A319

AIRCRAFT CHARACTERISTICS
AIRPORT AND MAINTENANCE PLANNING

AC

AIRBUS S.A.S.
Customer Services
Technical Data Support and Services
31707 Blagnac Cedex
FRANCE

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HIGHLIGHTS

Revision No. 11 - Jun 01/12

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
CHAPTER 1	R	
Section 1-1		
Subject 1-1-0		
Purpose	R	PURPOSE CHANGED DUE TO MERGE OF THE MFP AND AC MANUALS.
Section 01-02	D	
CHAPTER 2	R	
Section 2-1	R	
Subject 2-1-0	R	
General Airplane Characteristics	R	WEIGHT DEFINITIONS UPDATED.
Subject 2-1-1	R	
General Airplane Characteristics Data	R	OEW AND PAYLOAD DELETED.
Section 2-2	R	
Subject 2-2-0	R	
General Aircraft Dimensions	R	REPLACED "AIRPLANE" BY "AIRCRAFT" AND COMPLETED TITLE OF ILLUSTRATIONS. DESCRIPTION TITLE UPDATED
FIGURE General Aircraft Dimensions - Wing Tip Fence	R	ILLUSTRATION REVISED
Section 2-3		
Subject 2-3-0		
Ground Clearances	R	REVISED GROUND CLEARANCES TO SHOW THE DIMENSIONS FOR A LIGHT AND HEAVY WEIGHT VARIANT. DELETED THE TERM "OWE".
FIGURE Ground Clearances	R	
FIGURE Ground Clearances - Ground Clearances with Sharklets	N	ILLUSTRATION ADDED

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
FIGURE Ground Clearances - Flaps and Flap Track Fairings When Flaps Fully Extended	N	ILLUSTRATION ADDED
FIGURE Ground Clearances - Flap Track Fairings Up	N	ILLUSTRATION ADDED
FIGURE Ground Clearances - Aileron Down	N	ILLUSTRATION ADDED
FIGURE Ground Clearances - Aileron Up and Spoilers 1 to 5 Extended	N	ILLUSTRATION ADDED
FIGURE Ground Clearances - Slats Extended	N	ILLUSTRATION ADDED
Section 2-6	R	
Subject 2-6-0		
Cargo Compartments	R	
FIGURE Cargo Compartments - Locations, Dimensions and Loading Combinations	N	ILLUSTRATION ADDED
Subject 02-06-01	D	
Section 2-8	N	
Subject 2-8-0	N	
Escape Slides	N	
FIGURE Escape Slides - Location	N	ILLUSTRATION ADDED
FIGURE Escape Slides - Dimensions	N	ILLUSTRATION ADDED
Section 2-9	N	
Subject 2-9-0	N	
Landing Gear	N	
FIGURE Landing Gear - Main Landing Gear - Twin Wheel	N	ILLUSTRATION ADDED
FIGURE Landing Gear - Main Landing Gear Dimensions - Twin Wheel	N	ILLUSTRATION ADDED
FIGURE Landing Gear - Nose Landing Gear	N	ILLUSTRATION ADDED
FIGURE Landing Gear - Nose Landing Gear Dimensions	N	ILLUSTRATION ADDED

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
Landing Gear Maintenance Pits	N	
FIGURE Landing Gear Maintenance Pits - Maintenance Pit Envelopes	N	ILLUSTRATION ADDED
FIGURE Landing Gear Maintenance Pits - Maintenance Pit Envelopes	N	ILLUSTRATION ADDED
Section 2-10	N	
Subject 2-10-0	N	
Exterior Lighting	N	
FIGURE Exterior Lighting	N	ILLUSTRATION ADDED
FIGURE Exterior Lighting	N	ILLUSTRATION ADDED
FIGURE Exterior Lighting	N	ILLUSTRATION ADDED
FIGURE Exterior Lighting	N	ILLUSTRATION ADDED
Section 2-11	N	
Subject 2-11-0	N	
Antennas and Probes Location	N	
FIGURE Antennas and Probes - Location	N	ILLUSTRATION ADDED
Section 2-12	N	
Subject 2-12-0	N	
Auxiliary Power Unit	N	
FIGURE Auxiliary Power Unit - Access Doors	N	ILLUSTRATION ADDED
FIGURE Auxiliary Power Unit - General Layout	N	ILLUSTRATION ADDED
Engine and Nacelle	N	
FIGURE Power Plant Handling - Major Dimensions - CFM56 Series Engine	N	ILLUSTRATION ADDED
FIGURE Power Plant Handling - Major Dimensions - CFM56 Series Engine	N	ILLUSTRATION ADDED
FIGURE Power Plant Handling - Fan Cowls - CFM56 Series Engine	N	ILLUSTRATION ADDED
FIGURE Power Plant Handling - Thrust Reverser Cowls - CFM56 Series Engine	N	ILLUSTRATION ADDED

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
FIGURE Power Plant Handling - Major Dimensions - IAE V2500 Series Engine	N	ILLUSTRATION ADDED
FIGURE Power Plant Handling - Major Dimensions - IAE V2500 Series Engine	N	ILLUSTRATION ADDED
FIGURE Power Plant Handling - Fan Cowls - IAE V2500 Series Engine	N	ILLUSTRATION ADDED
FIGURE Power Plant Handling - Thrust Reverser Halves - IAE V2500 Series Engine	N	ILLUSTRATION ADDED
Section 2-13	N	
Subject 2-13-0	N	
Leveling, Symmetry and Alignment	N	
FIGURE Location of the Leveling Points	N	ILLUSTRATION ADDED
Section 2-14	N	
Subject 2-14-0	N	
Jacking for Maintenance	N	
FIGURE Jacking for Maintenance - Jacking Point Location	N	ILLUSTRATION ADDED
FIGURE Jacking for Maintenance - Forward Jacking Point	N	ILLUSTRATION ADDED
FIGURE Jacking for Maintenance - Wing Jacking Points	N	ILLUSTRATION ADDED
FIGURE Jacking for Maintenance - Safety Stay	N	ILLUSTRATION ADDED
FIGURE Jacking for Maintenance - Jacking Design	N	ILLUSTRATION ADDED
FIGURE Loads at the Aircraft Jacking Points - Wing Jacking Point and Forward Fuselage Jacking Point	N	ILLUSTRATION ADDED
FIGURE Jacking for Maintenance - Location of Shoring Cradles	N	ILLUSTRATION ADDED
Jacking for Wheel Change	N	

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
FIGURE Landing Gear Jacking for Wheel Change - MLG Jacking Point Location - Twin Wheels	N	ILLUSTRATION ADDED
FIGURE Landing Gear Jacking for Wheel Change - MLG Jacking with Cantilever Jack - Twin Wheels	N	ILLUSTRATION ADDED
FIGURE Landing Gear Jacking for Wheel Change - Loads at MLG Jacking Points - Twin Wheels	N	ILLUSTRATION ADDED
FIGURE Landing Gear Jacking for Wheel Change - Loads at MLG Jacking Points - 75 500 kg	N	ILLUSTRATION ADDED
FIGURE Landing Gear Jacking for Wheel Change - NLG Jacking - Point Location	N	ILLUSTRATION ADDED
FIGURE Landing Gear Jacking for Wheel Change - Loads at NLG Jacking Points	N	ILLUSTRATION ADDED
FIGURE Landing Gear Jacking for Wheel Change - Loads at NLG Jacking Points - 75 500 kg	N	ILLUSTRATION ADDED
CHAPTER 3	R	
CHAPTER 4		
Section 4-2		
Subject 4-2-0		
FIGURE Turning Radii, No Slip Angle	R	ILLUSTRATION REVISED
FIGURE Turning Radii, No Slip Angle	R	ILLUSTRATION REVISED
Section 4-3		
Subject 4-3-0		
FIGURE Minimum Turning Radii	R	
Section 4-4		
Subject 4-4-0		
Visibility from Cockpit in Static Position	N	
FIGURE Visibility from Cockpit in Static Position	N	ILLUSTRATION ADDED

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
FIGURE Binocular Visibility Through Windows from Captain Eye Position	N	ILLUSTRATION ADDED
Section 4-5	R	
Subject 4-5-1		
FIGURE 135° Turn - Runway to Taxiway - Cockpit Over Centerline Method	R	
FIGURE 135° Turn - Runway to Taxiway - Judgemental Oversteering Method	R	
Subject 4-5-2		
FIGURE 90° Turn - Runway to Taxiway - Cockpit Over Centerline Method	R	
FIGURE 90° Turn - Runway to Taxiway - Judgemental Oversteering Method	R	
Subject 4-5-3		
FIGURE 180° Turn on a Runway - Edge of Runway Method	R	ILLUSTRATION REVISED
Subject 4-5-4	N	
135° Turn - Taxiway to Taxiway	N	
FIGURE 135° Turn - Taxiway to Taxiway - Cockpit Over Centerline Method	N	ILLUSTRATION ADDED
Subject 4-5-5	N	
90° Turn - Taxiway to Taxiway	N	
FIGURE 90° Turn - Taxiway to Taxiway - Cockpit Over Centerline Method	N	ILLUSTRATION ADDED
Subject 04-05-06	D	
Section 4-6		
Subject 4-6-0		
FIGURE Runway Holding Bay (Apron)	R	
Section 4-7	R	
Subject 4-7-0	R	
CHAPTER 5	R	
Section 5-1	R	

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
Subject 5-1-0	R	
Subject 5-1-2	R	
Typical Ramp Layout – Open Apron	R	TITLE CHANGED FROM "AIRCRAFT AT THE GATE" TO "TYPICAL RAMP LAYOUT - OPEN APRON". ADDED "STAND SAFETY LINE" DEFINITION. DESCRIPTION TITLE UPDATED
FIGURE Typical Ramp Layout - Open Apron - Bulk Loading	R	ILLUSTRATION REVISED
FIGURE Typical Ramp Layout - Open Apron - ULD Loading	N	ILLUSTRATION ADDED
Subject 5-1-3	R	
Typical Ramp Layout - Gate	R	TITLE CHANGED FROM "AIRCRAFT AT AN OPEN APRON" TO "TYPICAL RAMP LAYOUT - GATE". ADDED "STAND SAFETY LINE" DEFINITION. DESCRIPTION TITLE UPDATED
FIGURE Typical Ramp Layout - Gate	R	ILLUSTRATION REVISED
Section 5-2	R	
Subject 5-2-0	R	
Terminal Operations - Full Servicing Turn Round Time	N	
FIGURE Turn Round Stations - Full Servicing (36 Min.)	N	ILLUSTRATION ADDED
Subject 05-02-01	D	
Section 5-3	R	
Subject 5-3-0	R	
Terminal Operation - Minimum Servicing Turn Round Time	N	
FIGURE Turn Round Stations - Minimum Servicing (21 Min.)	N	ILLUSTRATION ADDED
Subject 05-03-01	D	
Section 5-4		
Subject 5-4-1		

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
Ground Service Connections Layout	R	DELETED GROUND SERVICE CONNECTIONS LAYOUT TABLE.
FIGURE Ground Service Connections - Ground Service Connections Layout	R	
Subject 5-4-3		
Hydraulic System	R	
Subject 5-4-4		
Electrical System	R	
Subject 5-4-6		
Fuel System	R	NOTE AMENDED
FIGURE Ground Service Connections - Overpressure Protector and NACA Flame Arrestor	N	ADDED OVERPRESSURE PROTECTOR AND NACA FLAME ARRESTOR ILLUSTRATION. ILLUSTRATION ADDED
Subject 5-4-8		
Potable Water System	R	NOTE AMENDED
Section 5-5		
Subject 5-5-0		
Engine Starting Pneumatic Requirements	R	CROSS REFERENCED DOCUMENTARY UNIT ADDED/REVISED/DELETED
FIGURE Engine Starting Pneumatic Requirements	N	ILLUSTRATION ADDED
Subject 5-5-1	R	
Low Ambient Temperatures	R	DESCRIPTION TITLE UPDATED
FIGURE Engine Starting Pneumatic Requirements - Low Ambient Temperature -40°C (-40°F) – CFM56 series engine	R	
FIGURE Engine Starting Pneumatic Requirements - Low Ambient Temperature -40°C (-40°F) – IAE V2500 series engine	R	
Subject 5-5-2	R	
Medium Ambient Temperatures	R	DESCRIPTION TITLE UPDATED

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
FIGURE Engine Starting Pneumatic Requirements - Medium Ambient Temperature +15˚C (+59˚F) – CFM56 series engine	R	
FIGURE Engine Starting Pneumatic Requirements - Medium Ambient Temperature +15˚C (+59˚F) – IAE V2500 series engine	R	
Subject 5-5-3	R	
High Ambient Temperatures	R	DESCRIPTION TITLE UPDATED
FIGURE Engine Starting Pneumatic Requirements - High Ambient Temperature +55˚C (+131˚F) – CFM56 series engine	R	
FIGURE Engine Starting Pneumatic Requirements - High Ambient Temperature +50˚C (+122˚F) – IAE V2500 series engine	R	
Section 5-6		
Subject 5-6-0		
Ground Pneumatic Power Requirements	R	DELETED THE AIRFLOW DATA TABLE. ADDED A NOTE FOR GROUND PNEUMATIC POWER REQUIREMENTS. PART EFFECTIVITY ADDED/REVISED/DELETED NOTE AMENDED
Section 5-8		
Subject 5-8-0		
Ground Towing Requirements	R	SAE REFERENCES UPDATED AND FIGURES CORRESPONDING TO TYPICAL TOW BAR CONFIGURATION DELETED NOTE AMENDED
Section 5-9	N	
Subject 5-9-0	N	
De-Icing and External Cleaning	N	REVISED TABLES FOR DE-ICING AND EXTERNAL CLEANING AREAS.

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
CHAPTER 7		
Section 7-3		
Subject 7-3-0		
FIGURE Maximum Pavement Loads	R	ILLUSTRATION REVISED
Section 7-4		
Subject 7-4-1		
FIGURE Landing Gear Loading on Pavement	R	
FIGURE Landing Gear Loading on Pavement	R	
FIGURE Landing Gear Loading on Pavement	R	
Section 7-5		
Subject 7-5-1		
FIGURE Flexible Pavement Requirements	R	
Section 7-6		
Subject 7-6-1		
FIGURE Flexible Pavement Requirements - LCN Conversion	R	
Section 7-7		
Subject 7-7-1		
FIGURE Rigid Pavement Requirements (PCA)	R	
Section 7-8	R	
Subject 07-08-00	D	
Subject 7-8-1		
FIGURE Radius of Relative Stiffness - (Reference: Portland Cement Association)	R	
Subject 7-8-2		
Rigid Pavement Requirements - LCN Conversion	R	MOVED THE TEXT FROM 7-8-0 TO 7-8-2.
FIGURE Rigid Pavement Requirements - LCN Conversion	R	

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
Section 7-9		
Subject 7-9-1		
FIGURE Aircraft Classification Number – Flexible Pavement	R	
Subject 7-9-2		
FIGURE Aircraft Classification Number – Rigid Pavement	R	
CHAPTER 8	R	
Section 8-0	N	
Subject 8-0-0	N	
Scaled Drawings	N	
FIGURE Scaled Drawing	N	ILLUSTRATION ADDED
Section 08-01	D	
CHAPTER 10	N	
Section 10-0	N	
Subject 10-0-0	N	
Aircraft Rescue and Fire Fighting	N	
FIGURE Front Page	N	ILLUSTRATION ADDED
FIGURE Highly Flammable and Hazardous Materials and Components	N	ILLUSTRATION ADDED
FIGURE Wheel Safety Area	N	ILLUSTRATION ADDED
FIGURE Composite Materials	N	ILLUSTRATION ADDED
FIGURE LG Ground Lock Safety Devices	N	ILLUSTRATION ADDED
FIGURE Evacuation/Escape Slide/Raft	N	ILLUSTRATION ADDED
FIGURE Pax/Crew Doors	N	ILLUSTRATION ADDED
FIGURE Emergency Exit Hatch	N	ILLUSTRATION ADDED
FIGURE FWD and AFT Lower Deck Cargo Doors	N	ILLUSTRATION ADDED
FIGURE Control Panels	N	ILLUSTRATION ADDED
FIGURE APU Access Door	N	ILLUSTRATION ADDED
FIGURE Aircraft Ground Clearances	N	ILLUSTRATION ADDED

LOCATIONS	CHG CODE	DESCRIPTIONS OF CHANGE
FIGURE Structural Break-in Points	N	ILLUSTRATION ADDED

LIST OF EFFECTIVE CONTENT

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FIGURE Antennas and Probes - Location	N	Jun 01/12
Subject 2-12-0		
Auxiliary Power Unit	N	Jun 01/12
FIGURE Auxiliary Power Unit - Access Doors	N	Jun 01/12
FIGURE Auxiliary Power Unit - General Layout	N	Jun 01/12
Engine and Nacelle	N	Jun 01/12
FIGURE Power Plant Handling - Major Dimensions - CFM56 Series Engine	N	Jun 01/12
FIGURE Power Plant Handling - Major Dimensions - CFM56 Series Engine	N	Jun 01/12
FIGURE Power Plant Handling - Fan Cowls - CFM56 Series Engine	N	Jun 01/12
FIGURE Power Plant Handling - Thrust Reverser Cowls - CFM56 Series Engine	N	Jun 01/12
FIGURE Power Plant Handling - Major Dimensions - IAE V2500 Series Engine	N	Jun 01/12
FIGURE Power Plant Handling - Major Dimensions - IAE V2500 Series Engine	N	Jun 01/12
FIGURE Power Plant Handling - Fan Cowls - IAE V2500 Series Engine	N	Jun 01/12
FIGURE Power Plant Handling - Thrust Reverser Halves - IAE V2500 Series Engine	N	Jun 01/12
Subject 2-13-0		
Leveling, Symmetry and Alignment	N	Jun 01/12
FIGURE Location of the Leveling Points	N	Jun 01/12
Subject 2-14-0		
Jacking for Maintenance	N	Jun 01/12
FIGURE Jacking for Maintenance - Jacking Point Location	N	Jun 01/12
FIGURE Jacking for Maintenance - Forward Jacking Point	N	Jun 01/12
FIGURE Jacking for Maintenance - Wing Jacking Points	N	Jun 01/12
FIGURE Jacking for Maintenance - Safety Stay	N	Jun 01/12
FIGURE Jacking for Maintenance - Jacking Design	N	Jun 01/12

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Subject 5-4-9		
Oil System		Sep 01/10
FIGURE Ground Service Connections - Engine Oil Tank – CFM56 Series Engine		Sep 01/10
FIGURE Ground Service Connections - IDG Oil Tank – CFM56 Series Engine		Sep 01/10
FIGURE Ground Service Connections - Starter Oil Tank – CFM56 Series Engine		Sep 01/10
FIGURE Ground Service Connections - Engine Oil Tank – IAE V2500 Series Engine		Sep 01/10
FIGURE Ground Service Connections - IDG Oil Tank – IAE V2500 Series Engine		Sep 01/10
FIGURE Ground Service Connections - Starter Oil Tank – IAE V2500 Series Engine		Sep 01/10
FIGURE Ground Service Connections - APU Oil Tank		Sep 01/10
Subject 5-4-10		
Vacuum Toilet System		Sep 01/10
FIGURE Ground Service Connections - Waste Water Ground Service Panel		Sep 01/10
Subject 5-5-0		
Engine Starting Pneumatic Requirements	R	Jun 01/12
FIGURE Engine Starting Pneumatic Requirements	N	Jun 01/12
Subject 5-5-1		
Low Ambient Temperatures	R	Jun 01/12
FIGURE Engine Starting Pneumatic Requirements - Low Ambient Temperature -40°C (-40°F) – CFM56 series engine	R	Jun 01/12
FIGURE Engine Starting Pneumatic Requirements - Low Ambient Temperature -40°C (-40°F) – IAE V2500 series engine	R	Jun 01/12
Subject 5-5-2		
Medium Ambient Temperatures	R	Jun 01/12
FIGURE Engine Starting Pneumatic Requirements - Medium Ambient Temperature +15°C (+59°F) – CFM56 series engine	R	Jun 01/12

CONTENT	CHG CODE	LAST REVISION DATE
FIGURE Engine Starting Pneumatic Requirements - Medium Ambient Temperature +15°C (+59°F) – IAE V2500 series engine	R	Jun 01/12
Subject 5-5-3		
High Ambient Temperatures	R	Jun 01/12
FIGURE Engine Starting Pneumatic Requirements - High Ambient Temperature +55°C (+131°F) – CFM56 series engine	R	Jun 01/12
FIGURE Engine Starting Pneumatic Requirements - High Ambient Temperature +50°C (+122°F) – IAE V2500 series engine	R	Jun 01/12
Subject 5-6-0		
Ground Pneumatic Power Requirements	R	Jun 01/12
Subject 5-6-1		
Heating		Dec 01/07
FIGURE Ground Pneumatic Power Requirements - Heating		Dec 01/07
Subject 5-6-2		
Cooling		Dec 01/07
FIGURE Ground Pneumatic Power Requirements - Cooling		Dec 01/07
Subject 5-7-0		
Preconditioned Airflow Requirements		Dec 01/07
FIGURE Preconditioned Airflow Requirements		Dec 01/07
Subject 5-8-0		
Ground Towing Requirements	R	Jun 01/12
FIGURE Ground Towing Requirements		Sep 01/10
Subject 5-9-0		
De-Icing and External Cleaning	N	Jun 01/12
CHAPTER 6		
Subject 6-1-0		
Engine Exhaust Velocities and Temperatures		Dec 01/07
Subject 6-1-1		
Engine Exhaust Velocities Contours - Ground Idle Power		Dec 01/07

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FIGURE Maximum Pavement Loads		May 01/11
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FIGURE Maximum Pavement Loads		May 01/11
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FIGURE Maximum Pavement Loads		May 01/11
FIGURE Maximum Pavement Loads	R	Jun 01/12
FIGURE Maximum Pavement Loads		May 01/11
FIGURE Maximum Pavement Loads		May 01/11
Subject 7-4-0		
Landing Gear Loading on Pavement		May 01/11
Subject 7-4-1		
Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement		May 01/11
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FIGURE Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement - Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement		May 01/11
FIGURE Landing Gear Loading on Pavement		May 01/11
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FIGURE Landing Gear Loading on Pavement - Landing Gear Loading on Pavement		May 01/11

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FIGURE Flexible Pavement Requirements		May 01/11
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FIGURE Flexible Pavement Requirements		May 01/11
FIGURE Flexible Pavement Requirements		May 01/11
FIGURE Flexible Pavement Requirements		May 01/11
Subject 7-6-0		
Flexible Pavement Requirements - LCN Conversion		May 01/11
Subject 7-6-1		
Flexible Pavement Requirements - LCN Conversion		May 01/11
FIGURE Flexible Pavement Requirements - LCN Conversion		May 01/11
FIGURE Flexible Pavement Requirements - LCN Conversion		May 01/11
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FIGURE Flexible Pavement Requirements - LCN Conversion - Flexible Pavement Requirements - LCN Conversion		May 01/11
FIGURE Flexible Pavement Requirements - LCN Conversion		May 01/11
FIGURE Flexible Pavement Requirements - LCN Conversion		May 01/11
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FIGURE Flexible Pavement Requirements - LCN Conversion		May 01/11
FIGURE Flexible Pavement Requirements - LCN Conversion		May 01/11
FIGURE Flexible Pavement Requirements - LCN Conversion - Flexible Pavement Requirements - LCN Conversion		May 01/11
Subject 7-7-0		
Rigid Pavement Requirements - Portland Cement Association Design Method		May 01/11
Subject 7-7-1		
Rigid Pavement Requirements - Portland Cement Association Design Method		May 01/11
FIGURE Rigid Pavement Requirements (PCA)		May 01/11
FIGURE Rigid Pavement Requirements (PCA)		May 01/11
FIGURE Rigid Pavement Requirements (PCA)		May 01/11
FIGURE Rigid Pavement Requirements (PCA)		May 01/11
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FIGURE Rigid Pavement Requirements (PCA)	R	Jun 01/12
FIGURE Rigid Pavement Requirements (PCA)		May 01/11
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FIGURE Rigid Pavement Requirements (PCA)		May 01/11
FIGURE Rigid Pavement Requirements (PCA)		May 01/11
Subject 7-8-1		
Radius of Relative Stiffness		Dec 01/07
FIGURE Radius of Relative Stiffness - (Reference: Portland Cement Association)	R	Jun 01/12
Subject 7-8-2		
Rigid Pavement Requirements - LCN Conversion	R	Jun 01/12
FIGURE Rigid Pavement Requirements - LCN Conversion		May 01/11

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FIGURE Aircraft Classification Number – Rigid Pavement		May 01/11
FIGURE Aircraft Classification Number – Rigid Pavement		May 01/11
FIGURE Aircraft Classification Number – Rigid Pavement		May 01/11
FIGURE Aircraft Classification Number – Rigid Pavement		May 01/11
CHAPTER 8		
Subject 8-0-0		
Scaled Drawings	N	Jun 01/12
FIGURE Scaled Drawing	N	Jun 01/12
CHAPTER 10		
Subject 10-0-0		
Aircraft Rescue and Fire Fighting	N	Jun 01/12
FIGURE Front Page	N	Jun 01/12
FIGURE Highly Flammable and Hazardous Materials and Components	N	Jun 01/12
FIGURE Wheel Safety Area	N	Jun 01/12
FIGURE Composite Materials	N	Jun 01/12
FIGURE LG Ground Lock Safety Devices	N	Jun 01/12
FIGURE Evacuation/Escape Slide/Raft	N	Jun 01/12
FIGURE Pax/Crew Doors	N	Jun 01/12
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FIGURE APU Access Door	N	Jun 01/12
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SCOPE

1-1-0 Purpose

****ON A/C A319-100**

Purpose

1. General
The A319 AIRCRAFT CHARACTERISTICS – AIRPORT AND MAINTENANCE PLANNING (AC) manual is issued for the A319-100 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.

This revision is now a merge of the Maintenance Facility planning (MFP) document and the Airplane Characteristics for Airport Planning (AC). This document has been renamed Aircraft Characteristics – Airport and Maintenance Planning (AC) to reflect this change.
Additionally, a chapter 10 "Aircraft Rescue and Fire Fighting" has been added to the AC. This chapter contains the illustrations of the Aircraft Rescue and Fire fighting Charts poster and replaces the PDF document that was available for download.

The data given in this issue of the A319-100 AC equipped with Sharklets can be subject to change pending completion of the flight test phase. It is given for guidance only and does not constitute a contractual commitment.

This non-customized document conforms to NAS 3601 specification.
This document must not be used for training purposes.

The single aisle A320 Family is a short to medium range aircraft delivering superior fuel efficiency, passenger comfort, environmental characteristics and economics, with a global market coverage.
With record number of operators and wide market approval, the A320 Family benefits from continuous improvements such as:
- Sharklets
- New Engine Option (neo)

The A320 Family wider fuselage, advanced troubleshooting and Cargo Loading System enable easy and cost effective ground handling, whilst minimizing aircraft turn round time.

This document does not include the A319neo which is under development.

Correspondence concerning this publication should be directed to:

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31707 BLAGNAC CEDEX
FRANCE

AIRCRAFT DESCRIPTION

2-1-0 General Aircraft Characteristics

****ON A/C A319-100**

General Airplane Characteristics

1. General Airplane Characteristics
   The weight terms used throughout this manual are given below together with their respective definitions.

   Maximum Taxi Weight (MTW):
   Maximum weight for ground maneuver as limited by aircraft strength and airworthiness requirements. (It includes weight of run-up and taxi fuel). It is also called Maximum Ramp Weight (MRW).

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

   Maximum Takeoff Weight (MTOW):
   Maximum weight for takeoff as limited by aircraft strength and airworthiness requirements. (This is the maximum weight at start of the takeoff run).

   Maximum Zero Fuel Weight (MZFW):
   Maximum operational weight of the aircraft without usable fuel.

   Standard Seating Capacity:
   Number of passengers specifically certified or anticipated for certification.

   Usable Volume:
   Usable volume available for cargo, pressurized fuselage, passenger compartment and cockpit.

   Usable Fuel Capacity:
   Fuel available for aircraft propulsion.

   Water Volume:
   Volume of cargo compartment.

2-1-1 General Aircraft Characteristics Data

****ON A/C A319-100**

General Airplane Characteristics Data

1. The following table provides characteristics of A319-100 Models, these data are specific to each Weight Variant:

Aircraft Characteristics						
		WV000	WV001	WV002	WV003	WV004
Maximum Ramp Weight (MRW) Maximum Taxi Weight (MTW)	Kilograms	64 400	70 400	75 900	68 400	68 400
	Pounds	141 978	155 205	167 331	150 796	150 796
Maximum Takeoff Weight (MTOW)	Kilograms	64 000	70 000	75 500	68 000	68 000
	Pounds	141 096	154 324	166 449	149 914	149 914
Maximum Landing Weight (MLW)	Kilograms	61 000	61 000	62 500	61 000	62 500
	Pounds	134 482	134 482	137 789	134 482	137 789
Maximum Zero Fuel Weight (MZFW)	Kilograms	57 000	57 000	58 500	57 000	58 500
	Pounds	125 663	125 663	128 970	125 663	128 970

Aircraft Characteristics						
		WV005	WV006	WV007	WV008	WV009
Maximum Ramp Weight (MRW) Maximum Taxi Weight (MTW)	Kilograms	70 400	73 900	75 900	64 400	66 400
	Pounds	155 205	162 922	167 331	141 978	146 387
Maximum Takeoff Weight (MTOW)	Kilograms	70 000	73 500	75 500	64 000	66 000
	Pounds	154 324	162 040	166 449	141 096	145 505
Maximum Landing Weight (MLW)	Kilograms	62 500	62 500	61 000	62 500	62 500
	Pounds	137 789	137 789	134 482	137 789	137 789
Maximum Zero Fuel Weight (MZFW)	Kilograms	58 500	58 500	57 000	58 500	58 500
	Pounds	128 970	128 970	125 663	128 970	128 970

Aircraft Characteristics			
		WV011	WV012
Maximum Ramp Weight (MRW) Maximum Taxi Weight (MTW)	Kilograms	66 400	62 400
	Pounds	146 387	137 568
Maximum Takeoff Weight (MTOW)	Kilograms	66 000	62 000
	Pounds	145 505	136 686

Aircraft Characteristics			
		WV011	WV012
Maximum Landing Weight (MLW)	Kilograms	61 000	61 000
	Pounds	134 482	134 482
Maximum Zero Fuel Weight (MZFW)	Kilograms	57 000	57 000
	Pounds	125 663	125 663

2. The following table provides characteristics of A319-100 Models, these data are common to each Weight Variant:

Aircraft Characteristics		
Standard Seating Capacity	Single-class	156
Usable Fuel Capacity	Liters	23 859
	US gallons	6 303
	Kilograms (density = 0.785 kg/l)	18 729
	Pounds	41 290
Pressurized Fuselage Volume (A/C non equipped)	Cubic meters	285
	Cubic feet	10 065
Passenger Compartment Volume	Cubic meters	120
	Cubic feet	4 238
Cockpit Volume	Cubic meters	9
	Cubic feet	318
Usable Volume, FWD CC	Cubic meters	8.52
	Cubic feet	300
Usable Volume, AFT CC	Cubic meters	11.92
	Cubic feet	421
Usable Volume, Bulk CC	Cubic meters	7.22
	Cubic feet	255
Water Volume, FWD CC	Cubic meters	10.63
	Cubic feet	375.4
Water Volume, AFT CC	Cubic meters	13.91
	Cubic feet	491.2
Water Volume, Bulk CC	Cubic meters	7.51
	Cubic feet	265.2

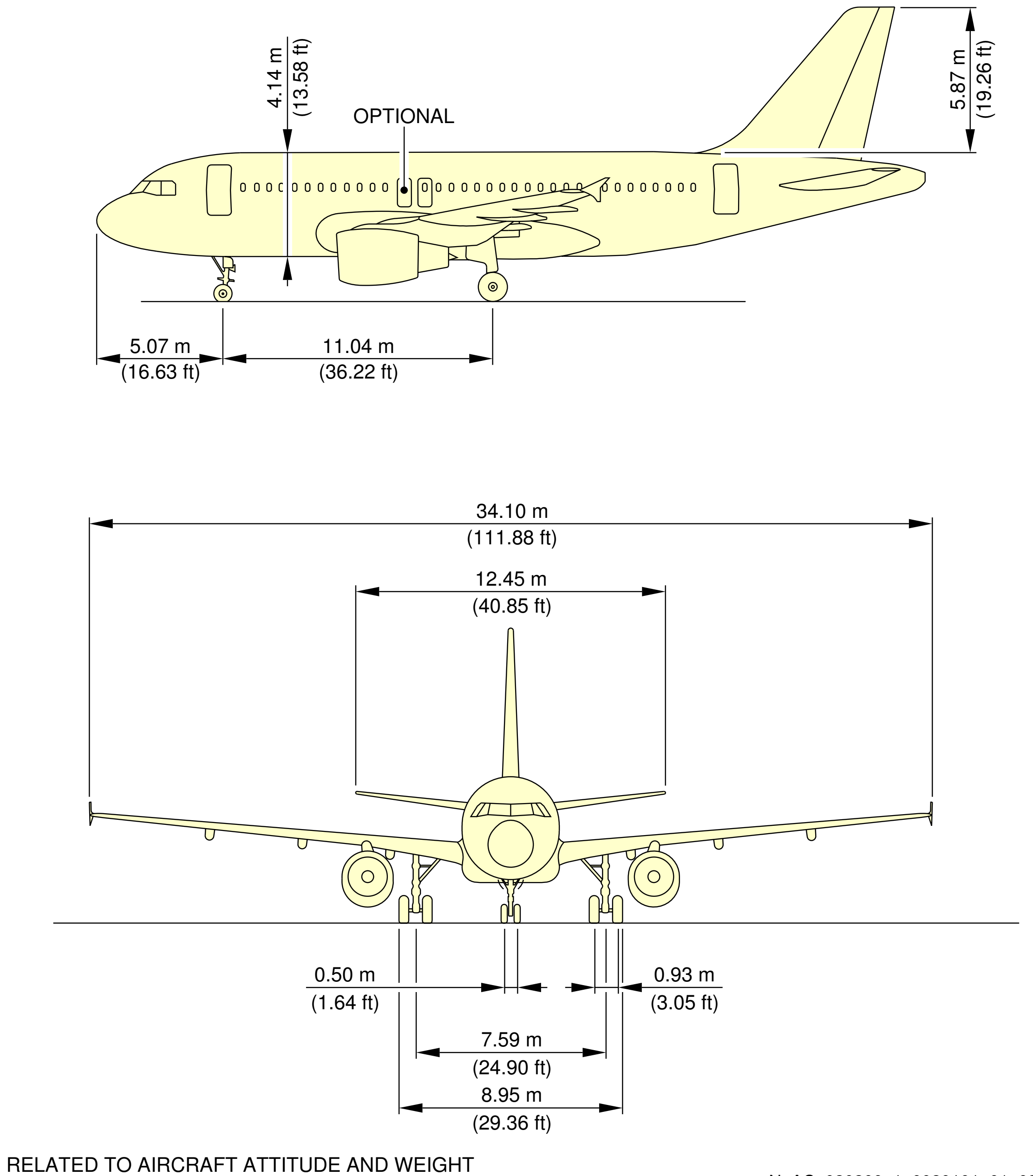
2-2-0 General Aircraft Dimensions

****ON A/C A319-100**

General Aircraft Dimensions

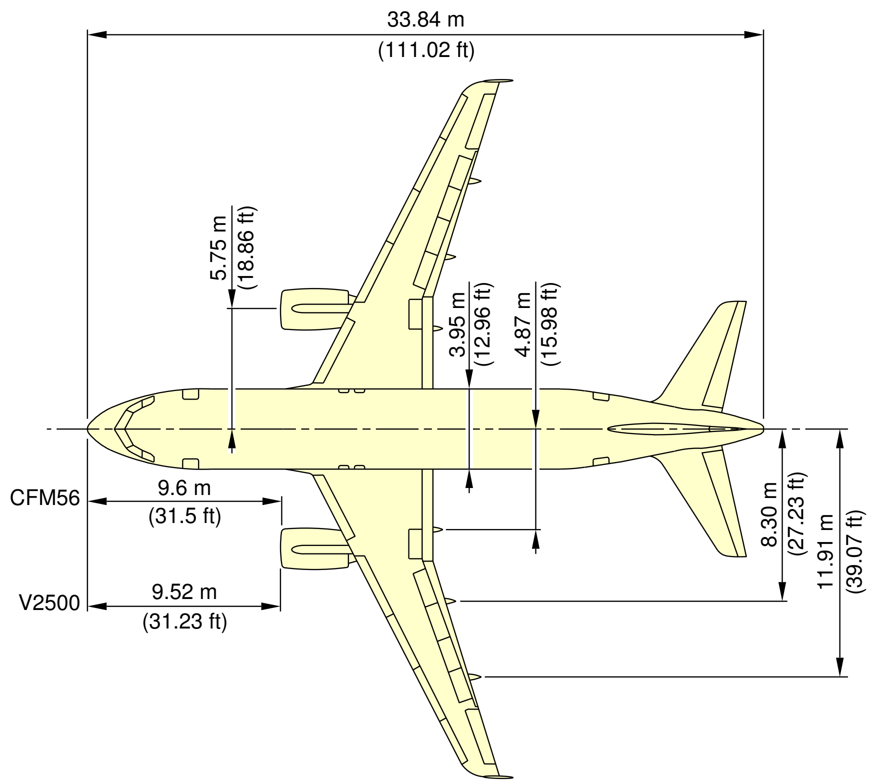
1. This section provides General Aircraft Dimensions.

**ON A/C A319-100



General Aircraft Dimensions
Wing Tip Fence (Sheet 1 of 4)
FIGURE-2-2-0-991-002-A01

**ON A/C A319-100



RELATED TO AIRCRAFT ATTITUDE AND WEIGHT

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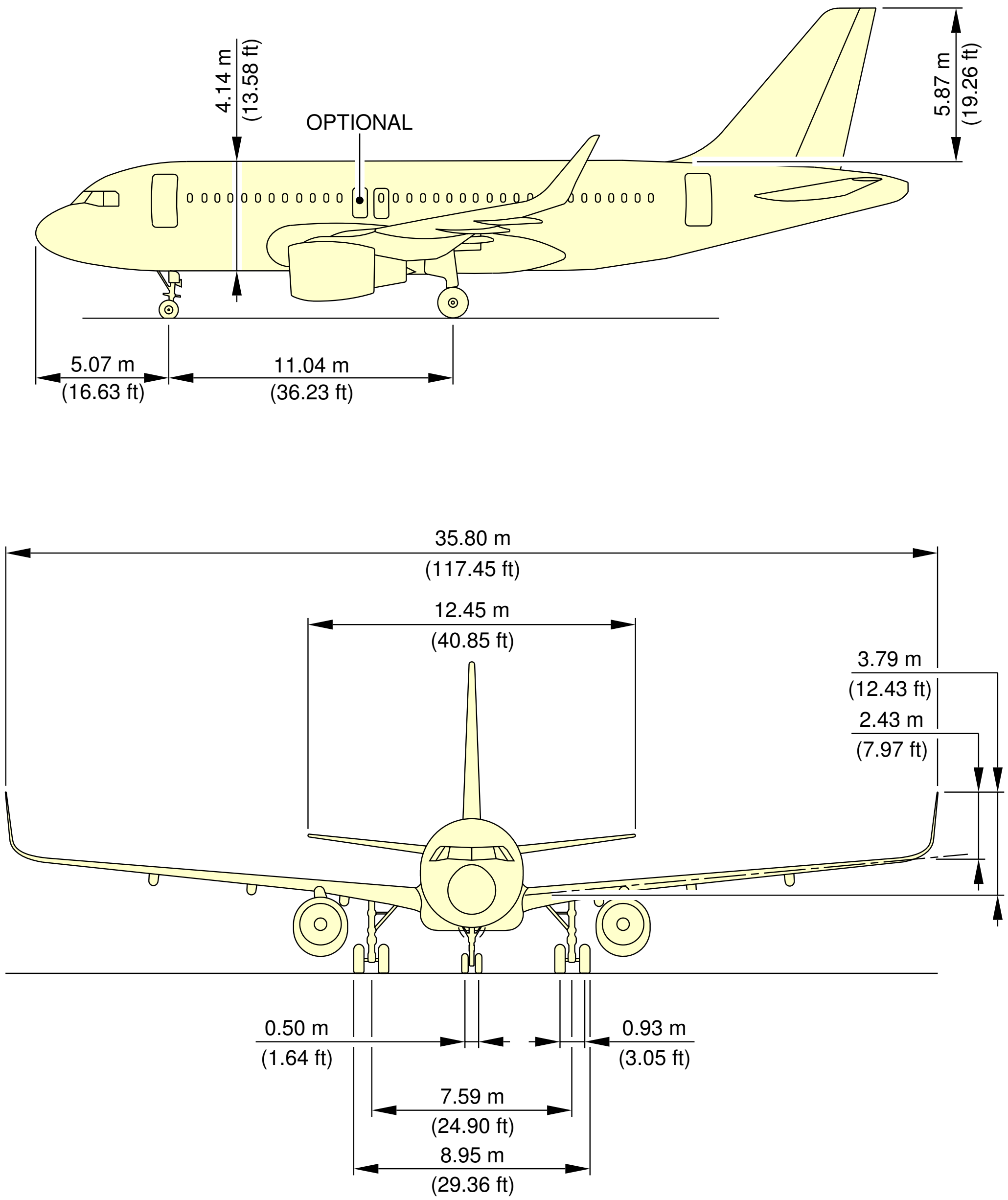
General Aircraft Dimensions
Wing Tip Fence (Sheet 2 of 4)
FIGURE-2-2-0-991-002-A01

**ON A/C A319-100



RELATED TO AIRCRAFT ATTITUDE AND WEIGHT

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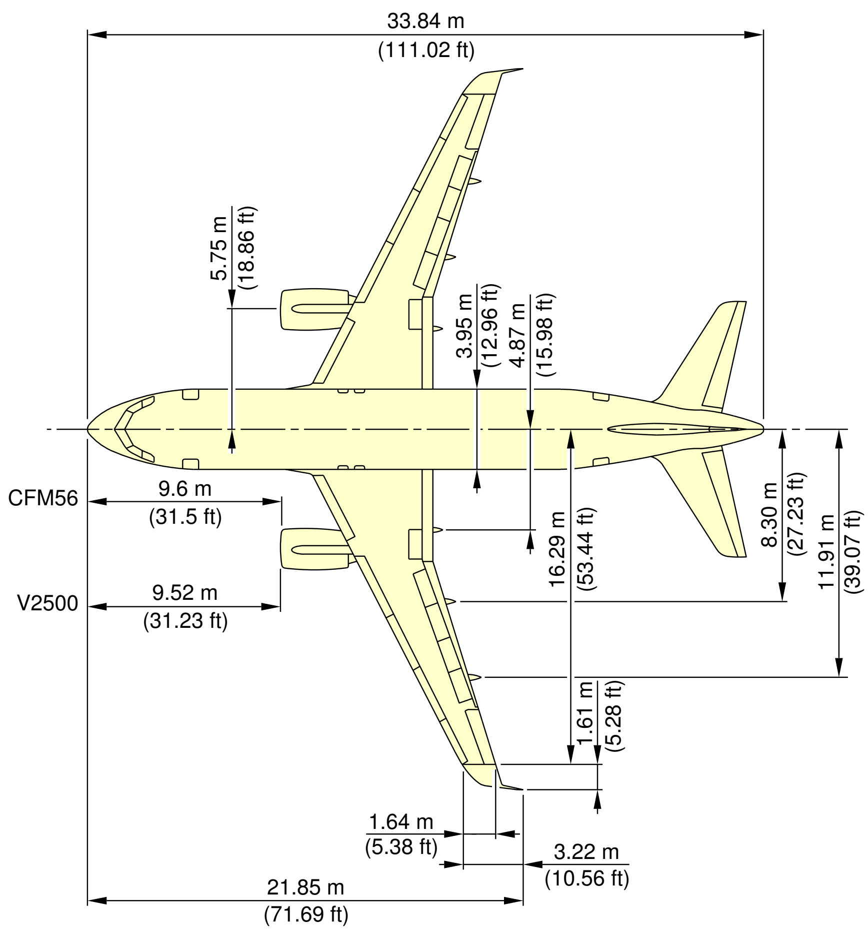
General Aircraft Dimensions
Sharklet (Sheet 3 of 4)
FIGURE-2-2-0-991-002-A01

**ON A/C A319-100



RELATED TO AIRCRAFT ATTITUDE AND WEIGHT

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General Aircraft Dimensions
Sharklet (Sheet 4 of 4)
FIGURE-2-2-0-991-002-A01

2-3-0 Ground Clearances

**ON A/C A319-100

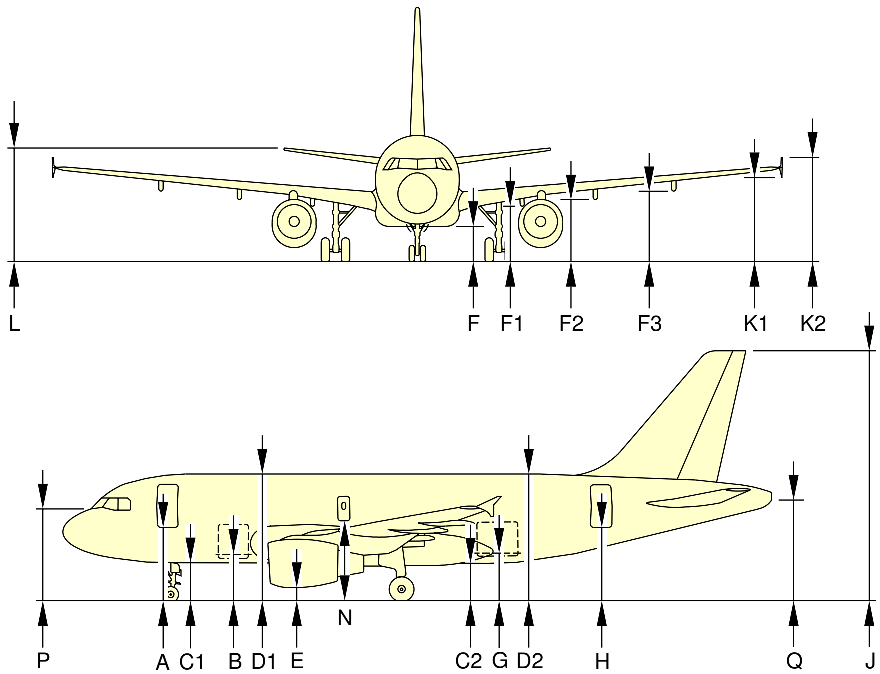
Ground Clearances

1. This section gives 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,
   - the MRW for a light weight variant with a FWD CG and a AFT CG,
   - the MRW for a heavy weight variant with a FWD CG and a AFT CG,
   - aircraft on jacks, FDL at 4.6 m (15.09 ft).

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

**ON A/C A319-100



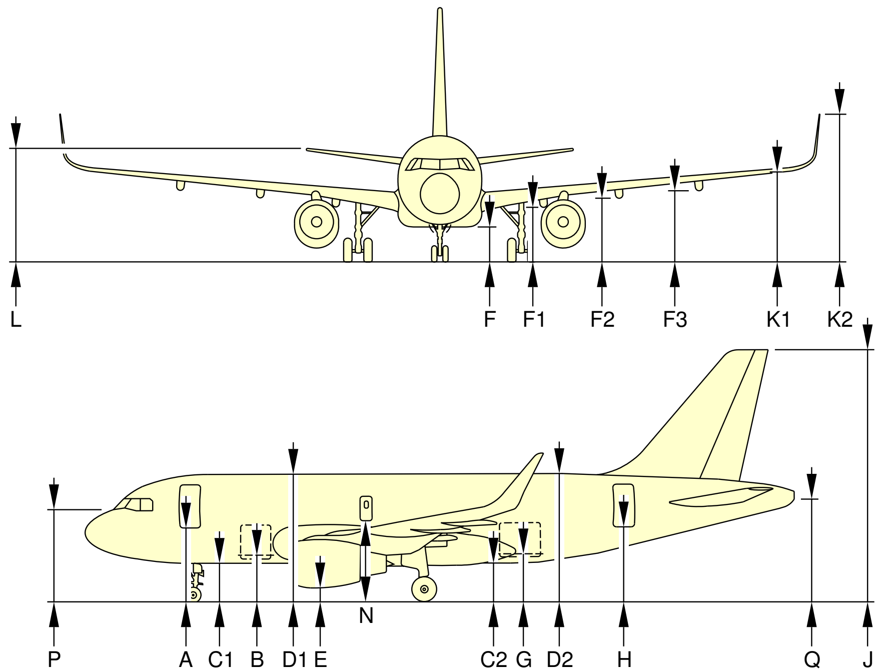
A/C CONFIG–URATION	40 t		MRW 64 t				MRW 74 t				A/C JACKED FDL = 4.60 m (15.09 ft)	
	CG 28%		FWD CG 21%		AFT CG 36%		FWD CG 21%		AFT CG 36%			
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	3.47	11.38	3.39	11.12	3.45	11.32	3.38	11.09	3.43	11.25	4.13	13.55
B	2.09	6.86	2.01	6.59	2.05	6.73	1.99	6.53	2.03	6.66	2.71	8.89
C1	1.83	6.00	1.75	5.74	1.78	5.84	1.73	5.68	1.76	5.77	2.43	7.97
C2	1.94	6.36	1.87	6.14	1.84	6.04	1.84	6.04	1.81	5.94	2.43	7.97
D1	5.97	19.59	5.90	19.36	5.92	19.42	5.88	19.29	5.90	19.36	6.58	21.59
D2	6.09	19.98	6.02	19.75	5.98	19.62	5.99	19.65	5.95	19.52	6.58	21.59
E (CFM)	0.67	2.20	0.59	1.94	0.60	1.97	0.57	1.87	0.58	1.90	1.24	4.07
E (IAE)	0.85	2.79	0.78	2.56	0.78	2.56	0.76	2.49	0.76	2.49	1.42	4.66
F	1.73	5.68	1.66	5.45	1.64	5.38	1.63	5.35	1.62	5.31	2.26	7.41
F1	2.73	8.96	2.66	8.73	2.64	8.66	2.63	8.63	2.61	8.56	3.25	10.66
F2	3.16	10.37	3.09	10.14	3.07	10.07	3.06	10.04	3.04	9.97	3.68	12.07
F3	3.50	11.48	3.43	11.25	3.41	11.19	3.41	11.19	3.38	11.09	4.01	13.16
G	2.22	7.28	2.15	7.05	2.11	6.92	2.12	6.96	2.09	6.86	2.71	8.89
H	3.71	12.17	3.65	11.98	3.58	11.75	3.61	11.84	3.54	11.61	4.13	13.55
J	12.11	39.73	12.05	39.53	11.93	39.14	12.01	39.40	11.89	39.01	12.45	40.85
K1	3.90	12.80	3.84	12.60	3.79	12.43	3.81	12.50	3.77	12.37	4.38	14.37
K2	4.87	15.98	4.81	15.78	4.77	15.65	4.78	15.68	4.74	15.55	5.35	17.55
L	5.58	18.31	5.53	18.14	5.41	17.75	5.48	17.98	5.37	17.62	5.93	19.46
N	3.97	13.02	3.90	12.80	3.91	12.83	3.88	12.73	3.88	12.73	4.54	14.89
P	4.26	13.98	4.17	13.68	4.26	13.98	4.16	13.65	4.24	13.91	4.96	16.27
Q	4.87	15.98	4.82	15.81	4.69	15.39	4.78	15.68	4.65	15.26	5.20	17.06

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

N_AC_020300_1_0020101_01_04

Ground Clearances
FIGURE-2-3-0-991-002-A01

**ON A/C A319-100



A/C CONFIG–URATION	40 t		MRW 64 t				MRW 74 t				A/C JACKED FDL = 4.60 m (15.09 ft)	
	CG 28%		FWD CG 21%		AFT CG 36%		FWD CG 21%		AFT CG 36%			
	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft
A	3.47	11.38	3.39	11.12	3.45	11.32	3.38	11.09	3.43	11.25	4.13	13.55
B	2.09	6.86	2.01	6.59	2.05	6.73	1.99	6.53	2.03	6.66	2.71	8.89
C1	1.83	6.00	1.75	5.74	1.78	5.84	1.73	5.68	1.76	5.77	2.43	7.97
C2	1.94	6.36	1.87	6.14	1.84	6.04	1.84	6.04	1.81	5.94	2.43	7.97
D1	5.97	19.59	5.90	19.36	5.92	19.42	5.88	19.29	5.90	19.36	6.58	21.59
D2	6.09	19.98	6.02	19.75	5.98	19.62	5.99	19.65	5.95	19.52	6.58	21.59
E (CFM)	0.67	2.20	0.59	1.94	0.60	1.97	0.57	1.87	0.58	1.90	1.24	4.07
E (IAE)	0.85	2.79	0.78	2.56	0.78	2.56	0.76	2.49	0.76	2.49	1.42	4.66
F	1.73	5.68	1.66	5.45	1.64	5.38	1.63	5.35	1.62	5.31	2.26	7.41
F1	2.73	8.96	2.66	8.73	2.64	8.66	2.63	8.63	2.61	8.56	3.25	10.66
F2	3.16	10.37	3.09	10.14	3.07	10.07	3.06	10.04	3.04	9.97	3.68	12.07
F3	3.50	11.48	3.43	11.25	3.41	11.19	3.41	11.19	3.38	11.09	4.01	13.16
G	2.22	7.28	2.15	7.05	2.11	6.92	2.12	6.96	2.09	6.86	2.71	8.89
H	3.71	12.17	3.65	11.98	3.58	11.75	3.61	11.84	3.54	11.61	4.13	13.55
J	12.11	39.73	12.05	39.53	11.93	39.14	12.01	39.40	11.89	39.01	12.45	40.85
K1	4.17	13.68	4.11	13.48	4.06	13.32	4.08	13.39	4.04	13.25	4.65	15.26
K2	6.81	22.34	6.75	22.15	6.71	22.01	6.72	22.05	6.68	21.92	7.29	23.92
L	5.58	18.31	5.53	18.14	5.41	17.75	5.48	17.98	5.37	17.62	5.93	19.46
N	3.97	13.02	3.90	12.80	3.91	12.83	3.88	12.73	3.88	12.73	4.54	14.89
P	4.26	13.98	4.17	13.68	4.26	13.98	4.16	13.65	4.24	13.91	4.96	16.27
Q	4.87	15.98	4.82	15.81	4.69	15.39	4.78	15.68	4.65	15.26	5.20	17.06

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

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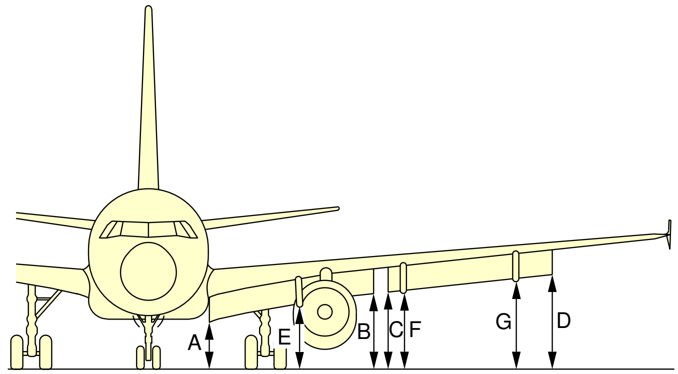
Ground Clearances
Ground Clearances with Sharklets
FIGURE-2-3-0-991-028-A01

**ON A/C A319-100



HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
A	2.05	6.73	1.96	6.43	1.94	6.36
B	2.77	9.09	2.68	8.79	2.66	8.73
C	2.81	9.22	2.72	8.92	2.70	8.86
D	3.65	11.98	3.56	11.68	3.52	11.52
E	2.09	6.86	2.01	6.59	1.98	6.50
F	2.59	8.50	2.50	8.20	2.47	8.10
G	3.04	9.97	2.95	9.68	2.91	9.55

MODEL 100 (64T MTOW)

HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
A	2.05	6.73	1.95	6.40	1.93	6.33
B	2.77	9.09	2.67	8.76	2.65	8.69
C	2.81	9.22	2.71	8.81	2.69	8.83
D	3.65	11.98	3.55	11.65	3.51	11.52
E	2.10	6.89	1.99	6.53	1.97	6.46
F	2.59	8.50	2.49	8.17	2.46	8.07
G	3.05	10.01	2.94	9.65	2.90	9.51

MODEL 100 (70T MTOW)

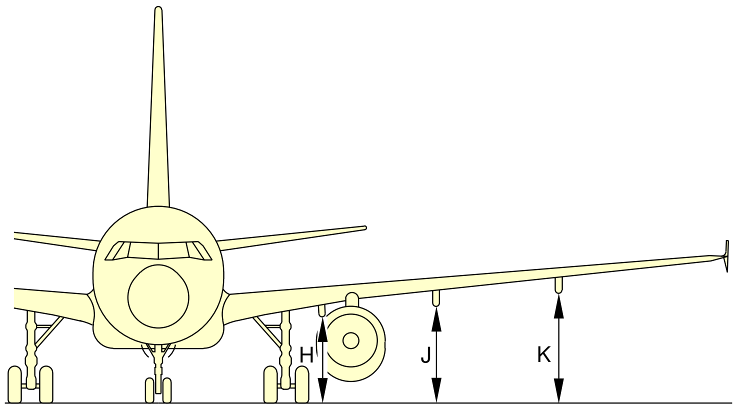
HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
A	2.07	6.79	1.94	6.36	1.93	6.33
B	2.79	9.15	2.67	8.76	2.65	8.69
C	2.83	9.28	2.70	8.86	2.69	8.83
D	3.67	12.04	3.54	11.61	3.51	11.52
E	2.11	6.92	1.99	6.53	1.97	6.46
F	2.61	8.56	2.48	8.14	2.46	8.07
G	3.06	10.06	2.93	9.61	2.91	9.55

MODEL 100 (75.5T MTOW)

N_AC_020300_1_0110101_01_00

Ground Clearances
Flaps and Flap Track Fairings When Flaps Fully Extended
FIGURE-2-3-0-991-011-A01

**ON A/C A319-100



HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
H	2.68	8.79	2.59	8.50	2.58	8.46
J	3.09	10.14	3.00	9.84	2.98	9.78
K	3.48	11.42	3.39	11.12	3.36	11.02

MODEL 100 (64T MTOW)

HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
H	2.68	8.79	2.58	8.46	2.57	8.43
J	3.09	10.14	2.99	9.81	2.97	9.74
K	3.49	11.45	3.38	11.09	3.35	10.99

MODEL 100 (70T MTOW)

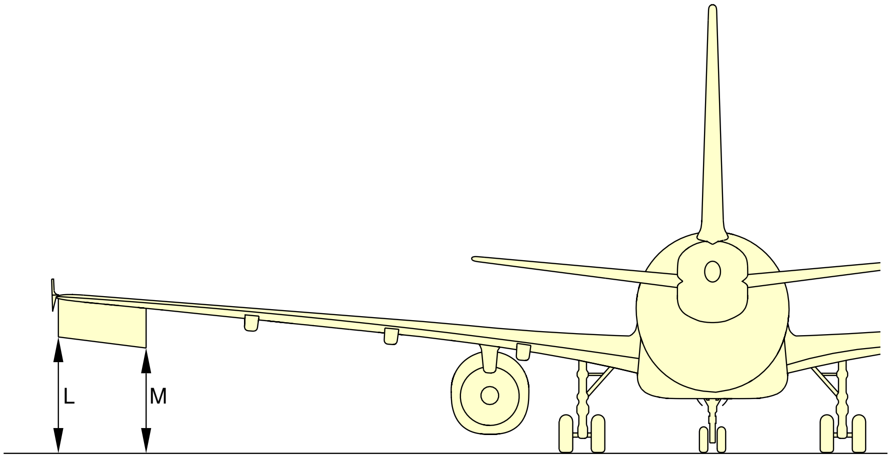
HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
H	2.70	8.86	2.58	8.46	2.57	8.43
J	3.10	10.17	2.98	9.78	2.97	9.74
K	3.50	11.48	3.37	11.06	3.36	11.02

MODEL 100 (75.5T MTOW)

N_AC_020300_1_0120101_01_00

Ground Clearances
Flap Track Fairings Up
FIGURE-2-3-0-991-012-A01

****ON A/C A319-100**



HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
L	4.18	13.71	4.09	13.42	4.04	13.25
M	3.84	12.60	3.75	12.30	3.71	12.17

MODEL 100 (64T MTOW)

HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
L	4.18	13.71	4.07	13.35	4.03	13.22
M	3.84	12.60	3.73	12.24	3.70	12.14

MODEL 100 (70T MTOW)

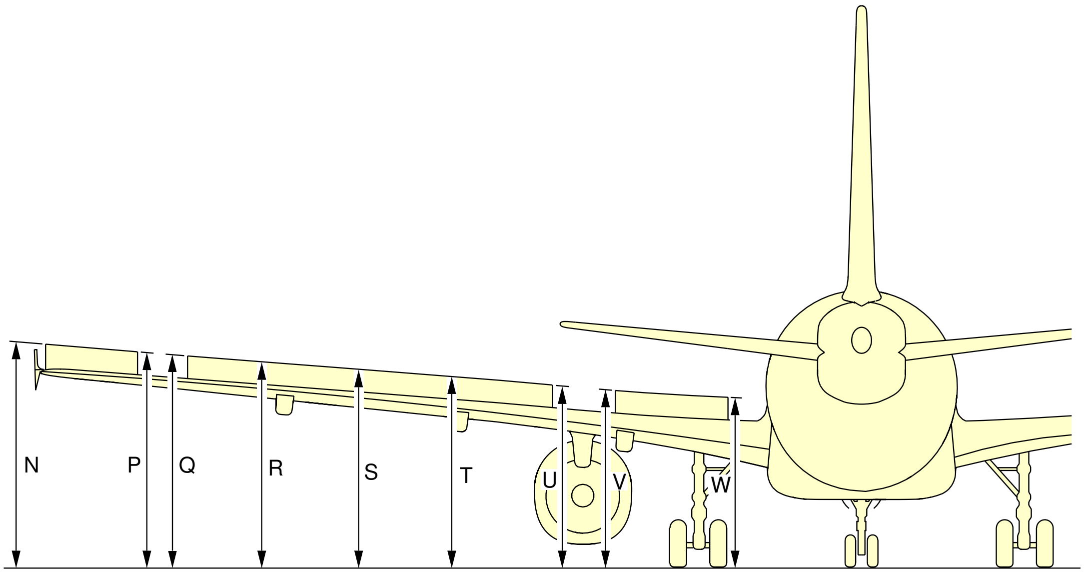
HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
L	4.20	13.78	4.06	13.32	4.04	13.25
M	3.86	12.66	3.73	12.24	3.71	12.17

MODEL 100 (75.5T MTOW)

N_AC_020300_1_0130101_01_00

Ground Clearances
Aileron Down
FIGURE-2-3-0-991-013-A01

**ON A/C A319-100



HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
N	4.56	14.96	4.47	14.67	4.42	14.50
P	4.36	14.30	4.27	14.01	4.23	13.88
Q	4.60	15.09	4.51	14.80	4.47	14.67
R	4.48	14.70	4.39	14.40	4.35	14.27
S	4.35	14.27	4.26	13.98	4.23	13.88
T	4.21	13.81	4.13	13.55	4.10	13.10
U	4.07	13.35	3.98	13.06	3.96	12.99
V	4.01	13.16	3.92	12.86	3.90	12.80
W	3.75	12.30	3.66	12.01	3.65	11.98

MODEL 100 (64T MTOW)

N_AC_020300_1_0140101_01_00

Ground Clearances
Aileron Up and Spoilers 1 to 5 Extended (Sheet 1 of 2)
FIGURE-2-3-0-991-014-A01

**ON A/C A319-100

HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
N	4.56	14.96	4.45	14.60	4.41	14.47
P	4.37	14.34	4.26	13.98	4.22	13.85
Q	4.60	15.09	4.50	14.76	4.46	14.63
R	4.48	14.70	4.37	14.34	4.34	14.24
S	4.35	14.27	4.25	13.94	4.22	13.85
T	4.22	13.85	4.12	13.52	4.09	13.42
U	4.07	13.35	3.97	13.02	3.95	12.96
V	4.01	13.16	3.91	12.83	3.89	12.76
W	3.75	12.30	3.65	11.98	3.64	11.94

MODEL 100 (70T MTOW)

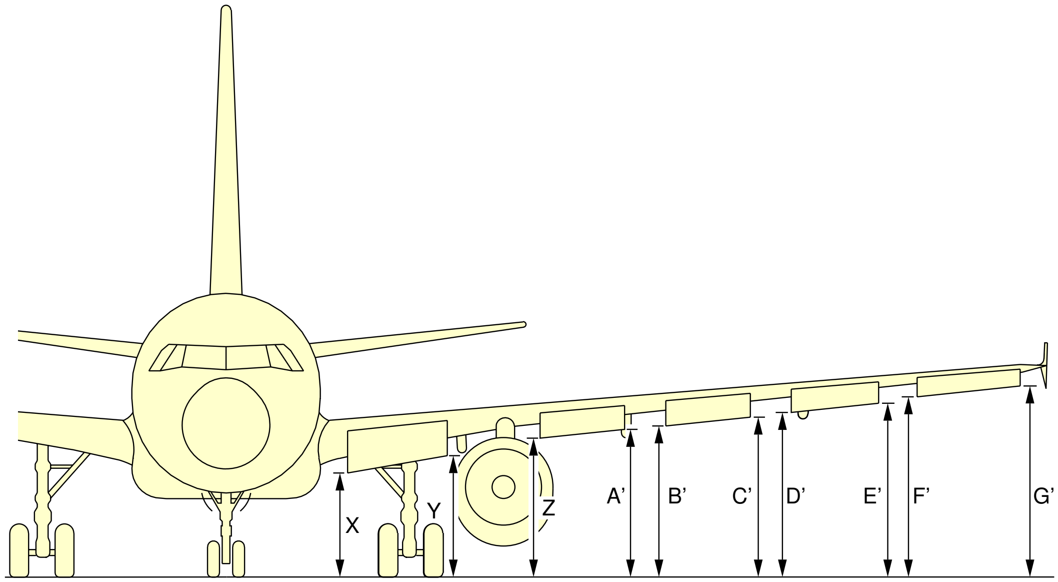
HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
N	4.58	15.03	4.44	14.57	4.42	14.50
P	4.38	14.37	4.25	13.94	4.23	13.88
Q	4.62	15.16	4.49	14.73	4.47	14.67
R	4.49	14.73	4.37	14.34	4.35	14.27
S	4.37	14.34	4.24	13.91	4.23	13.88
T	4.23	13.88	4.11	13.48	4.10	13.10
U	4.09	13.42	3.97	13.02	3.96	12.99
V	4.02	13.19	3.91	12.83	3.90	12.80
W	3.77	12.37	3.65	11.98	3.64	11.94

MODEL 100 (75.5T MTOW)

N_AC_020300_1_0140102_01_00

Ground Clearances
Aileron Up and Spoilers 1 to 5 Extended (Sheet 2 of 2)
FIGURE-2-3-0-991-014-A01

****ON A/C A319-100**



HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
X	2.55	8.37	2.48	8.14	2.50	8.20
Y	2.97	9.74	2.89	9.48	2.91	9.55
Z	3.06	10.04	2.98	9.78	2.99	9.81
A' B'	3.36	11.02	3.28	10.76	3.27	10.73
C' D'	3.61	11.84	3.53	11.58	3.52	11.55
E' F'	3.86	12.66	3.78	12.40	3.75	12.30
G'	4.10	13.45	4.01	13.16	3.98	13.06

MODEL 100 (64T MTOW)

N_AC_020300_1_0150101_01_00

Ground Clearances
Slats Extended (Sheet 1 of 2)
FIGURE-2-3-0-991-015-A01

****ON A/C A319-100**

HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
X	2.56	8.40	2.47	8.10	2.49	8.17
Y	2.97	9.74	2.88	9.45	2.90	9.51
Z	3.06	10.04	2.97	9.74	2.98	9.78
A' B'	3.36	11.02	3.27	10.73	3.26	10.70
C' D'	3.62	11.88	3.52	11.55	3.51	11.52
E' F'	3.87	12.70	3.77	12.37	3.74	12.27
G'	4.10	13.45	4.00	13.12	3.97	13.02

MODEL 100 (70T MTOW)

HEIGHT FROM GROUND						
	A/C IN MAINTENANCE CONFIGURATION MID CG		MAXIMUM RAMP WEIGHT FWD CG		MAXIMUM RAMP WEIGHT AFT CG	
	m	ft	m	ft	m	ft
X	2.57	8.43	2.47	8.10	2.49	8.17
Y	2.98	9.78	2.88	9.45	2.89	9.48
Z	3.07	10.07	2.97	9.74	2.97	9.74
A' B'	3.37	11.06	3.26	10.70	3.26	10.70
C' D'	3.63	11.91	3.51	11.52	3.51	11.52
E' F'	3.88	12.73	3.76	12.34	3.75	12.30
G'	4.12	13.52	3.99	13.09	3.97	13.02

MODEL 100 (75.5T MTOW)

N_AC_020300_1_0150102_01_00

Ground Clearances
Slats Extended (Sheet 2 of 2)
FIGURE-2-3-0-991-015-A01

2-4-0 Interior Arrangements

****ON A/C A319-100**

Interior Arrangements

1. This section gives the standard interior arrangements configuration.

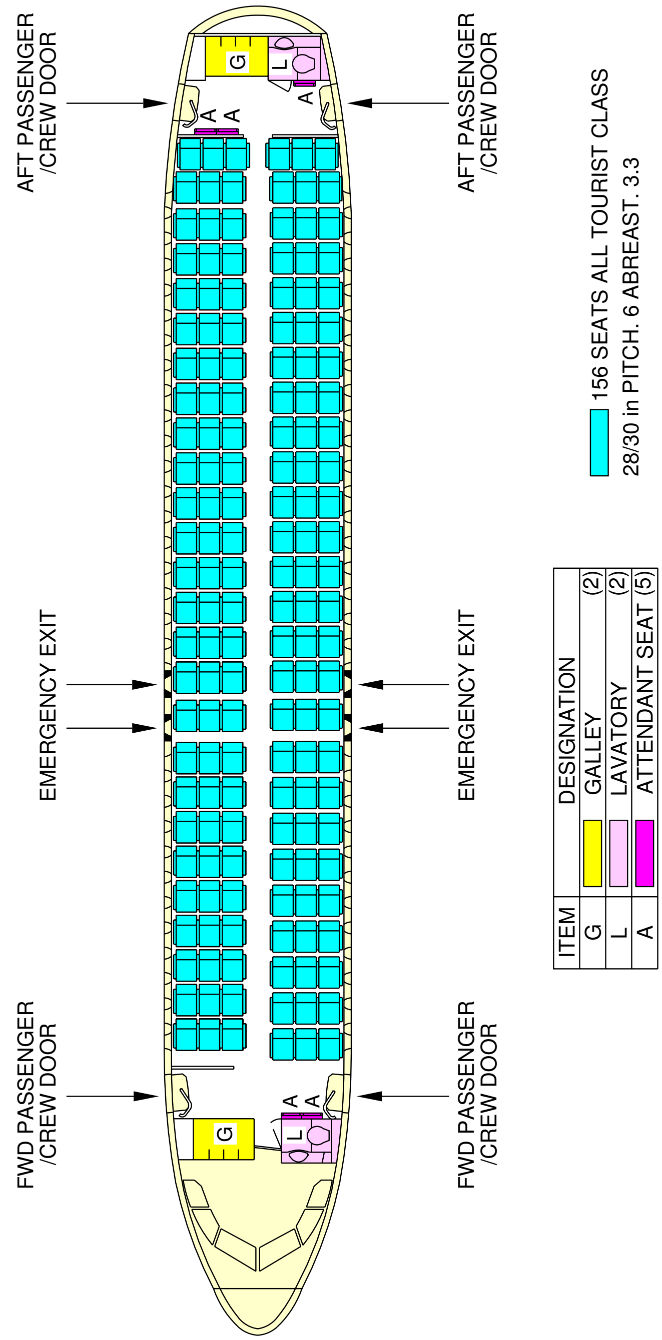
2-4-1 Passenger Compartment Layout

**ON A/C A319-100

Typical Configuration

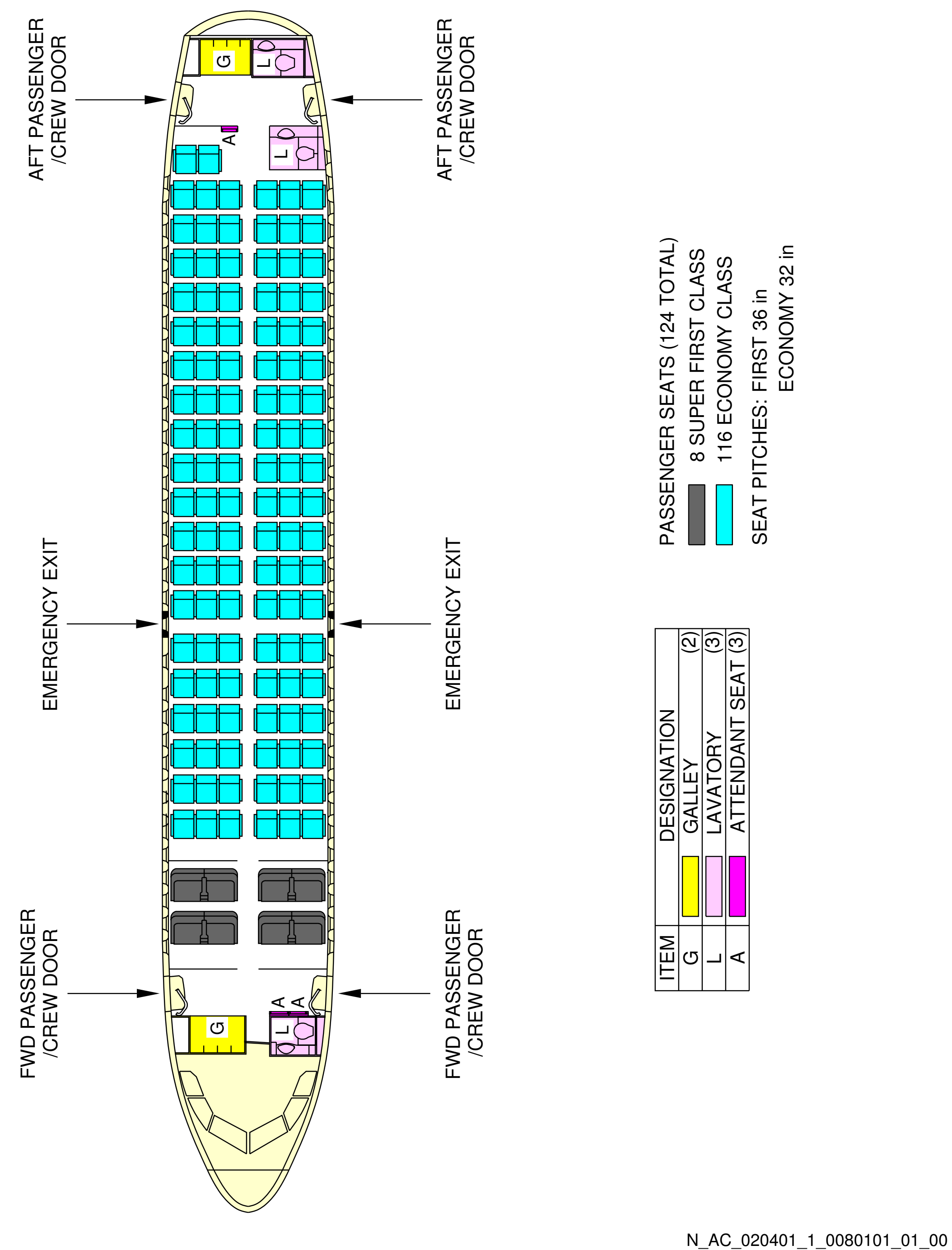
1. This section gives the typical interior configuration.

**ON A/C A319-100



Typical Configuration
Typical Configuration Single-Class, High Density
FIGURE-2-4-1-991-002-A01

**ON A/C A319-100



Typical Configuration
Typical Configuration Two-Class
FIGURE-2-4-1-991-008-A01

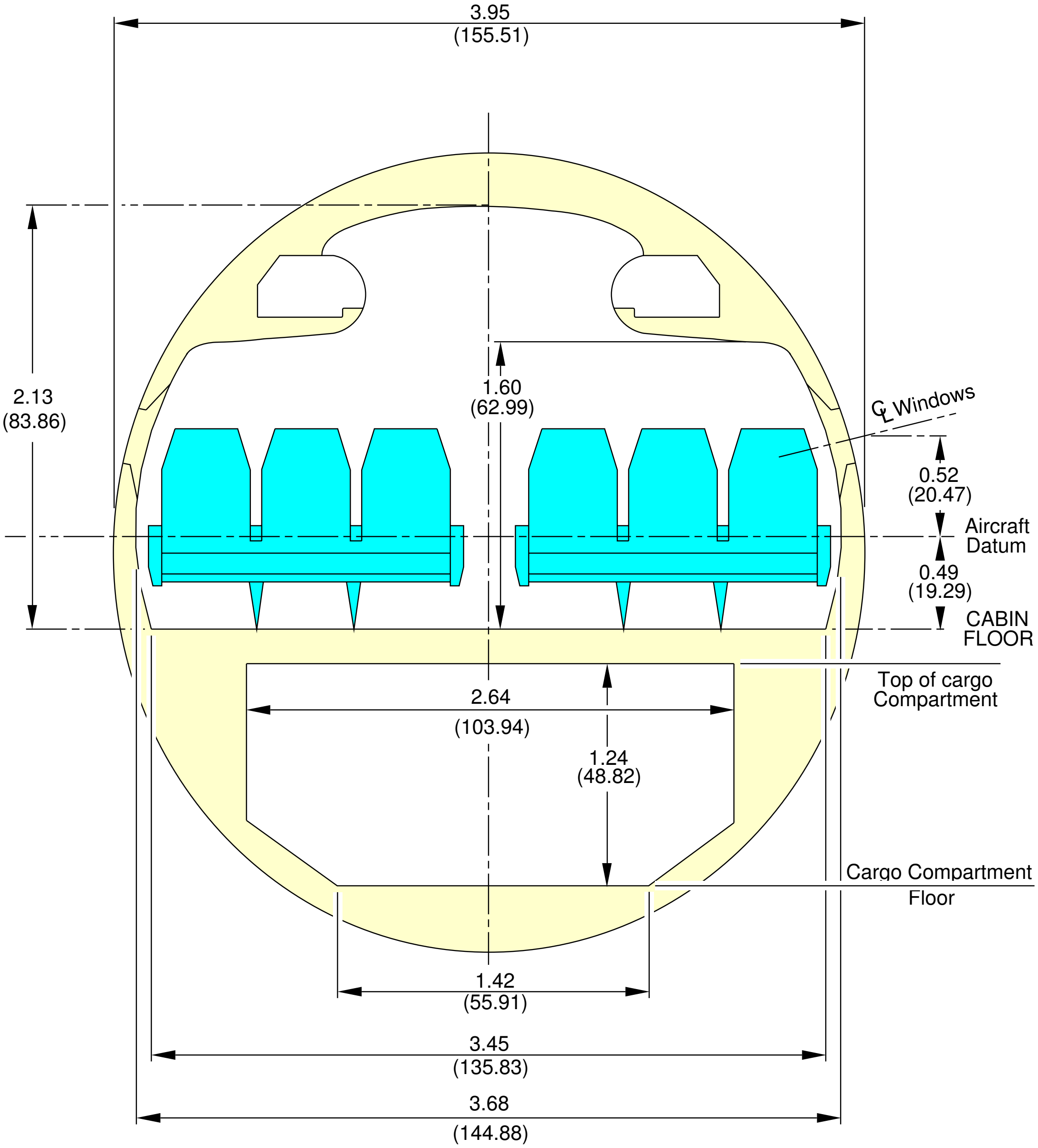
2-5-0 Passenger Compartment Cross Section

****ON A/C A319-100**

Passenger Compartment Cross-section

1. This section gives the typical passenger compartment cross-section configuration.

**ON A/C A319-100

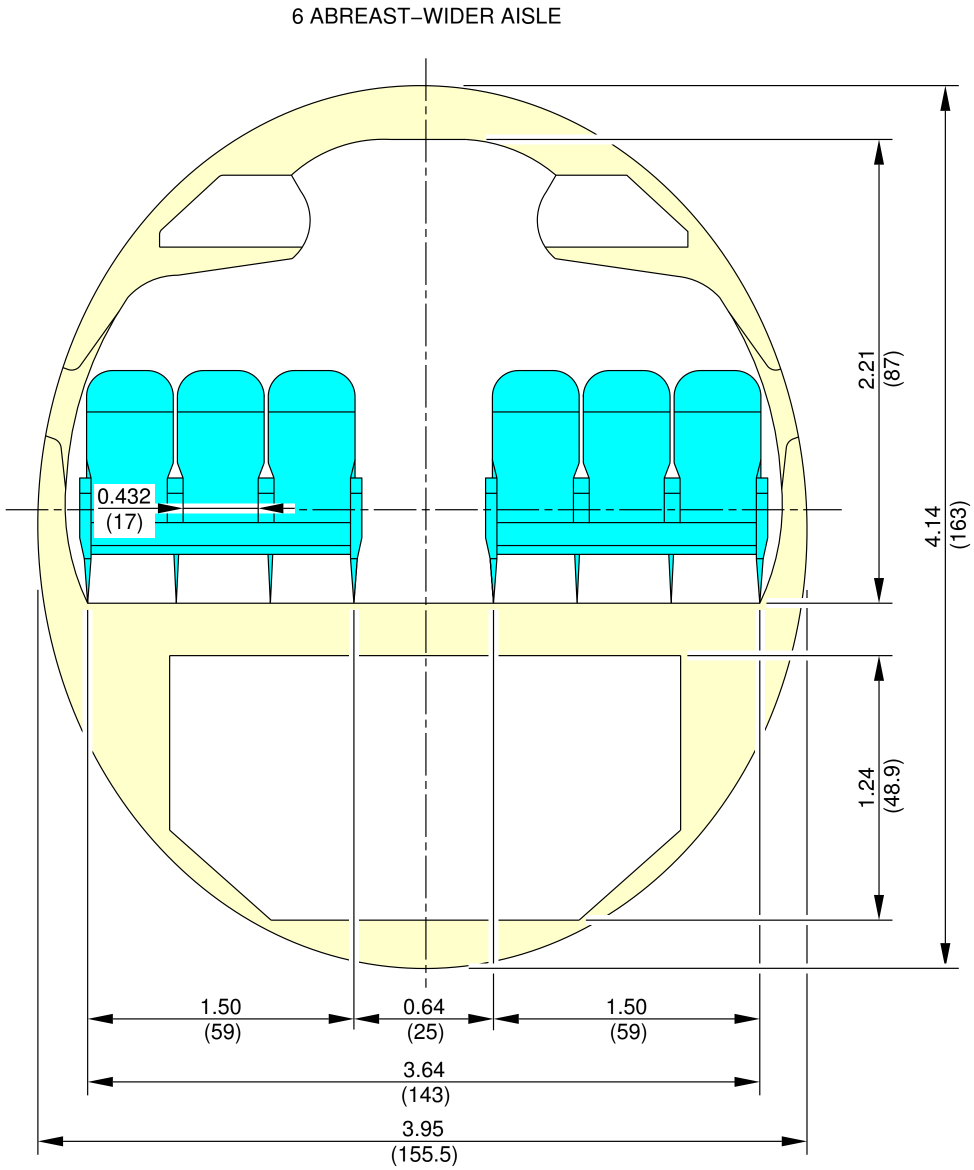


NOTE: DIMENSIONS m (in)

N_AC_020500_1_0010101_01_01

Passenger Compartment Cross-section
FIGURE-2-5-0-991-001-A01

**ON A/C A319-100

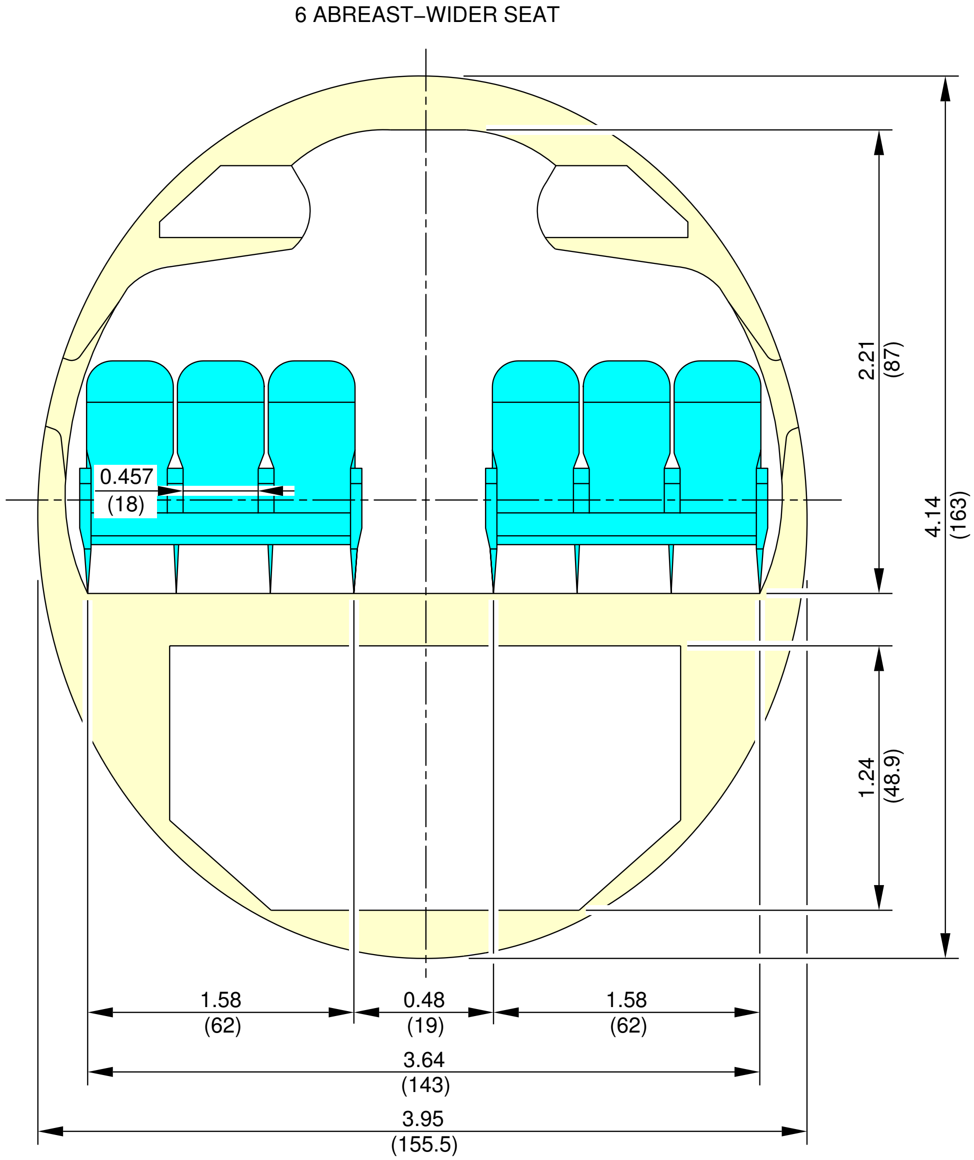


NOTE: DIMENSIONS m (in)

N_AC_020500_1_0050101_01_00

Passenger Compartment Cross-section
Economy Class, 6 Abreast - Wider Aisle (Sheet 1 of 2)
FIGURE-2-5-0-991-005-A01

**ON A/C A319-100

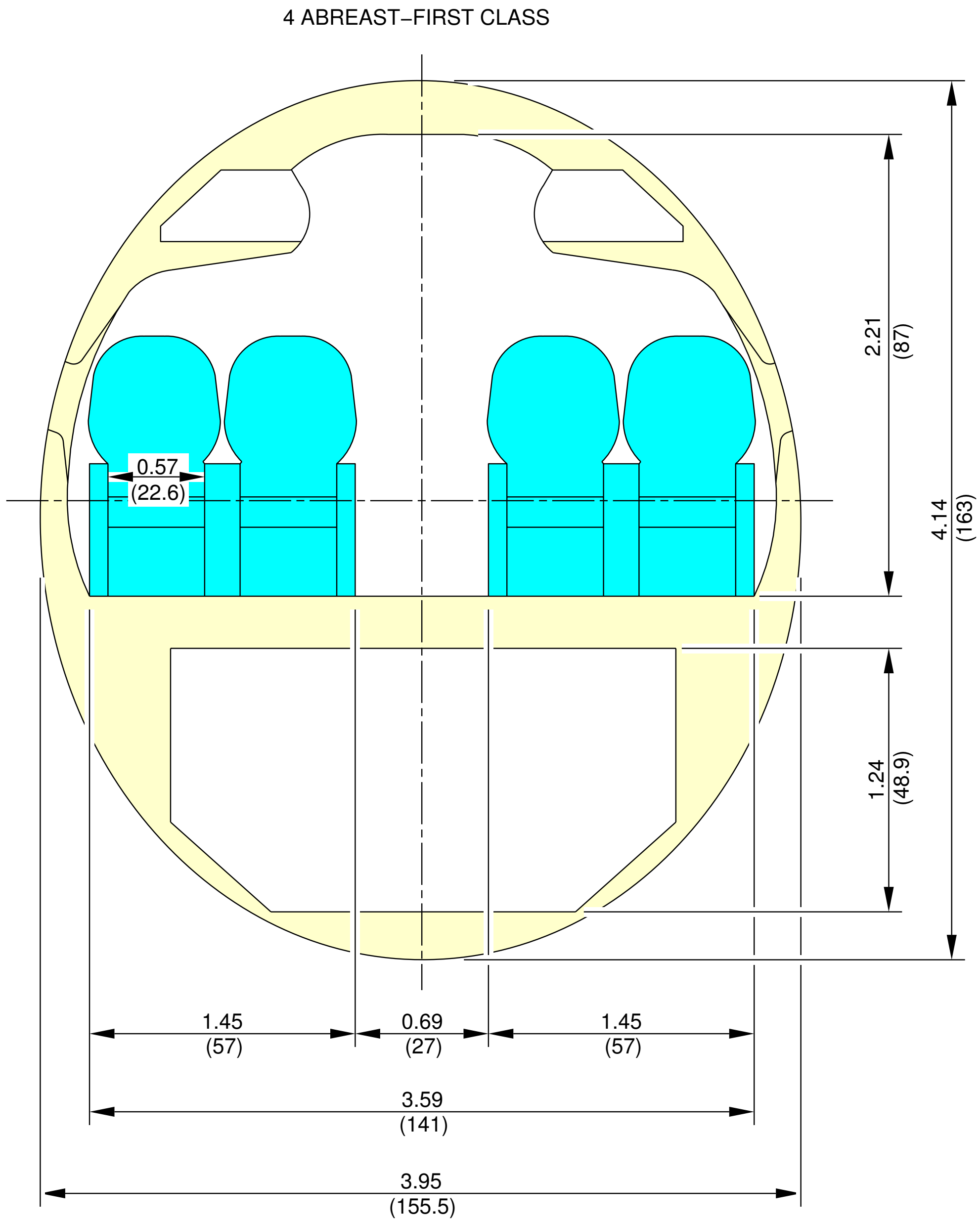


NOTE: DIMENSIONS m (in)

N_AC_020500_1_0050102_01_02

Passenger Compartment Cross-section
Economy Class, 6 Abreast - Wider Seat (Sheet 2 of 2)
FIGURE-2-5-0-991-005-A01

**ON A/C A319-100



NOTE: DIMENSIONS m (in)

N_AC_020500_1_0060101_01_00

Passenger Compartment Cross-section
Passenger Compartment Cross-section, First-class
FIGURE-2-5-0-991-006-A01

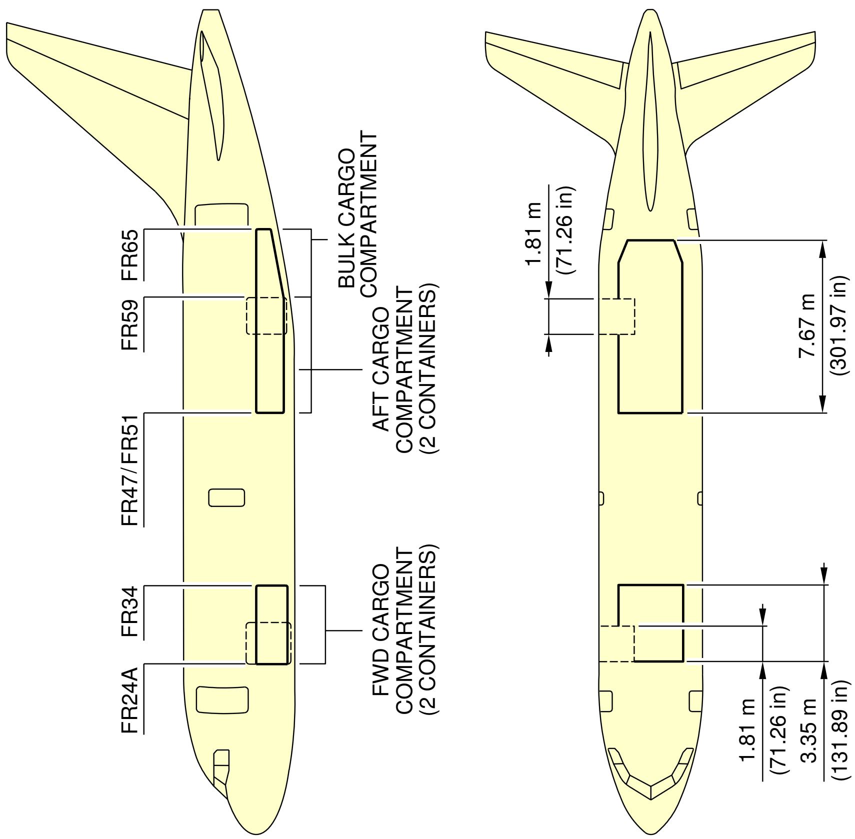
2-6-0 Cargo Compartments

****ON A/C A319-100**

Cargo Compartments

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

**ON A/C A319-100



N_AC_020600_1_0020101_01_00

Cargo Compartments
Locations, Dimensions and Loading Combinations
FIGURE-2-6-0-991-002-A01

