV071	75 400	46.8	1.38	44	47	49	51	39	41	45	51
	42 000	46.7		22	24	25	26	20	20	22	25
A320NEO WV075	74 400	46.9	1.38	44	46	49	51	39	40	45	51
	42 001	46.9		22	24	25	26	20	20	22	25
A320NEO WV078	72 900	47.0	1.38	43	45	48	50	38	39	44	50
	42 000	46.9		22	24	25	26	20	20	22	26
A320NEO WV082	71 900	47.0	1.38	42	45	47	49	37	39	43	49
	42 000	46.9		22	24	25	26	20	20	22	26
A320NEO WV083	71 900	47.0	1.38	42	45	47	49	37	39	43	49
	42 000	46.9		22	24	25	26	20	20	22	26
A320NEO WV085	71 400	47.0	1.38	42	44	47	48	37	38	43	48
	42 000	46.9		22	24	25	26	20	20	22	26

N\_AC\_070900\_1\_0160101\_01\_05

Aircraft Classification Number  
ACN Table  
FIGURE-7-9-0-991-016-A01

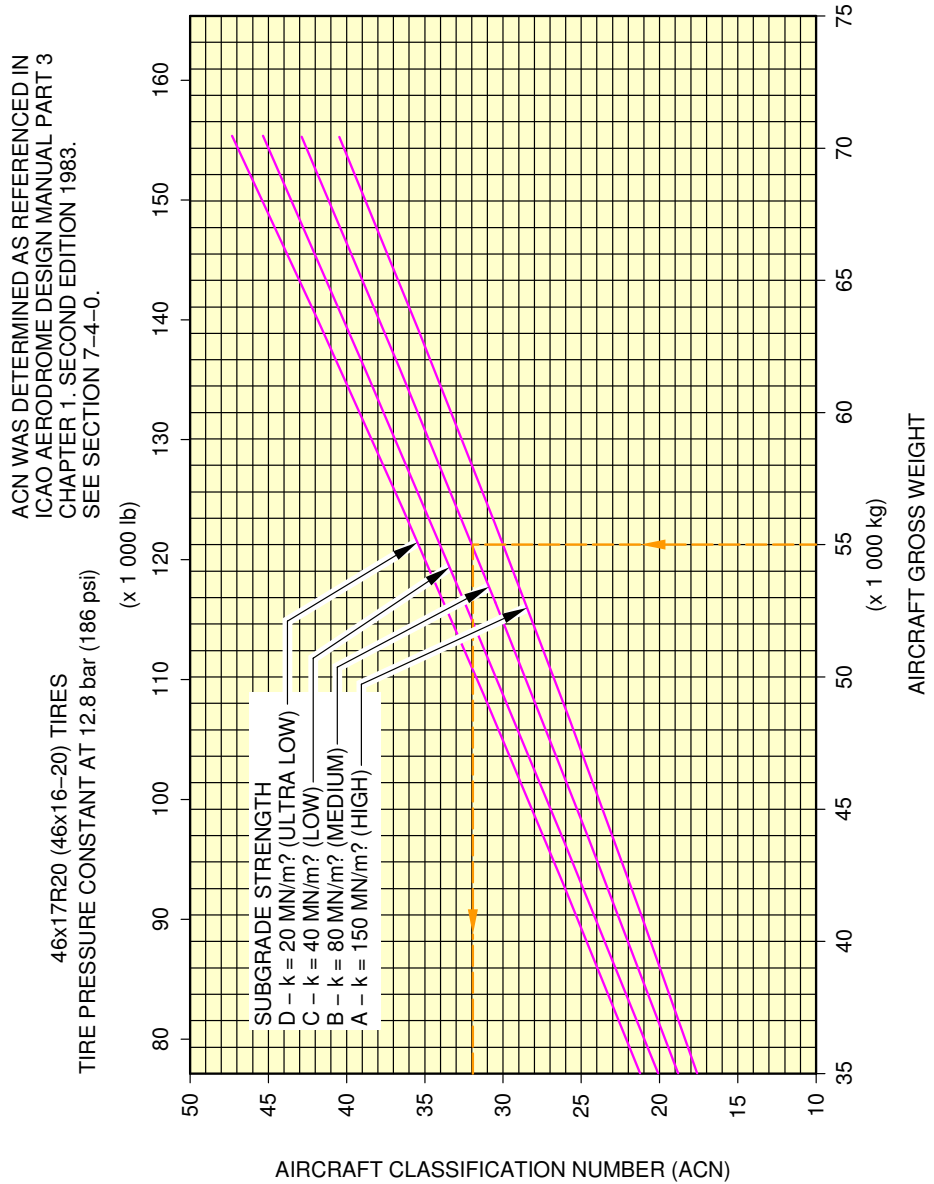
\*\*ON A/C A320neo



N\_AC\_070900\_1\_0170101\_01\_00

Aircraft Classification Number  
Flexible Pavement - WV057, MRW 70 400 kg, CG 40 % (Sheet 1 of 2)  
FIGURE-7-9-0-991-017-A01

\*\*ON A/C A320neo

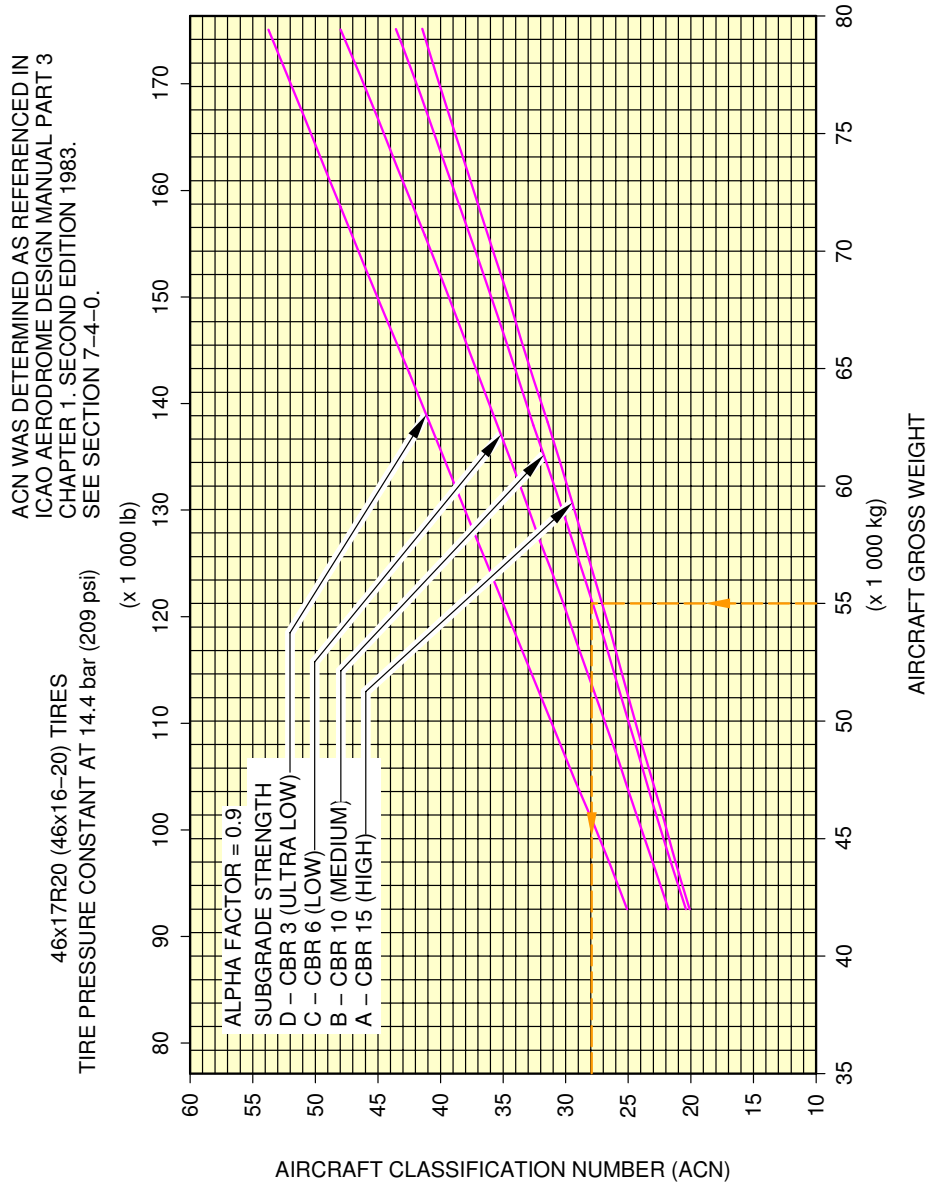


N\_AC\_070900\_1\_0170102\_01\_00

Aircraft Classification Number  
Rigid Pavement - WV057, MRW 70 400 kg, CG 40 % (Sheet 2 of 2)  
FIGURE-7-9-0-991-017-A01