2-7-0 Door Clearances

****ON A/C A319-100**

Doors Clearances

1. This section gives doors clearances.

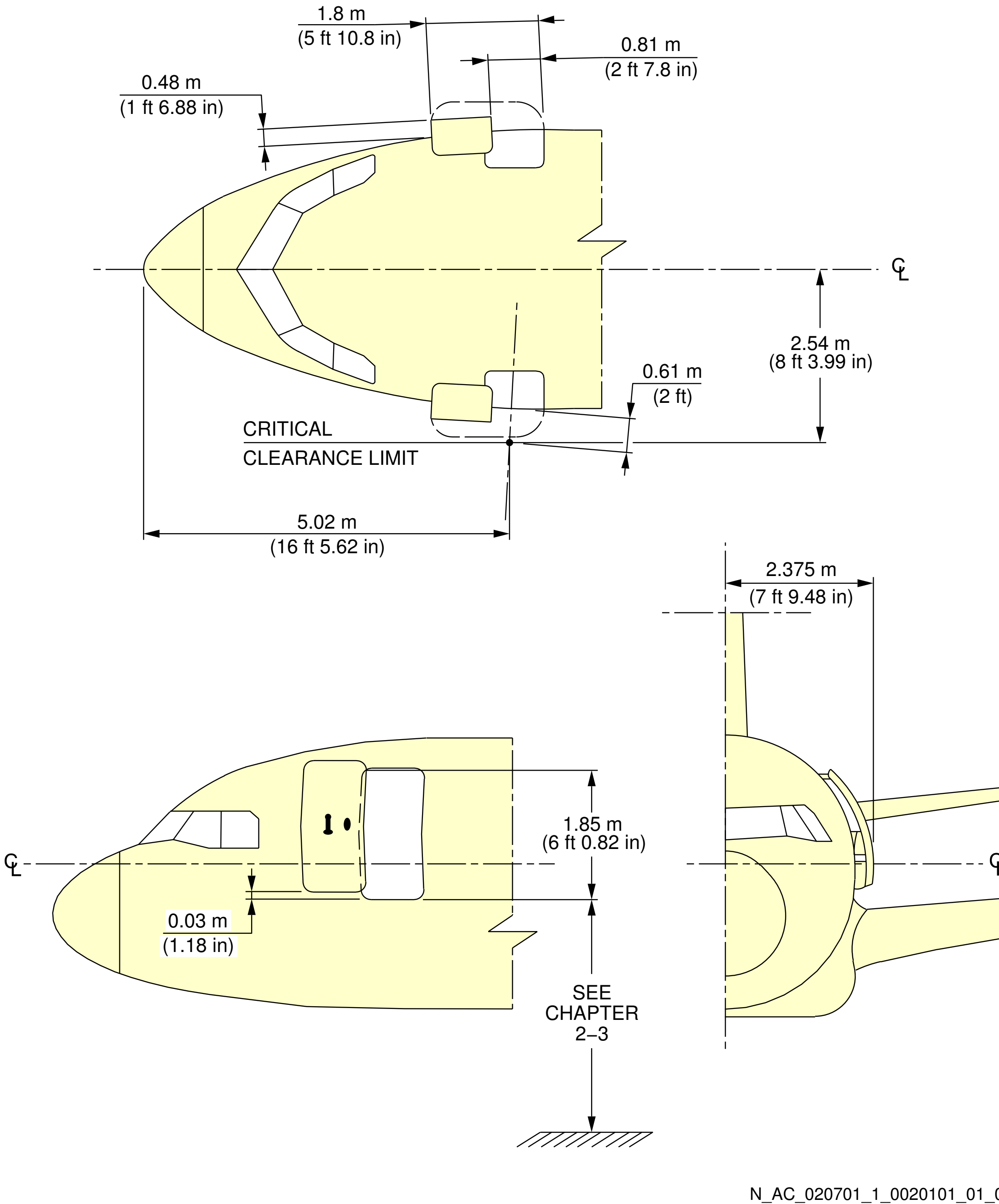
2-7-1 Forward Passenger / Crew Doors

****ON A/C A319-100**

Forward Passenger / Crew Doors

1. This section gives forward passenger / crew doors clearances.

****ON A/C A319-100**



Doors Clearances
Forward Passenger / Crew Doors
FIGURE-2-7-1-991-002-A01

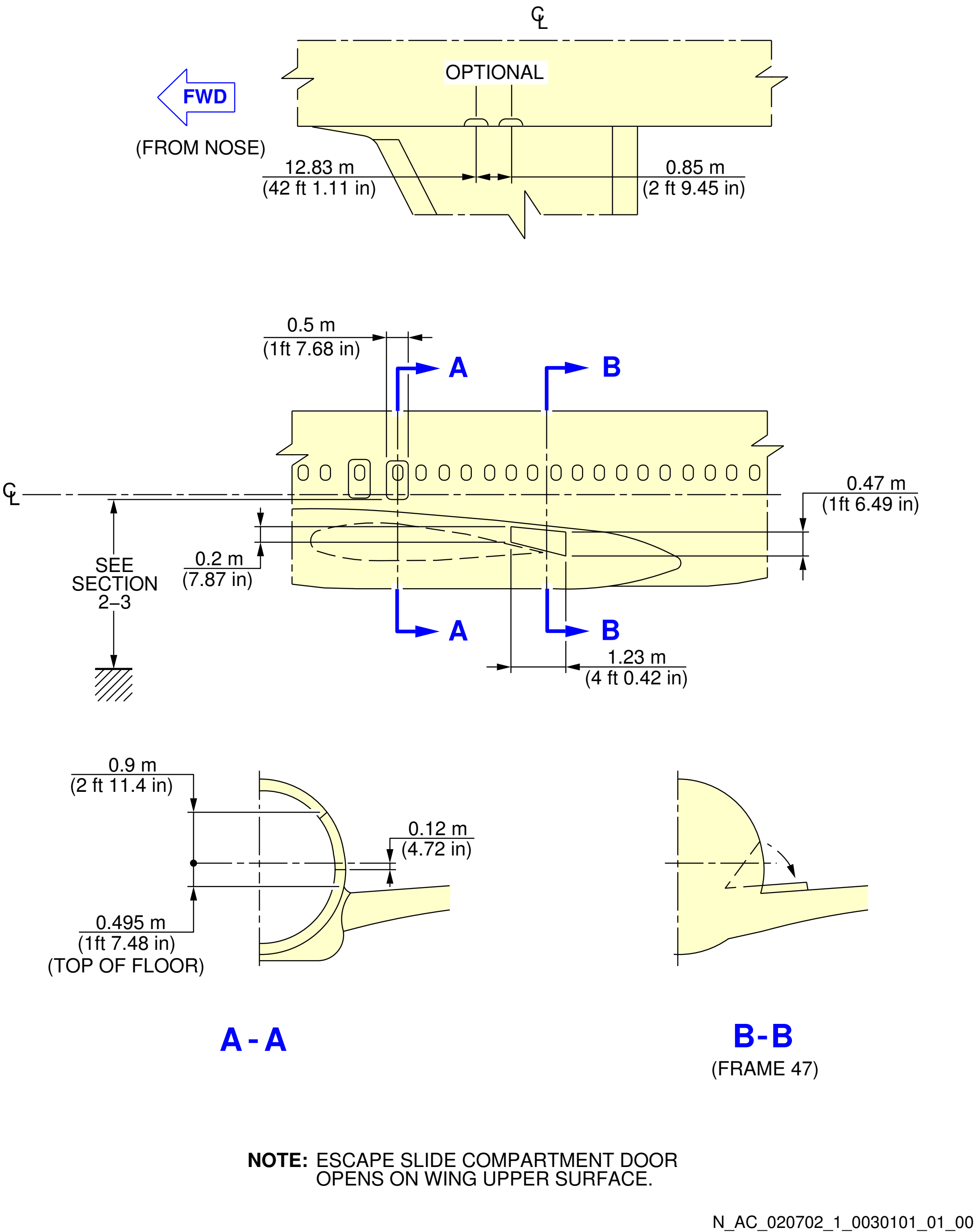
2-7-2 Emergency Exits

****ON A/C A319-100**

Emergency Exits

1. This section gives emergency exits doors clearances.

**ON A/C A319-100



Doors Clearances
Emergency Exits
FIGURE-2-7-2-991-003-A01

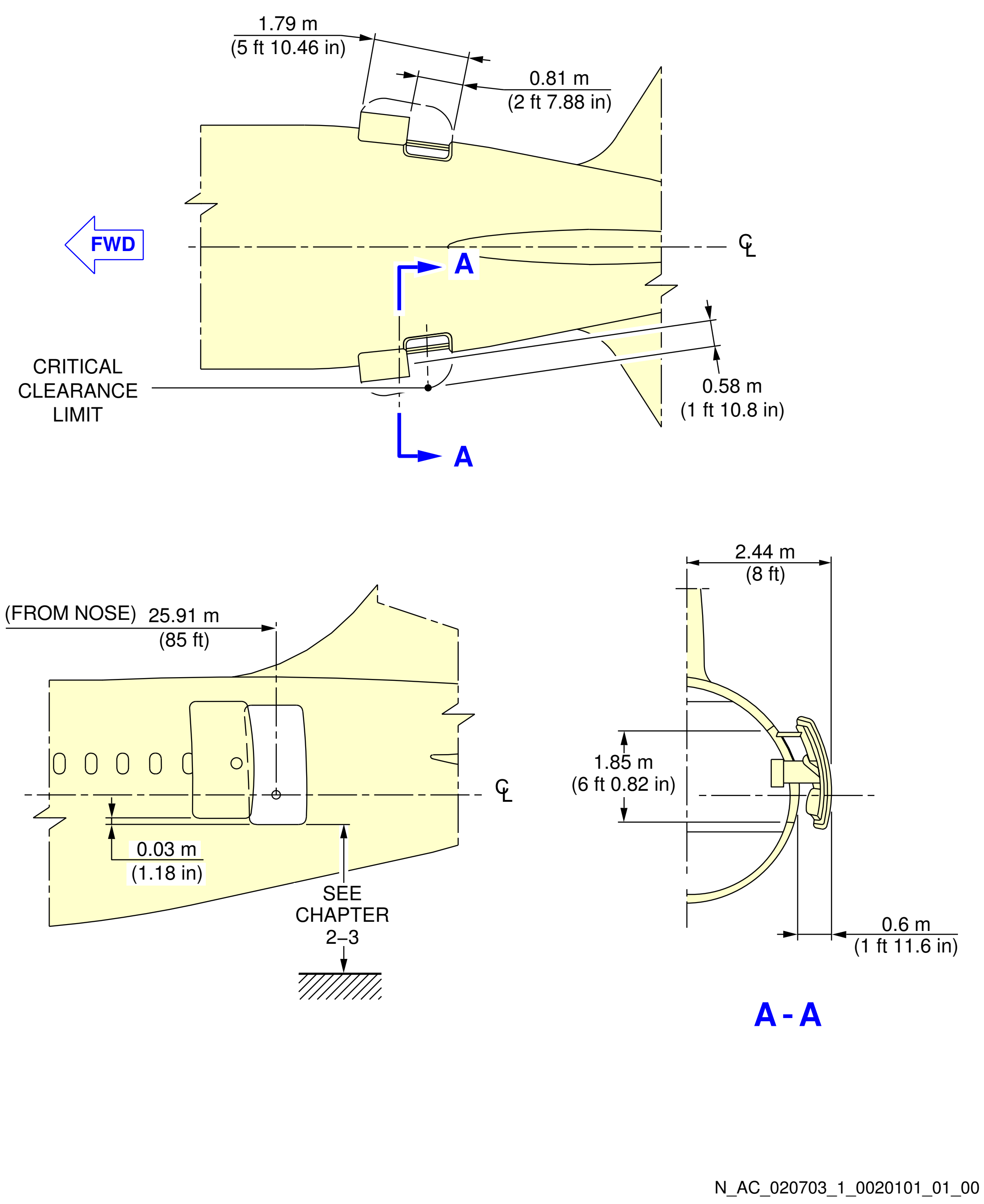
2-7-3 Aft Passenger / Crew Doors

****ON A/C A319-100**

Aft Passenger / Crew Doors

1. This section gives Aft passenger / crew doors clearances.

**ON A/C A319-100



Doors Clearances
Aft Passenger / Crew Doors
FIGURE-2-7-3-991-002-A01

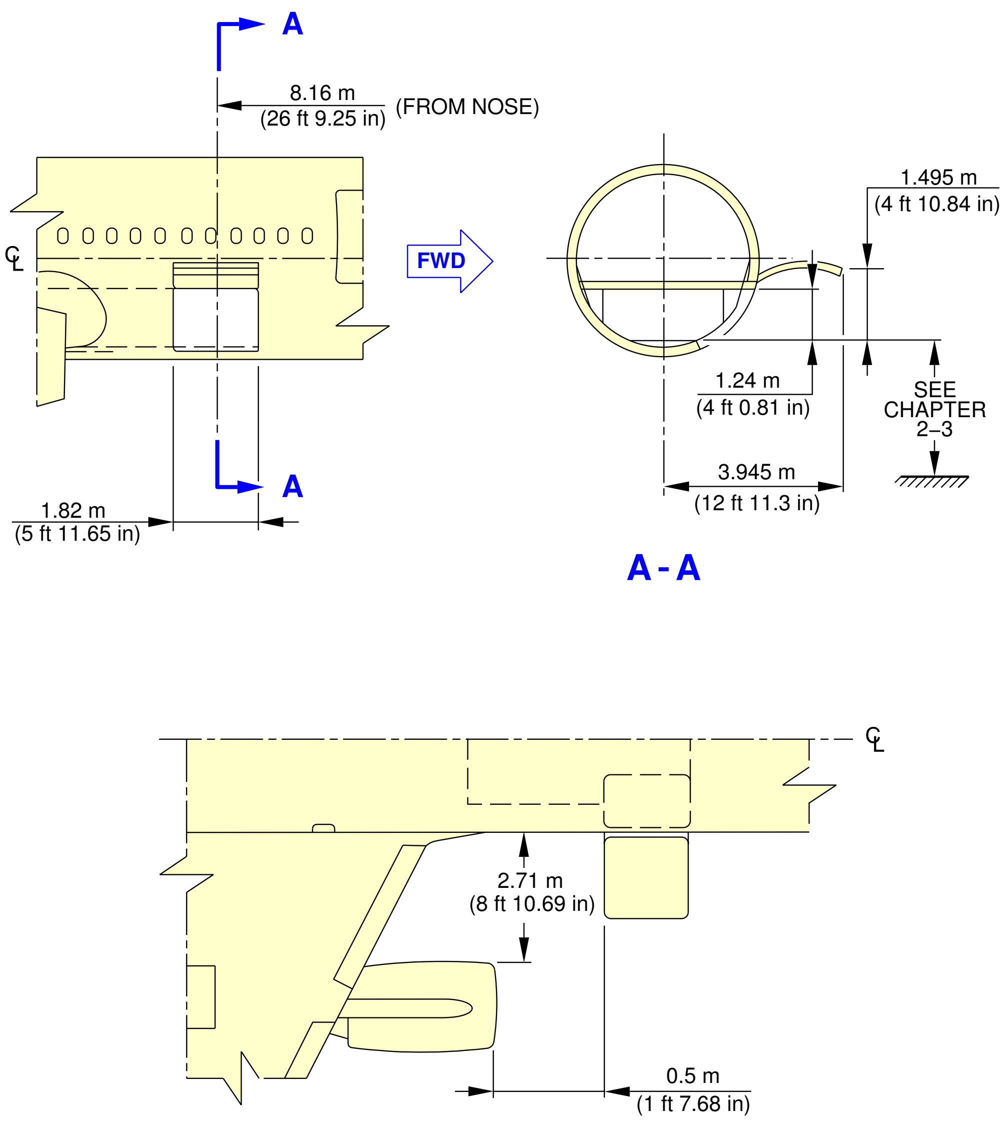
2-7-4 Forward Cargo Compartment Doors

****ON A/C A319-100**

Forward Cargo Compartment Door

1. This section gives forward cargo compartment door clearances.

**ON A/C A319-100



N_AC_020704_1_0020101_01_00

Doors Clearances
Forward Cargo Compartment Door
FIGURE-2-7-4-991-002-A01

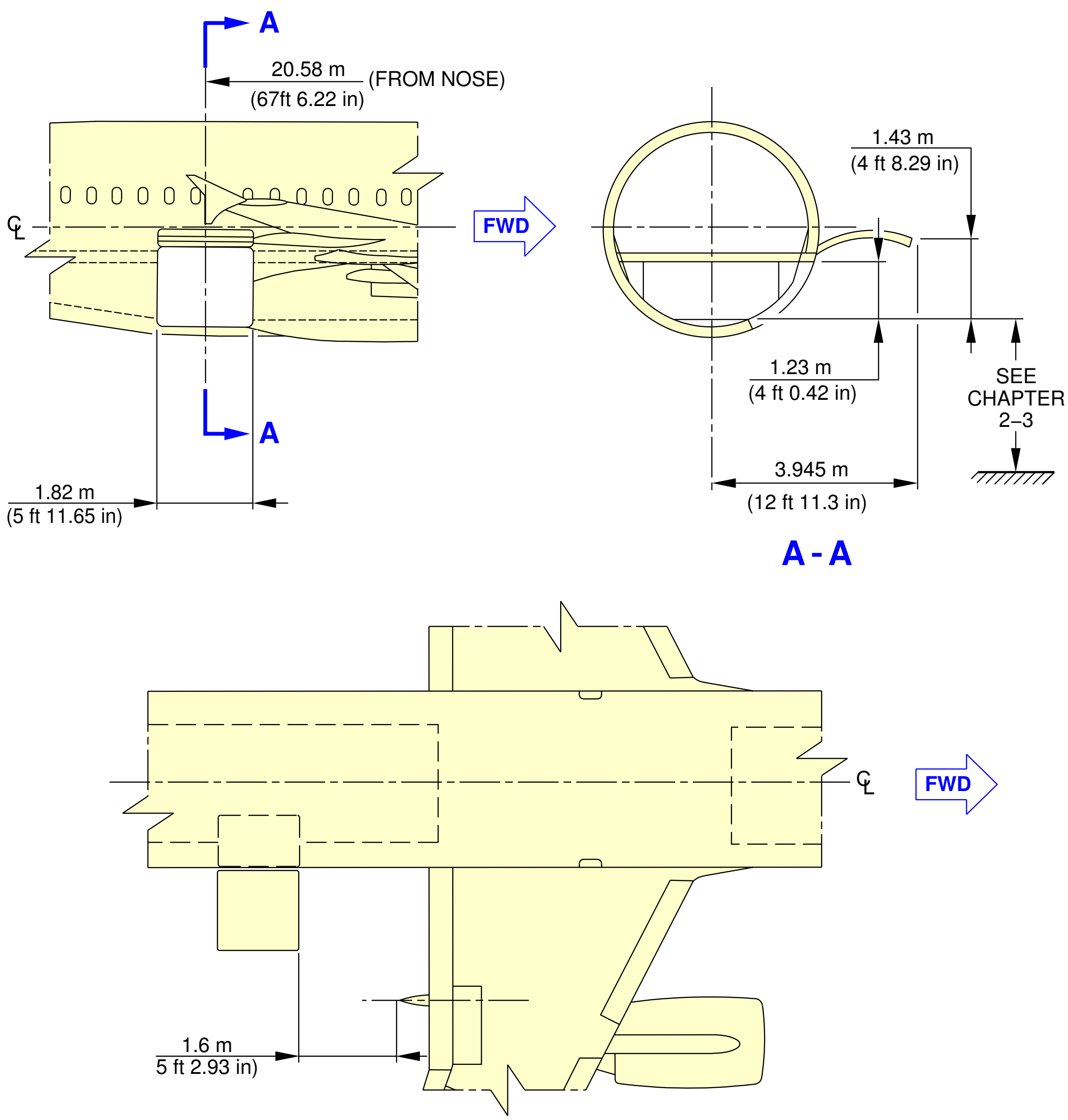
2-7-5 Aft Cargo Compartment Doors

****ON A/C A319-100**

Aft Cargo Compartment Door

1. This section gives Aft cargo compartment door clearances.

**ON A/C A319-100



N_AC_020705_1_0020101_01_01

Doors Clearances
Aft Cargo Compartment Door
FIGURE-2-7-5-991-002-A01

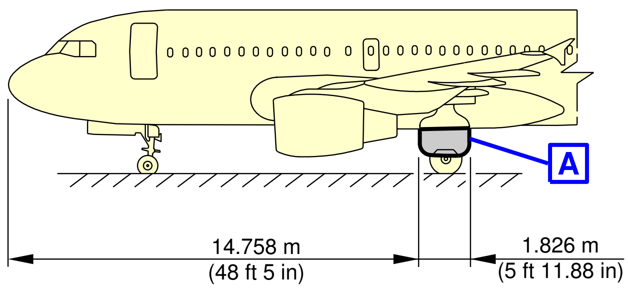
2-7-7 Main Landing Gear Doors

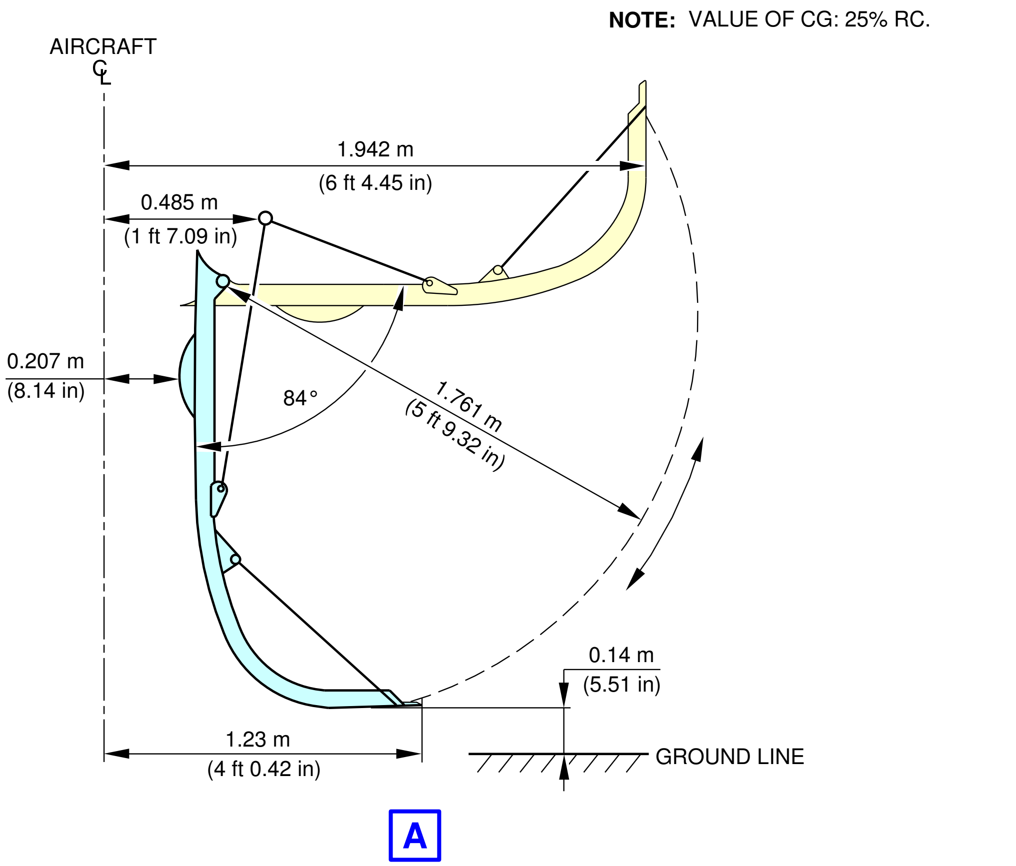
****ON A/C A319-100**

Main Landing Gear Doors

1. This section gives the main landing gear doors clearances.

**ON A/C A319-100





Doors Clearances
Main Landing Gear Doors
FIGURE-2-7-7-991-002-A01

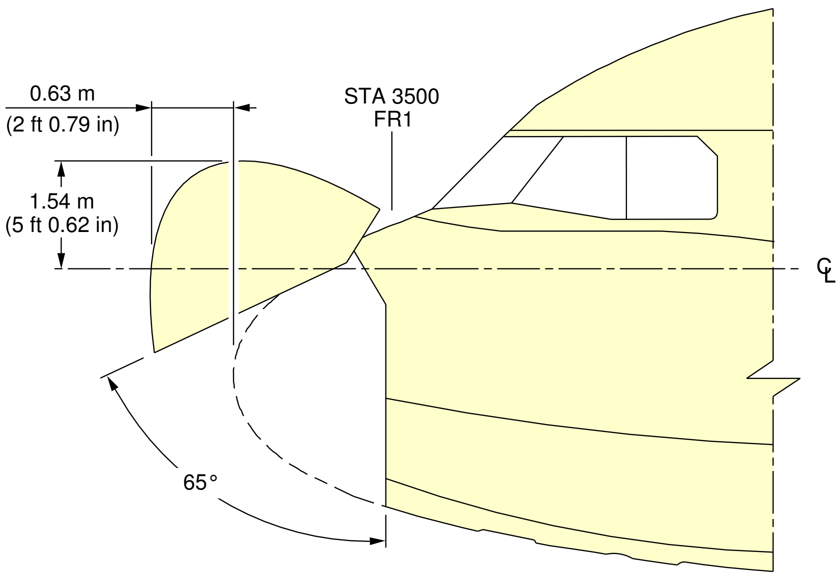
2-7-8 Radome

****ON A/C A319-100**

Radome

1. This section gives the radome clearances.

****ON A/C A319-100**



N_AC_020708_1_0020101_01_00

Doors Clearances
Radome
FIGURE-2-7-8-991-002-A01

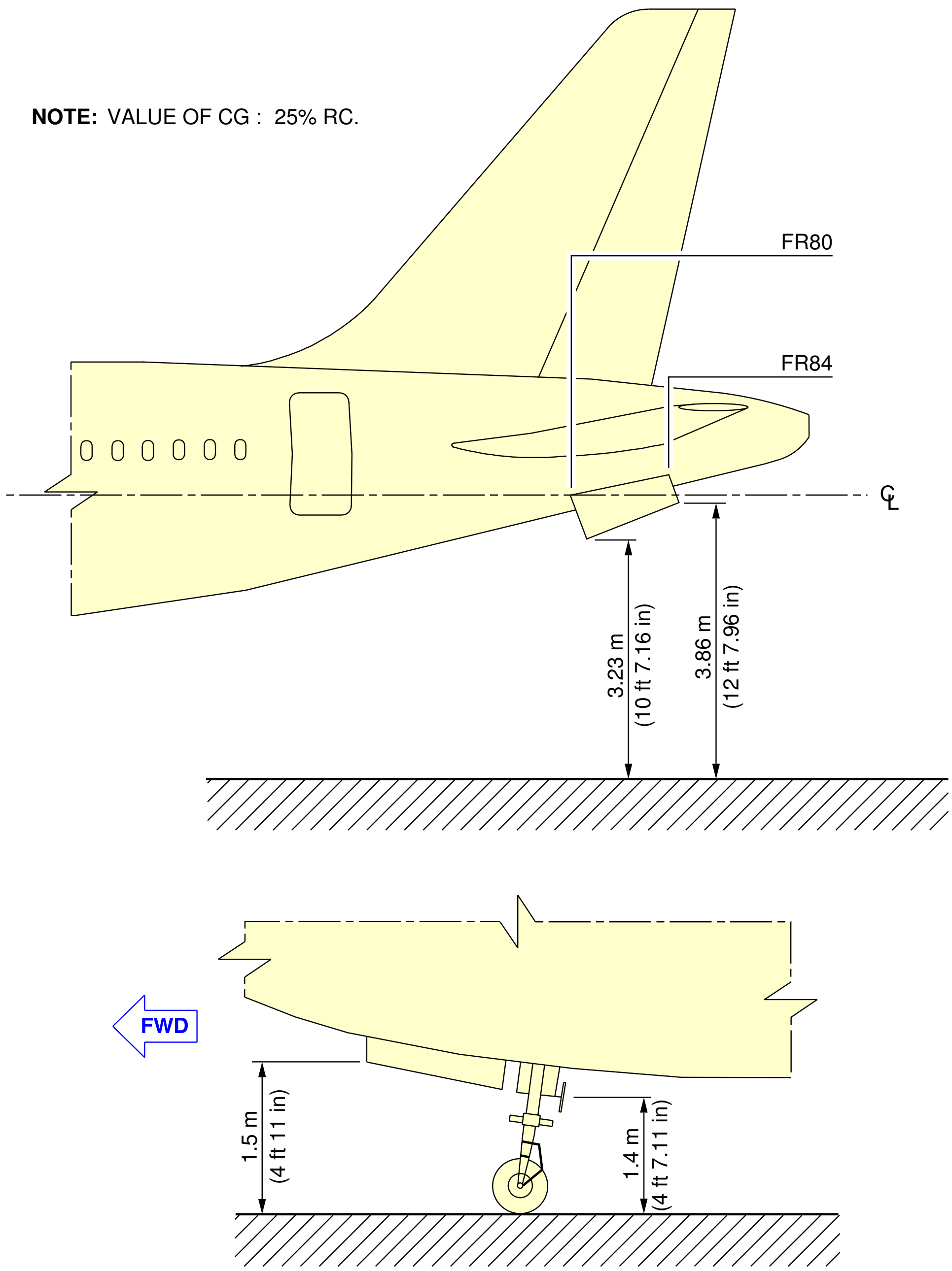
2-7-9 APU and Nose Landing Gear Doors

**ON A/C A319-100

APU and Nose Landing Gear Doors

1. This section gives APU and Nose Landing Gear doors clearances.

**ON A/C A319-100



N_AC_020709_1_0020101_01_00

Doors Clearances
APU and Nose Landing Gear Doors
FIGURE-2-7-9-991-002-A01

2-8-0 Escape Slides

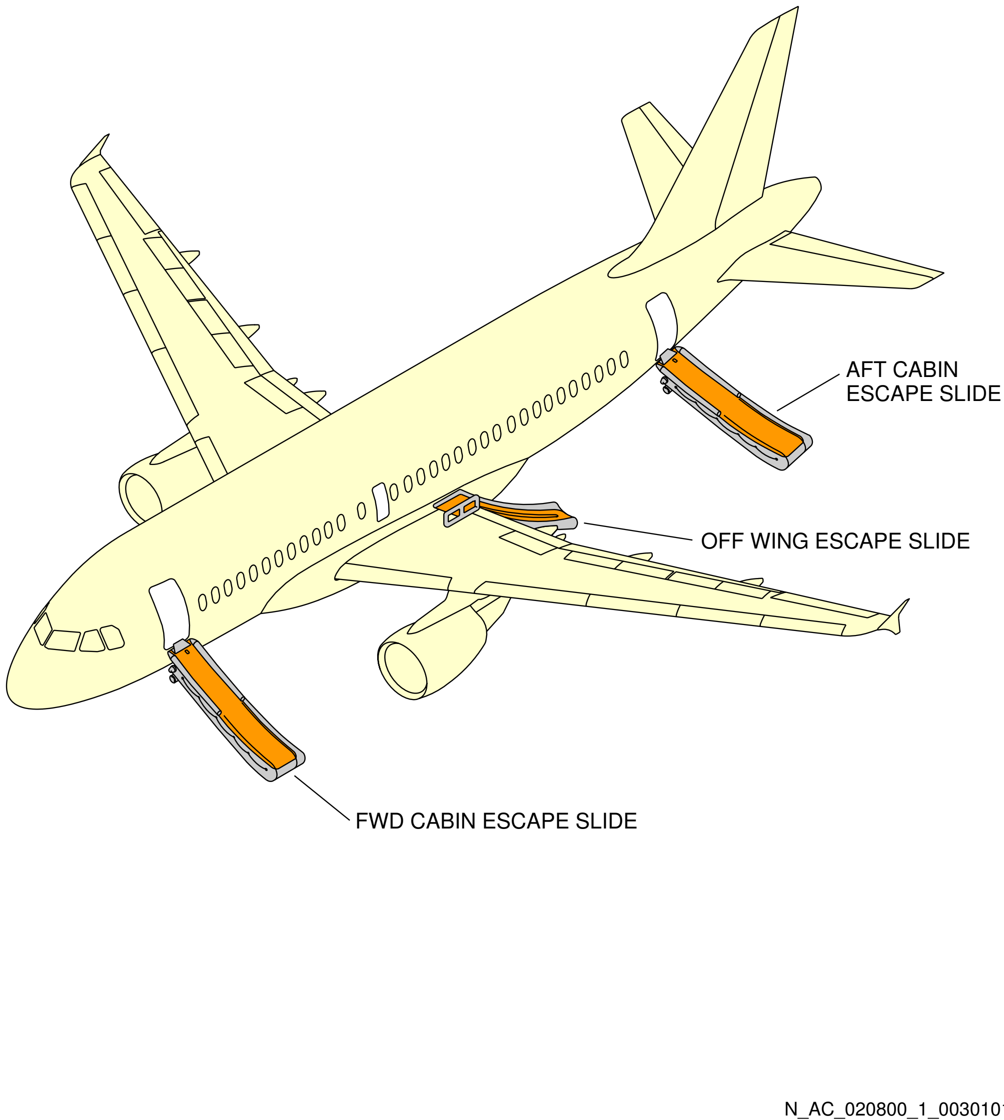
**ON A/C A319-100

Escape Slides

1. General
   This section gives location of cabin escape facilities and related clearances.

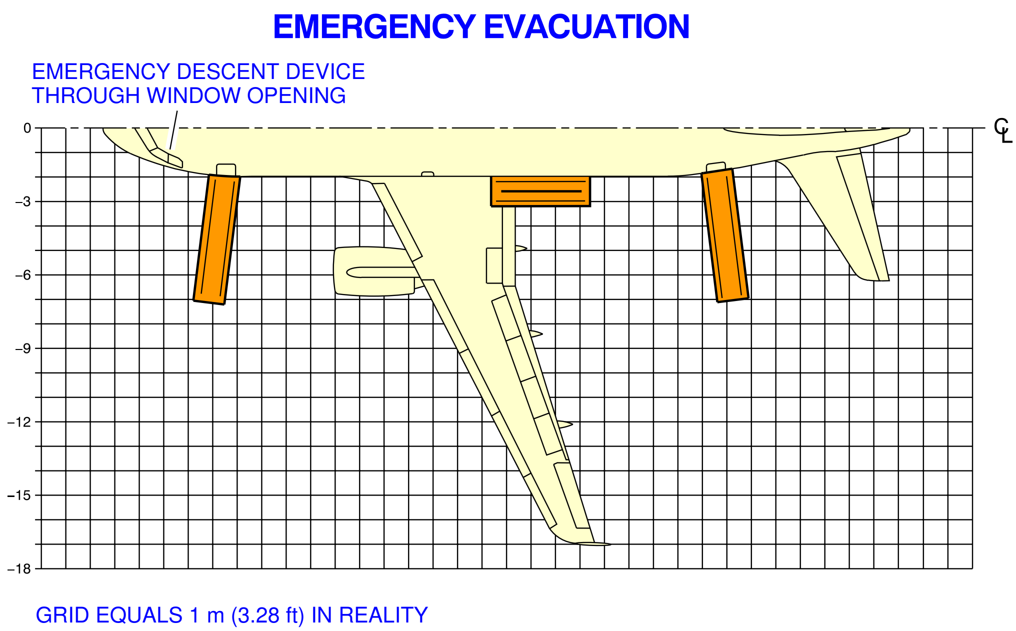
2. Location
   Escape facilities are provided at the following locations:
   - one slide-raft at each passenger/crew door (total four)
   - one slide for each emergency exit door (total two). Dual lane offwing escape slides are installed above the wings in the left and right wing-to-fuselage fairings for off-the-wing evacuation.

**ON A/C A319-100



Escape Slides
Location
FIGURE-2-8-0-991-003-A01

**ON A/C A319-100



Escape Slides
Dimensions
FIGURE-2-8-0-991-004-A01

2-9-0 Landing Gear

****ON A/C A319-100**

Landing Gear

1. General

The landing gear is of the conventional retractable tricycle type comprising:
- Two main gears with twin wheel
- 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 STA 5394/FR 9 and STA 8077/FR 20.

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

For landing gear footprint and tire size, refer to 7-2-0.

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 direction 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 comprises a leg with a built-in shock absorber strut, carrying twin wheel 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 installed on the nose landing gear to allow steering deactivation for towing purpose.

5. Landing Gear Servicing Points

A. General

Filling of the landing gear shock absorbers is through MS28889 standard valves.

Charging of the landing gear shock absorbers is accomplished with nitrogen through MS28889 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.

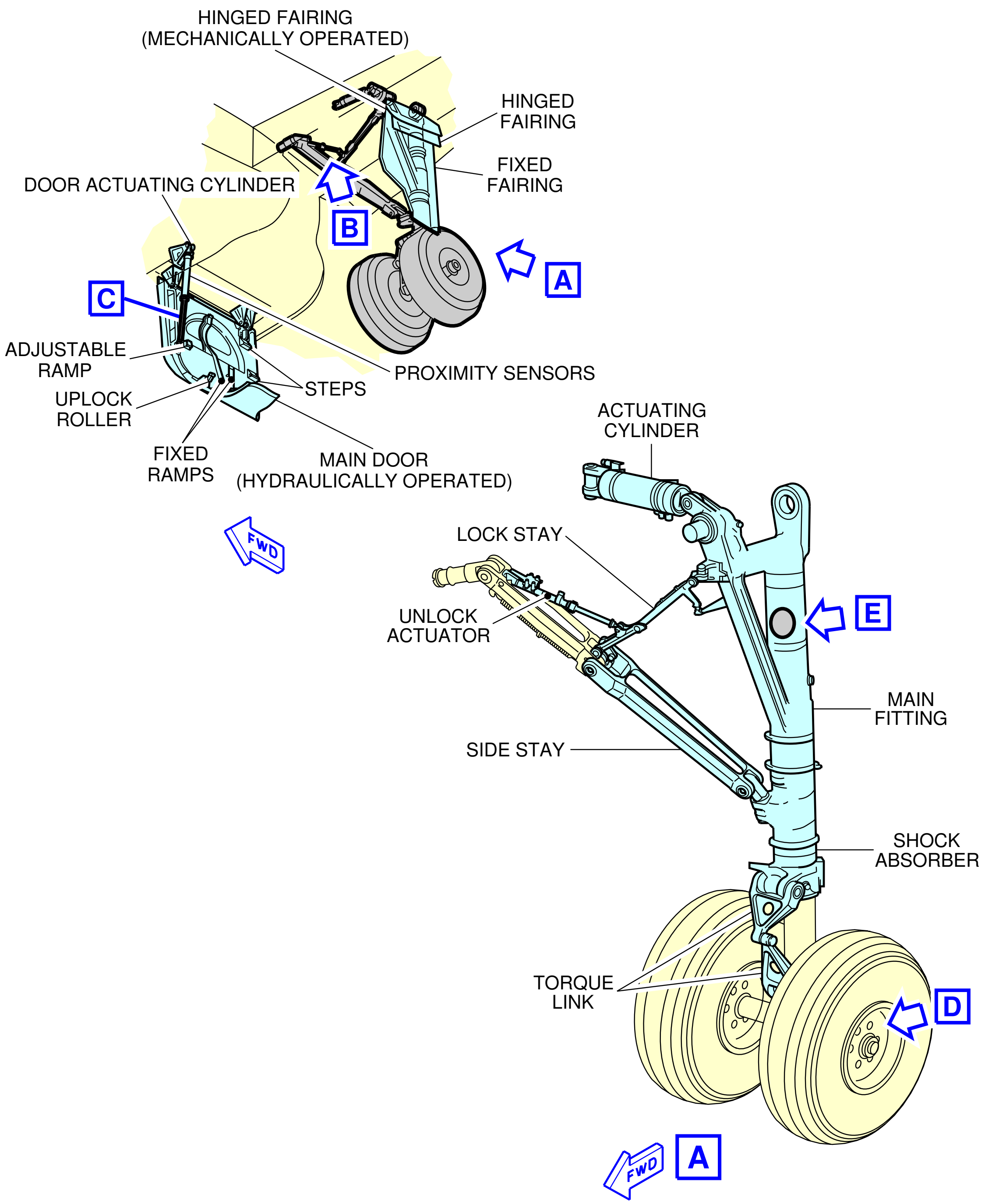
The braking system has four braking modes plus autobrake and anti-skid systems:
- Normal braking with anti-skid capability
- Alternative braking with anti-skid capability
- Alternative braking without anti-skid capability
- Parking brake with full pressure application capability only.

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 A319-100

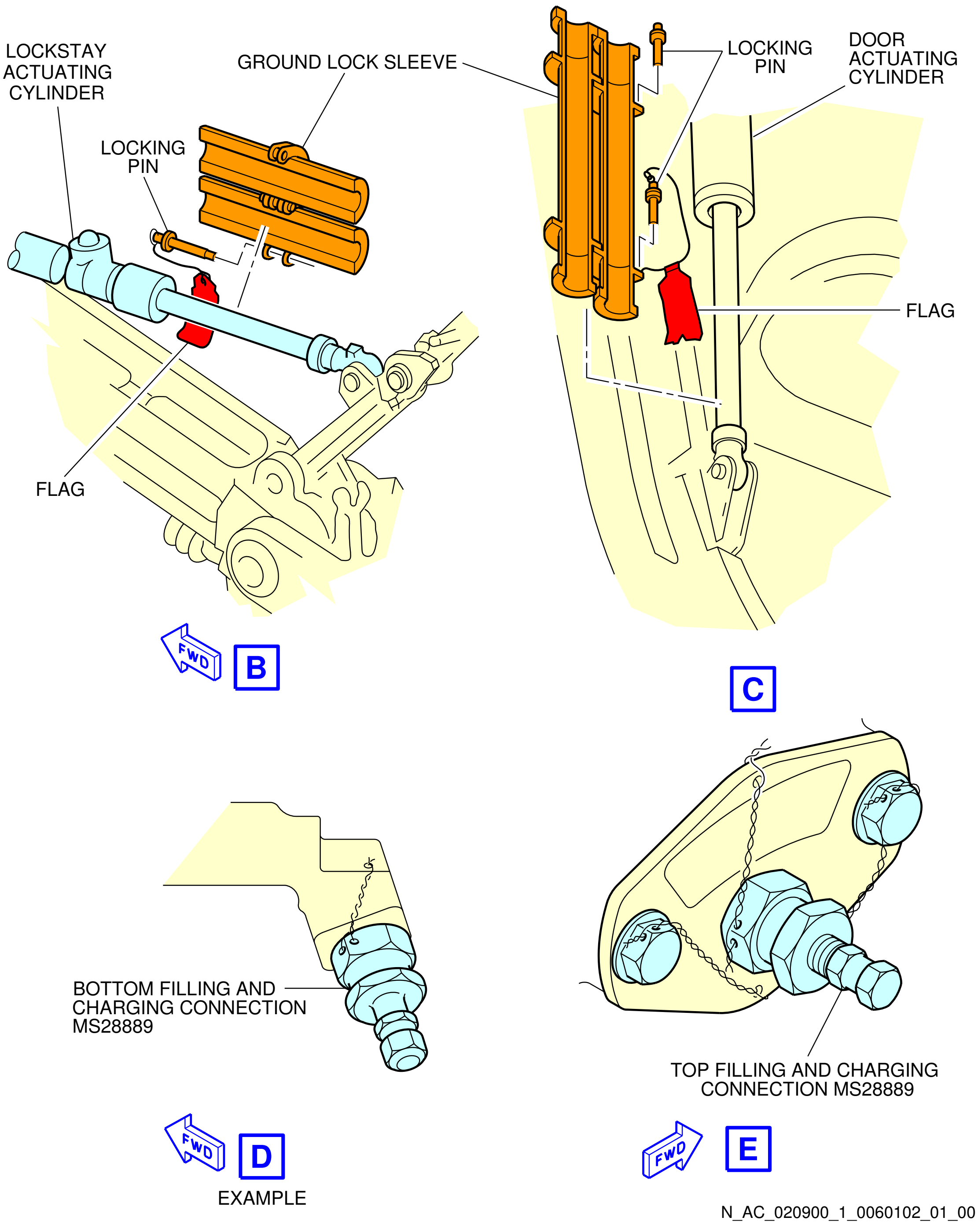


NOTE: MAIN DOOR SHOWN OPEN IN GROUND MAINTENANCE POSITION.

N_AC_020900_1_0060101_01_00

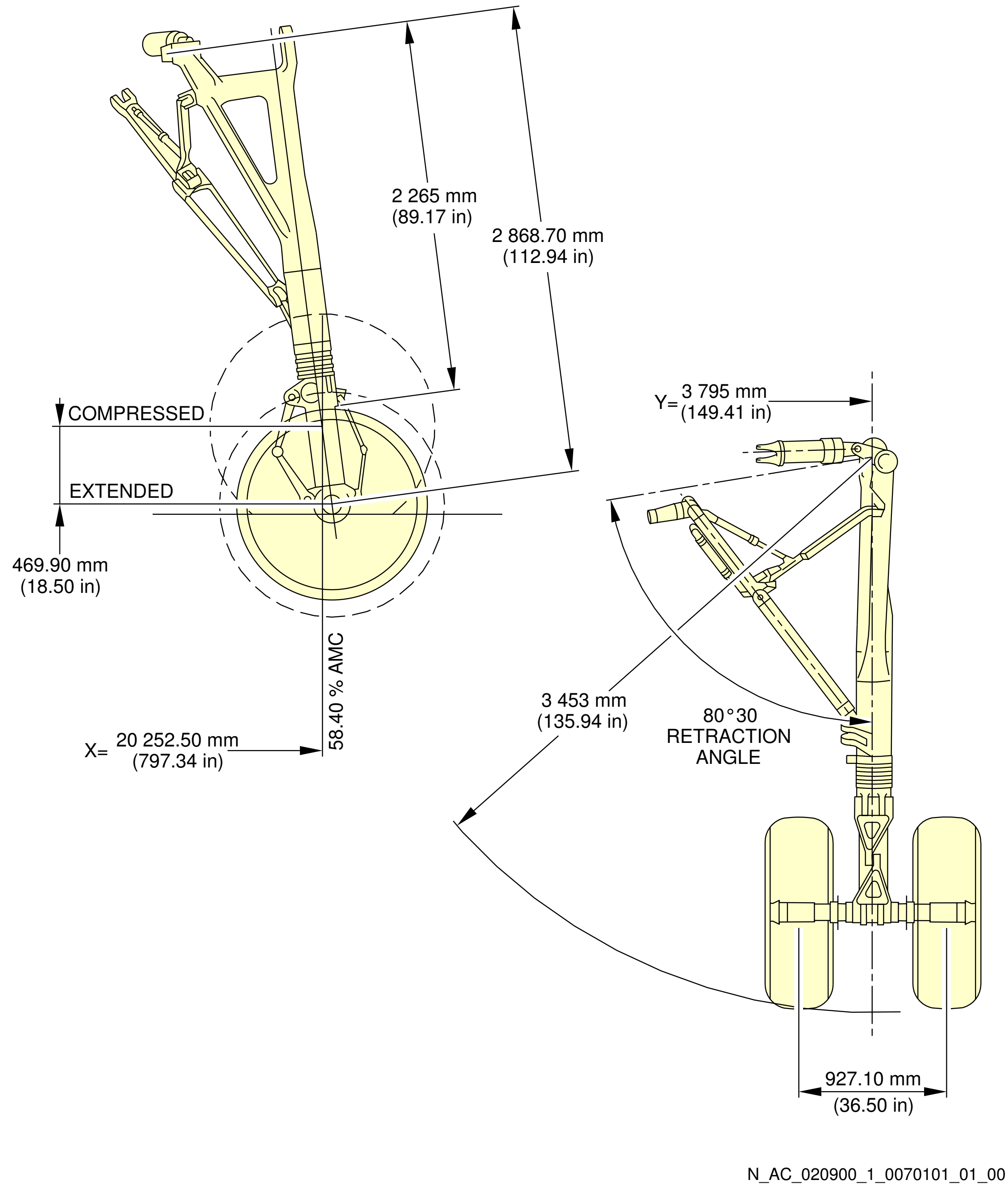
Landing Gear
Main Landing Gear - Twin Wheel (Sheet 1 of 2)
FIGURE-2-9-0-991-006-A01

**ON A/C A319-100



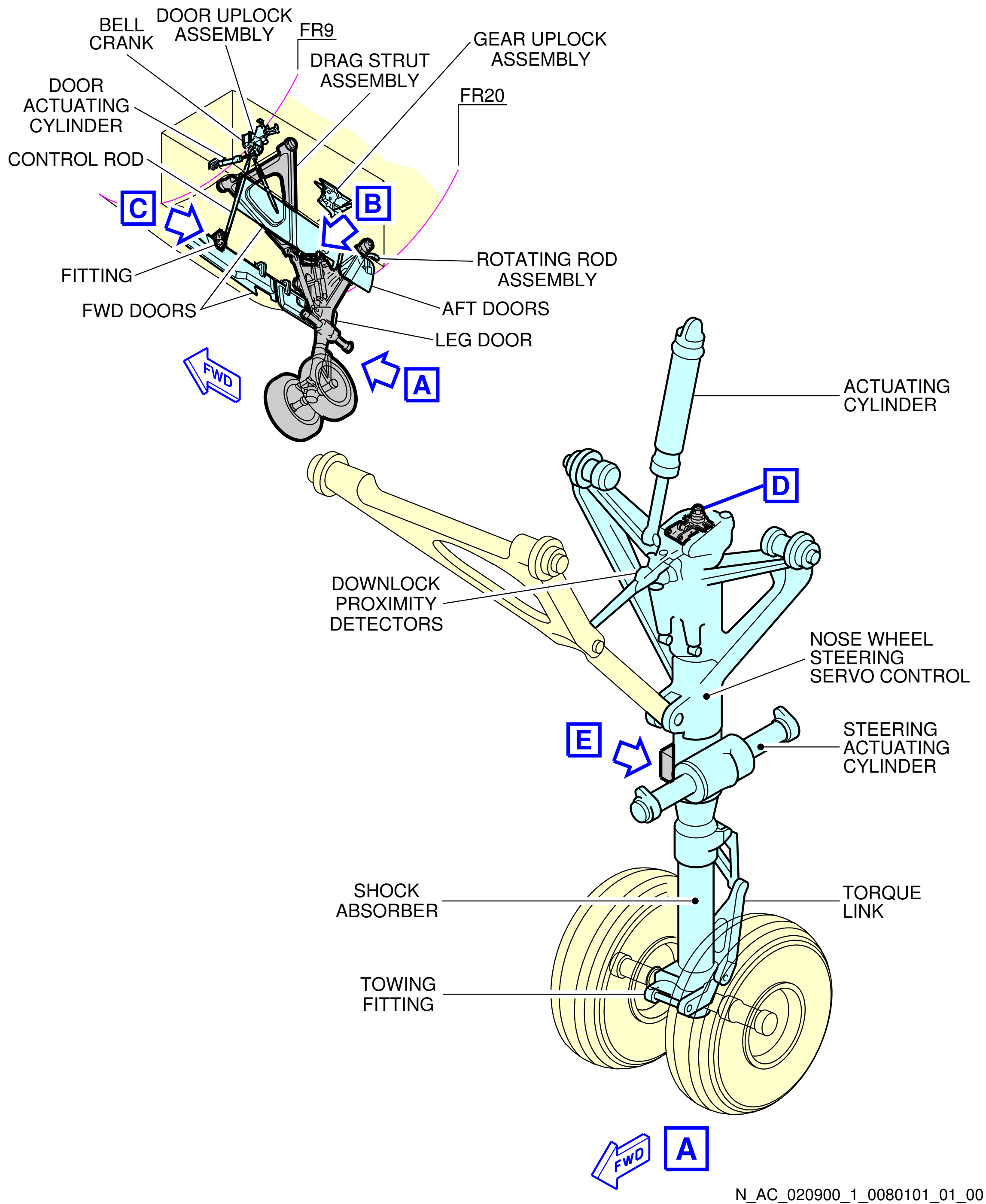
Landing Gear
Main Landing Gear - Twin Wheel (Sheet 2 of 2)
FIGURE-2-9-0-991-006-A01

**ON A/C A319-100



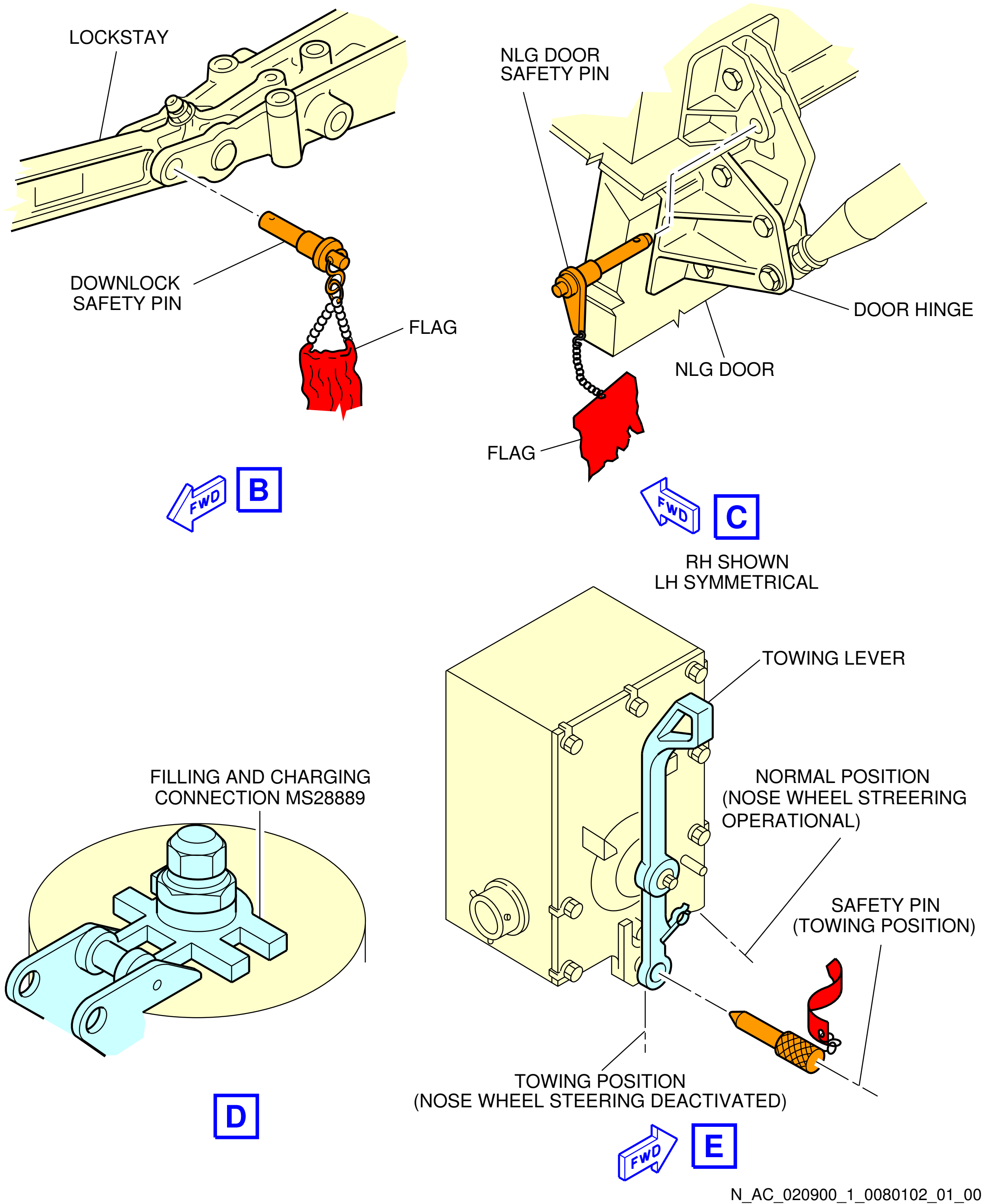
Landing Gear
Main Landing Gear Dimensions - Twin Wheel
FIGURE-2-9-0-991-007-A01

**ON A/C A319-100



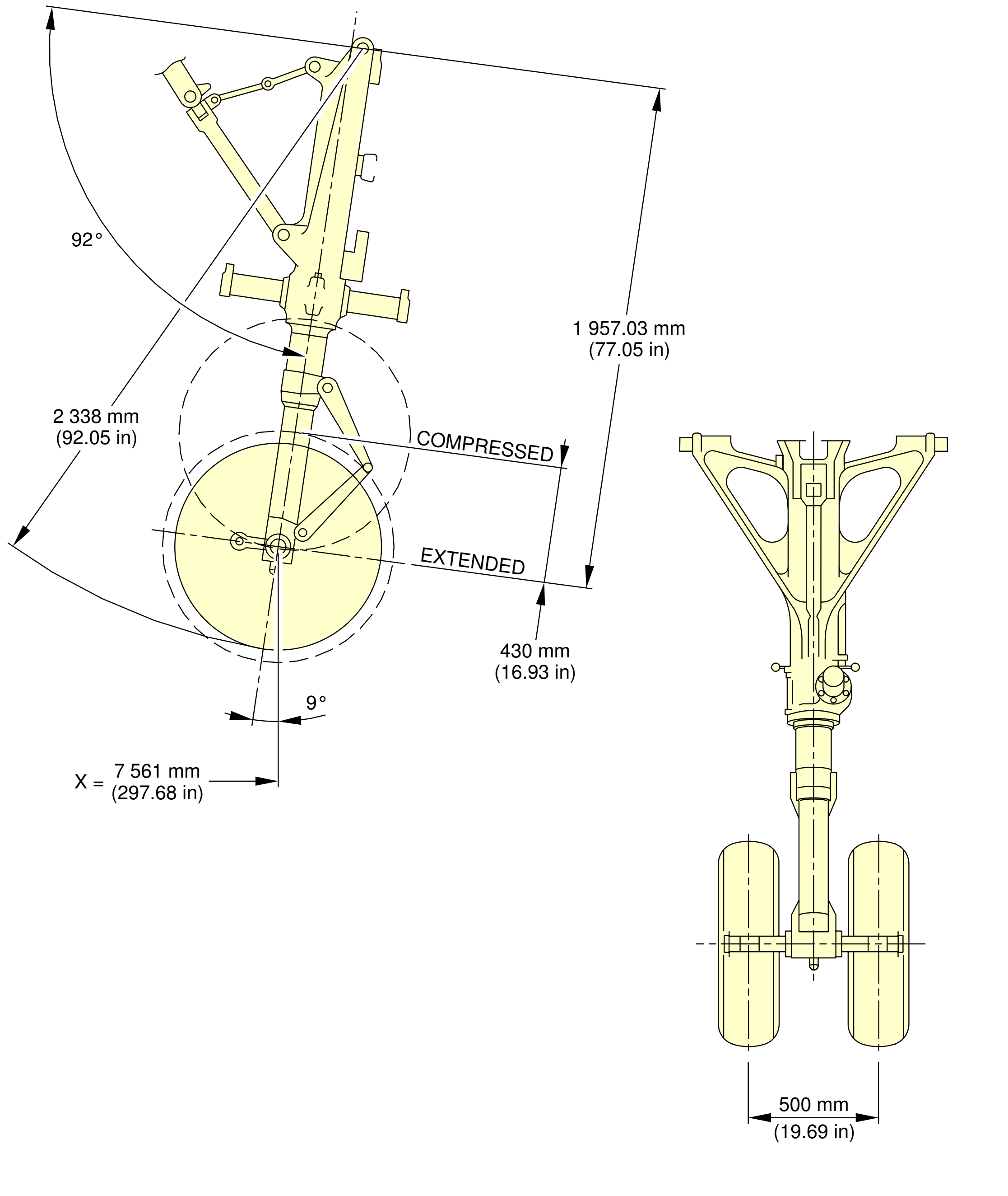
Landing Gear
Nose Landing Gear (Sheet 1 of 2)
FIGURE-2-9-0-991-008-A01

**ON A/C A319-100



Landing Gear
Nose Landing Gear (Sheet 2 of 2)
FIGURE-2-9-0-991-008-A01

**ON A/C A319-100



Landing Gear
Nose Landing Gear Dimensions
FIGURE-2-9-0-991-009-A01

****ON A/C A319-100**

Landing Gear Maintenance Pits

1. Description

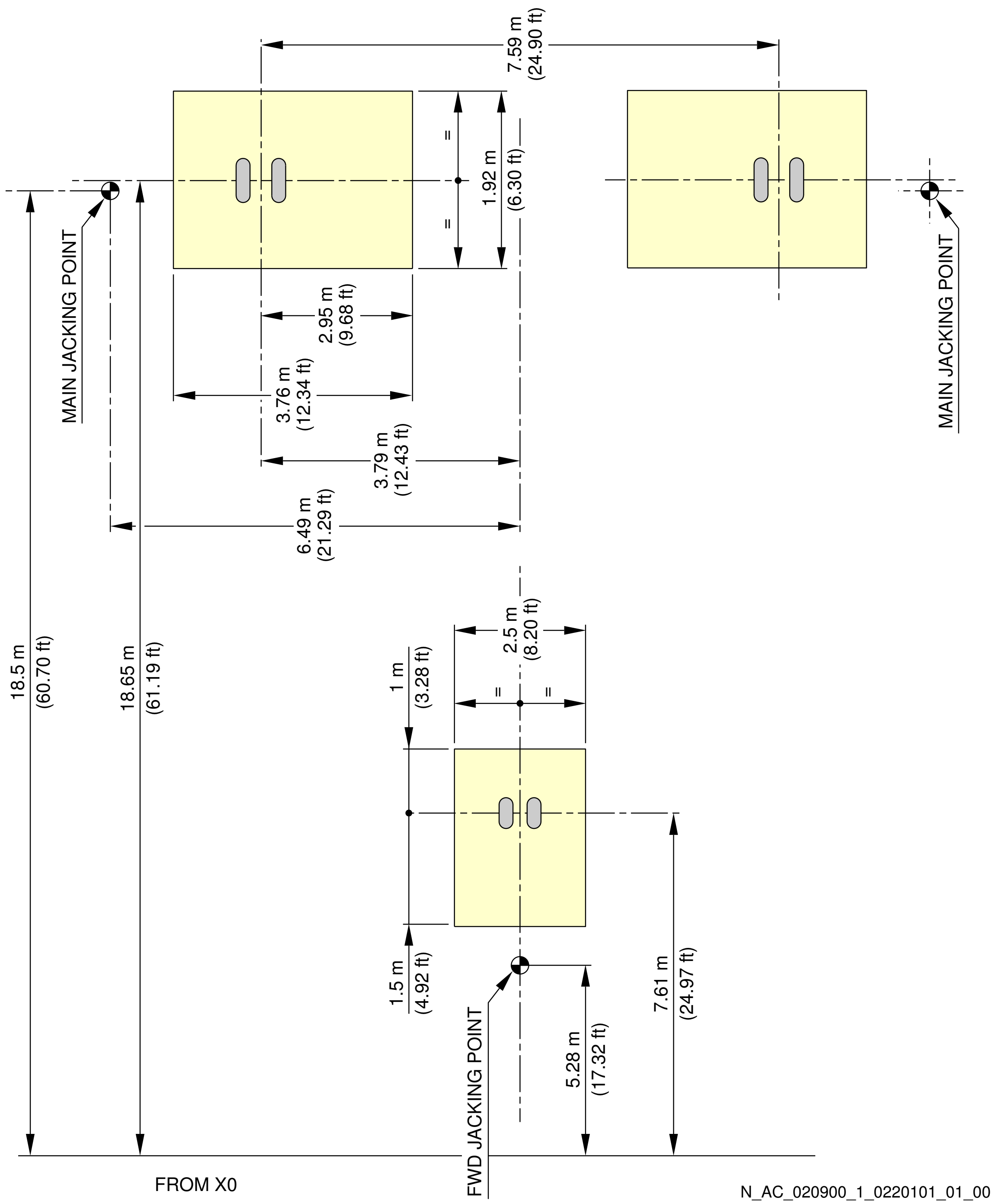
The minimum maintenance pit envelopes for the main gear shock absorber removal are shown in Figures 1 and 2.

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.

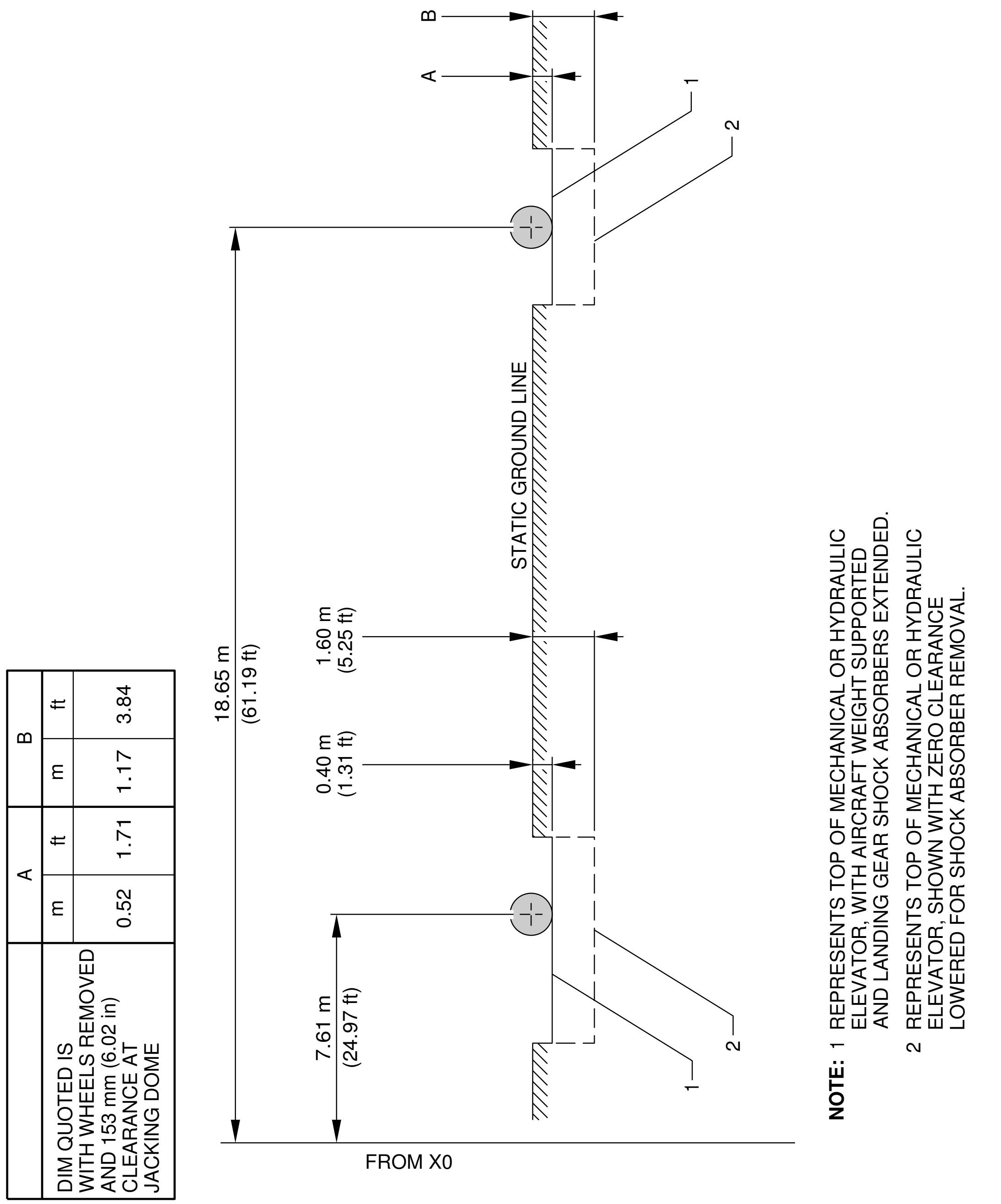
Dimensions for elevators and associated mechanisms must be added to those in Figures 1 and 2.

**ON A/C A319-100



Landing Gear Maintenance Pits
Maintenance Pit Envelopes
FIGURE-2-9-0-991-022-A01

**ON A/C A319-100



Landing Gear Maintenance Pits
Maintenance Pit Envelopes
FIGURE-2-9-0-991-023-A01

2-10-0 Exterior Lighting

****ON A/C A319-100**

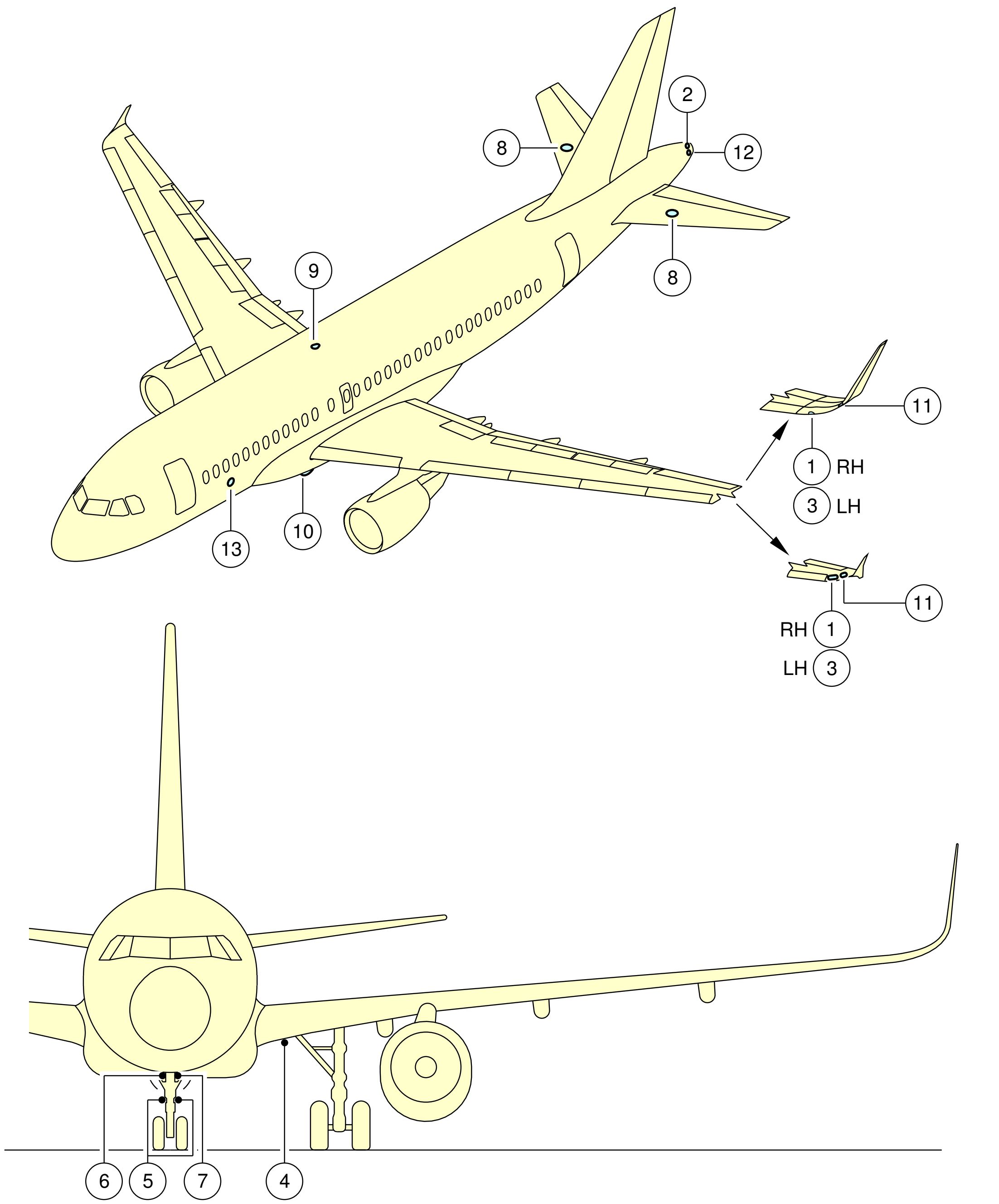
Exterior Lighting

1. General

This section gives the location of the aircraft exterior lighting.

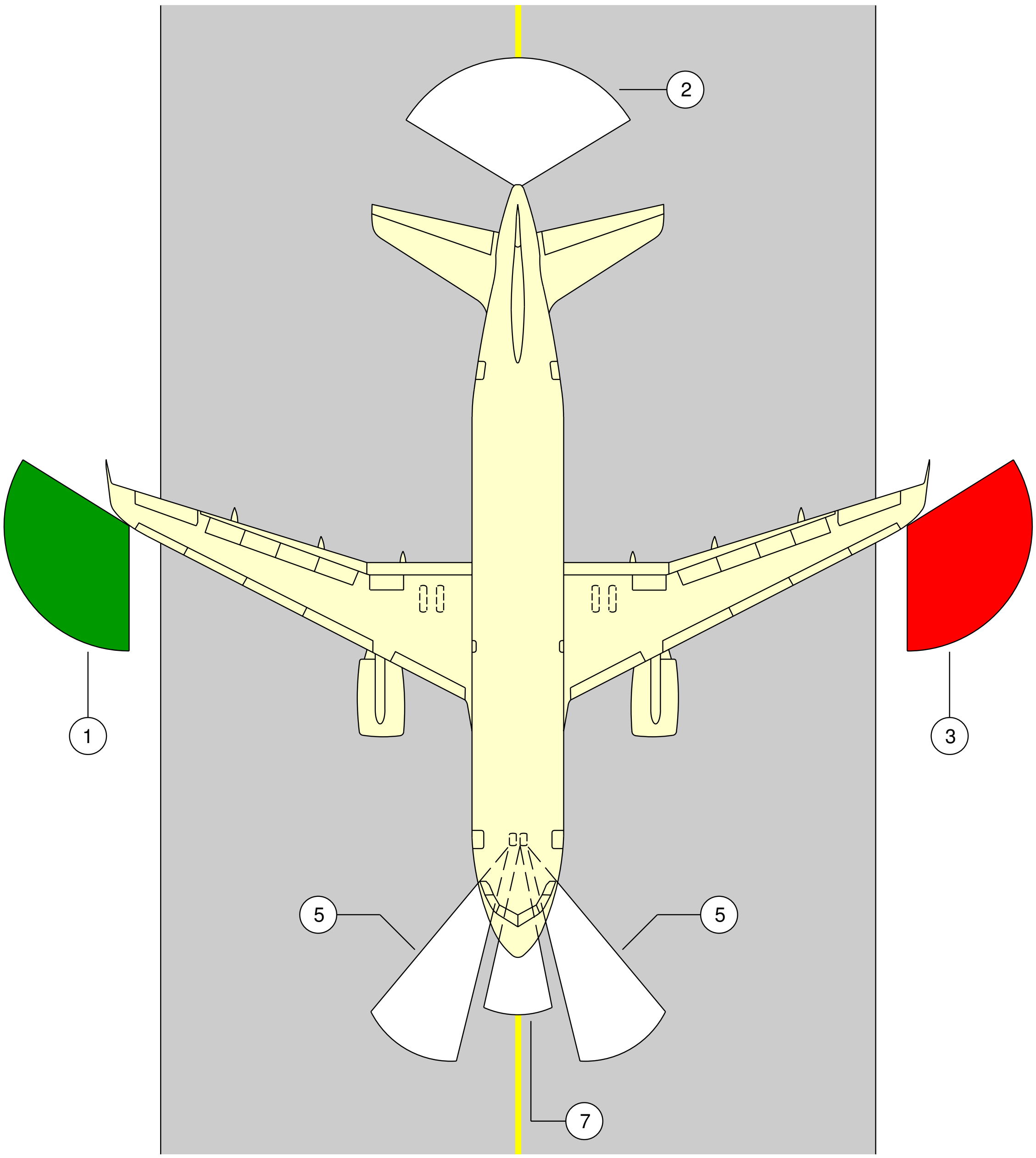
EXTERIOR LIGHTING	
ITEM	DESCRIPTION
1	RIGHT NAVIGATION LIGHT (GREEN)
2	TAIL NAVIGATION LIGHT (WHITE)
3	LEFT NAVIGATION LIGHT (RED)
4	RETRACTABLE LANDING LIGHT
5	RUNWAY TURN OFF LIGHT
6	TAXI LIGHT
7	TAKE-OFF LIGHT
8	LOGO LIGHT
9	UPPER ANTI-COLLISION LIGHT/BEACON (RED)
10	LOWER ANTI-COLLISION LIGHT/BEACON (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 A319-100



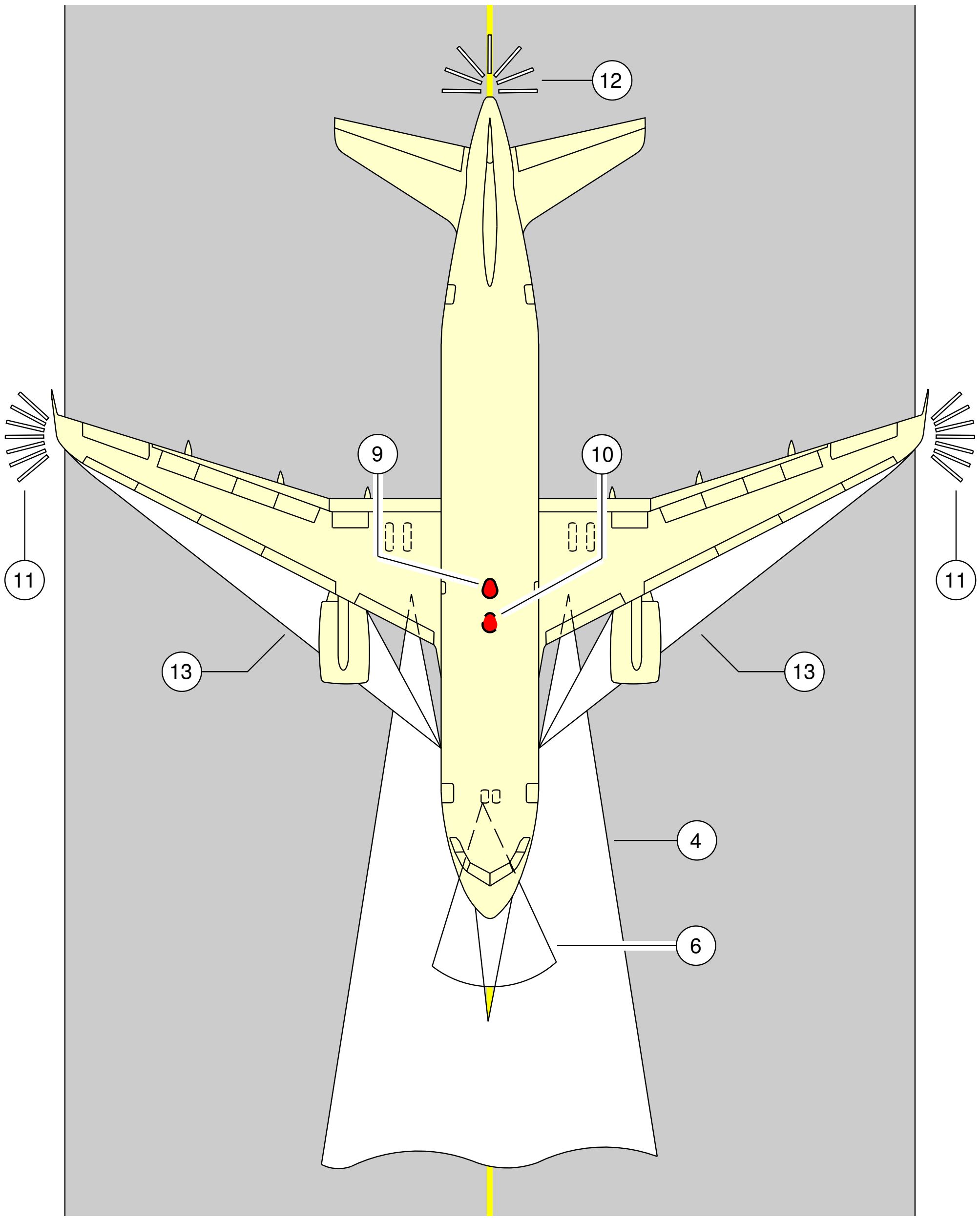
Exterior Lighting
FIGURE-2-10-0-991-005-A01

****ON A/C A319-100**



Exterior Lighting
FIGURE-2-10-0-991-006-A01

**ON A/C A319-100



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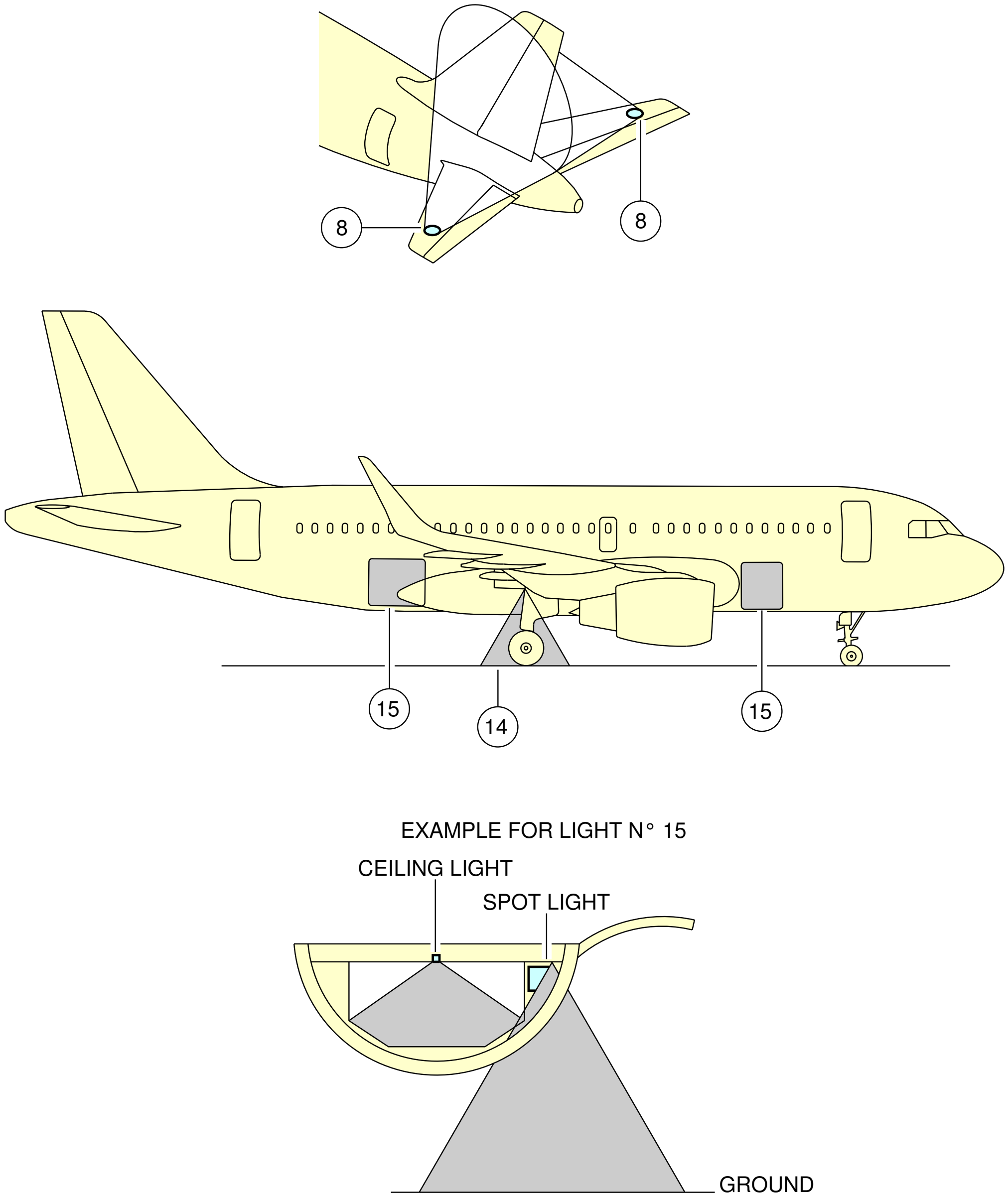
Exterior Lighting
FIGURE-2-10-0-991-007-A01

**ON A/C A319-100



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Exterior Lighting
FIGURE-2-10-0-991-018-A01

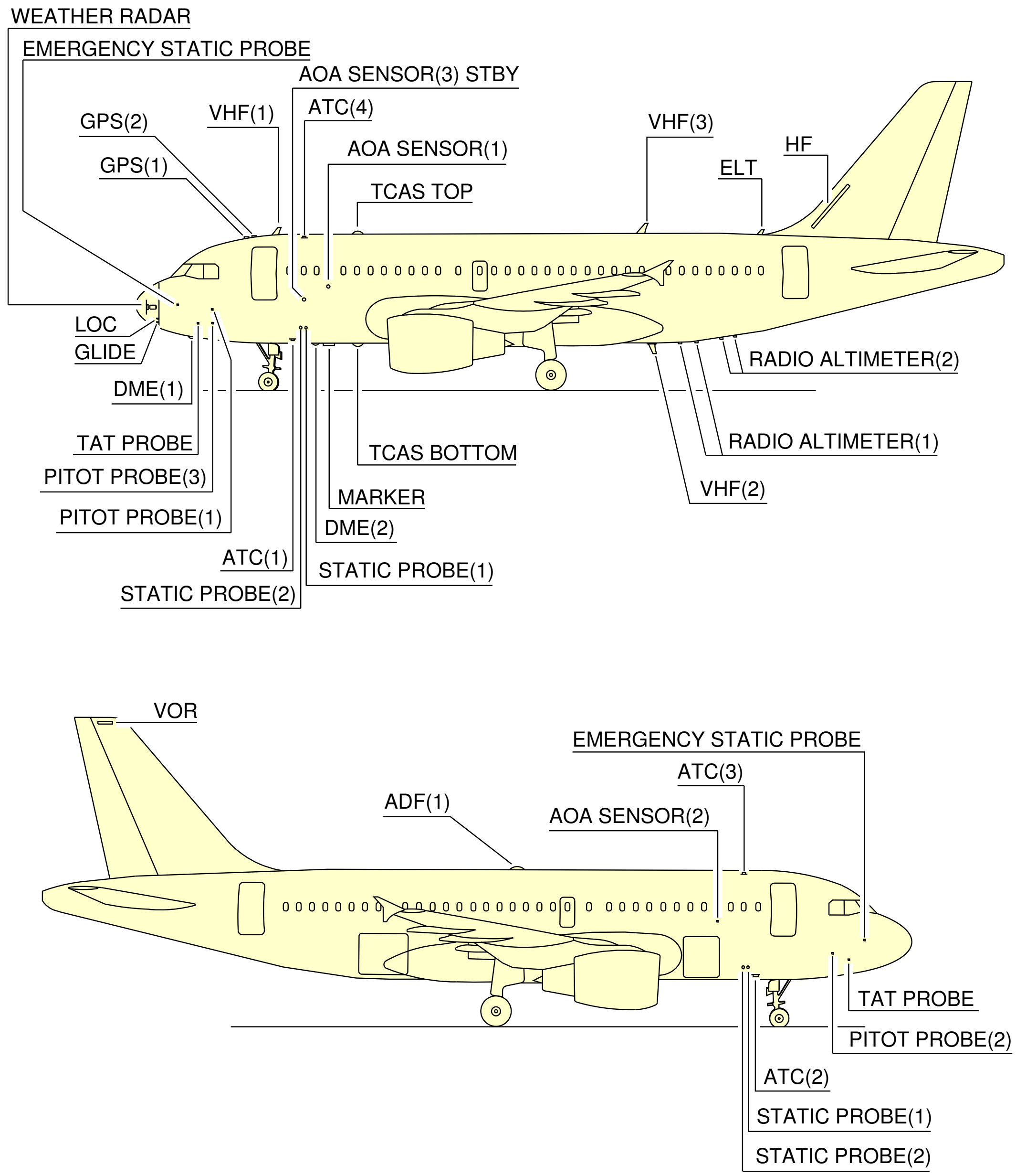
2-11-0 Antennas and Probes Location

****ON A/C A319-100**

Antennas and Probes Location

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

**ON A/C A319-100



NOTE: DEPENDING ON AIRCRAFT CONFIGURATION

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Antennas and Probes
Location
FIGURE-2-11-0-991-002-A01

2-12-0 Power Plant

****ON A/C A319-100**

Auxiliary Power Unit

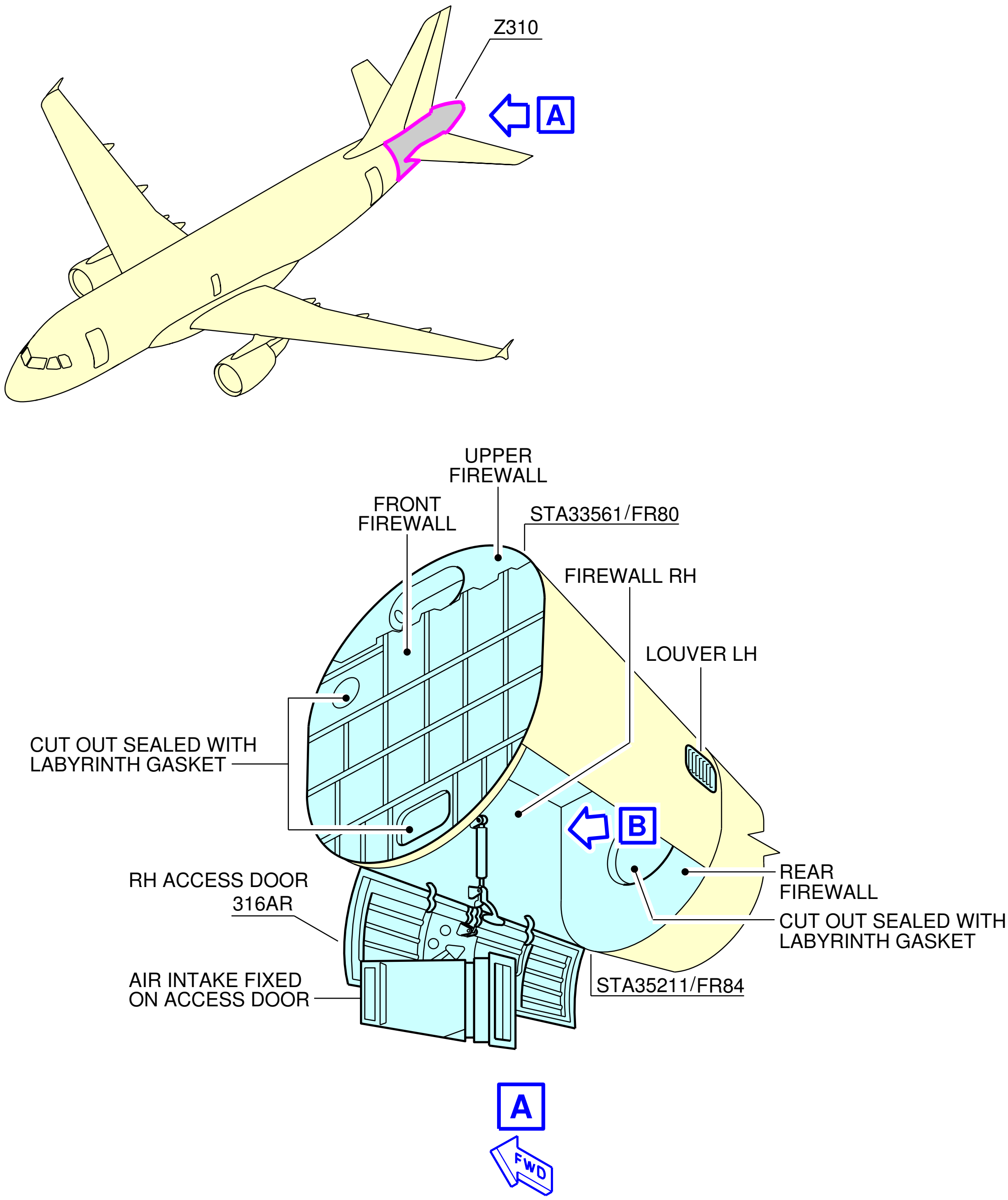
1. General

   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 A319-100



NOTE: LH ACCESS DOOR 315AL NOT SHOWN FOR CLARITY

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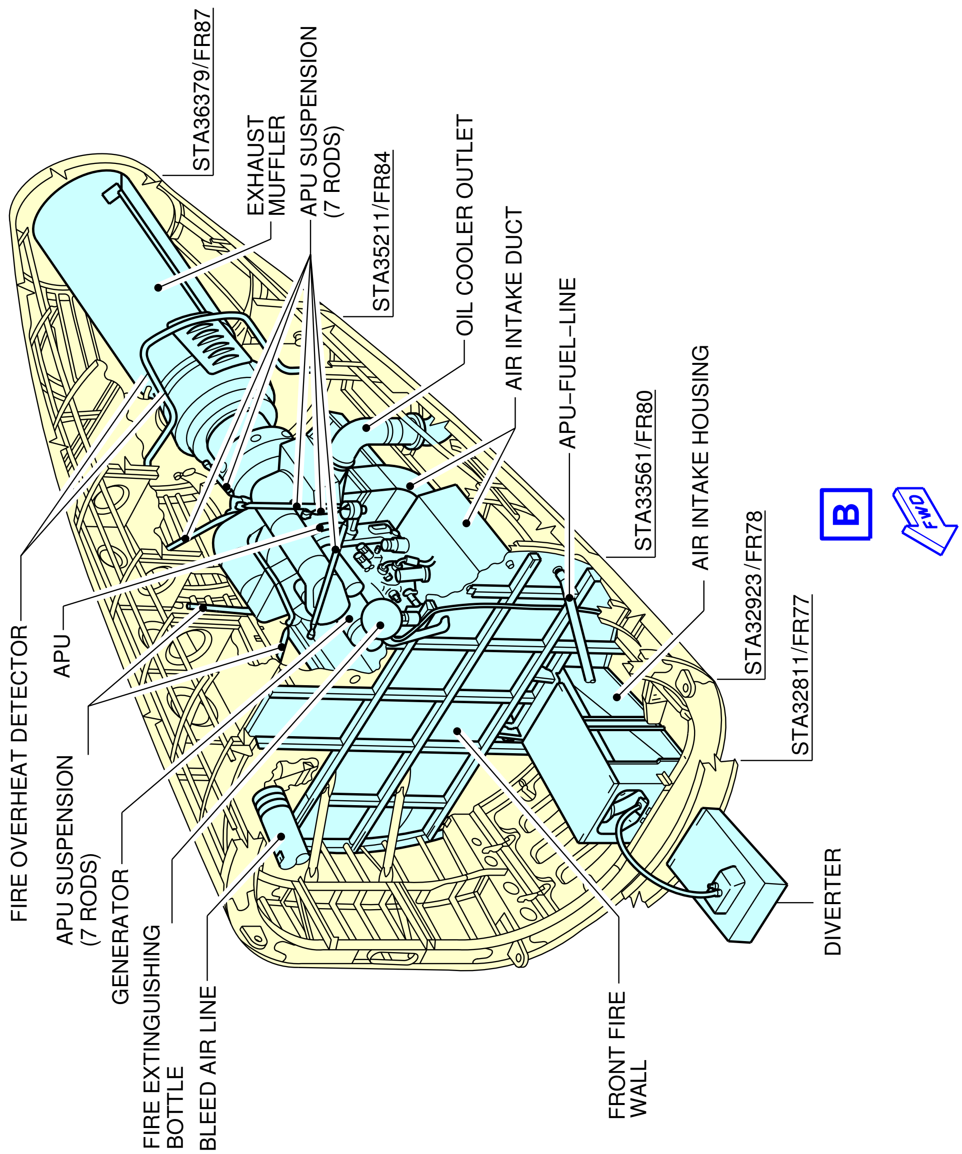
Auxiliary Power Unit
Access Doors
FIGURE-2-12-0-991-003-A01

**ON A/C A319-100



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Auxiliary Power Unit
General Layout
FIGURE-2-12-0-991-004-A01

****ON A/C A319-100**

Engine and Nacelle

1. Engine and Nacelle - CFM Engine

A. Engine

The engine is a dual-rotor, variable stator, high bypass ratio turbo fan power plant 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 sevice.
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).

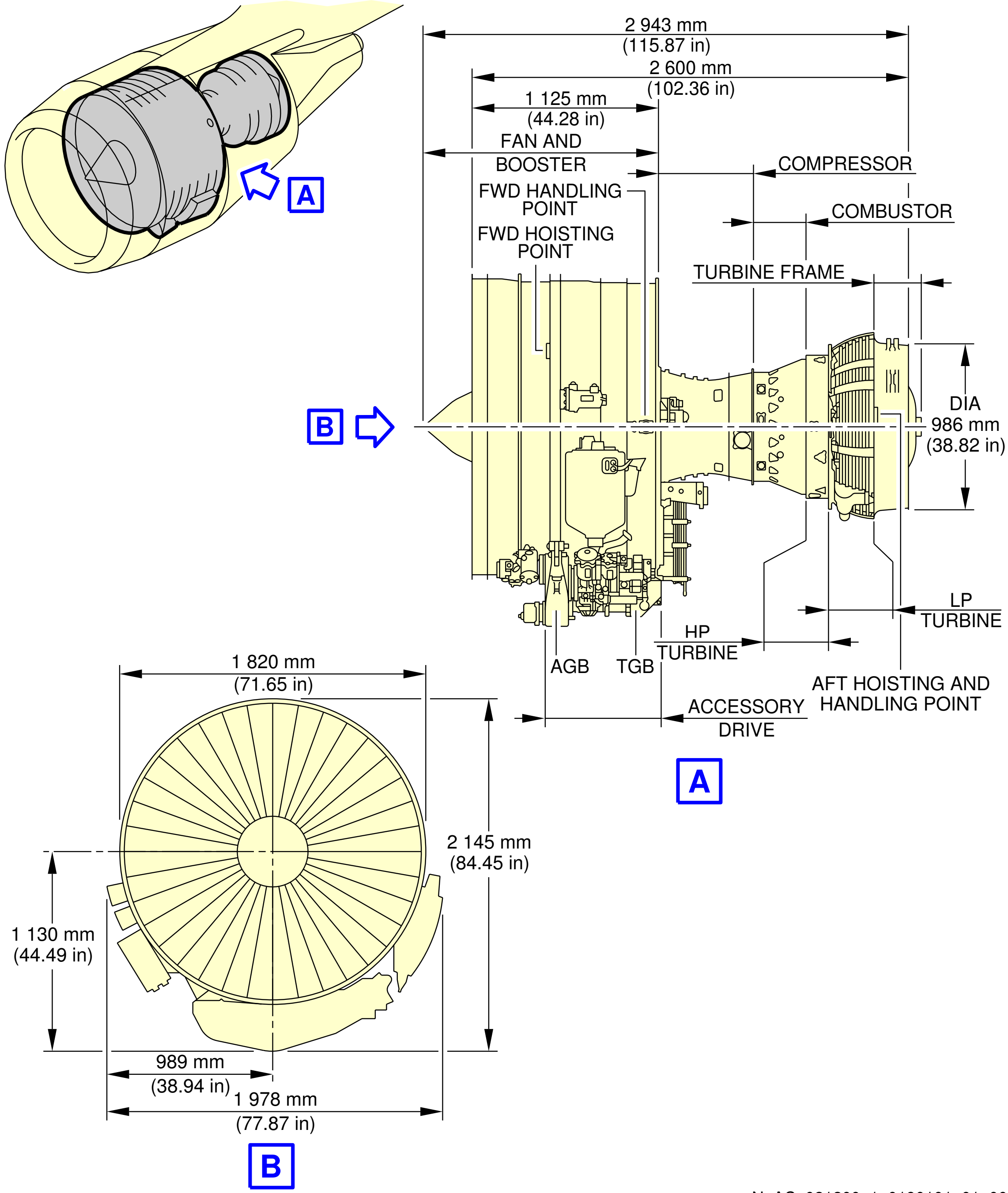
The four stage Low Pressure Compressor (LPC) is driven by a five stage Low Pressure Turbine (LPT) and the ten stage High Pressure Compressor (HPC) by a two stage High Pressure Turbine (HPT). The HPT also drives a gearbox which, in turn drives the engines and aircraft mounted accessories. The two shafts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

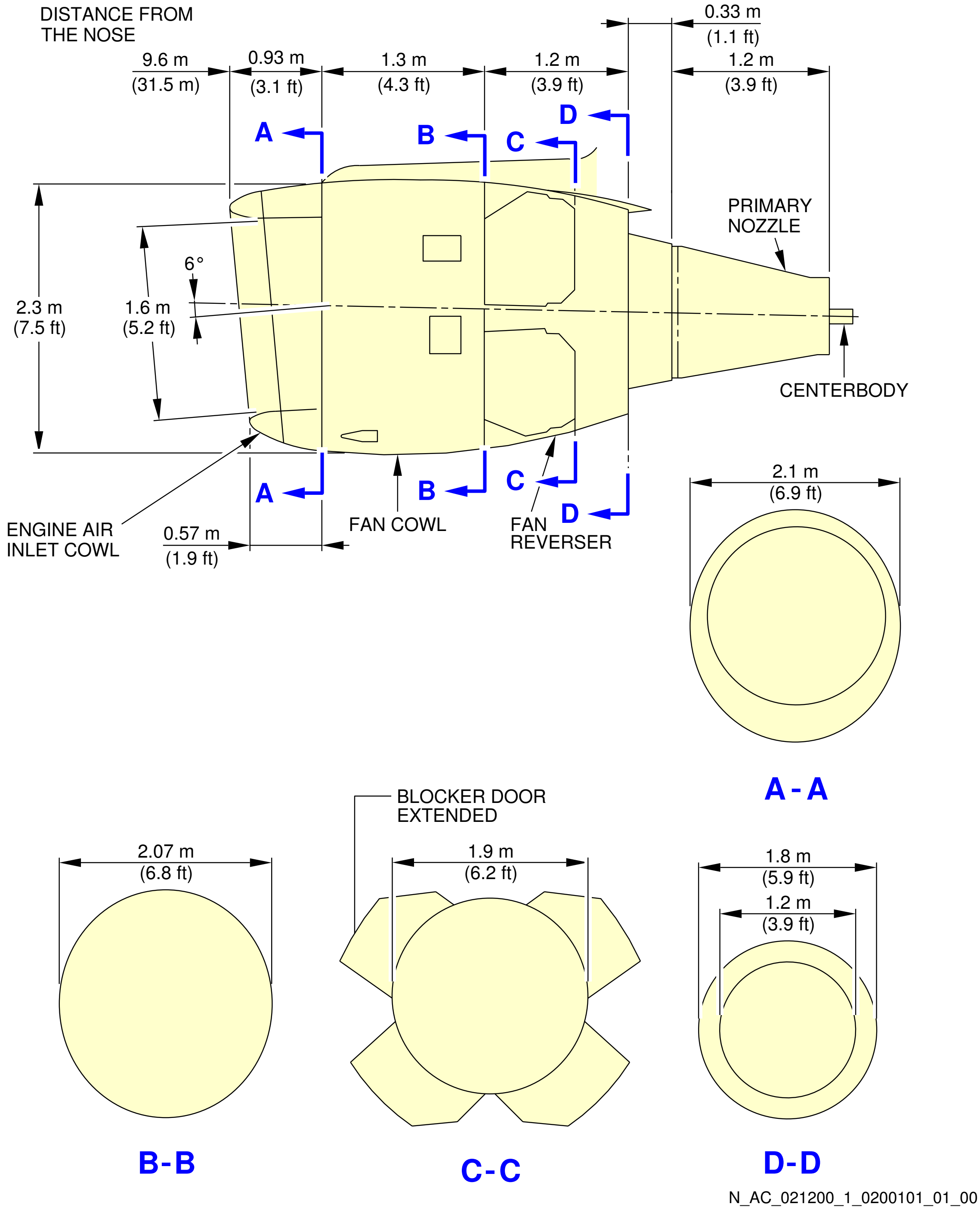
- protection for the engine and the accessories
- airflow around the engine during its operation
- lighting protection
- HIRF and EMI attenuation.