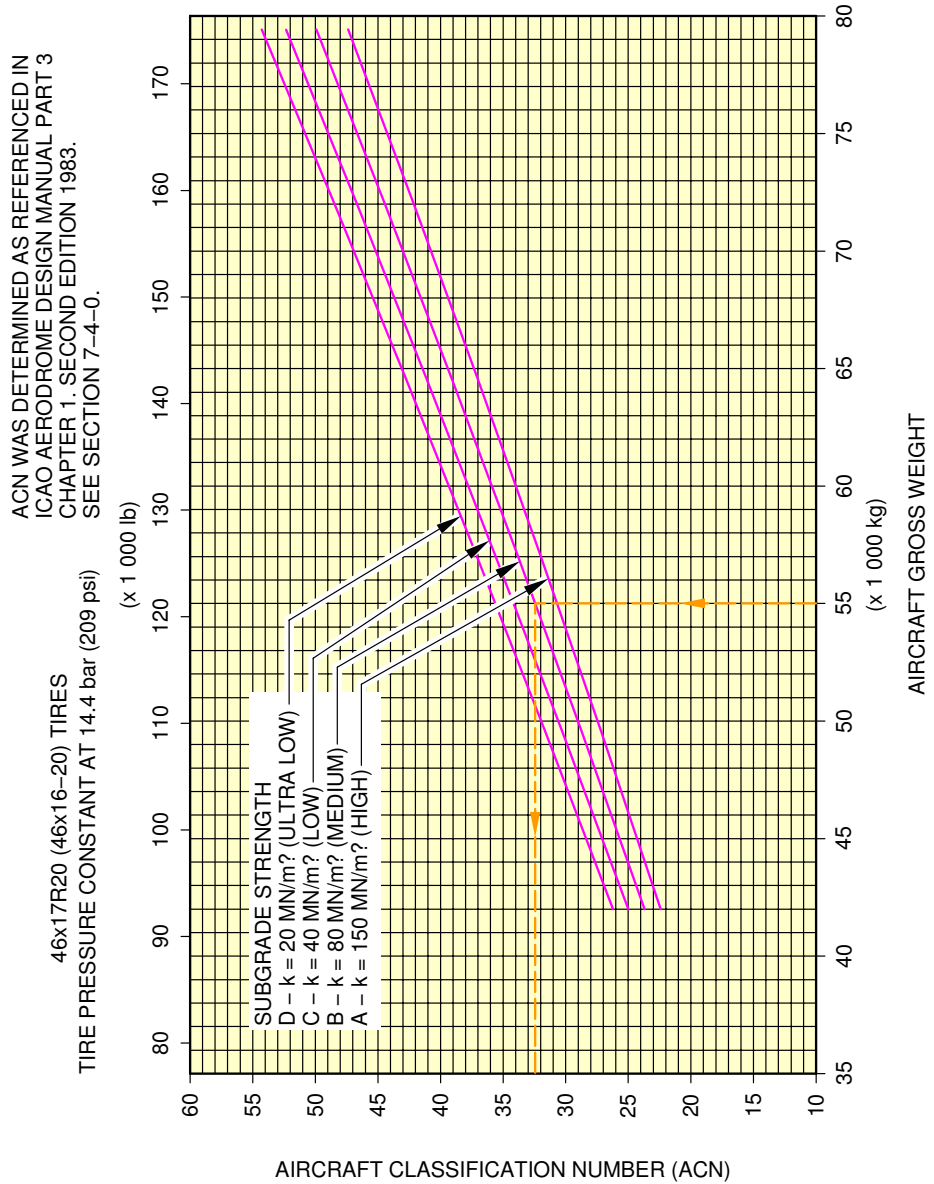
\*\*ON A/C A320neo



N\_AC\_070900\_1\_0180101\_01\_01

Aircraft Classification Number  
Flexible Pavement - WV054, MRW 79 400 kg, CG 36.1 % (Sheet 1 of 2)  
FIGURE-7-9-0-991-018-A01

**\*\*ON A/C A320neo**



N\_AC\_070900\_1\_0180102\_01\_01

Aircraft Classification Number  
Rigid Pavement - WV054, MRW 79 400 kg, CG 36.1 % (Sheet 2 of 2)  
FIGURE-7-9-0-991-018-A01



SCALED DRAWINGS

8-0-0 SCALED DRAWINGS

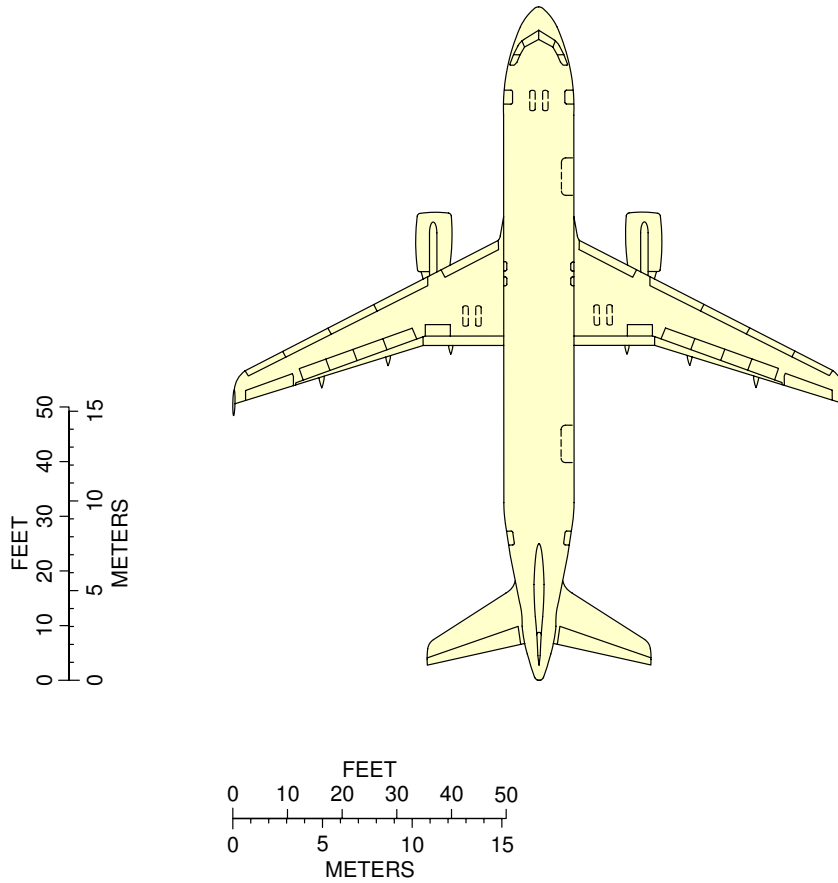
\*\*ON A/C A320-200 A320neo

Scaled Drawings

1. This section provides the scaled drawings.

NOTE : When printing this drawing, make sure to adjust for proper scaling.

**\*\*ON A/C A320-200**

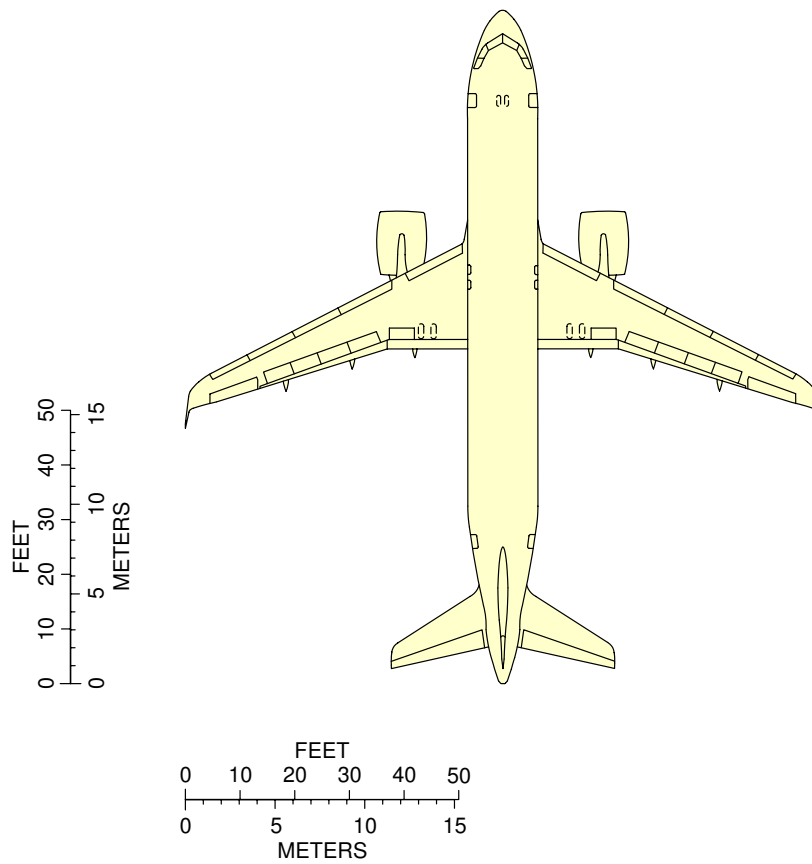


**NOTE:** WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING.

N\_AC\_080000\_1\_0030101\_01\_00

Scaled Drawing  
FIGURE-8-0-0-991-003-A01

**\*\*ON A/C A320neo**



**NOTE:**

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

N\_AC\_080000\_1\_0060101\_01\_00

Scaled Drawing  
FIGURE-8-0-0-991-006-A01

AIRCRAFT RESCUE AND FIRE FIGHTING

## 10-0-0 AIRCRAFT RESCUE AND FIRE FIGHTING

**\*\*ON A/C A320-200 A320neo**Aircraft Rescue and Fire Fighting

## 1. Aircraft Rescue and Fire Fighting Charts

This sections provides data related to aircraft rescue and fire fighting.

The figures contained in this section are the figures that are in the Aircraft Rescue and Fire Fighting Charts poster available for download on AIRBUSWorld and the Airbus website.

\*\*ON A/C A320-200 A320neo

# AIRBUS

# A320/A320neo

## Aircraft Rescue and Fire Fighting Chart

### ARFC

**NOTE:**

THIS CHART GIVES THE GENERAL LAYOUT OF THE A320 STANDARD VERSION.  
THE NUMBER AND ARRANGEMENT OF THE INDIVIDUAL ITEMS VARY WITH THE CUSTOMERS.  
FIGURES CONTAINED IN THIS POSTER ARE AVAILABLE SEPARATELY IN THE CHAPTER 10 OF THE  
"AIRCRAFT CHARACTERISTICS - AIRPORT AND MAINTENANCE PLANNING" DOCUMENT.

**ISSUED BY:**

AIRBUS S.A.S  
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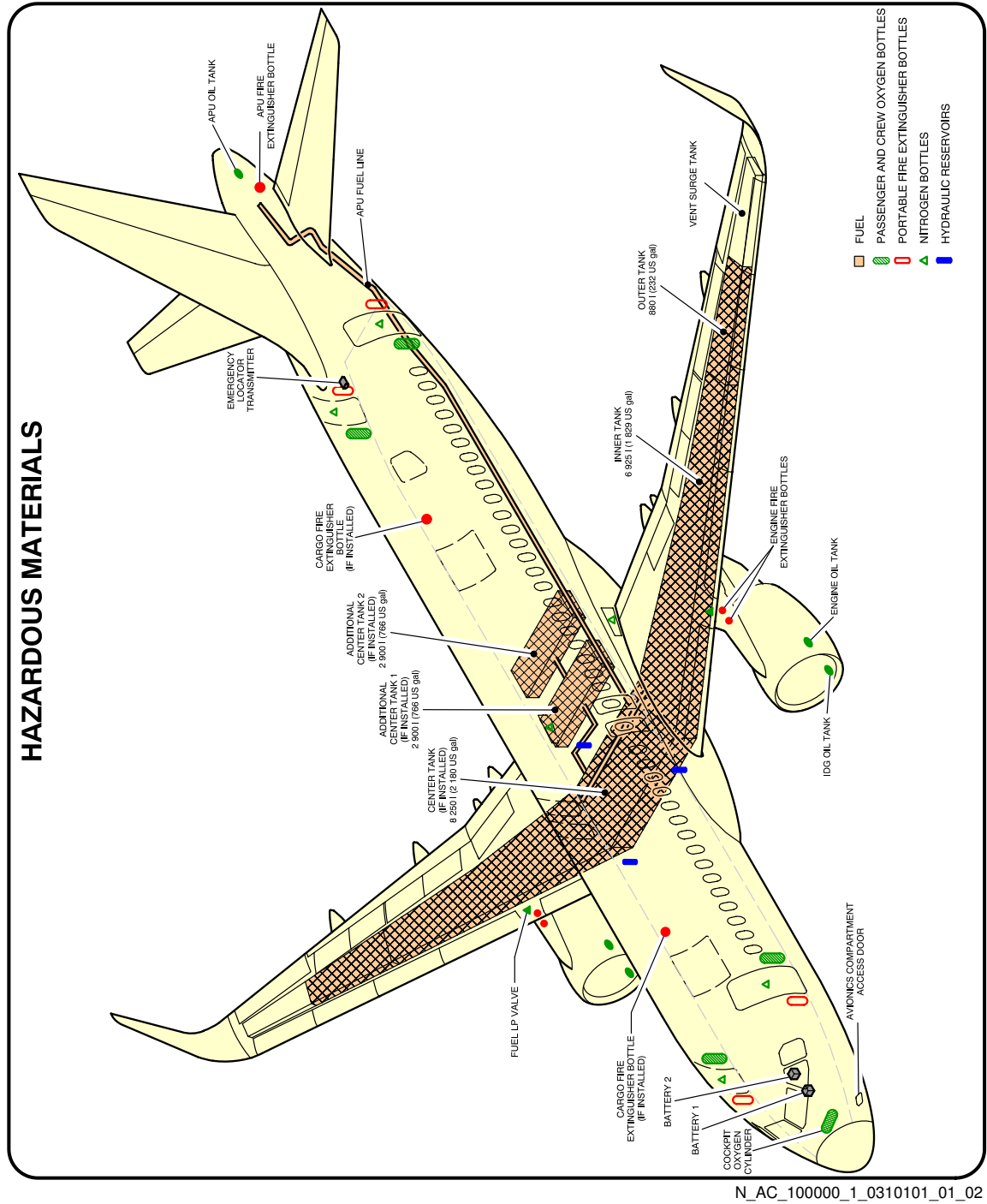
REVISION DATE: NOV 2019  
REFERENCE : N\_RF\_000000\_1\_A320000  
SHEET 1/2

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Front Page  
FIGURE-10-0-0-991-030-A01

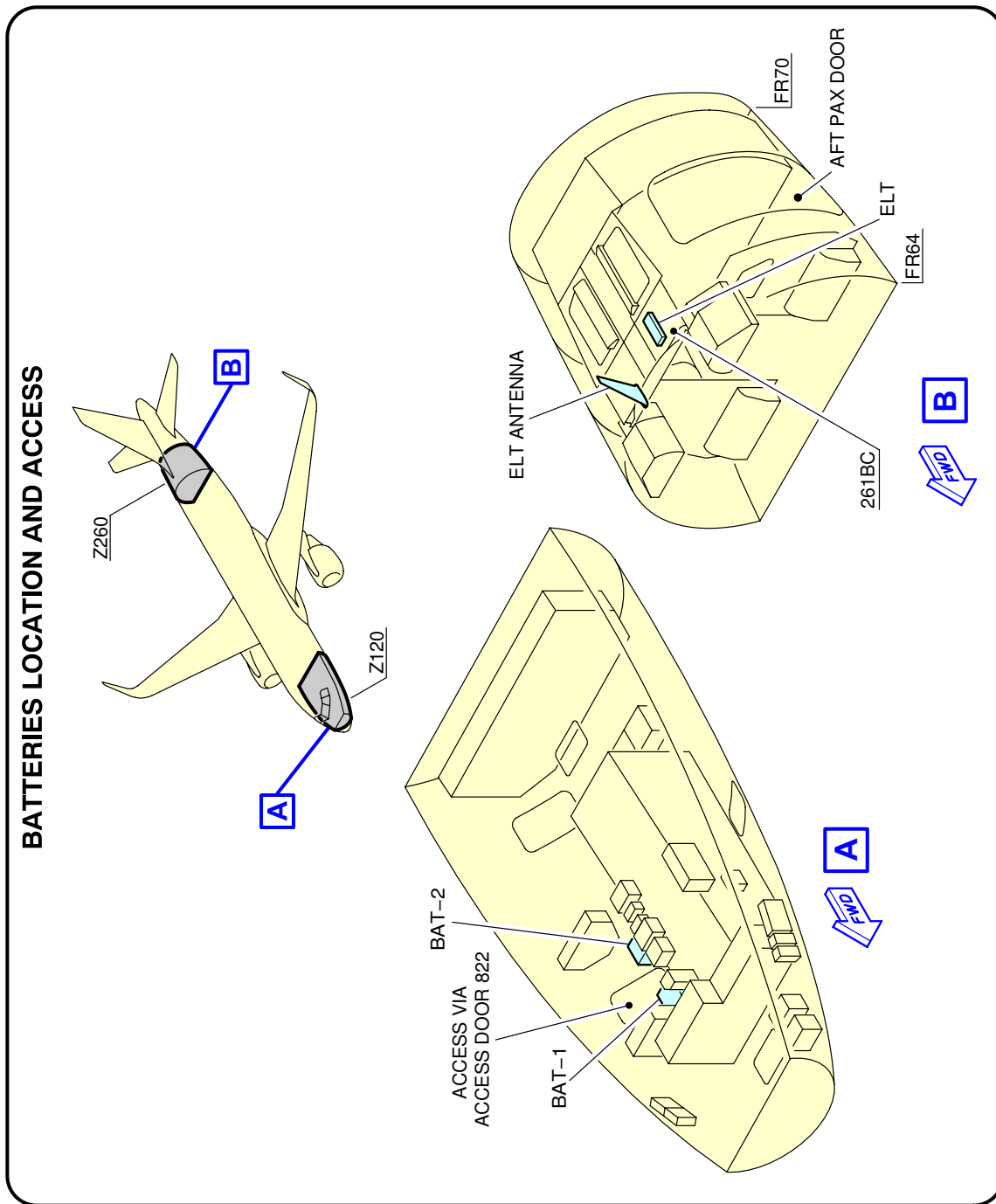
\*\*ON A/C A320-200 A320neo



Highly Flammable and Hazardous Materials and Components  
FIGURE-10-0-0-991-031-A01