**ON A/C A319-100



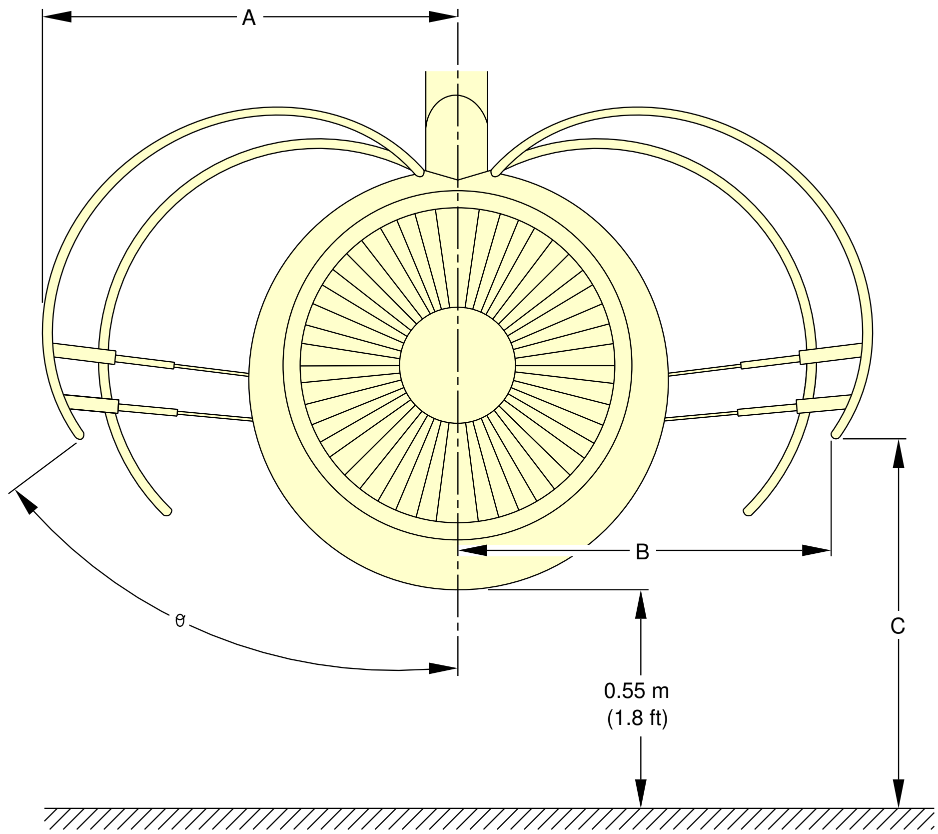
Power Plant Handling
Major Dimensions - CFM56 Series Engine
FIGURE-2-12-0-991-019-A01

**ON A/C A319-100



Power Plant Handling
Major Dimensions - CFM56 Series Engine
FIGURE-2-12-0-991-020-A01

**ON A/C A319-100



m (ft)	θ	A	B	C
VIEW COWLING AFT	42°27	1.8 (5.9)	1.5 (4.9)	1.3 (4.3)
	55°15	2.0 (6.6)	1.8 (5.9)	1.7 (5.6)
VIEW COWLING FWD	40°40	1.8 (5.9)	1.4 (4.6)	1.3 (4.3)
	52°56	2.0 (6.6)	1.7 (5.6)	1.6 (5.2)

NOTE: APPROXIMATE DIMENSIONS

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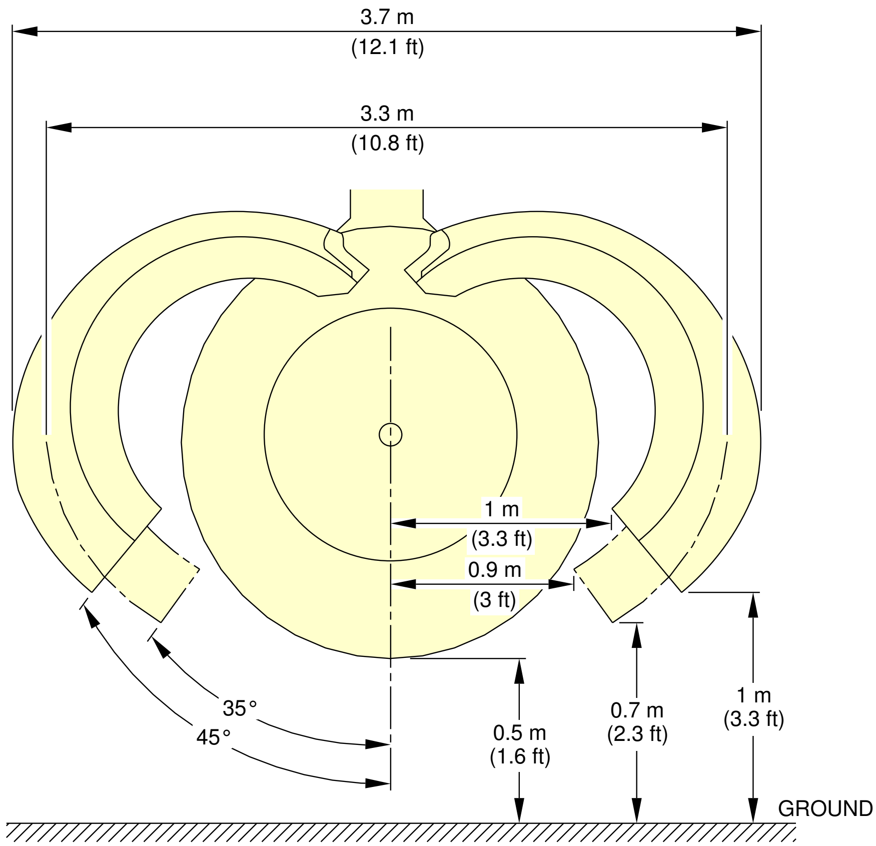
Power Plant Handling
Fan Cowls - CFM56 Series Engine
FIGURE-2-12-0-991-021-A01

**ON A/C A319-100



NOTE: APPROXIMATE DIMENSIONS

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

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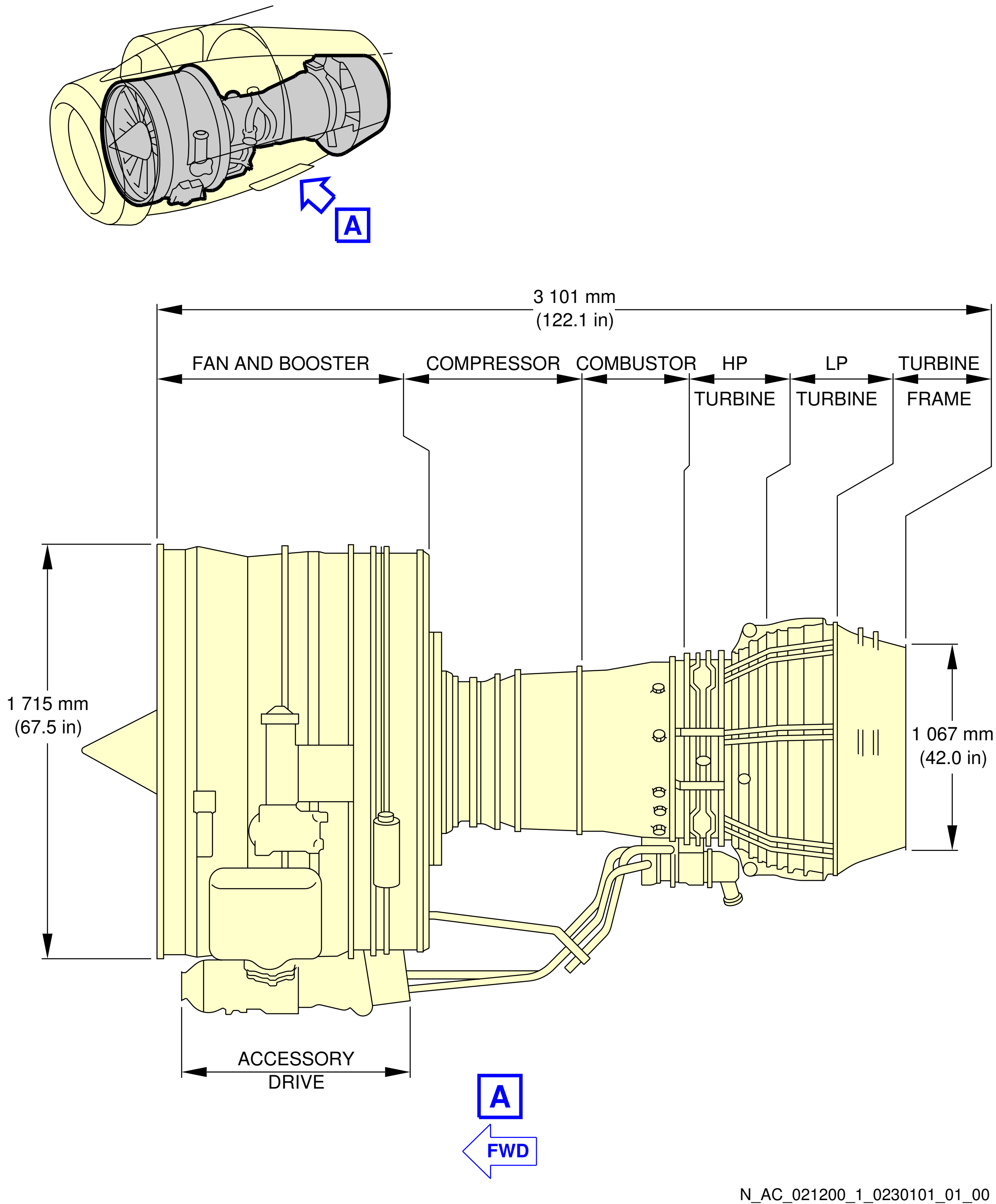
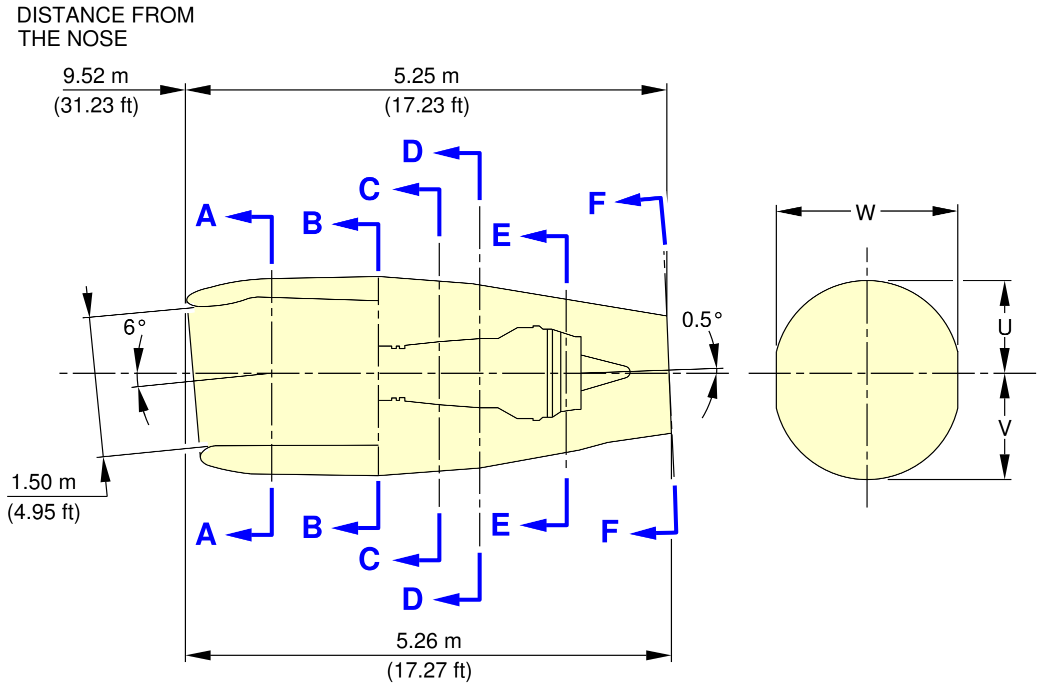
Power Plant Handling
Thrust Reverser Cowls - CFM56 Series Engine
FIGURE-2-12-0-991-022-A01

**ON A/C A319-100



Power Plant Handling
Major Dimensions - IAE V2500 Series Engine
FIGURE-2-12-0-991-023-A01

**ON A/C A319-100



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

NOTE: ALL SIZES GIVEN ON THIS ILLUSTRATION ARE APPROXIMATE

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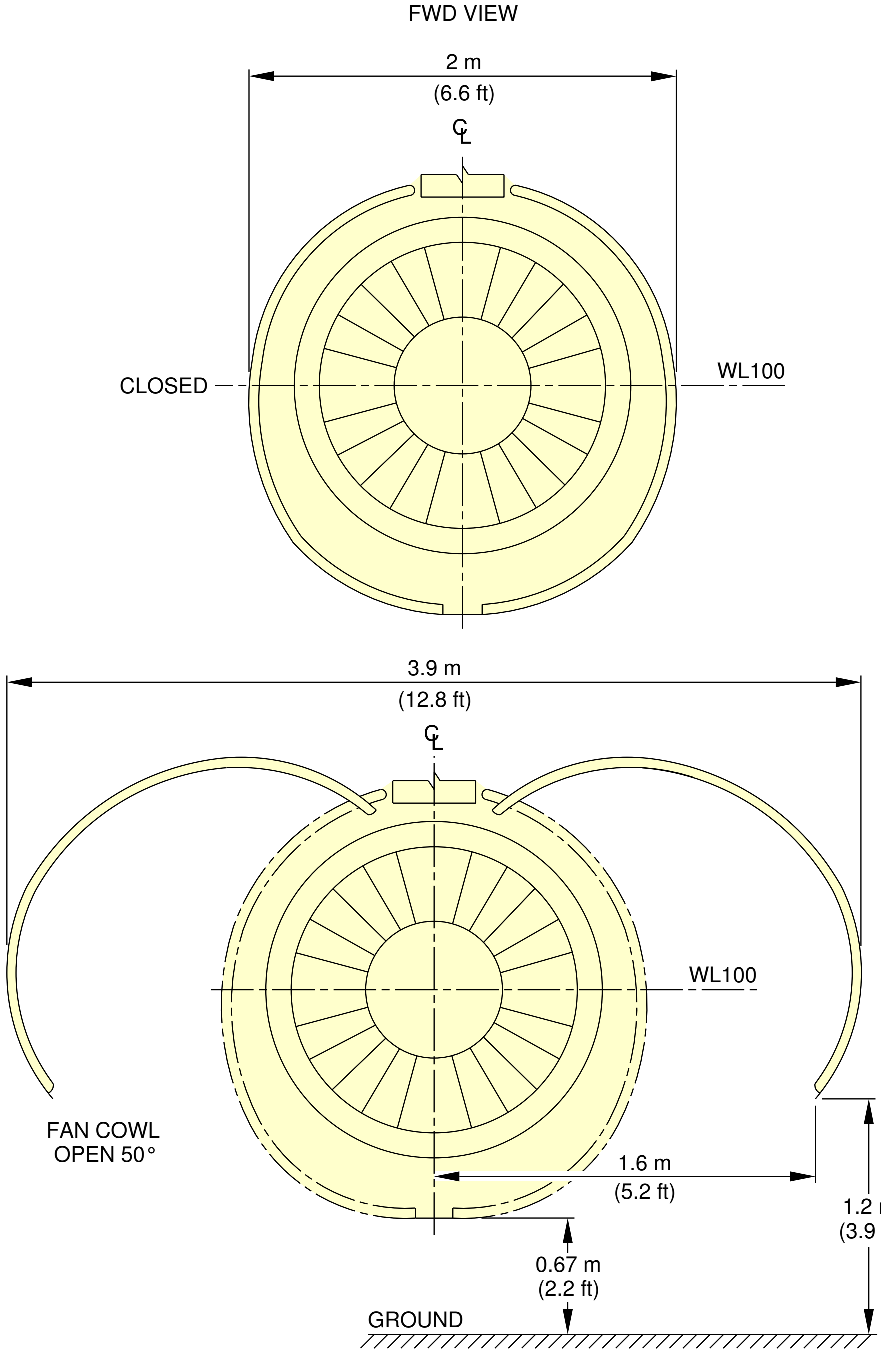
Power Plant Handling
Major Dimensions - IAE V2500 Series Engine
FIGURE-2-12-0-991-024-A01

**ON A/C A319-100



NOTE: APPROXIMATE DIMENSIONS

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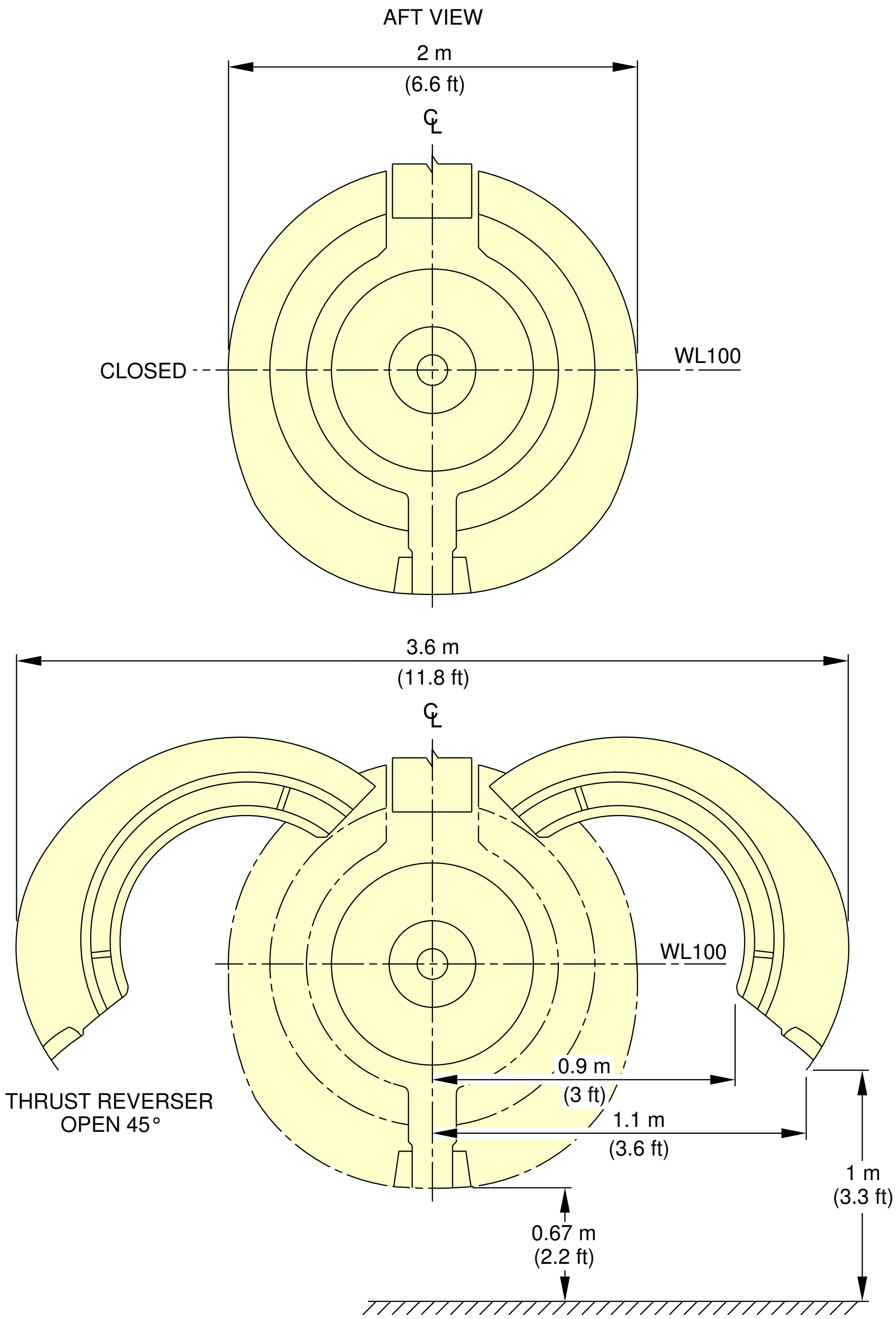
Power Plant Handling
Fan Cowls - IAE V2500 Series Engine
FIGURE-2-12-0-991-025-A01

**ON A/C A319-100



NOTE: APPROXIMATE DIMENSIONS

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Power Plant Handling
Thrust Reverser Halves - IAE V2500 Series Engine
FIGURE-2-12-0-991-026-A01

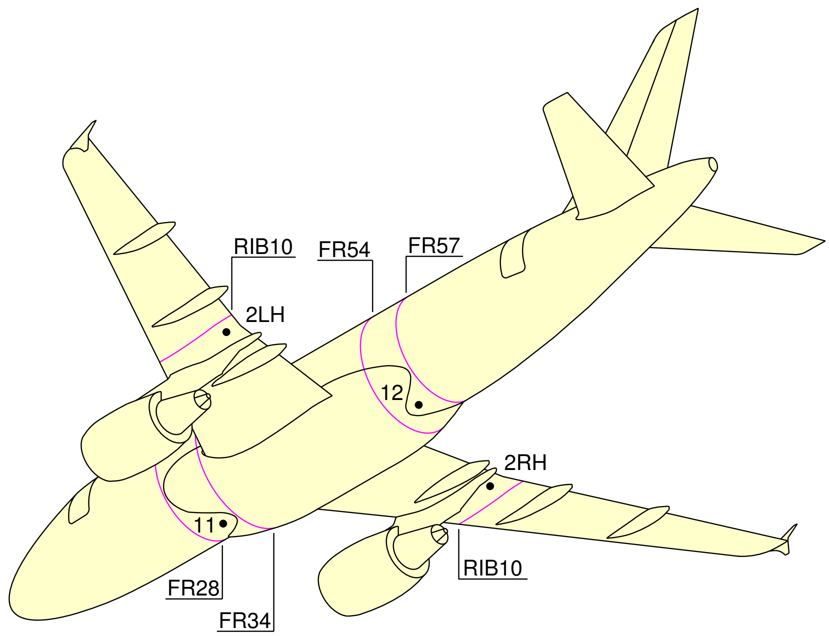
2-13-0 Leveling, Symmetry and Alignment

****ON A/C A319-100**

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 A319-100



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Location of the Leveling Points
FIGURE-2-13-0-991-002-A01

2-14-0 Jacking

****ON A/C A319-100**

Jacking for Maintenance

1. Jacking for Maintenance

A. General

The A319 aircraft can be jacked:
- at not more than the maximum permitted aircraft weight for jacking 57 000 kg (125 663 lb) and,
- within the limits of the permissible wind speed when the aircraft is jacked outside a closed environment.

B. Primary Jacking Points

The aircraft is provided with three jacking points:
- one located under the forward fuselage (STA5194/FR8),
- two located under the wings: one under each wing, located at the intersection of STA4862/RIB9 and the rear of spar datum.

Three jacking adapters are used as intermediary parts between the airplane and jacks:
- one male spherical jacking adapter of 19 mm (0.75 in) radius, forming part of the airplane structure, FR8,
- a wing jack pad, attached to each wing at RIB 9 by 2 bolts, provides the location for jacking adaptor.
  Wing jack pads are ground equipment.

C. Auxiliary Jacking Points - Safety Stay

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.

The safety stay is not used to lift the aircraft.

A male spherical ball pad with a 19 mm (0.75 in) radius, forming part of the airplane structure is provided for using the safety stay.

2. Jack design

In fully retracted position (jack stroke at minimum) the height is such that the jack may be placed beneath the airplane under the most adverse conditions, namely, tires deflated and shock absorbers depressurized.

In addition, a clearance of 50 mm (1.97 in) approximately must be provided between the airplane jacking point and the jack upper end. The lifting jack stroke enables the aircraft to be jacked up so that the fuselage longitudinal datum line (aircraft center line) parallel to the ground, with a 100 mm (3.94 in) clearance between the main landing gear wheels and the ground.
In particular, this enables the landing gear extension/retraction tests to be performed.

Jacking Point Location	Z	Maximum Permitted Load
Forward Fuselage Jacking Point	-1.987 m (-6.52 ft)	6 800 daN (15 287 lbf)
Wing Jacking Point	-0.828 m (-2.72 ft)	28 500 daN (64 071 lbf)
Safety Stay	-0.748 m (-2.45 ft)	2 000 daN (4 496 lbf)

The maximum permitted aircraft weight for the jacking procedure is 57 000 kg (125 663 lb).
Centerline at 4.6 mm (0.18 in) parallel to the ground.

3. Shoring Cradles

When it is necessary to support the aircraft in order to relieve the loads on the structure accomplishment of modifications or major work, it is advisable to provide for adapters under the wings and the fuselage for an alternative means of lifting.

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

A. Under the Fuselage

Frames which are capable of supporting loads are noted below as well as the maximum permissible loads for each frame.

Under the Fuselage	
Shoring Fittings (Per Side)	
FR 8	3 000 daN (6 744 lbf)
FR 15	5 000 daN (11 240 lbf)
FR 21	2 000 daN (4 496 lbf)
FR 30	1 700 daN (3 822 lbf)
FR 62/63	4 200 daN (9 442 lbf)

Under the Fuselage	
Shoring Cradles	
FR 8	1 700 daN (3 822 lbf)
FR 9	3 300 daN (7 419 lbf)
FR 28	1 300 daN (2 923 lbf)
FR 60	2 600 daN (5 845 lbf)

Under the Fuselage	
Safety Stay Pad	
FR 73/74	2 000 daN (4 496 lbf)

B. Under the Wings

Shoring cradles are used when it is necessary to stress-jack the aircraft to carry out maintenance and repair work. These are used to oppose the deflections of the wings and reduce the stresses to an acceptable level at the area of maintenance and repair.

The shoring cradles, each with two adjustable pads, 152.4 mm (6.00 in) square, are positioned at three locations under each wing. These locations are detailed in Table 5.

The adjustable pads are faced with thin rubber and contact the wing profile at the datum intersections of the ribs and the front and rear spars (F/S and R/S).

Table 5 shows the maximum load limit allowed at each jack pad when the wings are supported by the cradles. These load limits apply to all A319 aircraft and variants.

The maximum permitted load, as specified in Table 5, is for a wing with its engines removed. When the wing(s) are held with the shoring cradles, and with the engines installed, the level of shear stress caused (at the front spar) is not permitted. The weight of the engine can also cause a torsion load that will lift the rear spar from its cradle.

Thus it is recommended that you remove the applicable engine(s) before you use the shoring cradles. However, for minor repairs the engine may be installed if its full weight is held.

It is important that the loads at each rib position are not exceeded because damage to the aircraft may occur.

Maximum Allowable Load at each Jack Pad						
Maximum Stress Relief Jacking Forces (LIMIT)						
Configuration	Rib 4		Rib 13		Rib 22	
	F/Spar	R/Spar	F/Spar	R/Spar	F/Spar	R/Spar
Engine & MLG Removed	790 daN (1 776 lbf)	1 330 daN (2 990 lbf)	670 daN (1 506 lbf)	550 daN (1 236 lbf)	320 daN (719 lbf)	380 daN (854 lbf)
Engine Removed	530 daN (1 191 lbf)	2 510 daN (5 643 lbf)	610 daN (1 371 lbf)	610 daN (1 371 lbf)	310 daN (697 lbf)	380 daN (854 lbf)

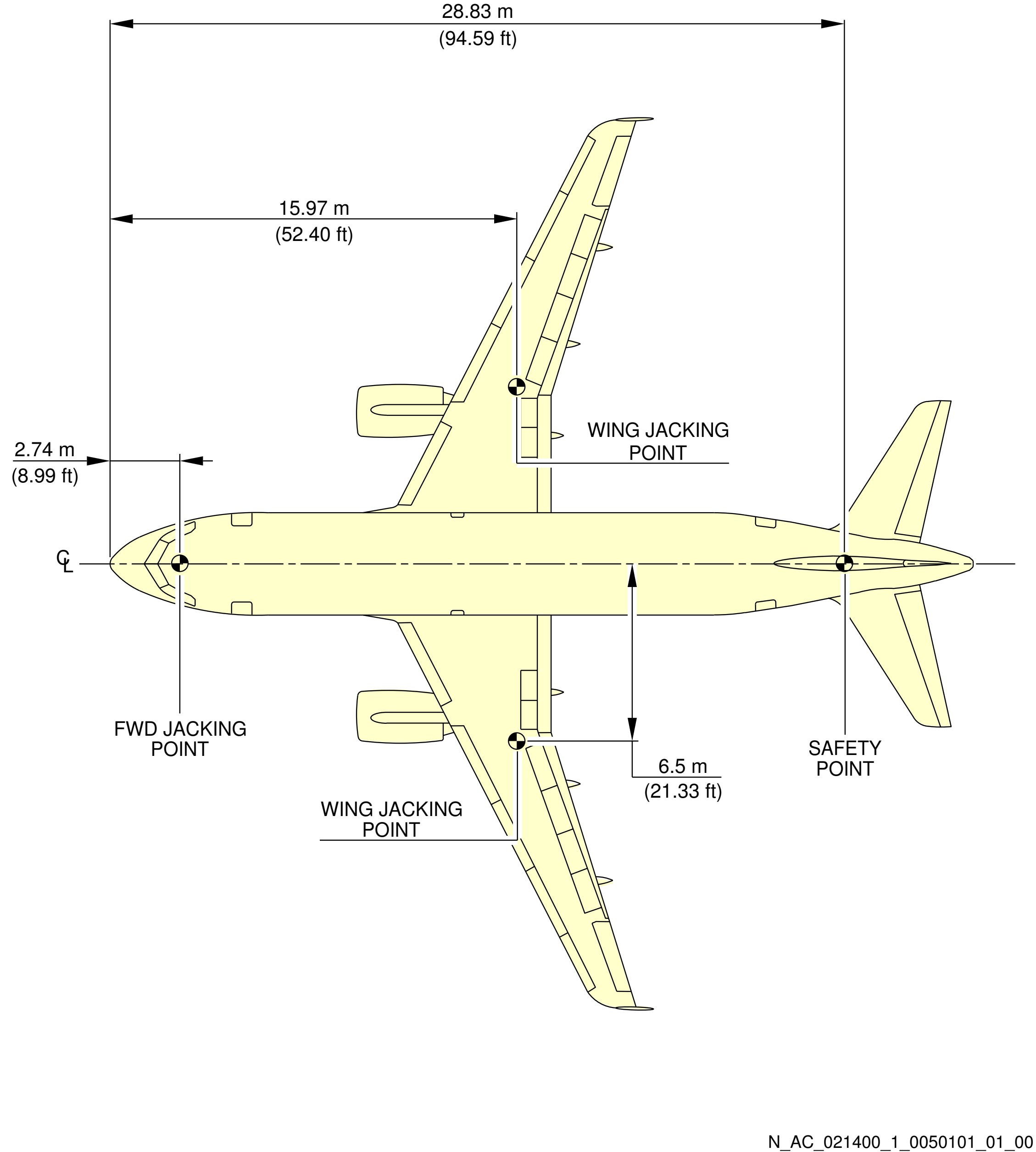
4. Airplane Jacking for Removal/Installation of Landing Gear Shock Absorbers

For removal/installation of the nose gear shock absorber with the gear fully extended and the wheels removed, the fuselage longitudinal datum line must be not less than 5 300 mm (208.66 in) above the ground.

For removal/installation of the main landing gear shock absorber, after removing the bogie beam, the fuselage longitudinal datum line must be not less than 5 210 mm (205.12 in) above the ground.

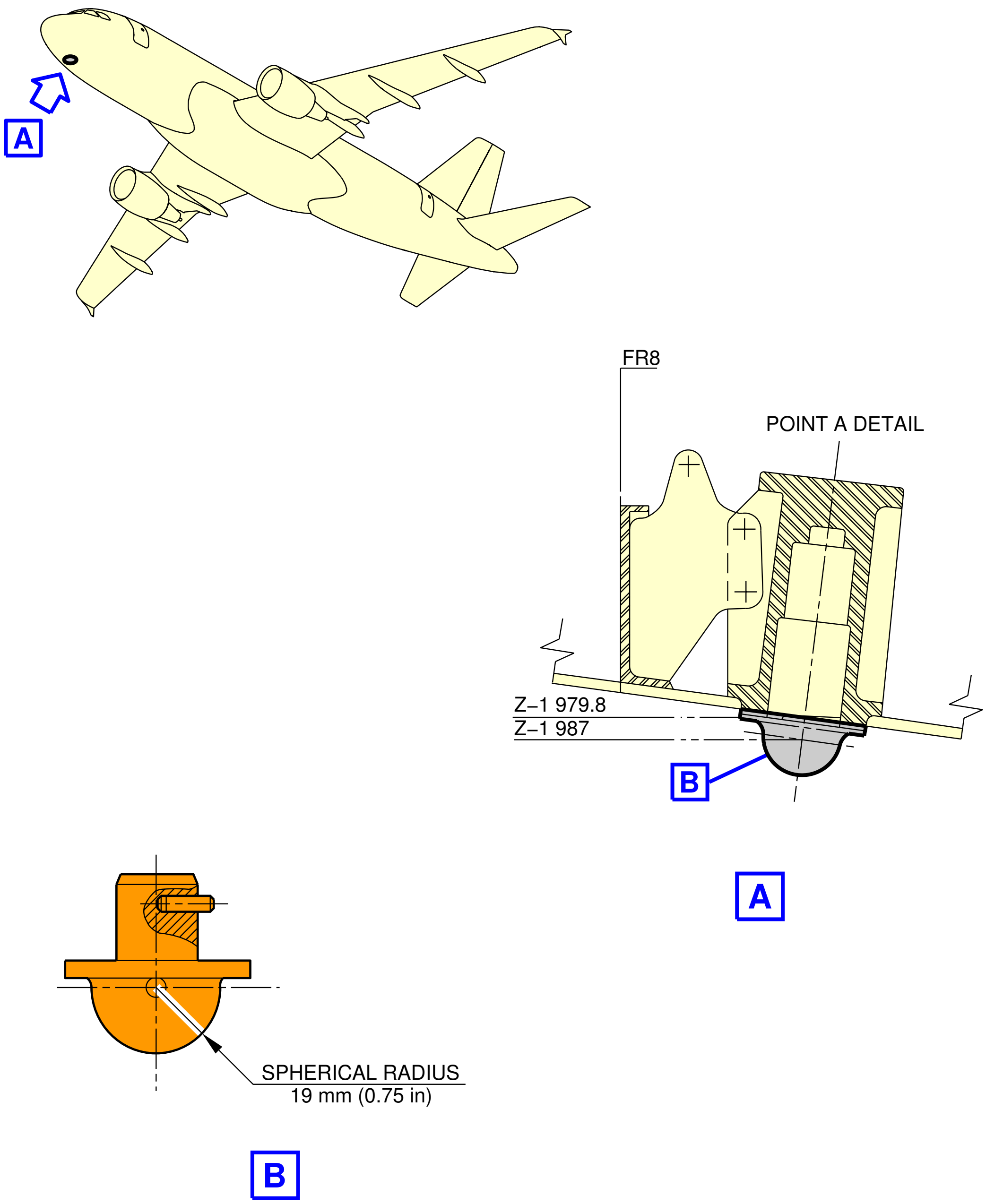
For reference, for landing gear swinging tests, the fuselage longitudinal datum line must be not less than 4 600 mm (181.10 in) above the ground.

**ON A/C A319-100



Jacking for Maintenance
Jacking Point Location
FIGURE-2-14-0-991-005-A01

**ON A/C A319-100



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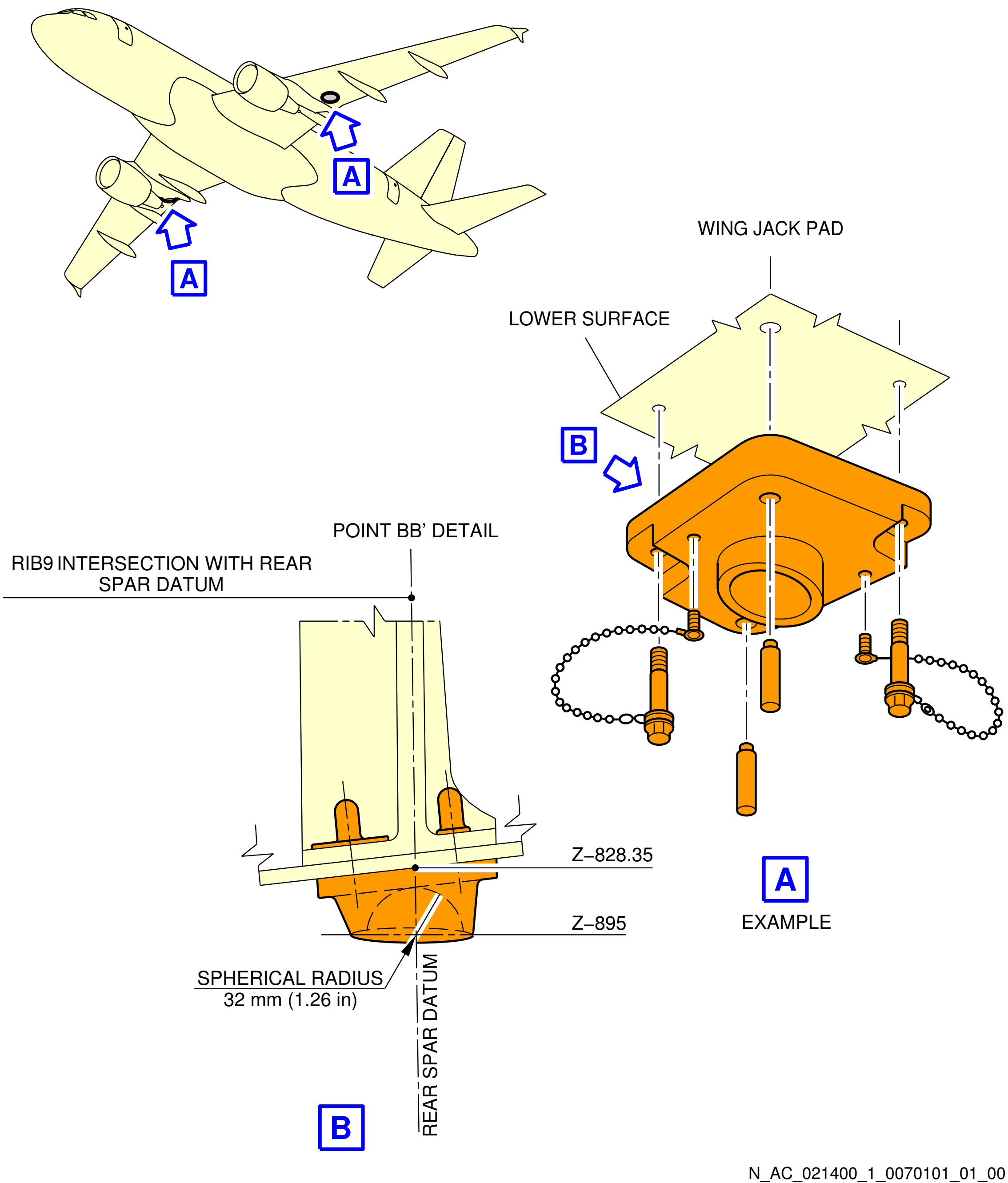
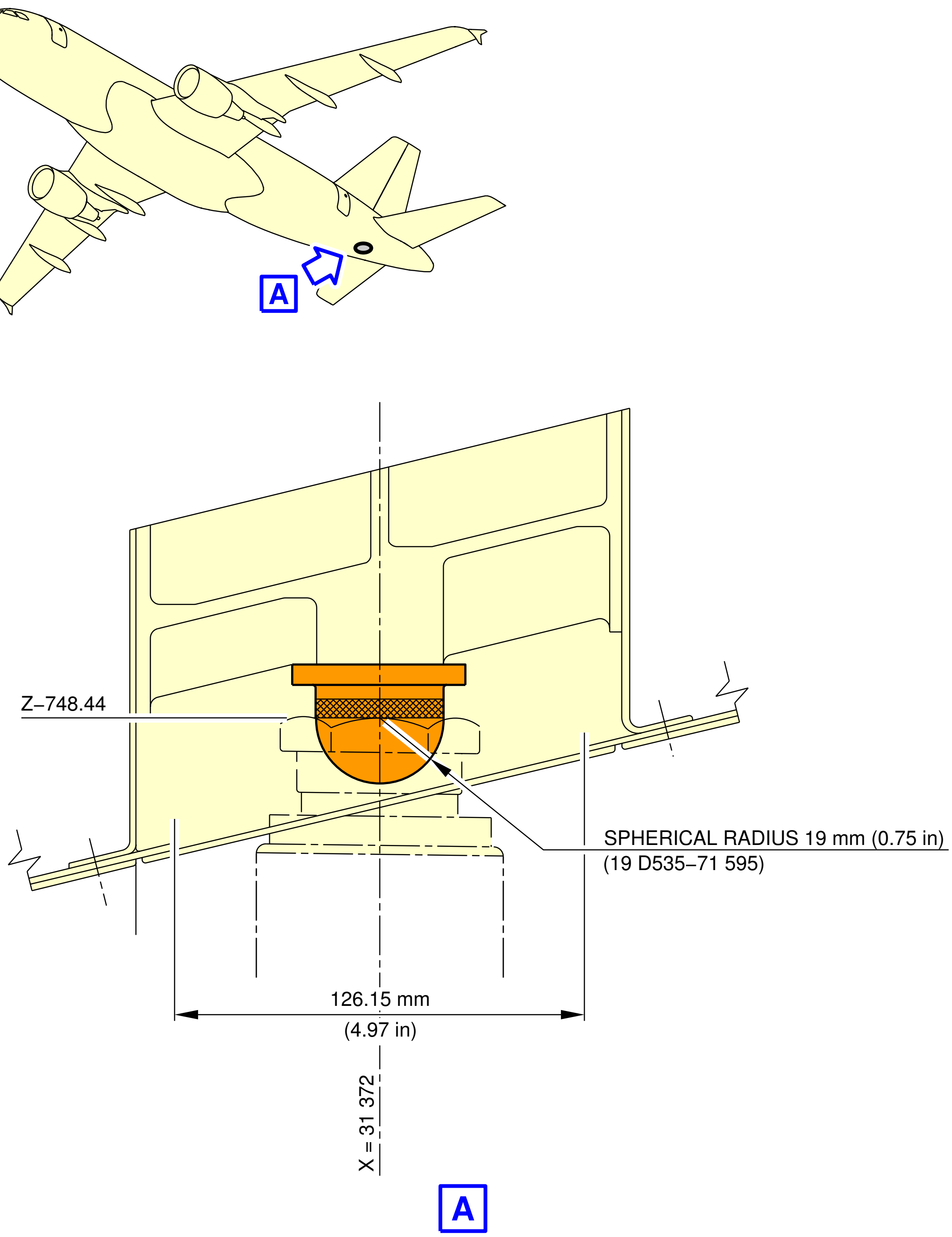
Jacking for Maintenance
Forward Jacking Point
FIGURE-2-14-0-991-006-A01

**ON A/C A319-100



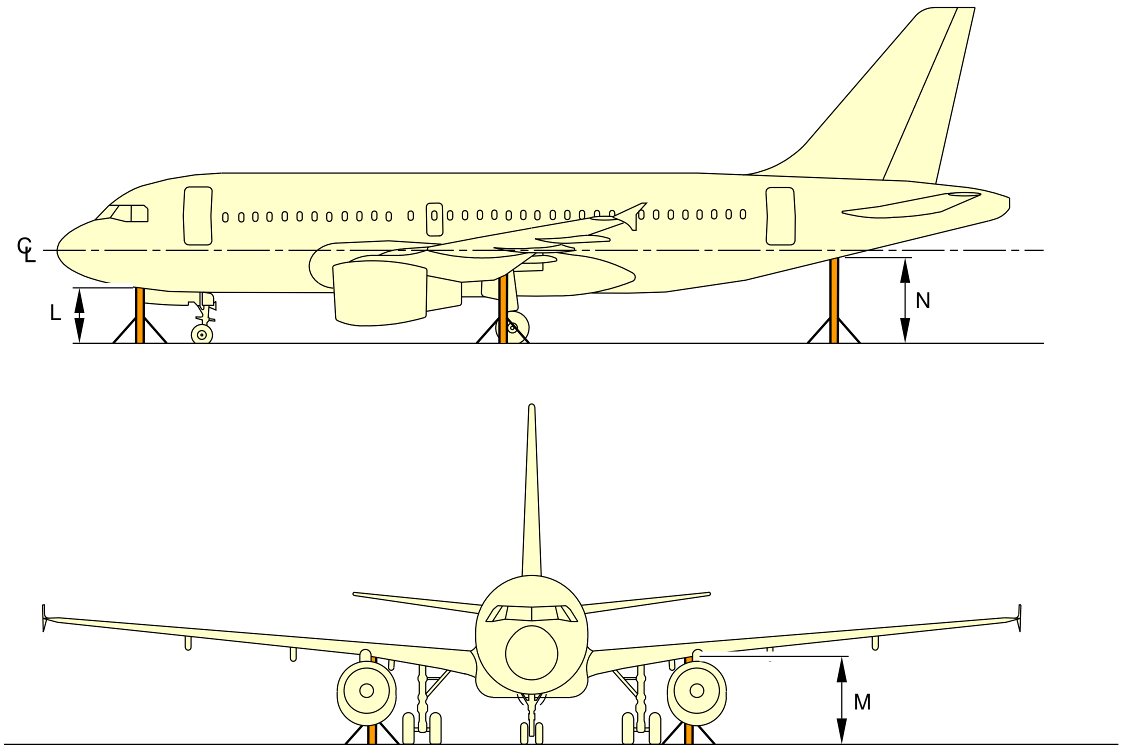
Jacking for Maintenance
Wing Jacking Points
FIGURE-2-14-0-991-007-A01

**ON A/C A319-100



Jacking for Maintenance
Safety Stay
FIGURE-2-14-0-991-008-A01

**ON A/C A319-100



	L	M	N
AIRCRAFT ON WHEELS, SHOCK ABSORBERS DEFLATED AND FLAT TIRES	1 560 mm (61.42 in)	2 846 mm (112.05 in)	3 072 mm (120.94 in)
AIRCRAFT ON JACKS, CENTER LINE (CL) PARALLEL TO GROUND SHOCK ABSORBERS EXTENDED MAIN WHEEL CLEARANCE (STANDARD TIRES) (49 x 17) 120 mm (4.72 in) FOR EXTENDED AND RETRACTED LANDING GEARS	2 620 mm (103.15 in)	3 772 mm (148.50 in)	3 859 mm (151.93 in)
AIRCRAFT ON WHEELS, (STANDARD TIRES) AT MAX. PERMITTED WEIGHT FOR JACKING	1 931 mm (76.02 in)	3 082 mm (121.34 in)	3 169 mm (124.76 in)
AIRCRAFT ON WHEELS, NLG SHOCK ABSORBER DEFLATED AND FLAT TIRES	1 545 mm (60.83 in)	2 761 mm (108.70 in)	2 920 mm (114.96 in)

NOTE: THE CENTER LINE (CL) IS A FICTITIOUS LINE AROUND WHICH THE AIRCRAFT IS BUILT.
SAFETY STAY IS NOT USED FOR JACKING.
SEE SECTION 1–10, FOR GROUND CLEARANCES A/C ON JACKS.

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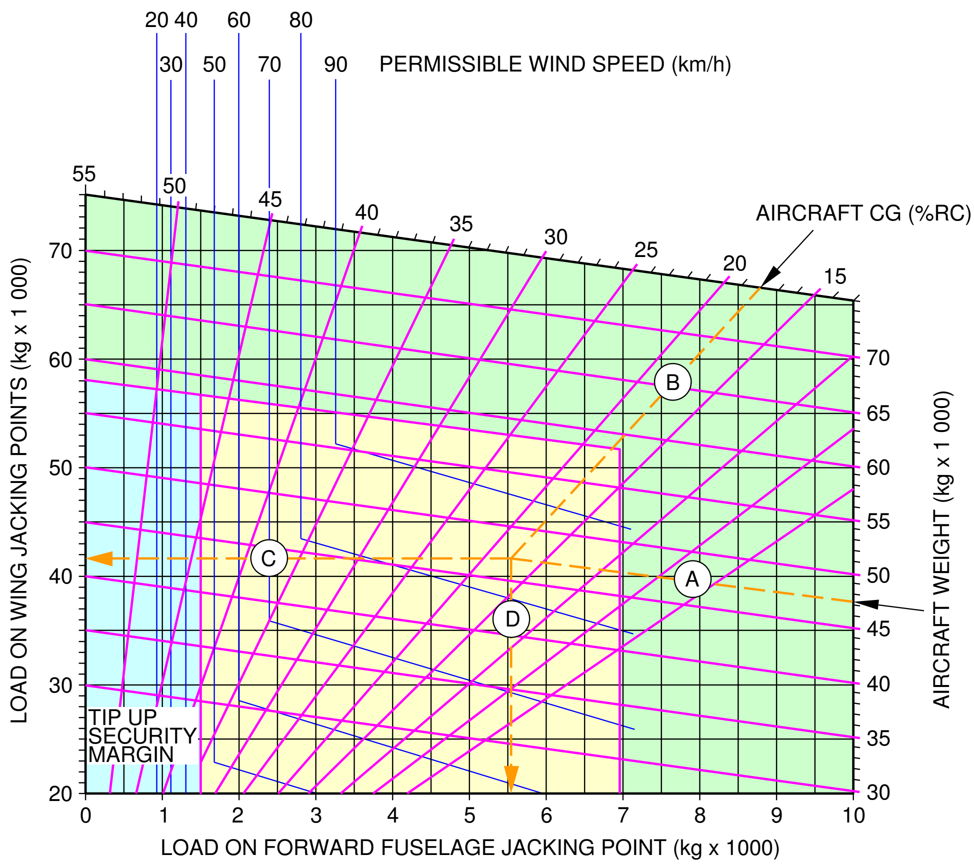
Jacking for Maintenance
Jacking Design
FIGURE-2-14-0-991-009-A01

**ON A/C A319-100



EXAMPLE: ASSUME AIRCRAFT WITH GROSS WEIGHT OF 47 000 kg A AND CENTER OF GRAVITY AT 18 % RC B . THE REACTION AT THE WING JACKING POINTS IS 41 500 kg (20 750 kg PER SIDE) C AND THE REACTION AT THE FORWARD FUSELAGE JACKING POINT IS 5 500 kg D . IF THE AIRCRAFT MUST BE LIFTED OUTSIDE THE WIND SPEED MUST NOT BE IN EXCESS OF 84 km/h.

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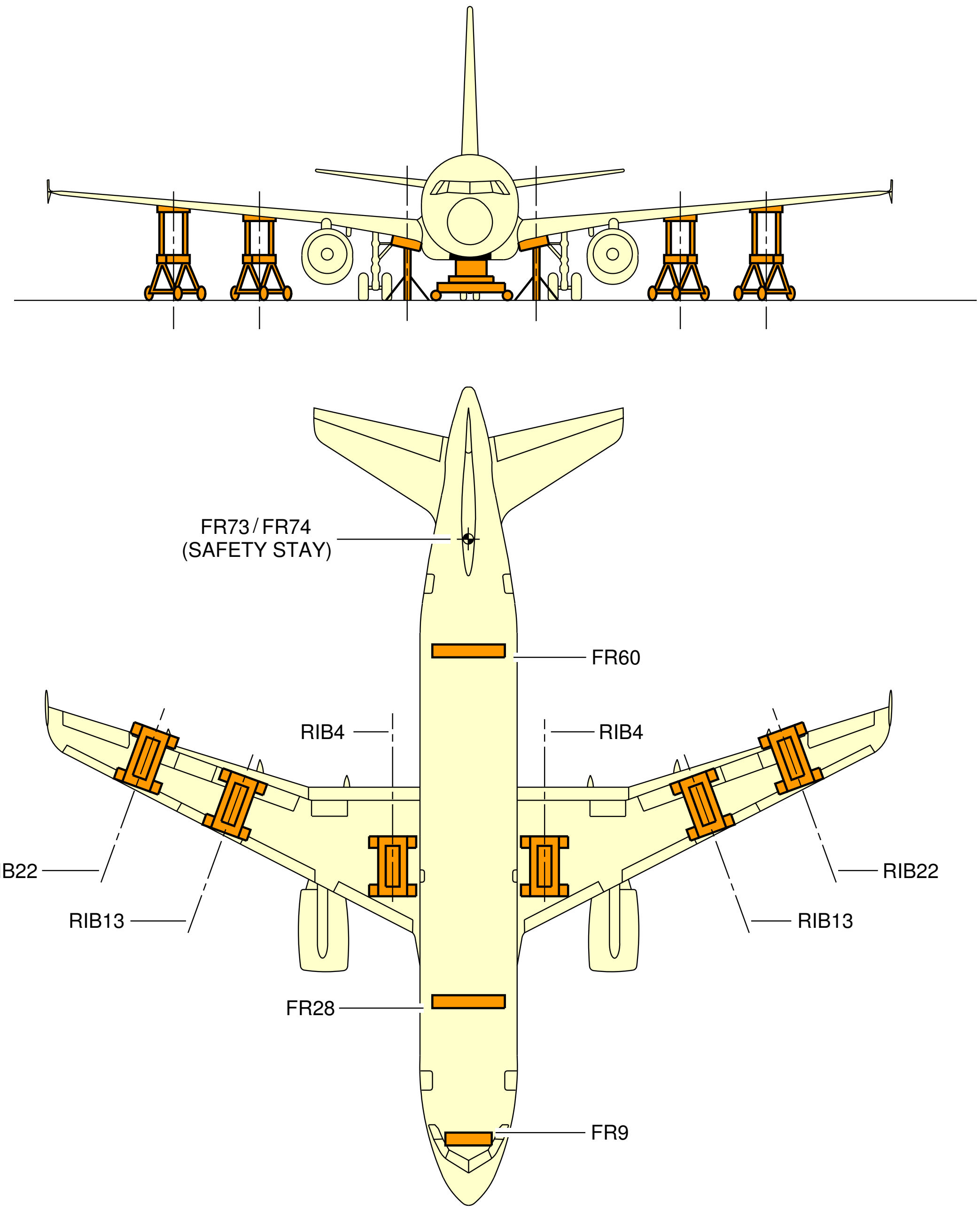
Loads at the Aircraft Jacking Points
Wing Jacking Point and Forward Fuselage Jacking Point
FIGURE-2-14-0-991-010-A01

**ON A/C A319-100



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

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Jacking for Maintenance
Location of Shoring Cradles
FIGURE-2-14-0-991-011-A01

****ON A/C A319-100**

Jacking for Wheel Change

1. General

   Landing gear jacking will be required especially for replacing wheels and brake unit components.

   The maximum permitted aircraft weight for jacking is 57 000 kg (125 663 lb).

2. Main Gear Jacking

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

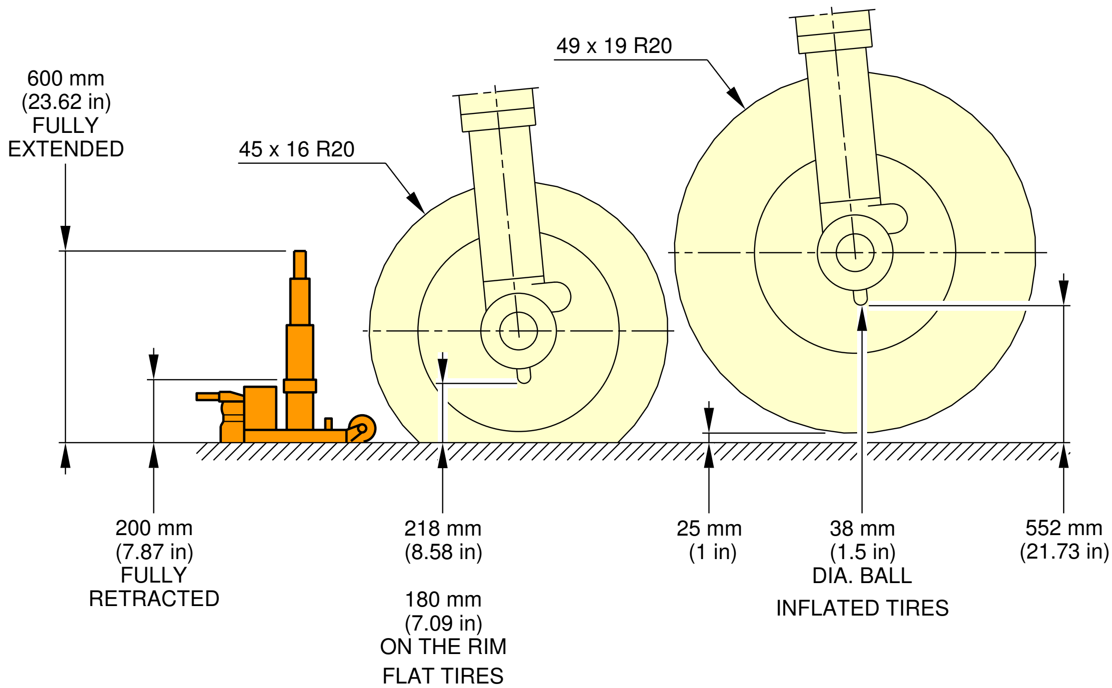
   The ball spherical radius is 19 mm (0.75 in).

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

3. 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.

**ON A/C A319-100



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.

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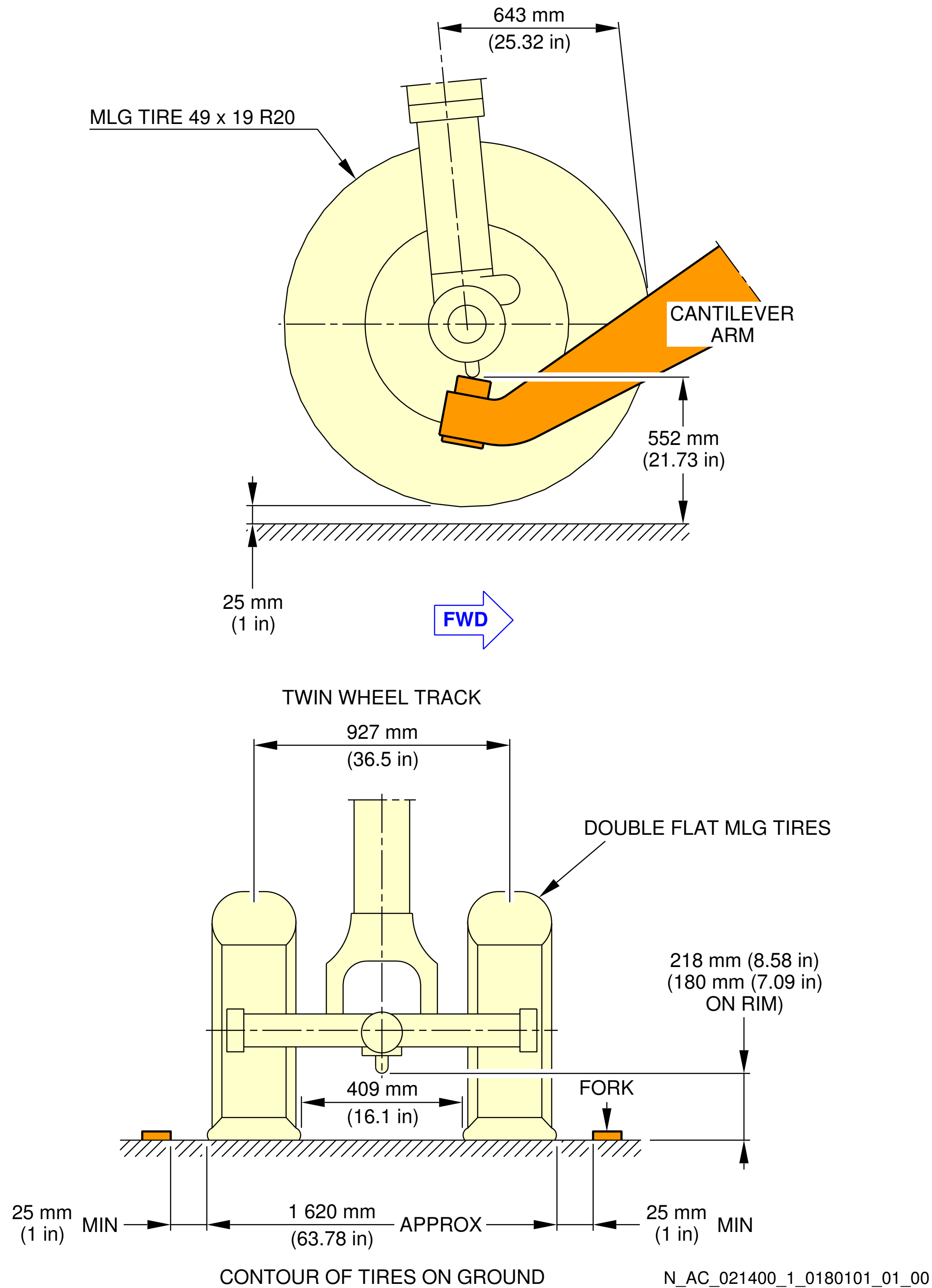
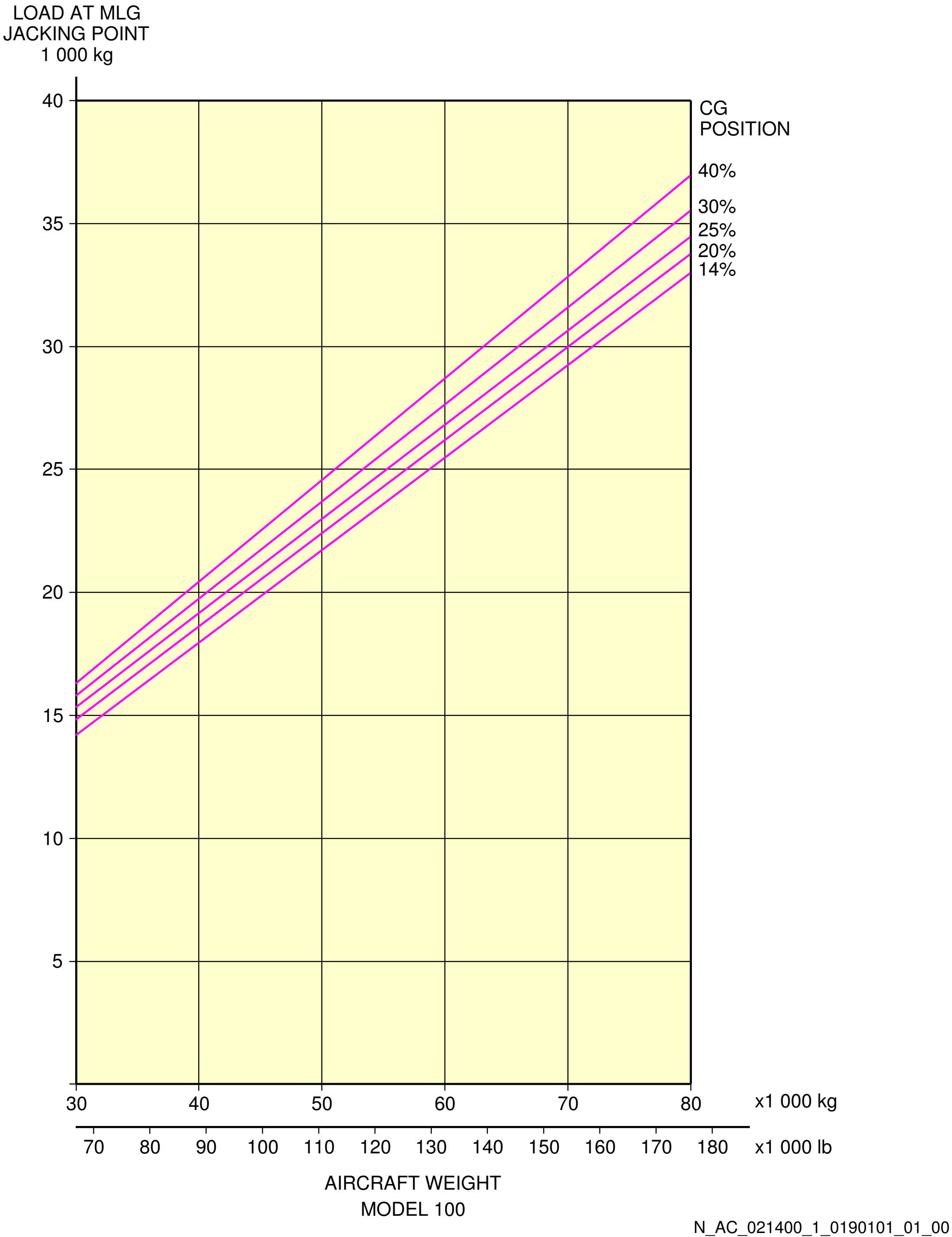
Landing Gear Jacking for Wheel Change
MLG Jacking Point Location - Twin Wheels
FIGURE-2-14-0-991-017-A01

**ON A/C A319-100



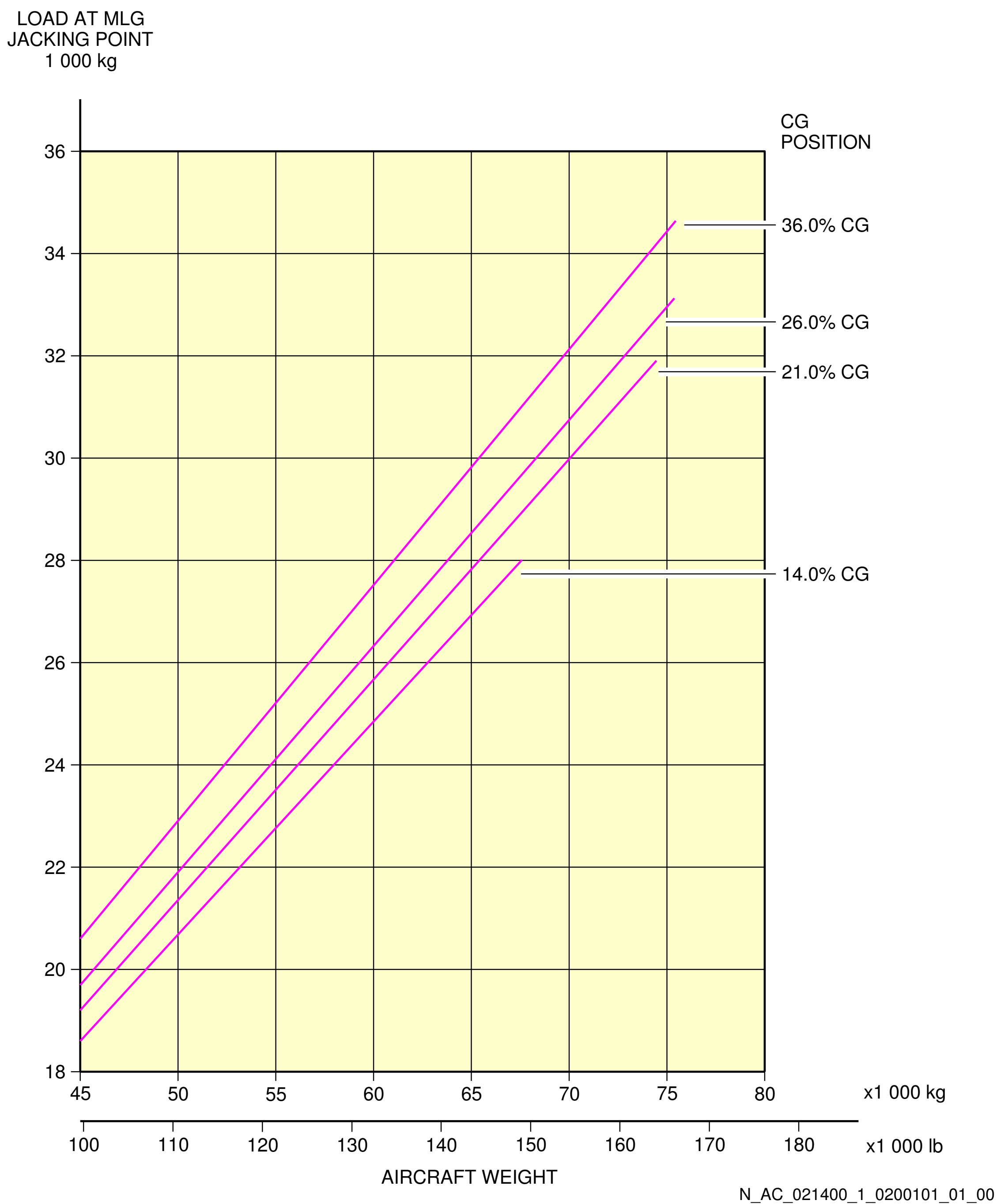
Landing Gear Jacking for Wheel Change
MLG Jacking with Cantilever Jack - Twin Wheels
FIGURE-2-14-0-991-018-A01

**ON A/C A319-100



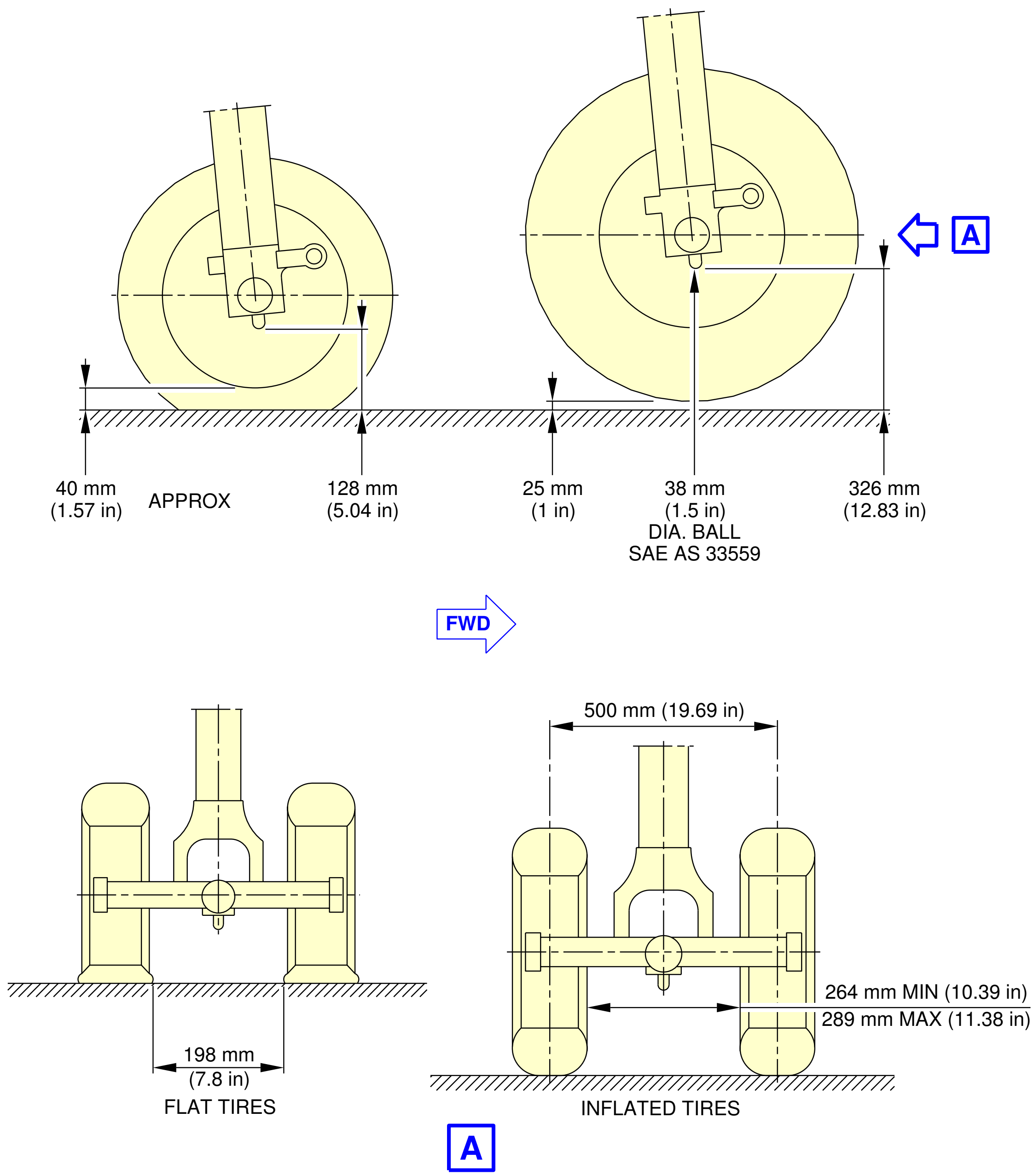
Landing Gear Jacking for Wheel Change
Loads at MLG Jacking Points - Twin Wheels
FIGURE-2-14-0-991-019-A01

**ON A/C A319-100



Landing Gear Jacking for Wheel Change
Loads at MLG Jacking Points - 75 500 kg
FIGURE-2-14-0-991-020-A01

**ON A/C A319-100

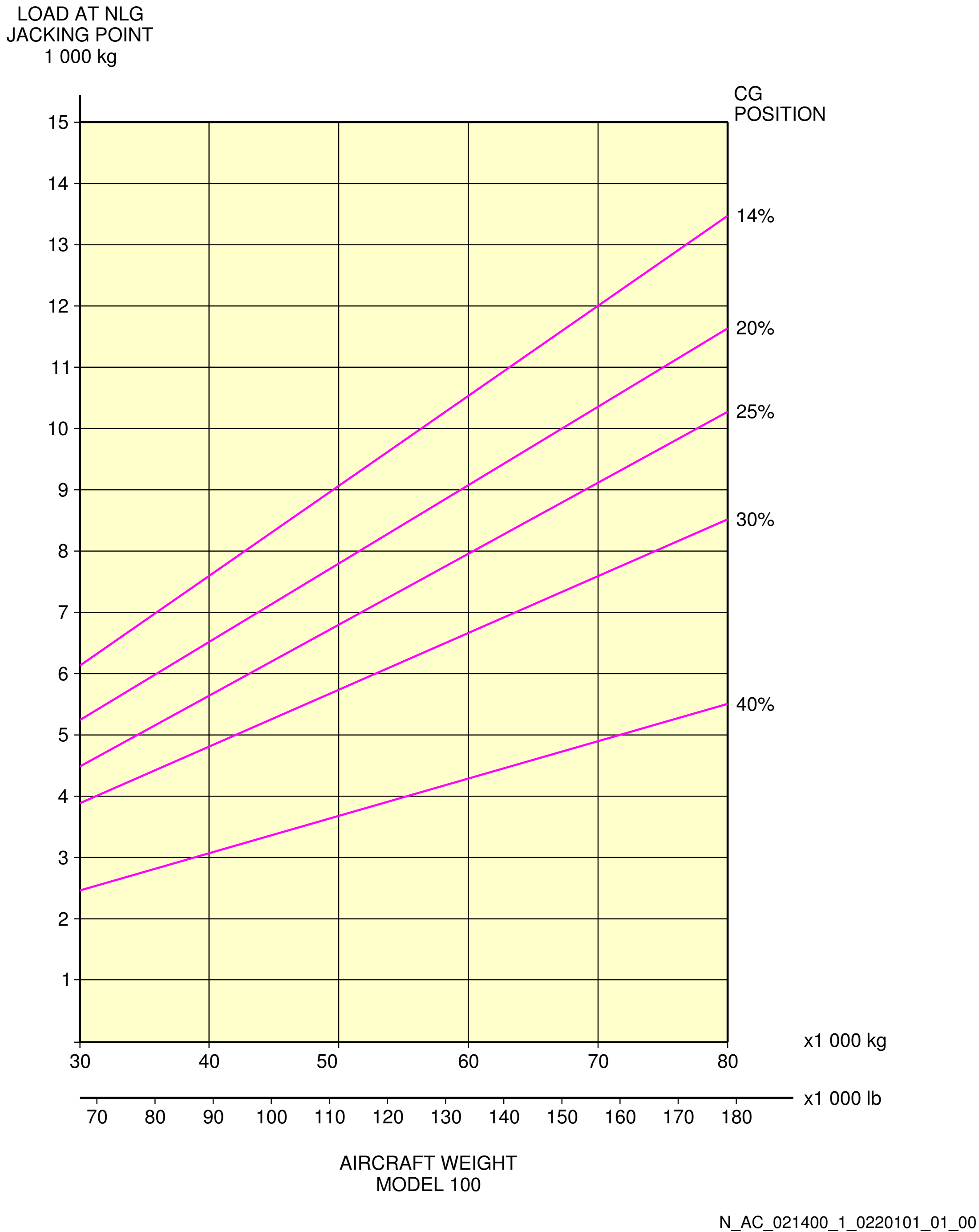


NOTE: THE FLAT TIRES VIEW SHOWS THE MINIMUM HEIGHT TO ENGAGE JACK WITH 2 FLAT TIRES. THE INFLATED TIRES VIEW SHOWS THE JACKING HEIGHT TO GIVE 25 mm (1 in) CLEARANCE BETWEEN THE TIRE AND GROUND.

N_AC_021400_1_0210101_01_00

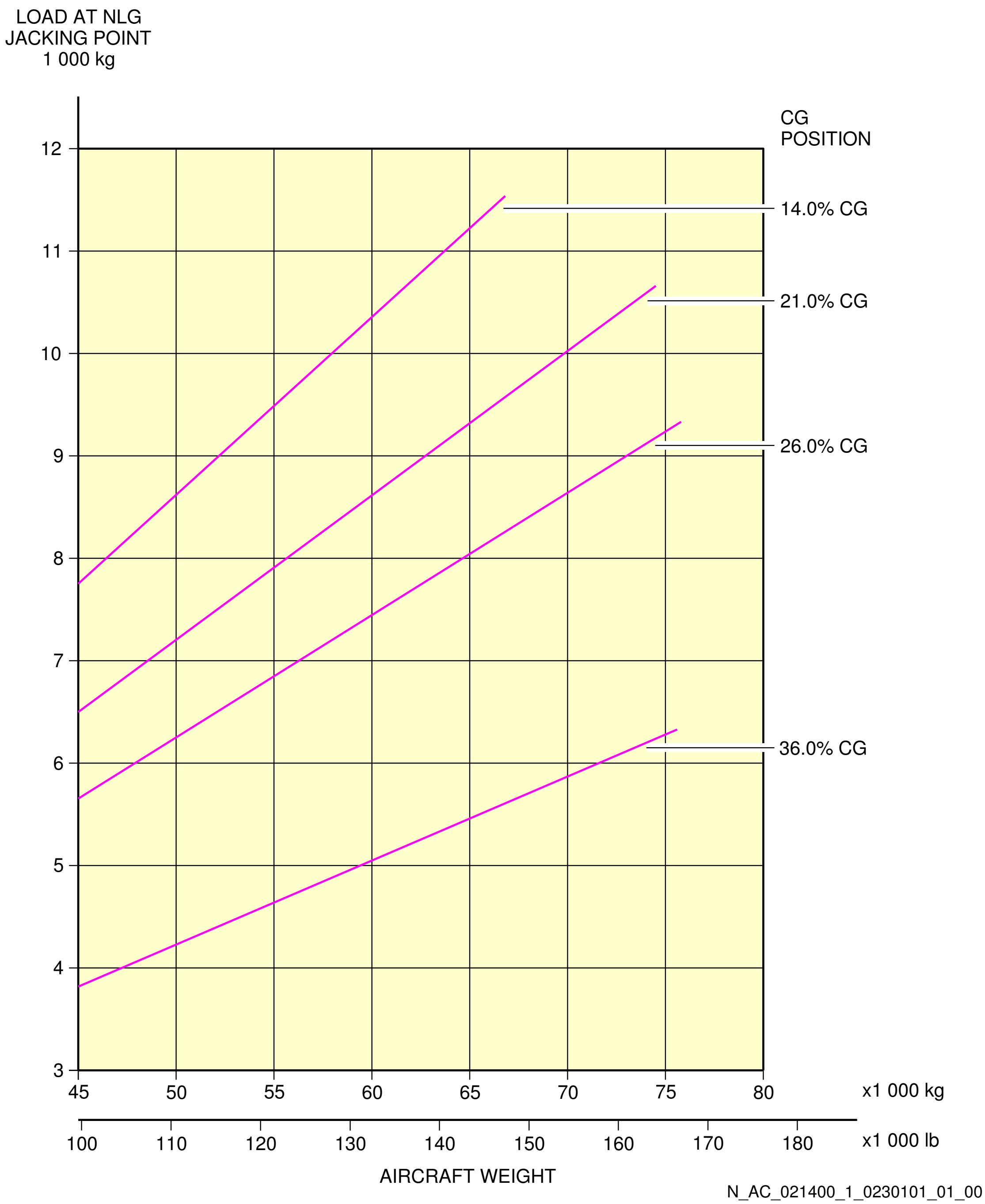
Landing Gear Jacking for Wheel Change
NLG Jacking - Point Location
FIGURE-2-14-0-991-021-A01

**ON A/C A319-100



Landing Gear Jacking for Wheel Change
Loads at NLG Jacking Points
FIGURE-2-14-0-991-022-A01

**ON A/C A319-100



Landing Gear Jacking for Wheel Change
Loads at NLG Jacking Points - 75 500 kg
FIGURE-2-14-0-991-023-A01

AIRCRAFT PERFORMANCE

3-1-0 General Information

**ON A/C A319-100

General Information

1. This section gives standard day temperatures.

   Section 3-2 indicates payload range information at specific altitudes recommended for long range cruise with a given fuel reserve condition.

   Section 3-3 represents FAR take-off runway length requirements at ISA and ISA +15°C (+59°F) for CFM56-5A, CFM56-5B and IAE V2500 series engine conditions for FAA certification.

   Section 3-4 represents FAR landing runway length requirements for FAA certification.

   Section 3-5 indicates final approach speeds.

   Standard day temperatures for the altitudes shown are tabulated below:

Standard day temperatures for the altitude			
Altitude		Standard Day Temperature	
FEET	METERS	°F	°C
0	0	59.0	15.0
2000	610	51.9	11.1
4000	1219	44.7	7.1
6000	1829	37.6	3.1
8000	2438	30.5	-0.8

3-2-0 Payload / Range

**ON A/C A319-100

Payload / Range

1. Payload / Range

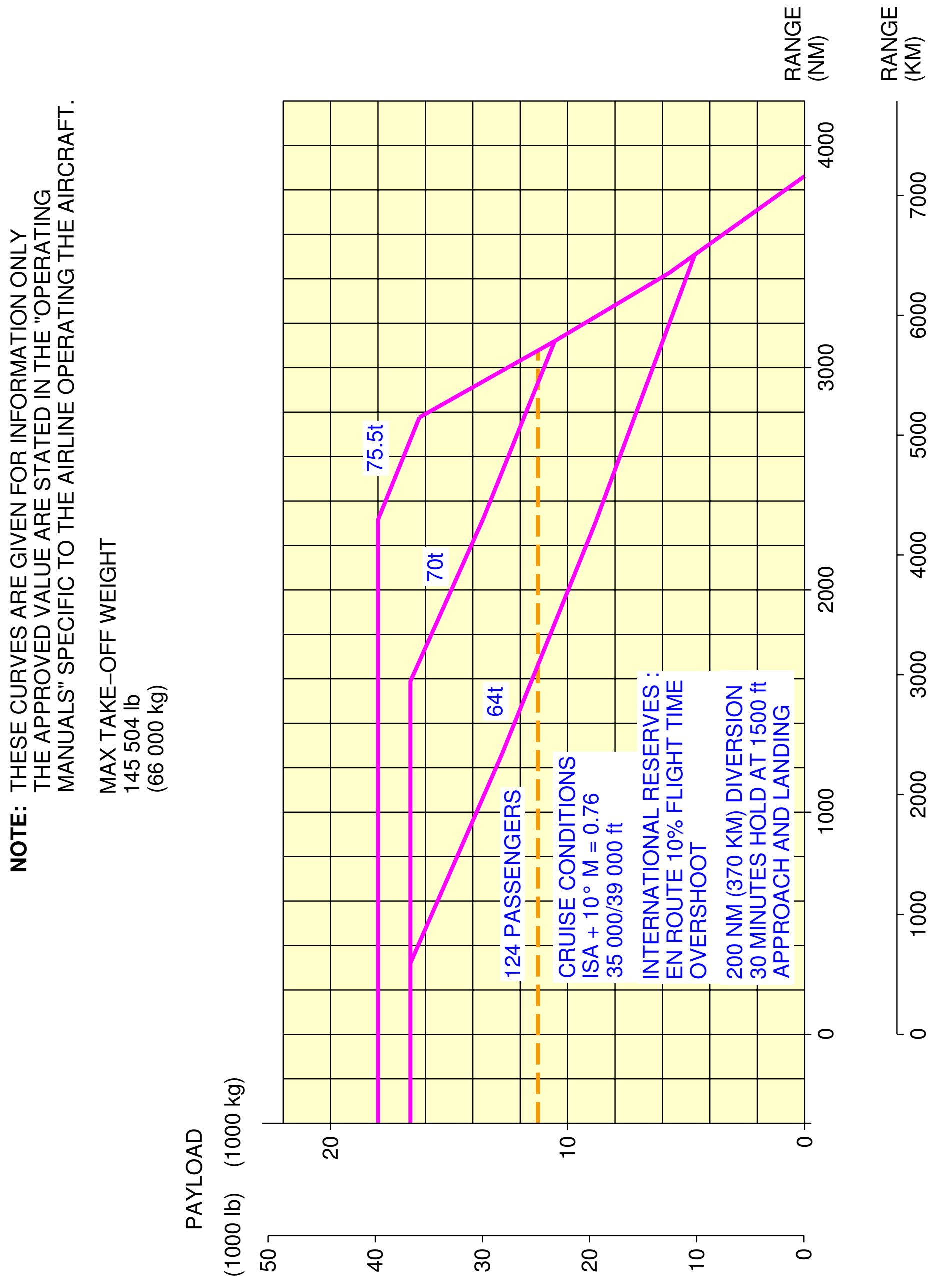
3-2-1 ISA Conditions

****ON A/C A319-100**

ISA Conditions

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

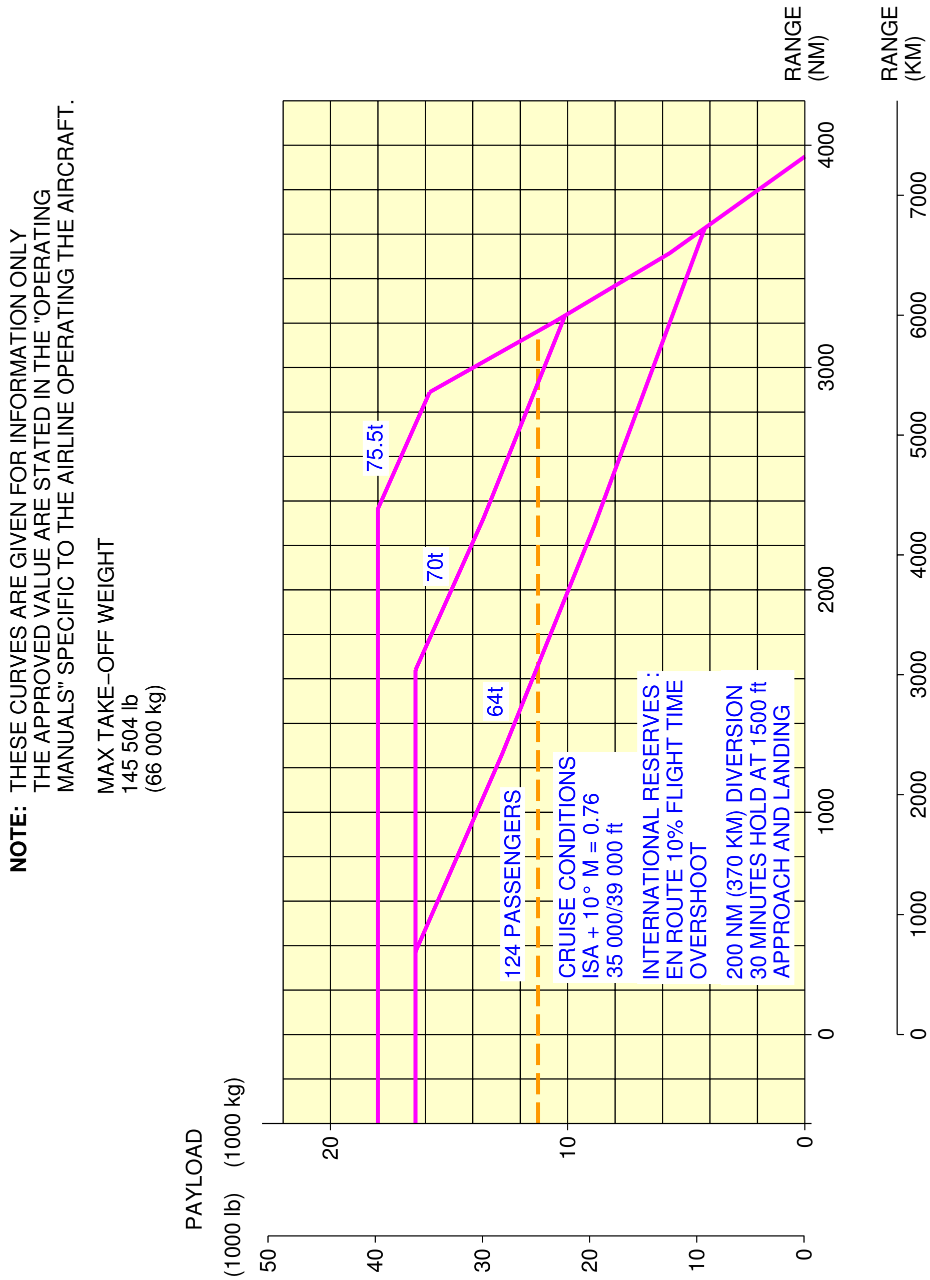
****ON A/C A319-100**



N_AC_030201_1_0030101_01_00

Payload / Range
CFM56-5A series engine
FIGURE-3-2-1-991-003-A01

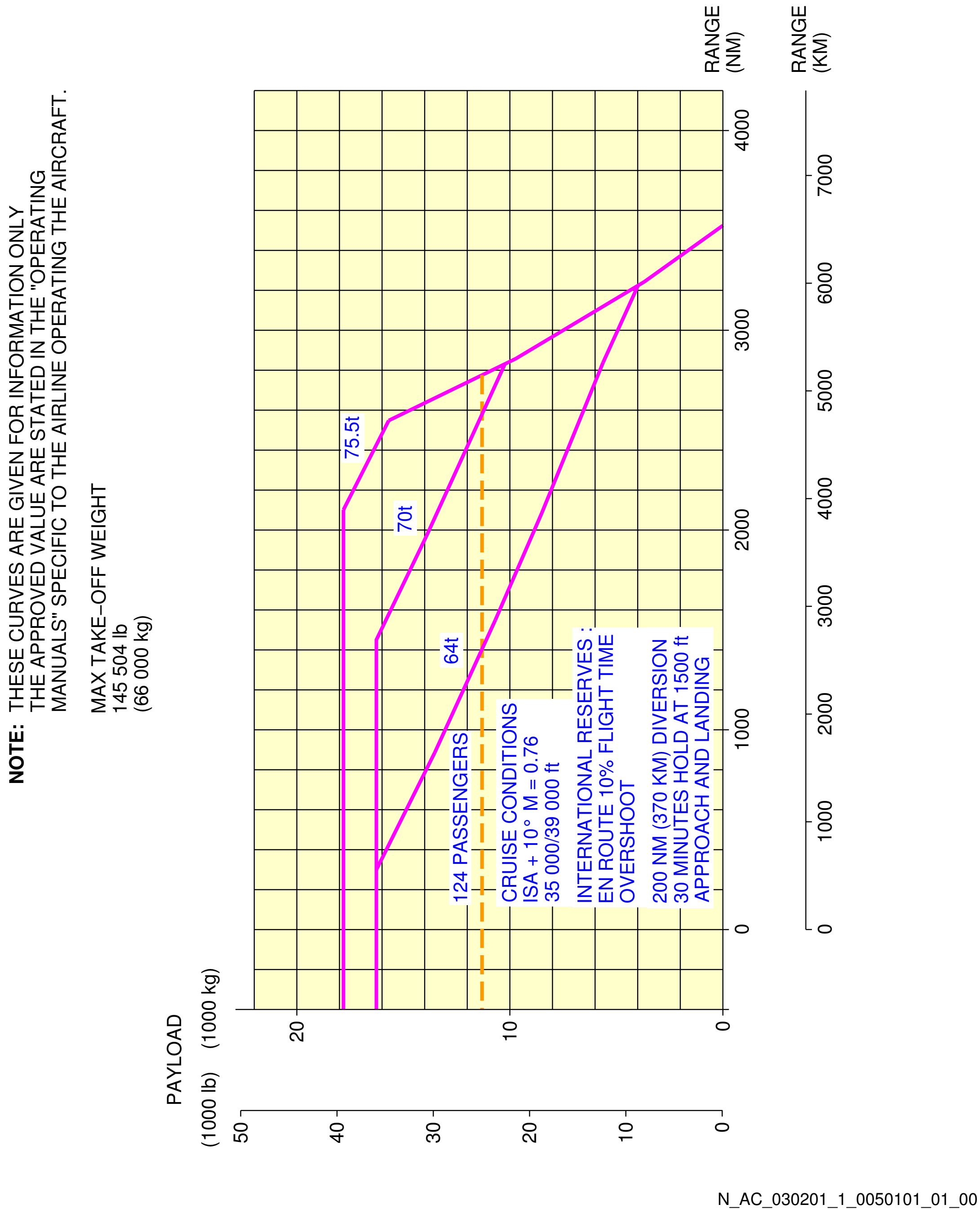
****ON A/C A319-100**



N_AC_030201_1_0040101_01_00

Payload / Range
CFM56-5B series engine
FIGURE-3-2-1-991-004-A01

**ON A/C A319-100



Payload / Range
IAE V2500-A5 series engine
FIGURE-3-2-1-991-005-A01

3-3-0 FAR / JAR Takeoff Weight Limitation

**ON A/C A319-100

FAR / JAR Take-off Weight Limitation

1. FAR / JAR Take-off Weight Limitation

3-3-1 ISA Conditions

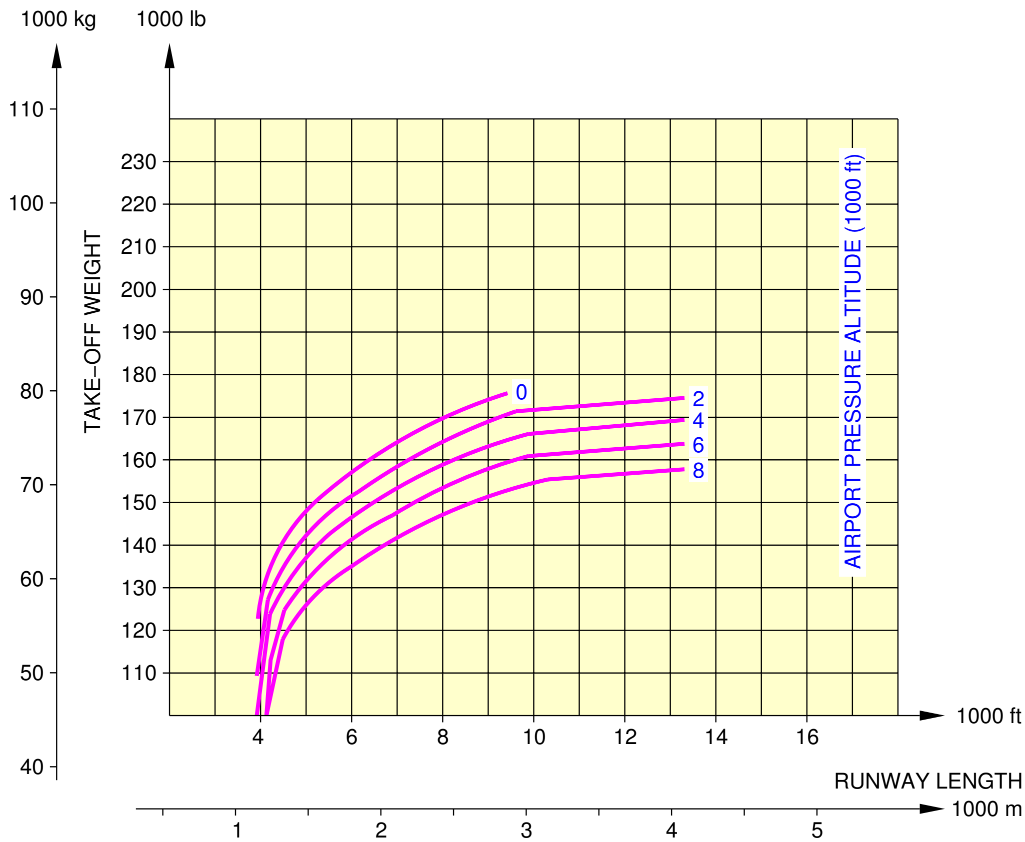
****ON A/C A319-100**

ISA Conditions

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

**ON A/C A319-100

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

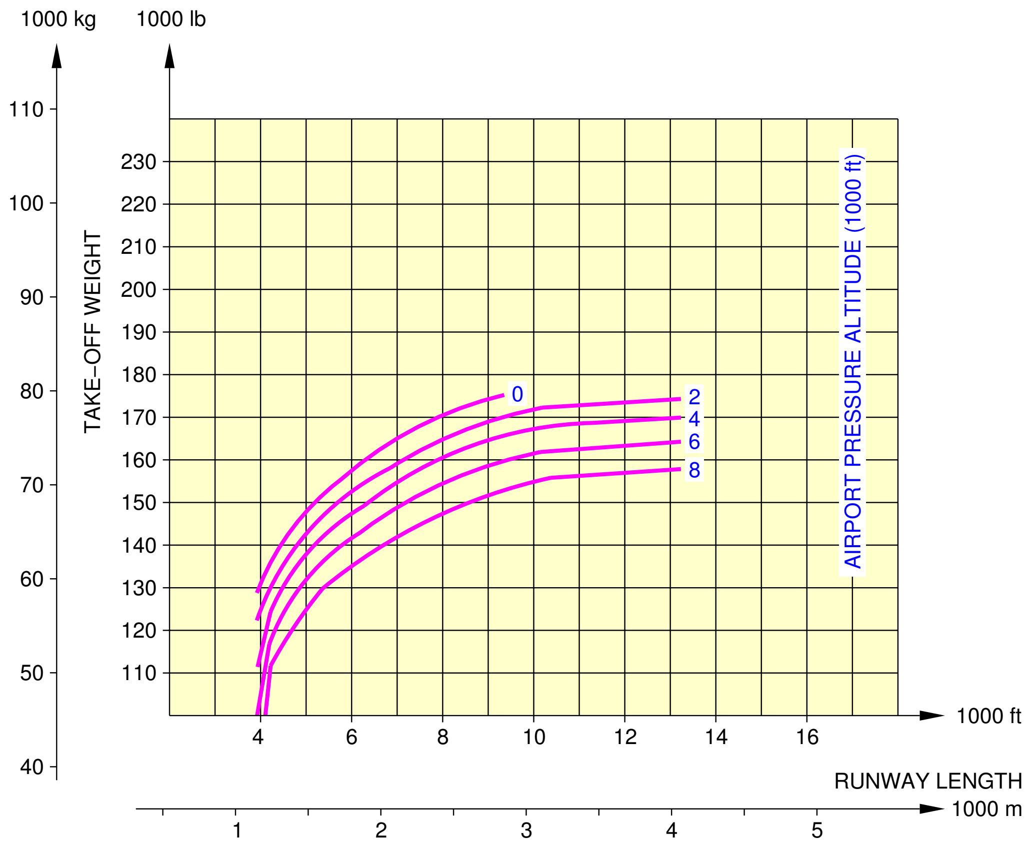


N_AC_030301_1_0030101_01_00

FAR / JAR Take-off Weight Limitation
ISA Conditions – CFM56 series engine
FIGURE-3-3-1-991-003-A01