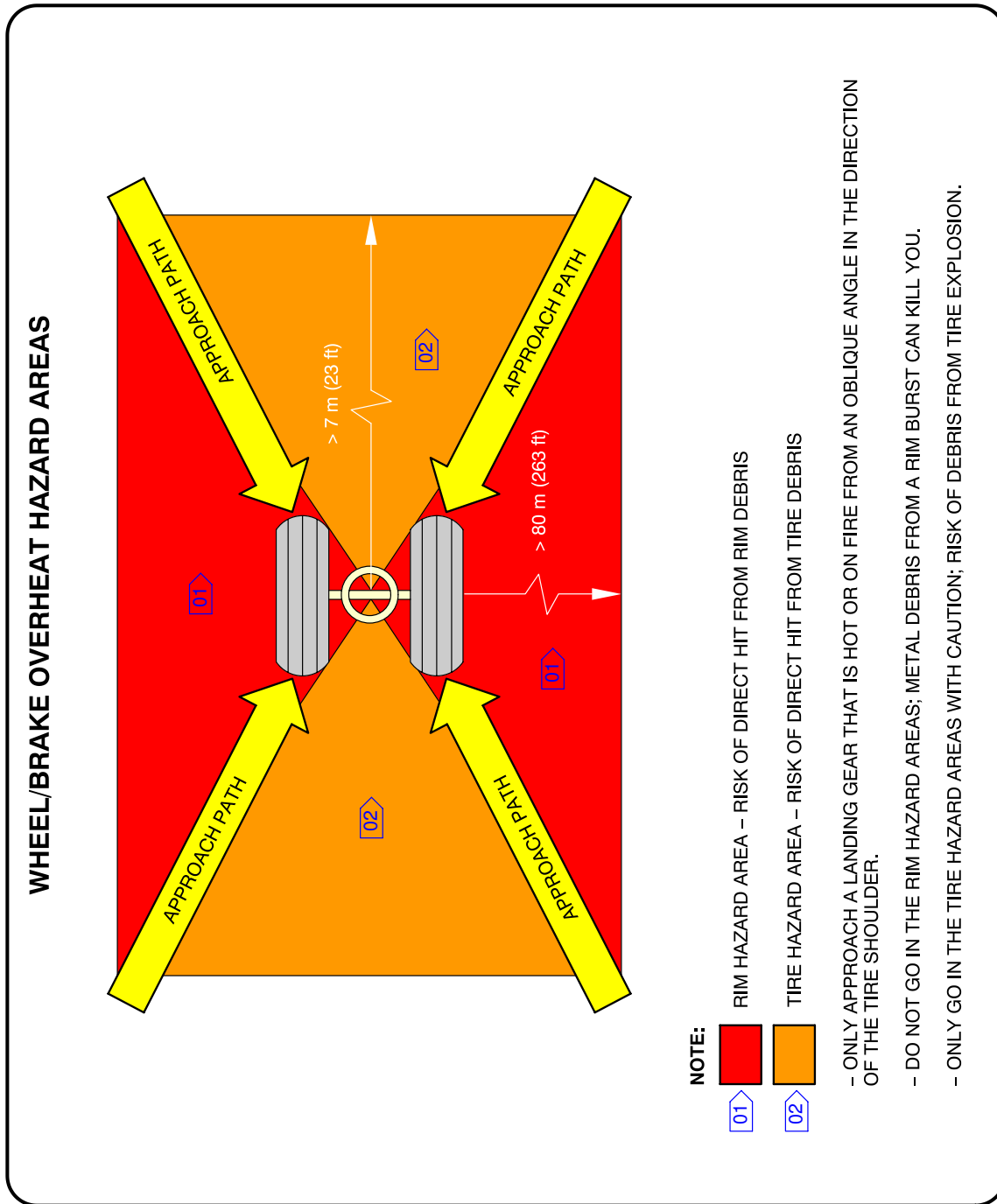
\*\*ON A/C A320-200 A320neo



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Batteries Location and Access  
FIGURE-10-0-0-991-057-A01

\*\*ON A/C A320-200 A320neo



N\_AC\_100000\_1\_0320101\_01\_02

Wheel/Brake Overheat  
Wheel Safety Area (Sheet 1 of 2)  
FIGURE-10-0-0-991-032-A01

\*\*ON A/C A320-200 A320neo

### BRAKE OVERHEAT AND LANDING GEAR FIRE

**WARNING:** BE VERY CAREFUL WHEN THERE IS A BRAKE OVERHEAT AND/OR LANDING GEAR FIRE. THERE IS A RISK OF TIRE EXPLOSION AND/OR WHEEL RIM BURST THAT CAN CAUSE DEATH OR INJURY. MAKE SURE THAT YOU OBEY THE SAFETY PRECAUTIONS THAT FOLLOW.

THE PROCEDURES THAT FOLLOW GIVE RECOMMENDATIONS AND SAFETY PRECAUTIONS FOR THE COOLING OF VERY HOT BRAKES AFTER ABNORMAL OPERATIONS SUCH AS A REJECTED TAKE-OFF OR OVERWEIGHT LANDING. FOR THE COOLING OF BRAKES AFTER NORMAL TAXI-IN, REFER TO YOUR COMPANY PROCEDURES.

**BRAKE OVERHEAT:**

1 – GET THE BRAKE TEMPERATURE FROM THE COCKPIT OR USE A REMOTE MEASUREMENT TECHNIQUE. THE REAL TEMPERATURE OF THE BRAKES CAN BE MUCH HIGHER THAN THE TEMPERATURE SHOWN ON THE ECAM.  
**NOTE:** AT HIGH TEMPERATURES (>800°C), THERE IS A RISK OF WARPING OF THE LANDING GEAR STRUTS AND AXLES.

2 – APPROACH THE LANDING GEAR WITH EXTREME CAUTION AND FROM AN OBLIQUE ANGLE IN THE DIRECTION OF THE TIRE SHOULDER. DO NOT GO INTO THE RIM HAZARD AREA AND ONLY GO IN THE TIRE HAZARD AREA WITH CAUTION. (REF FIG. WHEEL/BRAKE OVERHEAT HAZARD AREAS). IF POSSIBLE, STAY IN A VEHICLE.

3 – LOOK AT THE CONDITION OF THE TIRES:  
 IF THE TIRES ARE STILL INFLATED (FUSE PLUGS NOT MELTED), THERE IS A RISK OF TIRE EXPLOSION AND RIM BURST. DO NOT USE COOLING FANS BECAUSE THEY CAN PREVENT OPERATION OF THE FUSE PLUGS.

4 – USE WATER MIST TO DECREASE THE TEMPERATURE OF THE COMPLETE WHEEL AND BRAKE ASSEMBLY. USE A TECHNIQUE THAT PREVENTS SUDDEN COOLING. SUDDEN COOLING CAN CAUSE WHEEL CRACKS OR RIM BURST. DO NOT APPLY WATER, FOAM OR CO<sub>2</sub>. THESE COOLING AGENTS (AND ESPECIALLY CO<sub>2</sub>, WHICH HAS A VERY STRONG COOLING EFFECT) CAN CAUSE THERMAL SHOCKS AND BURST OF HOT PARTS.

**LANDING GEAR FIRE:**

**CAUTION:** AIRBUS RECOMMENDS THAT YOU DO NOT USE DRY POWDERS OR DRY CHEMICALS ON HOT BRAKES OR LANDING GEAR FIRES. THESE AGENTS CAN CHANGE INTO SOLID OR ENAMELED DEPOSITS. THEY CAN DECREASE THE SPEED OF HEAT DISSIPATION WITH A POSSIBLE RISK OF PERMANENT STRUCTURAL DAMAGE TO THE BRAKES, WHEELS OR WHEEL AXLES.

1 – IMMEDIATELY STOP THE FIRE:

A) APPROACH THE LANDING GEAR WITH EXTREME CAUTION AND FROM AN OBLIQUE ANGLE IN THE DIRECTION OF THE TIRE SHOULDER. DO NOT GO INTO THE RIM HAZARD AREA AND ONLY GO IN THE TIRE HAZARD AREA WITH CAUTION. IF POSSIBLE, STAY IN A VEHICLE.

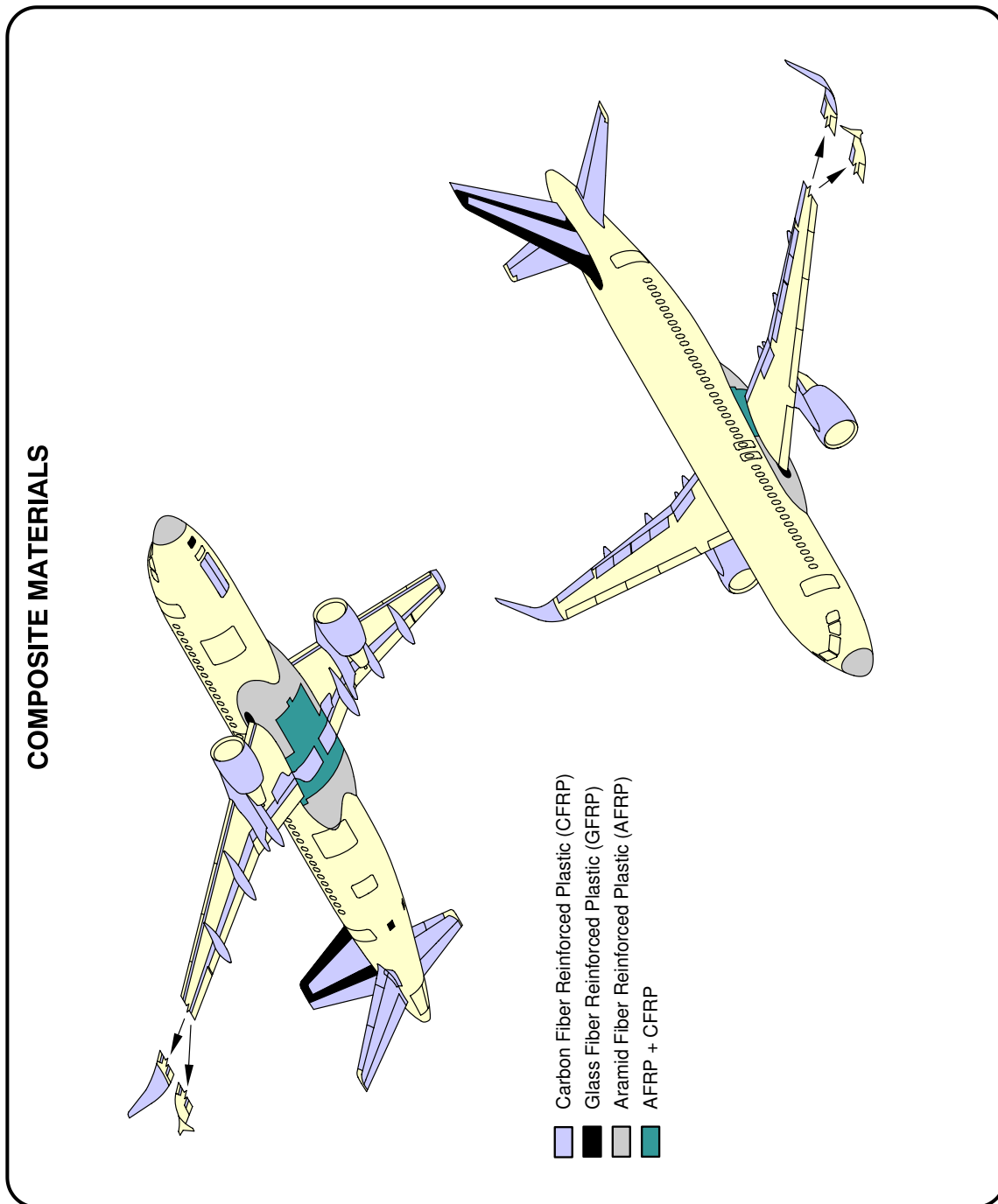
B) USE LARGE AMOUNTS OF WATER, WATER MIST; IF THE FUEL TANKS ARE AT RISK, USE FOAM. USE A TECHNIQUE THAT PREVENTS SUDDEN COOLING. SUDDEN COOLING CAN CAUSE WHEEL CRACKS OR RIM BURST.