**ON A/C A319-100

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_0040101_01_00

FAR / JAR Take-off Weight Limitation
ISA Conditions – IAE V2500 series engine
FIGURE-3-3-1-991-004-A01

3-3-2 ISA +15°C (+59°F) Conditions

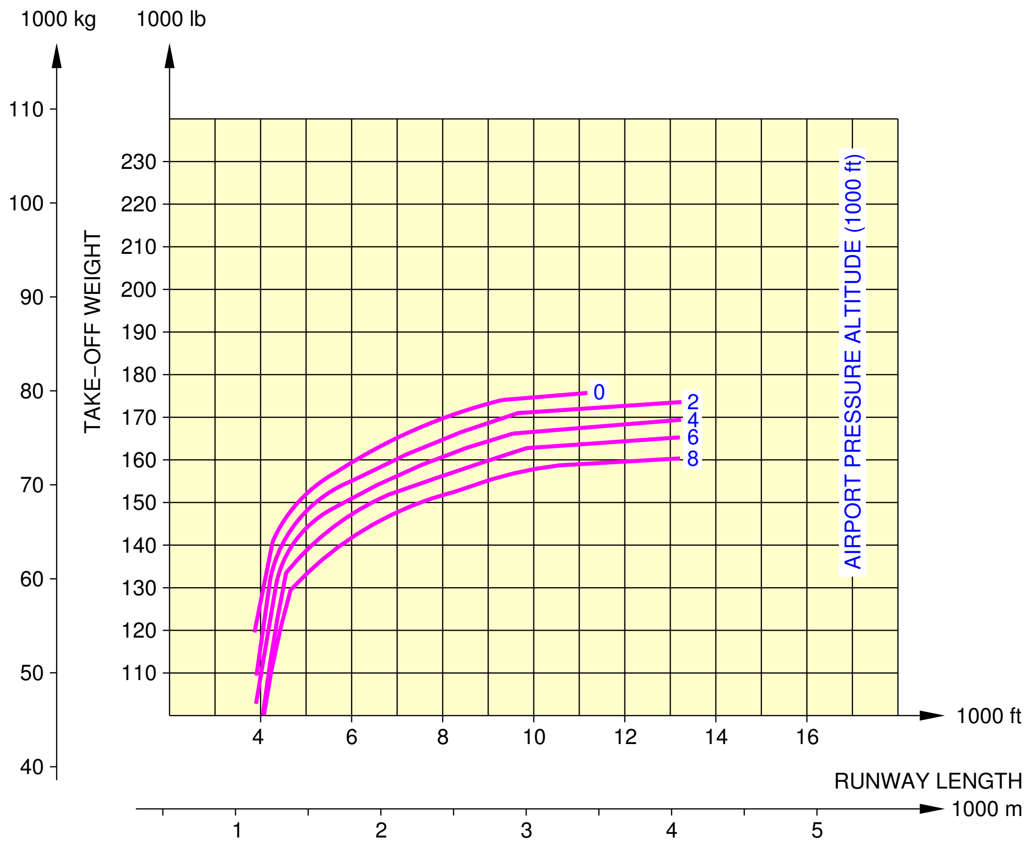
****ON A/C A319-100**

ISA +15°C (+59°F) Conditions

1. This section gives the take-off weight limitation at ISA +15°C (+59°F) conditions.

**ON A/C A319-100

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

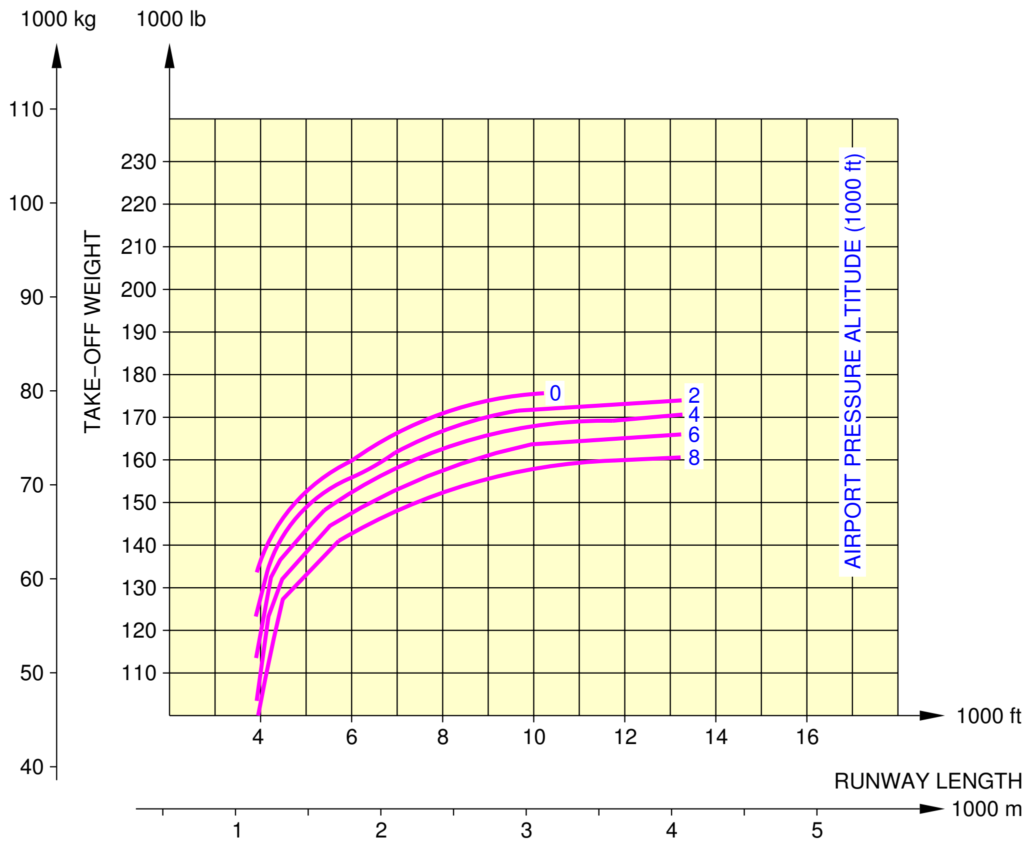


N_AC_030302_1_0030101_01_00

FAR / JAR Take-off Weight Limitation
ISA +15 °C (+59 °F) Conditions – CFM56 series engine
FIGURE-3-3-2-991-003-A01

**ON A/C A319-100

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_0040101_01_00

FAR / JAR Take-off Weight Limitation
ISA +15°C (+59°F) Conditions – IAE V2500 series engine
FIGURE-3-3-2-991-004-A01

3-4-0 FAR / JAR Landing Field Length

**ON A/C A319-100

FAR / JAR Landing Field Length

1. FAR / JAR Landing Field Length

3-4-1 ISA Conditions

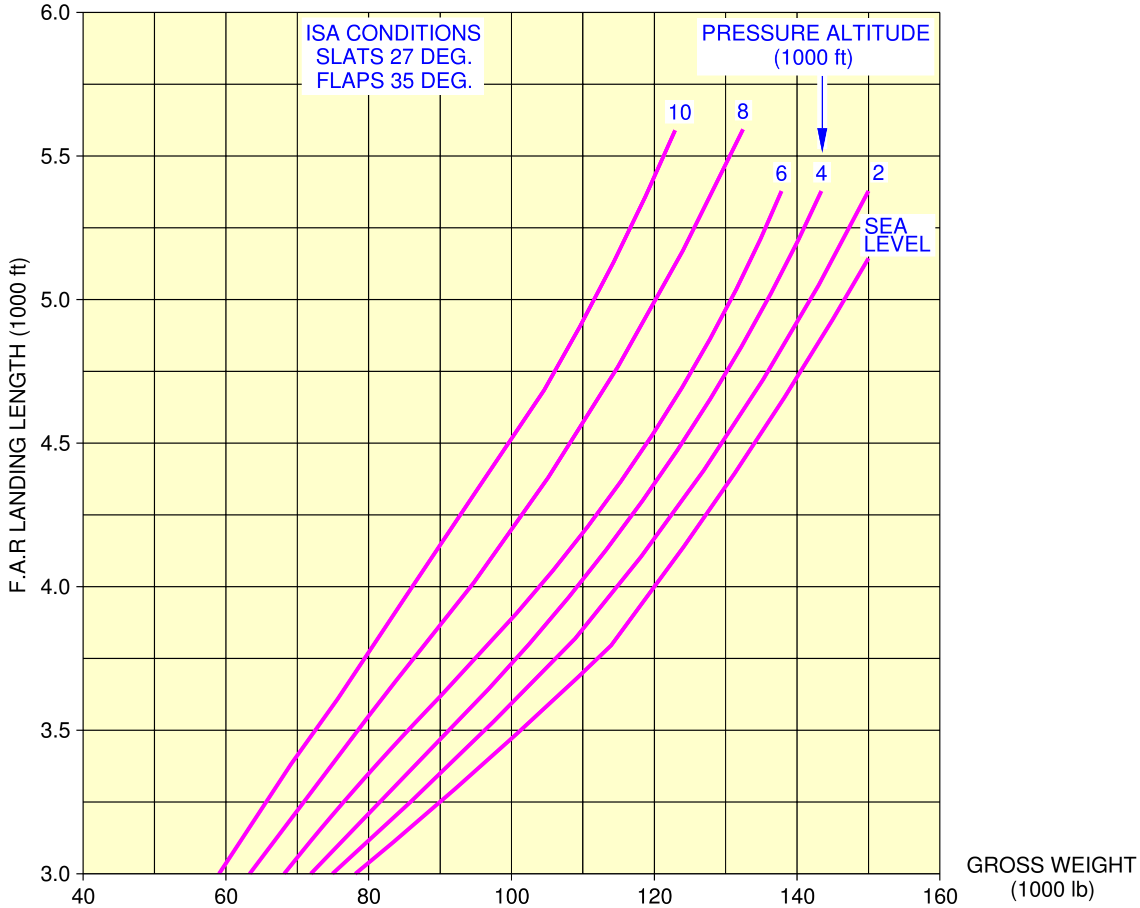
****ON A/C A319-100**

ISA Conditions

1. This section gives the landing field length.

**ON A/C A319-100

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

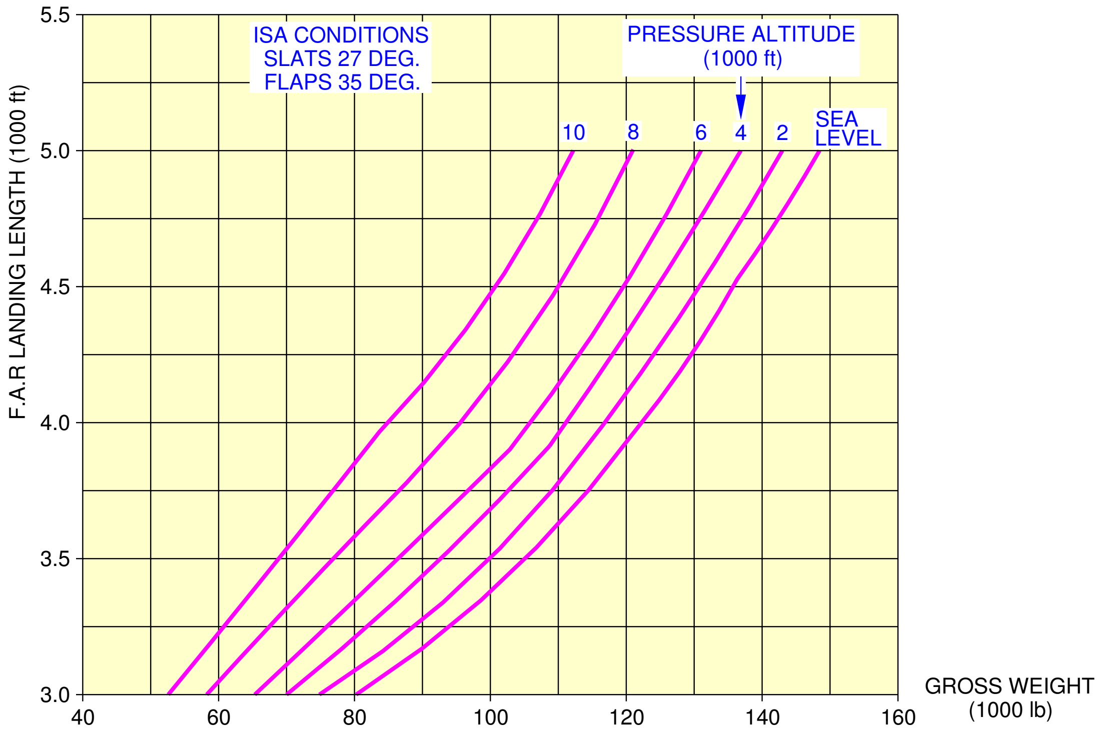


N_AC_030401_1_0030101_01_00

FAR / JAR Landing Field Length
CFM56-5A series engine
FIGURE-3-4-1-991-003-A01

**ON A/C A319-100

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_0040101_01_00

FAR / JAR Landing Field Length
IAE V2500 series engine
FIGURE-3-4-1-991-004-A01

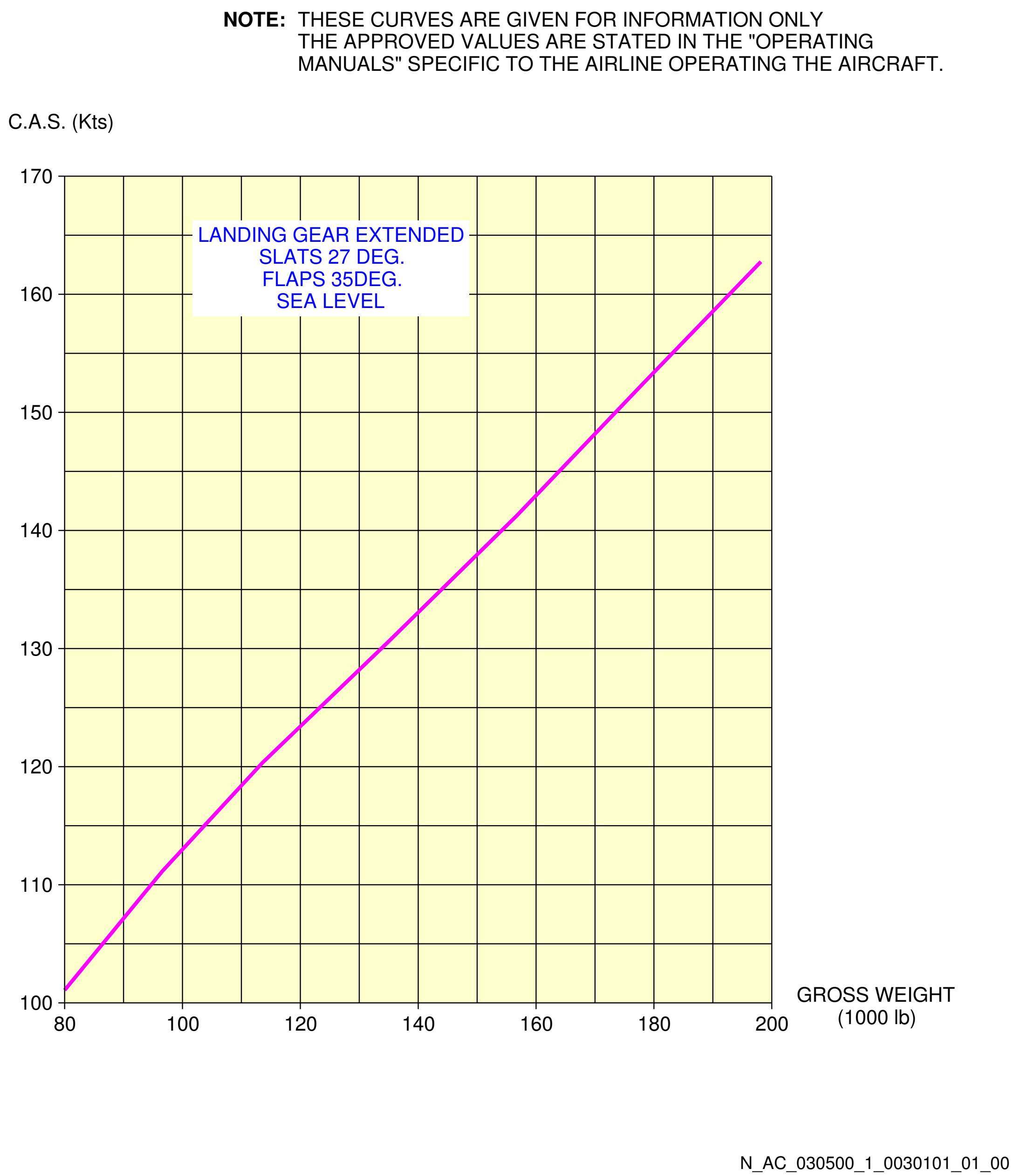
3-5-0 Final Approach Speed

**ON A/C A319-100

Final Approach Speed

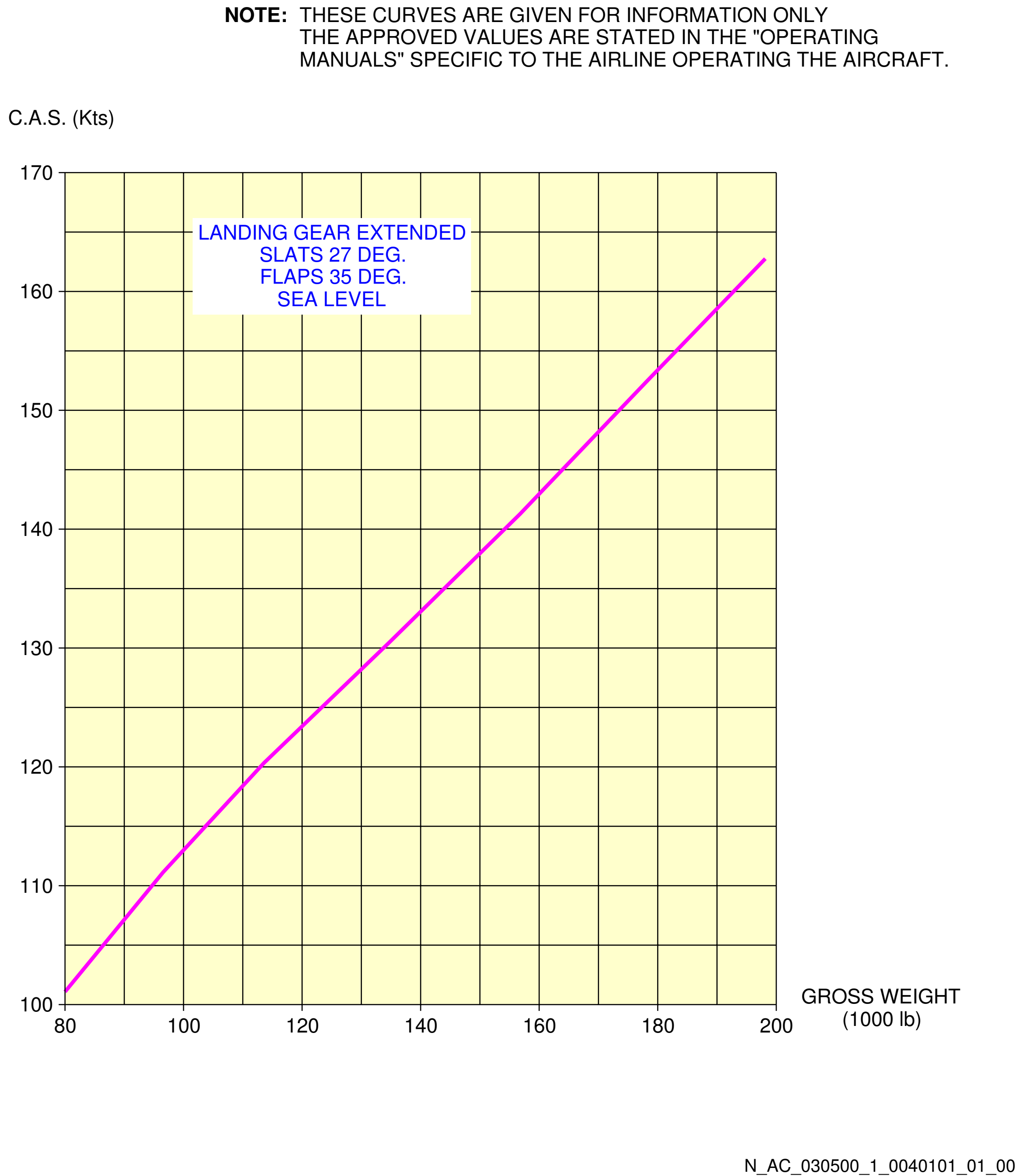
1. This section gives the final approach speed.

**ON A/C A319-100



Final Approach Speed
CFM56-5A series engine
FIGURE-3-5-0-991-003-A01

**ON A/C A319-100



Final Approach Speed
IAE V2500 series engine
FIGURE-3-5-0-991-004-A01

GROUND MANEUVERING

4-1-0 General Information

**ON A/C A319-100

General Information

1. This section provides airplane 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 guidelines for the method of determination of such parameters and for the maneuvering characteristics of this aircraft type.

   In the 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 high risk of jet blast damage. For these reasons, ground maneuvering requirements should be coordinated with the using airlines prior to layout planning.

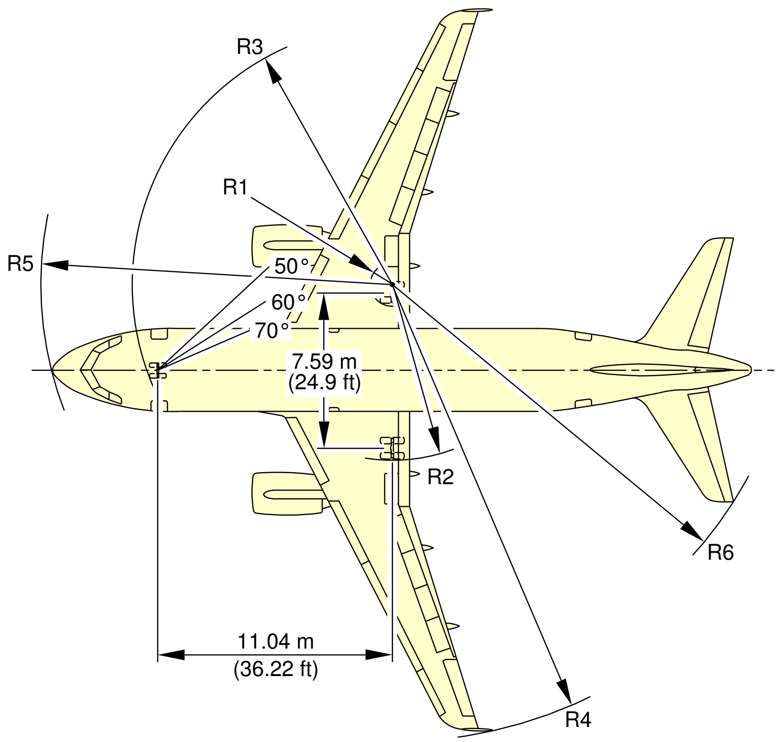
4-2-0 Turning Radii

****ON A/C A319-100**

Turning Radii

1. This section gives the turning radii.

**ON A/C A319-100



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_0030101_01_02

Turning Radii, No Slip Angle
FIGURE-4-2-0-991-003-A01

**ON A/C A319-100

TYPE OF TURN	MAXIMUM RAMP WEIGHT STEERING ANGLE (deg)	MAXIMUM RAMP WEIGHT EFFECTIVE STEERING ANGLE (deg)	R1 RMLG m	R1 RMLG ft	R2 LMLG m	R2 LMLG ft	R3 NLG m	R3 NLG ft	R4 – WING WINGTIP FENCE m	R4 – WING WINGTIP FENCE ft	R4 – WING SHARKLET m	R4 – WING SHARKLET ft	R5 NOSE m	R5 NOSE ft	R6 THS m	R6 THS ft
2	20	19.4	28.2	92	35.8	117	33.5	110	48.6	159	49.4	162	35.2	116	41.2	135
2	25	24.3	21.4	70	29.0	95	27.2	89	41.8	137	42.6	140	29.3	96	35.1	115
2	30	29.1	16.7	55	24.3	80	23.0	76	37.1	122	38.0	125	25.6	84	31.1	102
2	35	33.9	13.3	44	20.9	69	20.1	66	33.7	111	34.6	113	23.0	75	28.3	93
2	40	38.8	10.6	35	18.2	60	17.9	59	31.1	102	31.9	105	21.2	69	26.2	86
2	45	43.6	8.5	28	16.1	53	16.3	53	29.0	95	29.8	98	19.8	65	24.6	81
2	50	48.4	6.7	22	14.3	47	15.0	49	27.2	89	28.0	92	18.9	62	23.3	76
2	55	53.2	5.2	17	12.7	42	14.0	46	25.7	84	26.5	87	18.1	59	22.3	73
2	60	57.9	3.8	13	11.4	37	13.2	43	24.4	80	25.2	83	17.5	58	21.4	70
2	65	62.5	2.6	9	10.2	34	12.6	41	23.2	76	24.0	79	17.1	56	20.7	68
2	70	66.9	1.6	5	9.2	30	12.2	40	22.2	73	23.0	76	16.8	55	20.1	66
2	75 (MAX)	70.3	0.8	3	8.4	28	11.8	39	21.4	70	22.3	73	16.6	54	19.7	65
1	50	48.6	6.6	22	14.2	47	14.9	49	27.1	89	28.0	92	18.8	62	23.2	76
1	55	53.5	5.1	17	12.6	41	14.0	46	25.6	84	26.4	87	18.1	59	22.2	73
1	60	58.3	3.7	12	11.3	37	13.2	43	24.3	80	25.1	82	17.5	57	21.3	70
1	65	63.1	2.5	8	10.1	33	12.5	41	23.1	76	23.9	78	17.1	56	20.6	68
1	70	67.7	1.4	5	9.0	30	12.1	40	22.0	72	22.8	75	16.7	55	20.0	66
1	75 (MAX)	71.9	0.5	2	8.1	27	11.7	38	21.1	69	22.0	72	16.5	54	19.6	64

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_0040101_01_01

Turning Radii, No Slip Angle
FIGURE-4-2-0-991-004-A01

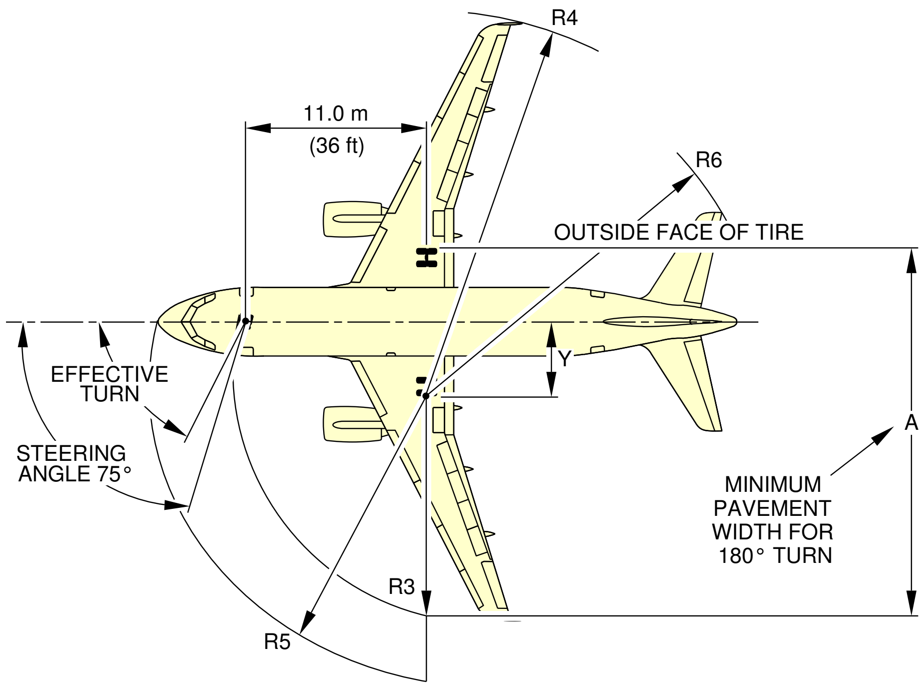
4-3-0 Minimum Turning Radii

**ON A/C A319-100

Minimum Turning Radii

1. This section gives the minimum turning radii.

**ON A/C A319-100



NOTE: NOSE GEAR RADII TRACK R3,
MEASURED FROM OUTSIDE FACE OF TIRE.
MODEL 100 TURN DIMENSION SHOWN.
THEORETICAL CENTER OF TURN
FOR MINIMUM TURNING RADIUS.
SLOW CONTINUOUS TURNING.
APPROXIMATELY IDLE THRUST
ON ALL ENGINES.
NO DIFFERENTIAL BRAKING.
DRY SURFACE.

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	3.6	20.1	11.7	21.1	22.0	16.5	19.6
			ft	12	66	38	69	72	54	64
2	75 (MAX)	70.3°	m	3.9	20.5	11.8	21.4	22.3	16.6	19.7
			ft	13	67	39	70	73	54	65

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

N_AC_040300_1_0020101_01_02

Minimum Turning Radii
FIGURE-4-3-0-991-002-A01

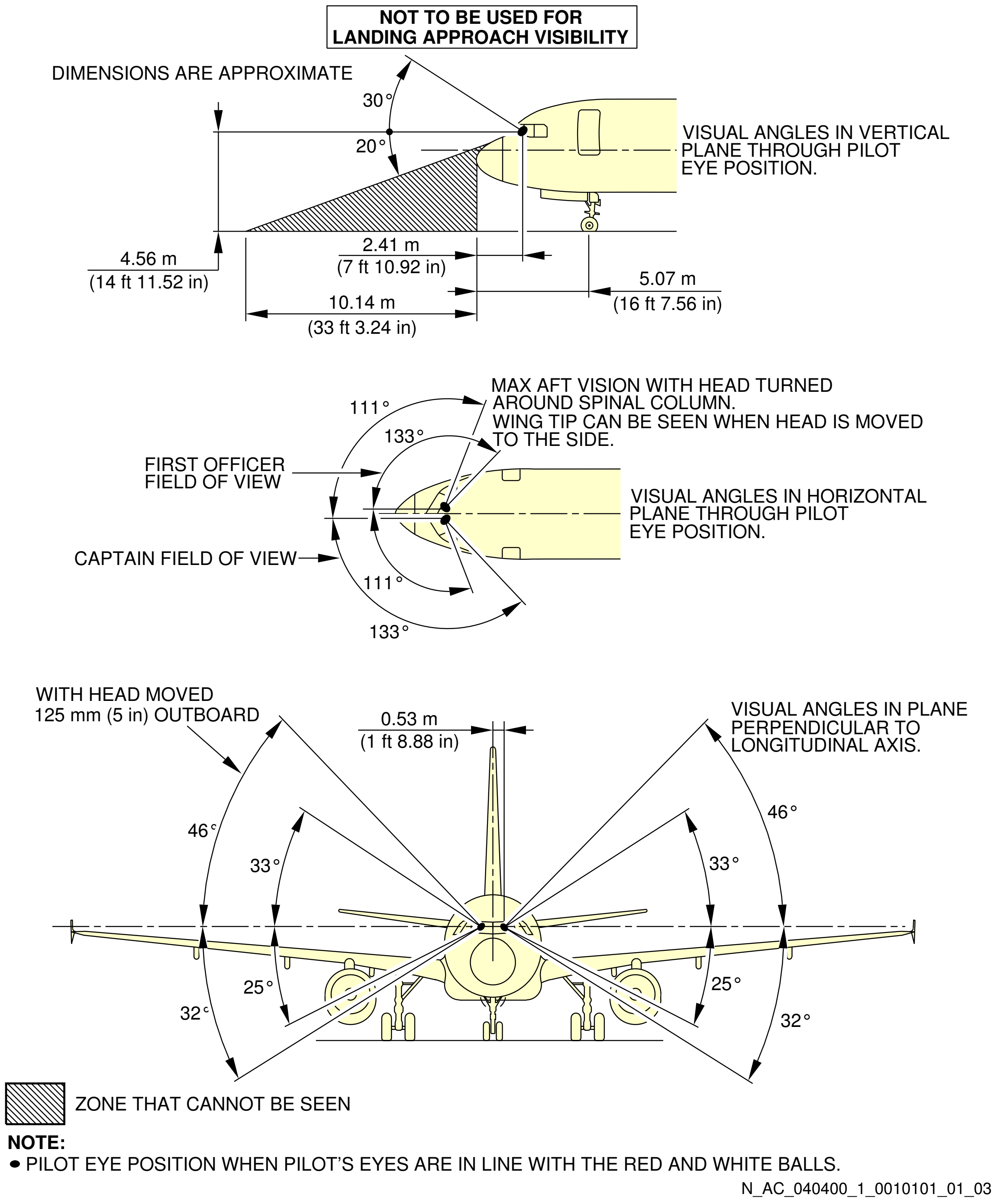
4-4-0 Visibility from Cockpit in Static Position

****ON A/C A319-100**

Visibility from Cockpit in Static Position

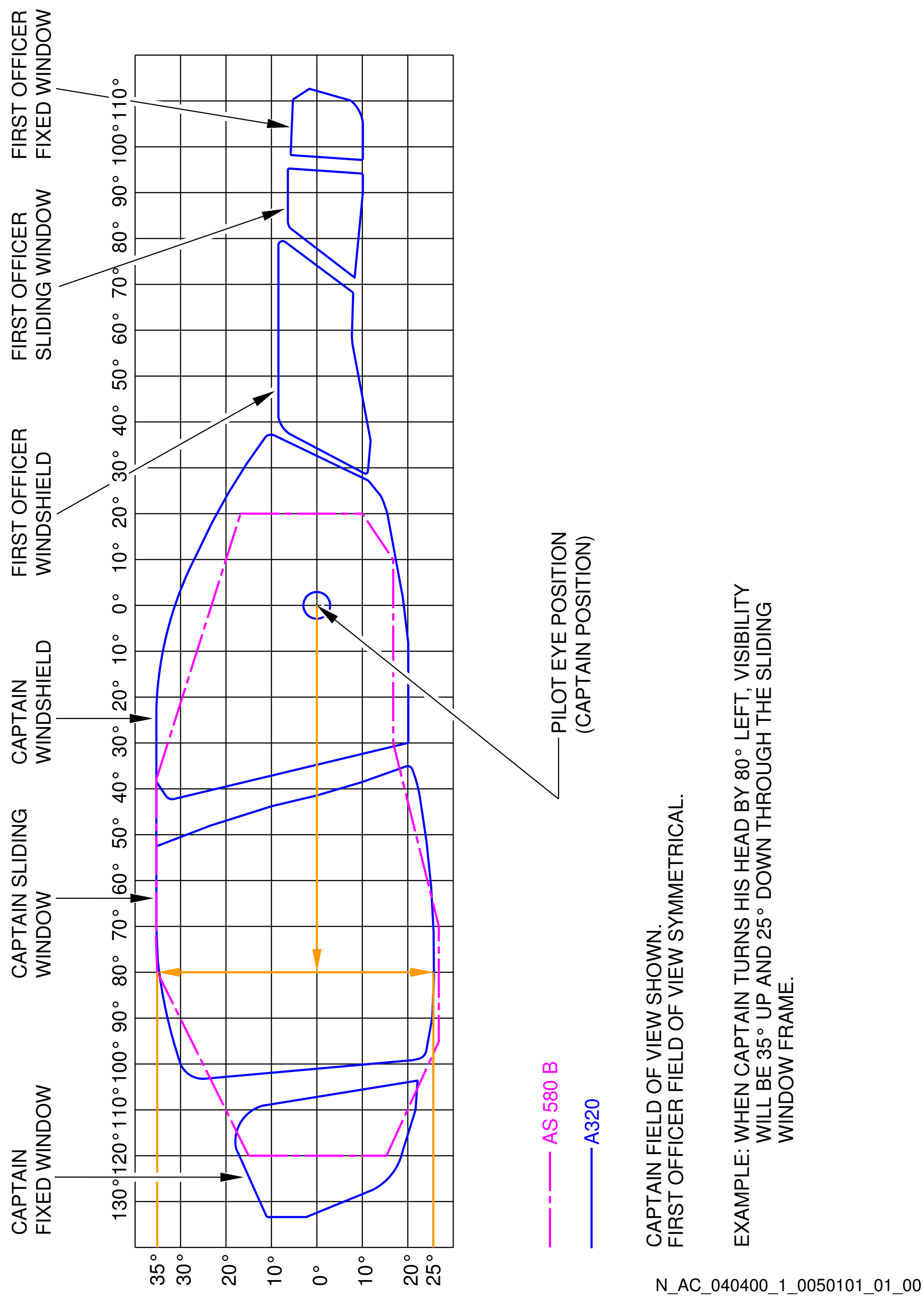
1. This section gives the visibility from cockpit in static position.

**ON A/C A319-100



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

****ON A/C A319-100**



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 A319-100**

Runway and Taxiway Turn Paths

1. Runway and Taxiway Turn Paths.

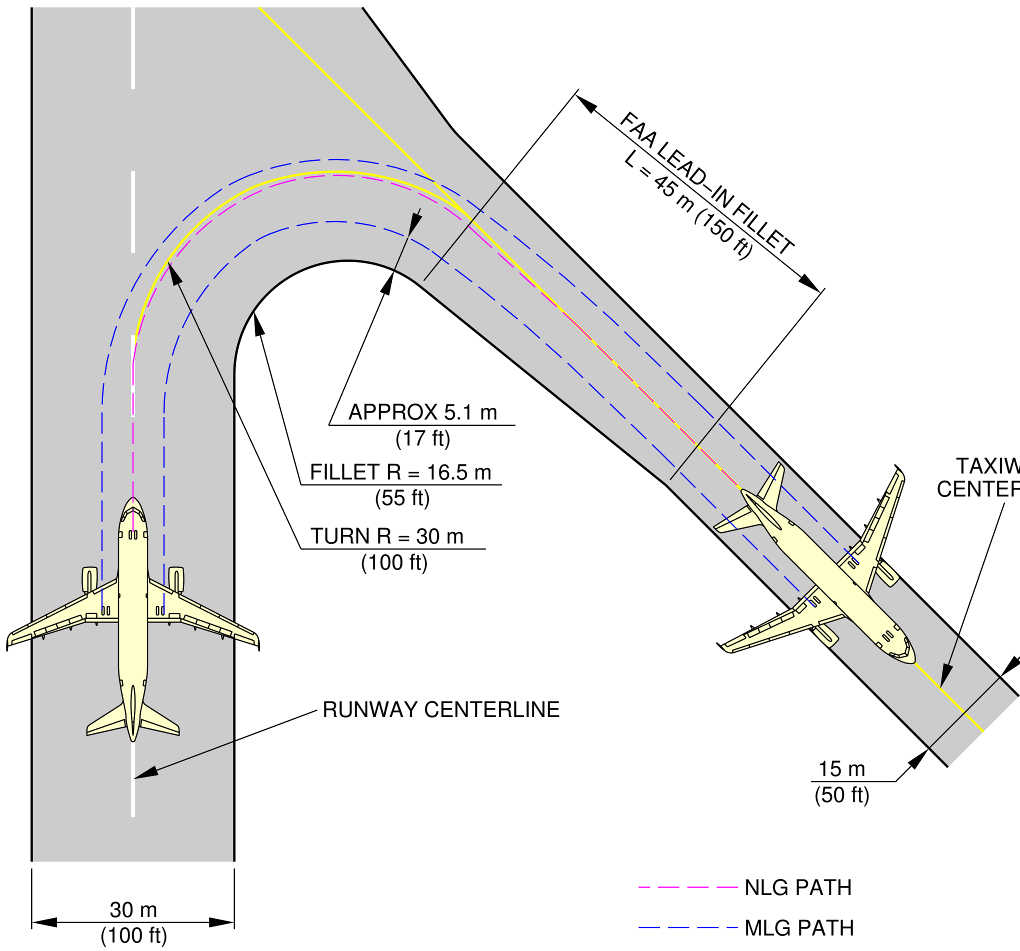
4-5-1 135° Turn - Runway to Taxiway

****ON A/C A319-100**

<u>135° Turn - Runway to Taxiway</u>

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

**ON A/C A319-100

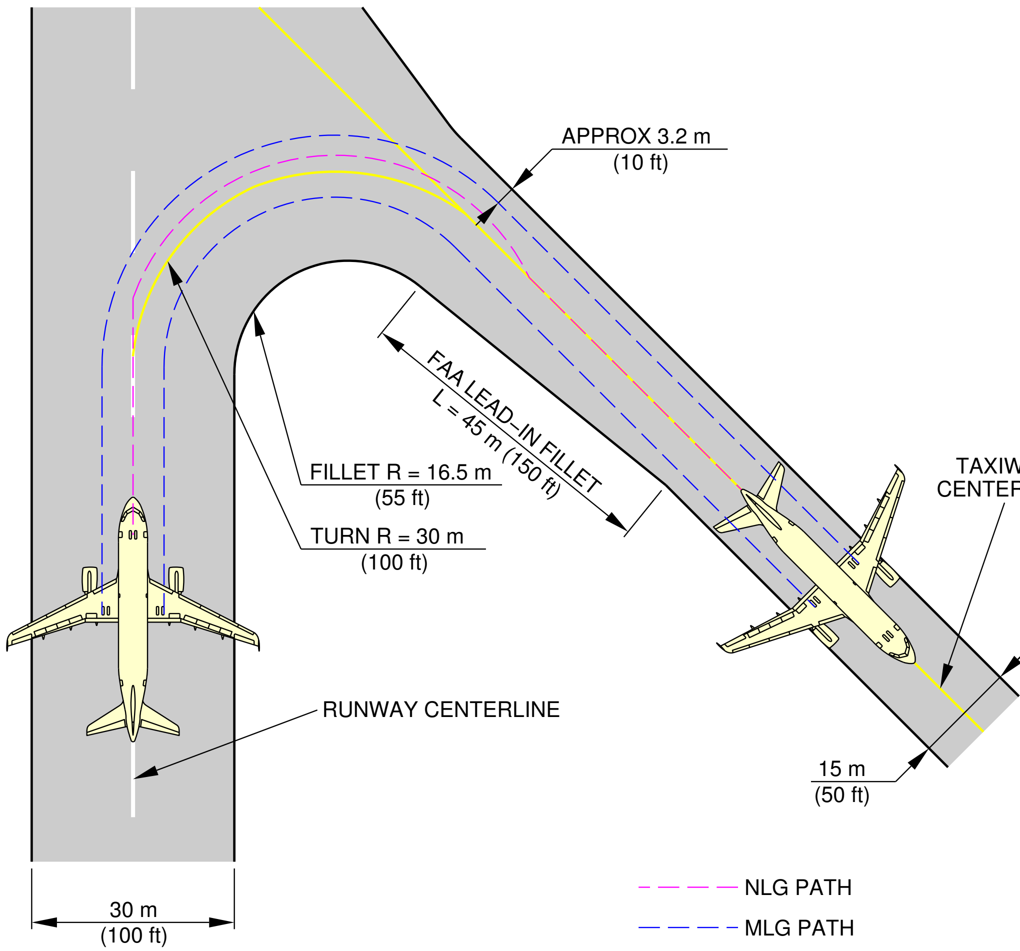


NOTE: FAA GROUP III FACILITIES.

N_AC_040501_1_0020101_01_02

135° Turn - Runway to Taxiway
Cockpit Over Centerline Method
FIGURE-4-5-1-991-002-A01

**ON A/C A319-100



NOTE: FAA GROUP III FACILITIES.

N_AC_040501_1_0030101_01_02

135° Turn - Runway to Taxiway
Judgemental Oversteering Method
FIGURE-4-5-1-991-003-A01

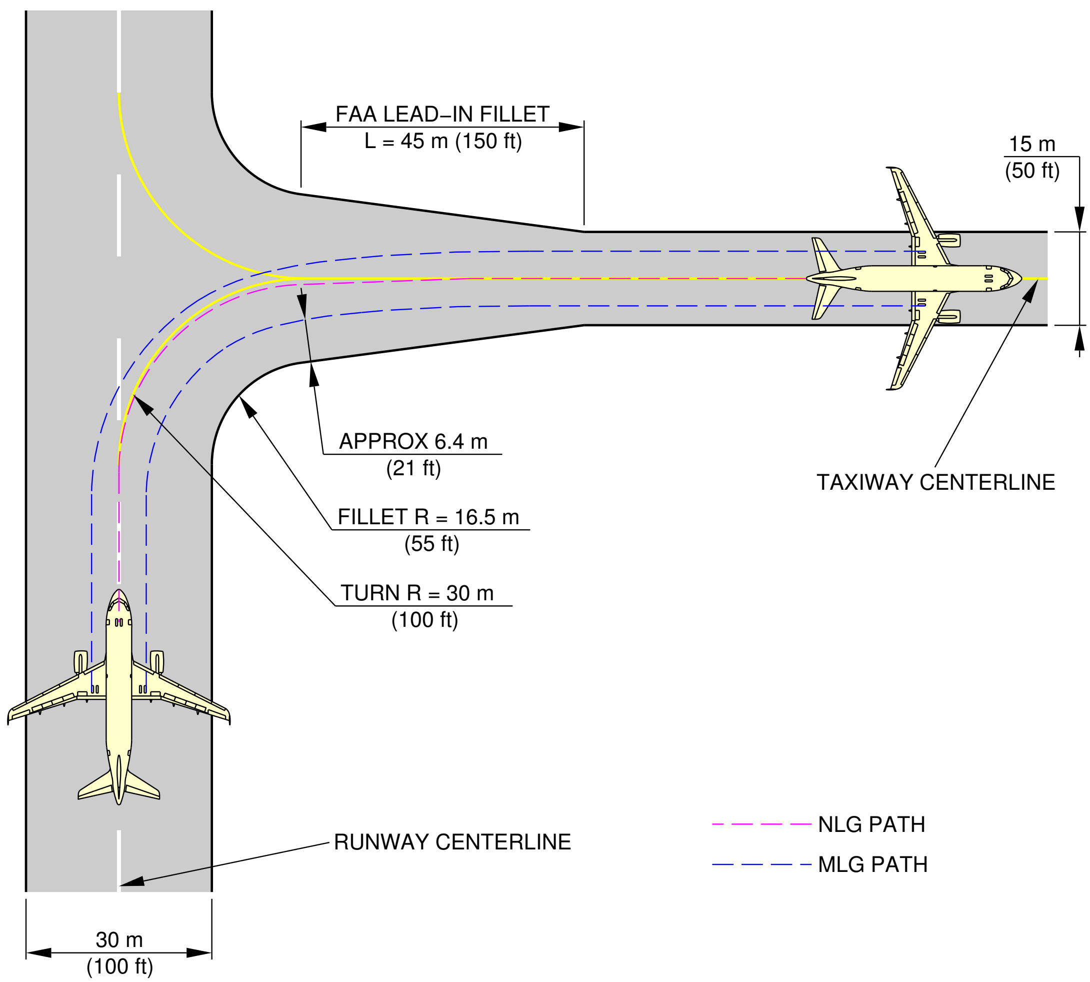
4-5-2 90° Turn - Runway to Taxiway

****ON A/C A319-100**

90° Turn - Runway to Taxiway

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

**ON A/C A319-100

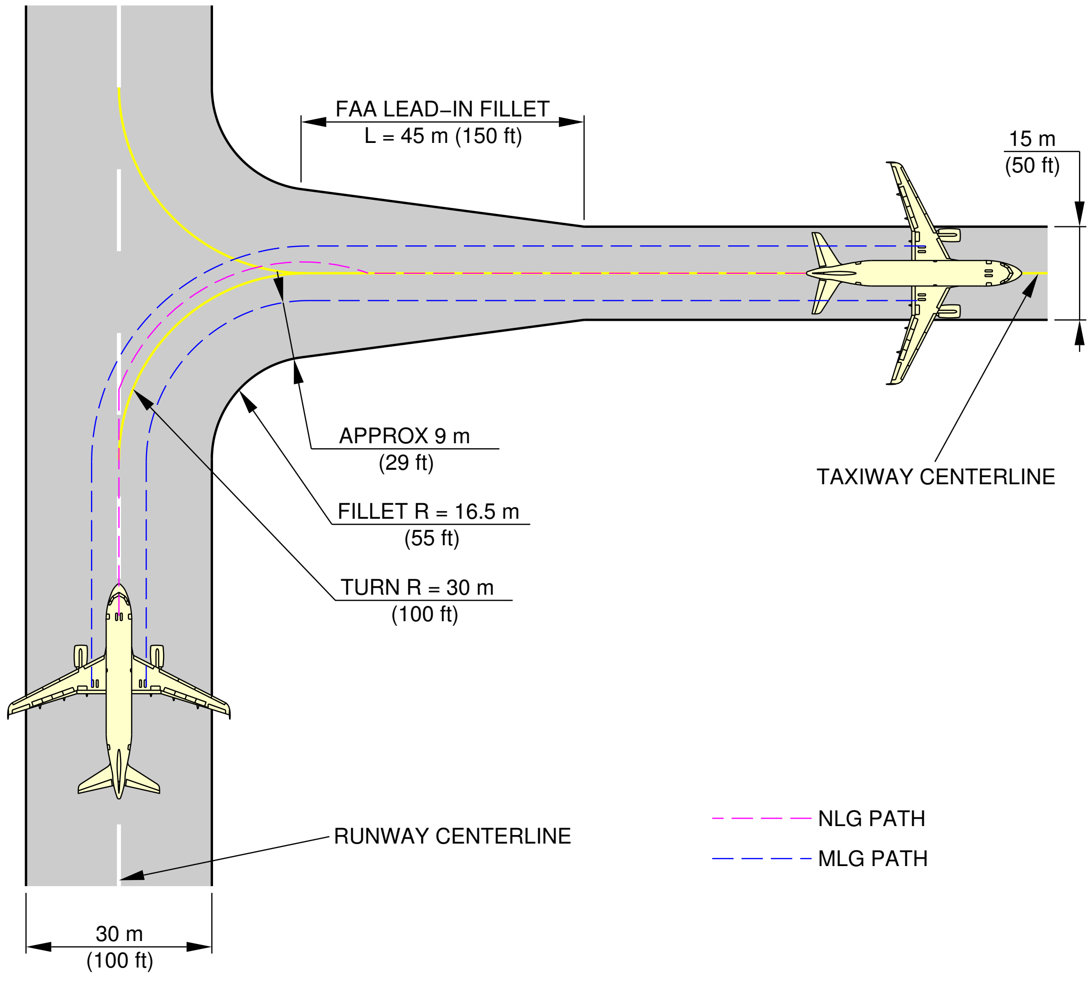


NOTE: FAA GROUP III FACILITIES.

N_AC_040502_1_0020101_01_01

90° Turn - Runway to Taxiway
Cockpit Over Centerline Method
FIGURE-4-5-2-991-002-A01

**ON A/C A319-100



NOTE: FAA GROUP III FACILITIES.

N_AC_040502_1_0030101_01_01

90° Turn - Runway to Taxiway
Judgemental Oversteering Method
FIGURE-4-5-2-991-003-A01

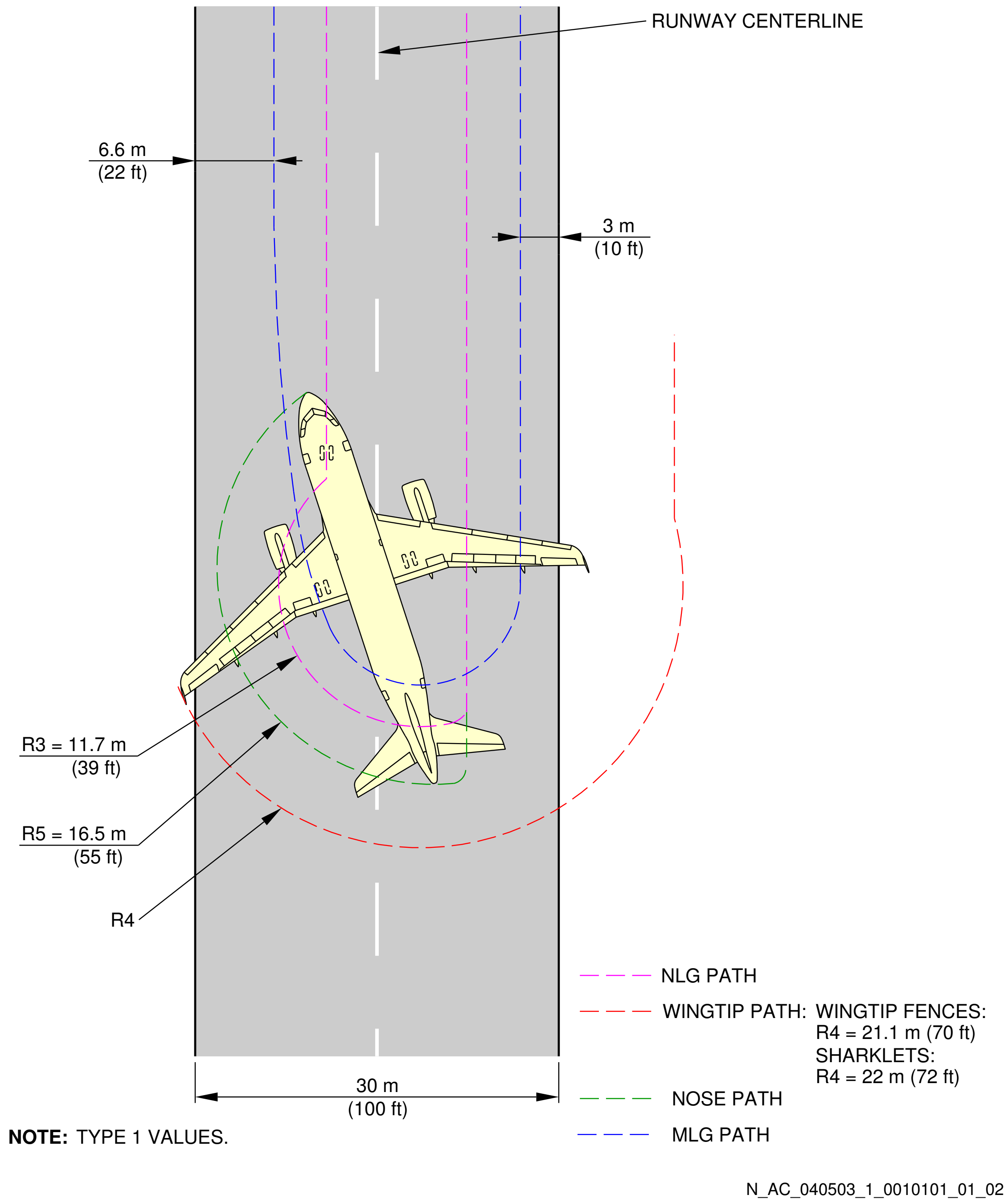
4-5-3 180° Turn on a Runway

****ON A/C A319-100**

<u>180° Turn on a Runway</u>

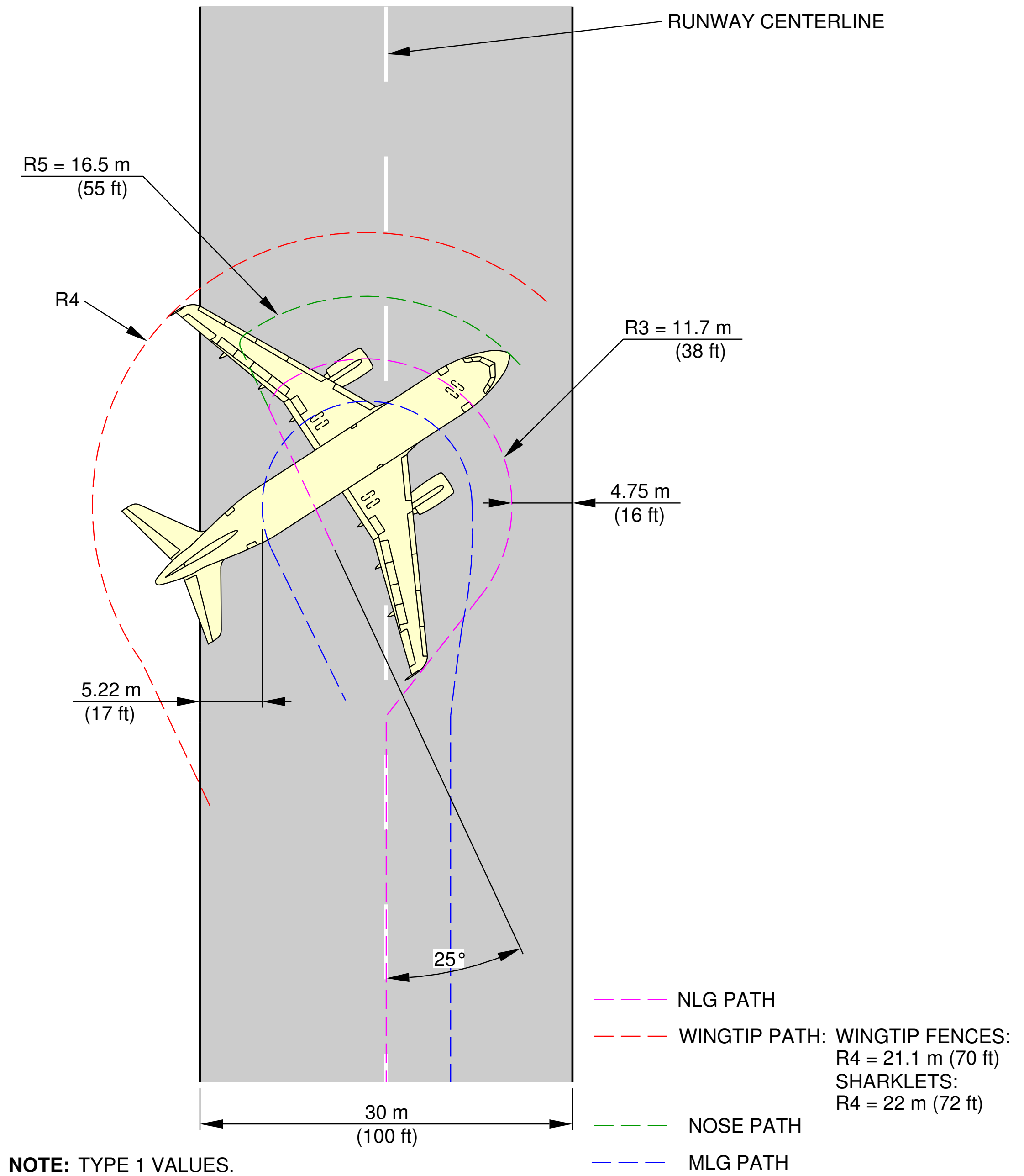
1. This section gives the 180° turn on a runway.

**ON A/C A319-100



180° Turn on a Runway
Edge of Runway Method (Sheet 1 of 2)
FIGURE-4-5-3-991-001-A01

**ON A/C A319-100



180° Turn on a Runway
Center of Runway Method (Sheet 2 of 2)
FIGURE-4-5-3-991-001-A01

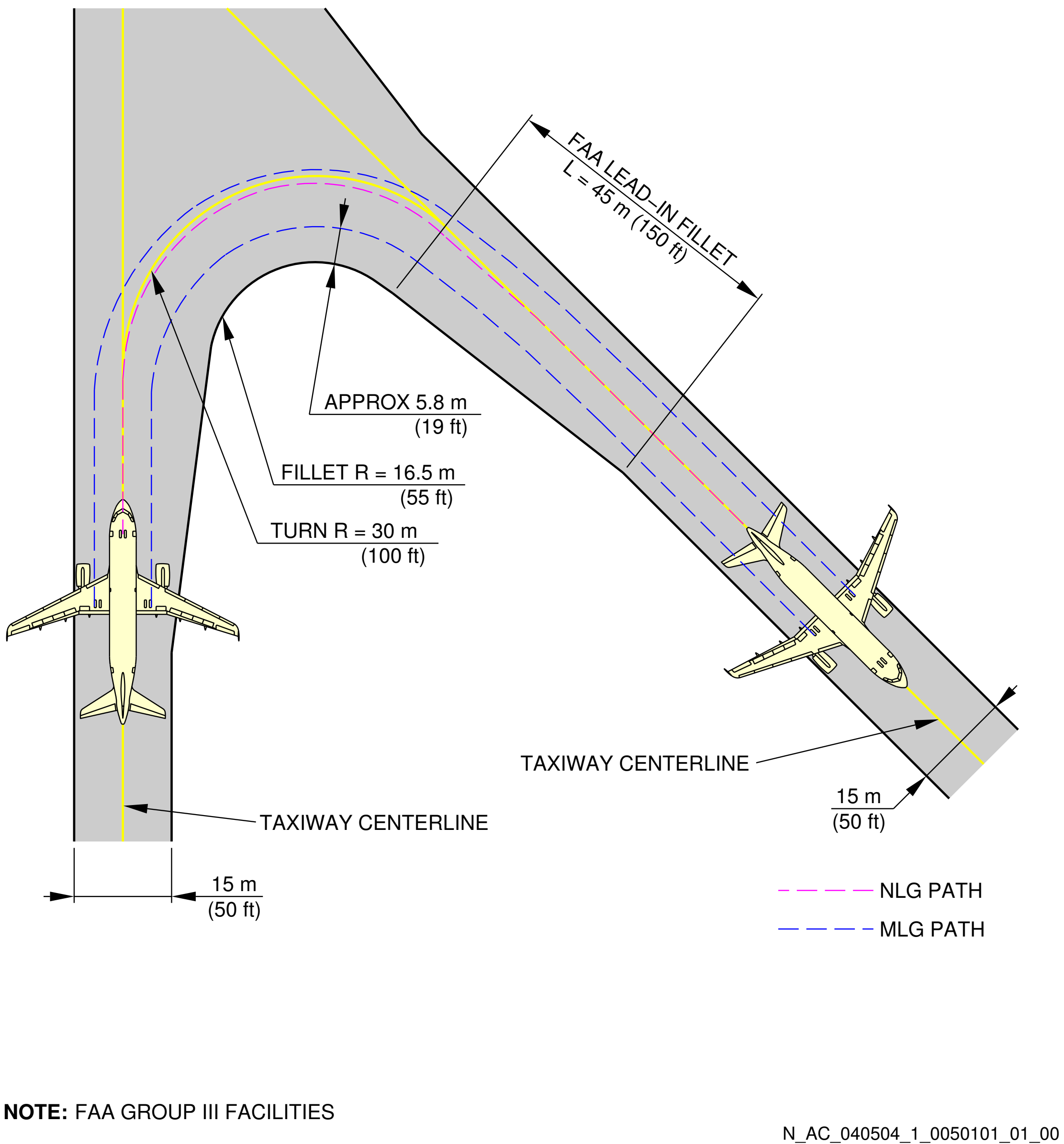
4-5-4 135° Turn - Taxiway to Taxiway

****ON A/C A319-100**

135° Turn - Taxiway to Taxiway

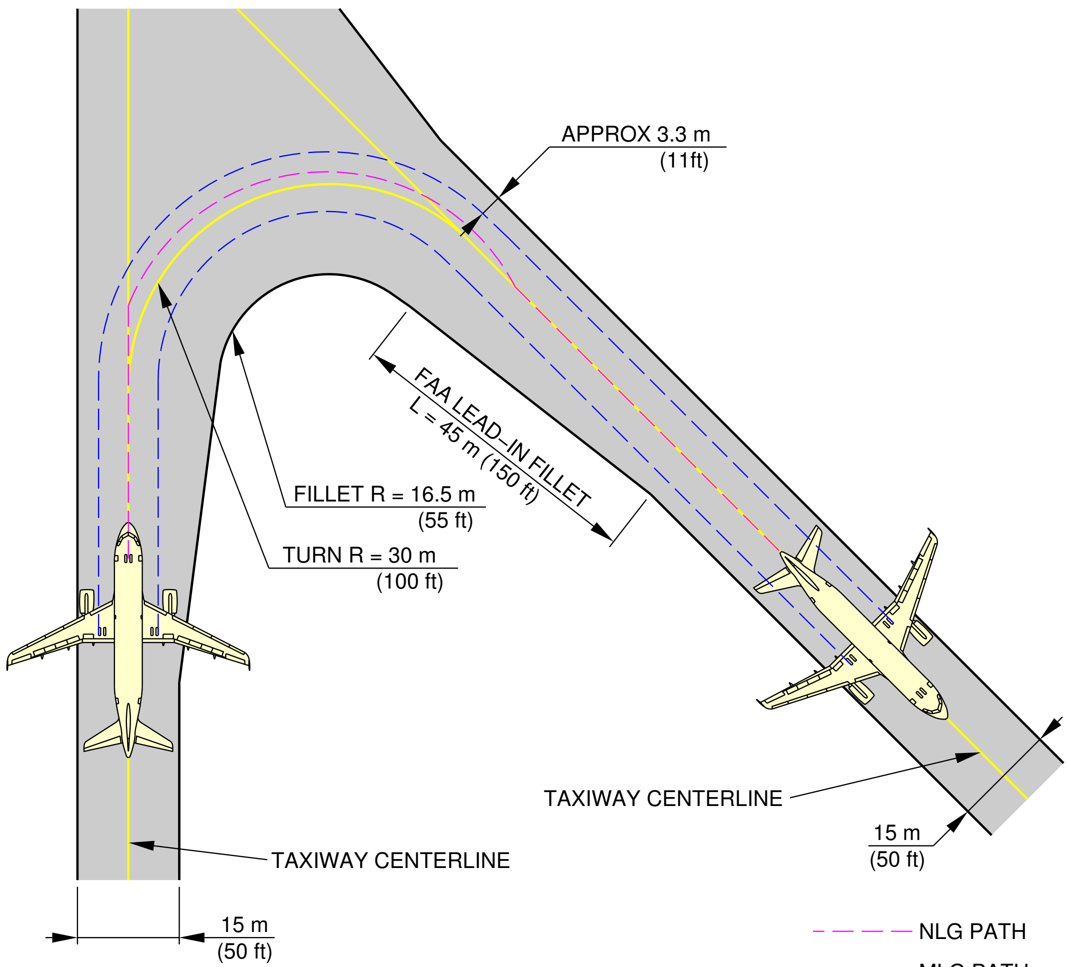
1. This section gives the 135° turn - taxiway to taxiway.

**ON A/C A319-100



135° Turn - Taxiway to Taxiway
Cockpit Over Centerline Method (Sheet 1 of 2)
FIGURE-4-5-4-991-005-A01

**ON A/C A319-100



NOTE: FAA GROUP III FACILITIES

N_AC_040504_1_0050102_01_00

135° Turn - Taxiway to Taxiway
Judgemental Oversteering Method (Sheet 2 of 2)
FIGURE-4-5-4-991-005-A01

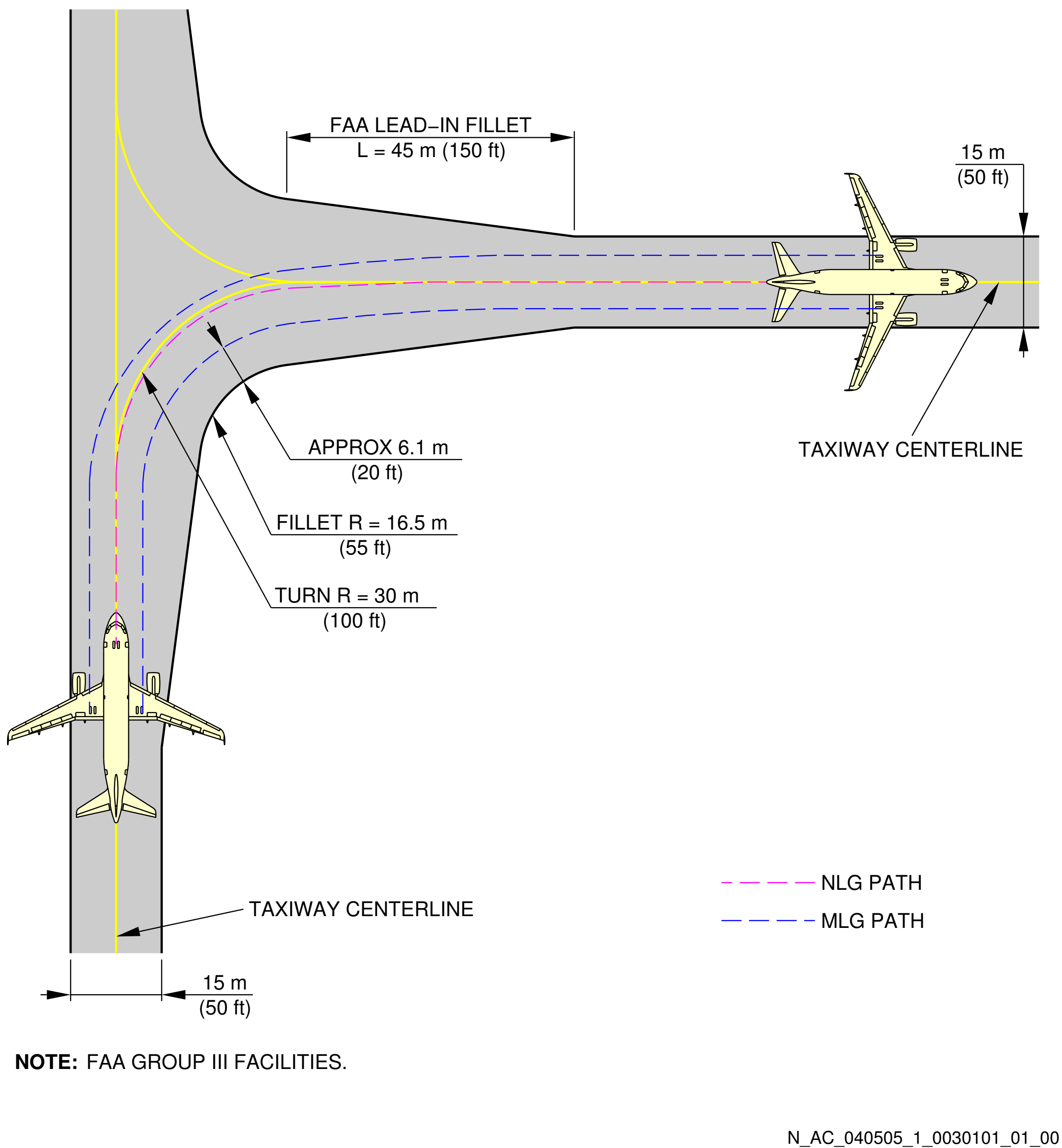
4-5-5 90° Turn - Taxiway to Taxiway

****ON A/C A319-100**

90° Turn - Taxiway to Taxiway

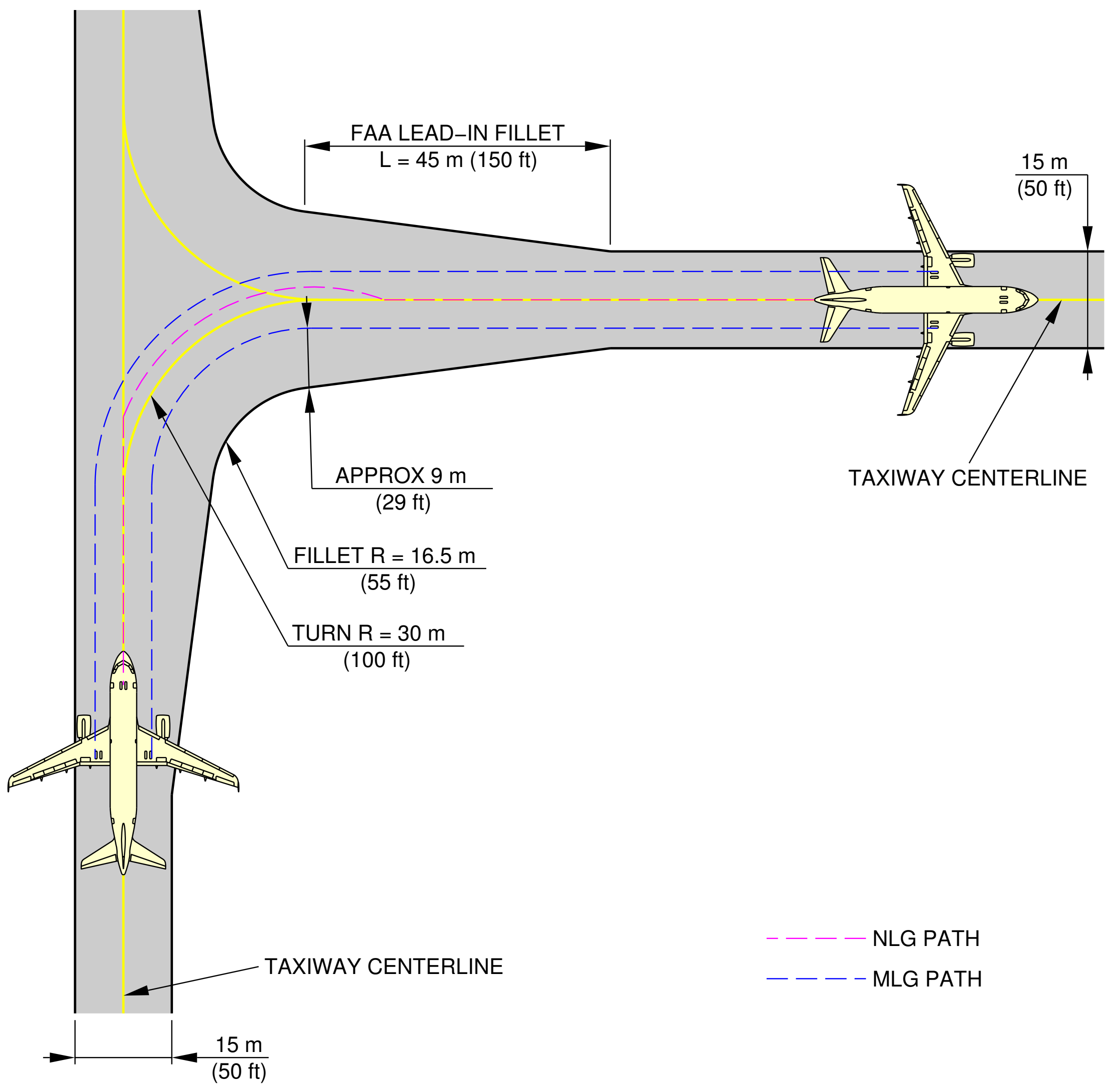
1. This section gives the 90° turn - taxiway to taxiway.

**ON A/C A319-100



90° Turn - Taxiway to Taxiway
Cockpit Over Centerline Method (Sheet 1 of 2)
FIGURE-4-5-5-991-003-A01

**ON A/C A319-100



NOTE: FAA GROUP III FACILITIES.

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90° Turn - Taxiway to Taxiway
Judgemental Oversteering Method (Sheet 2 of 2)
FIGURE-4-5-5-991-003-A01

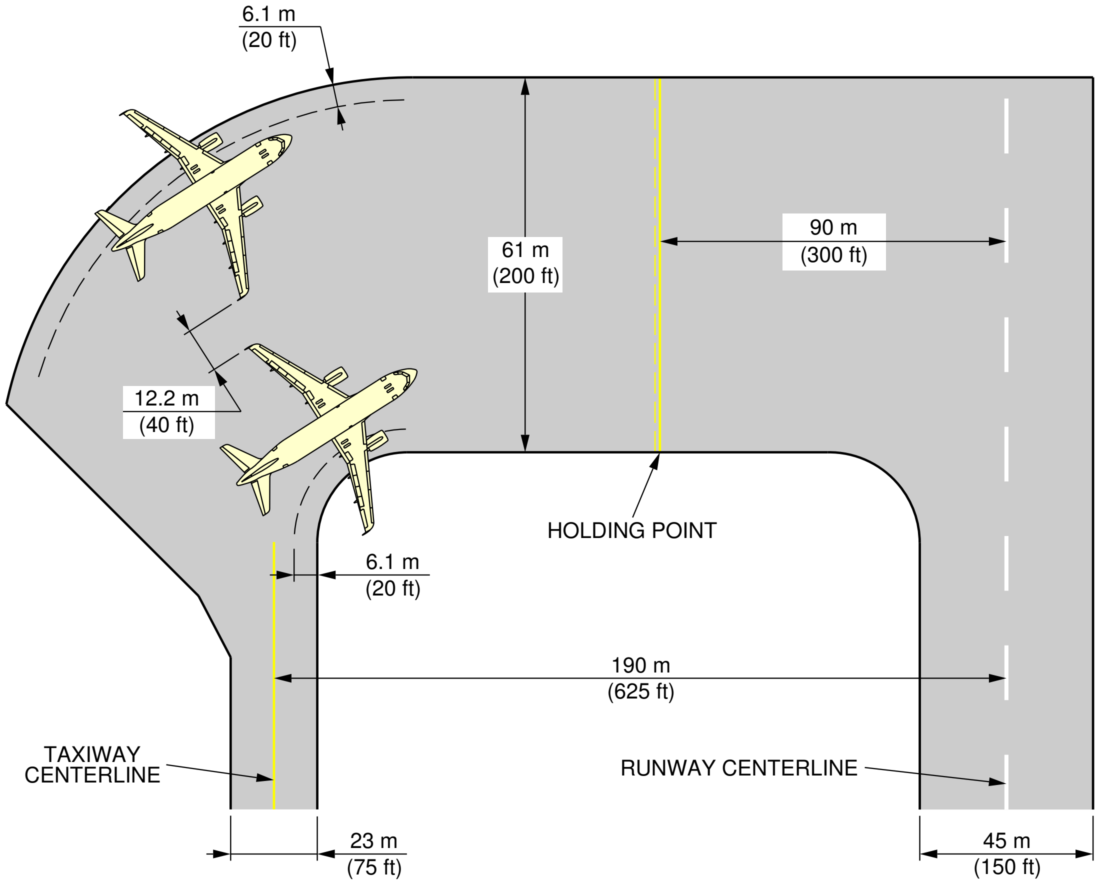
4-6-0 Runway Holding Bay (Apron)

**ON A/C A319-100

Runway Holding Bay (Apron)

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

**ON A/C A319-100



NOTE: LAYOUT IN ACCORDANCE WITH THE REQUIREMENTS OF NAS 3601, CHAPTER 4, AND AN/865, CHAPTER 3.
OUTER PARKED AIRCRAFT TURNED THRU MIN. TURN RADIUS TO PARKED POSITION.

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Runway Holding Bay (Apron)
FIGURE-4-6-0-991-002-A01

4-7-0 Parking

****ON A/C A319-100**

Airplane Parking

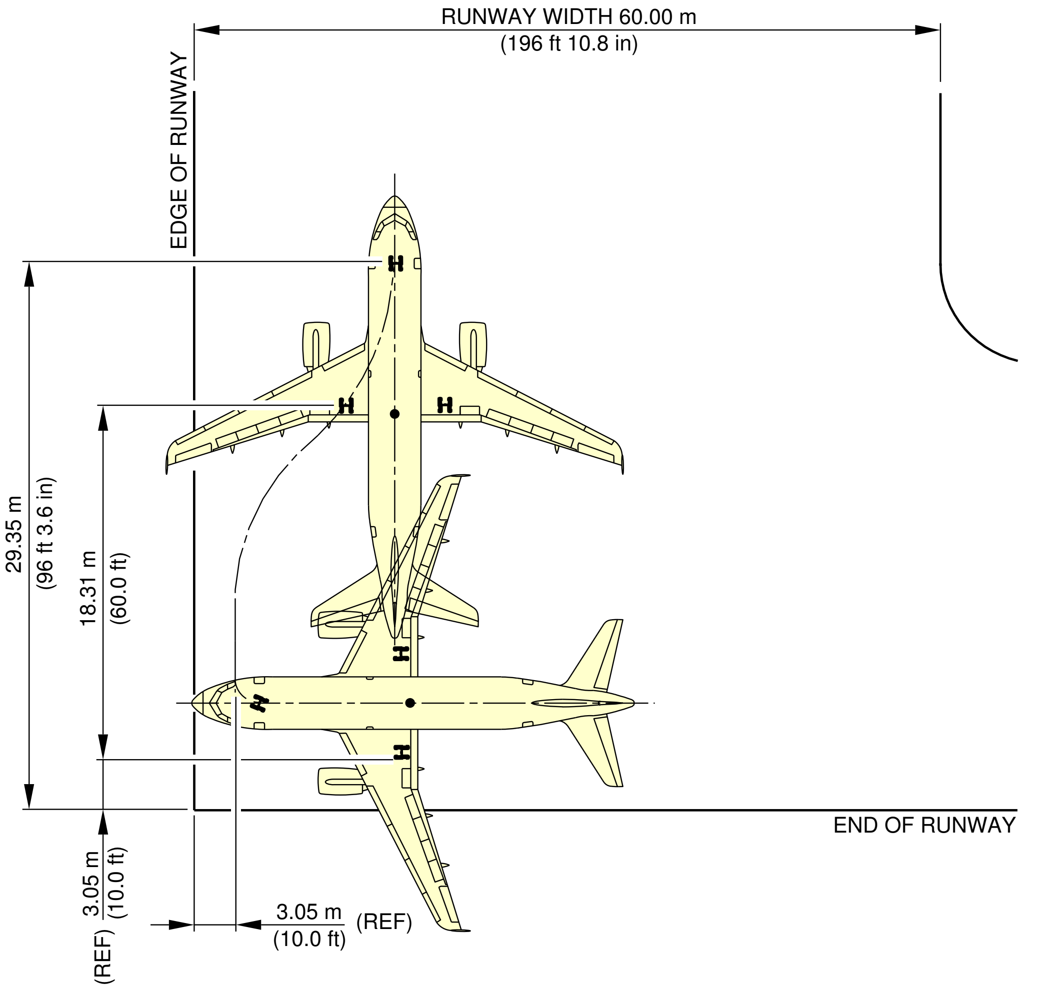
1. The following figures and charts show the rectangular space required for parking against the terminal building.

AIRPLANE MODEL	MAX. EFF. STEERING	MIN. LINE UP DISTANCE	
90° TURN	ANGLE DEGREES	TODA m (ft)	ASDA m (ft)
A319	69	12.07 (39.6)	23.11 (75.8)

AIRPLANE MODEL	MIN. LINE UP DISTANCE		REQUIRED MIN. PAVEMENT WIDTH	NOMINAL LINE UP DISTANCE	
180° TURN	TODA m (ft)	ASDA m (ft)	m (ft)	TODA m (ft)	ASDA m (ft)
A319	15.34 (50.3)	26.38 (86.5)	27.4 (89.9)	21.58 (70.8)	32.62 (107.0)

Abbreviations:
- TODA (Take-Off Distance Adjustment)
- ASDA (Accelerate-Stop Distance Adjustment)

**ON A/C A319-100



NOTE: 69° STEERING AND NO SLIP ON NLG TIRES.

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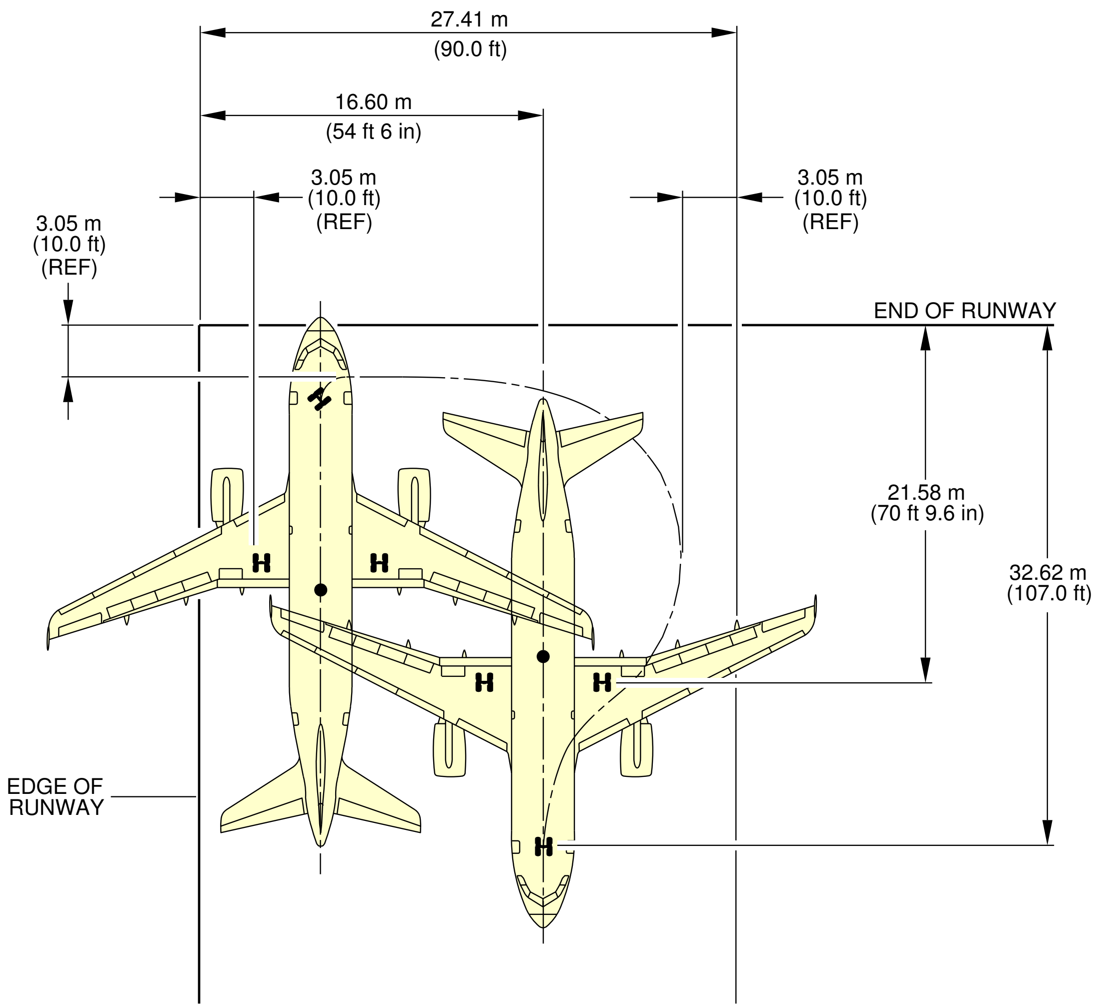
Runway Length Alterations
Line Up Distances – 90° Turn
FIGURE-4-7-0-991-009-A01

**ON A/C A319-100



NOTES: 69° STEERING AND NO SLIP ON NLG TIRES.

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Runway Length Alterations
Line Up Distances – 180° Turn
FIGURE-4-7-0-991-010-A01

TERMINAL SERVICING

5-0-0 TERMINAL SERVICING

****ON A/C A319-100**

Terminal Servicing

1. General

   This chapter provides typical ramp layouts, corresponding minimum turnaround time estimations, locations of ground service points and service requirements.

   The information given in this chapter reflects ideal conditions. Actual ramp layouts and service requirements may vary according to local regulations, airline procedures and the airplane condition.

   - Section 5.1 shows typical ramp layouts for passenger aircraft at the gate or on an open apron.
   - Section 5.2 shows the minimum turnaround schedules for full servicing arrangements.
   - Section 5.3 shows the minimum turnaround schedule for reduced servicing arrangements.
   - Section 5.4 gives the locations of ground service connections, the standard of connections used and typical capacities and requirements.
   - Section 5.5 provides the engine starting pneumatic requirements for different engine types and different ambient temperatures.
   - Section 5.6 provides the air conditioning requirements for heating and cooling (pull-down and pull-up) using ground conditioned air for different ambient temperatures.
   - Section 5.7 provides the air conditioning requirements for heating and cooling to maintain a constant cabin air temperature using low pressure conditioned air.
   - Section 5.8 shows the ground towing requirements taking into account different ground surface and aircraft conditions.

5-1-0 Servicing Arrangements

****ON A/C A319-100**

Airplane Servicing Arrangements

1. General

   This chapter provides typical ramp layouts, showing the various GSE items in position during typical turnaround scenarios for the passenger aircraft.

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

   The associated turnaround chart for full servicing is given in section 5.2.
   The associated turnaround chart for minimum servicing arrangement is given in section 5.3.

5-1-1 Symbols Used on Servicing Diagrams

****ON A/C A319-100**

Symbols Used on Servicing Diagrams

1. This table gives the symbols used on servicing diagrams.

Ground Support Equipment	
AC	AIR CONDITIONING UNIT
AS	AIR STARTING UNIT
BULK	BULK TRAIN
CAT	CATERING TRUCK
CB	CONVEYOR BELT
CLEAN	CLEANING TRUCK
FUEL	FUEL HYDRANT DISPENSER or TANKER
GPU	GROUND POWER UNIT
LD CL	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

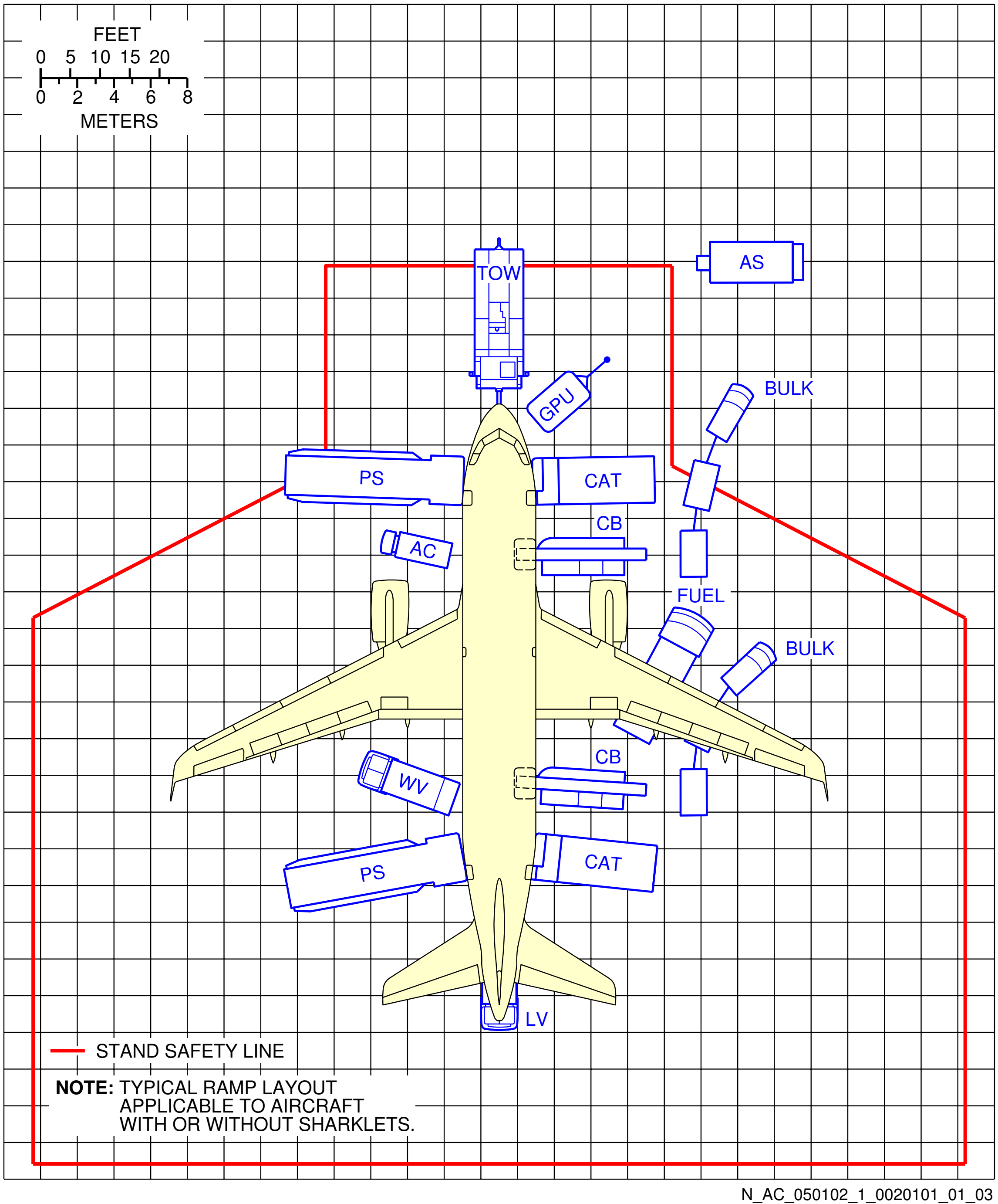
****ON A/C A319-100**

Typical Ramp Layout – Open Apron

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

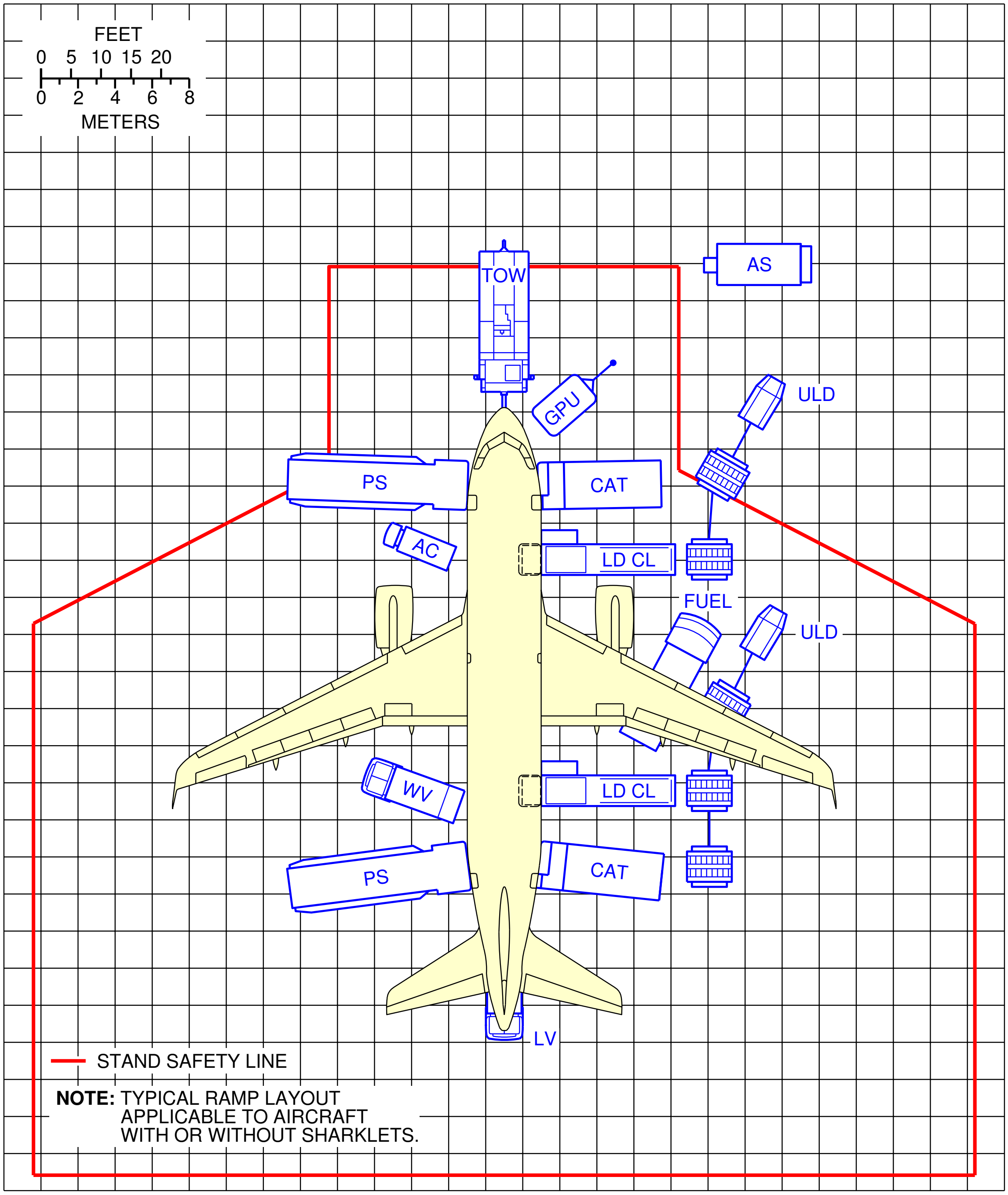
   The Stand Safety Line delimits the Aircraft Safety Area (minimum distance of 7.5 m from the aircraft). No vehicle must be parked in this area before complete stop of the aircraft (wheel chocks in position on landing gears).