C) DO NOT USE FANS OR BLOWERS.

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Wheel/Brake Overheat  
 Recommendations (Sheet 2 of 2)  
 FIGURE-10-0-0-991-032-A01

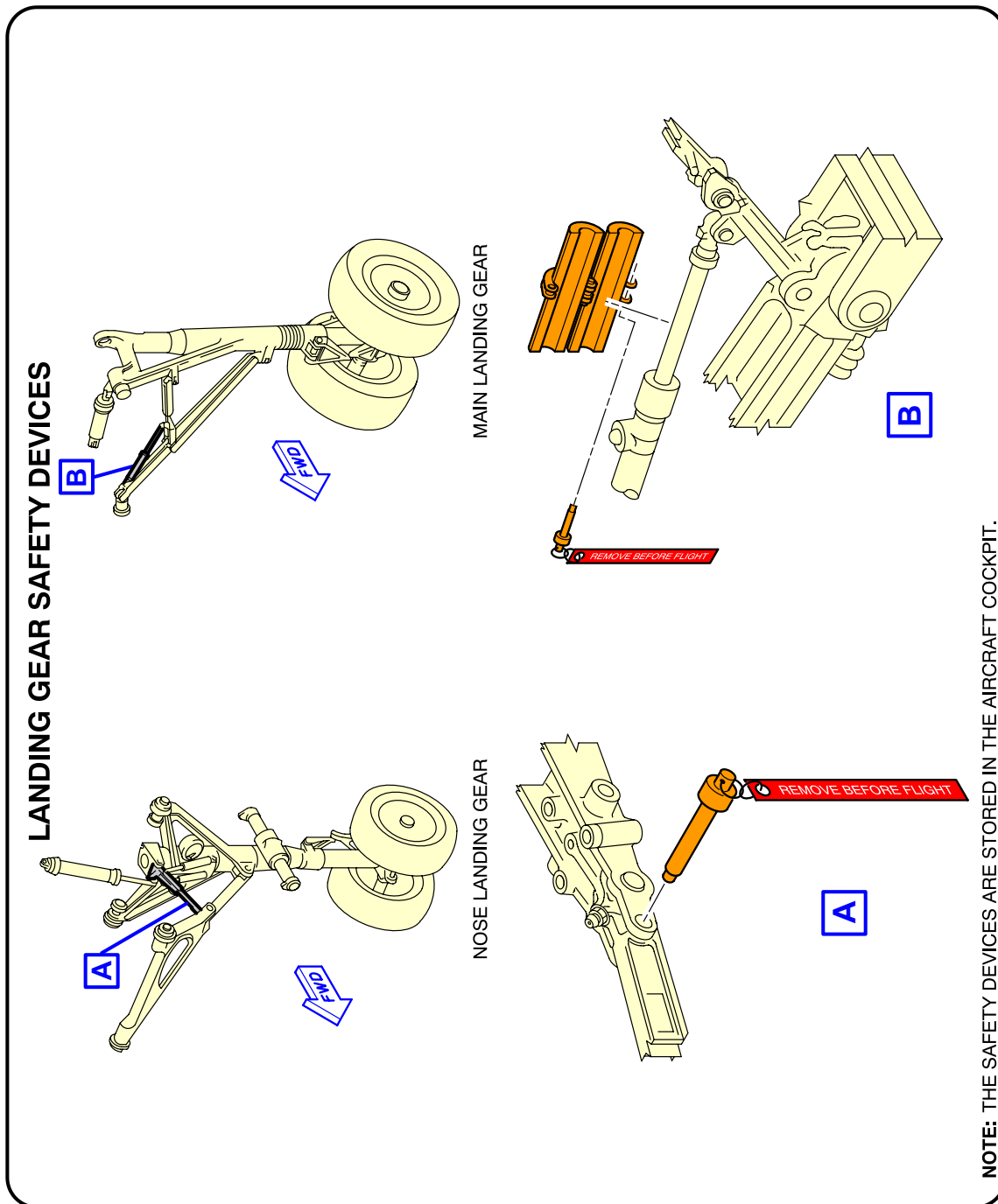
\*\*ON A/C A320-200 A320neo



N\_AC\_100000\_1\_0330101\_01\_00

Composite Materials  
FIGURE-10-0-0-991-033-A01

\*\*ON A/C A320-200 A320neo

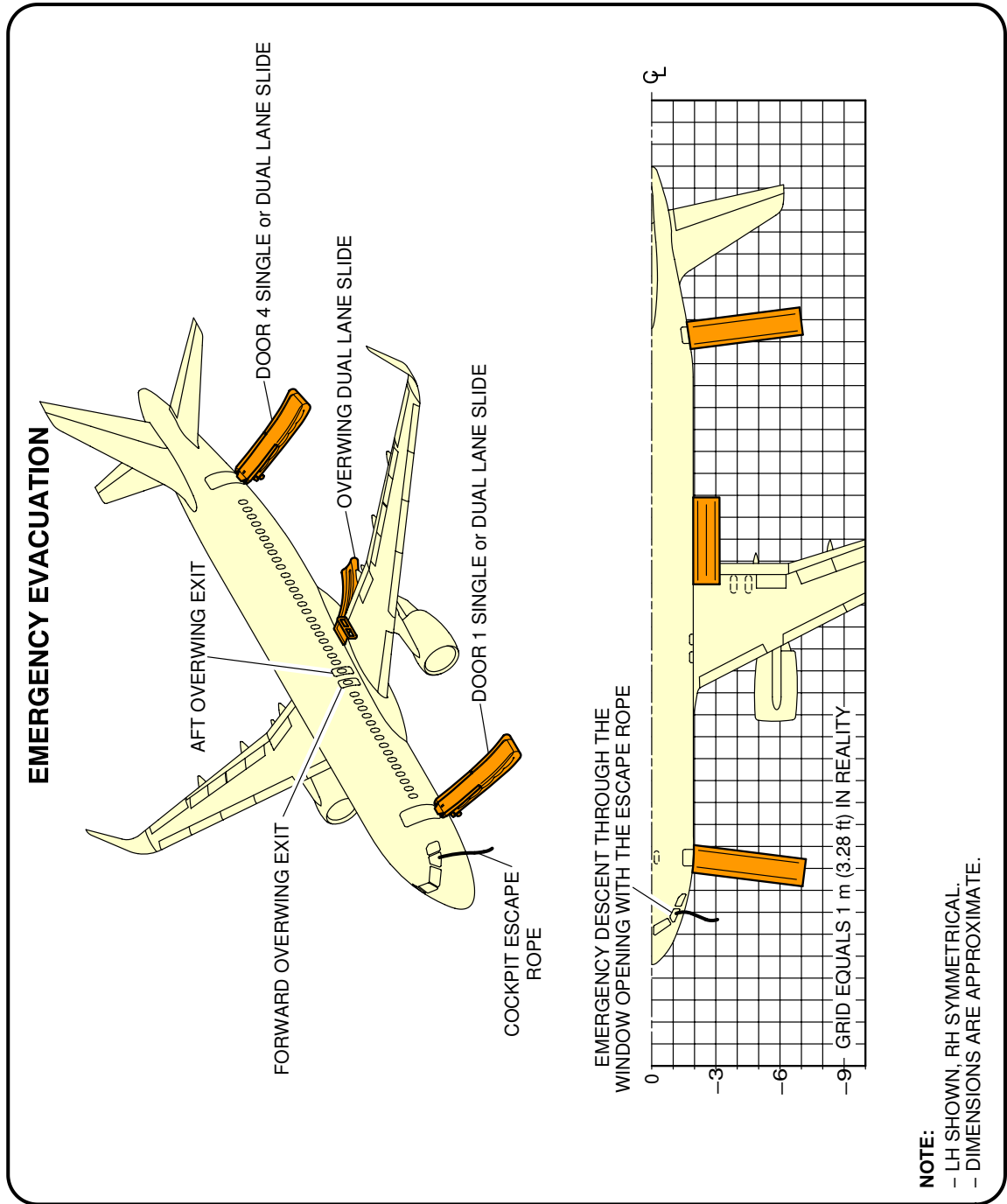


NOTE: THE SAFETY DEVICES ARE STORED IN THE AIRCRAFT COCKPIT.