**ON A/C A319-100



Typical Ramp Layout
Open Apron - Bulk Loading
FIGURE-5-1-2-991-002-A01

**ON A/C A319-100



Typical Ramp Layout
Open Apron - ULD Loading
FIGURE-5-1-2-991-008-A01

5-1-3 Typical Ramp Layout - Gate

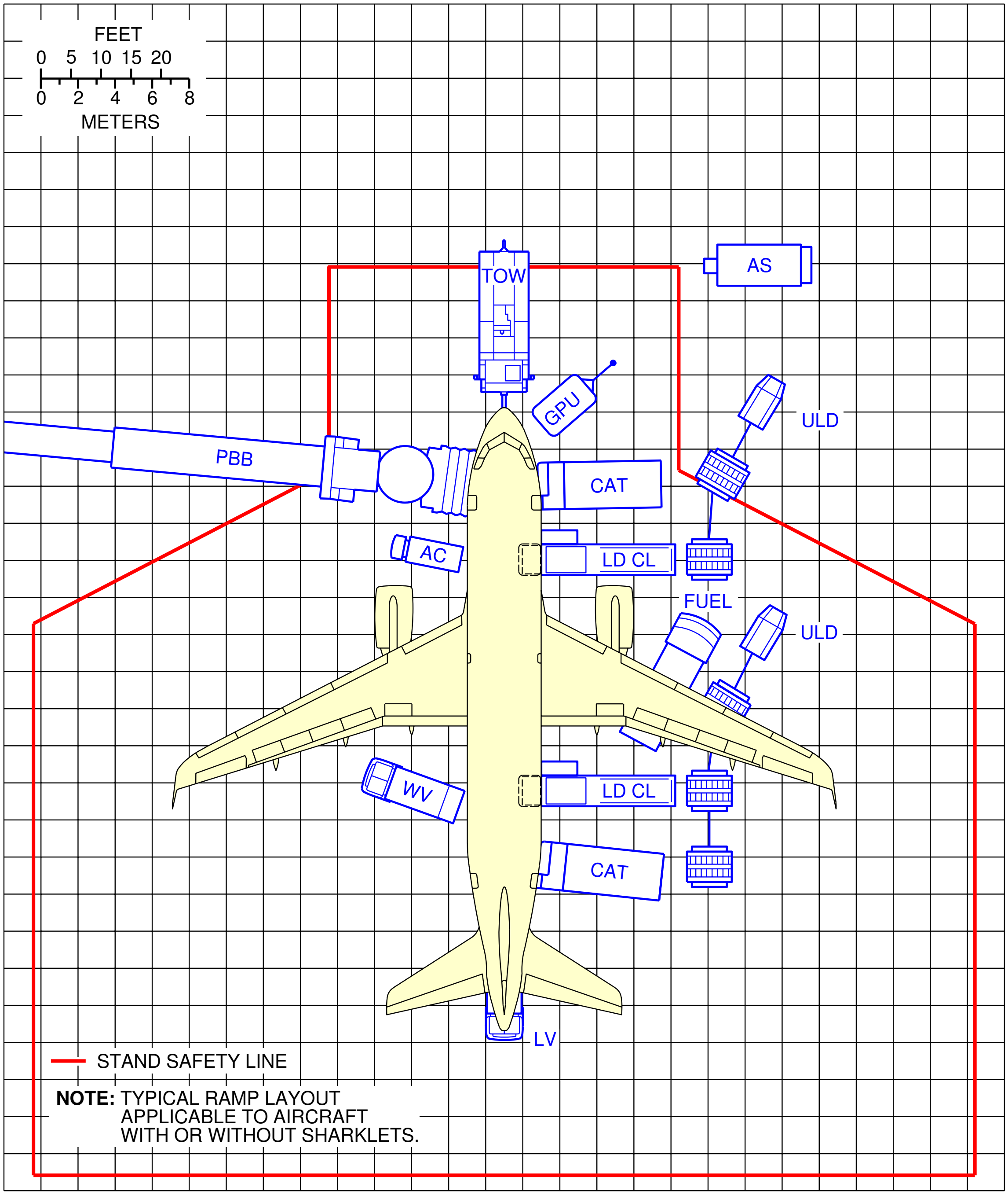
ON A/C A319-100

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 A319-100



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Typical Ramp Layout
Gate
FIGURE-5-1-3-991-001-A01

5-2-0 Terminal Operations - Full Servicing

**ON A/C A319-100

Terminal Operations - Full Servicing Turn Round Time

1. This section provides typical turn round time chart showing the typical times for ramp activities during aircraft turn round.

   Actual times may vary due to each operator's specific practice and operating conditions.

   For each turn round time chart, the associated typical ramp layout is given in Section 5-1.

2. Assumptions for full turn round chart

   A. PASSENGER HANDLING
      124 pax, all Y/C
      All passengers deboard and board the aircraft
      1 Passenger Boarding Bridge (PBB) used at door L1
      Equipment positioning/removal + opening/closing door = 2 min

      Deboarding:
      - 124 pax at door L1
      - Deboarding rate = 22 pax/min per door
      - No Passenger with Reduced Mobility (PRM)

      Boarding:
      - 124 pax at door L1
      - Boarding rate = 18 pax/min per door
      - Last Pax Seating allowance (LPS) + headcounting = +2 min
      - No Passenger with Reduced Mobility

   B. CARGO
      2 cargo loaders
      Equipment positioning/removal + opening/closing door = +1 min

      Cargo exchange:
      - FWD cargo compartment: 2 LD3
      - AFT cargo compartment: 2 LD3

      LD3 off-loading/loading times:
      - Off-loading = 1.2 min/LD3
      - Loading = 1.4 min/LD3

   C. REFUELLING
      2 hoses, one side

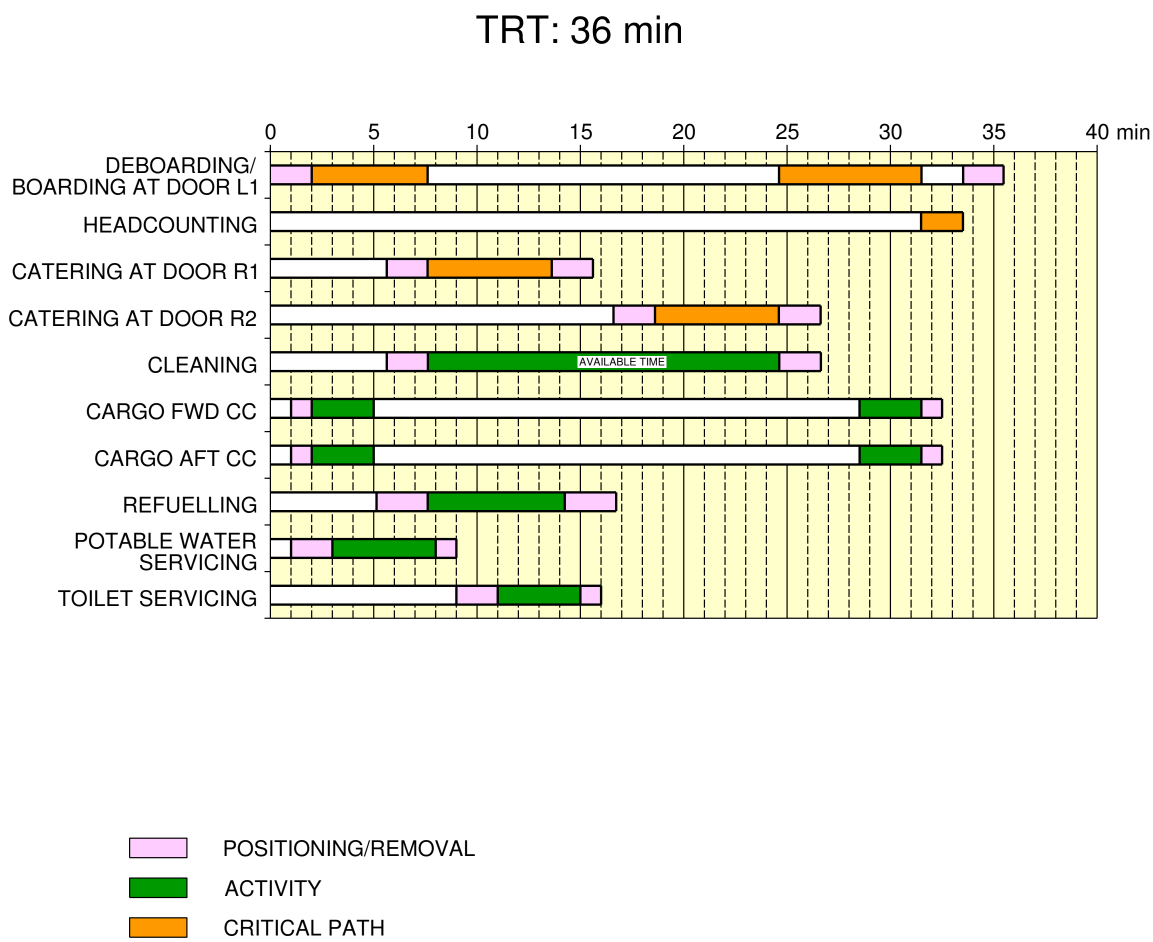
6624 l (1750 US gal) at 50 psi (3 bar)
Dispenser positioning/removal = 4 min

D. CLEANING
Performed in available time

E. CATERING
1 catering truck for servicing galleys sequentially at doors R1 & R2
Equipment positioning/removal + door opening/closing = 2 min
Time to drive from one door to the other = 1 min
Full Size Trolley Equivalent (FSTE) to unload and load:
- 4 FSTE at door R1
- 4 FSTE at door R2
Time for trolley exchange = 1.5 min per FSTE

F. GROUND HANDLING SERVICING
Start of operations:
- Bridges: t0 = 0
- Other equipment: t = t0 + 1 min
Potable water servicing: 100% uplift, 200 l (53 US gal), max filling pressure = 3.45 bar (50 psi)
Toilet servicing: draining + rinsing = 5 min, max rinse & precharge pressure = 3.45 bar (50 psi)

**ON A/C A319-100



Turn Round Stations
Full Servicing (36 Min.)
FIGURE-5-2-0-991-005-A01

5-3-0 Terminal Operation - Transit

****ON A/C A319-100**

Terminal Operation - Minimum Servicing Turn Round Time

1. This section provides typical turn round time chart showing the typical times for ramp activities during aircraft turn round.

   Actual times may vary due to each operator's specific practice and operating conditions.

   For each turn round time chart, the associated typical ramp layout is given in Section 5-1.

2. Assumptions for minimum turn round chart

   A. PASSENGER HANDLING
   156 pax, all Y/C
   2 Stairways used at doors L1 & L2
   Equipment positioning/removal + opening/closing door = 2 min

   Deboarding:
   - 78 pax at door L1
   - 78 pax at door L2
   - Deboarding rate = 20 pax/min per door
   - No Passenger with Reduced Mobility (PRM)

   Boarding:
   - 78 pax at door L1
   - 78 pax at door L2
   - Boarding rate = 15 pax/min per door
   - Last Pax Seating allowance (LPS) + headcounting = +2 min
   - No Passenger with Reduced Mobility

   B. CARGO
   2 cargo loaders
   Equipment positioning/removal + opening/closing door = +1 min

   Cargo exchange:
   - FWD cargo compartment: 2 LD3
   - AFT cargo compartment: 2 LD3

   LD3 off-loading/loading times:
   - Off-loading = 1.2 min/LD3
   - Loading = 1.4 min/LD3

C. REFUELLING
2 hoses, one side
6624 l (1750 US gal) at 50 psi (3 bar)
Dispenser positioning/removal = 4 min

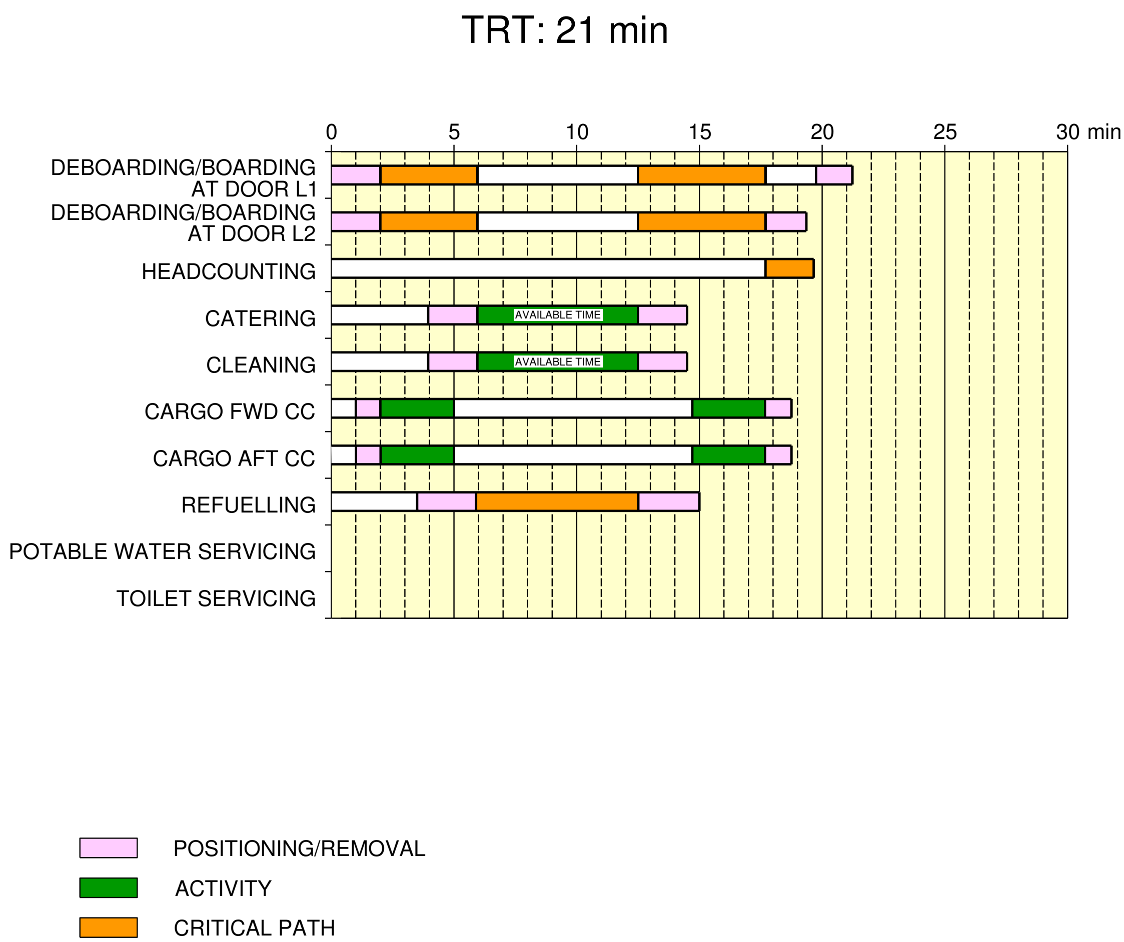
D. CLEANING
No cleaning

E. CATERING
No catering

F. GROUND HANDLING SERVICING
Start of operations:
- Bridges: t0 = 0
- Other equipment: t = t0 + 1 min

No potable water servicing
No toilet servicing

**ON A/C A319-100



Turn Round Stations
Minimum Servicing (21 Min.)
FIGURE-5-3-0-991-002-A01

5-4-0 Ground Service Connections

****ON A/C A319-100**

Ground Service Connections

1. Ground Service Connections.

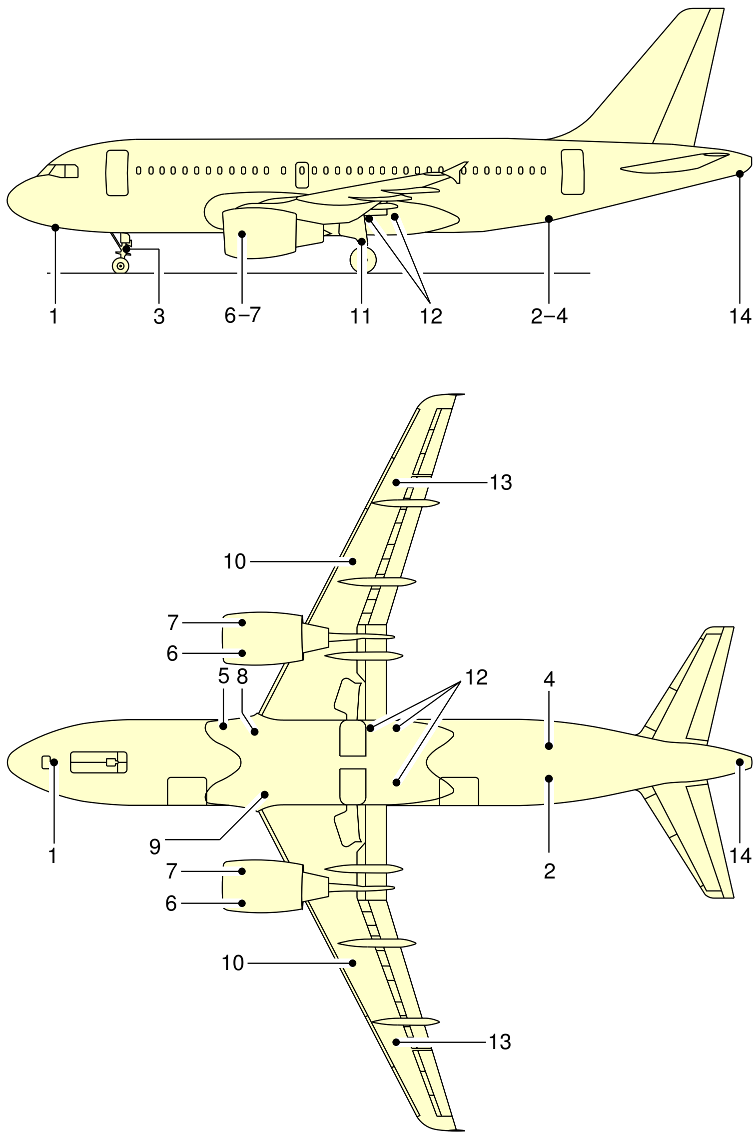
5-4-1 Ground Service Connections Layout

****ON A/C A319-100**

Ground Service Connections Layout

1. This section gives the ground service connections layout.

**ON A/C A319-100



1 – EXTERNAL POWER RECEPTACLE
2 – TOILET SERVICE DOOR
3 – GROUNDING POINT NLG
4 – POTABLE WATER SERVICE DOOR
5 – GROUND SERVICE CONDITIONED AIR CONNECTOR (LP)
6 – IDG OIL FILLING
7 – ENGINE OIL FILLING CONNECTOR
8 – GROUND AIR START CONNECTOR (HP)
9 – REFUEL/DEFUEL PANEL
10 – REFUEL/DEFUEL CONNECTORS
11 – GROUNDING POINT MLG
12 – HYDRAULIC SYSTEM GROUND SERVICES PANELS
13 – GRAVITY REFUEL
14 – APU OIL FILLING

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Ground Service Connections
Ground Service Connections Layout
FIGURE-5-4-1-991-002-A01

5-4-2 Grounding Points

**ON A/C A319-100

Grounding Points

1. Grounding Points.

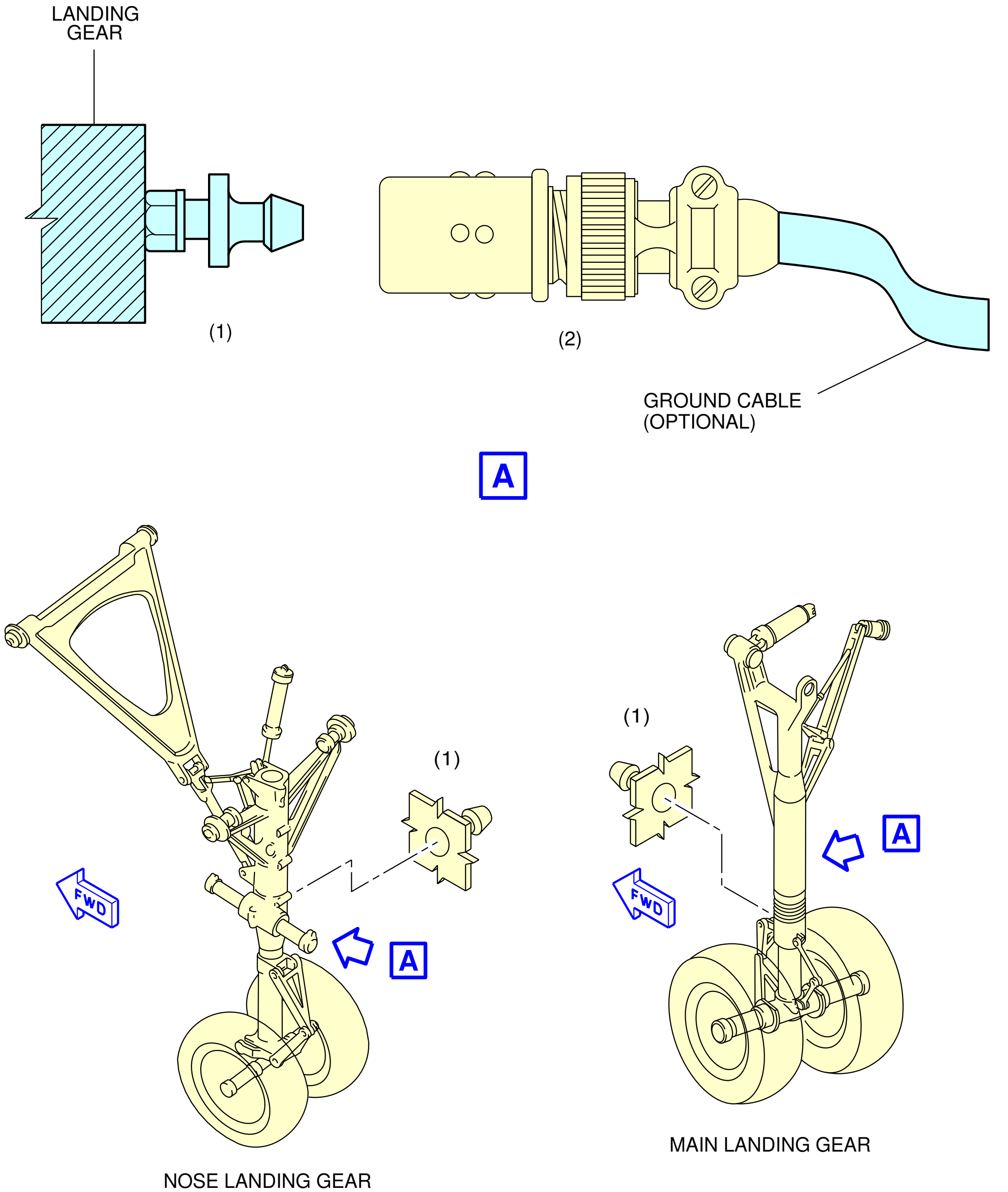
	DISTANCE: Meters (ft)			
	AFT OF NOSE	FROM AIRPLANE CENTERLINE		MEAN HEIGHT FROM GROUND
		R SIDE	L SIDE	
On Nose Landing Gear leg:	5.07 m (16.63 ft)	on centerline		0.94 m (3.08 ft)
On left Main Landing Gear leg:	16.11 m (52.85 ft)		3.79 m (12.43 ft)	1.07 m (3.51 ft)
On right Main Landing Gear leg:	16.11 m (52.85 ft)	3.79 m (12.43 ft)		1.07 m (3.51 ft)

A. The grounding stud on each landing gear leg is designed for use with a clip-on connector (such as Appleton TGR).

B. The grounding studs are used to connect the aircraft to an approved ground connection on the ramp or in the hangar for:
- refuel/defuel operations,
- maintenance operations,
- bad weather conditions.

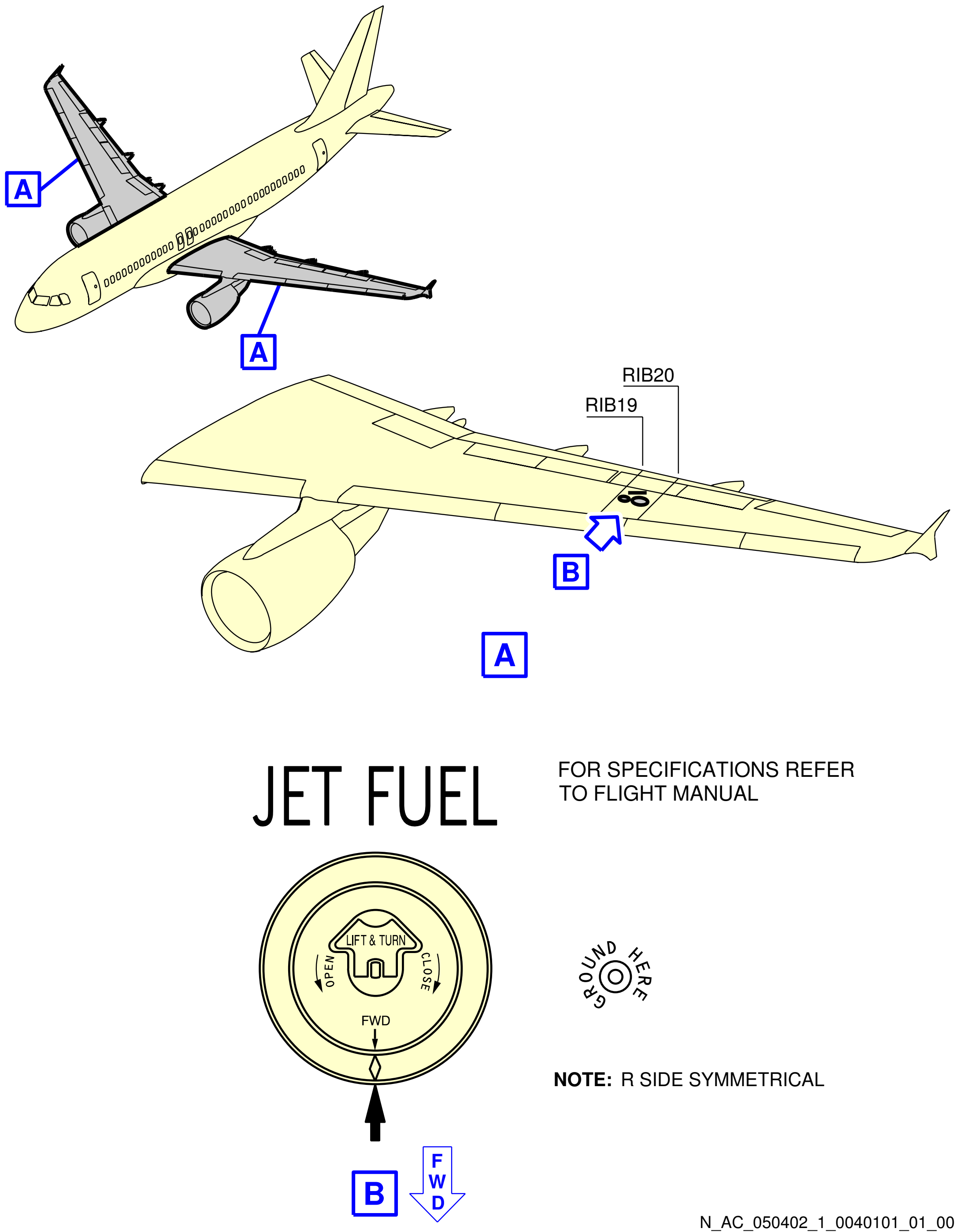
NOTE : In all other conditions, the electrostatic discharge through the tyre is sufficient.

**ON A/C A319-100



Ground Service Connections
Grounding Points
FIGURE-5-4-2-991-003-A01

**ON A/C A319-100



Ground Service Connections
Grounding Points
FIGURE-5-4-2-991-004-A01

5-4-3 Hydraulic System

****ON A/C A319-100**

Hydraulic System

1. Access.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Green System: Access door 197CB	17.57 (57.64)		1.27 (4.17)	1.76 (5.77)
Yellow System: Access door 198CB	17.57 (57.64)	1.27 (4.17)		1.76 (5.77)
Blue System: Access door 197EB	18.92 (60.07)		1.27 (4.17)	1.76 (5.77)

NOTE : Distances are approximate.

2. Reservoir Pressurization.
On the air pressurization manifold:

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Access door 195BB	14.05 (46.1)		0.25 (0.82)	1.74 (5.71)

NOTE : Distances are approximate.
- One 1/4 in. AEROQUIP AE 96994E self-sealing connection common to the 3 reservoirs.

3. Accumulator Charging.
Four (MS28889-1) connections (one for each accumulator) for:

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Yellow System accumulator: Access door 196BB	14.5 (47.57)	0.25 (0.82)		1.99 (6.53)

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Green System accumulator: Left MLG door	15.67 (51.41)		0.25 (0.82)	3.2 (10.5)
Blue System accumulator: Access door 195BB	14.31 (46.95)		0.25 (0.82)	1.99 (6.53)
Yellow System braking accumulator: Access door 196BB	14.5 (47.57)	0.76 (2.49)		1.74 (5.71)

NOTE : Distances are approximate.

4. Reservoir Filling.
On the Green system ground service panel:

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Access door 197CB	17.57 (57.64)		1.27 (4.17)	1.76 (5.77)

NOTE : Distances are approximate.
One 1/4 in. AEROQUIP AE96993E self-sealing connection for pressurized supply.
One handpump filling connection for unpressurized (suction) supply.

5. Reservoir Drain.
On 3/8 in. self-sealing connection on reservoir for:

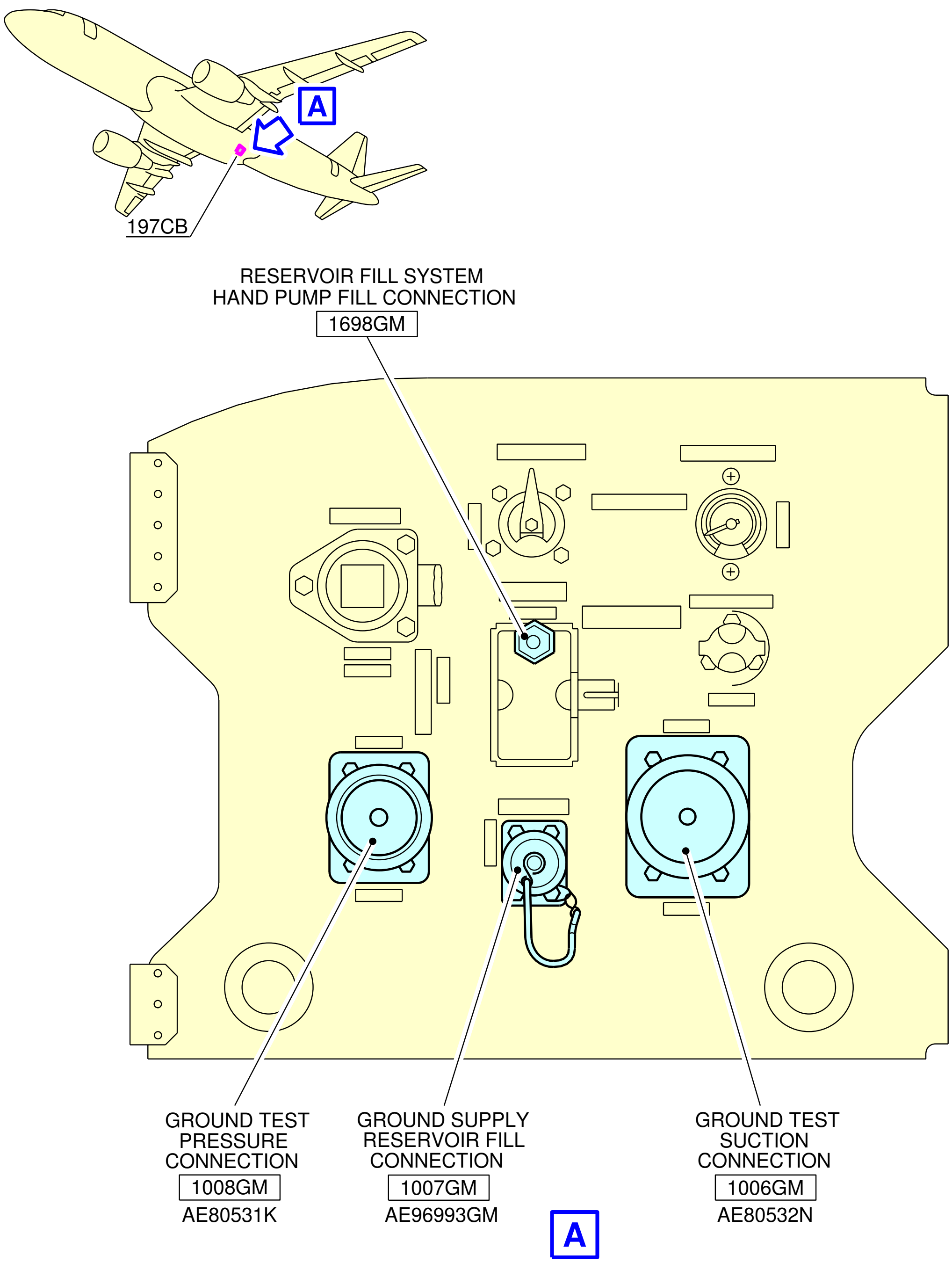
ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Yellow System: Access door 196BB - 198CB	14.5 (47.57)	1.43 (4.69)		1.90 (6.23)
Green System: Left MLG door	15.67 (51.41)		1.27 (4.17)	2.61 (8.56)

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Blue System: Access door 197EB	18.92 (62.07)		1.27 (4.17)	1.76 (5.77)

NOTE : Distances are approximate.
On 3/8 in. self-sealing connection for the Blue system on:
- Blue system ground service panel.

6. Ground Test.
On each ground service panel:
- One self-sealing connector AE80532N (suction).
- One self-sealing connector AE80531K (delivery).

**ON A/C A319-100



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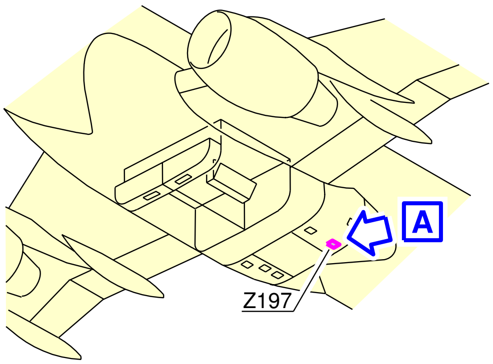
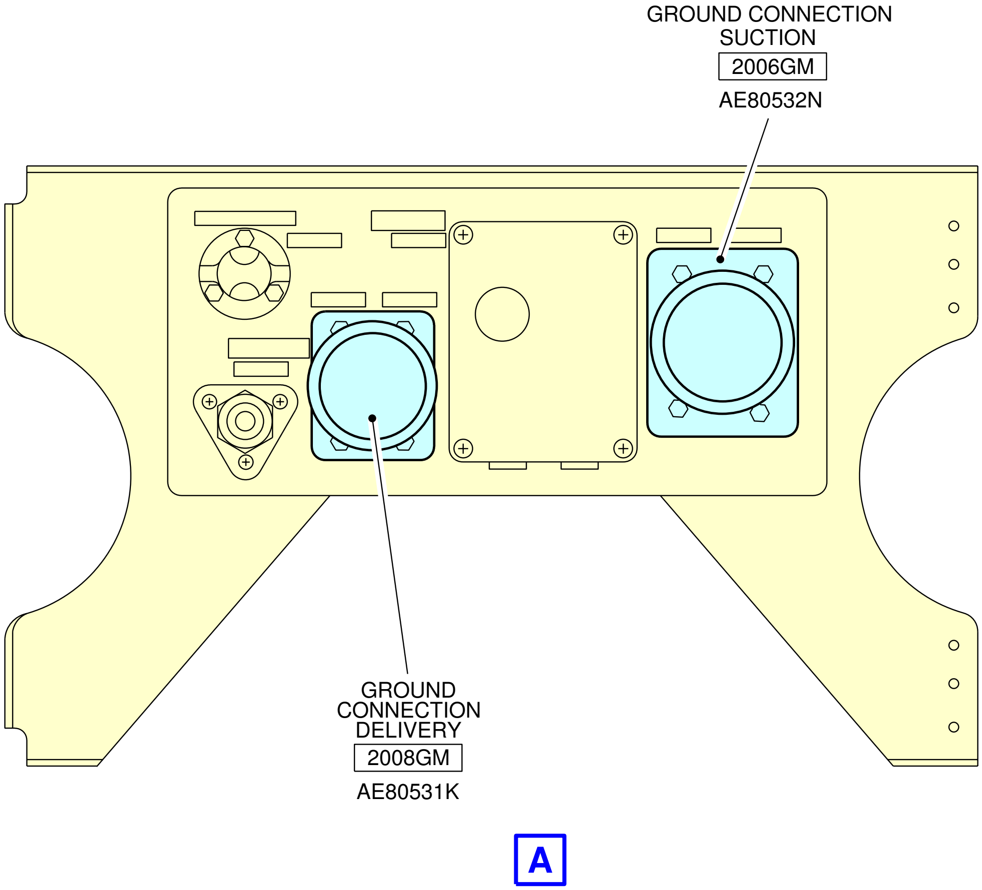
Hydraulic System
Green System Ground Service Panel
FIGURE-5-4-3-991-004-A01

**ON A/C A319-100





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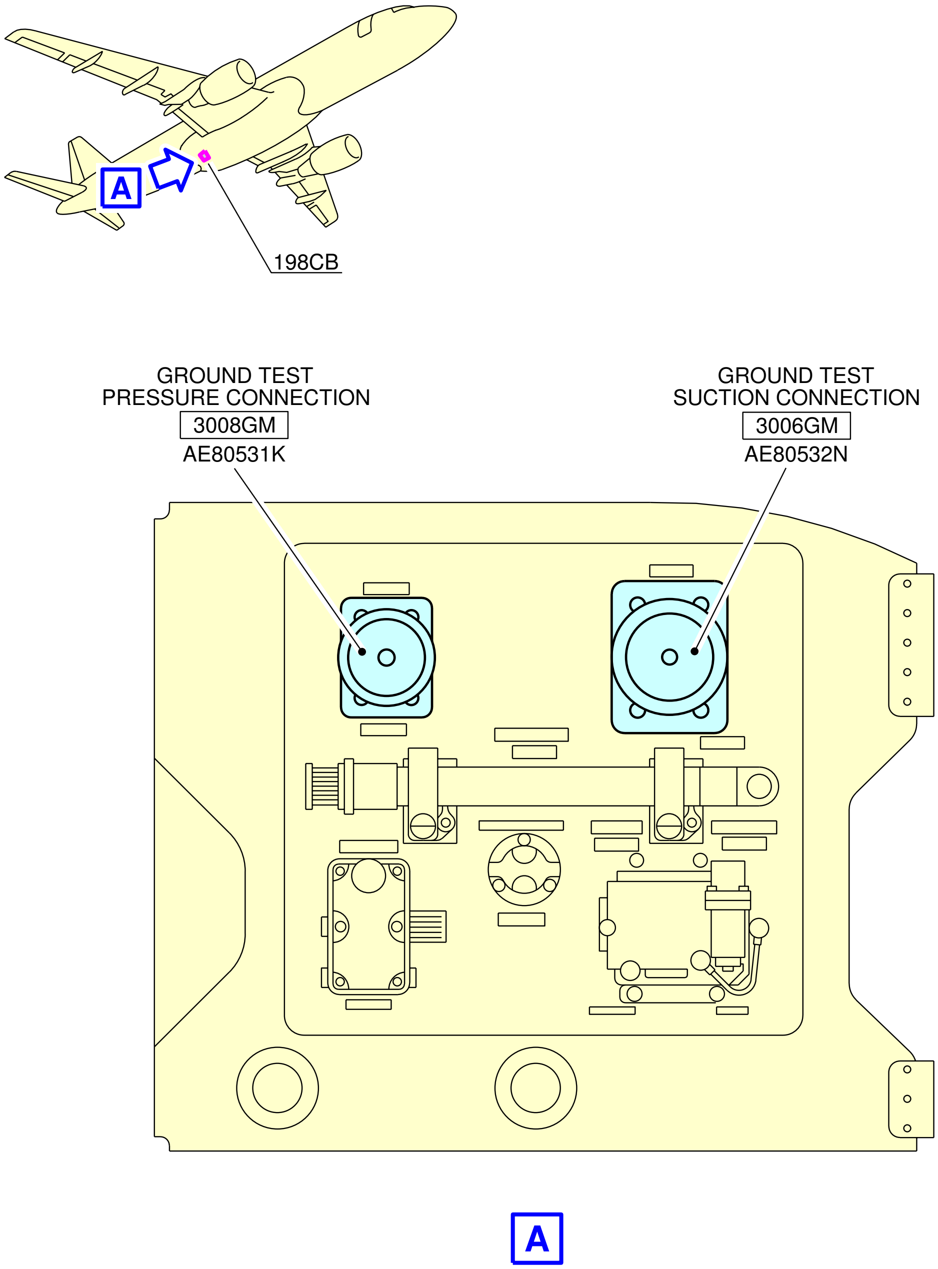
Hydraulic System
Blue System Ground Service Panel
FIGURE-5-4-3-991-005-A01

****ON A/C A319-100**



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

5-4-4 Electrical System

****ON A/C A319-100**

Electrical System

1. Electrical System.
   This chapter gives data related to the location of the ground service connections.

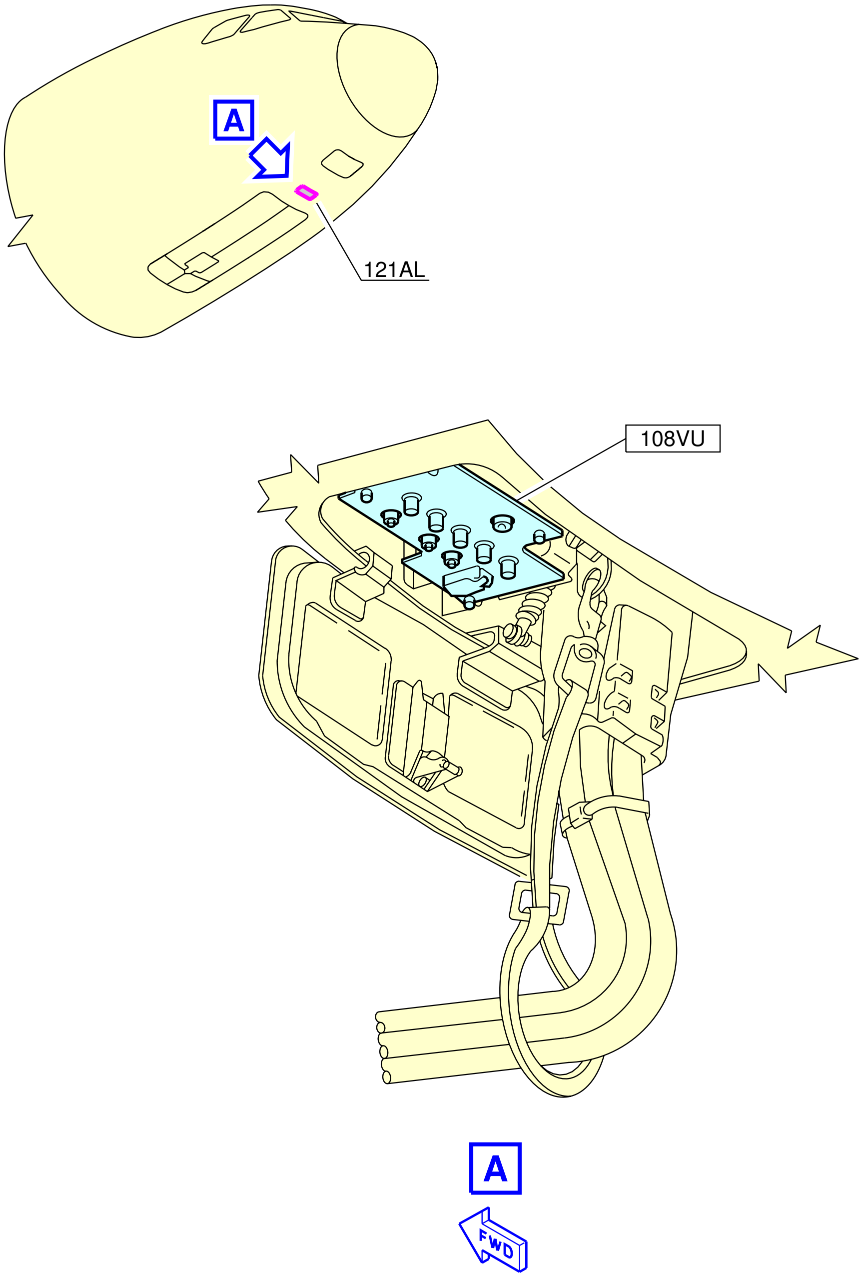
ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
A/C External Power: Access door 121AL	2.55 (8.37)	on centerline		2.00 (6.56)

NOTE : Distances are approximate.

2. Technical Specifications
   This chapter gives data related to the location of the ground service connections.
   A. External Power Receptacle:
      - One Style3 ISO 461 receptacle - 90 KVA.
   B. Power Supply:
      - Three-phase, 400 Hz, 115/200V
   C. Electrical Connectors for Servicing:
      - AC outlets: HUBBELL 5258
      - DC outlets: HUBBELL 7472
   D. Electrical Loads in Ground Configuration
      In ground configuration, in addition to the power necessary for maintenance, all the circuits, except those which are connected to the engines, are supplied as in flight.
      In these conditions, the maximum power on ground is approximately 75 KVA; this value does not take into account the supply of the galleys, which according to the aircraft interior layout, may reach 30 KVA.
   E. Electrical Power necessary for Maintenance at Line Stop and Workshops
      - Hydraulic electric-pumps: 34 KVA
      - Air Conditioning/Ventilation: 20.8 KVA
      - Fuel pumps: 12 KVA
      - Lighting commercial: 6.7 KVA
      - Lighting technical: 3 KVA
      - Ice and rain protection: 3 KVA
      - Cargo loading: 3 KVA
      - AFS, Flight controls, ADS, Recorders: 3.3 KVA
      - Communications: 1.3 KVA

- Radio navigation: 1.2 KVA.

**ON A/C A319-100



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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 A319-100

Oxygen System

1. Oxygen System.

	DISTANCE: Meters (ft)			
	AFT OF NOSE	FROM AIRPLANE CENTERLINE		MEAN HEIGHT FROM GROUND
		R SIDE	L SIDE	
One service connection (external charging in the avionics compartment) MS22066 Std.	3.45 m (11.32 ft)		1.15 m (3.77 ft)	2.60 m (8.53 ft)

3/8'' UNF $\times$ 24 TPI

Nominal pressure: 1850 psi (127.55 bar)

Max fill pressure: 2035 psi (140.31 bar)

NOTE : Internal charging connection provided.

5-4-6 Fuel System

****ON A/C A319-100**

Fuel System

1. Refuel/Defuel Control Panel.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Refuel/Defuel Integrated Panel: Access door 192MB	14.8 (48.56)	1.8 (5.91)		1.8 (5.91)

2. Refuel/Defuel Connectors.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Refuel/Defuel coupling, Left Access Door 522HB (Optional)	15.99 (52.46)		9.83 (32.25)	3.65 (11.98)
Refuel/Defuel coupling, Right Access Door 622HB	15.99 (52.46)	9.83 (32.25)		3.65 (11.98)
Gravity Refuel Coupling	17.5 (57.41)	12.4 (40.68)	12.4 (40.68)	3.7 (12.14)

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).

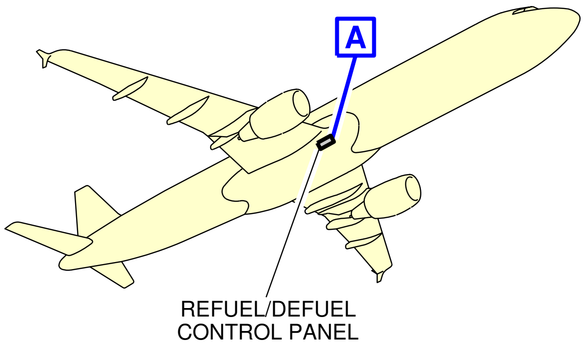
C. Refuel Flow:
   - 1400 l/minute (369.84 US gal/minute).

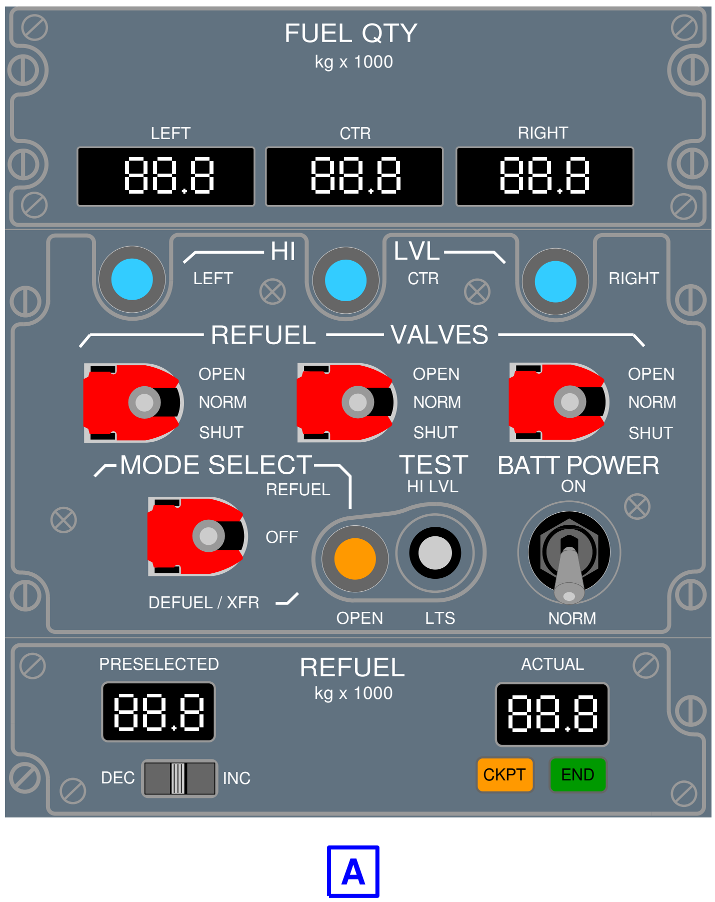
3. Overpressure Protector and NACA Flame Arrestor.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Overpressure Protector	18.76 (61.55)	14.9 (48.88)	14.9 (48.88)	4.32 (14.17)
NACA Flame Arrestor	18.2 (59.71)	13.7 (44.95)	13.7 (44.95)	4.02 (13.19)

NOTE : Distances are approximate.

**ON A/C A319-100





NOTE: STANDARD CONFIGURATION OF REFUEL/DEFUEL PANEL.

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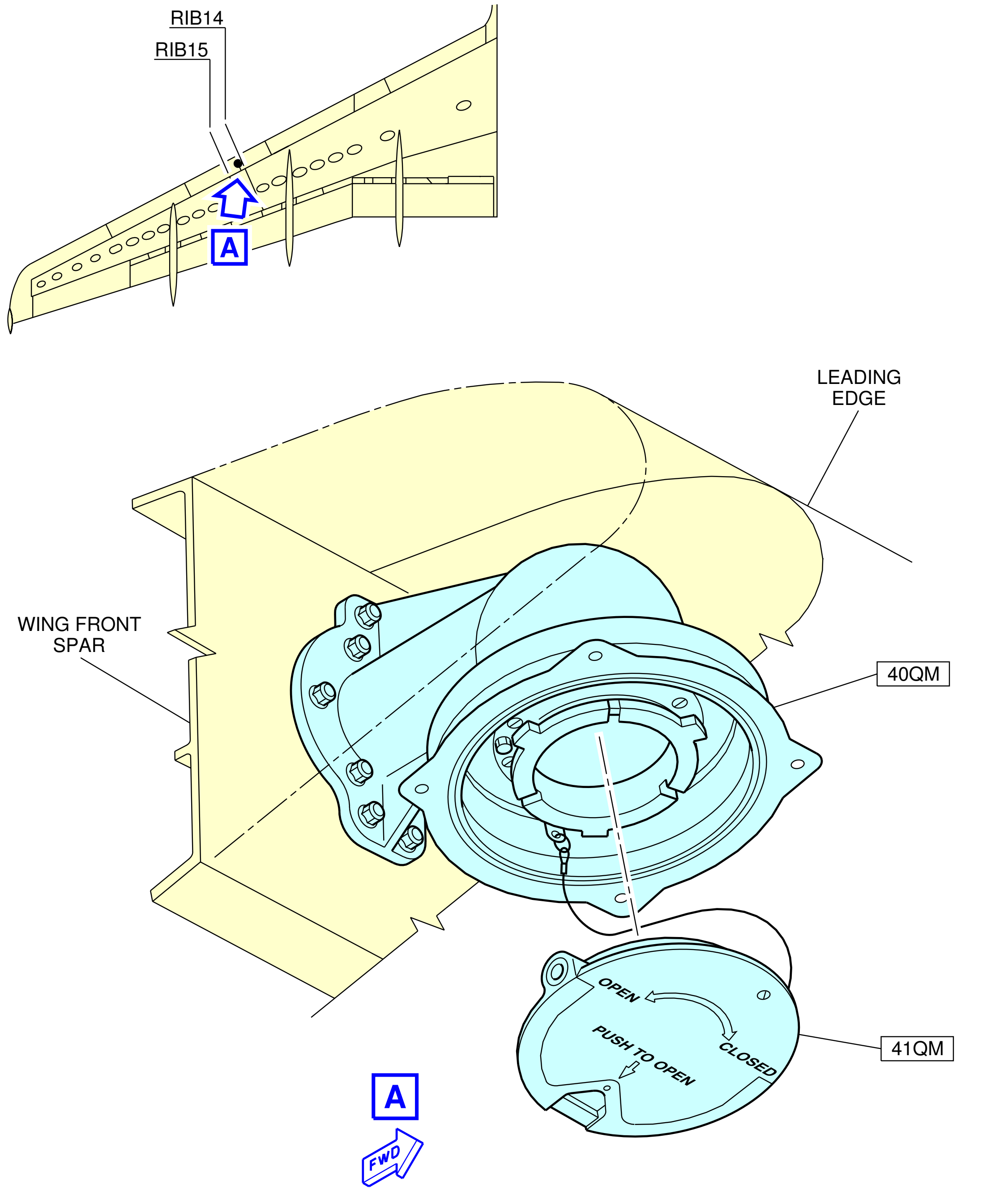
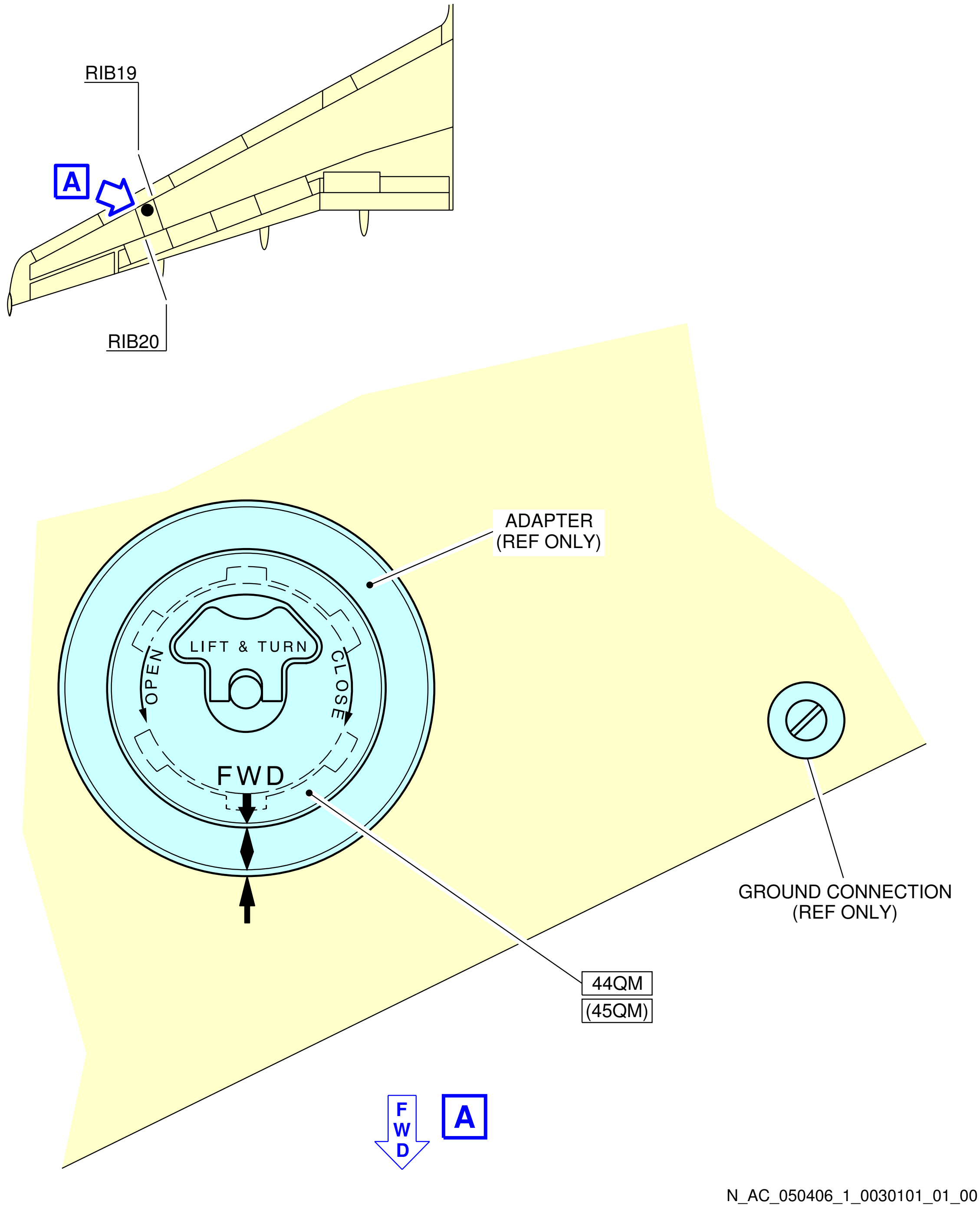
Ground Service Connections
Refuel/Defuel Panel
FIGURE-5-4-6-991-001-A01

**ON A/C A319-100



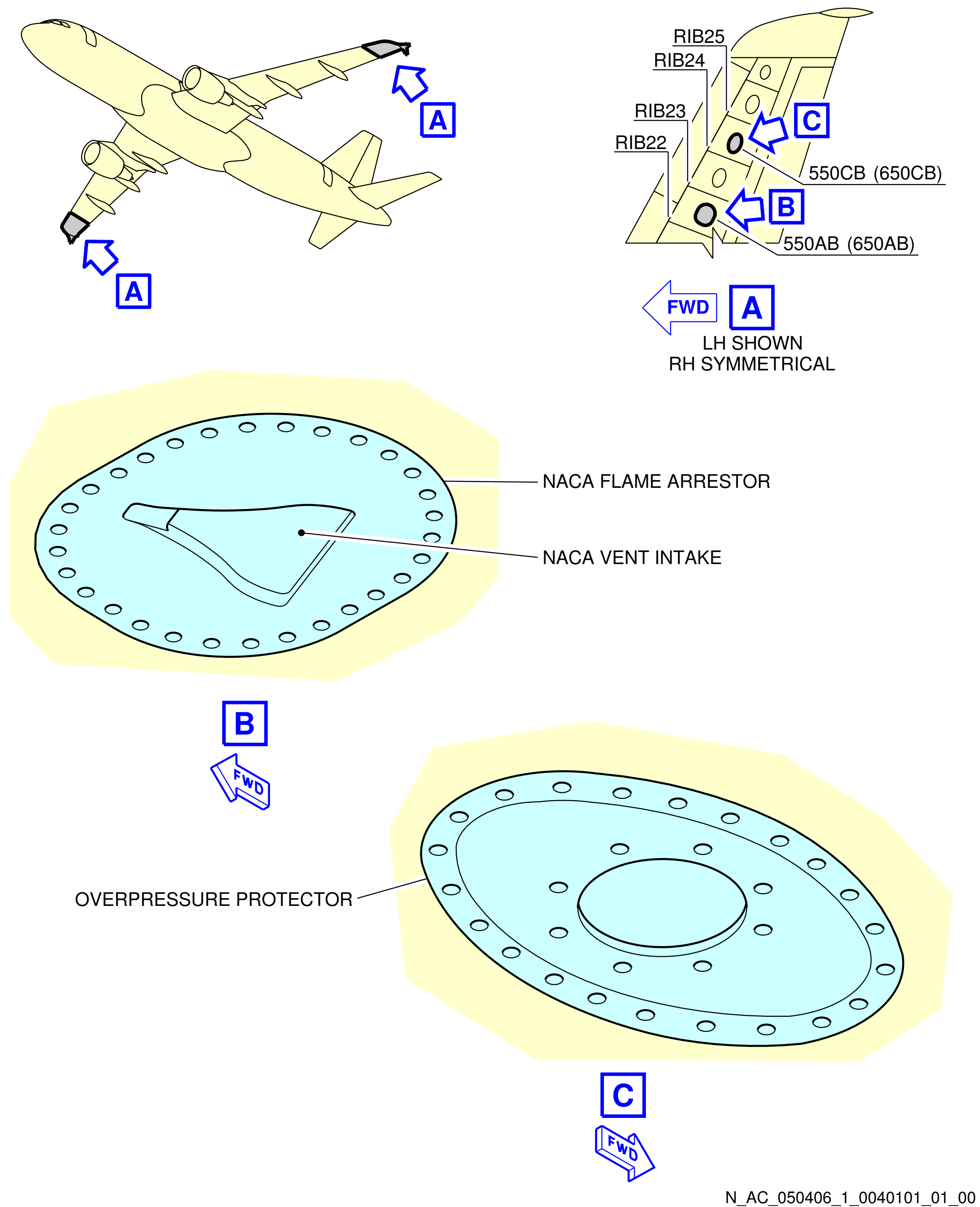
Ground Service Connections
Refuel/Defuel Couplings
FIGURE-5-4-6-991-002-A01

**ON A/C A319-100



Ground Service Connections
Gravity Refuel Couplings
FIGURE-5-4-6-991-003-A01

**ON A/C A319-100



Ground Service Connections
Overpressure Protector and NACA Flame Arrestor
FIGURE-5-4-6-991-004-A01

5-4-7 Pneumatic System

****ON A/C A319-100**

Pneumatic System

1. High Pressure Air Connectors.
   This chapter gives data related to the location of the ground service connections.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
HP Connector Access door 191DB	11.38 (37.34)		0.84 (2.76)	1.76 (5.77)

NOTE : Distances are approximate.

A. Connector
   - One standard 3 in. ISO TC20 connection (MS33740) for engine starting and cabin air preconditioning (HP) installed on the left side of the belly fairing

2. Low Pressure Air Connectors.
   This chapter gives data related to the location of the ground service connections.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
LP Connector Access door 191CB	10.85 (35.6)		1.11 (3.64)	1.73 (5.68)

NOTE : Distances are approximate.

A. Connector:
   - One standard 8 in. connection (SAE AS4262 type B) for cabin air preconditioning (LP) installed on the left side of the belly fairing

5-4-8 Potable Water System

****ON A/C A319-100**

Potable Water System

1. Potable Water Ground Service Panel.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Potable Water Ground Service Panel: Access door 171AL:	27.5 (90.22)		0.3 (0.98)	2.6 (8.53)

NOTE : Distances are approximate

2. Potable Water Ground Drain Panel.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		RH SIDE m (ft)	LH SIDE m (ft)	
Potable Water Ground Service Panel: Access door 133AL:	11.8 (38.71)		0.15 (0.49)	1.75 (5.74)

NOTE : Distances are approximate

3. Technical Specifications

A. Connectors:

(1) On the potable ground service panel (Access Door 171AL)
- Fill/Drain Nipple 3/4 in (ISO 17775).
- One ground pressurization connector.

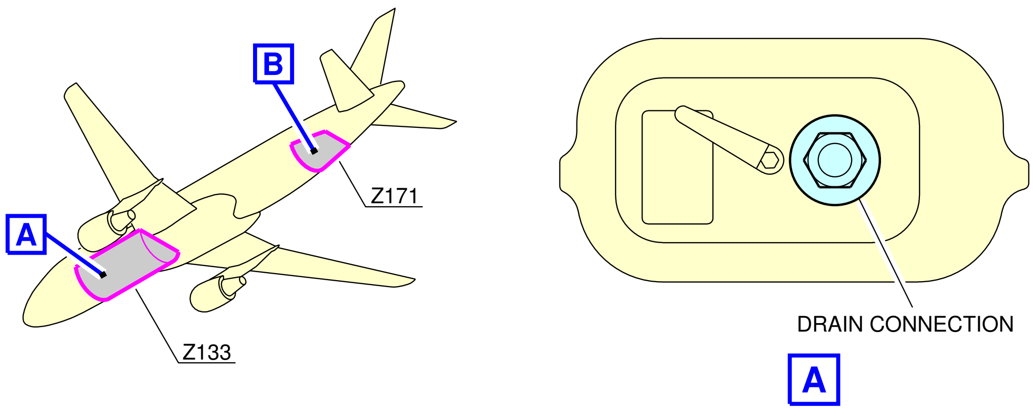
(2) On drain panel (Access Door 133AL)
- Drain Nipple 3/4 in (ISO 17775)

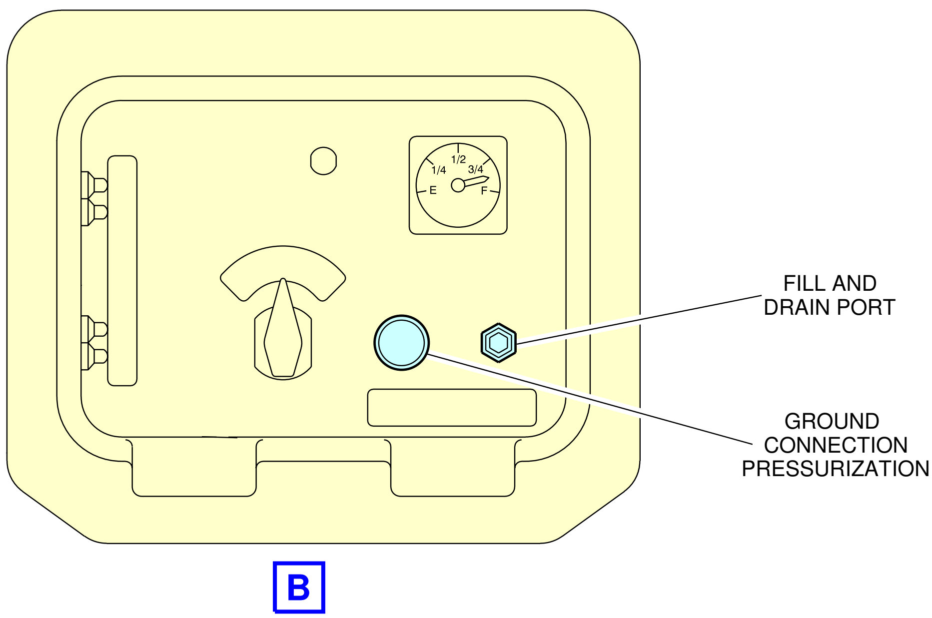
B. Usable capacity:
- Standard configuration - one tank:200 l (52.83 US gal)

C. Filling pressure:
- 3.45 bar (50 psi).

D. Typical flow rate:
- 50 l/min (13.21 US gal/min).

**ON A/C A319-100





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Ground Service Connections
Potable Water Ground Service Panel
FIGURE-5-4-8-991-001-A01

5-4-9 Oil System

****ON A/C A319-100**

Oil System

1. Engine Oil Replenishment for CFM56 Series Engine (See FIGURE 5---9-99--001-A):
   One gravity filling cap and one pressure filling connection per engine.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		ENGINE 1 (LH) m (ft)	ENGINE 2 (RH) m (ft)	
Engine Oil Gravity Filling Cap: Access door: 437BL (LH), 447BL (RH)	11.56 (37.79)	6.63 (21.75)	4.82 (15.81)	1.46 (4.79)
Engine Oil Pressure Filling Port:	11.4 (37.4)	6.49 (21.29)	4.74 (15.55)	1.42 (4.66)

NOTE : Distances are approximate

A. Tank capacity:
   - Full level: 19.6 l (5.18 US gal)
   - Usable: 9.46 l (2.50 US gal)

B. Maximum delivery pressure required: 25 psi (1.72 bar)
   Maximum delivery flow required: 180 l/h (47.55 US gal/h)

2. IDG Oil Replenishment for CFM56 Series Engine (See FIGURE 5---9-99--002-A):
   One pressure filling connection per engine: OMP 2506-18 plus one connection overflow: OMP 2505-18.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		ENGINE 1 (LH) m (ft)	ENGINE 2 (RH) m (ft)	
IDG Oil Pressure Filling Connection: Access door 438DR (LH), 448DR (RH)	10.6 (34.77)	6.9 (22.64)	5.52 (18.11)	0.68 (2.23)

NOTE : Distances are approximate

A. Tank capacity: 5 l (1.32 US gal)

B. Delivery pressure required: 5 to 40 psi (0.34 to 2.76 bar) at the IDG inlet.

3. Starter Oil Replenishment for CFM56 Series Engine (See FIGURE 5---9-99--003-A):
One gravity filling cap per engine.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		ENGINE 1 (LH) m (ft)	ENGINE 2 (RH) m (ft)	
Starter Oil Filling Connection:	11.04 (37.4)	5.3 (17.39)	6.2 (20.34)	0.76 (2.49)

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---9-99--004-B):
One gravity filling cap per engine.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		ENGINE 1 (LH) m (ft)	ENGINE 2 (RH) m (ft)	
Engine Oil Gravity Filling Cap: Access door 437BL (LH), 447BL (RH)	10.64 (34.9)	6.56 (21.52)	4.92 (16.14)	1.22 (4)

NOTE : Distances are approximate

A. Tank capacity:
- Full level: 28 l (7.4 US gal)
- Usable: 23.50 l (6.21 US gal)

1. IDG Oil Replenishment for IAE V2500 Series Engine:
One pressure filling connection per engine: OMP 2506-2 plus one overflow connection: OMP 2505-2.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		ENGINE 1 (LH) m (ft)	ENGINE 2 (RH) m (ft)	
IDG Oil Pressure Filling Connection:	11.2 (36.74)	5.42 (17.78)	6.04 (19.81)	0.8 (2.62)

NOTE : Distances are approximate

A. Tank capacity: 4.1 l (1.08 US gal)

5. Starter Oil Replenishment for IAE V2500 Series Engine (See FIGURE 5---9-99--006-B):
One gravity filling cap per engine.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		ENGINE 1 (LH) m (ft)	ENGINE 2 (RH) m (ft)	
Starter Oil Filling Connection:	11.04 (37.4)	5.3 (17.39)	6.14 (20.14)	0.75 (2.46)

NOTE : Distances are approximate

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

6. APU Oil System (See FIGURE 5---9-99--007-A):
APU oil gravity filling cap.

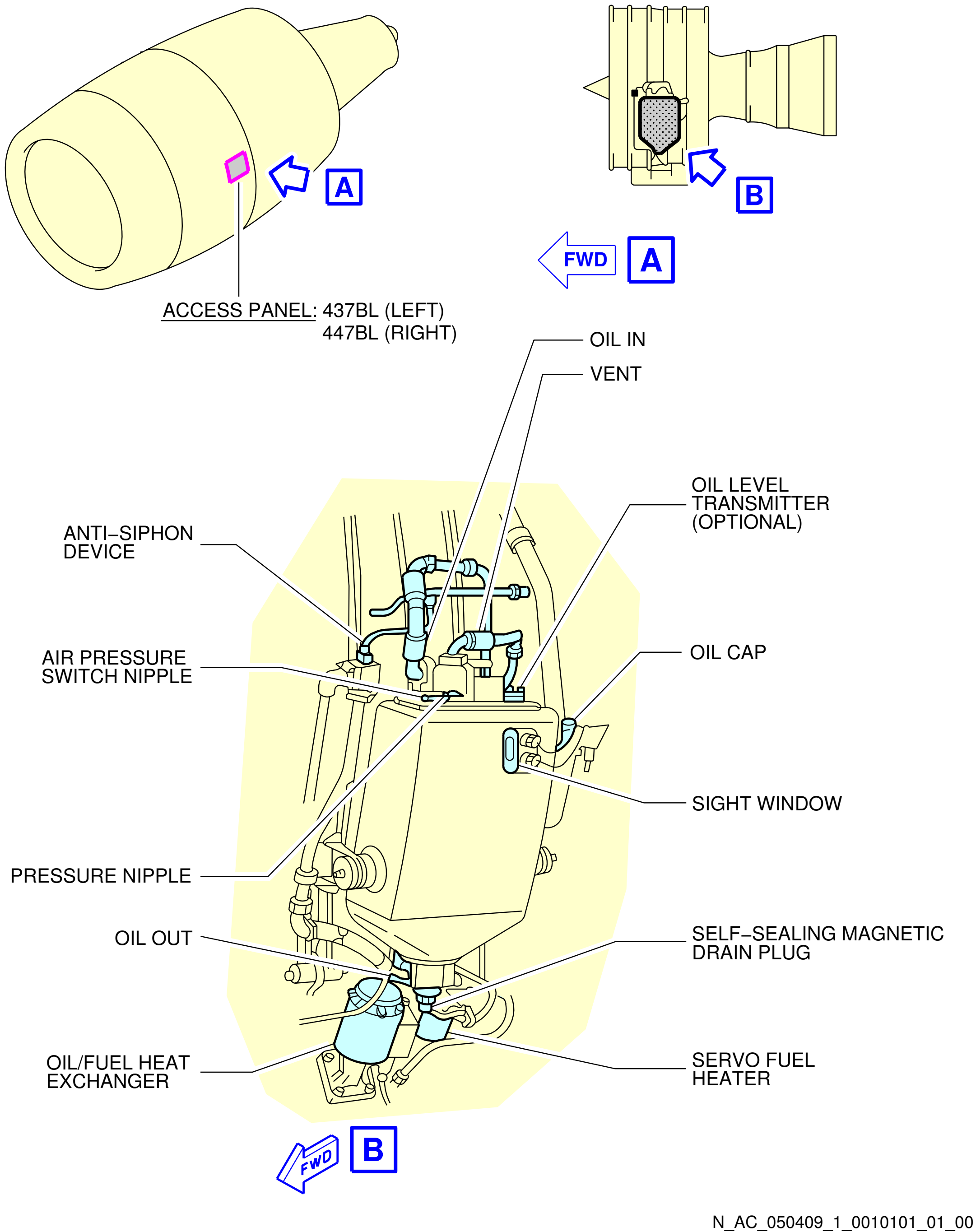
	AFT OF NOSE m (ft)	FROM AIRPLANE CENTERLINE (LEFT HAND) m (ft)	MEAN HEIGHT FROM GROUND m (ft)
GTCP 36-300	31.76 (104.19)	0.3 (0.98)	4.83 (15.85)
APS 3200	31.76 (104.19)	0.3 (0.98)	4.78 (15.68)
131-9	31.66 (103.87)	0.35 (1.15)	4.32 (14.17)

NOTE : Distances are approximate

A. Tank capacity (usable):
   - APU type GTCP 36-300: 6.20 l (1.64 US gal)
   - APU type APS 3200: 5.40 l (1.43 US gal)

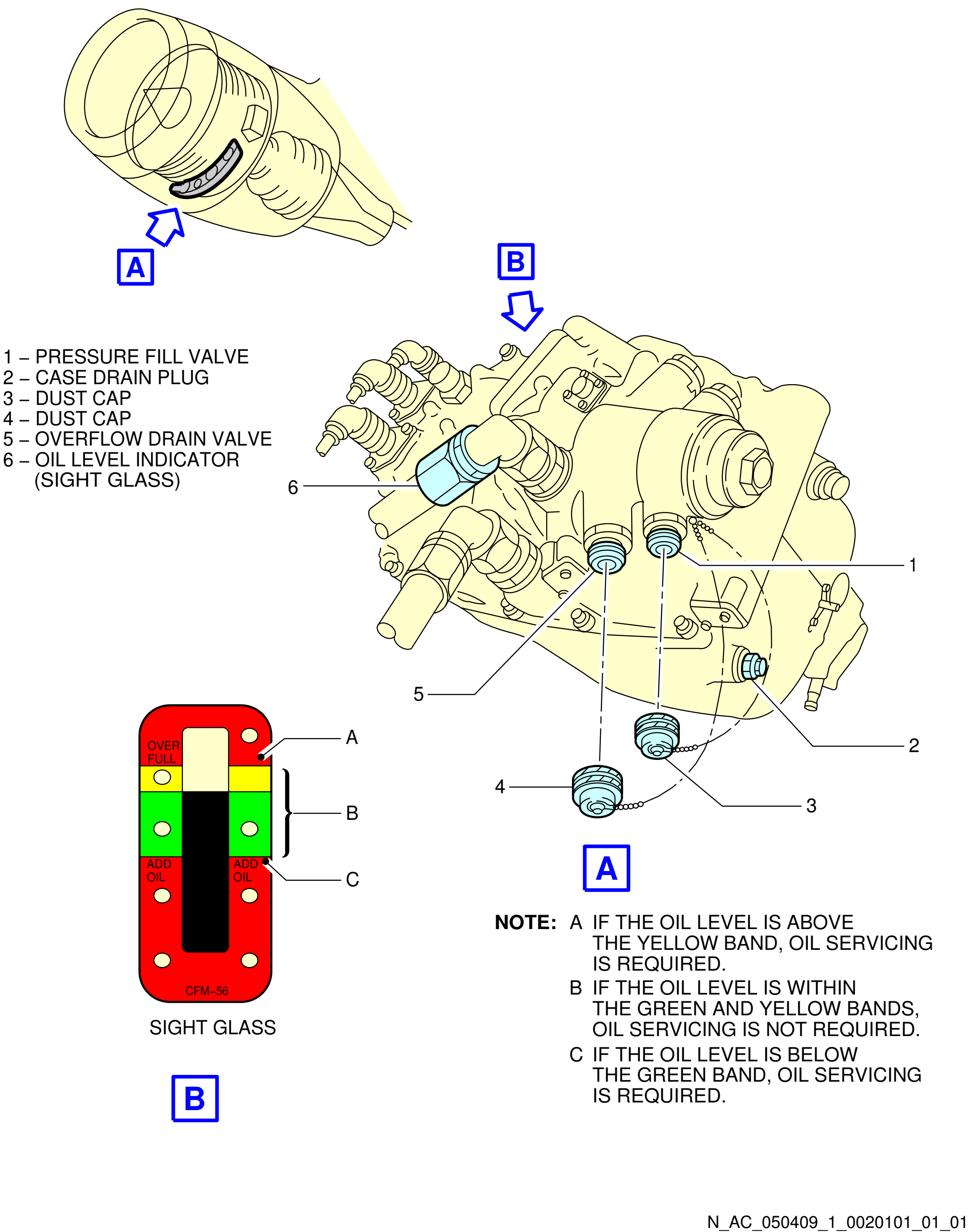
- APU type 131-9: 6.25 l (1.65 US gal)

**ON A/C A319-100



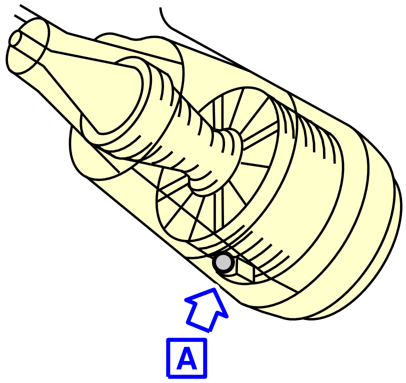
Ground Service Connections
Engine Oil Tank – CFM56 Series Engine
FIGURE-5-4-9-991-001-A01

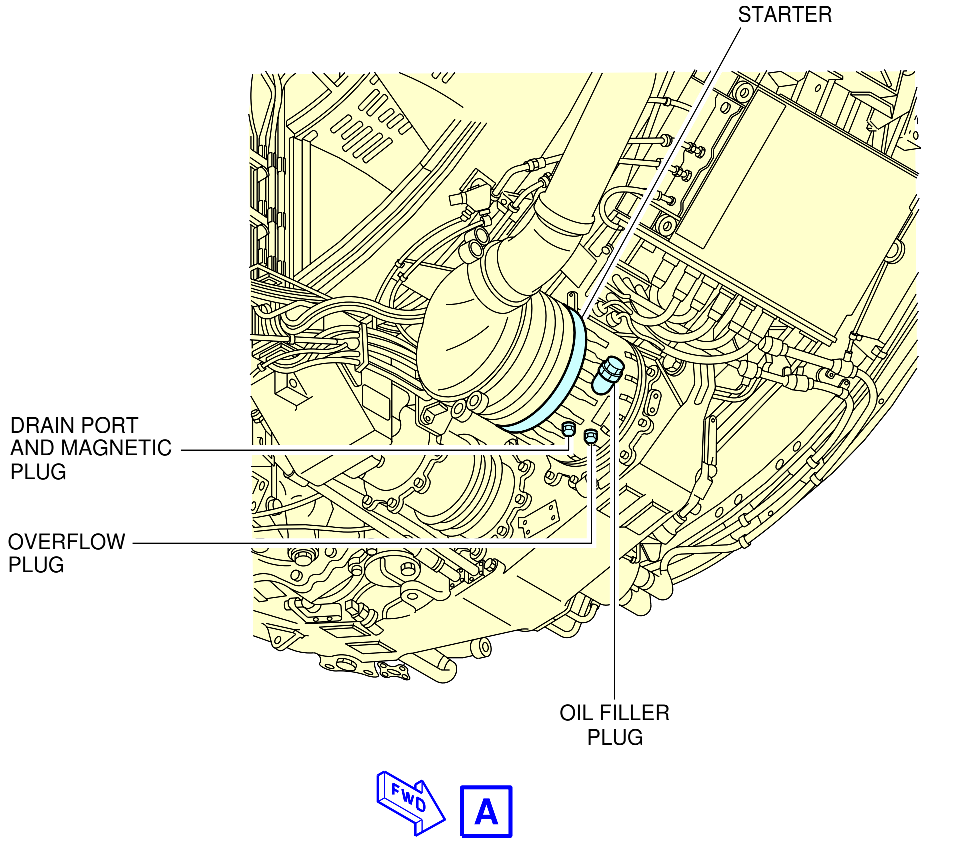
**ON A/C A319-100



Ground Service Connections
IDG Oil Tank – CFM56 Series Engine
FIGURE-5-4-9-991-002-A01

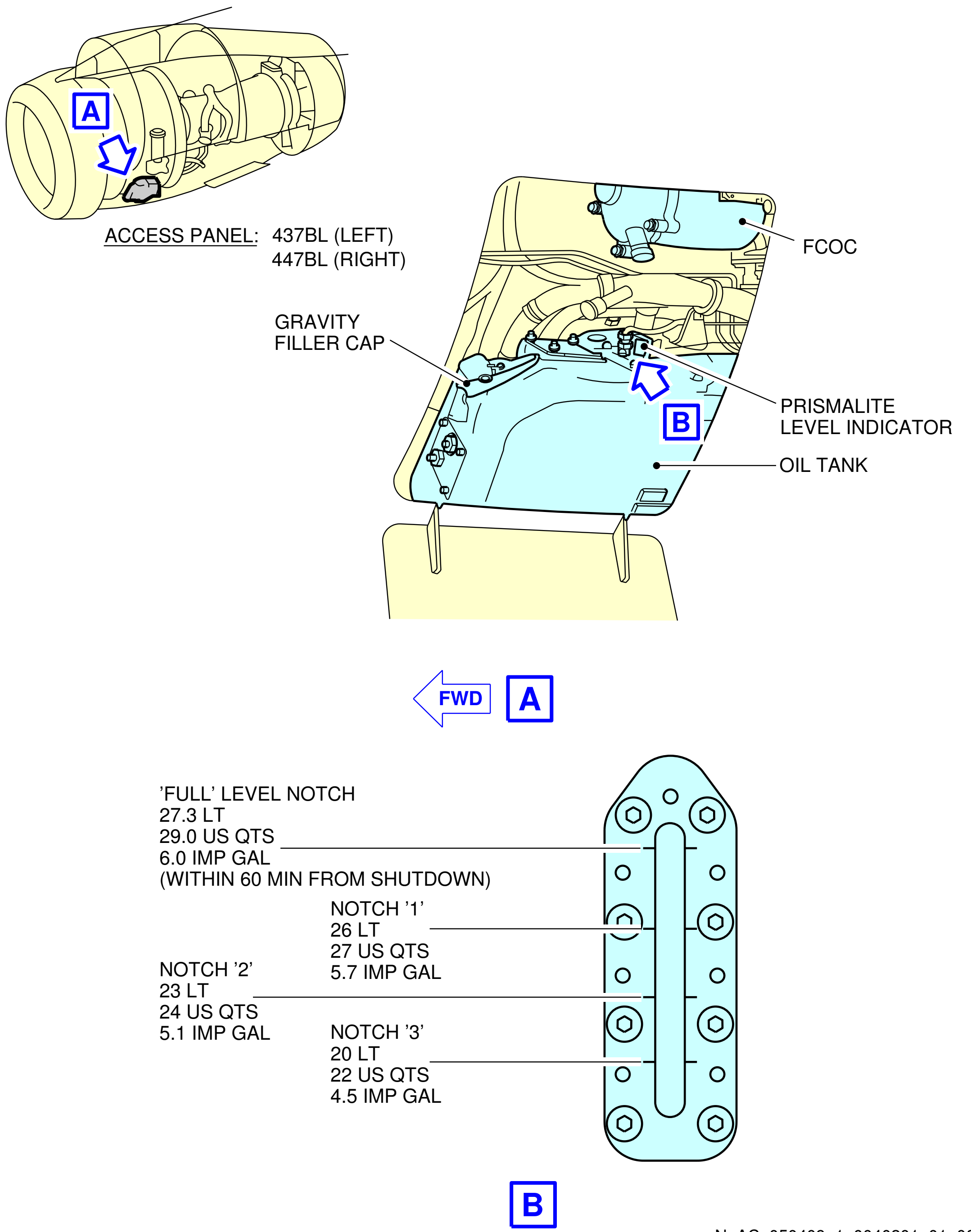
**ON A/C A319-100





Ground Service Connections
Starter Oil Tank – CFM56 Series Engine
FIGURE-5-4-9-991-003-A01

**ON A/C A319-100



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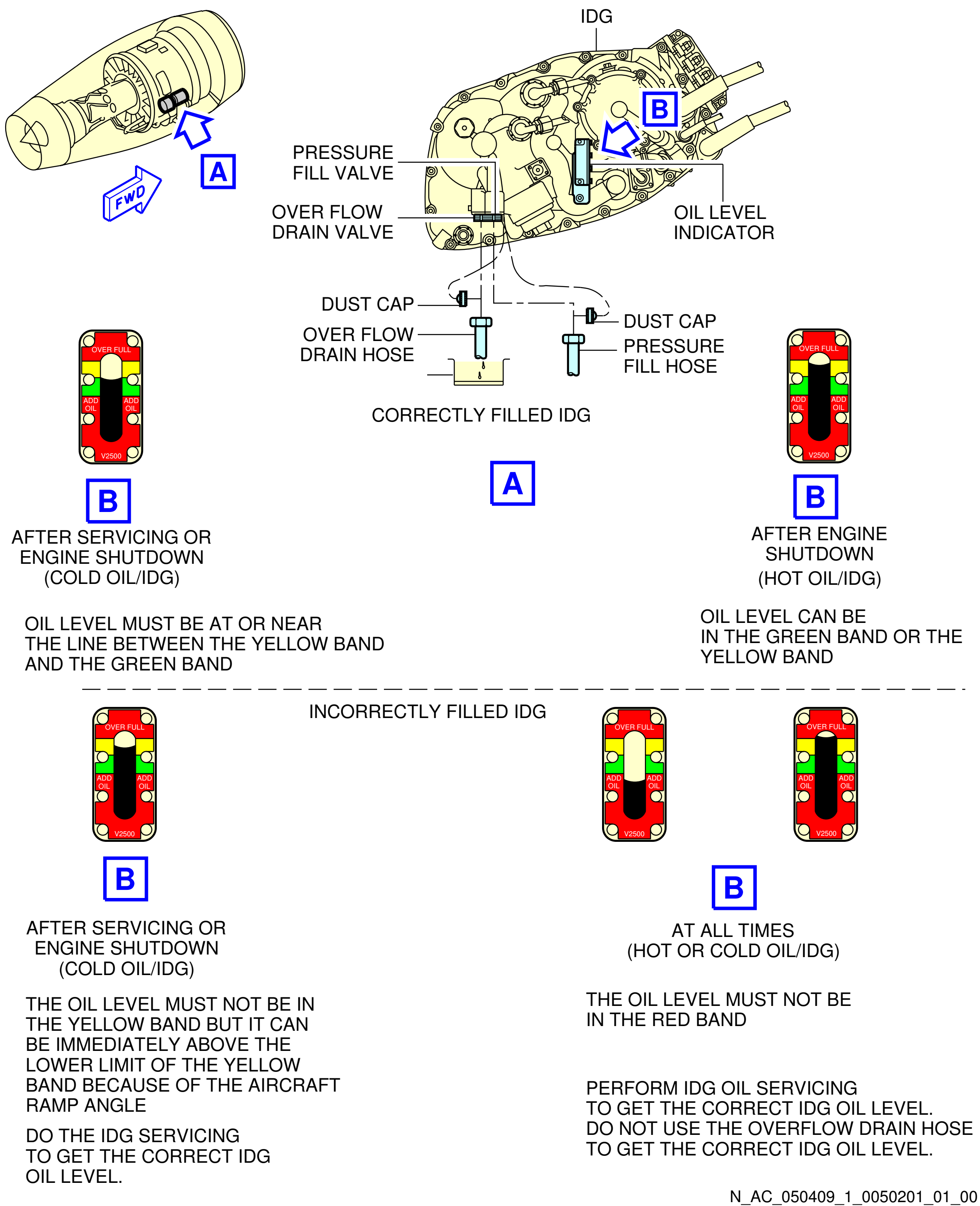
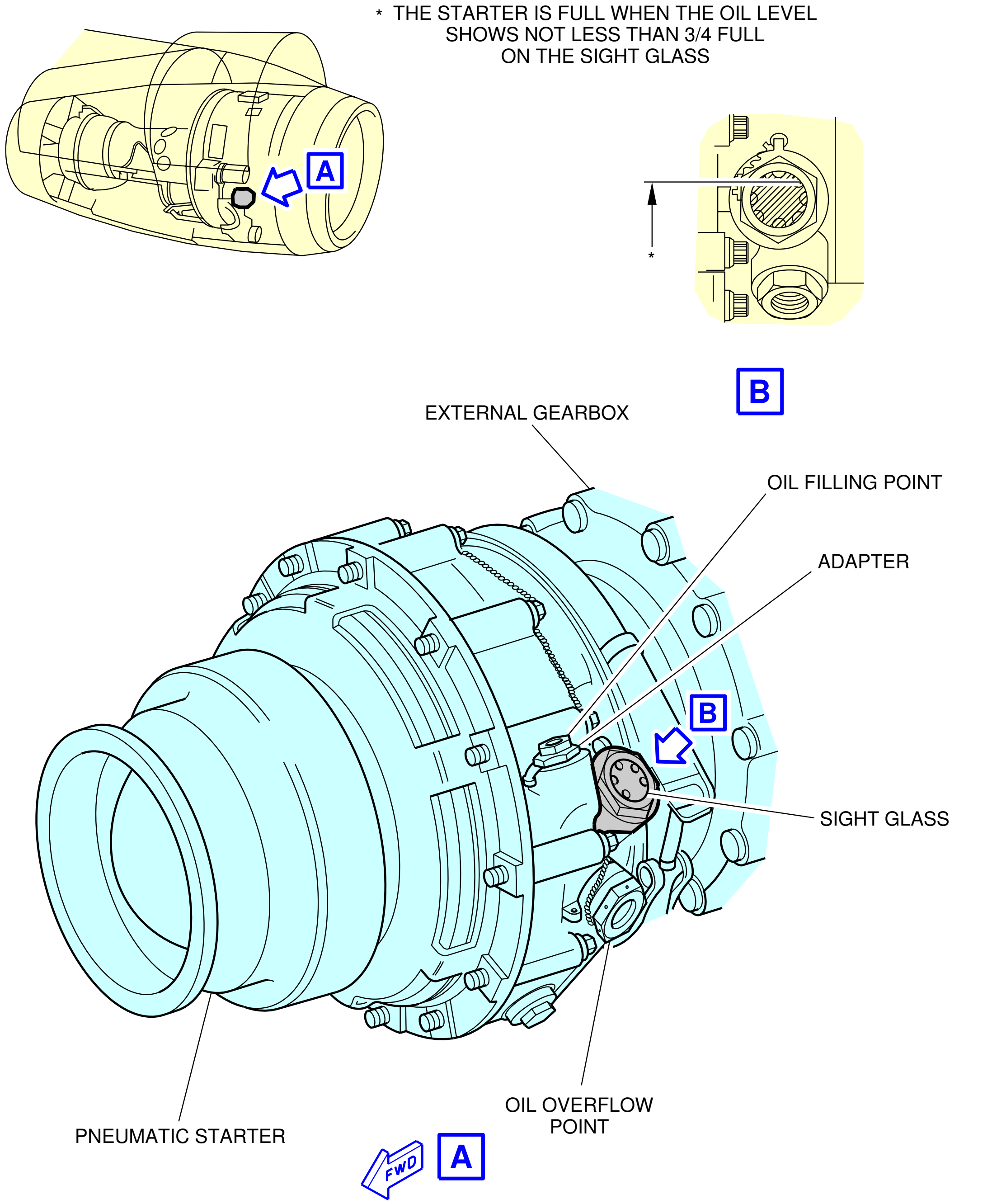
Ground Service Connections
Engine Oil Tank – IAE V2500 Series Engine
FIGURE-5-4-9-991-004-B01

**ON A/C A319-100



Ground Service Connections
IDG Oil Tank – IAE V2500 Series Engine
FIGURE-5-4-9-991-005-B01

**ON A/C A319-100



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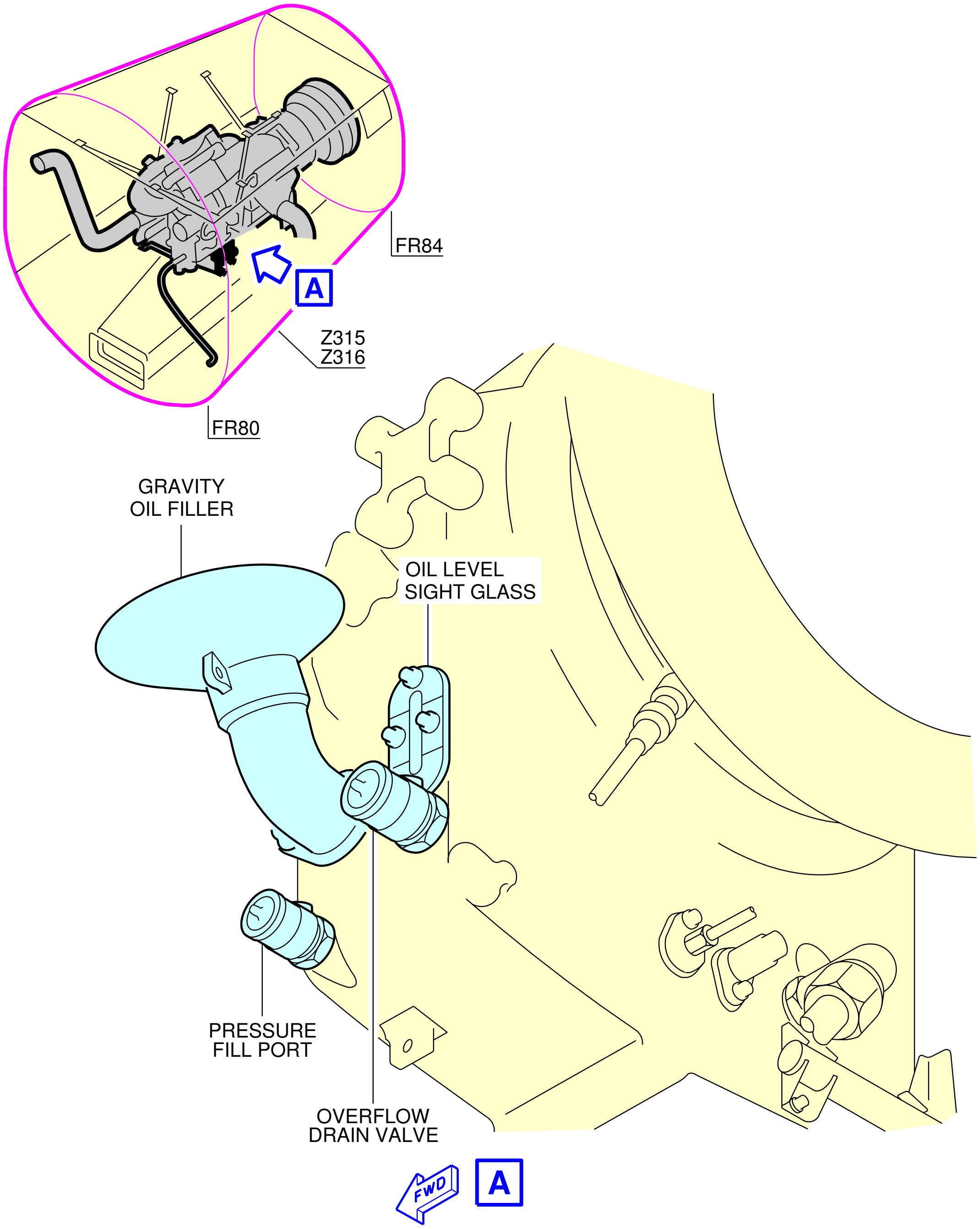
Ground Service Connections
Starter Oil Tank – IAE V2500 Series Engine
FIGURE-5-4-9-991-006-B01

**ON A/C A319-100



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Ground Service Connections
APU Oil Tank
FIGURE-5-4-9-991-007-A01

5-4-10 Vacuum Toilet System

****ON A/C A319-100**

Vacuum Toilet System

1. Vacuum Toilet System.

ACCESS	AFT OF NOSE m (ft)	POSITION FROM AIRCRAFT CENTERLINE		MEAN HEIGHT FROM GROUND m (ft)
		R SIDE m (ft)	L SIDE m (ft)	
Waste Water Ground Service Panel: Access door 172AR	27.5 (90.22)	0.8 (2.62)		2.8 (9.18)

NOTE : Distances are approximate

2. Technical Specifications

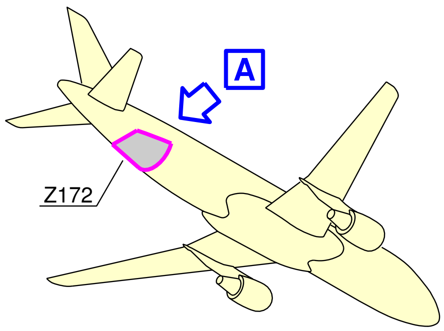
   A. Connectors:
      - Draining: 4 in (ISO 17775).
      - Flushing and filling: 1 in (ISO 17775).