N\_AC\_100000\_1\_0340101\_01\_01

L/G Ground Lock Safety Devices  
FIGURE-10-0-0-991-034-A01

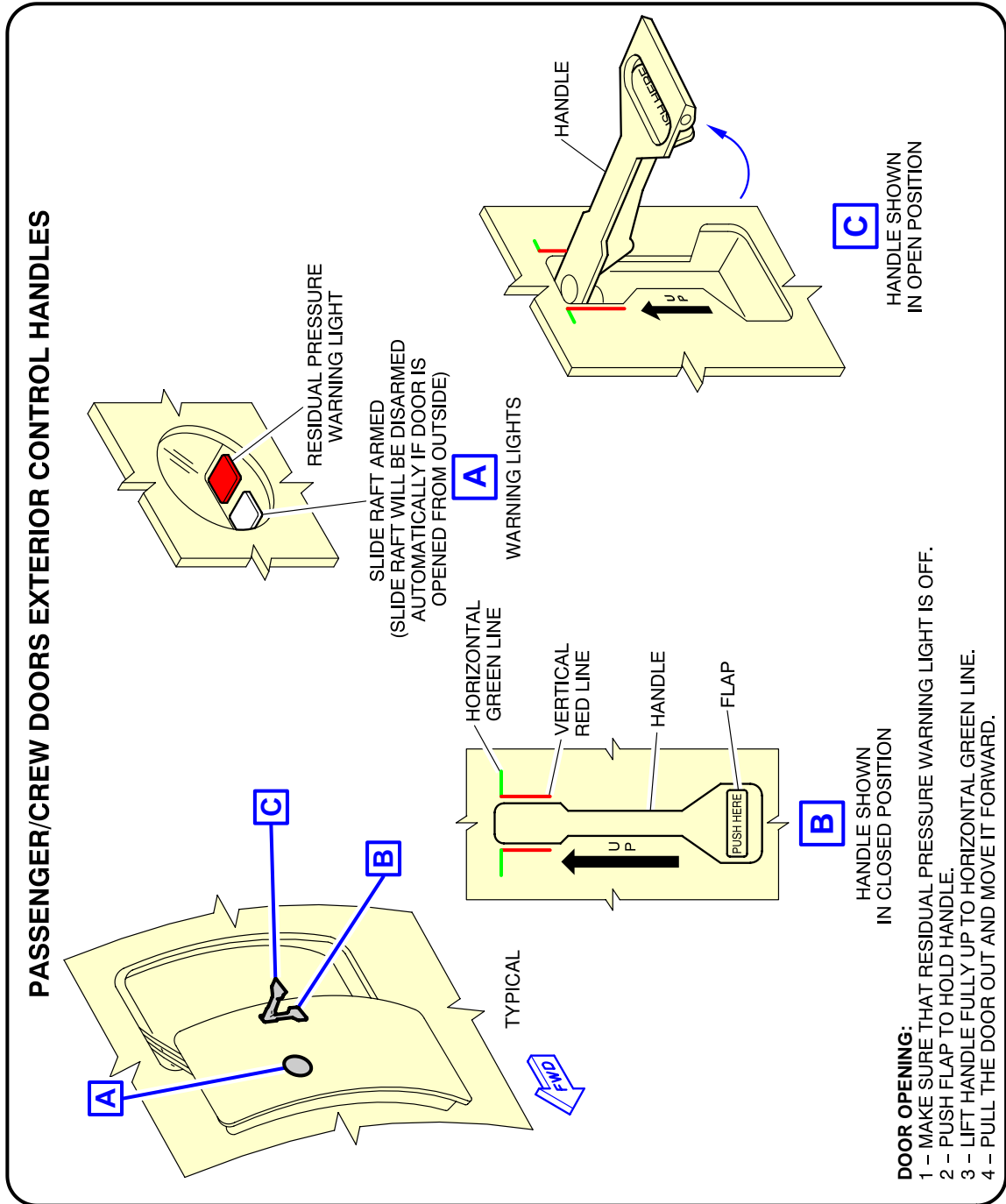
\*\*ON A/C A320-200 A320neo



N\_AC\_100000\_1\_0350101\_01\_04

Emergency Evacuation Devices  
 FIGURE-10-0-0-991-035-A01

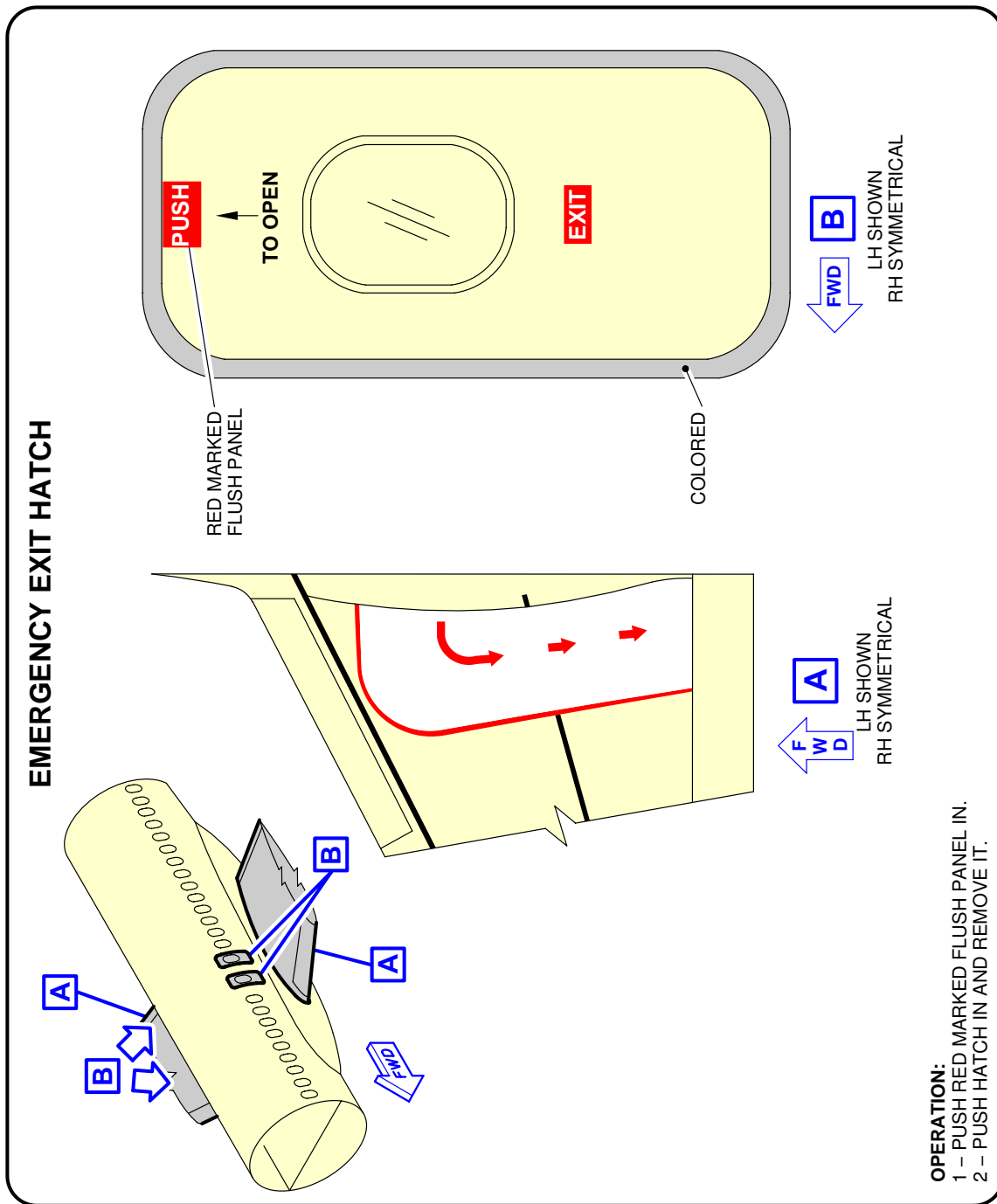
\*\*ON A/C A320-200 A320neo



N\_AC\_100000\_1\_0360101\_01\_01

Pax/Crew Doors  
 FIGURE-10-0-0-991-036-A01

\*\*ON A/C A320-200 A320neo

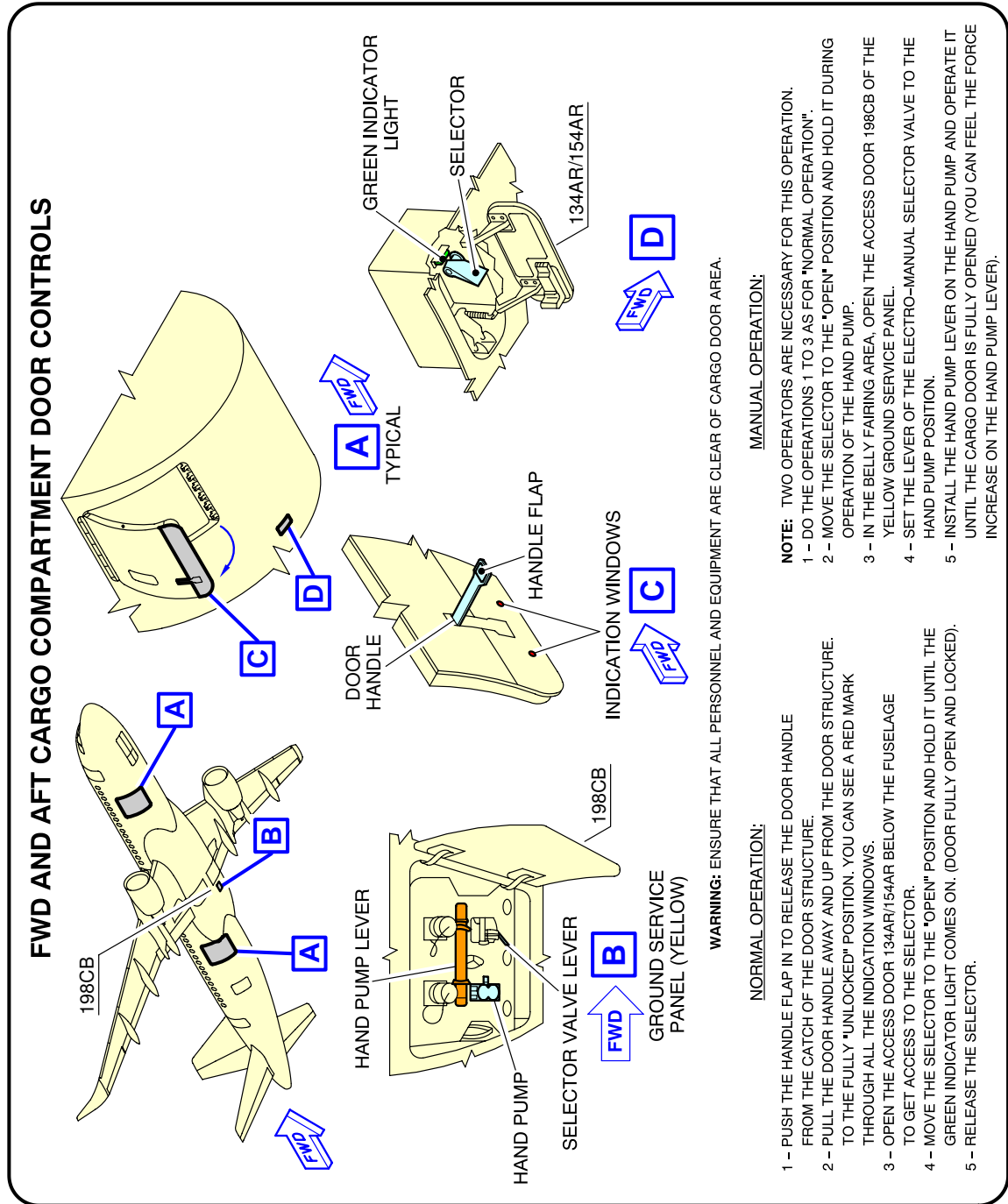


N\_AC\_100000\_1\_0370101\_01\_01

Emergency Exit Hatch  
FIGURE-10-0-0-991-037-A01



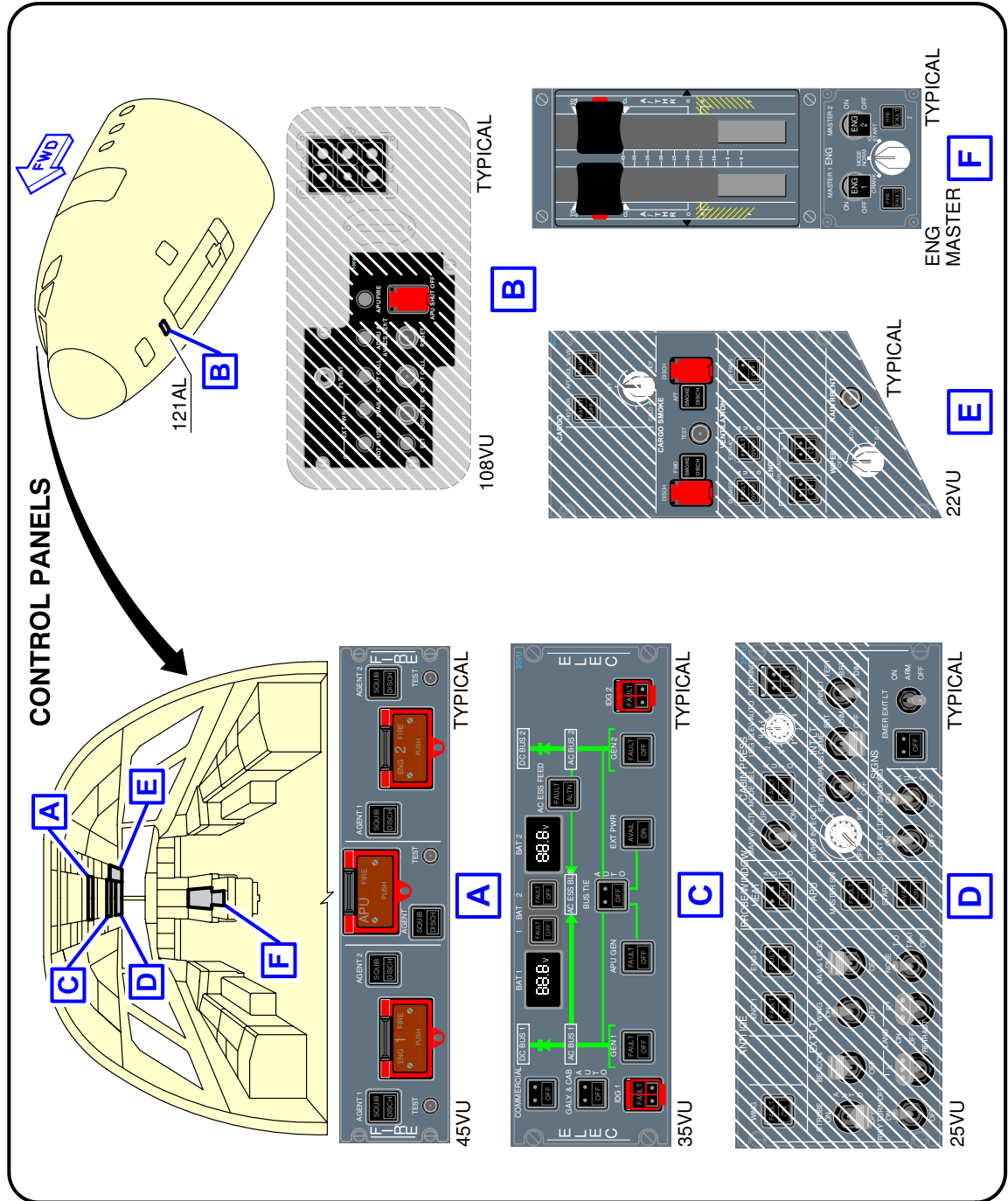
\*\*ON A/C A320-200 A320neo



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FWD and AFT Lower Deck Cargo Doors  
FIGURE-10-0-0-991-038-A01