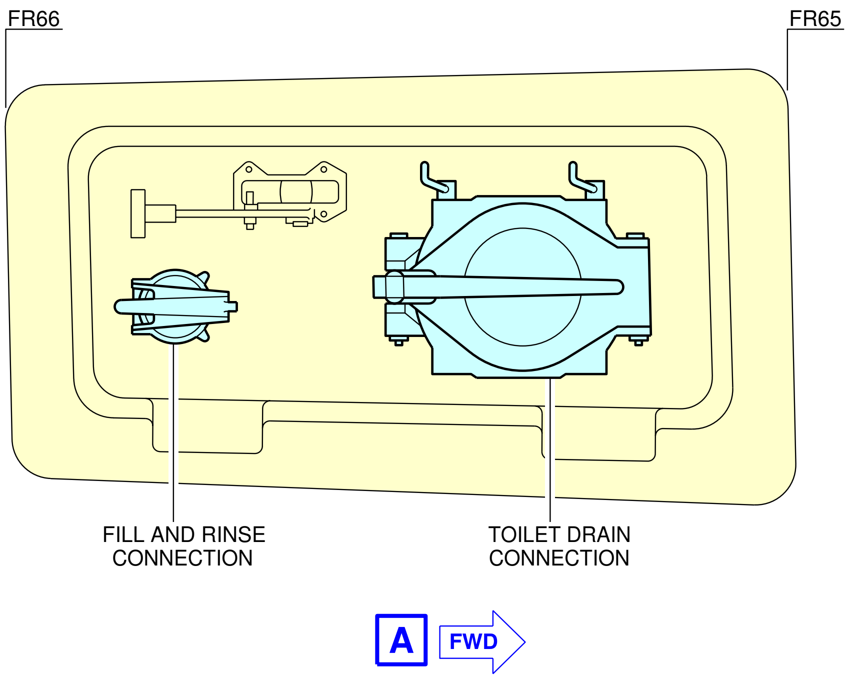
   B. Usable waste tank capacity:
      - Standard configuration - on tank: 177 l (30.91 US gal).

   C. Waste tank - Rinsing:
      - Operating pressure: 3.45 bar (50 psi).

   D. Waste tank - Precharge:
      - 10 l (2.64 US gal).

**ON A/C A319-100





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

5-5-0 Engine Starting Pneumatic Requirements

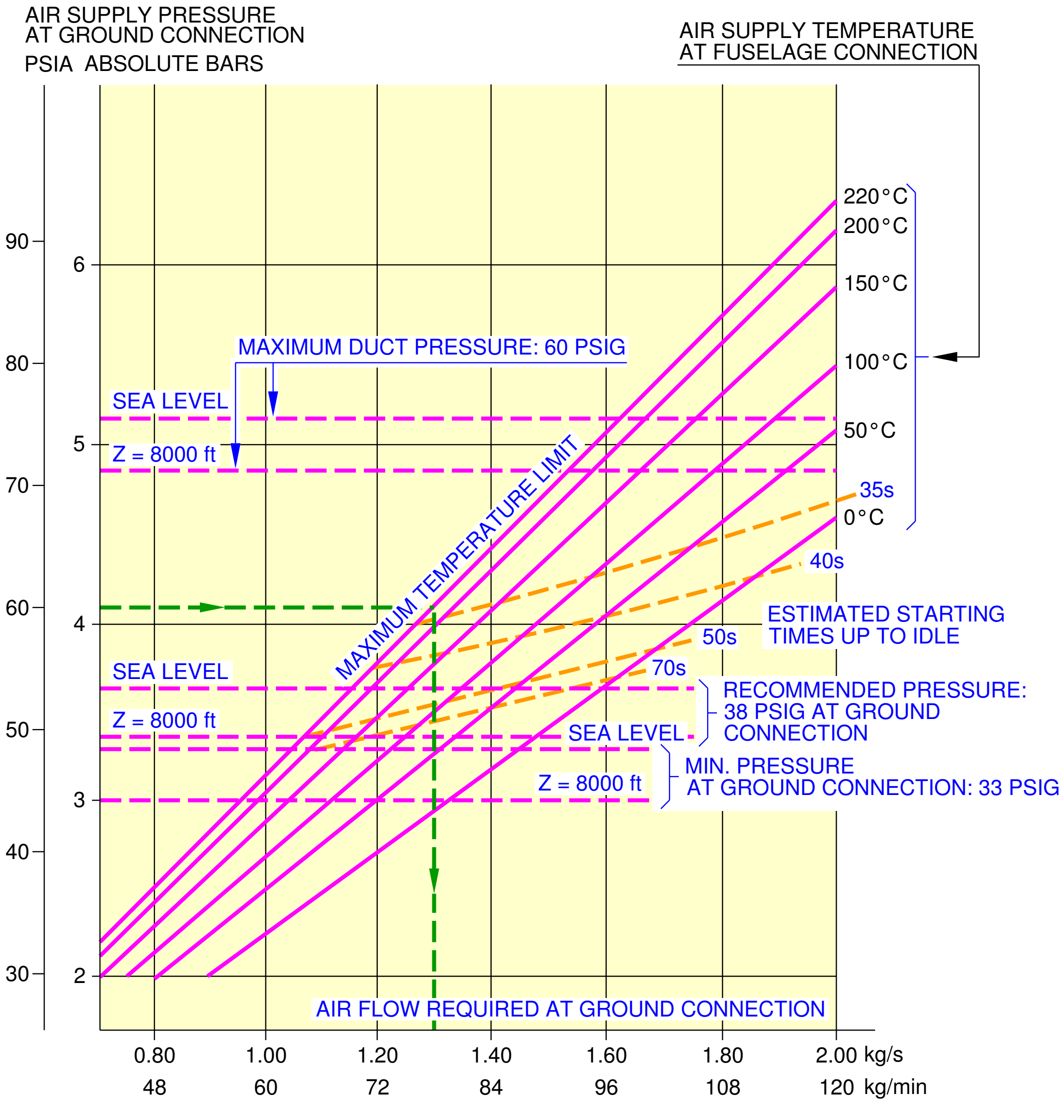
****ON A/C A319-100**

Engine Starting Pneumatic Requirements

1. Engine Starting Pneumatic Requirements.
   To determinate the airflow required at ground connection, refer to the example given in FIGURE 5--0-99--002-A.

   For engine starting pneumatic requirements for:
   - Low ambient temperatures, refer to 5-5-1,
   - Medium ambient temperatures, refer to 5-5-2,
   - High ambient temperatures, refer to 5-5-3.

**ON A/C A319-100



EXAMPLE TO DETERMINATE THE AIRFLOW REQUIRED AT THE FUSELAGE CONNECTION:
–FOR AN AIR START UNIT DELIVERING 60 PSIA (4.14 BARS) AIR PRESSURE AT THE FUSELAGE CONNECTOR
–AT A SUPPLIED AIR TEMPERATURE OF 220°C (428°F) AT THE FUSELAGE CONNECTOR

1. DRAW AN HORIZONTAL LINE FROM THE SUPPLIED AIR PRESSURE (60 PSIA (4.14 BARS)).
2. FROM THE INTERSECTION WITH THE AIR SUPPLY TEMPERATURE AT FUSELAGE CONNECTION (220°C (428°F)), DRAW A VERTICAL LINE.
3. THE INTERSECTION WITH THE HORIZONTAL AXIS GIVES THE REQUIRED AIRFLOW AT GROUND CONNECTION (78 kg/min (1.3 kg/s)).

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Engine Starting Pneumatic Requirements
FIGURE-5-5-0-991-002-A01

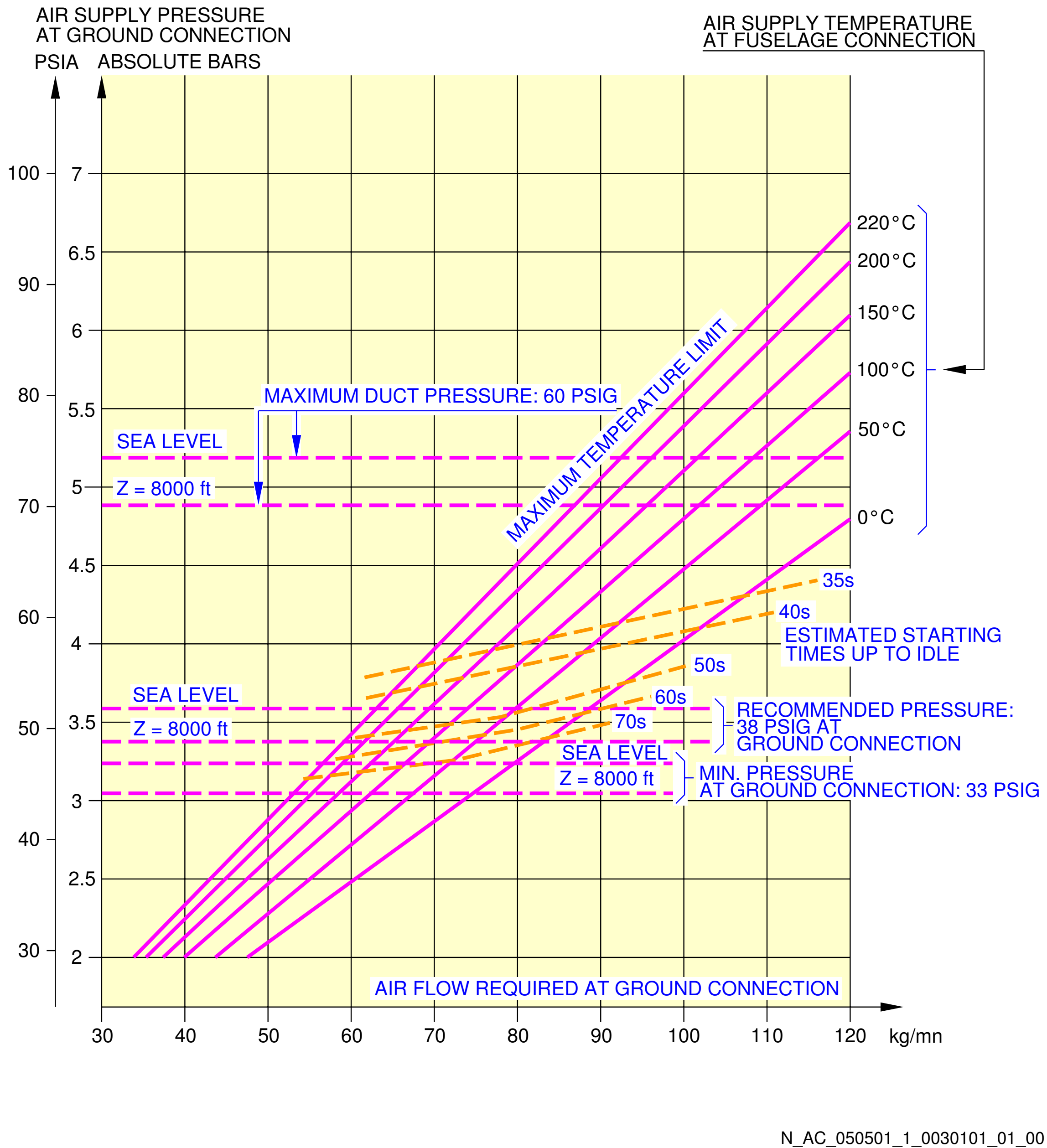
5-5-1 Low Ambient Temperatures

****ON A/C A319-100**

Low Ambient Temperatures

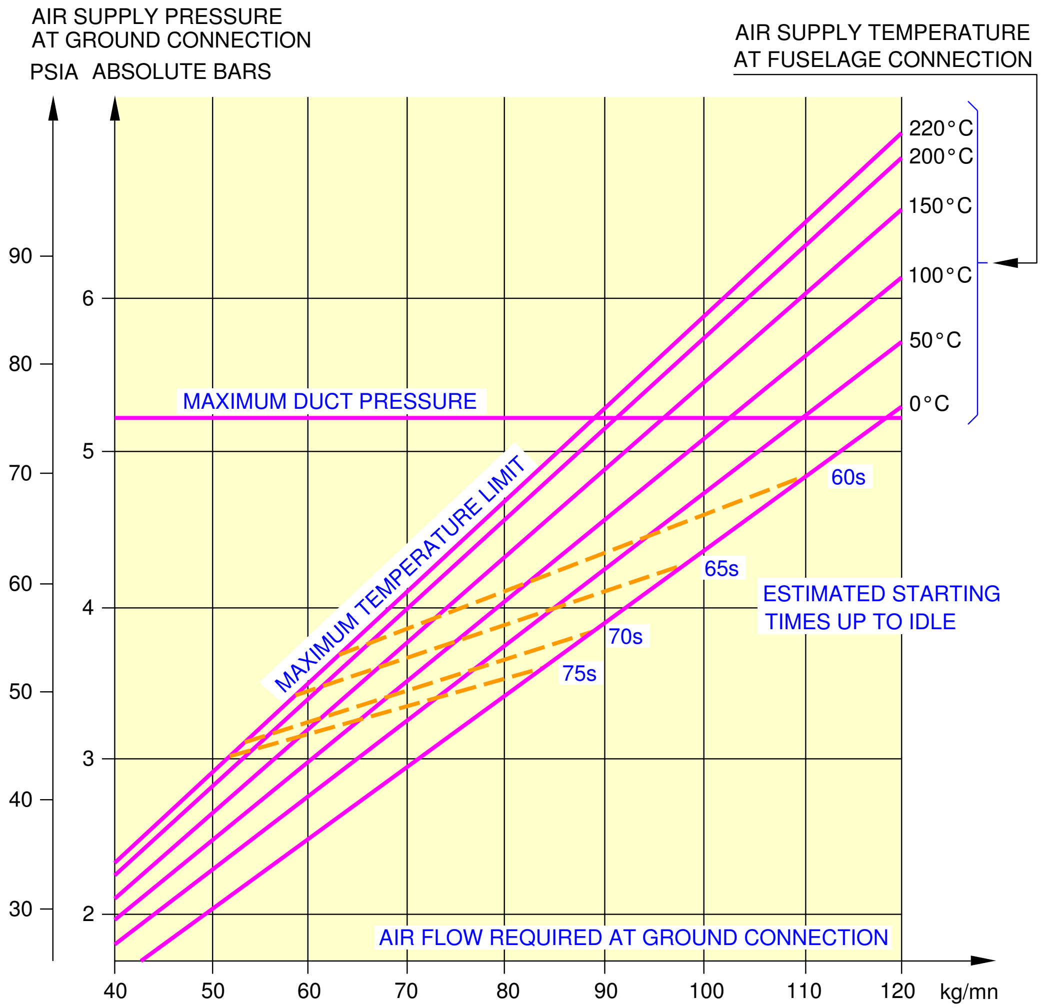
1. This section provides the engine starting pneumatic requirements for a temperature of -40°C (-40°F).

**ON A/C A319-100



Engine Starting Pneumatic Requirements
Low Ambient Temperature -40˚C (-40˚F) – CFM56 series engine
FIGURE-5-5-1-991-003-A01

**ON A/C A319-100



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Engine Starting Pneumatic Requirements
Low Ambient Temperature -40°C (-40°F) – IAE V2500 series engine
FIGURE-5-5-1-991-004-A01

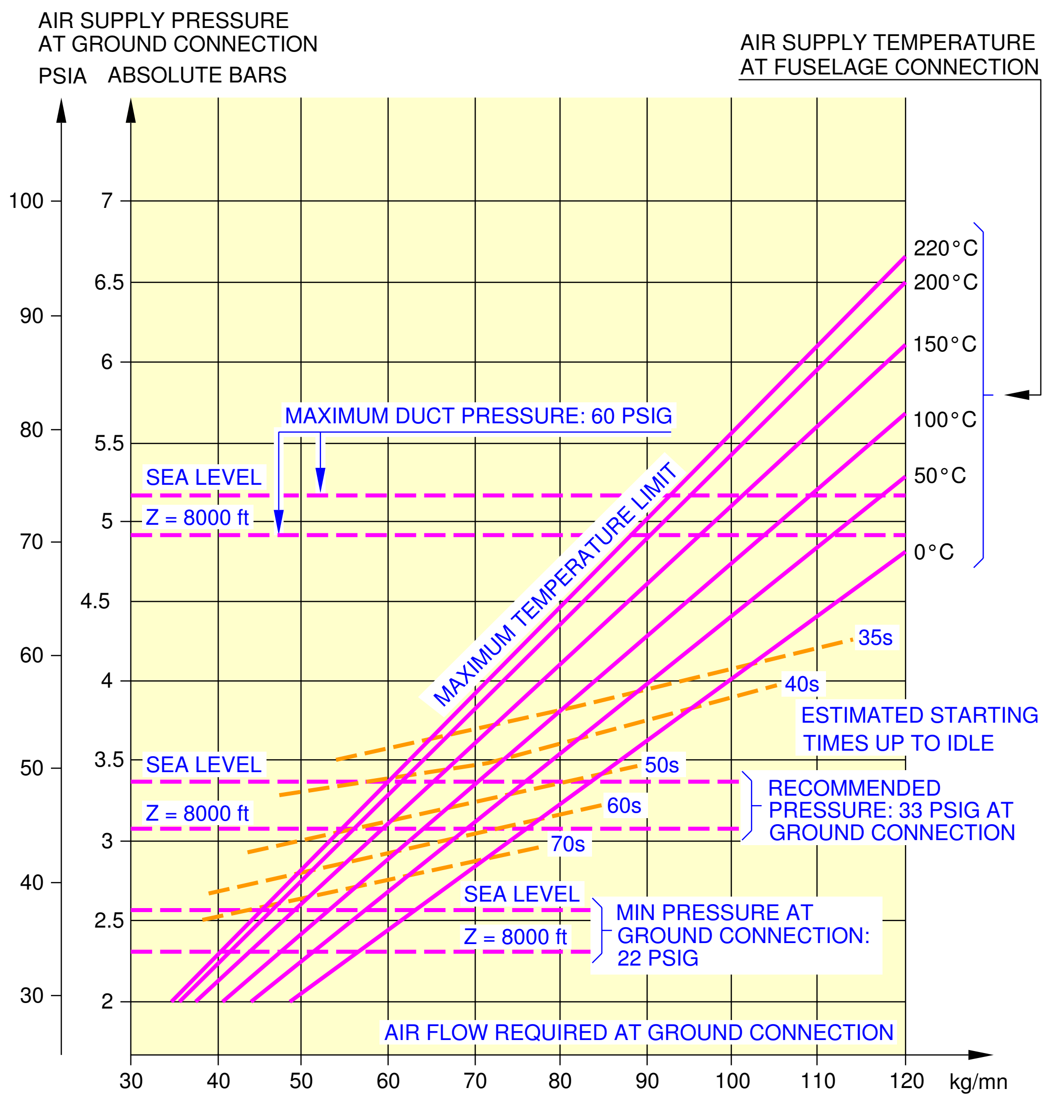
5-5-2 Medium Ambient Temperatures

**ON A/C A319-100

Medium Ambient Temperatures

1. This section provides the engine starting pneumatic requirements for a temperature of +15°C (+59°F).

**ON A/C A319-100



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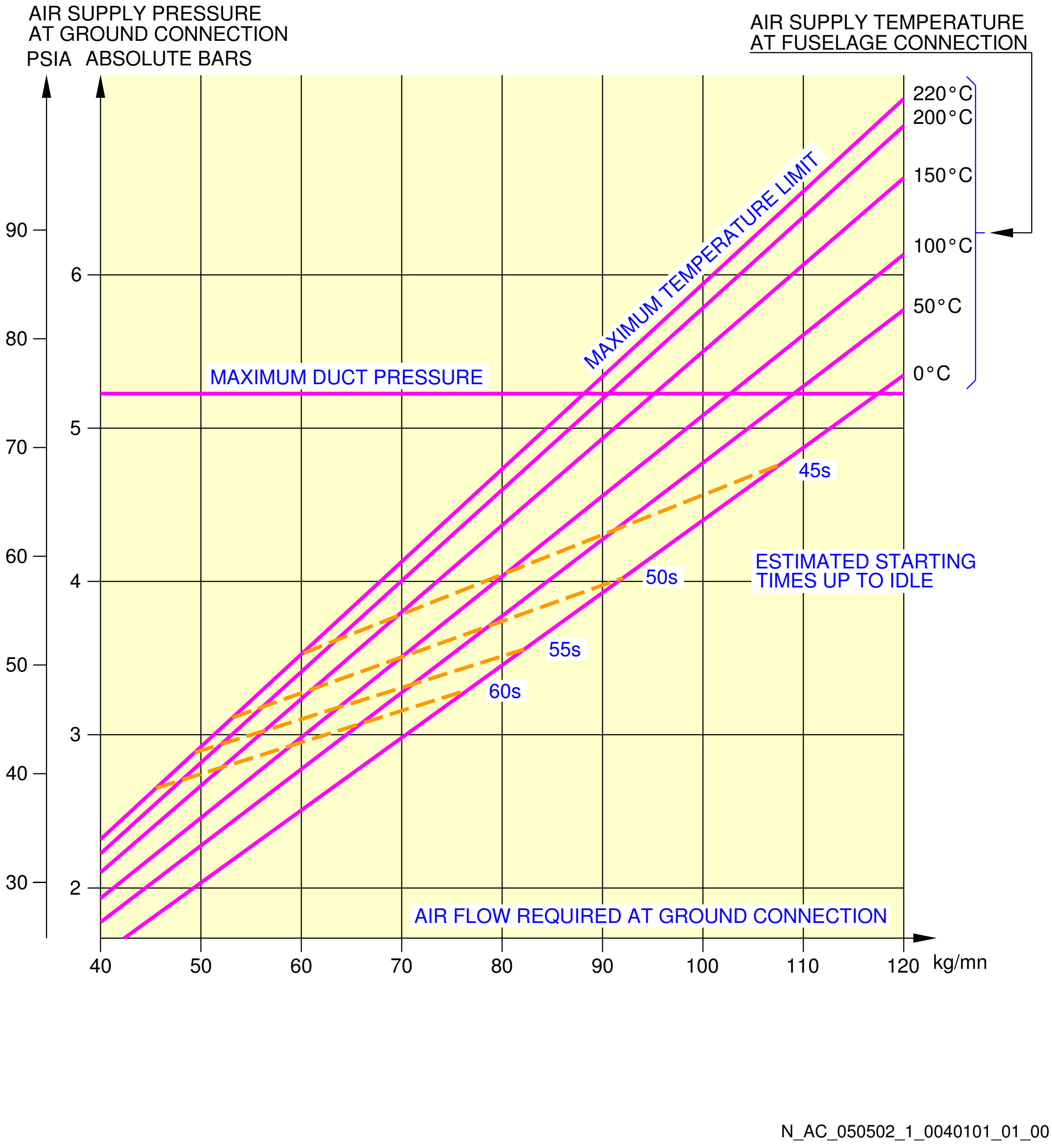
Engine Starting Pneumatic Requirements
Medium Ambient Temperature +15 ° C (+59 ° F) – CFM56 series engine
FIGURE-5-5-2-991-003-A01

**ON A/C A319-100



Engine Starting Pneumatic Requirements
Medium Ambient Temperature +15°C (+59°F) – IAE V2500 series engine
FIGURE-5-5-2-991-004-A01

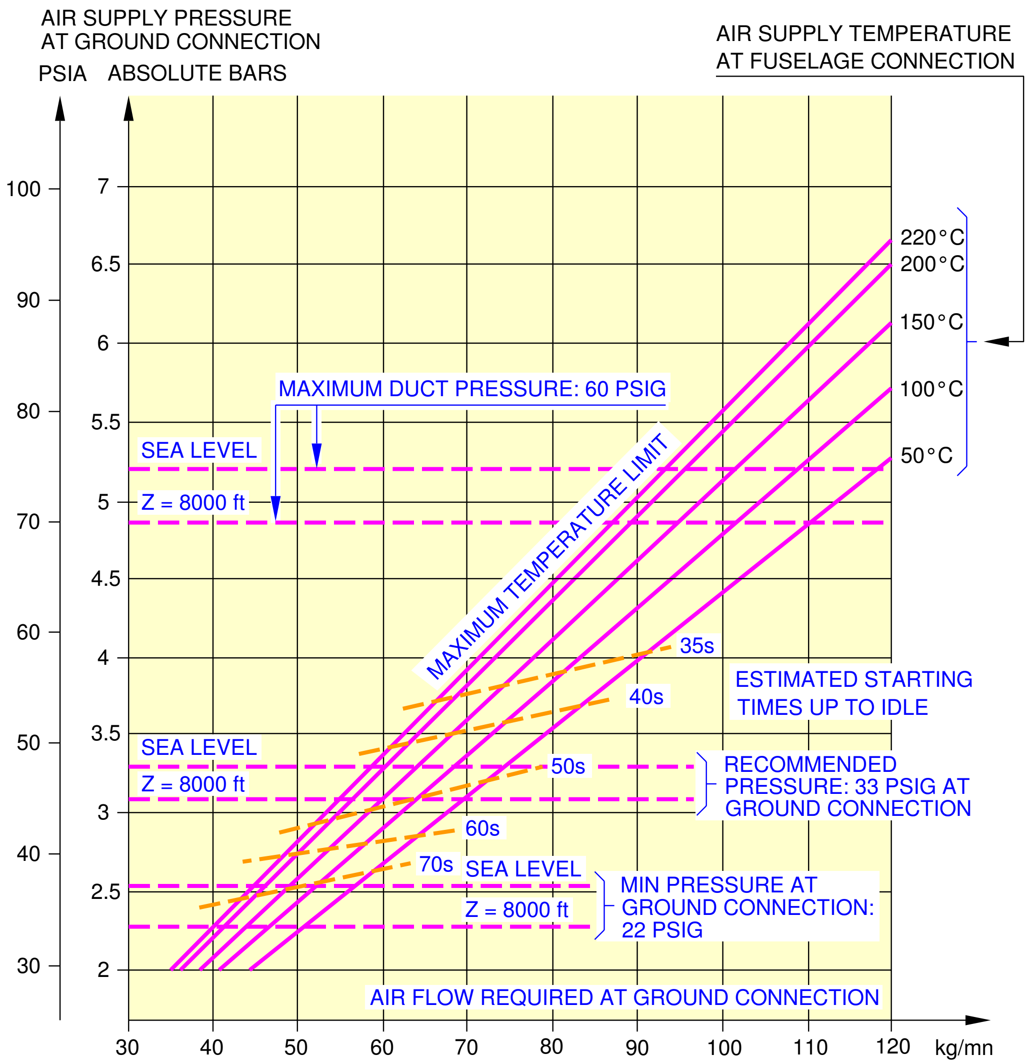
5-5-3 High Ambient Temperatures

****ON A/C A319-100**

High Ambient Temperatures

1. This section provides the engine starting pneumatic requirements for a temperature upper:
   - +50°C (+122°F) – IAE V2500
   - +55°C (+131°F) – CFM56

**ON A/C A319-100



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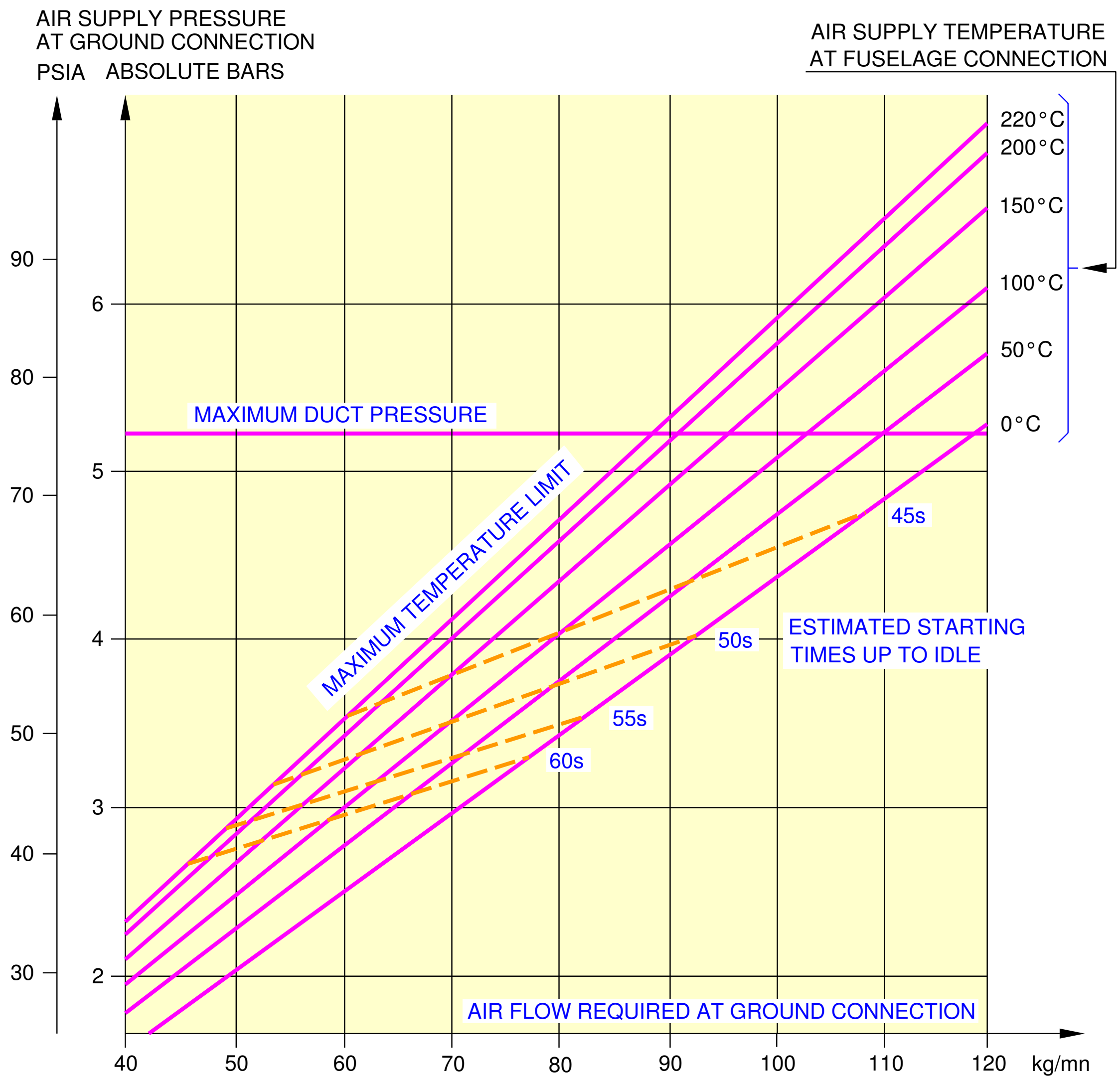
Engine Starting Pneumatic Requirements
High Ambient Temperature +55°C (+131°F) – CFM56 series engine
FIGURE-5-5-3-991-003-A01

**ON A/C A319-100



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Engine Starting Pneumatic Requirements
High Ambient Temperature +50°C (+122°F) – IAE V2500 series engine
FIGURE-5-5-3-991-004-A01

5-6-0 Ground Pneumatic Power Requirements

****ON A/C A319-100**

Ground Pneumatic Power Requirements

1. Ground Pneumatic Power Requirements

   NOTE : The air flow rates and temperature requirements given in sections 5.6 and 5.7 are given at aircraft connection.

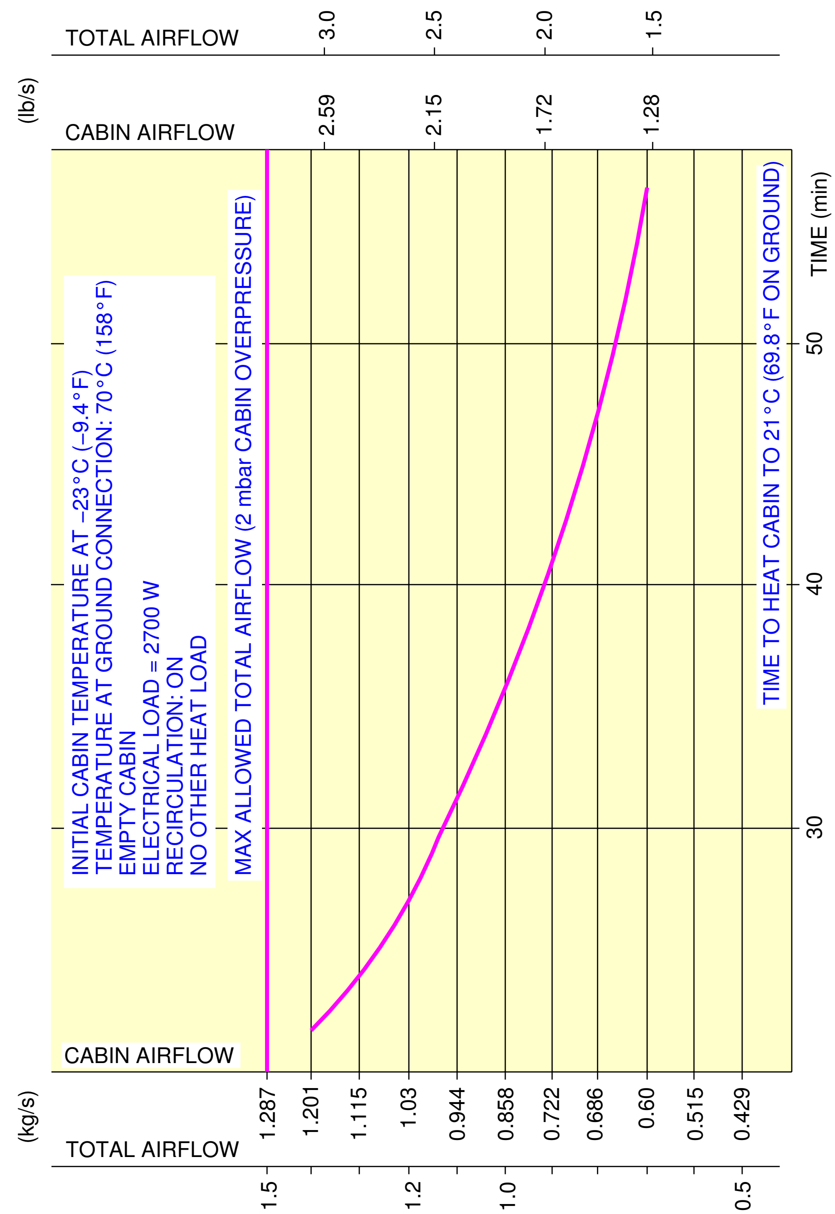
5-6-1 Heating

**ON A/C A319-100

Heating

1. This section provides the ground pneumatic power requirements heating.

**ON A/C A319-100



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Ground Pneumatic Power Requirements
Heating
FIGURE-5-6-1-991-002-A01

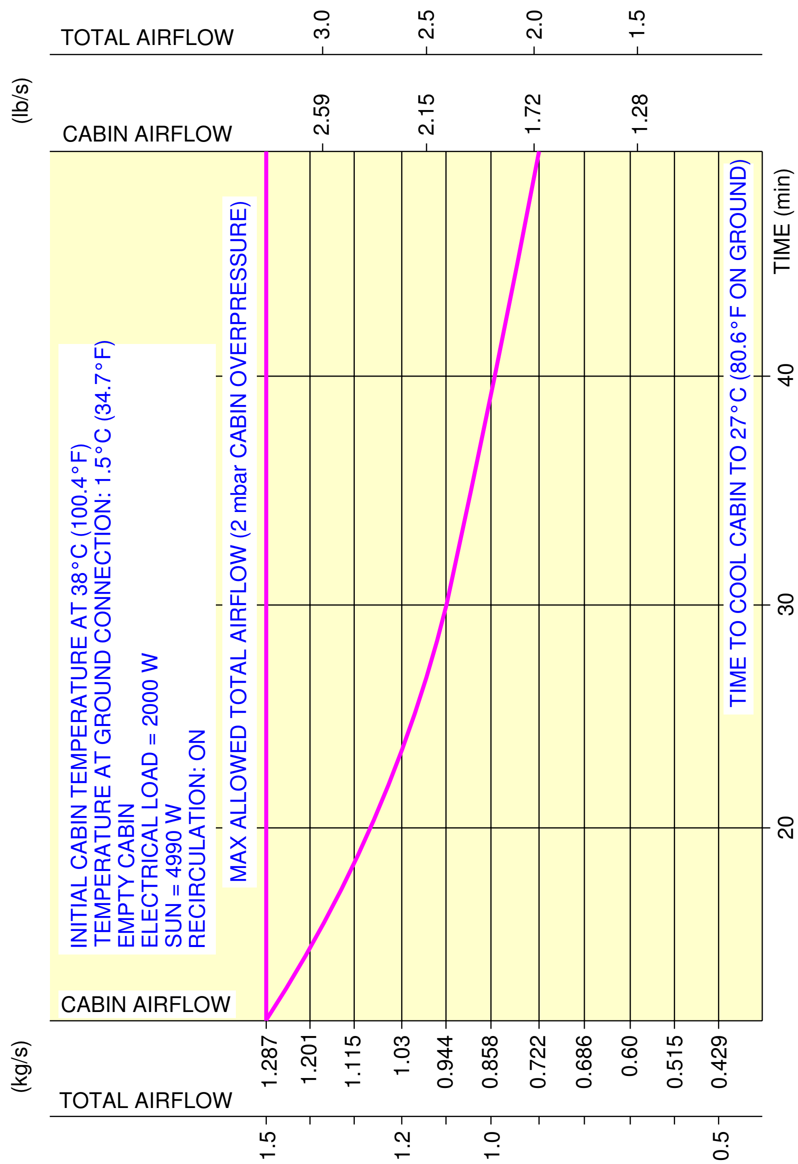
5-6-2 Cooling

**ON A/C A319-100

Cooling

1. This section provides the ground pneumatic power requirements cooling.

**ON A/C A319-100



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Ground Pneumatic Power Requirements
Cooling
FIGURE-5-6-2-991-002-A01

5-7-0 Preconditioned Airflow Requirements

****ON A/C A319-100**

Preconditioned Airflow Requirements

1. This section gives the preconditioned airflow requirements for cabin air conditioning.

   A. Preconditioned Airflow Requirements.

FRESH AIRFLOW				CURVE 1	
TOTAL		CABIN		T FL	
(kg/s)	(lb/s)	(kg/s)	(lb/s)	(°C)	(°F)
0.5	1.10	0.429	0.946	-40.4	-40.7
0.6	1.32	0.515	1.135	-28.5	-19.3
0.7	1.54	0.600	1.323	-20.1	-4.2
0.8	1.76	0.686	1.512	-13.9	7.0
0.9	1.98	0.772	1.702	-9.1	15.6
1.0	2.20	0.858	1.892	-5.3	22.5
1.1	2.43	0.944	2.081	-2.2	28.0
1.2	2.65	1.030	2.271	0.4	32.7
1.3	2.87	1.115	2.458	2.6	36.7
1.4	3.09	1.201	2.648	4.4	39.9
1.5	3.31	1.287	2.837	6.0	42.8

NOTE : Data for stabilized conditions see 5-7-0.

   B. Preconditioned Airflow Requirements.

FRESH AIRFLOW				CURVE 2	
TOTAL		CABIN		T FL	
(kg/s)	(lb/s)	(kg/s)	(lb/s)	(°C)	(°F)
0.5	1.10	0.429	0.946	31.7	89.1
0.6	1.32	0.515	1.135	29.7	85.5
0.7	1.54	0.600	1.323	28.4	83.1
0.8	1.76	0.686	1.512	27.3	81.1
0.9	1.98	0.772	1.702	26.5	79.7
1.0	2.20	0.858	1.892	25.9	78.6
1.1	2.43	0.944	2.081	25.4	77.7
1.2	2.65	1.030	2.271	25.0	77.0
1.3	2.87	1.115	2.458	24.6	76.3
1.4	3.09	1.201	2.648	24.3	75.7

FRESH AIRFLOW				CURVE 2	
TOTAL		CABIN		T FL	
(kg/s)	(lb/s)	(kg/s)	(lb/s)	(°C)	(°F)
1.5	3.31	1.287	2.837	24.0	75.2

NOTE : Data for stabilized conditions see 5-7-0.

C. Preconditioned Airflow Requirements.

FRESH AIRFLOW				CURVE 3	
TOTAL		CABIN		T FL	
(kg/s)	(lb/s)	(kg/s)	(lb/s)	(°C)	(°F)
0.5	1.10	0.429	0.946	36.0	96.8
0.6	1.32	0.515	1.135	33.3	91.9
0.7	1.54	0.600	1.323	31.4	88.5
0.8	1.76	0.686	1.512	29.9	85.8
0.9	1.98	0.772	1.702	28.8	83.8
1.0	2.20	0.858	1.892	27.9	82.2
1.1	2.43	0.944	2.081	27.2	81.0
1.2	2.65	1.030	2.271	26.6	79.9
1.3	2.87	1.115	2.458	26.1	79.0
1.4	3.09	1.201	2.648	25.7	78.3
1.5	3.31	1.287	2.837	25.3	77.5

NOTE : Data for stabilized conditions see 5-7-0.

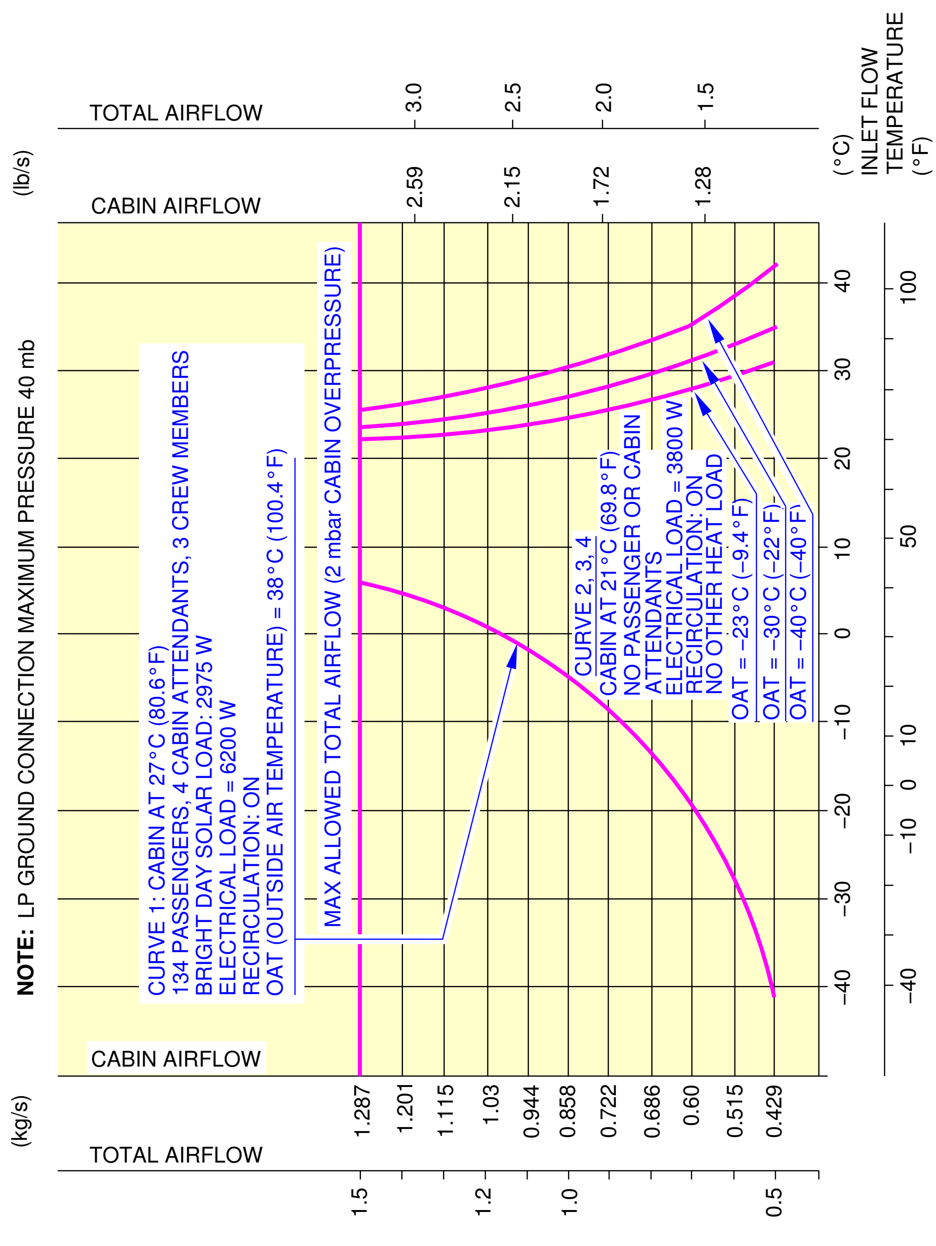
D. Preconditioned Airflow Requirements.

FRESH AIRFLOW				CURVE 4	
TOTAL		CABIN		T FL	
(kg/s)	(lb/s)	(kg/s)	(lb/s)	(°C)	(°F)
0.5	1.10	0.429	0.946	42.2	108.0
0.6	1.32	0.515	1.135	38.4	101.1
0.7	1.54	0.600	1.323	35.7	96.3
0.8	1.76	0.686	1.512	33.7	92.7
0.9	1.98	0.772	1.702	32.1	89.8
1.0	2.20	0.858	1.892	30.9	87.6
1.1	2.43	0.944	2.081	29.9	85.8
1.2	2.65	1.030	2.271	29.0	84.2
1.3	2.87	1.115	2.458	28.3	82.9
1.4	3.09	1.201	2.648	27.7	81.9

FRESH AIRFLOW				CURVE 4	
TOTAL		CABIN		T FL	
(kg/s)	(lb/s)	(kg/s)	(lb/s)	(°C)	(°F)
1.5	3.31	1.287	2.837	27.2	81.0

NOTE : Data for stabilized conditions see 5-7-0.

****ON A/C A319-100**



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Preconditioned Airflow Requirements
FIGURE-5-7-0-991-002-A01

5-8-0 Ground Towing Requirements

****ON A/C A319-100**

Ground Towing Requirements

1. General

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 chapter 9 of the Aircraft Maintenance Manual.
Status on towbarless towing equipment qualification can be found in SIL 09-002.
It is possible to tow or push the aircraft, at maximum ramp weight with engines at zero or up to idle thrust, using a tow bar attached to the nose gear leg (refer to AMM chap 9 for conditions and limitations).
One tow bar fitting is installed at the front of the leg.
The main landing gears have attachment points for towing or debogging (for details, refer to chapter 07 of the Aircraft Recovery Manual).

A. The first part of this section shows the chart to determine the draw bar pull and tow tractor mass requirements as 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.

B. The second part of this section supplies guidelines for the tow bar.

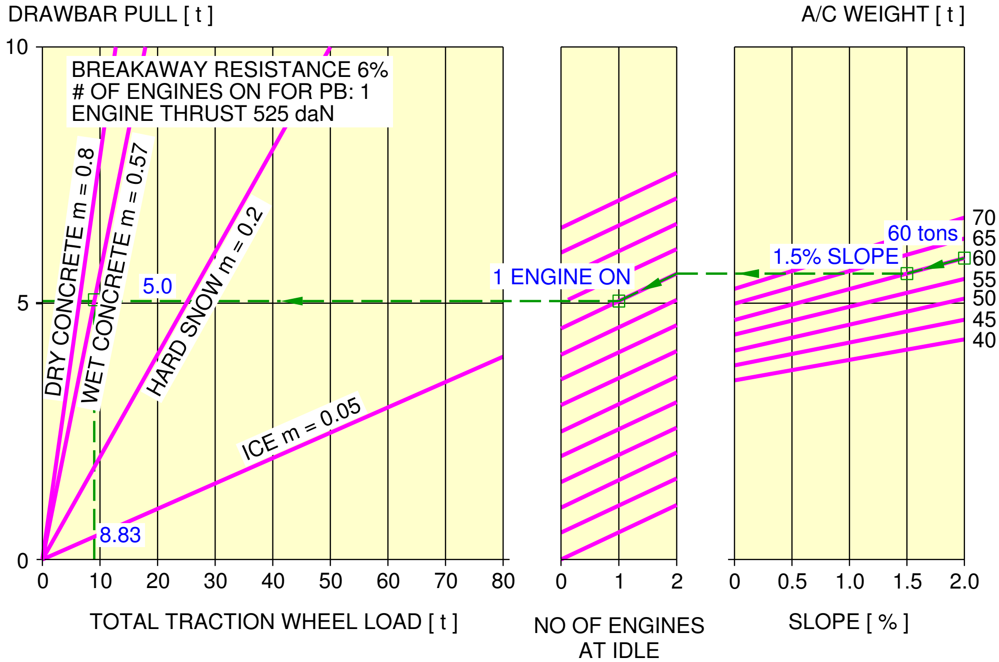
   NOTE : Information on aircraft towing procedures and corresponding aircraft limitations are given in chapter 9 on the Aircraft Maintenance Manual.

   The aircraft tow bar shall respect the following norms:
   - SAE AS1614 C, "Main Line Aircraft Tow Bar Attach Fitting Interface".
   - SAE ARP1915 D, "Aircraft Tow Bar".
   - ISO 8267-1, "Aircraft - Tow bar attachment fitting - Interface requirements - Part 1: Main line aircraft".
   - ISO 9667, "Aircraft ground support equipment - Tow bars".
   - IATA Airport Handling Manual AHM 958, "Functional Specification for an Aircraft Tow bar".

   A conventional type tow bar 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 9425 daN (21188 lbf).
   - A torsion pin calibrated at 826 m.daN (7311 lbf.in).

   The towing head is designed according to SAE AS1614 C (Aircraft Weight Category I).

**ON A/C A319-100



EXAMPLE HOW TO DETERMINE THE MASS REQUIREMENT TO TOW A A319 AT 60 t, 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 (60 t)
- 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 NUMBER 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 (5.0 t)
- SEARCH THE INTERSECTION WITH THE "WET CONCRETE" LINE. THE OBTAINED X–COORDINATE IS THE RECOMMENDED MINIMUM TRACTOR WEIGHT (8.8 t)

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Ground Towing Requirements
FIGURE-5-8-0-991-001-B01

5-9-0 De-Icing and External Cleaning

****ON A/C A319-100**

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 (42.65 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^2	ft^2	m^2	ft^2	m^2	ft^2	m^2	ft^2
A319	99.7	1073.16	1.8	19.38	27	290.63	43	462.85
A319 Sharklet	99.7	1073.16	9.6	103.33	27	290.63	43	462.85

AIRCRAFT TYPE	Fuselage Top Surface (Top Third - 120° Arc)		Nacelle and Pylon (Top Third - 120° Arc) (All Engines)		Total De-Iced Area	
	m^2	ft^2	m^2	ft^2	m^2	ft^2
A319	122	1313.20	23.6	254.03	317	3412
A319 Sharklet	122	1313.20	23.6	254.03	325	3498

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)		HTP Top Surface (Both Sides)		HTP Lower Surface (Both Sides)	
	m^2	ft^2	m^2	ft^2	m^2	ft^2	m^2	ft^2	m^2	ft^2
A319	99.7	1073.16	103.4	1112.99	1.8	19.38	27	290.63	27	290.63
A319 Sharklet	99.7	1073.16	103.4	1112.99	9.6	103.33	27	290.63	27	290.63

AIRCRAFT TYPE	VTP (Both Sides)		Fuselage and Belly Fairing		Nacelle and Pylon (All Engines)		Total Cleaned Area	
	m^2	ft^2	m^2	ft^2	m^2	ft^2	m^2	ft^2
A319	43	462.85	373.6	4021.40	73.2	787.92	750	8073

AIRCRAFT TYPE	VTP (Both Sides)		Fuselage and Belly Fairing		Nacelle and Pylon (All Engines)		Total Cleaned Area	
	m^2	ft^2	m^2	ft^2	m^2	ft^2	m^2	ft^2
A319 Sharklet	43	462.85	373.6	4021.40	73.2	787.92	758	8159

NOTE : Dimensions are approximate

OPERATING CONDITIONS

6-1-0 Engine Exhaust Velocities and Temperatures

**ON A/C A319-100

Engine Exhaust Velocities and Temperatures

1. General
   This section shows the estimated engine exhaust efflux velocities and temperatures contours for Ground Idle, Breakaway, Maximum Takeoff conditions.

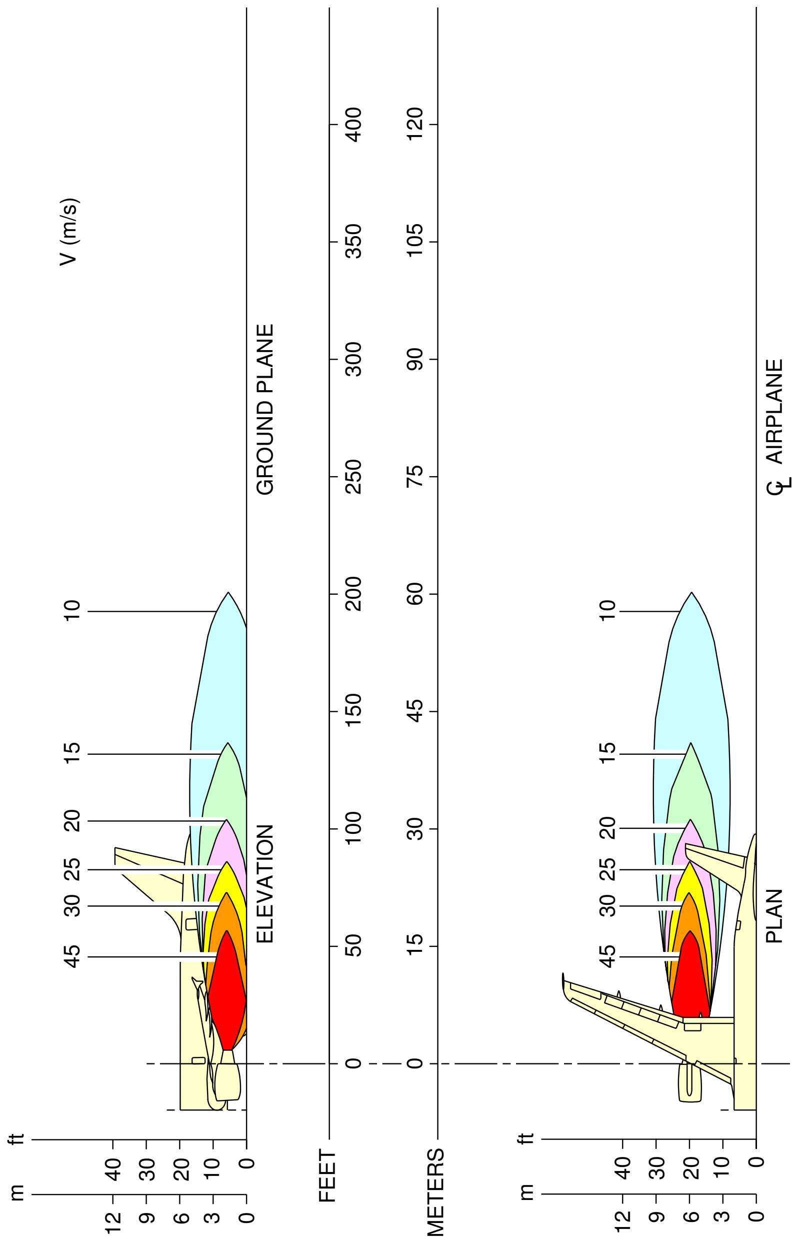
6-1-1 Engine Exhaust Velocities Contours - Ground Idle Power

****ON A/C A319-100**

Engine Exhaust Velocities Contours - Ground Idle Power

1. This section gives engine exhaust velocities contours at ground idle power.

****ON A/C A319-100**



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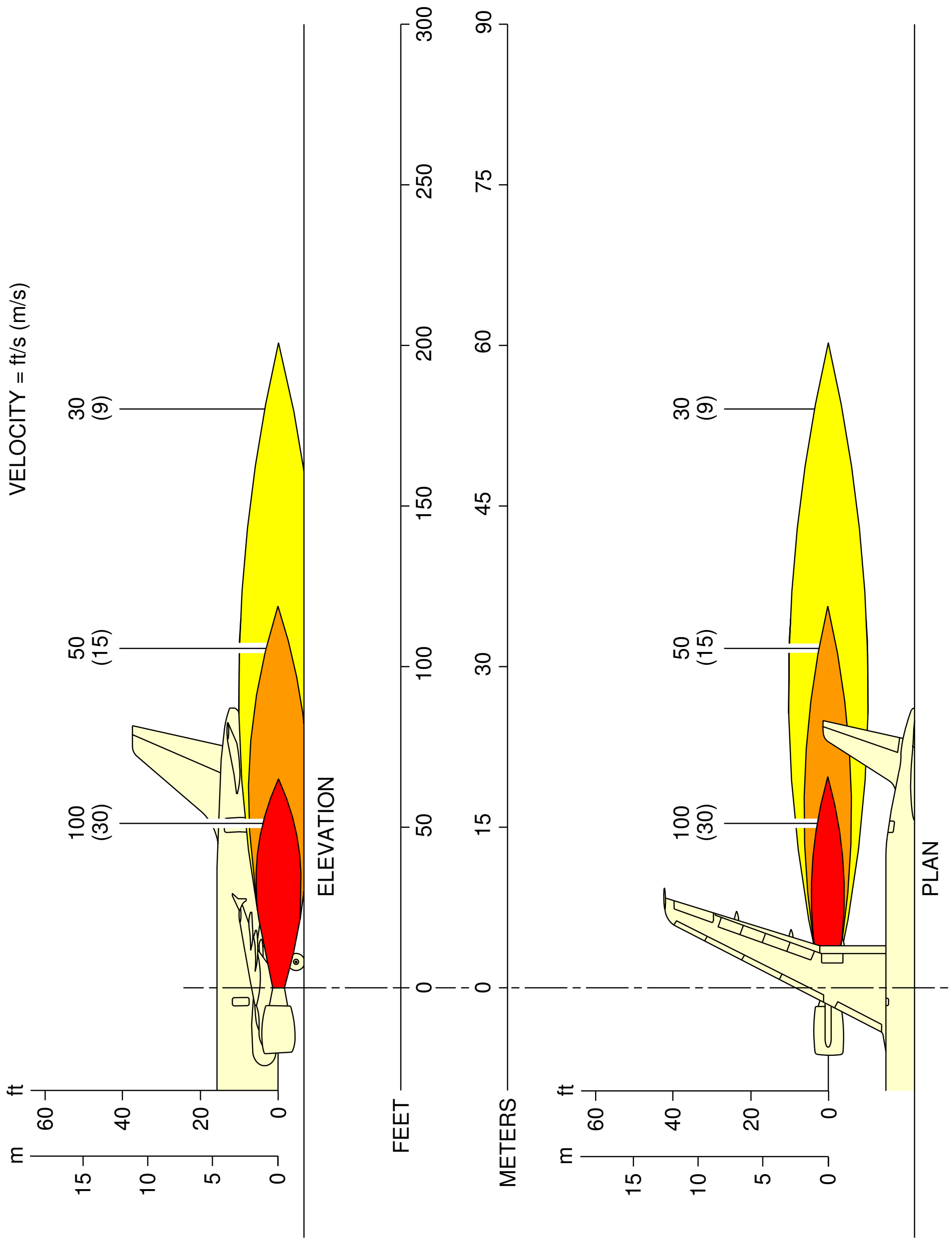
Engine Exhaust Velocities
Ground Idle Power – CFM56 series engine
FIGURE-6-1-1-991-003-A01

****ON A/C A319-100**



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Engine Exhaust Velocities
Ground Idle Power – IAE V2500 series engine
FIGURE-6-1-1-991-004-A01

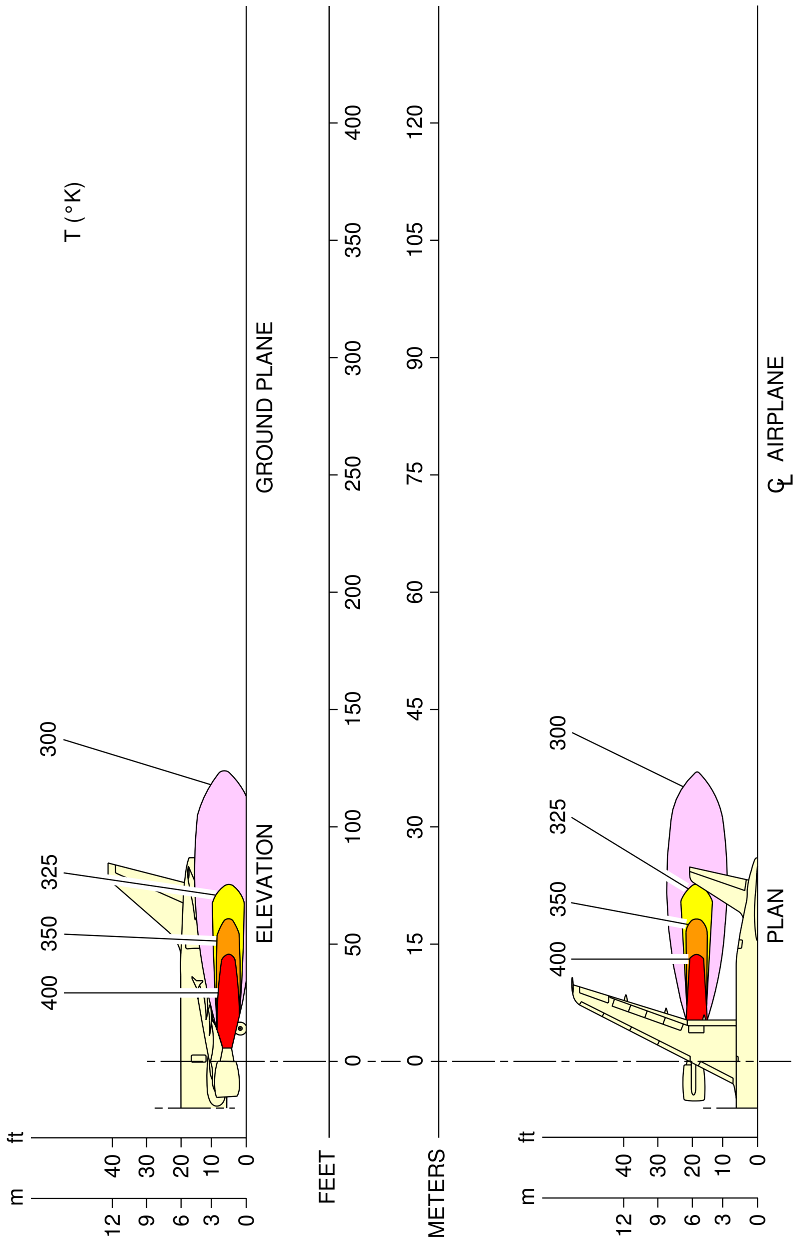
6-1-2 Engine Exhaust Temperatures Contours - Ground Idle Power

****ON A/C A319-100**

Engine Exhaust Temperatures Contours - Ground Idle Power

1. This section gives engine exhaust temperatures contours at ground idle power.

**ON A/C A319-100



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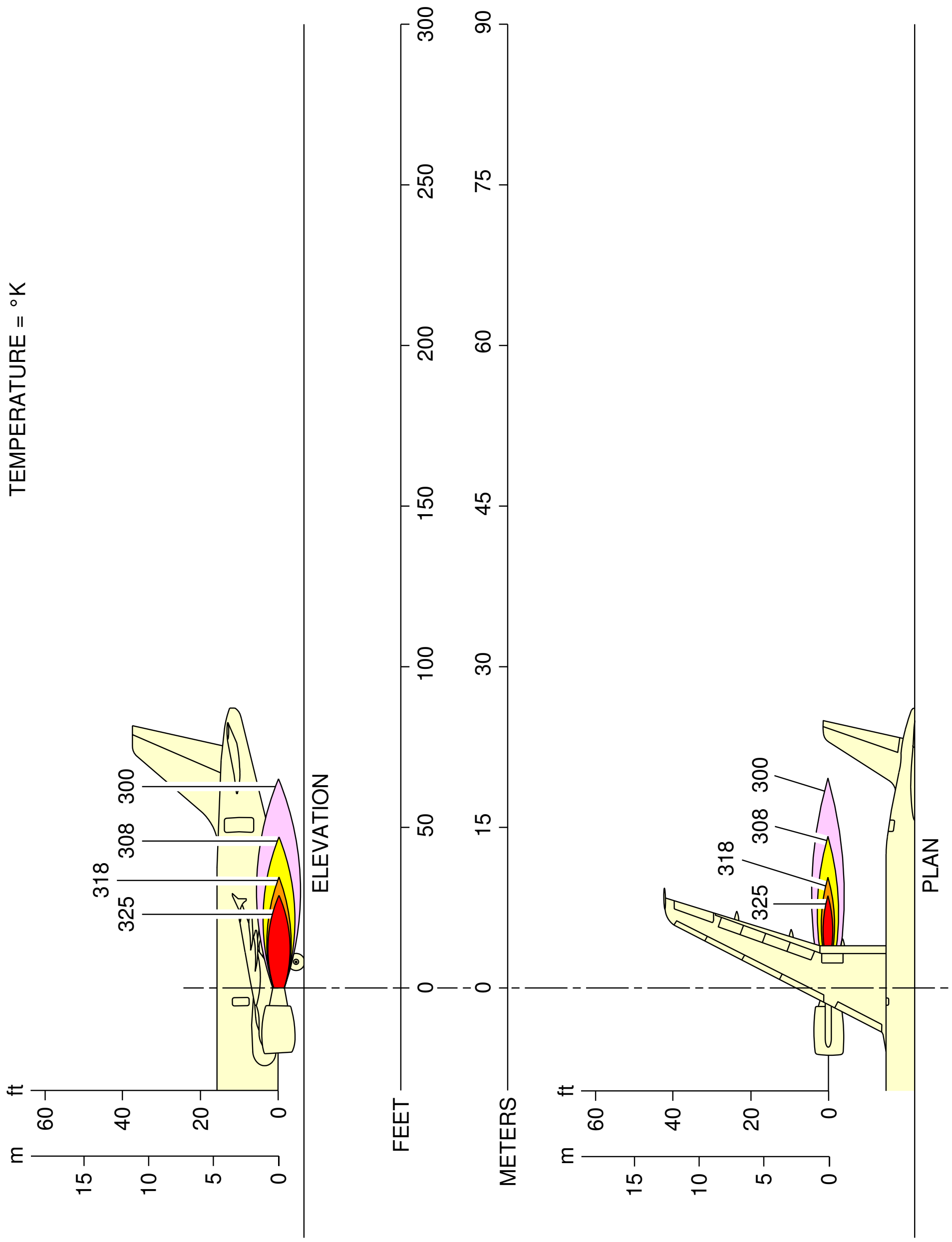
Engine Exhaust Temperatures
Ground Idle Power – CFM56 series engine
FIGURE-6-1-2-991-003-A01

**ON A/C A319-100



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Engine Exhaust Temperatures
Ground Idle Power – IAE V2500 series engine
FIGURE-6-1-2-991-004-A01

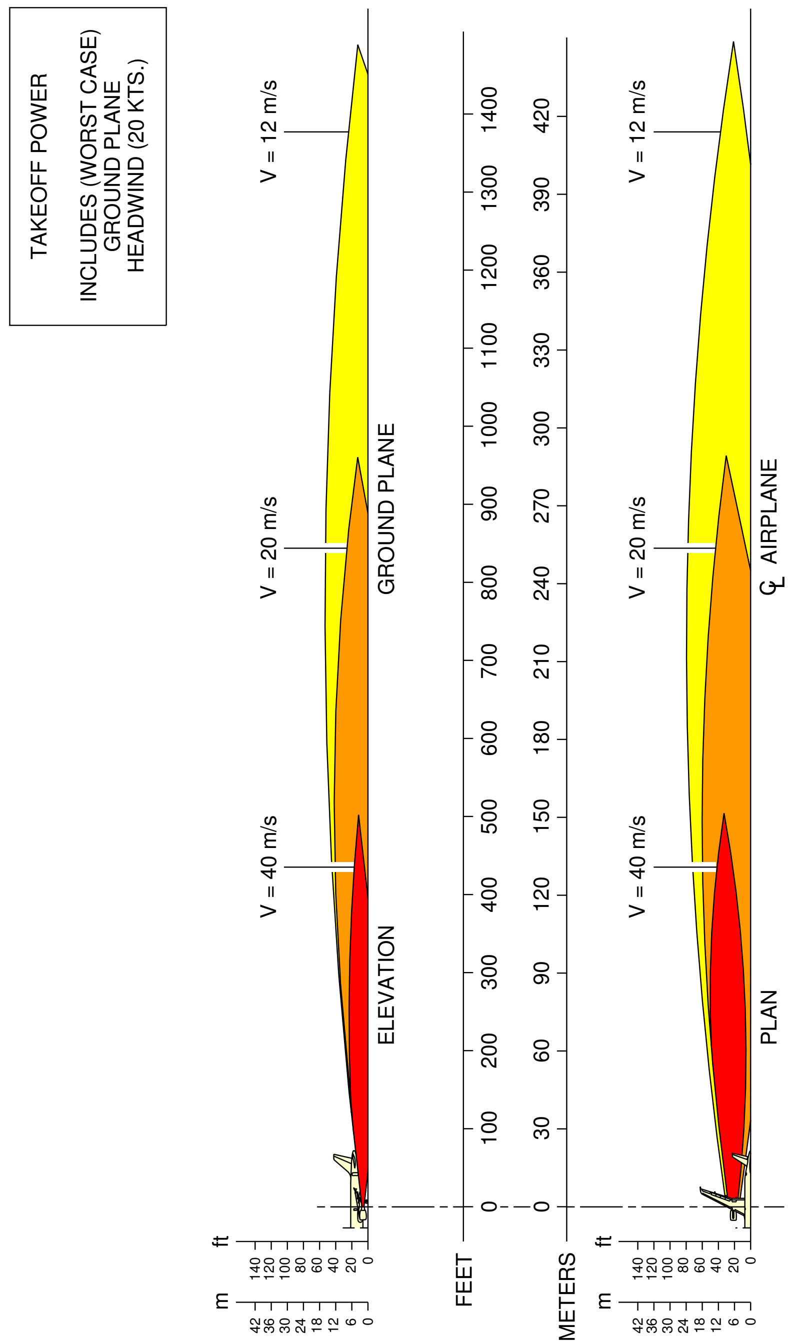
6-1-5 Engine Exhaust Velocities Contours - Takeoff Power

****ON A/C A319-100**

Engine Exhaust Velocities Contours - Takeoff Power

1. This section gives engine exhaust velocities contours at takeoff power.

**ON A/C A319-100



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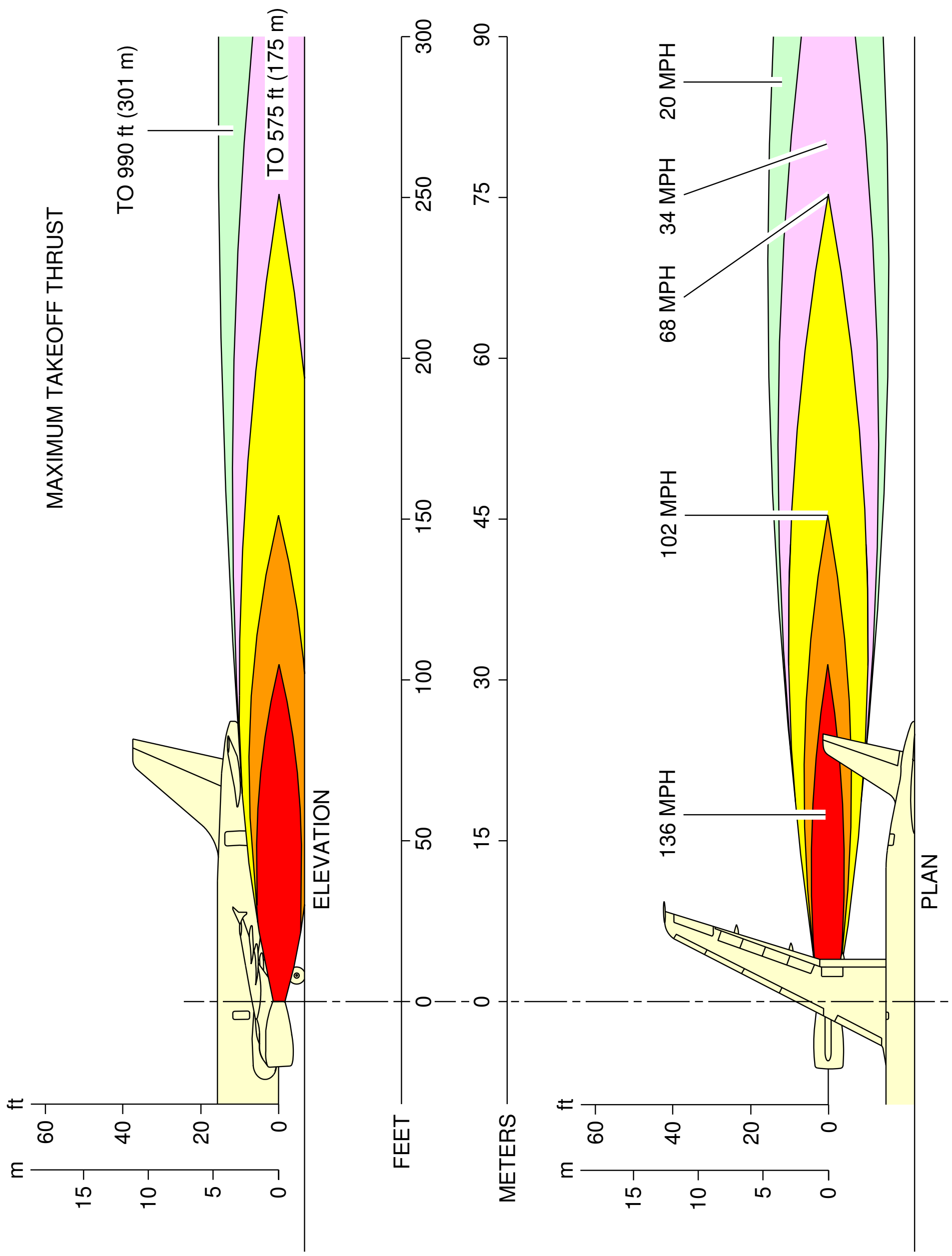
Engine Exhaust Velocities
Takeoff Power – CFM56 series engine
FIGURE-6-1-5-991-003-A01

****ON A/C A319-100**



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Engine Exhaust Velocities
Takeoff Power – IAE V2500 series engine
FIGURE-6-1-5-991-004-A01

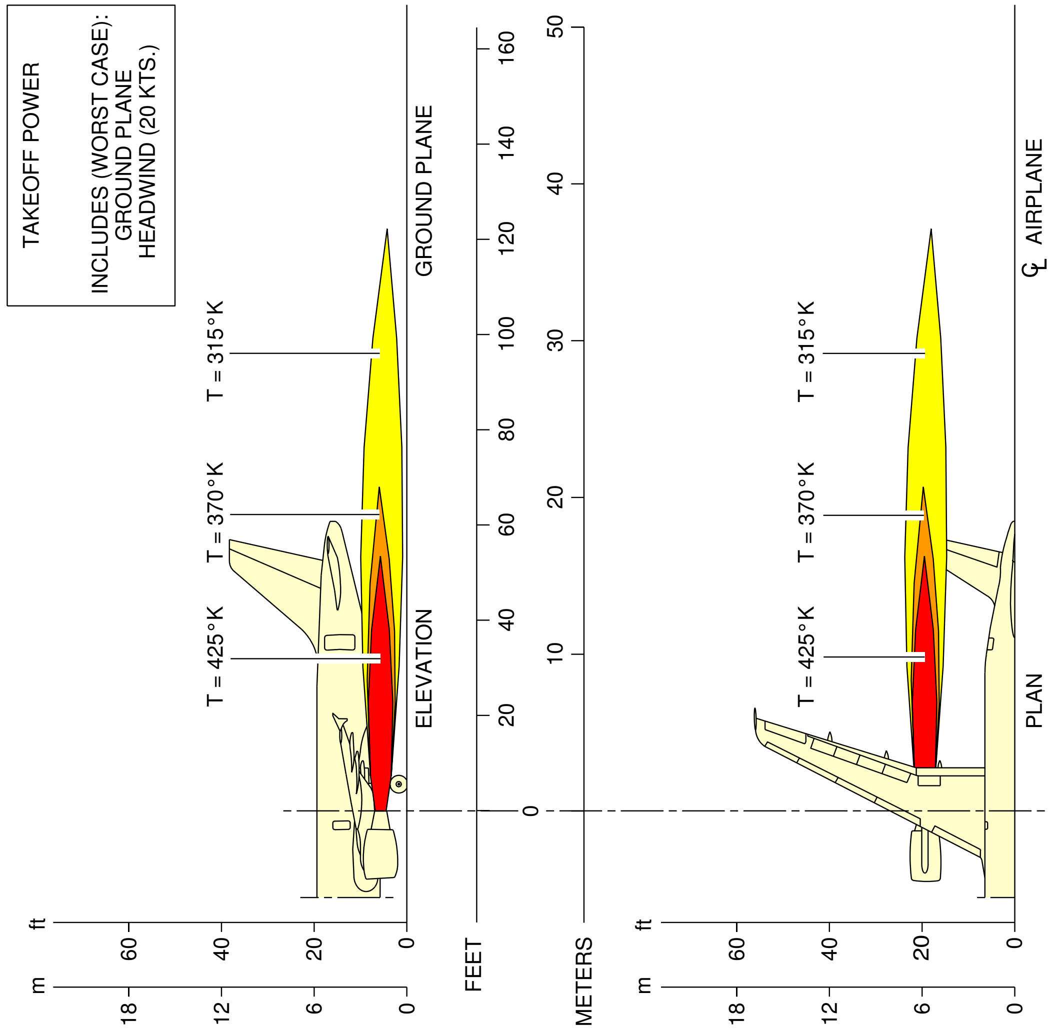
6-1-6 Engine Exhaust Temperatures Contours - Takeoff Power

****ON A/C A319-100**

Engine Exhaust Temperatures Contours - Takeoff Power

1. This section gives engine exhaust temperatures contours at takeoff power.

****ON A/C A319-100**



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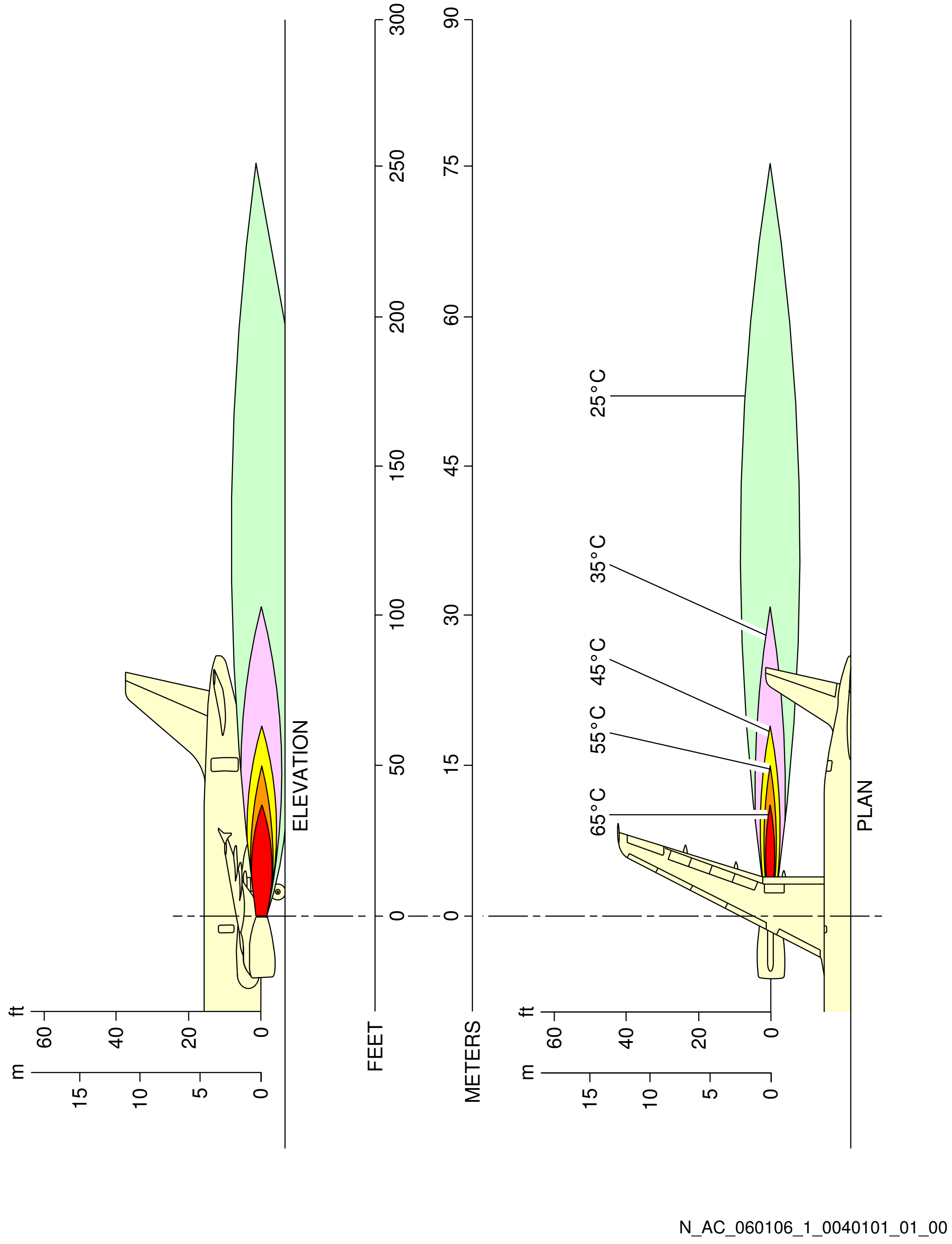
Engine Exhaust Temperatures
Takeoff Power – CFM56 series engine
FIGURE-6-1-6-991-003-A01

**ON A/C A319-100



Engine Exhaust Temperatures
Takeoff Power – IAE V2500 series engine
FIGURE-6-1-6-991-004-A01

6-2-0 Airport and Community Noise

****ON A/C A319-100**

Airport and Community Noise

1. Airport and Community Noise Data

   This section gives data concerning engine maintenance run-up noise to permit evaluation of possible attenuation requirements.

6-2-1 Noise Data

**ON A/C A319-100

Noise Data

1. Noise Data for CFM56-5A series engine

   A. Description of test conditions:

      The arc of circle (radius = 60 m (196.85 ft)), with microphones 1.2 m (3.94 ft) high, is centered on the position of the noise reference point.
      A.P.U.: off; E.C.S.: Packs off.

   B. Engine parameters: 2 engines running

   C. Meteorological data:

      The meteorological parameters measured 1.6 m (5.25 ft) from the ground on the day of test were as follows:
      - Temperature: 3°C (37°F)
      - Relative humidity: 66%
      - Atmospheric pressure: 1016 hPa
      - Wind speed: Negligible
      - No rain

2. Noise Data for CFM56-5B series engine

   A. Description of test conditions:

      The arc of circle (radius = 60 m (196.85 ft)), with microphones 1.2 m (3.94 ft) high, is centered on the position of the noise reference point.
      A.P.U.: off; E.C.S.: Packs off.

   B. Engine parameters: 2 engines running

   C. Meteorological data:

      The meteorological parameters measured 1.6 m (5.25 ft) from the ground on the day of test were as follows:
      - Temperature: 22°C (72°F)
      - Relative humidity: 42%
      - Atmospheric pressure: 1003 hPa
      - Wind speed: Negligible
      - No rain

3. Noise Data for IAE V2500 series engine

   A. Description of test conditions:

The arc of circle (radius = 60 m (196.85 ft)), with microphones 1.2 m (3.94 ft) high, is centered on the position of the noise reference point.
A.P.U.: off; E.C.S.: Packs off.