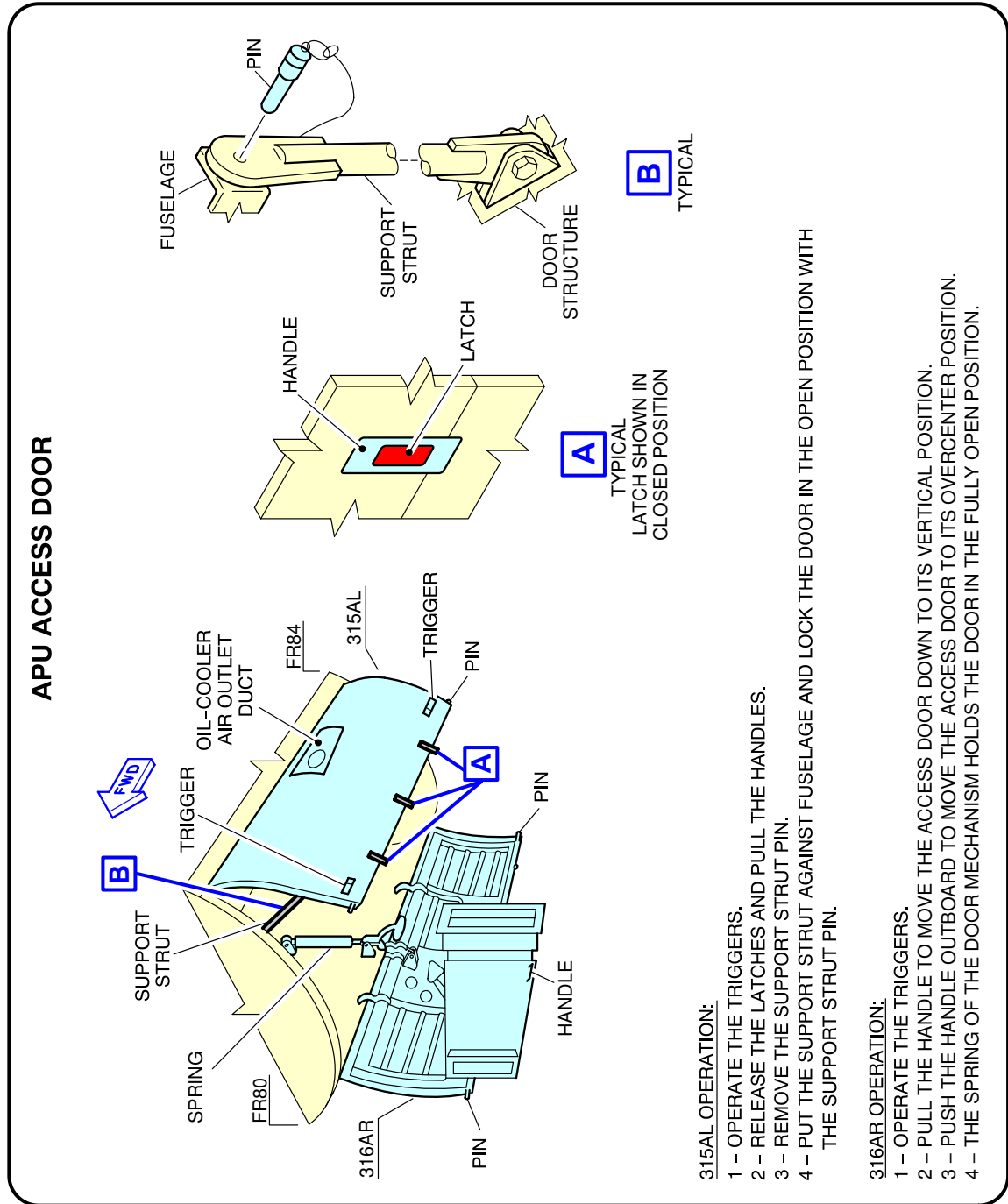
\*\*ON A/C A320-200 A320neo



N\_AC\_100000\_1\_0390101\_01\_01

Control Panels  
FIGURE-10-0-0-991-039-A01

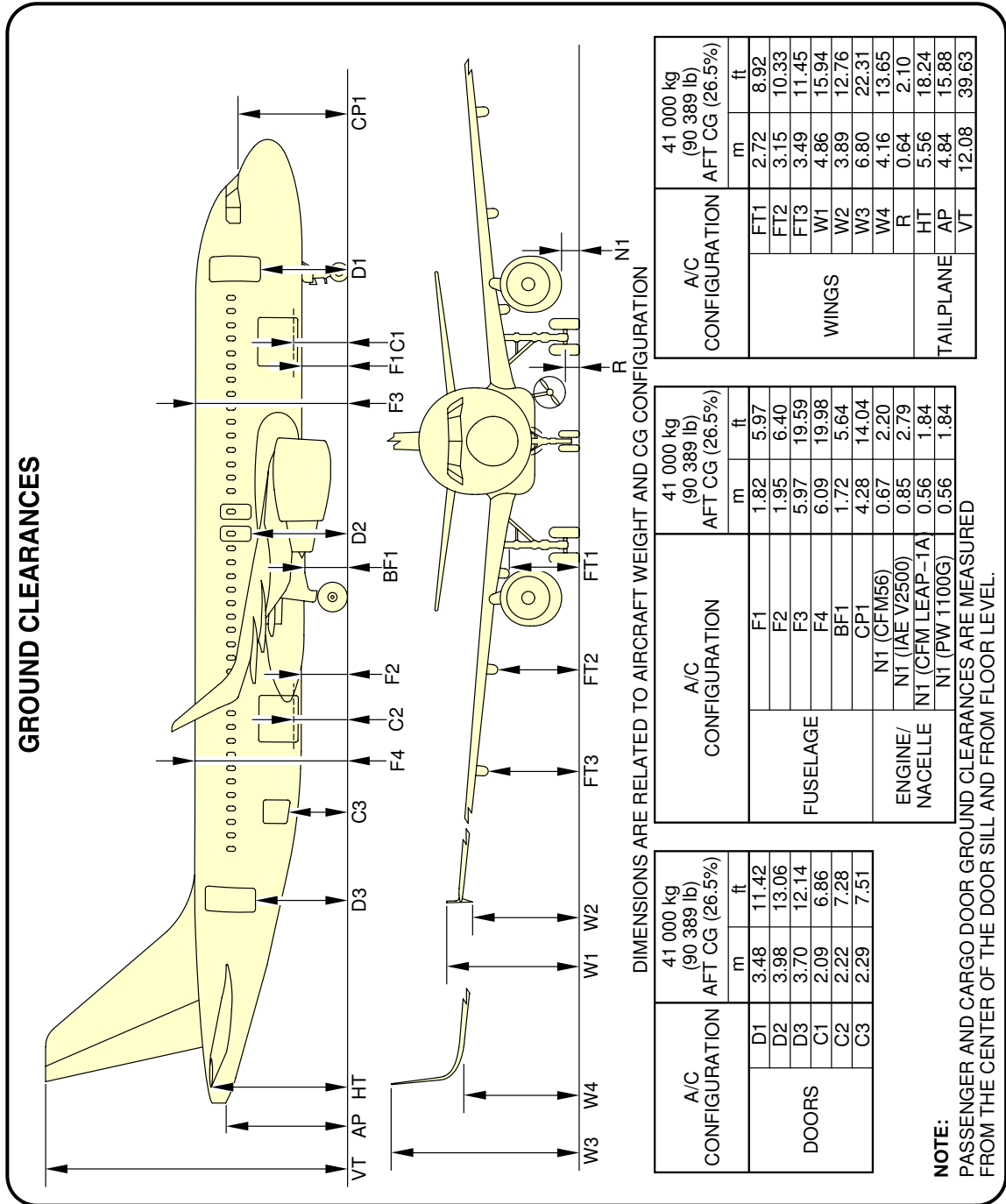
\*\*ON A/C A320-200 A320neo



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APU Access Door  
FIGURE-10-0-0-991-040-A01

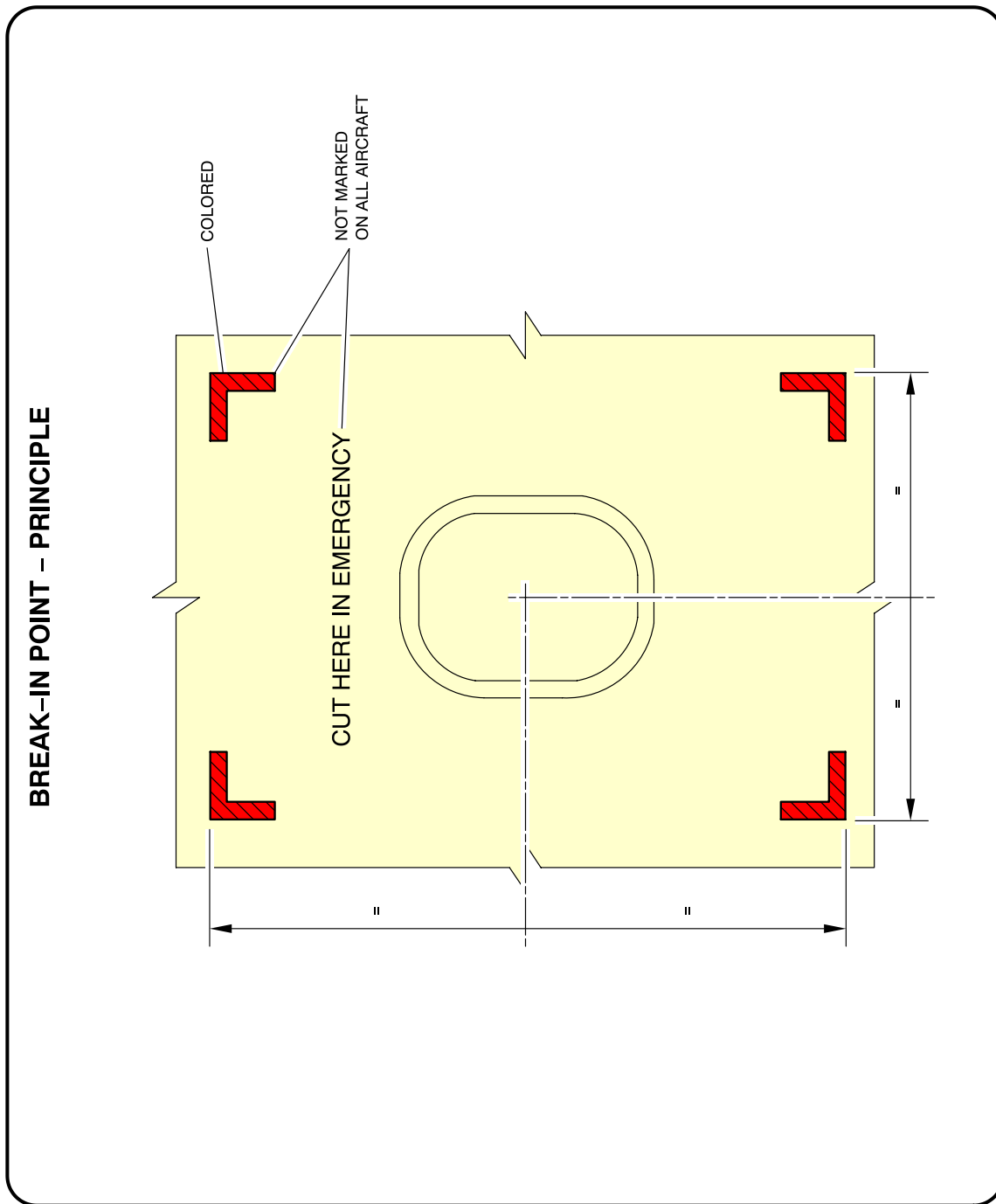
\*\*ON A/C A320-200 A320neo



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Aircraft Ground Clearances  
FIGURE-10-0-0-991-041-A01

\*\*ON A/C A320-200 A320neo



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Structural Break-in Points  
FIGURE-10-0-0-991-042-A01