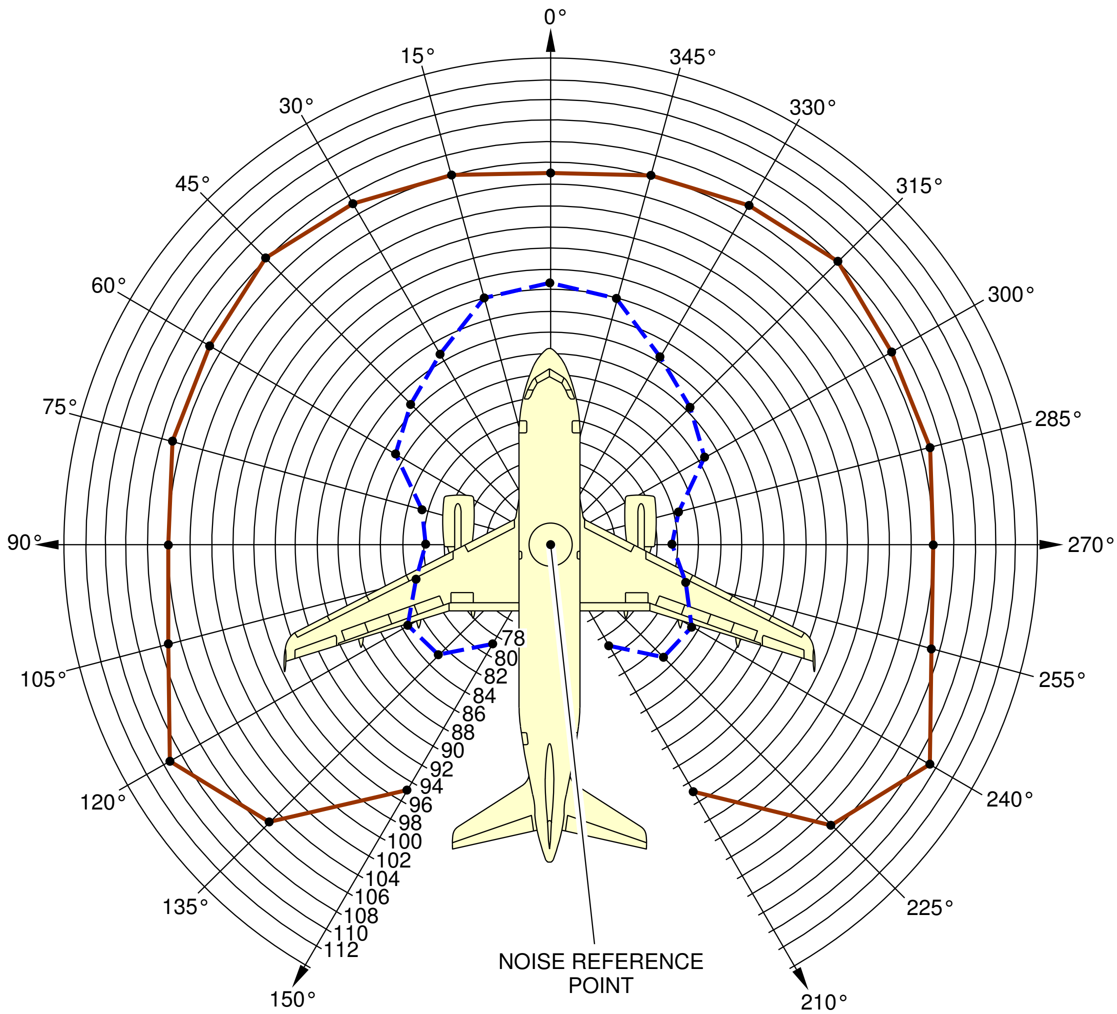
B. Engine parameters: 2 engines running

C. Meteorological data:

The meteorological parameters measured 1.6 m (5.25 ft) from the ground on the day of test were as follows:
- Temperature: 27 °C (81 °F)
- Relative humidity: 40%
- Atmospheric pressure: 1000 hPa
- Wind speed: Negligible
- No rain

****ON A/C A319-100**

	GROUND IDLE	MAX THRUST POSSIBLE ON BRAKES
N1	20.8%	90%
CURVE		



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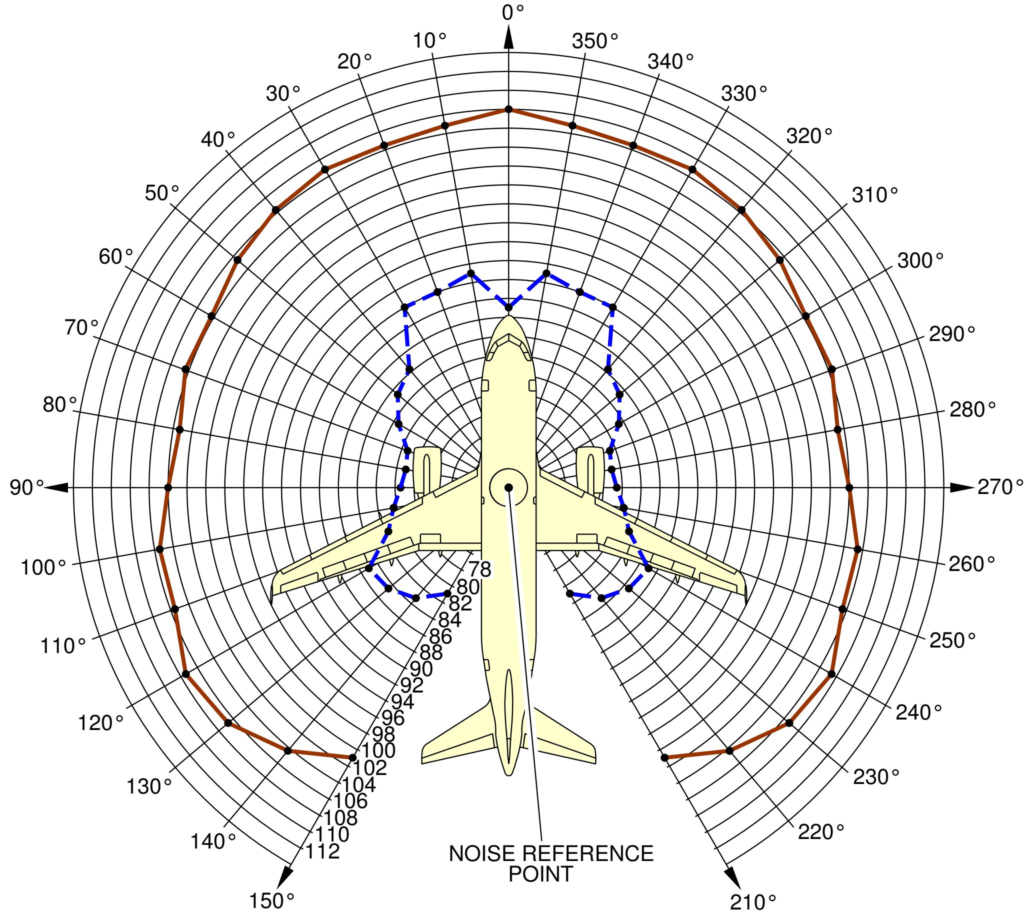
Airport and Community Noise
CFM56-5A series engine
FIGURE-6-2-1-991-004-A01

**ON A/C A319-100

	GROUND IDLE	MAX THRUST POSSIBLE ON BRAKES
N1	18.9%	87%
CURVE	dashed blue line	solid brown line



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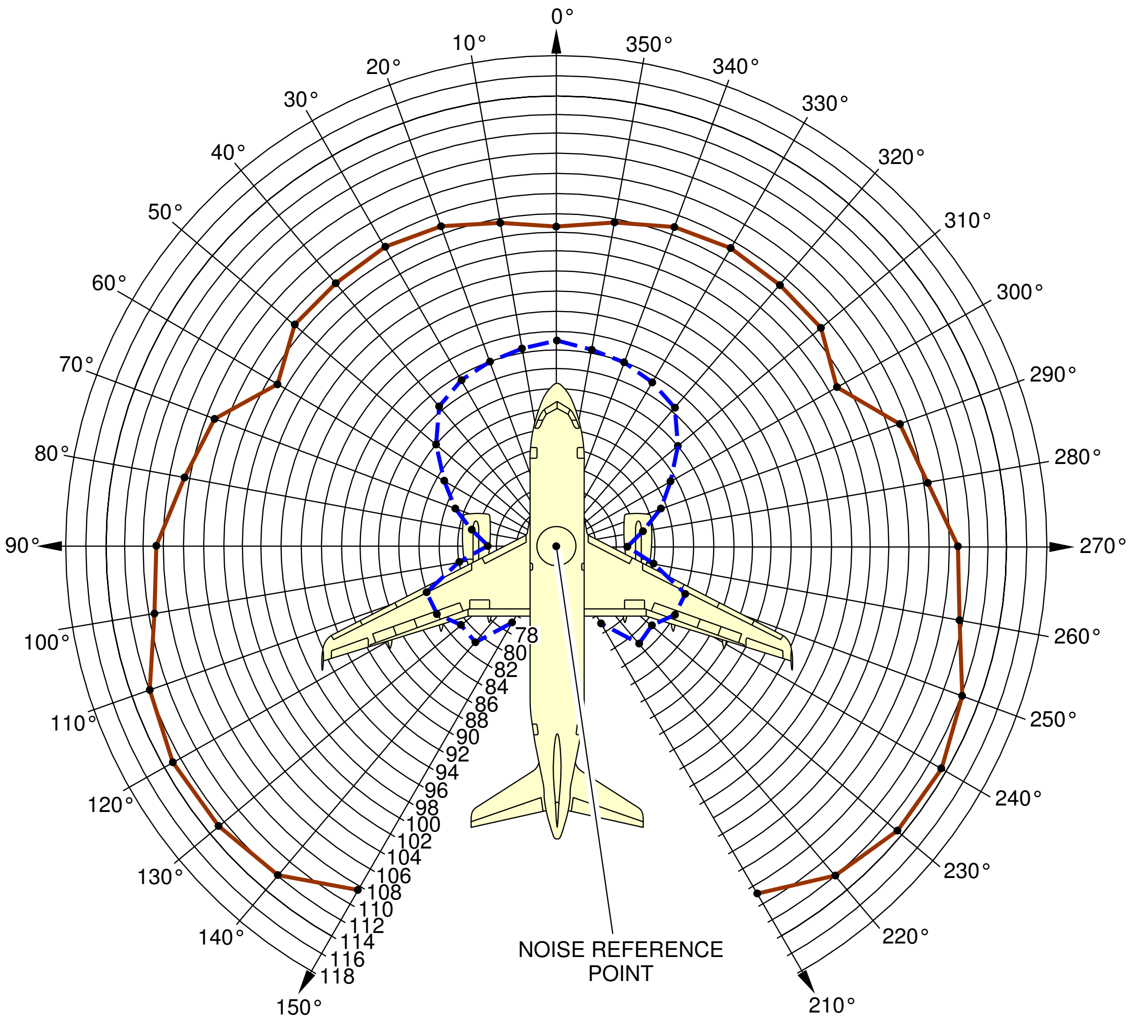
Airport and Community Noise
CFM56-5B series engine
FIGURE-6-2-1-991-005-A01

**ON A/C A319-100

	GROUND IDLE	MAX THRUST POSSIBLE ON BRAKES
E.P.R	1.012	1.564
N1	25.2%	94.4%
CURVE		



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Airport and Community Noise
IAE V2500 series engine
FIGURE-6-2-1-991-006-A01

6-3-0 Danger Areas of Engines

****ON A/C A319-100**

Danger Areas of Engines

1. Danger Areas of the Engines.

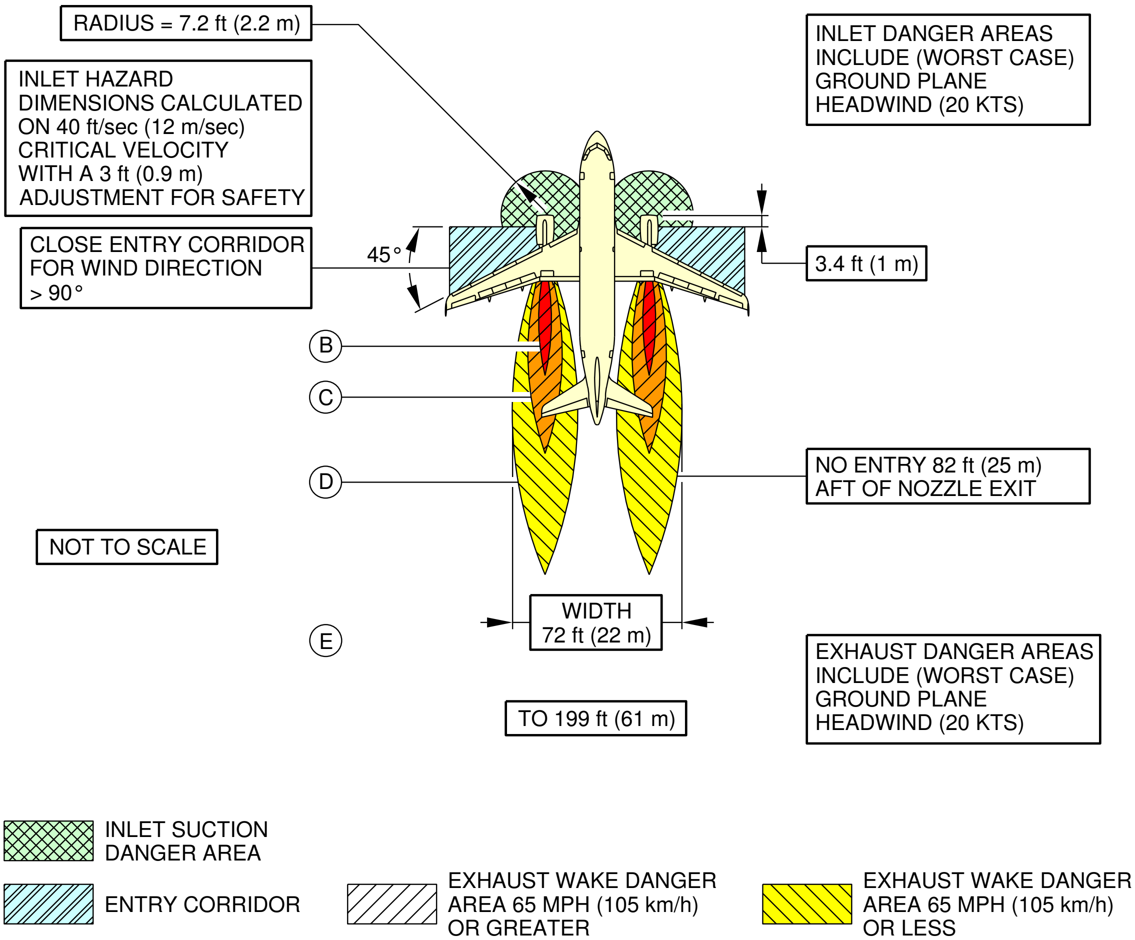
6-3-1 Ground Idle Power

**ON A/C A319-100

Ground Idle Power

1. This section gives danger areas of the engines at ground idle power conditions.

**ON A/C A319-100



AREA	APPROX. WIND VELOCITY MPH (km/h)	POSSIBLE EFFECTS WITHIN DANGER ZONE BASED ON "RADIOLOGICAL DEFENSE" VOL. II, ARMED FORCES SPECIAL WEAPONS PROJECT, NOV. 1951
A	210–145 (338–233)	A MAN STANDING WILL BE PICKED UP AND THROWN; AIRCRAFT WILL BE COMPLETELY DESTROYED OR DAMAGED BEYOND ECONOMICAL REPAIR: COMPLETE DESTRUCTION OF FRAME OR BRICK HOMES.
B	145–105 (233–169)	A MAN STANDING FACE–ON WILL BE PICKED UP AND THROWN; DAMAGE NEARING TOTAL DESTRUCTION TO LIGHT INDUSTRIAL BUILDINGS OR RIGID STEEL FRAMING: CORRUGATED STEEL STRUCTURES LESS SEVERELY.
C	105–65 (169–105)	MODERATE DAMAGE TO LIGHT INDUSTRIAL BUILDINGS AND TRANSPORT–TYPE AIRCRAFT.
D	65–20 (105–32)	LIGHT TO MODERATE DAMAGE TO TRANSPORT–TYPE AIRCRAFT
E	< 20 (32)	BEYOND DANGER AREA

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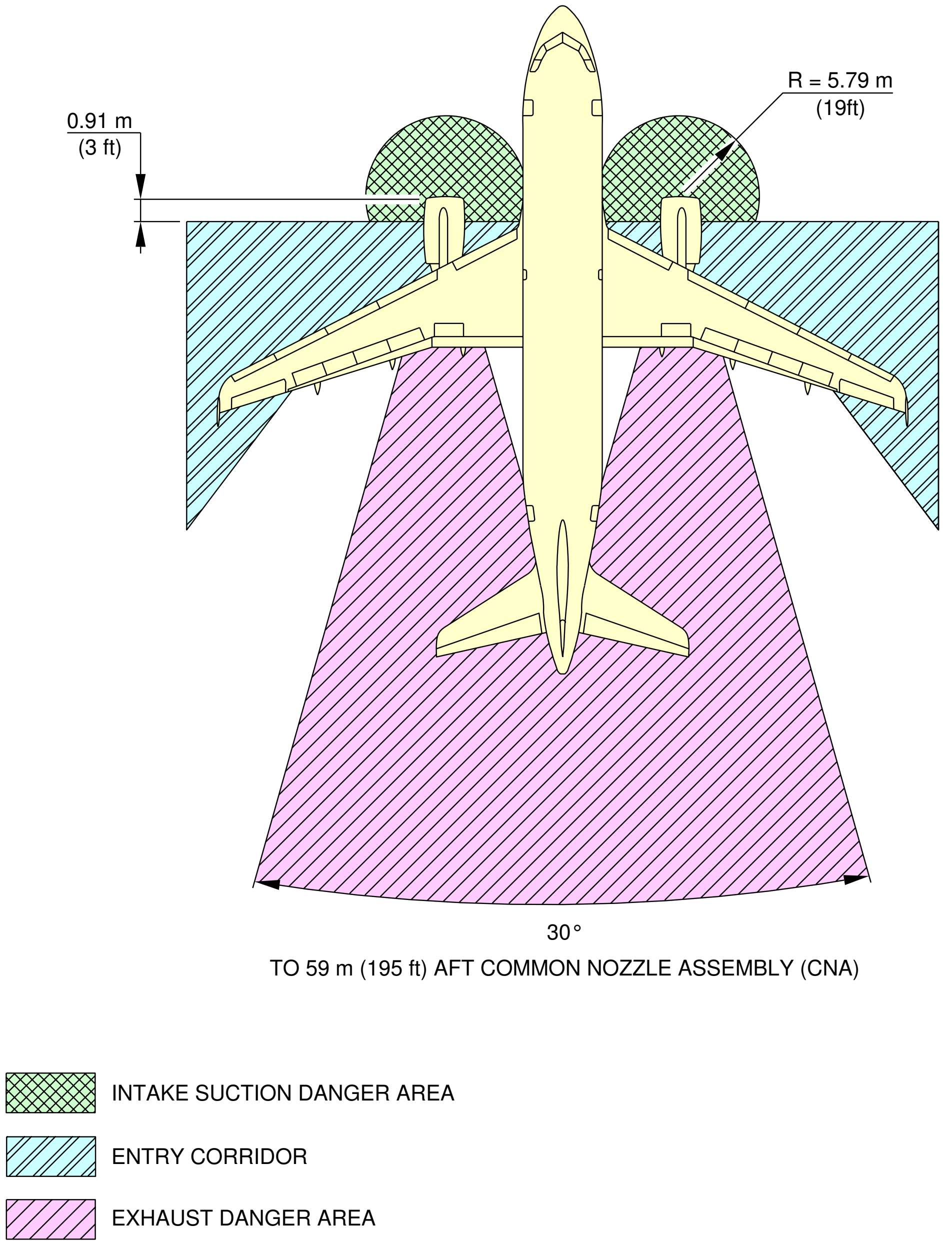
Danger Areas of Engines
CFM56 series engine
FIGURE-6-3-1-991-003-A01

**ON A/C A319-100



Danger Areas of Engines
IAE V2500 series engine
FIGURE-6-3-1-991-004-A01

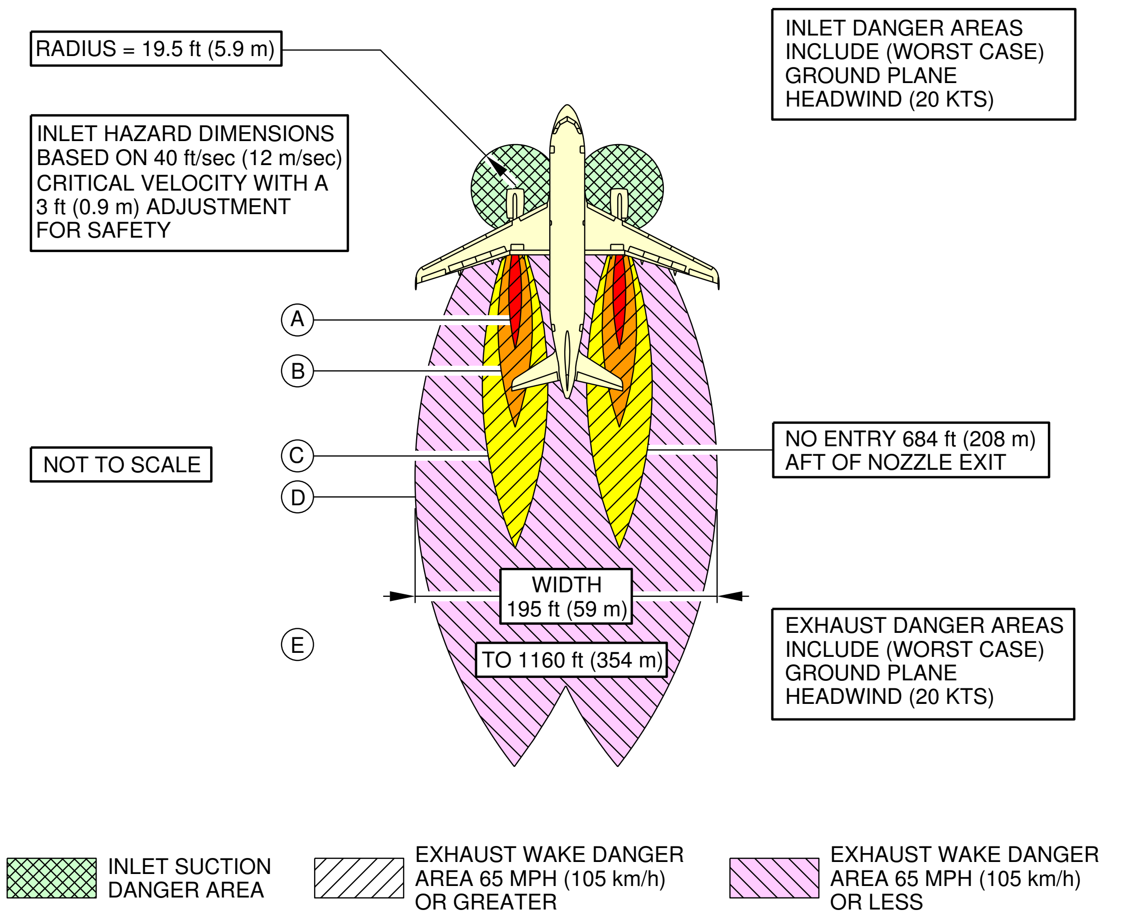
6-3-2 Takeoff Power

****ON A/C A319-100**

Takeoff Power

1. This section gives danger areas of the engines at max takeoff conditions.

**ON A/C A319-100



AREA	APPROX. WIND VELOCITY MPH (km/h)	POSSIBLE EFFECTS WITHIN DANGER ZONE BASED ON "RADIOLOGICAL DEFENSE" VOL. II, ARMED FORCES SPECIAL WEAPONS PROJECT, NOV. 1951
A	210–145 (338–233)	A MAN STANDING WILL BE PICKED UP AND THROWN; AIRCRAFT WILL BE COMPLETELY DESTROYED OR DAMAGED BEYOND ECONOMICAL REPAIR: COMPLETE DESTRUCTION OF FRAME OR BRICK HOMES.
B	145–105 (233–169)	A MAN STANDING FACE–ON WILL BE PICKED UP AND THROWN; DAMAGE NEARING TOTAL DESTRUCTION TO LIGHT INDUSTRIAL BUILDINGS OR RIGID STEEL FRAMING: CORRUGATED STEEL STRUCTURES LESS SEVERELY.
C	105–65 (169–105)	MODERATE DAMAGE TO LIGHT INDUSTRIAL BUILDINGS AND TRANSPORT–TYPE AIRCRAFT.
D	65–20 (105–32)	LIGHT TO MODERATE DAMAGE TO TRANSPORT–TYPE AIRCRAFT
E	< 20 (32)	BEYOND DANGER AREA

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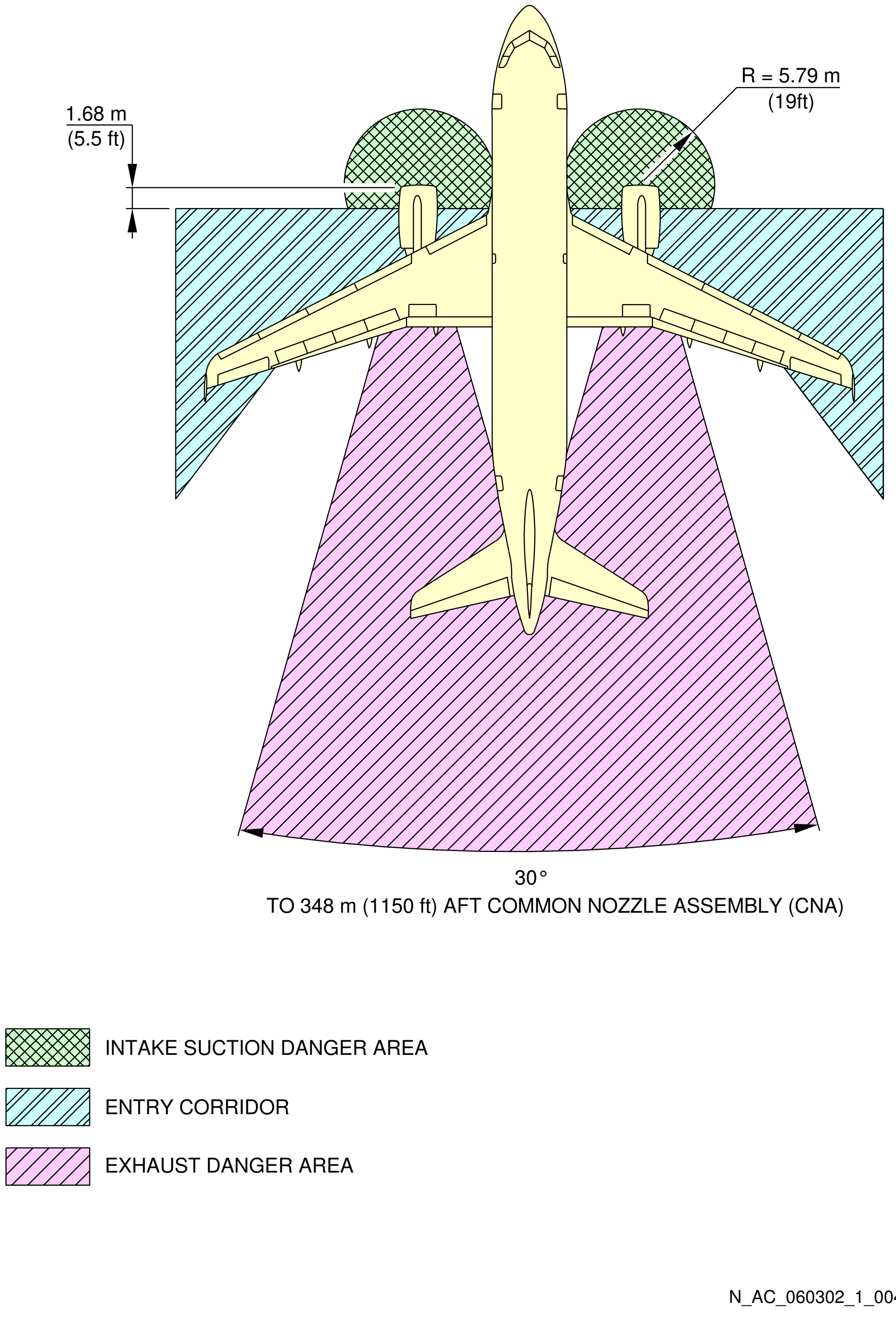
Danger Areas of Engines
CFM56 series engine
FIGURE-6-3-2-991-003-A01

**ON A/C A319-100



Danger Areas of Engines
IAE V2500 series engine
FIGURE-6-3-2-991-004-A01

6-4-0 APU Exhaust Velocities and Temperatures

****ON A/C A319-100**

APU Exhaust Velocities and Temperatures

1. APU Exhaust Velocities and Temperatures.

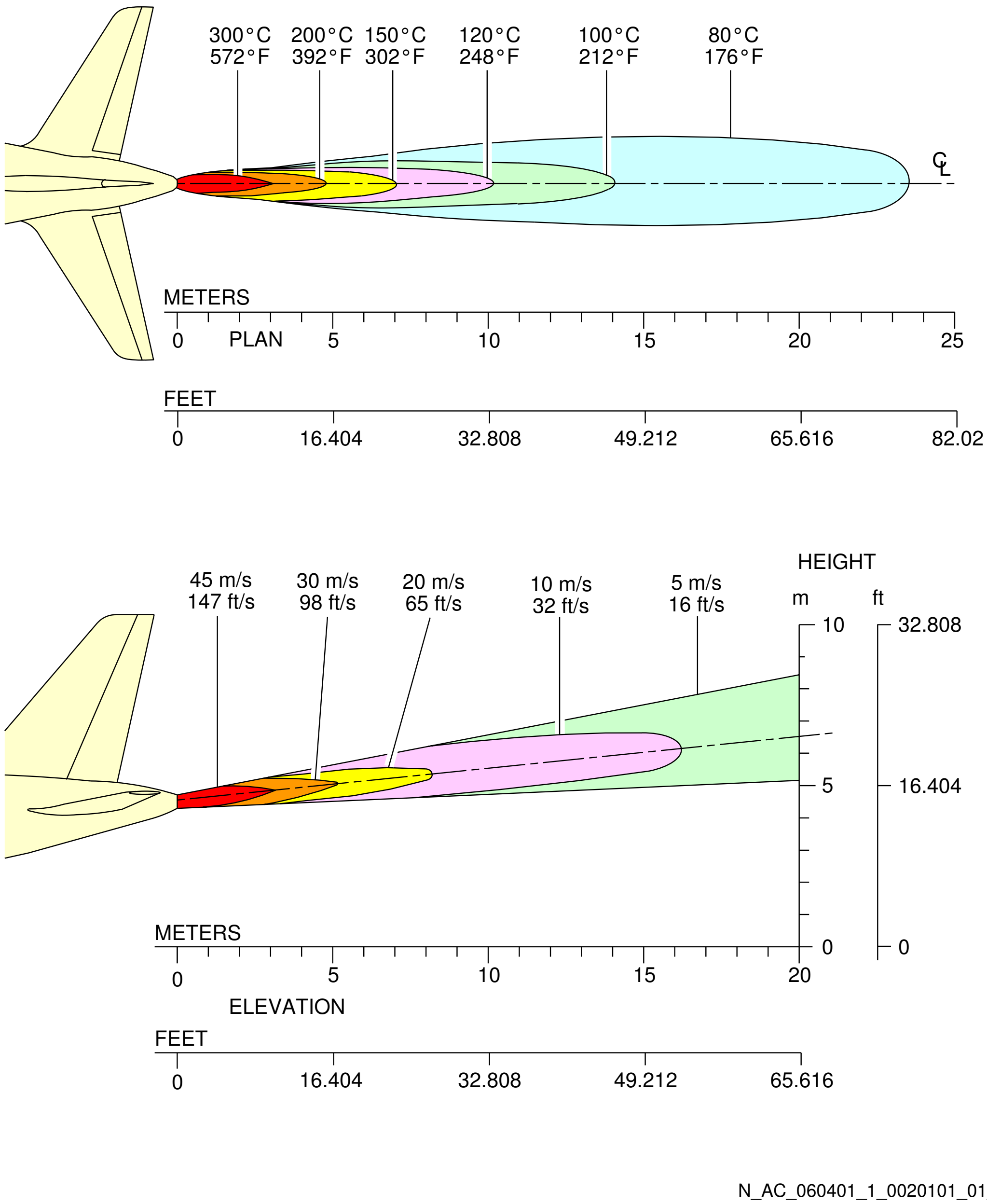
6-4-1 APU

ON A/C A319-100

APU - APIC & GARRETT

1. This section gives APU exhaust velocities and temperatures.

**ON A/C A319-100



Exhaust Velocities and Temperatures
APU – APIC & GARRETT
FIGURE-6-4-1-991-002-A01

PAVEMENT DATA

7-1-0 General Information

****ON A/C A319-100**

General Information

1. General Information

This brief description of the pavement charts that follow will help in their use for airport planning.

To aid in the interpolation between the discrete values shown, each airplane configuration is shown with a minimum range of five loads on the main landing gear.

All curves on the charts represent data at a constant specified tire pressure with:
- The airplane loaded to the maximum ramp weight.
- The Center of Gravity (CG) at its maximum permissible aft position.

Pavement requirements for commercial airplanes are derived from the static analysis of loads imposed on the main landing gear struts.

The A/C codes are used for configuration management of chapter 07 only. There is no relation between these A/C codes and the ICAO A/C codes used for determining the airplane wing span and outer main gear wheel span as described in ICAO-Annex 14 Volume 1, Aerodrome Design and Operation Chapter 1.4, Table 1-1.

Section 7-2-0 presents basic data on the landing gear footprint configuration, maximum ramp weights and tire sizes and pressures.

Section 7-3-0 shows maximum vertical and horizontal pavement loads for certain critical conditions at the tire-ground interfaces.

Section 7-4-1 contain charts to find these loads throughout the stability limits of the airplane at rest on the pavement.

These main landing gear loads are used as the point of entry to the pavement design charts which follow, interpolating load values where necessary.

Section 7-5-1 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 Aircraft Classification Number (ACN).

The procedure that follows is used to develop flexible pavement design curves such as shown in Section 7-5-1.

- With the scale for pavement thickness at the bottom and the scale for CBR at the top, an arbitrary line is drawn representing 10 000 coverages.
- Incremental values of the weight on the main landing gear are then plotted.
- Annual departure lines are drawn based on the load lines of the weight on the main landing gear that is shown on the graph.

Section 7-7-1 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.

The procedure that follows is used to develop rigid pavement design curves such as shown in Section 7-7-1.

- With the scale for pavement thickness on the left and the scale for allowable working stress on the right, an arbitrary load line is drawn. This represents the maximum weight to be shown for the main landing gear .
- All values of the subgrade modulus (k values) are then plotted.
- Additional load lines for the incremental values of weight on the main landing gear are drawn on the basis of the curve for k = 300 already shown on the graph.

All Load Classification Number (LCN) curves shown in Section 7-6-1 and Section 7-8-2 have been developed from a computer program based on data provided in International Civil Aviation Organisation (ICAO) document 7920-AN/865/2, Aerodrome Manual, Part 2, "Aerodrome Physical Characteristics", Second Edition, 1965.

The flexible pavement charts in Section 7-6-1 show LCN against equivalent single wheel load and equivalent single wheel load against pavement thickness.

The rigid pavement charts in Section 7-8-2 show LCN against equivalent single wheel load and equivalent single wheel load against radius of relative stiffness.

Section 7-9-0 gives ACN data prepared in accordance to the ACN/PCN system as referenced in ICAO Annex 14, "Aerodromes", Volume 1 Fourth Edition July 2004, incorporating Amendments 1 to 6.

The ACN/PCN system gives a standardized international airplane/pavement rating system replacing the various S, T, TT, LCN, AUW, ISWL, etc..., rating systems used throughout the world.

The ACN is the Aircraft Classification Number and PCN is the corresponding Pavement Classification Number.

An aircraft having an ACN equal to or less than 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 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 Limit	T – Technical
F – Flexible	B – Medium	X – To 1.5 Mpa (217 psi)	U – Using Aircraft
	C – Low	Y – To 1.0 Mpa (145 psi)	
	D – Ultra Low	Z – To 0.5 Mpa (73 psi)	

Section 7-9-1 shows the aircraft ACN values for flexible pavements.

The four subgrade categories are:
- A. High Strength CBR 15
- B. Medium Strength CBR 10
- C. Low Strength CBR 6
- D. Ultra Low Strength CBR 3

Section 7-9-2 shows the aircraft ACN values for rigid pavements.

The four subgrade categories are:
- A. High Strength Subgrade k = 150 MN/m^3 (550 pci)
- B. Medium Strength Subgrade k = 80 MN/m^3 (300 pci)
- C. Low Strength Subgrade k = 40 MN/m^3 (150 pci)
- D. Ultra Low Strength Subgrade k = 20 MN/m^3 (75 pci)

**ON A/C A319-100

MODEL	WV	AIRCRAFT CODE
A319–111	12	C
A319–112	12	C
A319–113	12	C
A319–114	12	C
A319–131	12	C
A319–132	12	C
A319–115	12	D
A319–133	12	D
A319–133	00	E
A319–115	00	E
A319–111	00	F
A319–112	00	F
A319–113	00	F
A319–114	00	F
A319–131	00	F
A319–132	00	F
A319–111	08	G
A319–112	08	G
A319–113	08	G
A319–114	08	G
A319–131	08	G
A319–132	08	G
A319–115	08	H
A319–133	08	H
A319–111	11	I
A319–112	11	I
A319–113	11	I
A319–114	11	I
A319–131	11	I
A319–132	11	I
A319–115	11	J
A319–133	11	J
A319–111	09	K
A319–112	09	K
A319–113	09	K
A319–114	09	K
A319–131	09	K
A319–132	09	K
A319–115	09	L
A319–133	09	L
A319–115	03	M
A319–133	03	M
A319–111	03	N
A319–112	03	N
A319–113	03	N
A319–114	03	N
A319–131	03	N
A319–132	03	N
A319–115	04	O
A319–133	04	O
A319–111	04	P
A319–112	04	P
A319–113	04	P
A319–114	04	P
A319–131	04	P
A319–132	04	P

MODEL	WV	AIRCRAFT CODE
A319–115	01	Q
A319–133	01	Q
A319–111	01	R
A319–112	01	R
A319–113	01	R
A319–114	01	R
A319–131	01	R
A319–132	01	R
A319–112–CJ	05	S
A319–114–CJ	05	S
A319–115–CJ	05	S
A319–132–CJ	05	S
A319–133–CJ	05	S
A319–115	05	T
A319–133	05	T
A319–111	05	U
A319–112	05	U
A319–113	05	U
A319–114	05	U
A319–131	05	U
A319–132	05	U
A319–111	06	V
A319–112	06	V
A319–113	06	V
A319–114	06	V
A319–131	06	V
A319–132	06	V
A319–115	06	W
A319–133	06	W
A319–115	07	X
A319–133	07	X
A319–111	07	Y
A319–112	07	Y
A319–113	07	Y
A319–114	07	Y
A319–131	07	Y
A319–132	07	Y
A319–112–CJ	02	Z
A319–114–CJ	02	Z
A319–115–CJ	02	Z
A319–132–CJ	02	Z
A319–133–CJ	02	Z
A319–115	02	AA
A319–133	02	AA
A319–111	02	AB
A319–112	02	AB
A319–113	02	AB
A319–114	02	AB
A319–131	02	AB
A319–132	02	AB
A319–111–CJ	10	AC
A319–112–CJ	10	AC
A319–113–CJ	10	AC
A319–114–CJ	10	AC
A319–131–CJ	10	AC
A319–132–CJ	10	AC

NOTE: FOR WEIGHT VARIANT DEFINITION, REFER TO CHAPTER 02–01–01.

NOTE: THE A/C CODES ARE USED FOR CONFIGURATION MANAGEMENT OF CHAPTER 07 ONLY.THERE IS NO RELATION BETWEEN THESE A/C CODES AND THE ICAO A/C CODES USED FOR DETERMINING THE AIRPLANE WING SPAN AND OUTER MAIN GEAR WHEEL SPAN AS DESCRIBED IN ICAO–ANNEX 14 VOLUME 1, AERODROME DESIGN AND OPERATION CHAPTER 1.4, TABLE 1–1.

N_AC_070100_1_0020101_01_00

Aircraft Codes
FIGURE-7-1-0-991-002-A01

7-2-0 Landing Gear Footprint

****ON A/C A319-100**

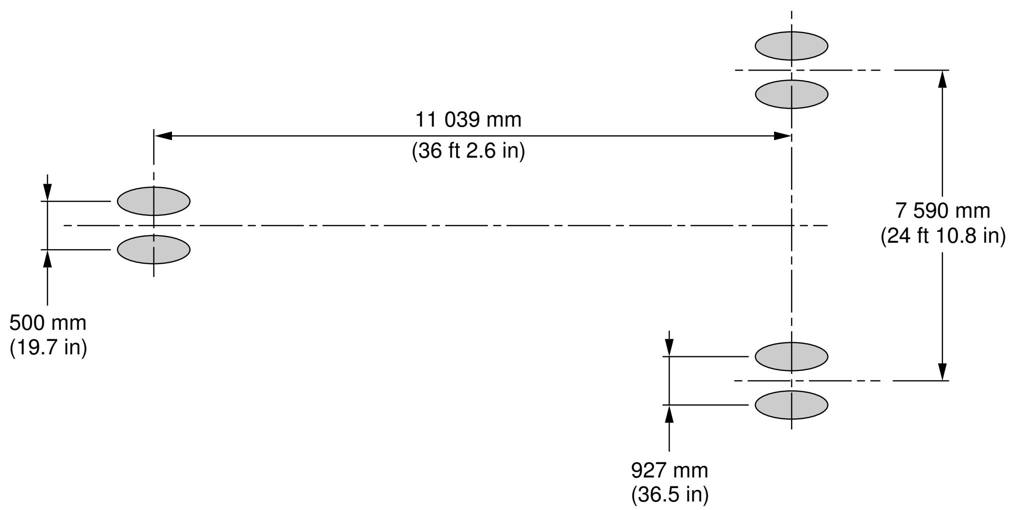
Landing Gear Footprint

1. This section gives Landing Gear Footprint.

   NOTE : For A/C Code definition, refer to chapter 7-1-0.

**ON A/C A319-100

A/C CODE	C – D – E – F – G – H
PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	SEE SECTION 7–4–1
NOSE GEAR TIRE SIZE	30 x 8.8 R15 (30 x 8.8 – 15)
NOSE GEAR TIRE PRESSURE	11.4 bar (165 psi)
MAIN GEAR TIRE SIZE	46 x 17 R20 (46 x 16 – 20)
MAIN GEAR TIRE PRESSURE	11.9 bar (173 psi)

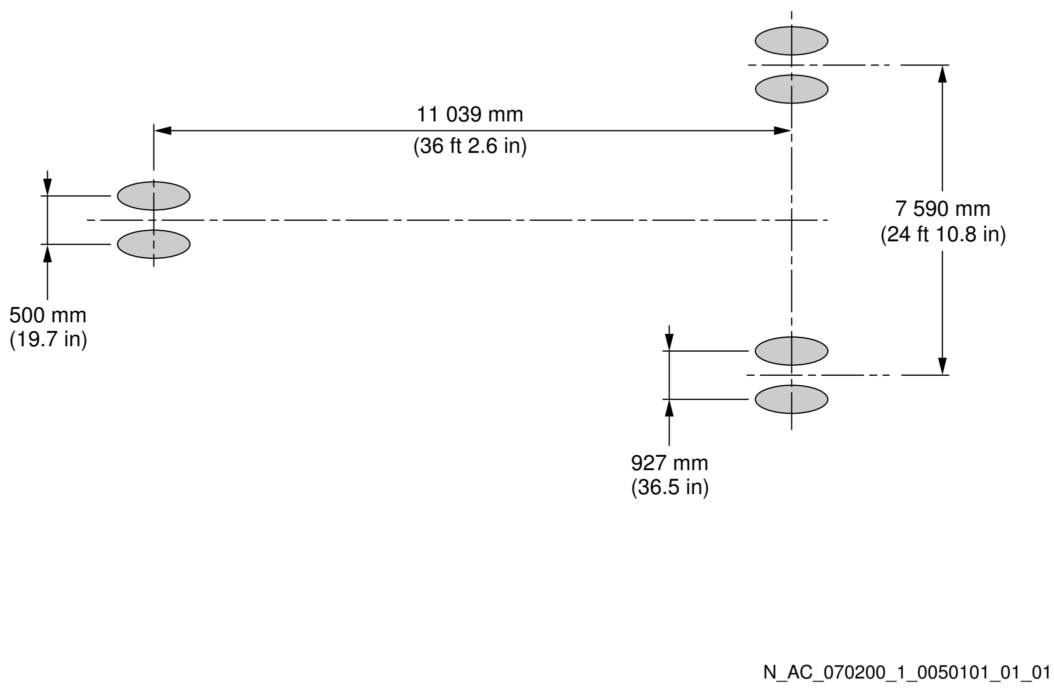


N_AC_070200_1_0040101_01_01

Landing Gear Footprint
Landing Gear Footprint
FIGURE-7-2-0-991-004-A01

**ON A/C A319-100

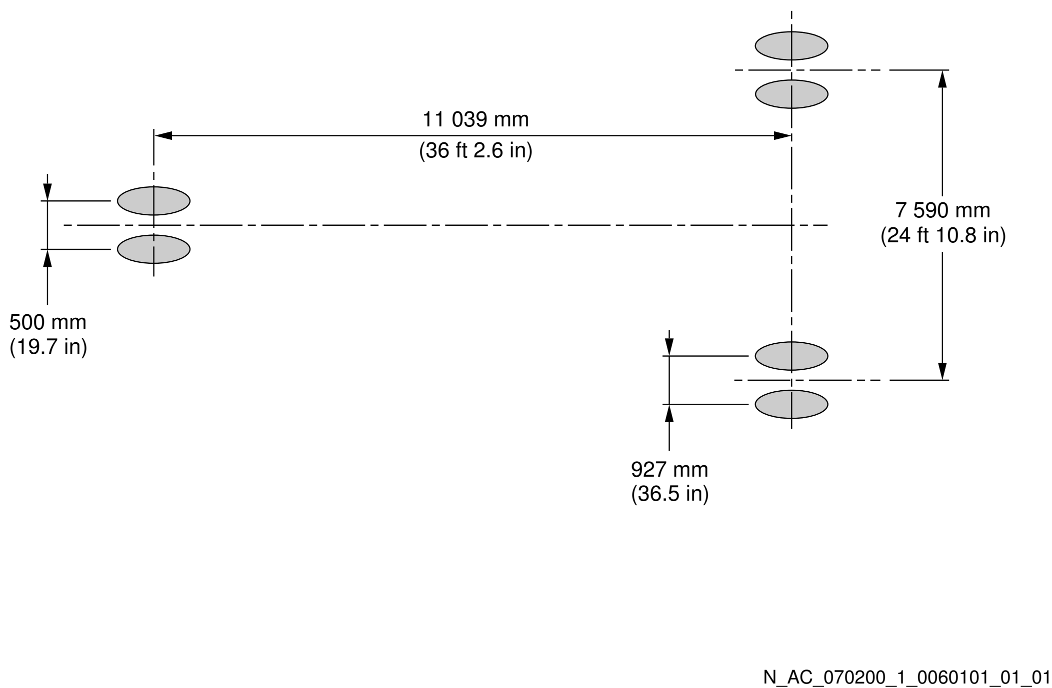
A/C CODE	I – J – K – L – M – N – O – P
PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	SEE SECTION 7–4–1
NOSE GEAR TIRE SIZE	30 x 8.8 R15 (30 x 8.8 – 15)
NOSE GEAR TIRE PRESSURE	12.1 bar (175 psi)
MAIN GEAR TIRE SIZE	46 x 17 R20 (46 x 16 – 20)
MAIN GEAR TIRE PRESSURE	12.5 bar (181 psi)



Landing Gear Footprint
Landing Gear Footprint
FIGURE-7-2-0-991-005-A01

**ON A/C A319-100

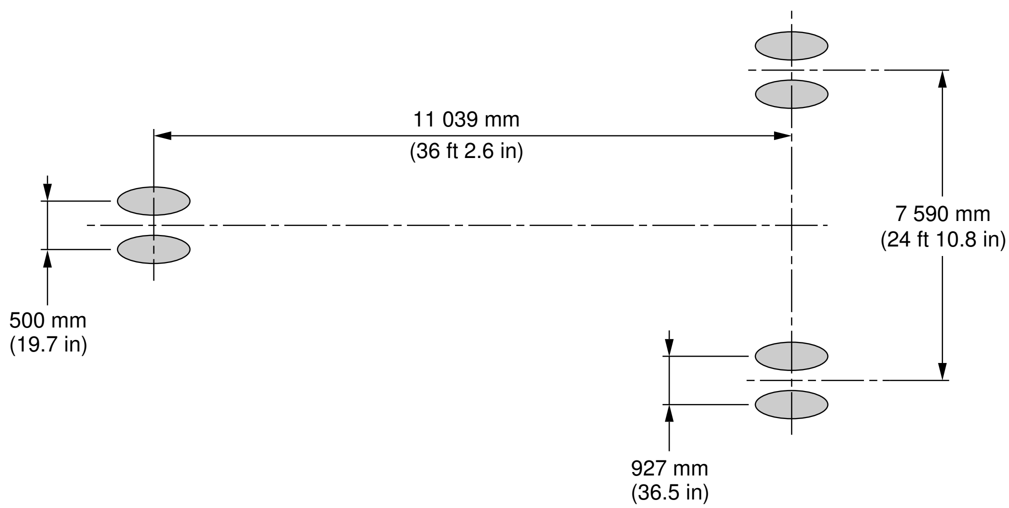
A/C CODE	Q – R – T – U
PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	SEE SECTION 7–4–1
NOSE GEAR TIRE SIZE	30 x 8.8 R15 (30 x 8.8 – 15)
NOSE GEAR TIRE PRESSURE	12.5 bar (181 psi)
MAIN GEAR TIRE SIZE	46 x 17 R20 (46 x 16 – 20)
MAIN GEAR TIRE PRESSURE	12.9 bar (187 psi)



Landing Gear Footprint
Landing Gear Footprint
FIGURE-7-2-0-991-006-A01

**ON A/C A319-100

A/C CODE	V – W
PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	SEE SECTION 7–4–1
NOSE GEAR TIRE SIZE	30 x 8.8 R15 (30 x 8.8 – 15)
NOSE GEAR TIRE PRESSURE	13.5 bar (196 psi)
MAIN GEAR TIRE SIZE	46 x 17 R20 (46 x 16 – 20)
MAIN GEAR TIRE PRESSURE	13.4 bar (194 psi)

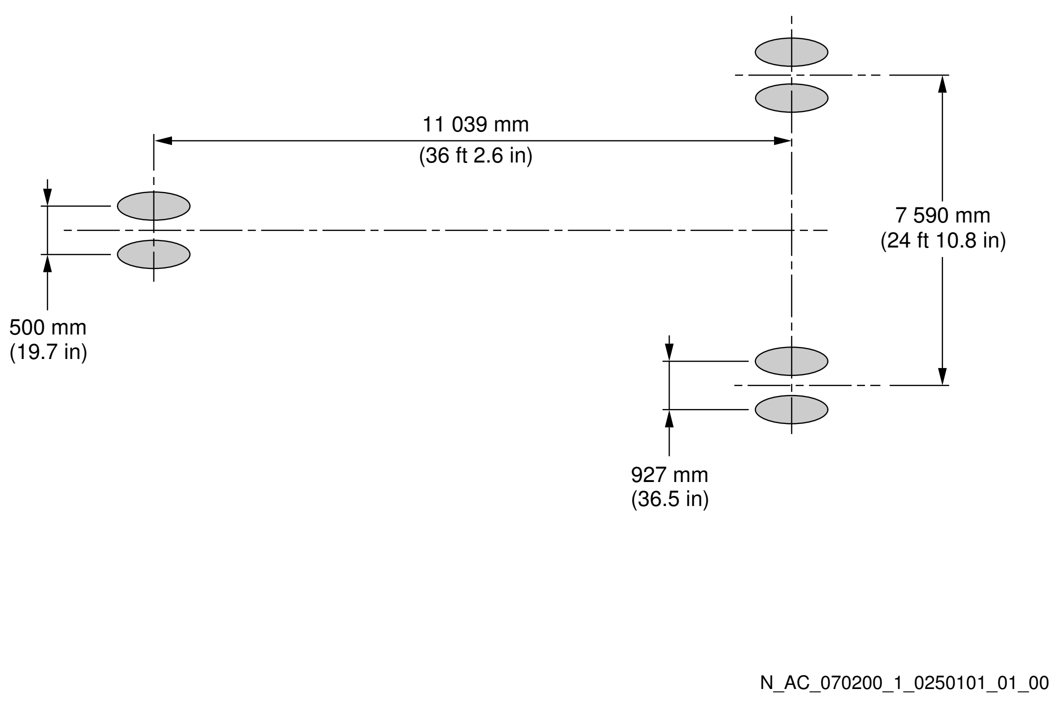


N_AC_070200_1_0070101_01_01

Landing Gear Footprint
Landing Gear Footprint
FIGURE-7-2-0-991-007-A01

**ON A/C A319-100

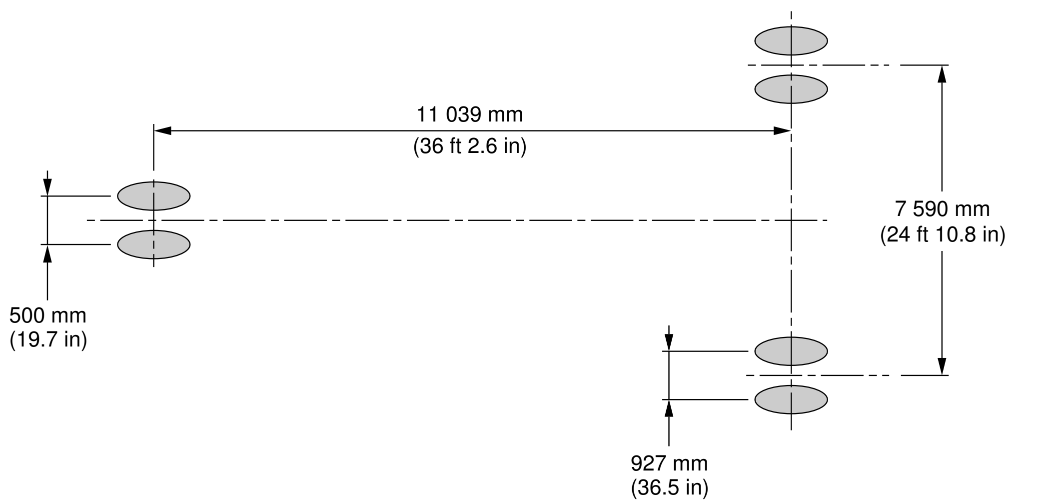
A/C CODE	S – Z – AC
PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	SEE SECTION 7–4–1
NOSE GEAR TIRE SIZE	30 x 8.8 R15 (30 x 8.8 – 15)
NOSE GEAR TIRE PRESSURE	13.9 bar (202 psi)
MAIN GEAR TIRE SIZE	46 x 17 R20 (46 x 16 – 20)
MAIN GEAR TIRE PRESSURE	13.8 bar (200 psi)



Landing Gear Footprint
FIGURE-7-2-0-991-025-A01

**ON A/C A319-100

A/C CODE	X – Y – AA – AB
PERCENTAGE OF WEIGHT ON MAIN GEAR GROUP	SEE SECTION 7–4–1
NOSE GEAR TIRE SIZE	30 x 8.8 R15 (30 x 8.8 – 15)
NOSE GEAR TIRE PRESSURE	13.2 bar (191 psi)
MAIN GEAR TIRE SIZE	46 x 17 R20 (46 x 16 – 20)
MAIN GEAR TIRE PRESSURE	13.8 bar (200 psi)



Landing Gear Footprint
FIGURE-7-2-0-991-026-A01

7-3-0 Maximum Pavement Loads

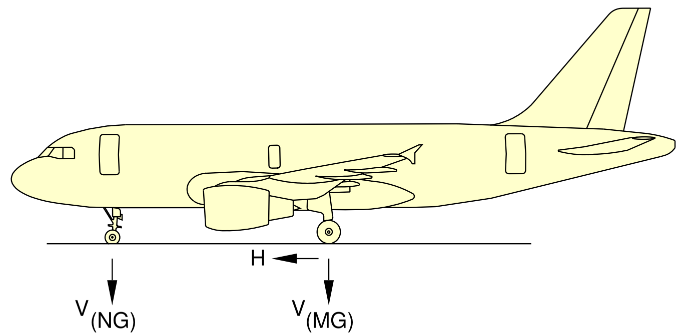
**ON A/C A319-100

Maximum Pavement Loads

1. This section gives Maximum Pavement Loads.

   NOTE : For A/C code definition, refer to chapter 7-1-0.

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
C	137 575	62 400	23 625	10 720	36 500	16 550	63 725	28 900	21 375	9 700	50 975	23 120
D	137 575	62 400	20 200	9 170	33 075	15 000	62 900	28 530	21 375	9 700	50 325	22 820
E	141 975	64 400	20 500	9 300	33 750	15 310	64 925	29 450	22 075	10 010	51 925	23 560

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

	A/C CODE		
(1)	C	MRW = 62 400 kg	FWD CG = 14 % MAC AT A/C WEIGHT = 62 400 kg
	D	MRW = 62 400 kg	FWD CG = 20.4 % MAC AT A/C WEIGHT = 62 400 kg
	E	MRW = 64 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 64 400 kg
(2)	C	MRW = 62 400 kg	AFT CG = 39 % MAC AT A/C WEIGHT = 62 400 kg
	D	MRW = 62 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 62 400 kg
	E	MRW = 64 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 64 400 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

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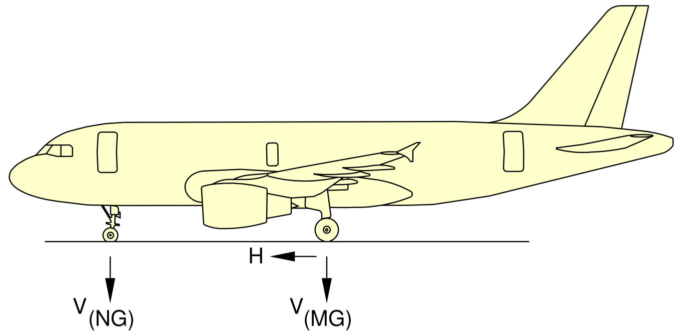
Maximum Pavement Loads
FIGURE-7-3-0-991-023-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
F	141 975	64 400	20 500	9 300	33 750	15 310	65 775	29 830	22 075	10 010	52 625	23 860
G	141 975	64 400	20 500	9 300	33 750	15 310	65 775	29 830	22 075	10 010	52 625	23 860
H	141 975	64 400	20 500	9 300	33 750	15 310	64 925	29 450	22 075	10 010	51 925	23 560

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

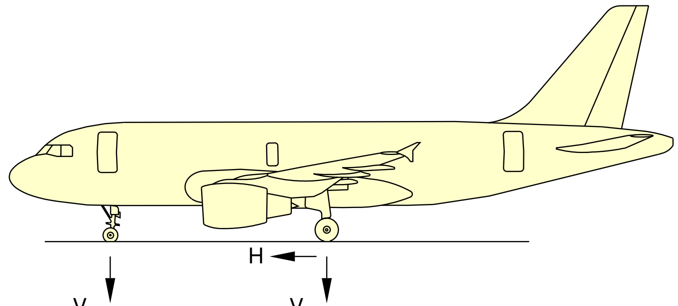
	A/C CODE		
(1)	F	MRW = 64 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 64 400 kg
	G	MRW = 64 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 64 400 kg
	H	MRW = 64 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 64 400 kg
(2)	F	MRW = 64 400 kg	AFT CG = 39 % MAC AT A/C WEIGHT = 64 400 kg
	G	MRW = 64 400 kg	AFT CG = 39 % MAC AT A/C WEIGHT = 64 400 kg
	H	MRW = 64 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 64 400 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

N_AC_070300_1_0240101_01_00

Maximum Pavement Loads
FIGURE-7-3-0-991-024-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
I	146 375	66 400	21 125	9 580	34 800	15 780	67 750	30 730	22 750	10 320	54 200	24 590
J	146 375	66 400	21 125	9 580	34 800	15 780	66 950	30 360	22 750	10 320	53 550	24 290
K	146 375	66 400	21 125	9 580	34 800	15 780	67 750	30 730	22 750	10 320	54 200	24 590

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

	A/C CODE		
(1)	I	MRW = 66 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 66 400 kg
	J	MRW = 66 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 66 400 kg
	K	MRW = 66 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 66 400 kg
(2)	I	MRW = 66 400 kg	AFT CG = 38.8 % MAC AT A/C WEIGHT = 66 400 kg
	J	MRW = 66 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 66 400 kg
	K	MRW = 66 400 kg	AFT CG = 38.8 % MAC AT A/C WEIGHT = 66 400 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

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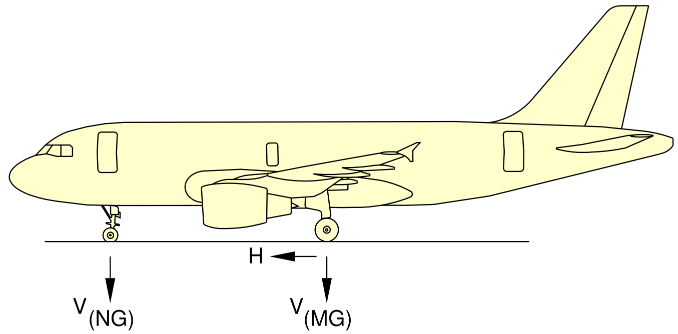
Maximum Pavement Loads
FIGURE-7-3-0-991-025-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
L	146 375	66 400	21 125	9 580	34 800	15 780	66 950	30 360	22 750	10 320	53 550	24 290
M	150 800	68 400	21 750	9 860	35 775	16 230	68 975	31 280	23 425	10 630	55 175	25 020
N	150 800	68 400	21 750	9 860	35 775	16 230	69 600	31 570	23 425	10 630	55 675	25 250

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

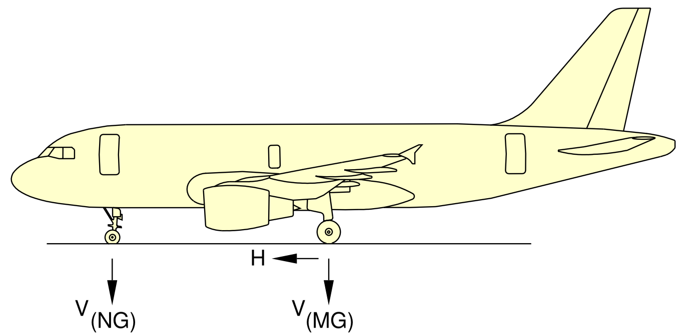
	A/C CODE		
(1)	L	MRW = 66 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 66 400 kg
	M	MRW = 68 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 68 400 kg
	N	MRW = 68 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 68 400 kg
(2)	L	MRW = 66 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 66 400 kg
	M	MRW = 68 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 68 400 kg
	N	MRW = 68 400 kg	AFT CG = 38.1 % MAC AT A/C WEIGHT = 68 400 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

N_AC_070300_1_0260101_01_00

Maximum Pavement Loads
FIGURE-7-3-0-991-026-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
O	150 800	68 400	21 750	9 860	35 800	16 240	68 975	31 280	23 425	10 630	55 175	25 020
P	150 800	68 400	21 700	9 840	35 725	16 210	69 625	31 580	23 425	10 630	55 700	25 260
Q	155 200	70 400	22 325	10 120	36 750	16 660	71 025	32 210	24 125	10 940	56 800	25 770

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

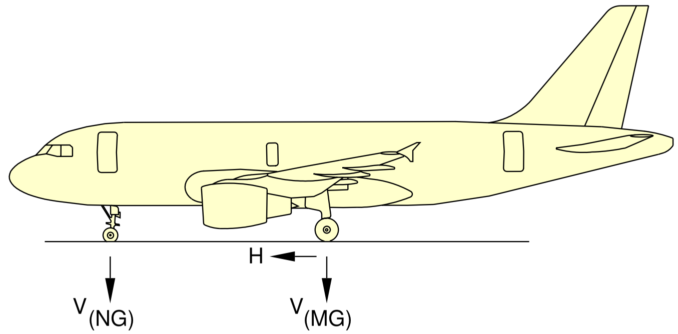
	A/C CODE		
(1)	O	MRW = 68 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 68 400 kg
	P	MRW = 68 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 68 400 kg
	Q	MRW = 70 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 70 400 kg
(2)	O	MRW = 68 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 68 400 kg
	P	MRW = 68 400 kg	AFT CG = 38.1 % MAC AT A/C WEIGHT = 68 400 kg
	Q	MRW = 70 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 70 400 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

N_AC_070300_1_0270101_01_00

Maximum Pavement Loads
FIGURE-7-3-0-991-027-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
R	155 200	70 400	22 325	10 120	36 725	16 660	71 475	32 420	24 125	10 940	57 175	25 940
T	155 200	70 400	22 325	10 120	36 750	16 660	71 025	32 210	24 125	10 940	56 800	25 770
U	155 200	70 400	22 325	10 120	36 725	16 660	71 475	32 420	24 125	10 940	57 175	25 940

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

	A/C CODE		
(1)	R	MRW = 70 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 70 400 kg
	T	MRW = 70 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 70 400 kg
	U	MRW = 70 400 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 70 400 kg
(2)	R	MRW = 70 400 kg	AFT CG = 37.5 % MAC AT A/C WEIGHT = 70 400 kg
	T	MRW = 70 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 70 400 kg
	U	MRW = 70 400 kg	AFT CG = 37.5 % MAC AT A/C WEIGHT = 70 400 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

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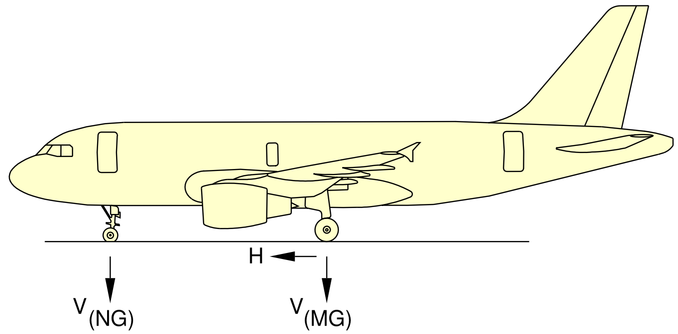
Maximum Pavement Loads
FIGURE-7-3-0-991-028-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
V	162 925	73 900	23 400	10 610	38 500	17 460	74 725	33 890	25 325	11 480	59 775	27 110
W	162 925	73 900	23 400	10 610	33 100	15 010	74 550	33 820	25 300	11 480	59 625	27 050
X	167 325	75 900	23 625	10 720	39 400	17 870	76 600	34 750	26 000	11 800	61 275	27 800

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

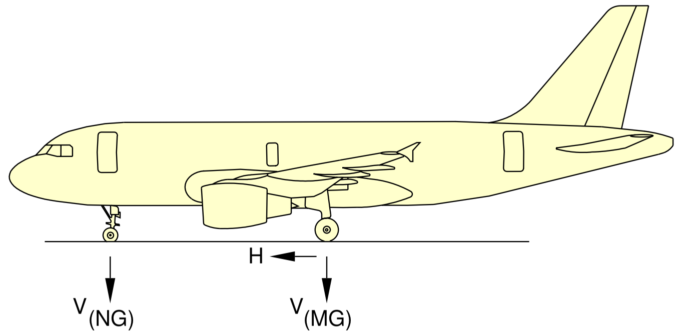
	A/C CODE		
(1)	V	MRW = 73 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 73 900 kg
	W	MRW = 73 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 73 900 kg
	X	MRW = 75 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 74 500 kg
(2)	V	MRW = 73 900 kg	AFT CG = 36.5 % MAC AT A/C WEIGHT = 73 900 kg
	W	MRW = 73 900 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 73 900 kg
	X	MRW = 75 900 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 75 900 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT.

N_AC_070300_1_0290101_01_01

Maximum Pavement Loads
FIGURE-7-3-0-991-029-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Y	167 325	75 900	23 625	10 720	39 400	17 870	76 600	34 750	26 000	11 800	61 275	27 800
AA	167 325	75 900	23 625	10 720	39 400	17 870	76 600	34 750	26 000	11 800	61 275	27 800
AB	167 325	75 900	23 500	10 660	39 100	17 740	76 675	34 780	26 000	11 800	61 350	27 830

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

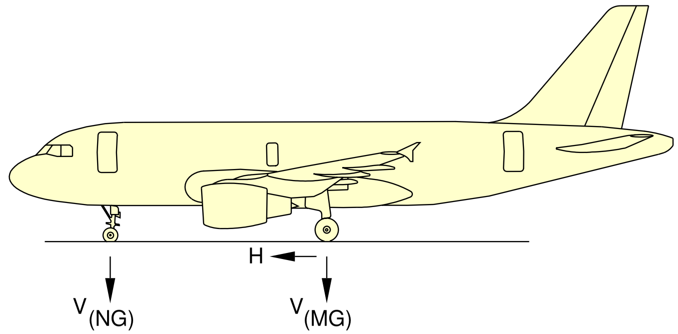
	A/C CODE		
(1)	Y	MRW = 75 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 74 500 kg
	AA	MRW = 75 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 74 500 kg
	AB	MRW = 75 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 74 500 kg
(2)	Y	MRW = 75 900 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 75 900 kg
	AA	MRW = 75 900 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 75 900 kg
	AB	MRW = 75 900 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 75 900 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

N_AC_070300_1_0300101_01_00

Maximum Pavement Loads
FIGURE-7-3-0-991-030-A01

**ON A/C A319-100



1	2		3		4		5		6			
			VNG				VMG (PER STRUT)		H (PER STRUT)			
A/C CODE	MAXIMUM RAMP WEIGHT		STATIC LOAD AT MOST FWD CG (1)		STATIC BRAKING @ 10 ft/s² DECELERATION		STATIC LOAD AT MAX AFT CG (2)		STEADY BRAKING @ 10 ft/s² DECELERATION		AT INSTANTANEOUS BRAKING COEFFICIENT = 0.8	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
S	155 200	70 400	25 450	11 550	39 650	17 990	71 100	32 250	24 125	10 940	56 875	25 800
Z	167 525	75 900	23 500	10 660	39 100	17 740	76 675	34 780	26 000	11 800	61 350	27 830
AC	169 525	76 900	23 500	10 660	39 100	17 730	77 700	35 240	26 350	11 950	62 150	28 190

$V_{(NG)}$ MAXIMUM VERTICAL NOSE GEAR GROUND LOAD AT MOST FORWARD CG
$V_{(MG)}$ MAXIMUM VERTICAL MAIN GEAR GROUND LOAD AT MOST AFT CG
H MAXIMUM HORIZONTAL GROUND LOAD FROM BRAKING

	A/C CODE		
(1)	S	MRW = 70 400 kg	FWD CG = 14 % MAC AT A/C WEIGHT = 67 500 kg
	Z	MRW = 75 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 74 500 kg
	AC	MRW = 76 900 kg	FWD CG = 21 % MAC AT A/C WEIGHT = 74 500 kg
(2)	S	MRW = 70 400 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 70 400 kg
	Z	MRW = 75 900 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 75 900 kg
	AC	MRW = 76 900 kg	AFT CG = 36 % MAC AT A/C WEIGHT = 76 900 kg

NOTE: ALL LOADS CALCULATED USING AIRPLANE MAXIMUM RAMP WEIGHT

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Maximum Pavement Loads
FIGURE-7-3-0-991-031-A01

7-4-0 Landing Gear Loading on Pavement

****ON A/C A319-100**

Landing Gear Loading on Pavement

1. General

   In the example shown in Section 7-4-1 Landing Gear Loading on Pavement, A/C Code C, the Gross Aircraft Weight is 48 000 kg (105 825 lb) and the percentage of weight on the Main Landing Gear is 92.6 %.

   For these conditions the total weight on the Main Landing Gear is 44 470 kg (98 025 lb).

7-4-1 Landing Gear Loading on Pavement

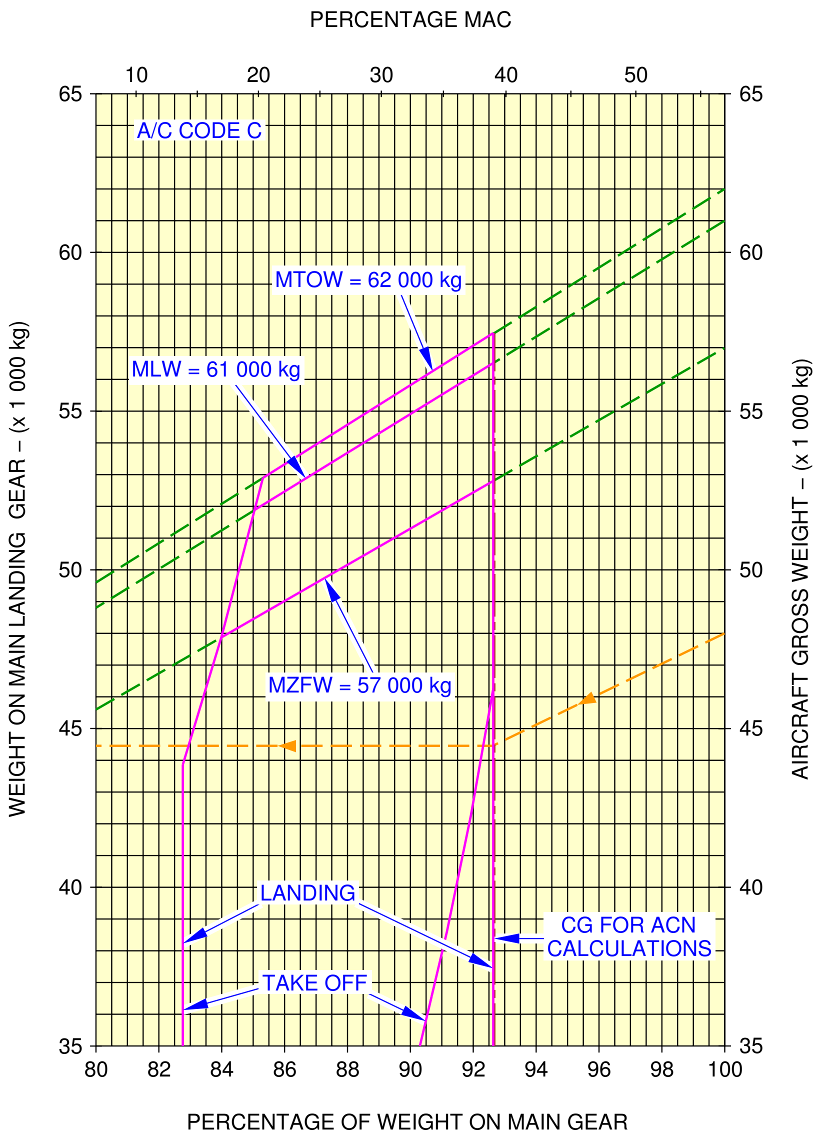
****ON A/C A319-100**

Landing Gear Loading on Pavement

1. This section gives Landing Gear Loading on Pavement.

   NOTE : For A/C Code definition, refer to chapter 7-1-0.

**ON A/C A319-100



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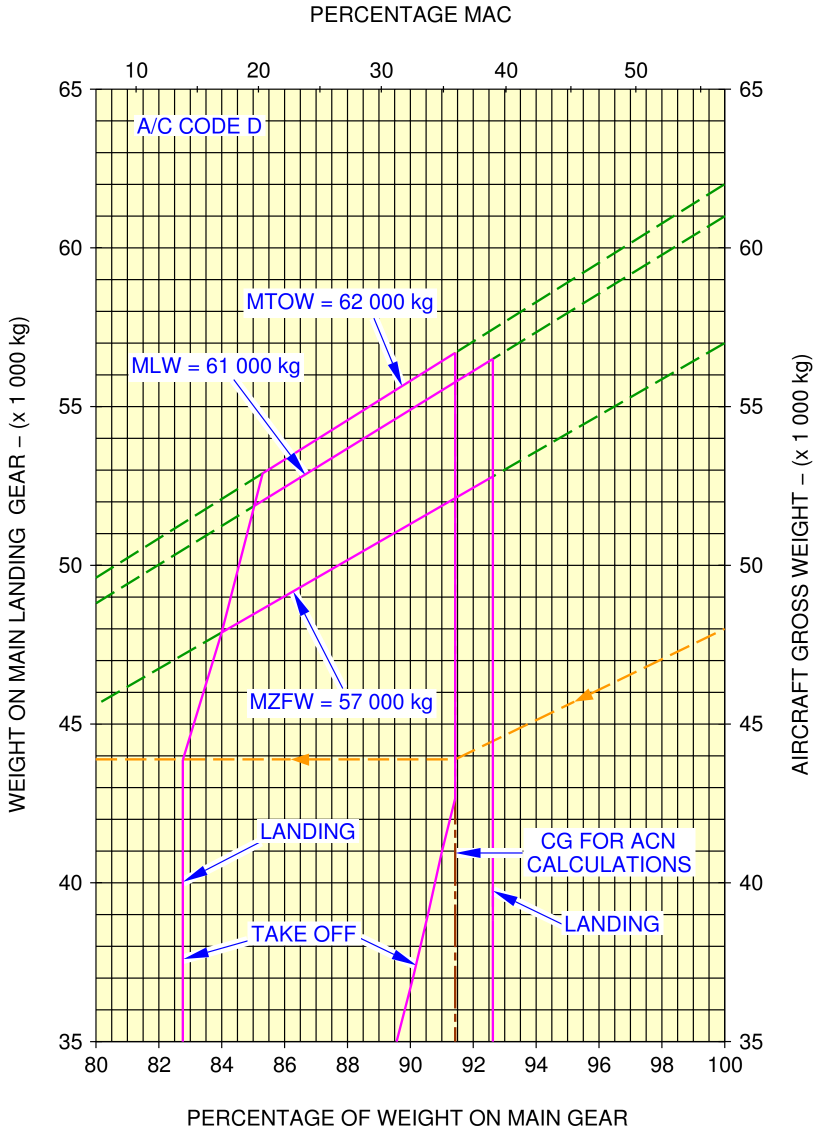
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-038-A01

**ON A/C A319-100



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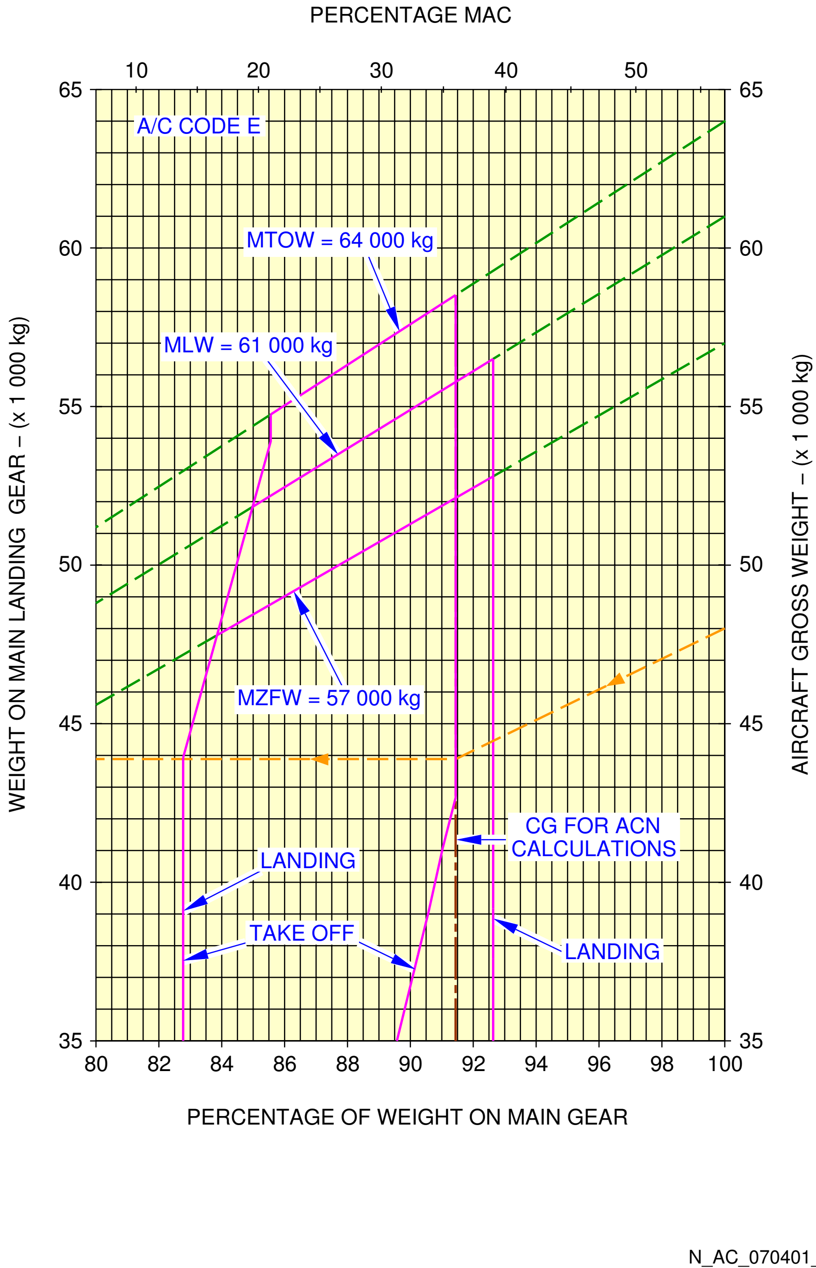
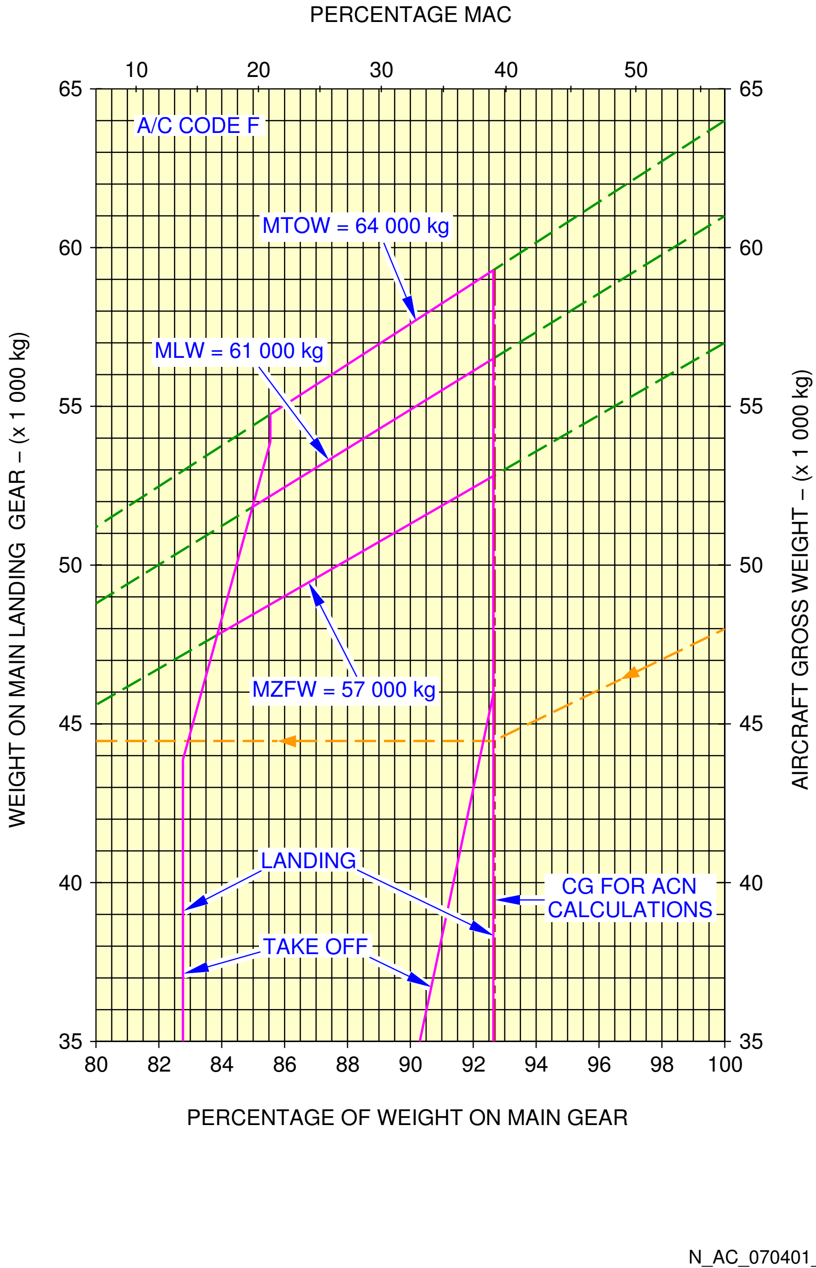
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-039-A01

**ON A/C A319-100



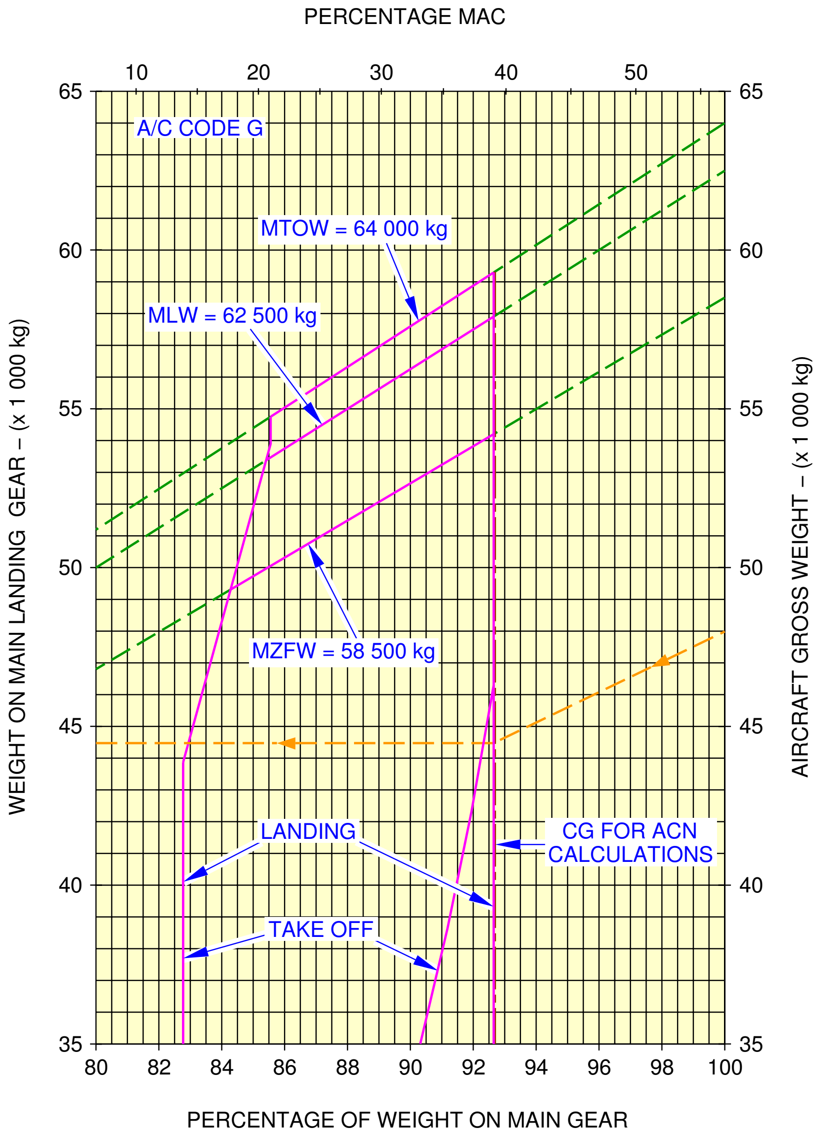
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-040-A01

**ON A/C A319-100



Landing Gear Loading on Pavement
FIGURE-7-4-1-991-041-A01

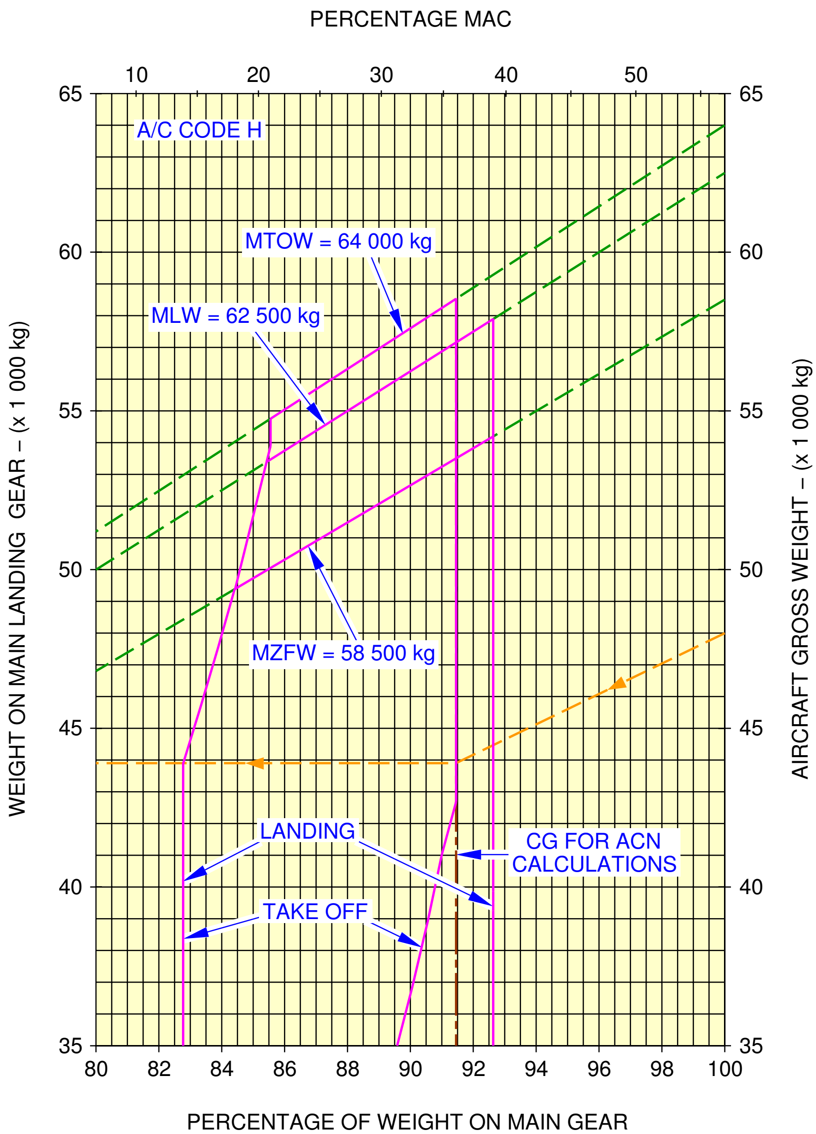
**ON A/C A319-100



N_AC_070401_1_0420101_01_00

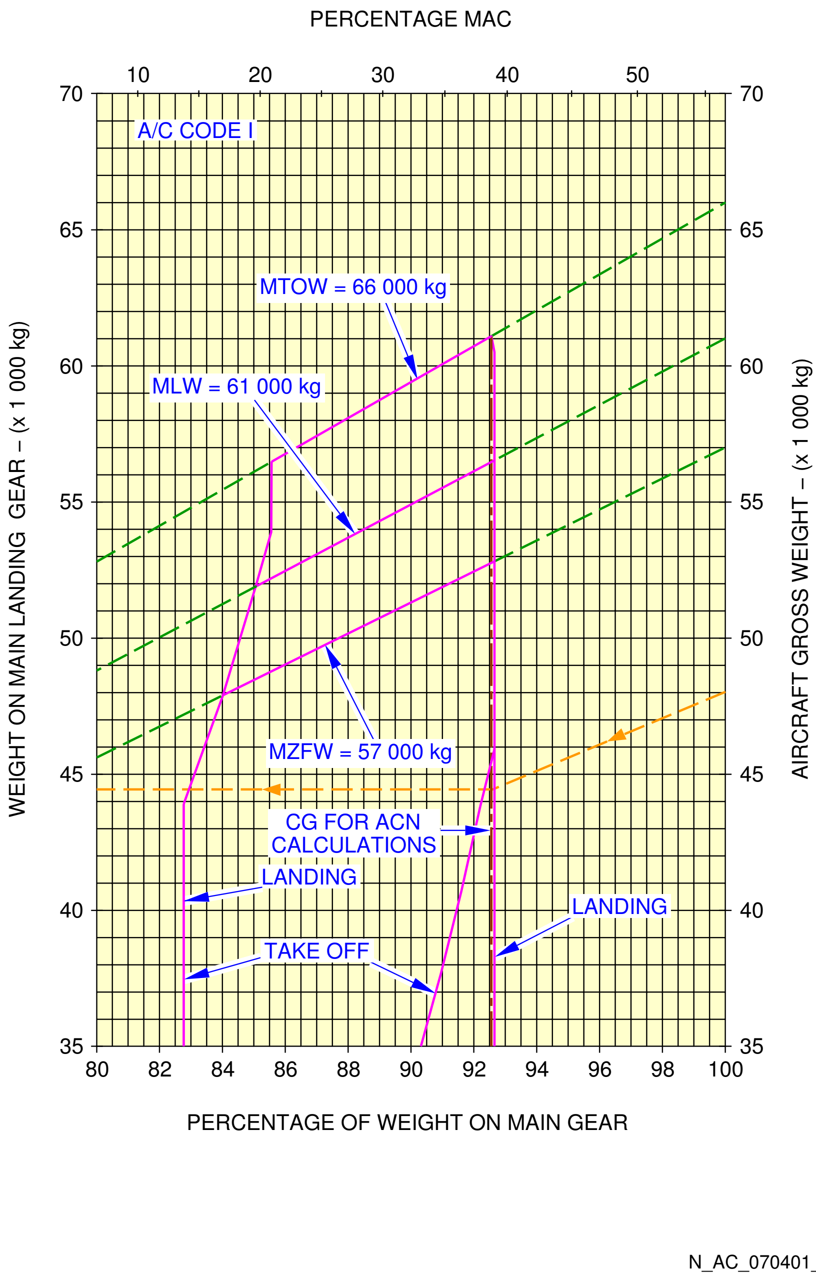
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-042-A01

****ON A/C A319-100**



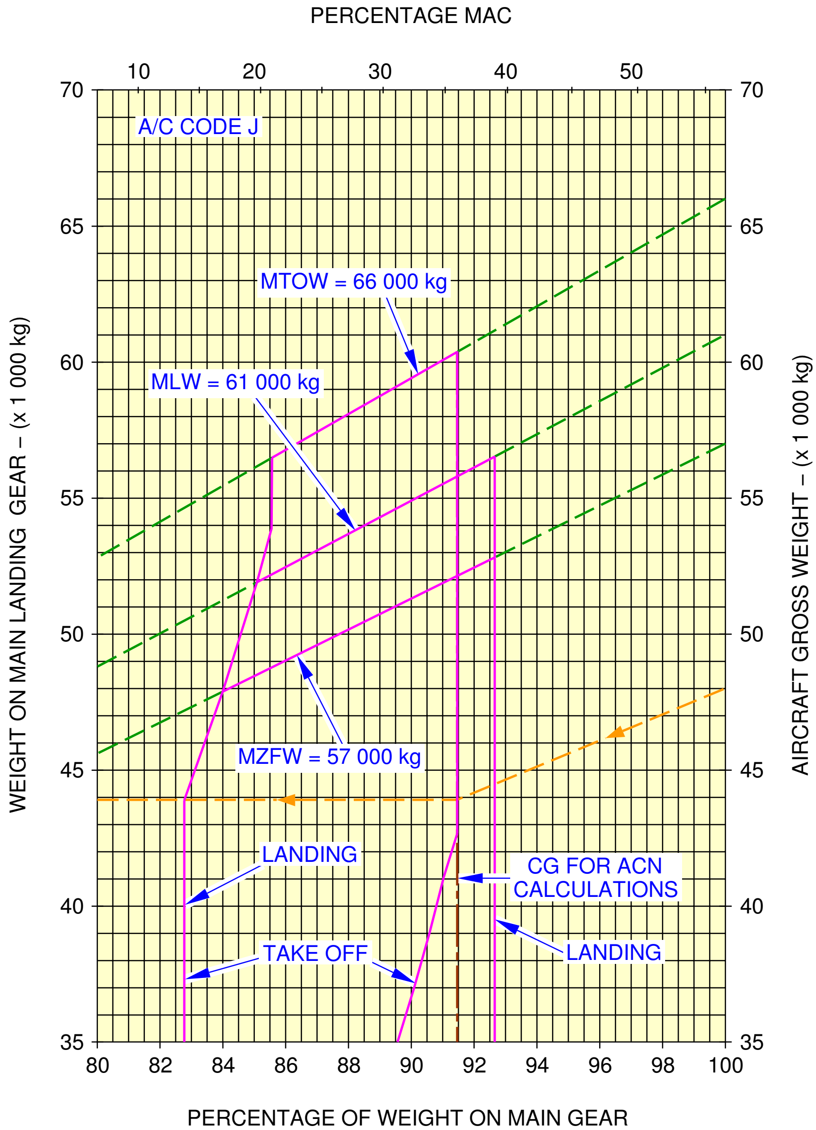
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-043-A01

****ON A/C A319-100**



Landing Gear Loading on Pavement
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-044-A01

**ON A/C A319-100



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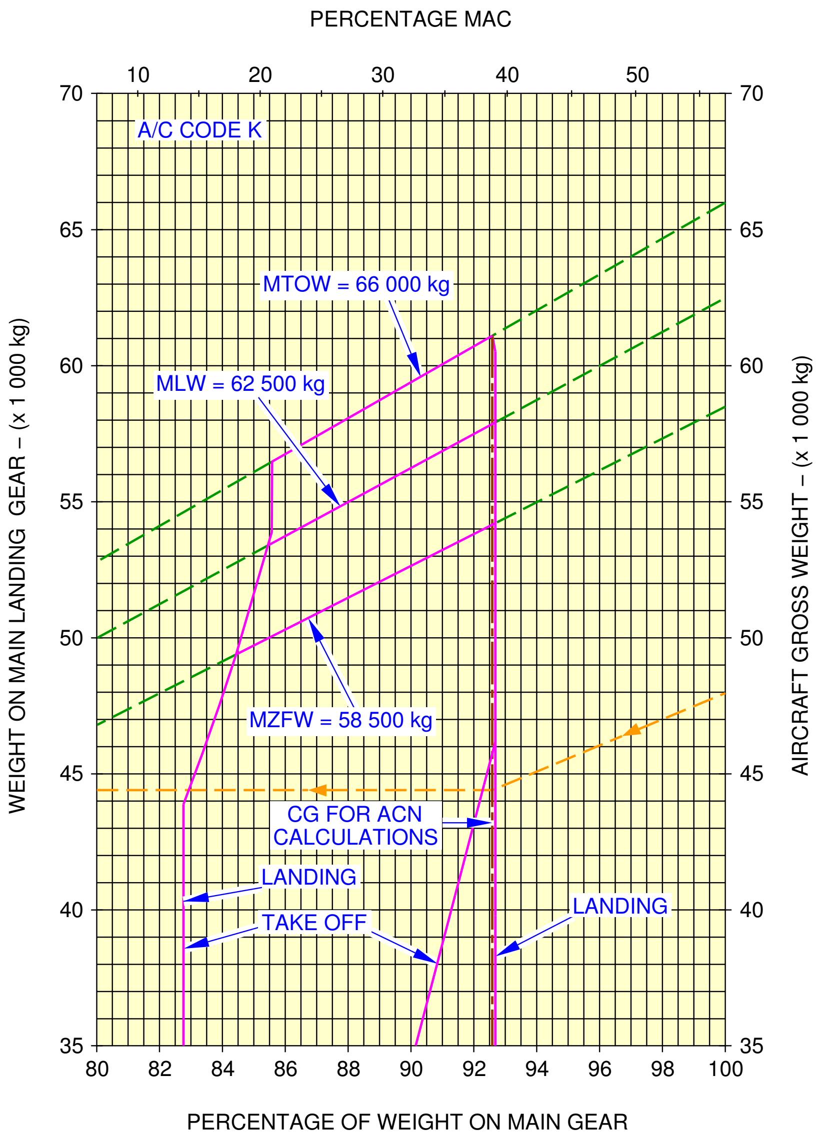
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-045-A01

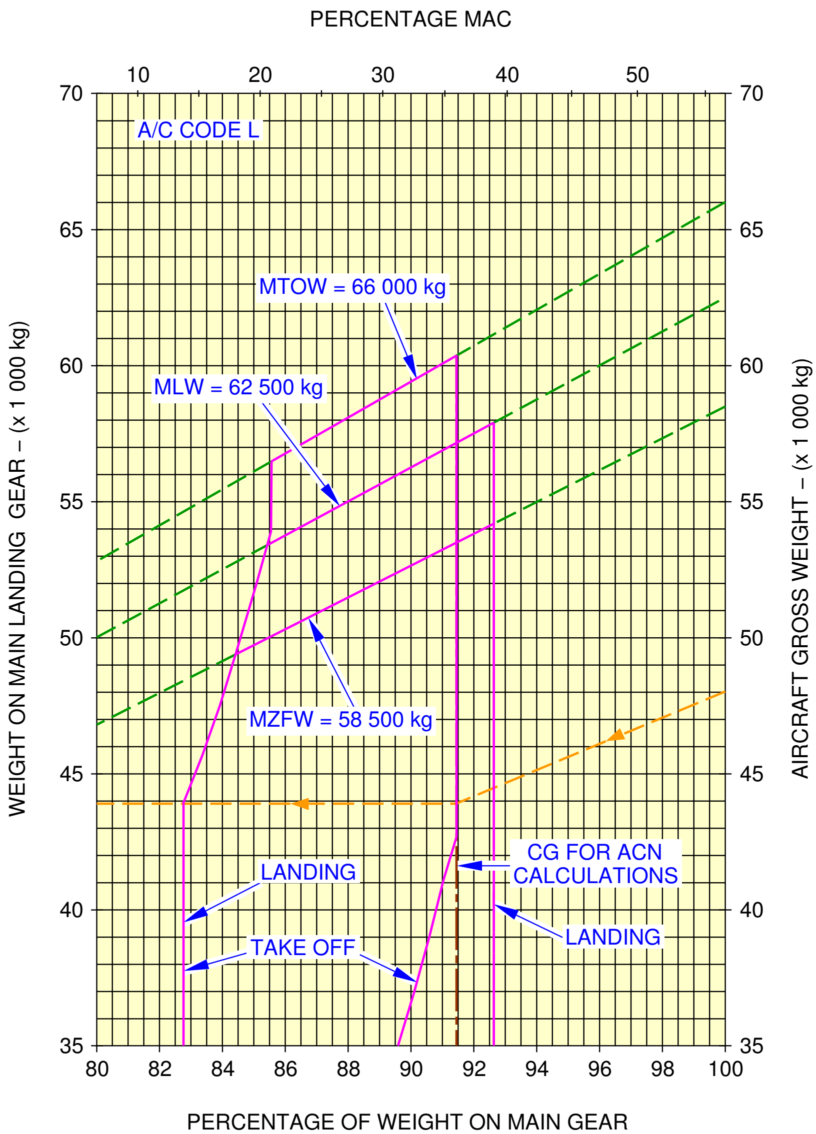
**ON A/C A319-100



N_AC_070401_1_0460101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-046-A01

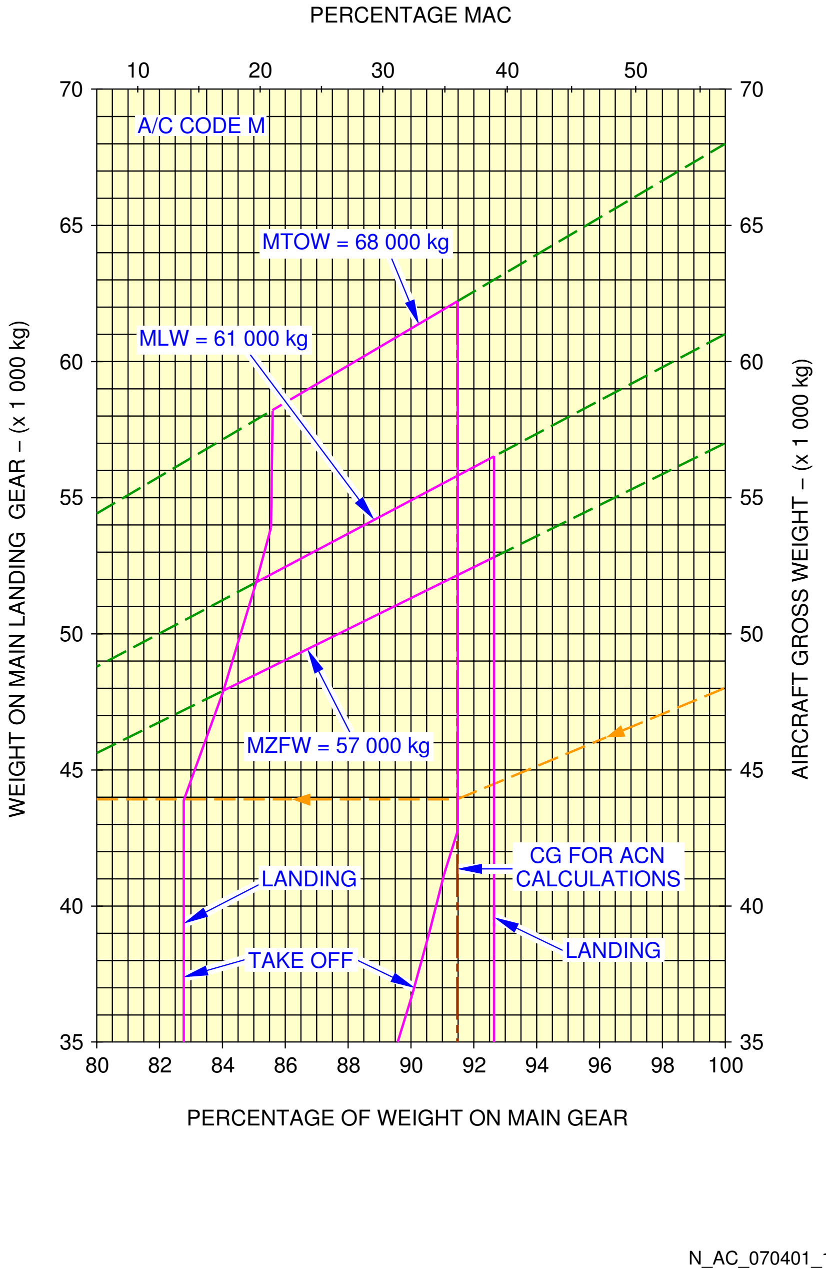
**ON A/C A319-100



N_AC_070401_1_0470101_01_00

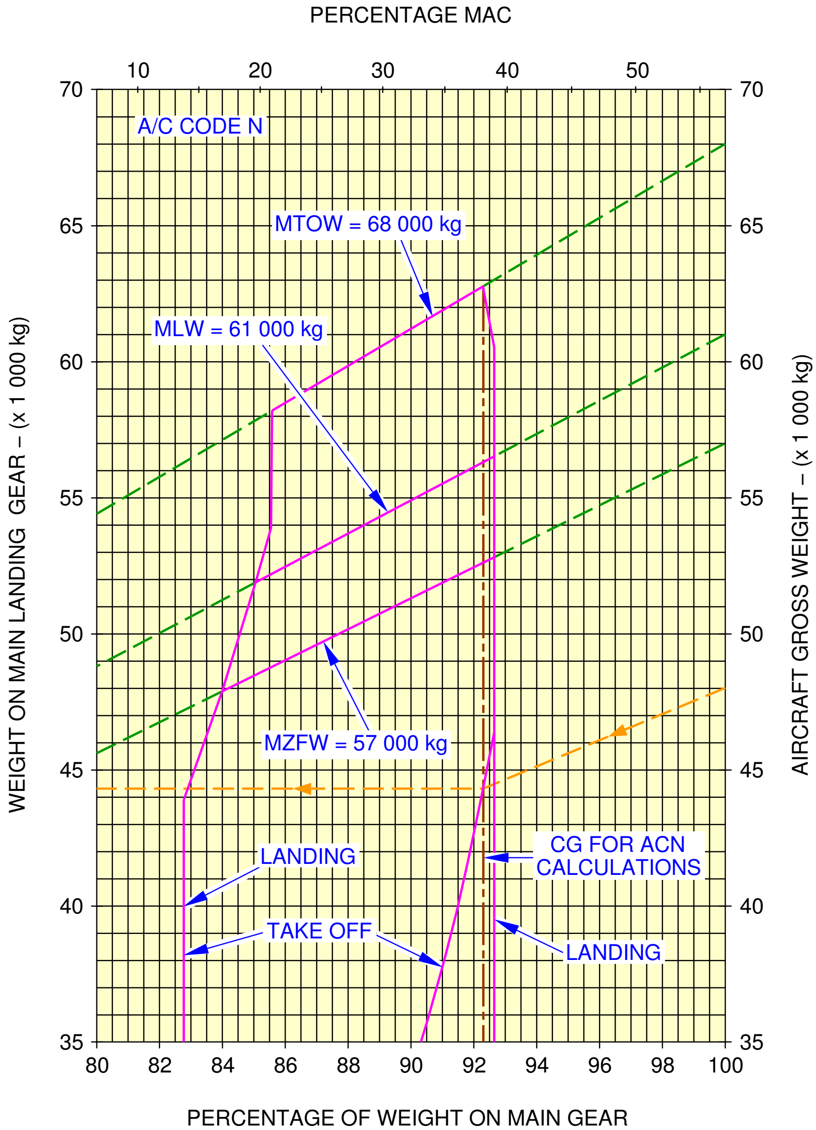
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-047-A01

**ON A/C A319-100



Landing Gear Loading on Pavement
FIGURE-7-4-1-991-048-A01

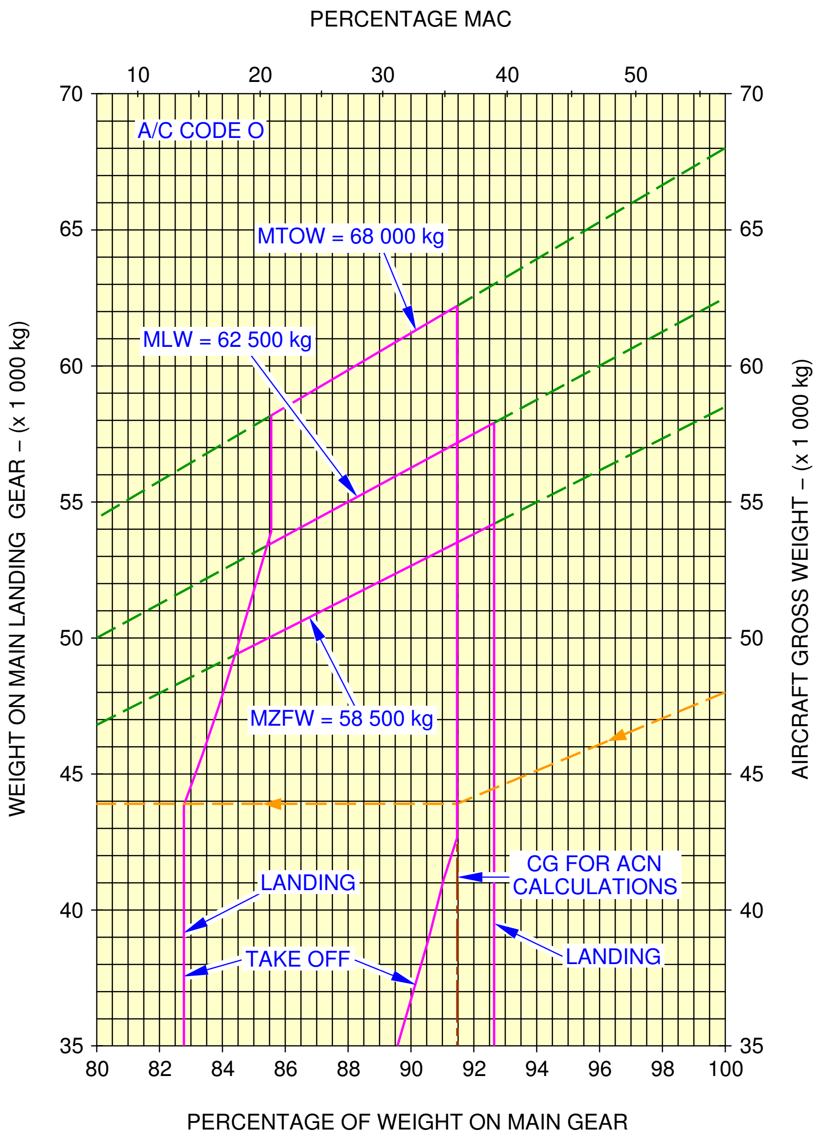
**ON A/C A319-100



N_AC_070401_1_0490101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-049-A01

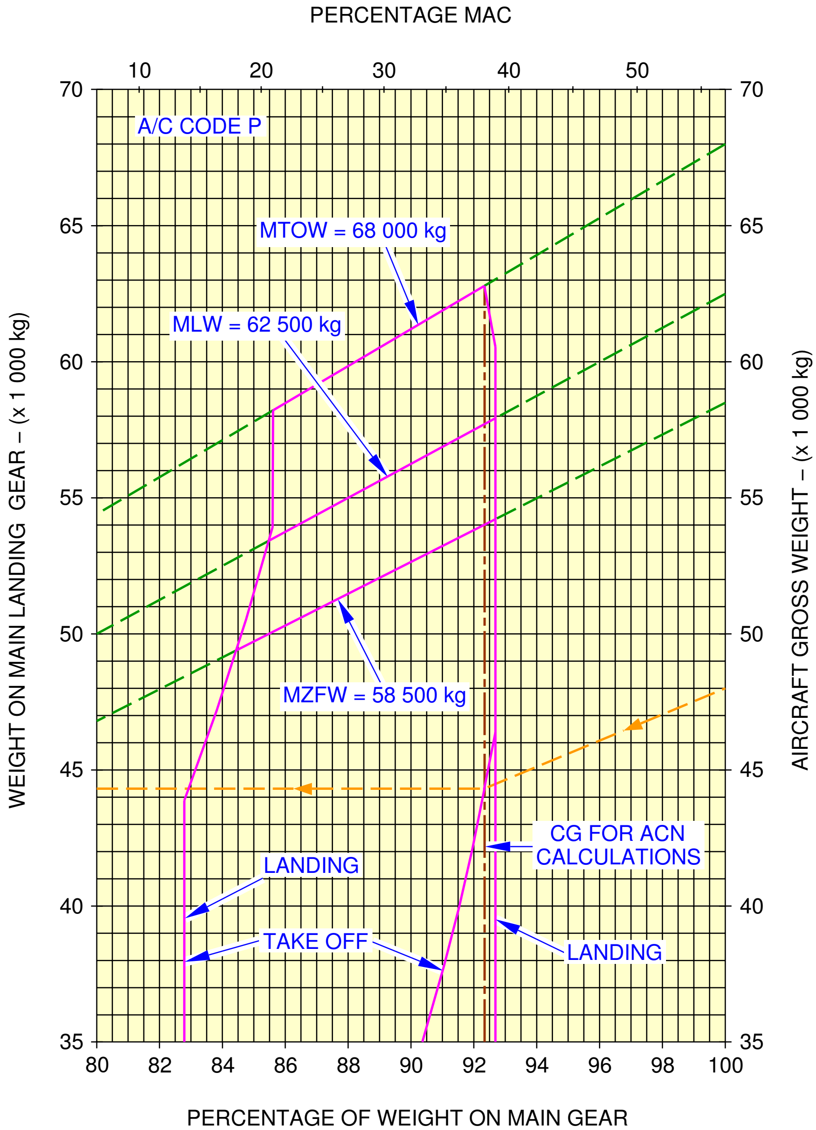
**ON A/C A319-100



N_AC_070401_1_0500101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-050-A01

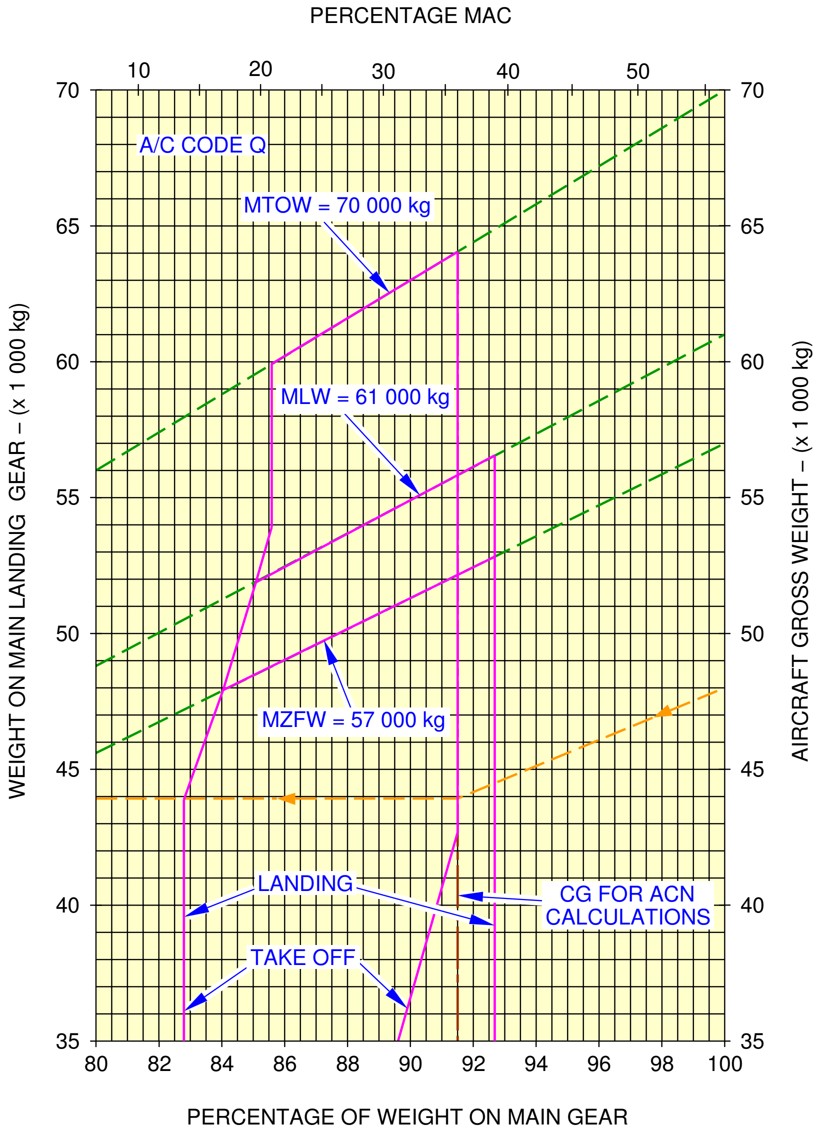
**ON A/C A319-100



N_AC_070401_1_0510101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-051-A01

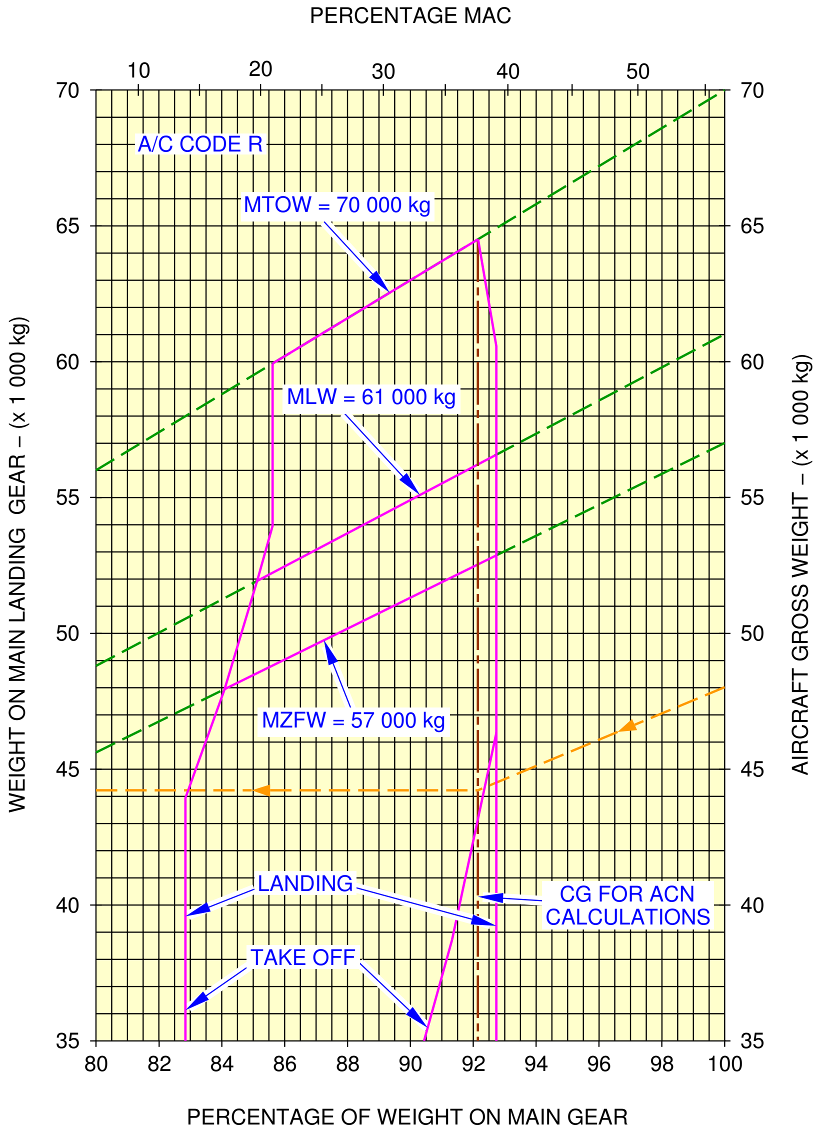
**ON A/C A319-100



N_AC_070401_1_0520101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-052-A01

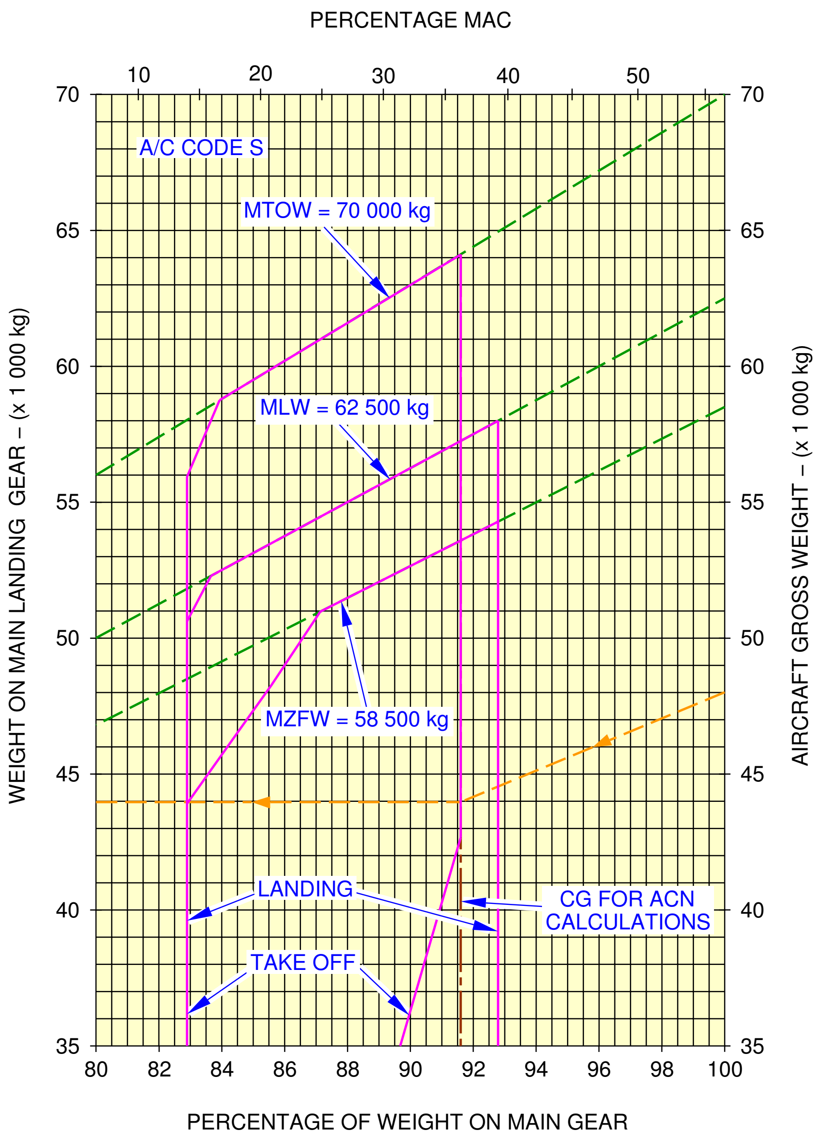
****ON A/C A319-100**



N_AC_070401_1_0530101_01_00

Landing Gear Loading on Pavement
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-053-A01

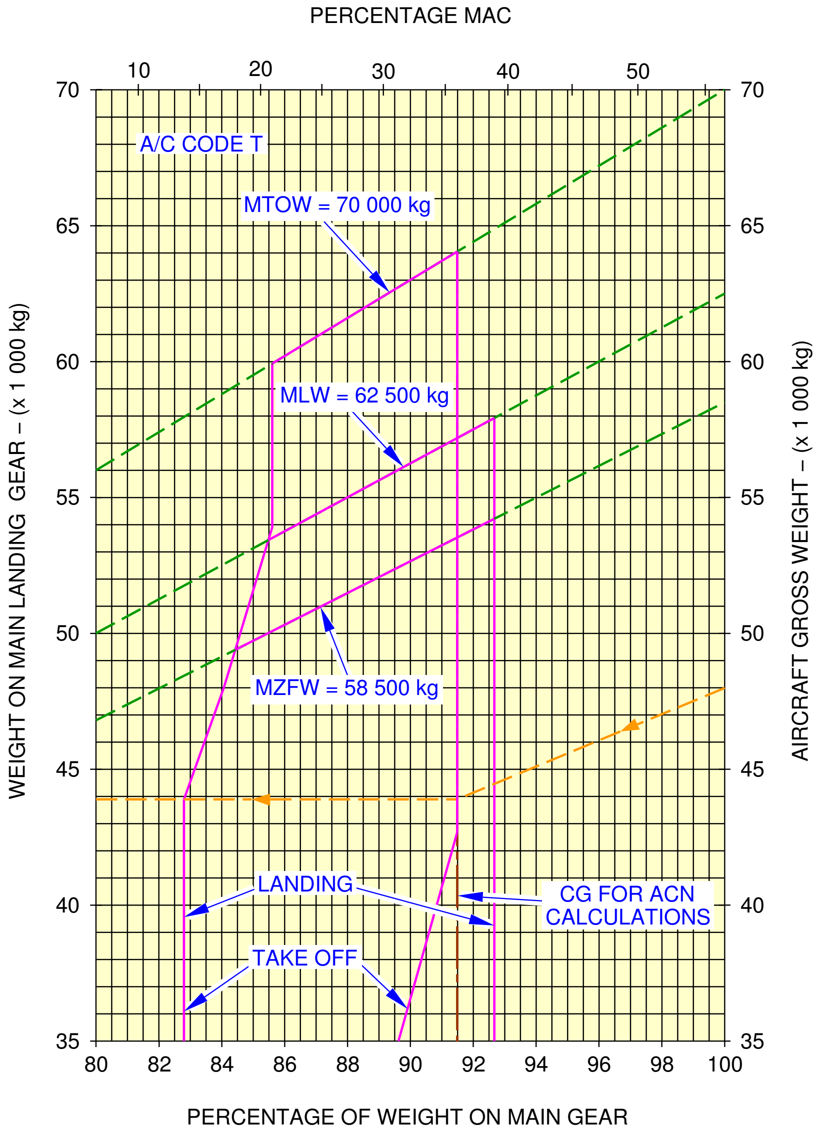
**ON A/C A319-100



N_AC_070401_1_0540101_01_00

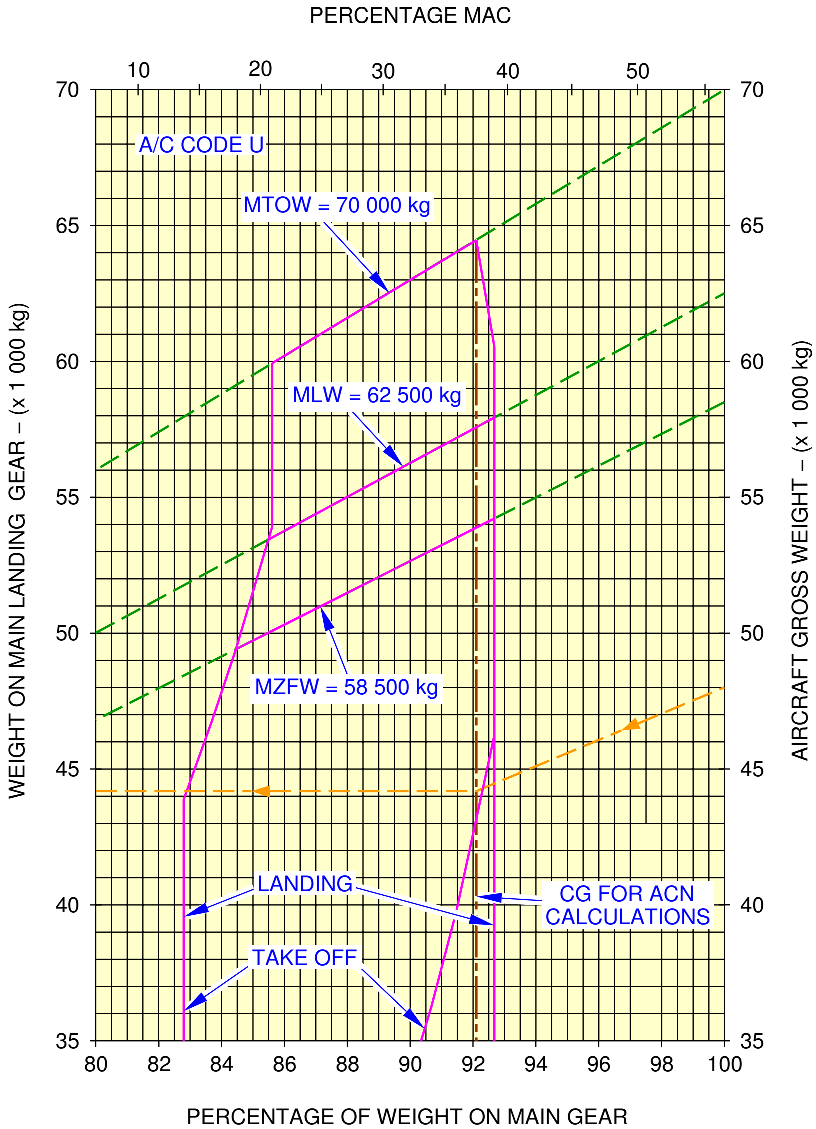
Landing Gear Loading on Pavement
Landing Gear Loading on Pavement
FIGURE-7-4-1-991-054-A01

****ON A/C A319-100**



Landing Gear Loading on Pavement
FIGURE-7-4-1-991-055-A01

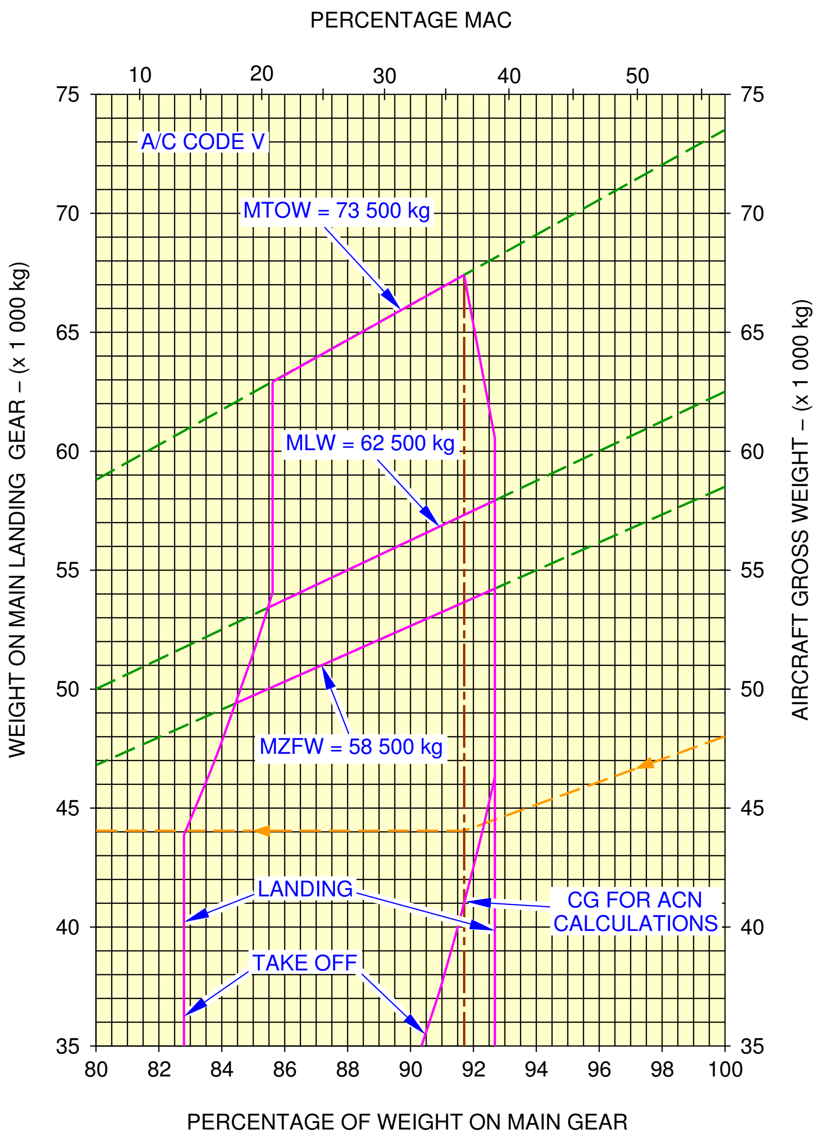
**ON A/C A319-100



N_AC_070401_1_0560101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-056-A01

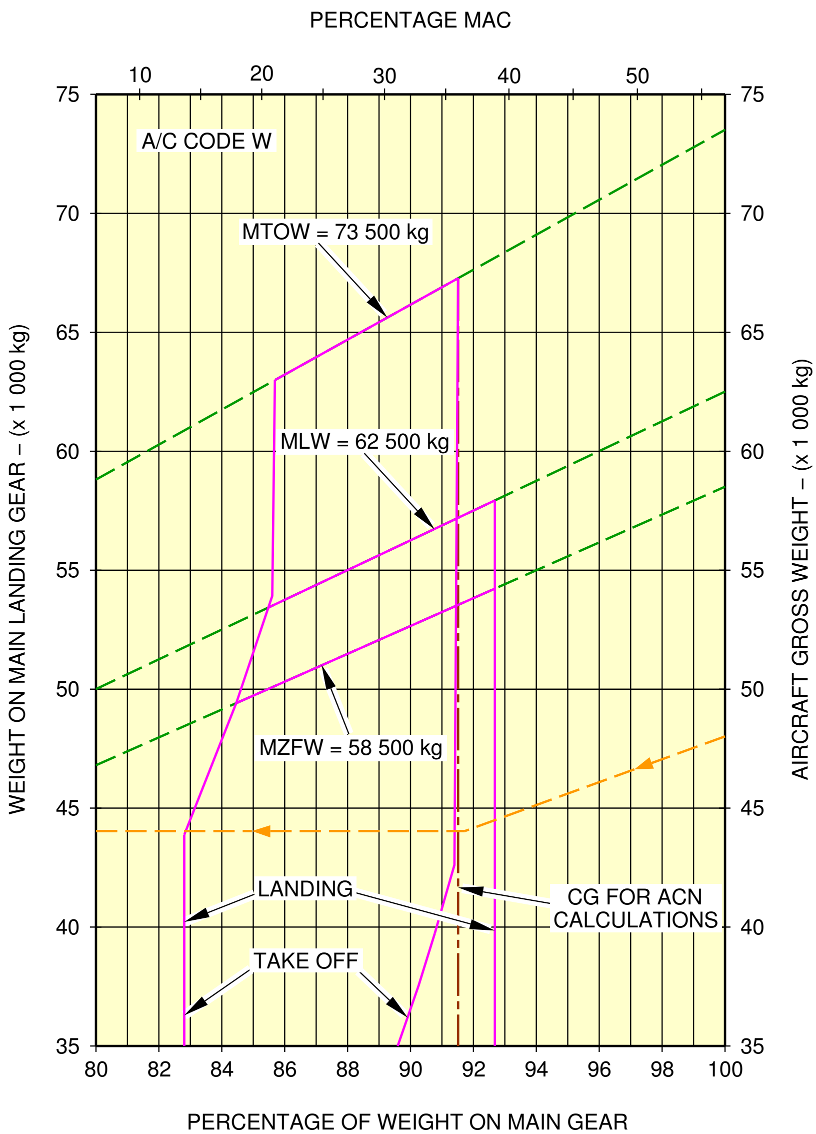
**ON A/C A319-100



N_AC_070401_1_0570101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-057-A01

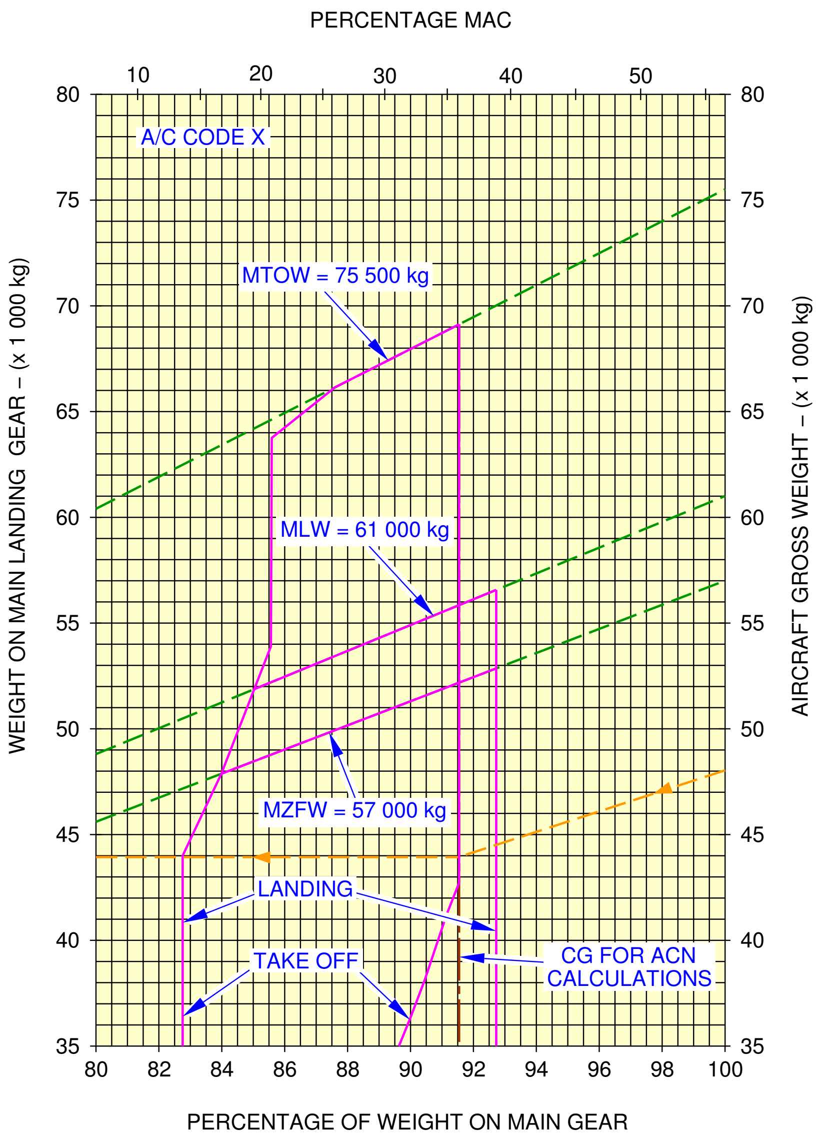
**ON A/C A319-100



N_AC_070401_1_0580101_01_01

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-058-A01

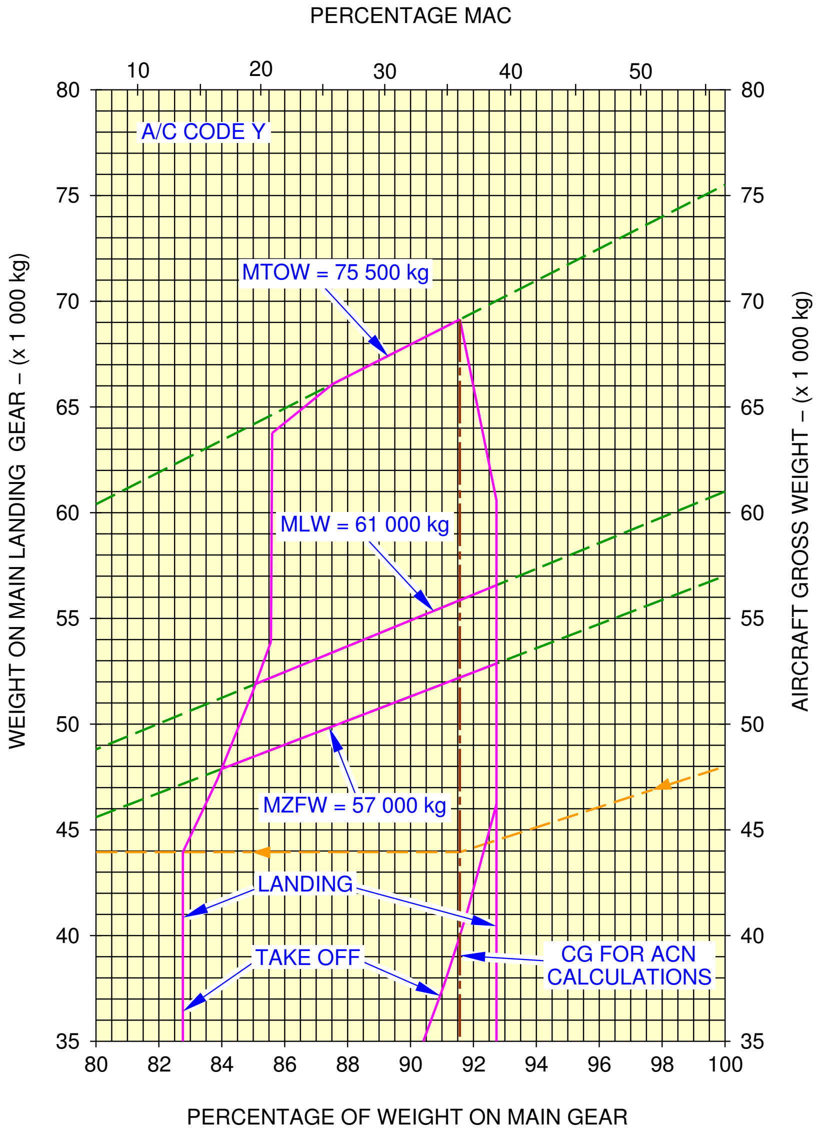
**ON A/C A319-100



N_AC_070401_1_0590101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-059-A01

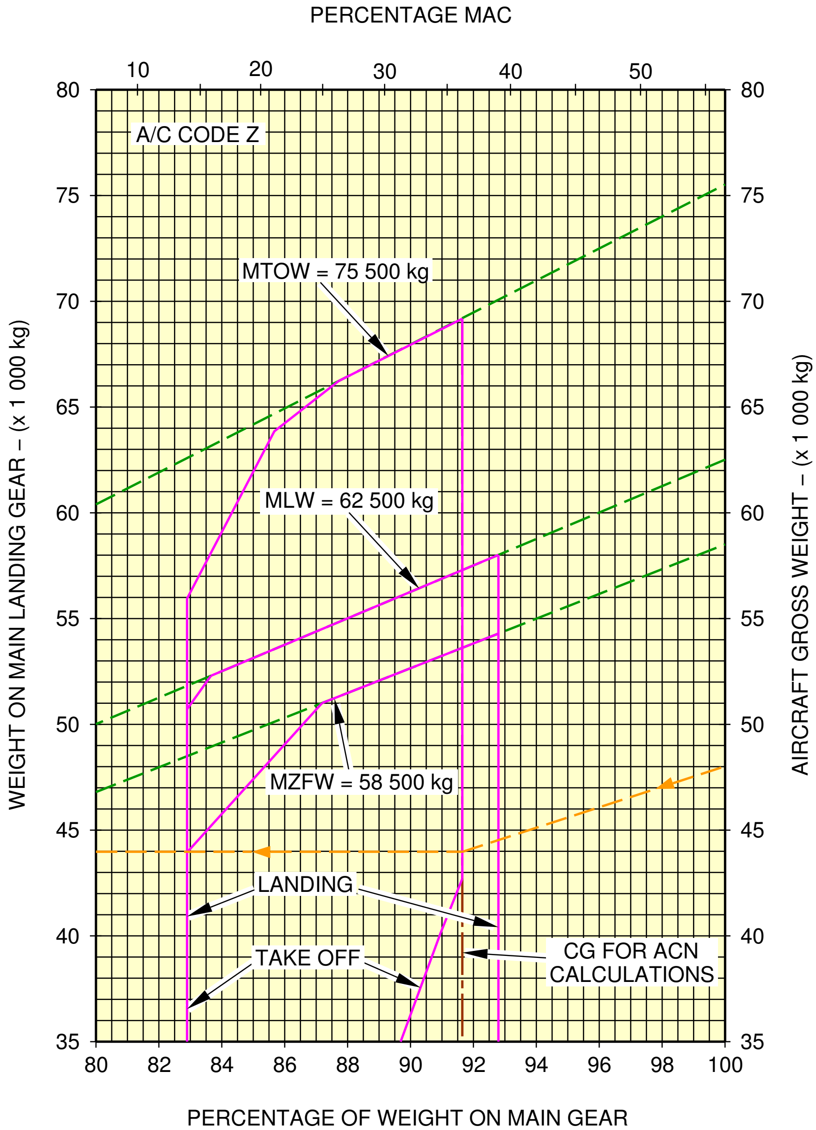
**ON A/C A319-100



N_AC_070401_1_0600101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-060-A01

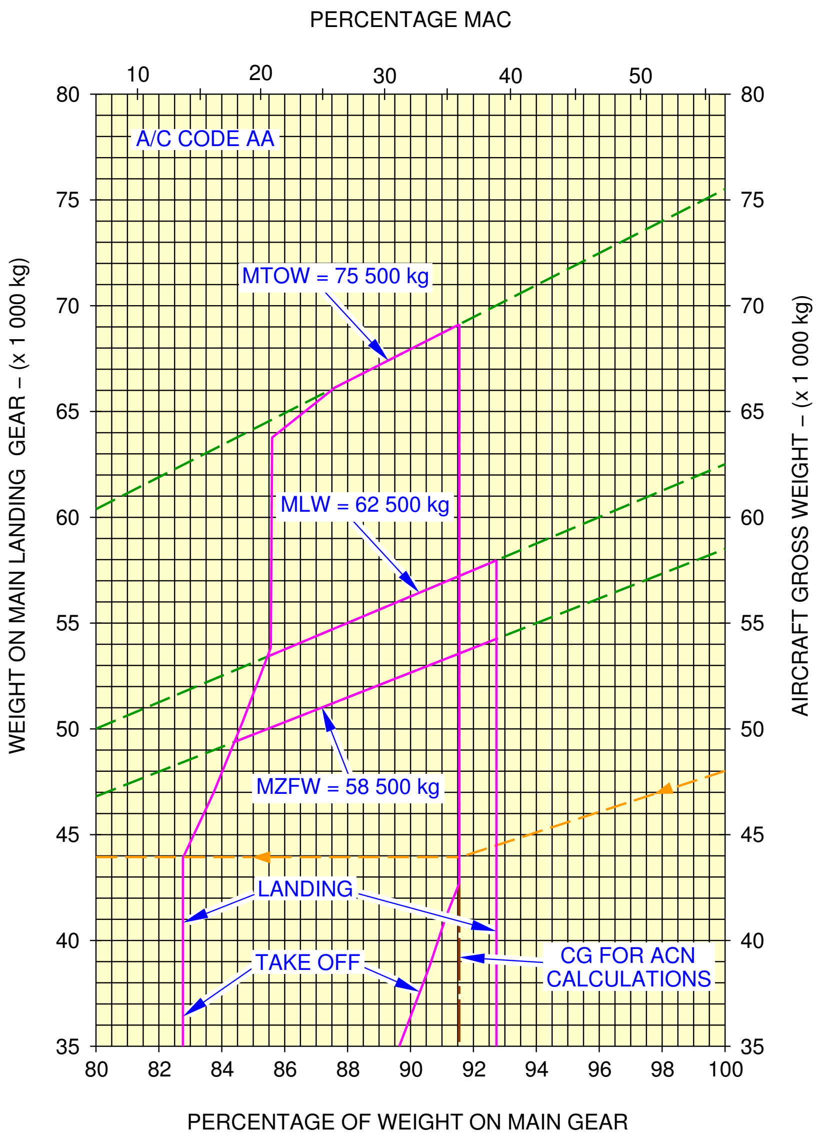
**ON A/C A319-100



N_AC_070401_1_0610101_01_01

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-061-A01

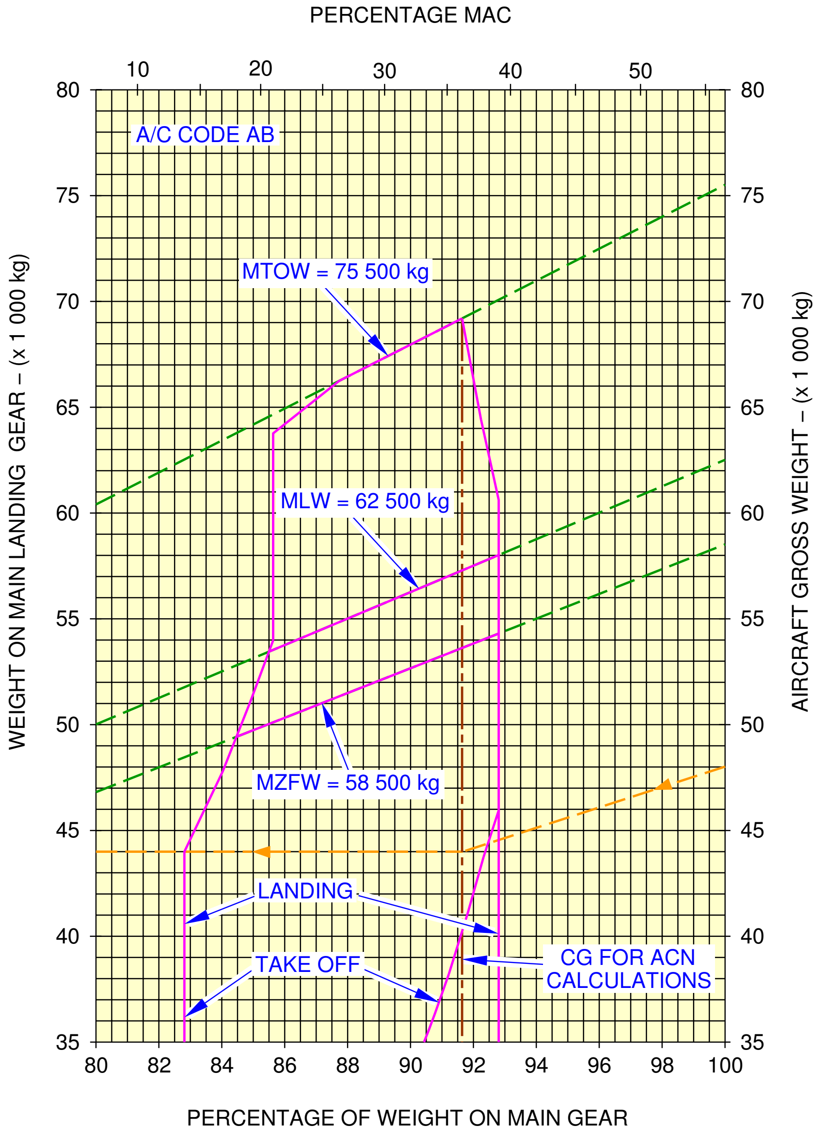
**ON A/C A319-100



N_AC_070401_1_0620101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-062-A01

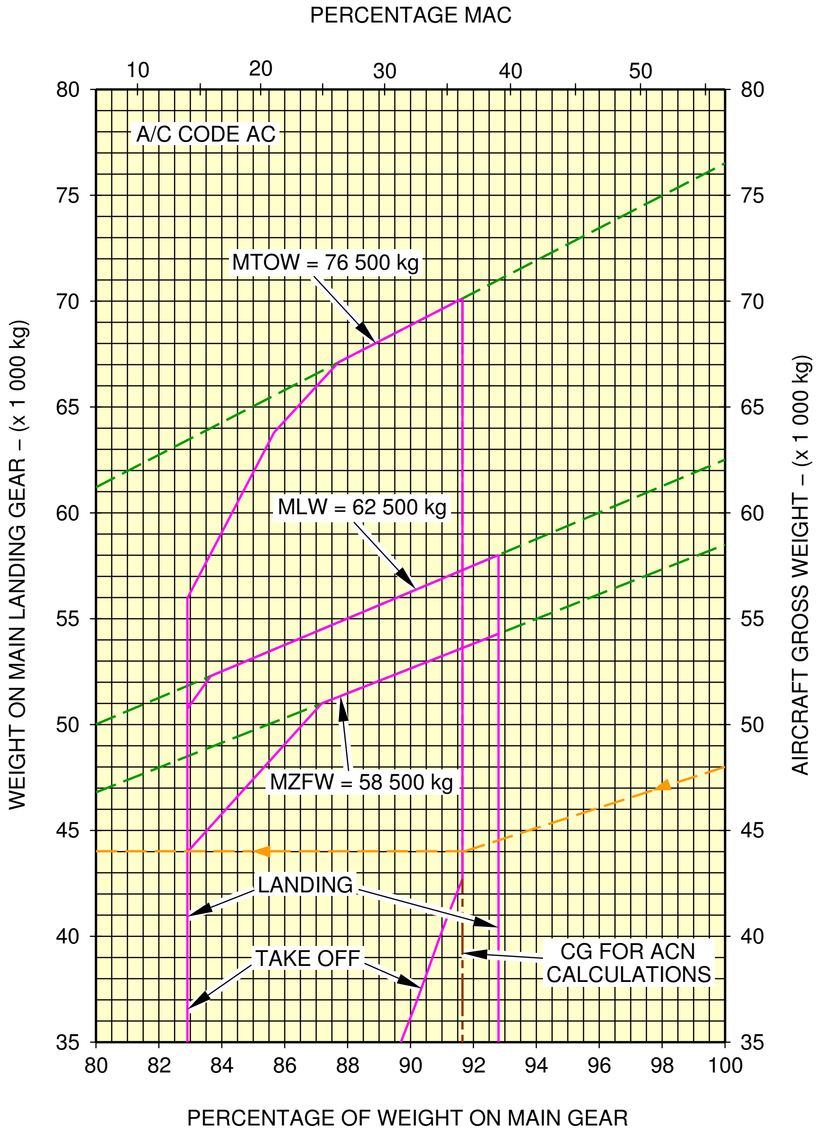
**ON A/C A319-100



N_AC_070401_1_0630101_01_00

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-063-A01

**ON A/C A319-100



N_AC_070401_1_0640101_01_01

Landing Gear Loading on Pavement
FIGURE-7-4-1-991-064-A01

7-5-0 Flexible Pavement Requirements - U.S. Army Corps of Engineers Design Method

****ON A/C A319-100**

Flexible Pavement Requirements - U.S. Army Corps of Engineers Design Method

1. General

In order to determine a particular Flexible Pavement Thickness, the Subgrade Strength (CBR), the Annual Departure Level and the weight on one Main Landing Gear must be known.

In the example shown in Section 7-5-1 Flexible Pavement Requirements, A/C Code C for:
- a CBR value of 10
- an Annual Departure Level of 25 000
- the Load on one MLG of 20 000 kg (44 100 lb).

For these conditions, the Flexible Pavement Thickness is 41.4 cm (16.3 in).

The line showing 10 000 Coverages is used to calculate the Aircraft Classification Number (ACN).

7-5-1 Flexible Pavement Requirements - U.S. Army Corps of Engineers Design Method

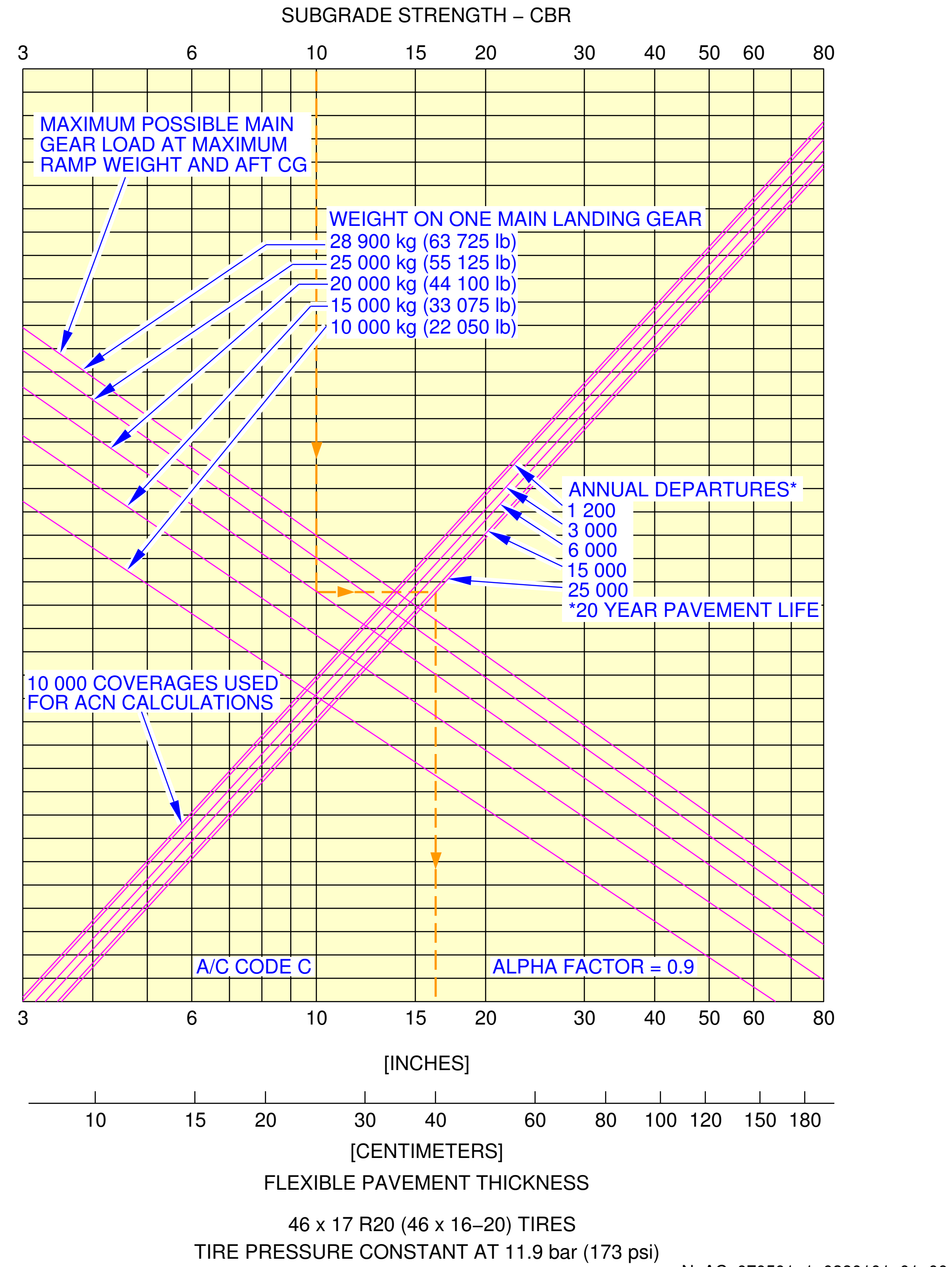
****ON A/C A319-100**

Flexible Pavement Requirements - U.S. Army Corps of Engineers Design Method

1. This section gives Flexible Pavement Requirements.

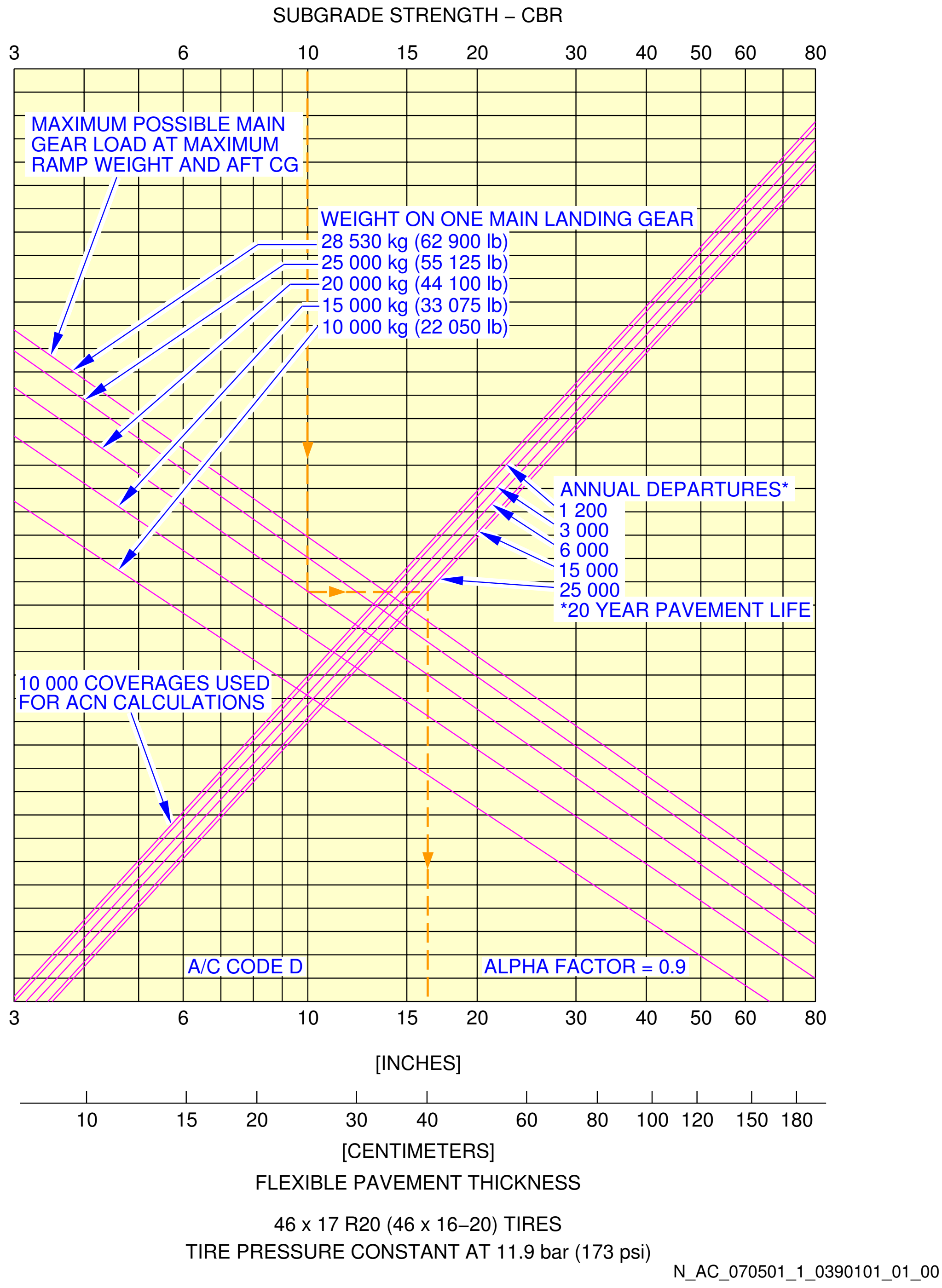
   NOTE : For A/C Code definition, refer to chapter 7-1-0.

**ON A/C A319-100



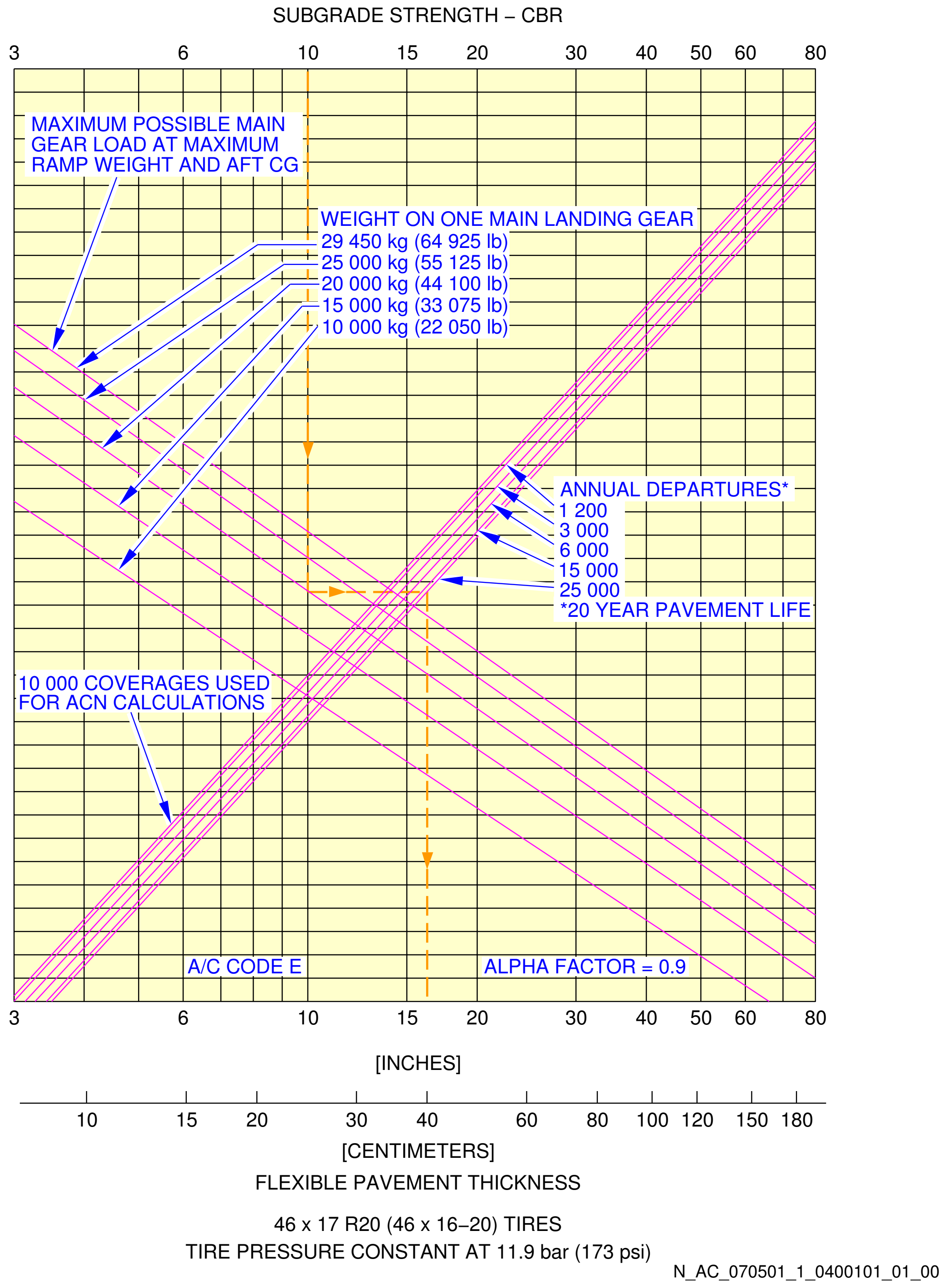
Flexible Pavement Requirements
FIGURE-7-5-1-991-038-A01

****ON A/C A319-100**



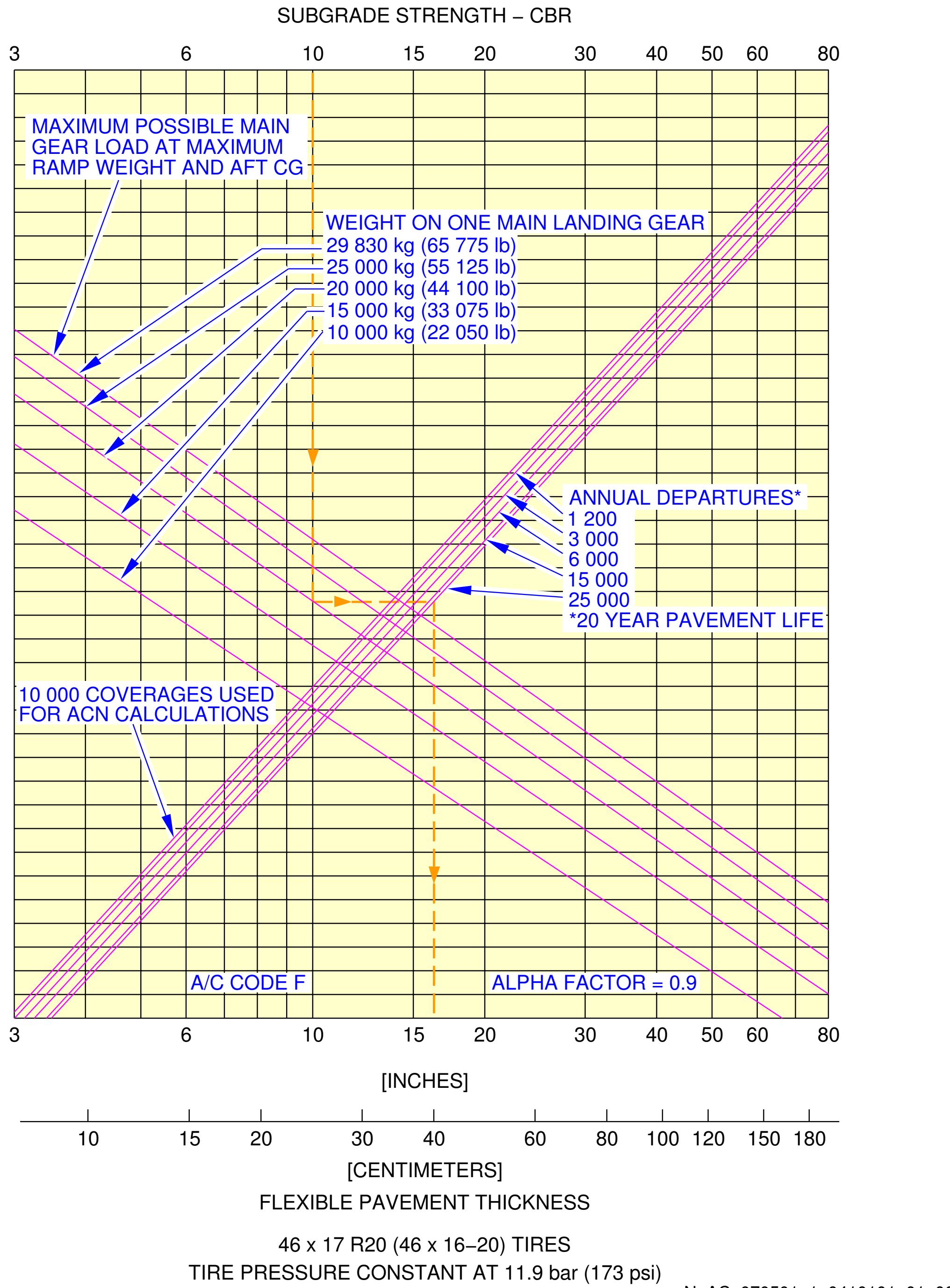
Flexible Pavement Requirements
FIGURE-7-5-1-991-039-A01

**ON A/C A319-100



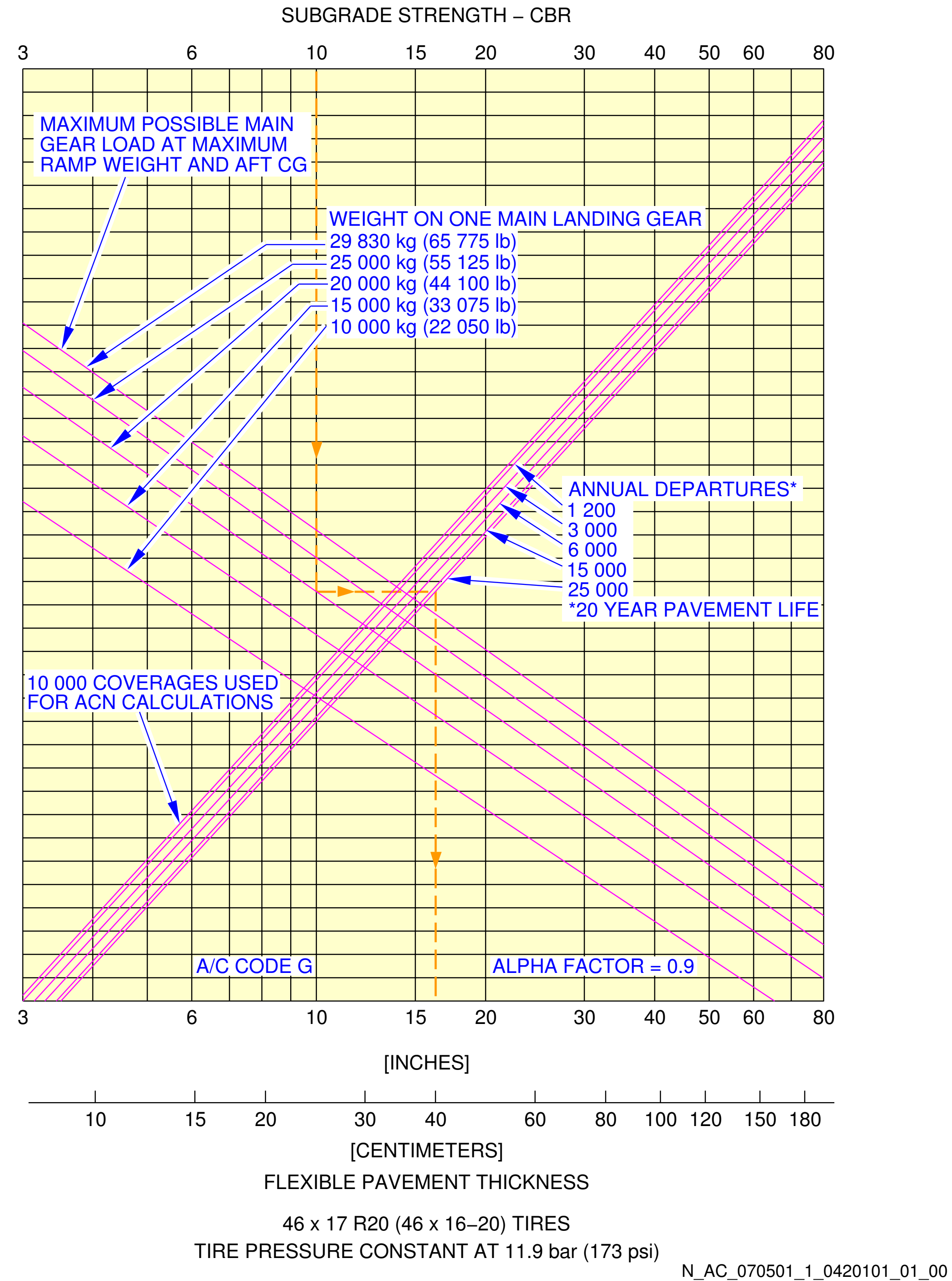
Flexible Pavement Requirements
FIGURE-7-5-1-991-040-A01

**ON A/C A319-100



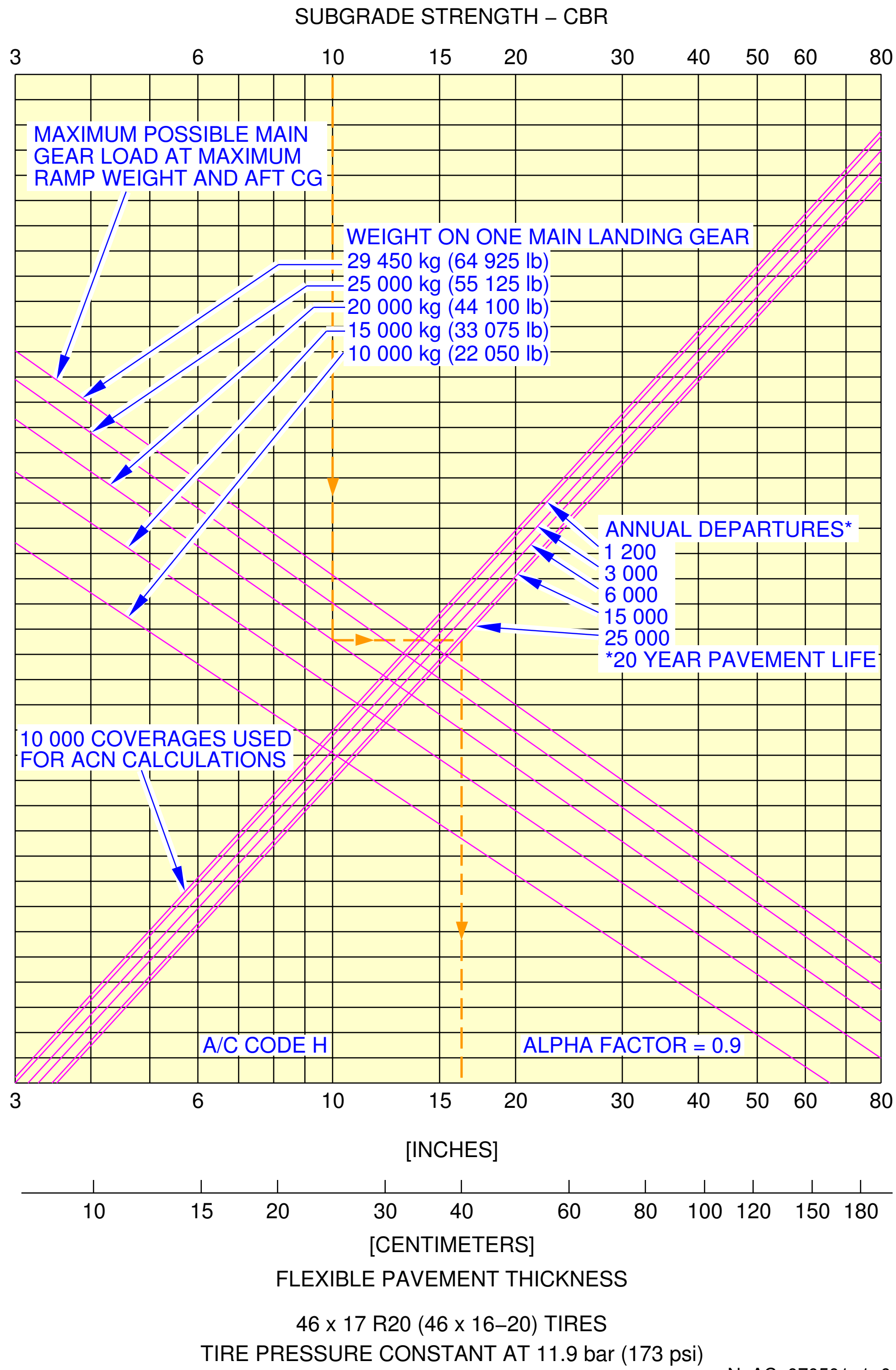
Flexible Pavement Requirements
FIGURE-7-5-1-991-041-A01

**ON A/C A319-100



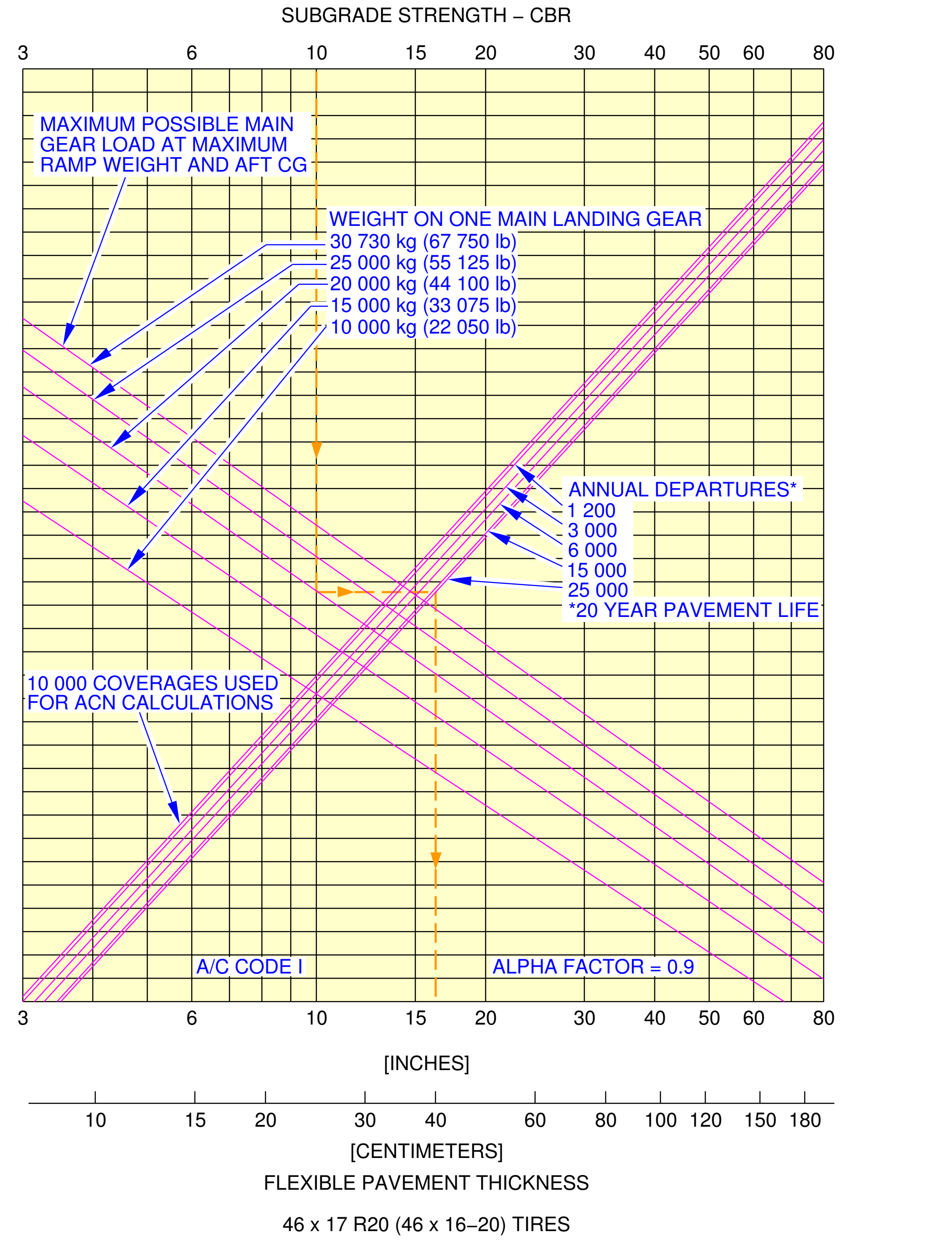
Flexible Pavement Requirements
FIGURE-7-5-1-991-042-A01

**ON A/C A319-100



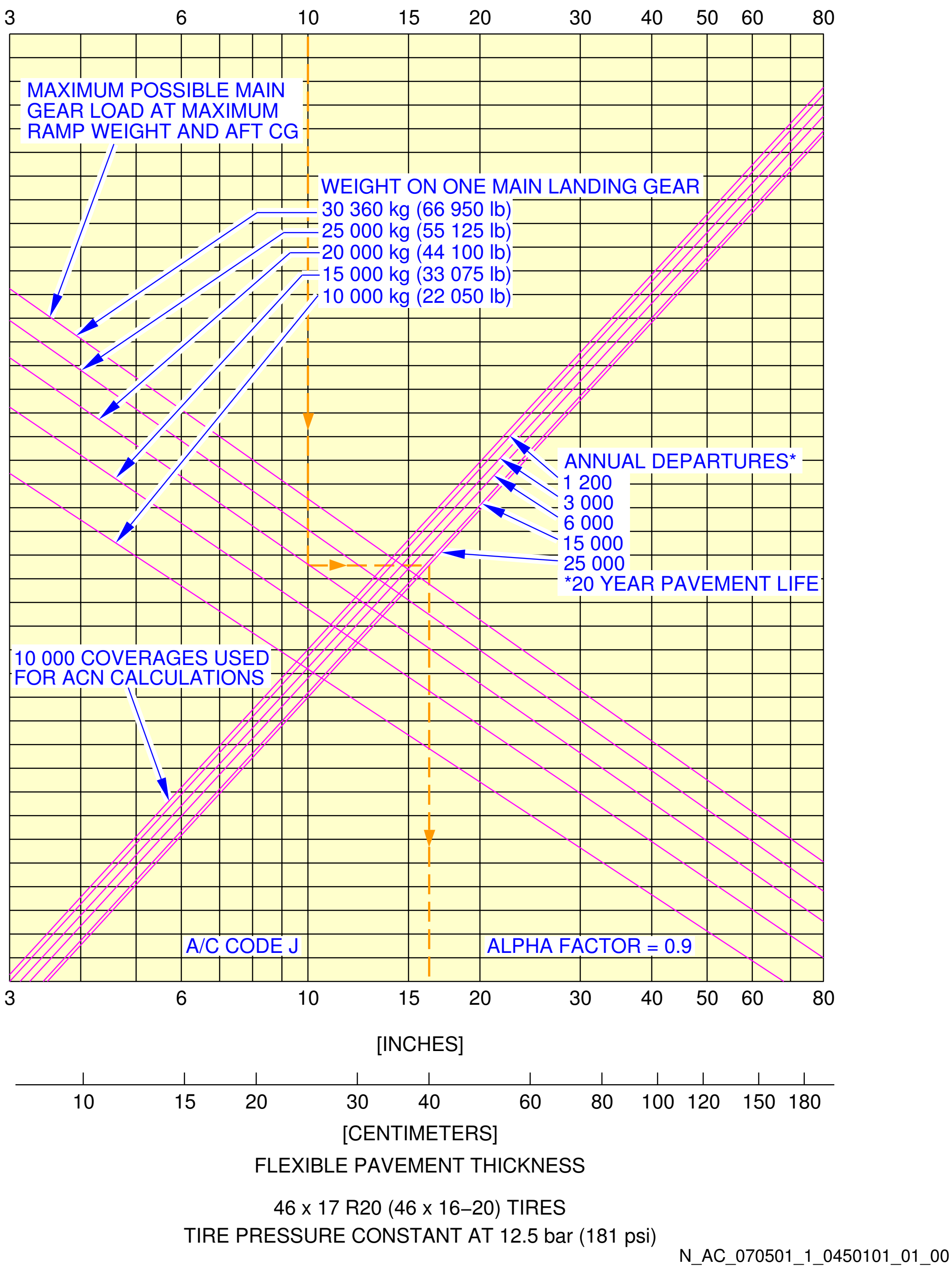
Flexible Pavement Requirements
FIGURE-7-5-1-991-043-A01

**ON A/C A319-100



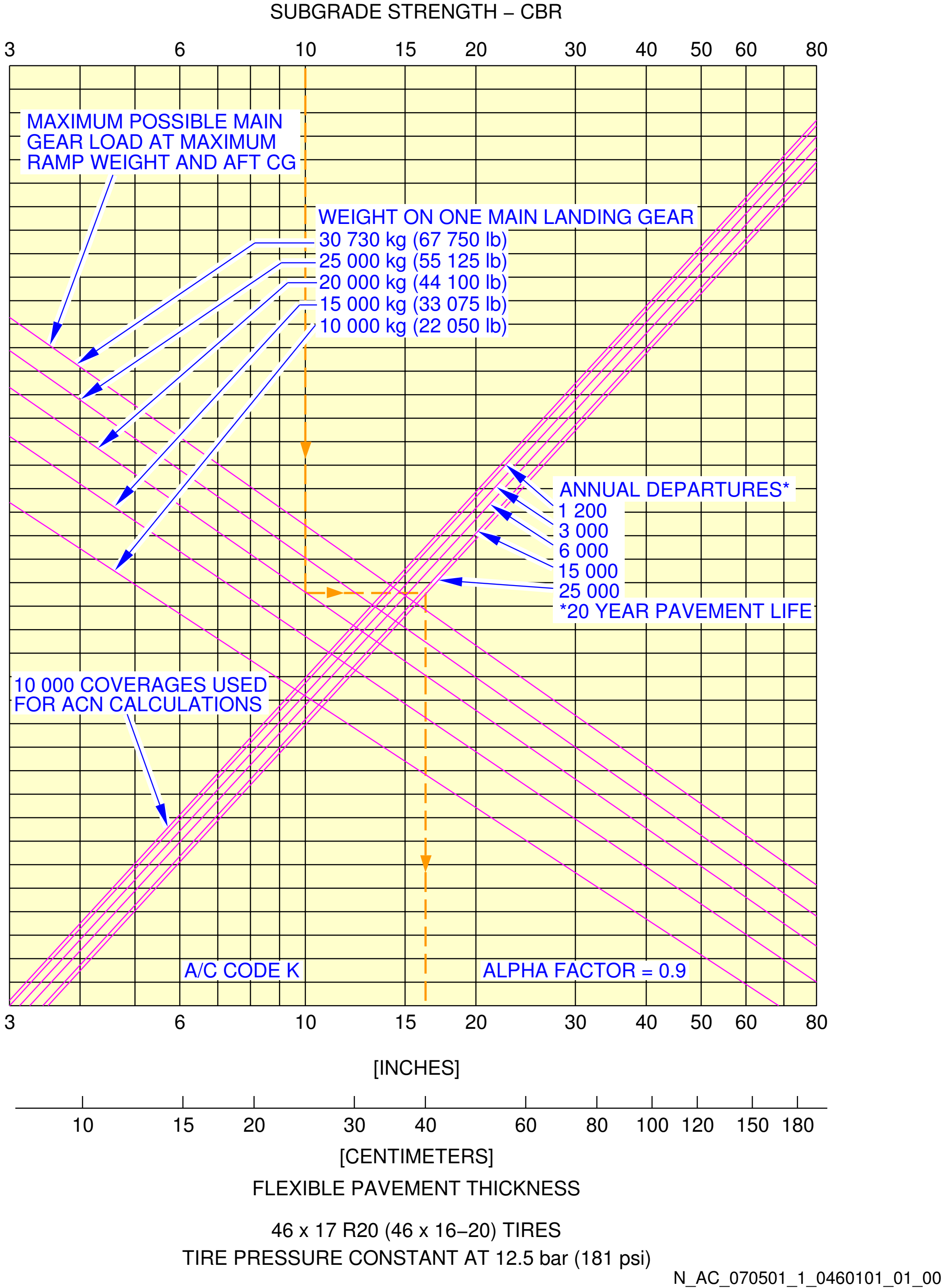
Flexible Pavement Requirements
FIGURE-7-5-1-991-044-A01

**ON A/C A319-100



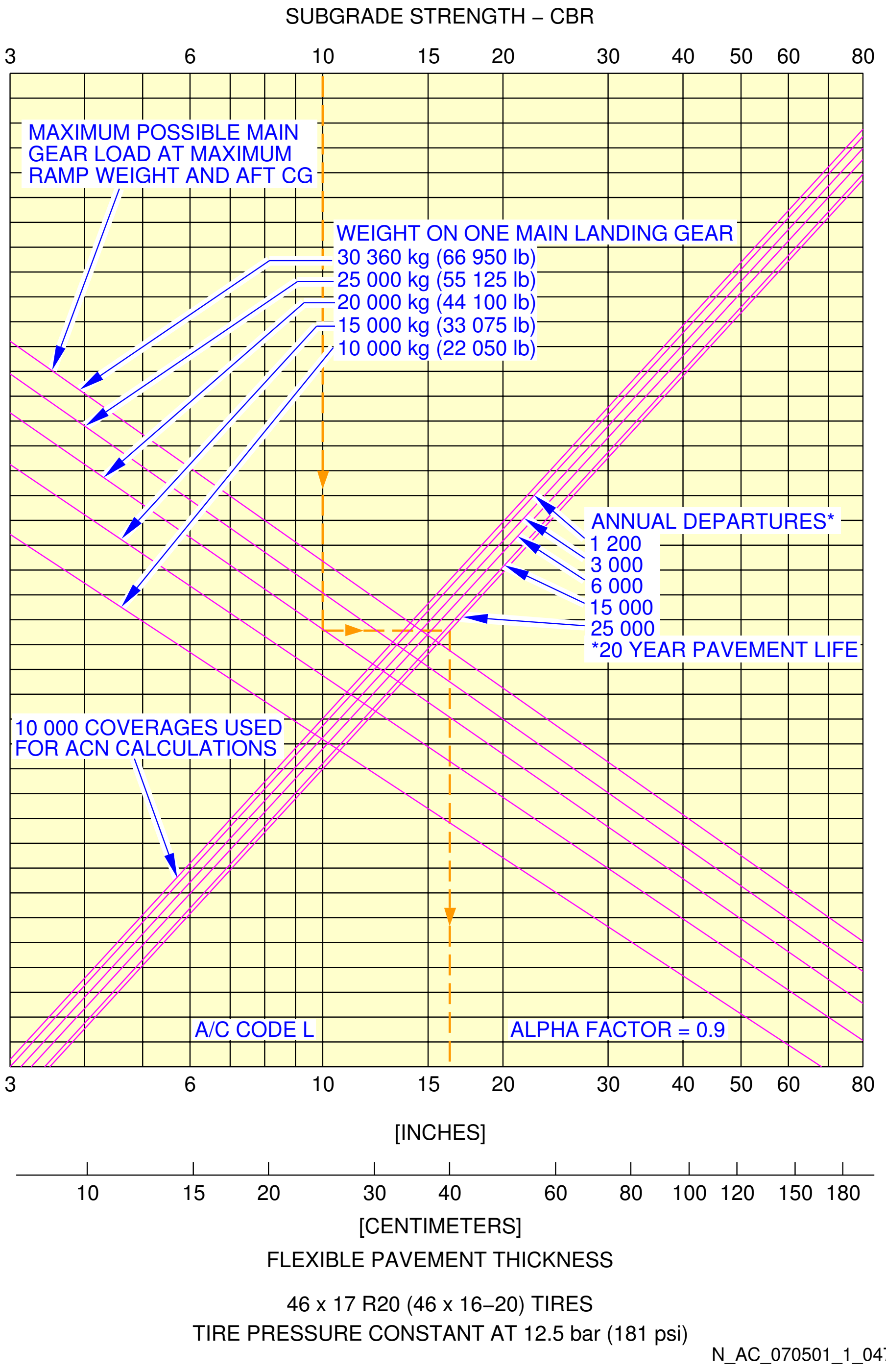
Flexible Pavement Requirements
FIGURE-7-5-1-991-045-A01

**ON A/C A319-100



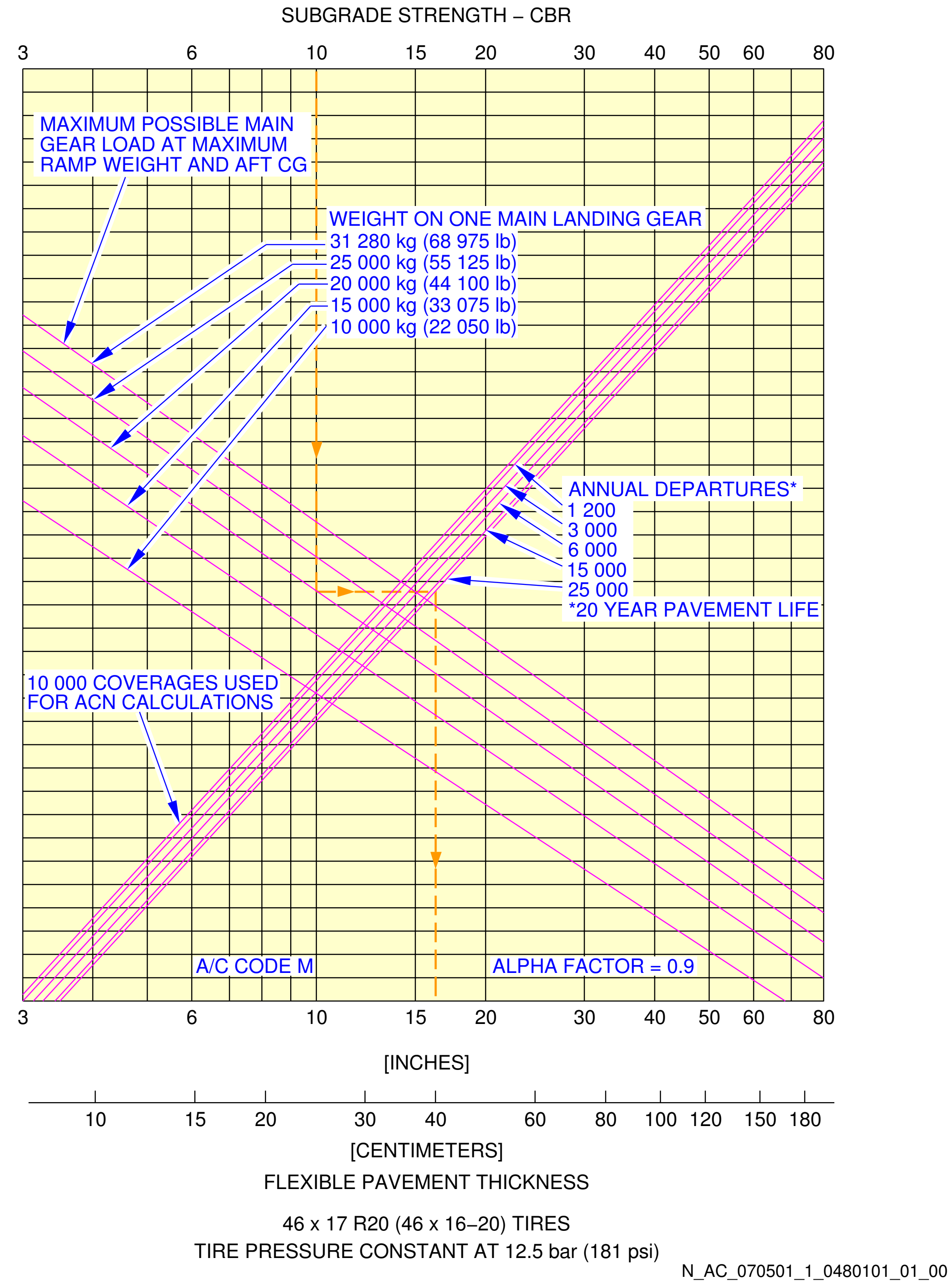
Flexible Pavement Requirements
FIGURE-7-5-1-991-046-A01

**ON A/C A319-100



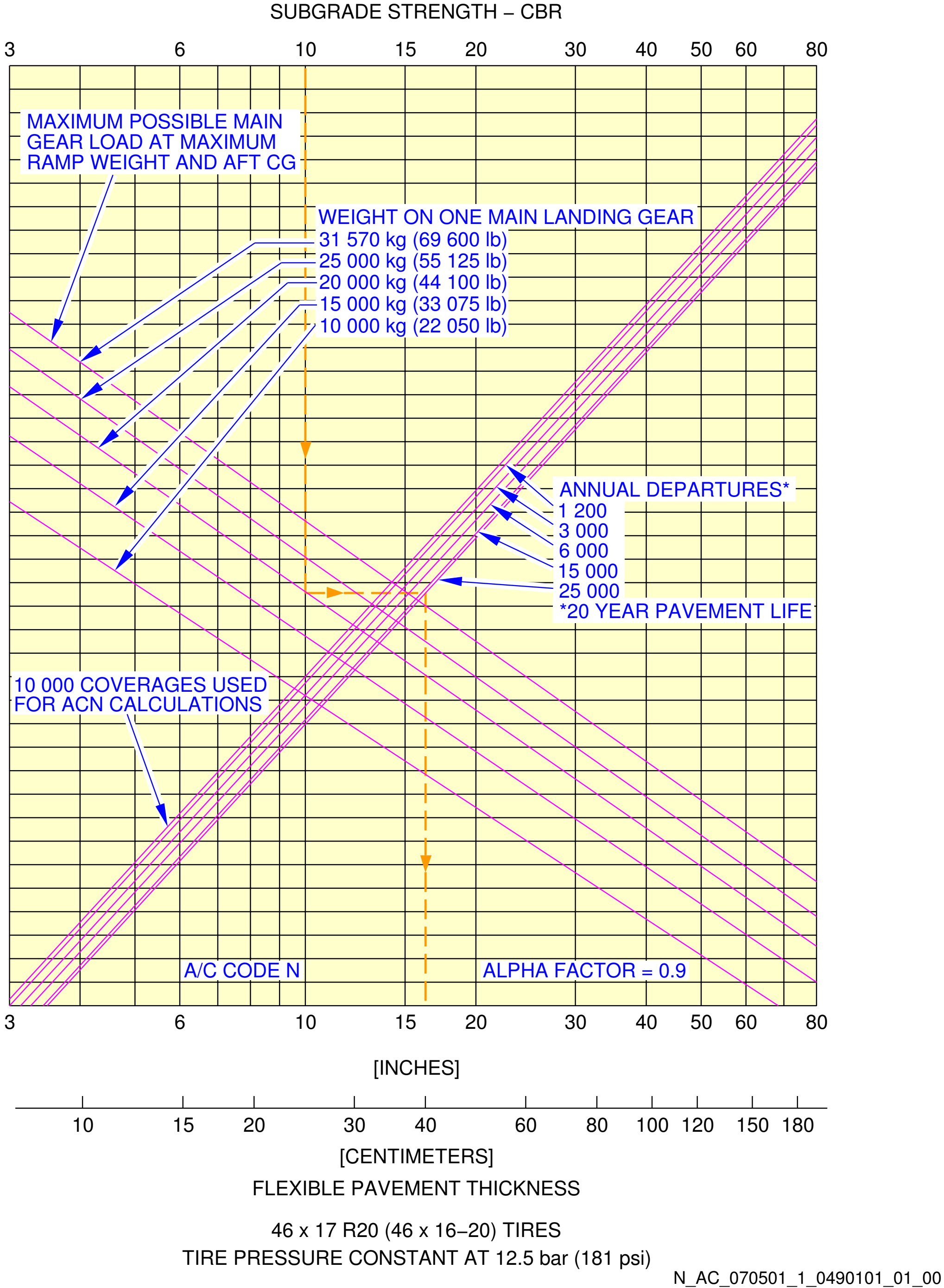
Flexible Pavement Requirements
FIGURE-7-5-1-991-047-A01

**ON A/C A319-100



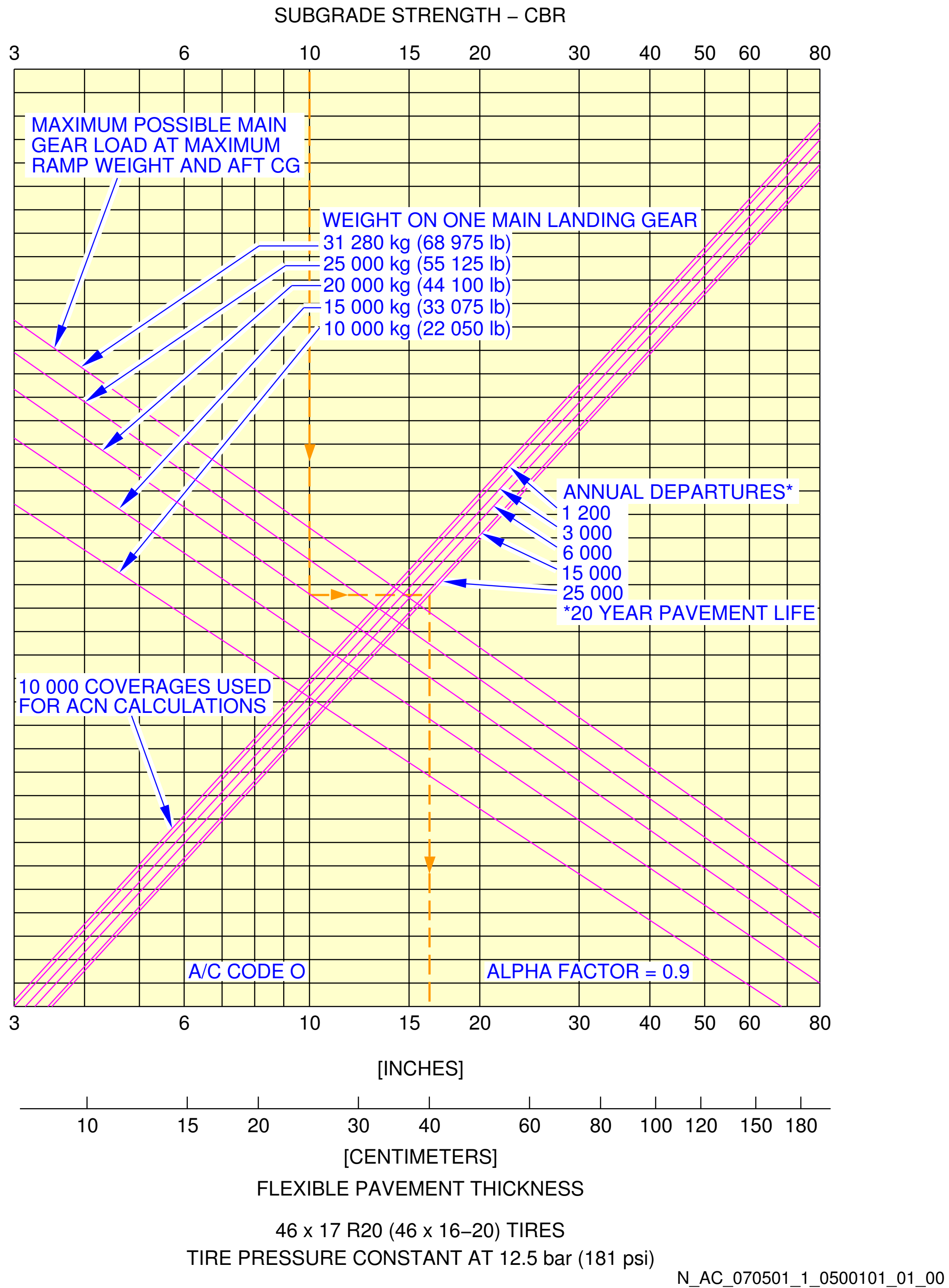
Flexible Pavement Requirements
FIGURE-7-5-1-991-048-A01

**ON A/C A319-100



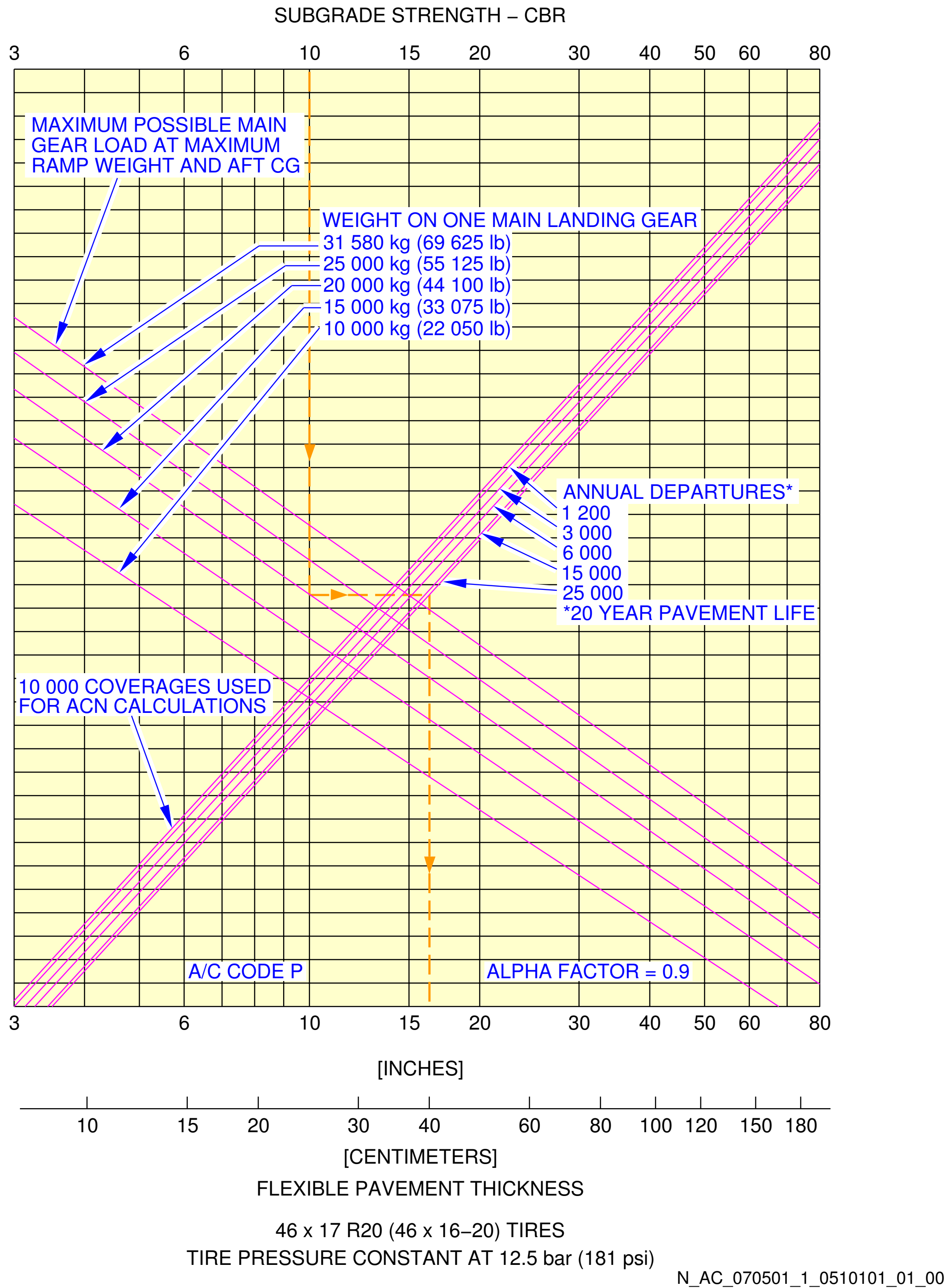
Flexible Pavement Requirements
FIGURE-7-5-1-991-049-A01

****ON A/C A319-100**



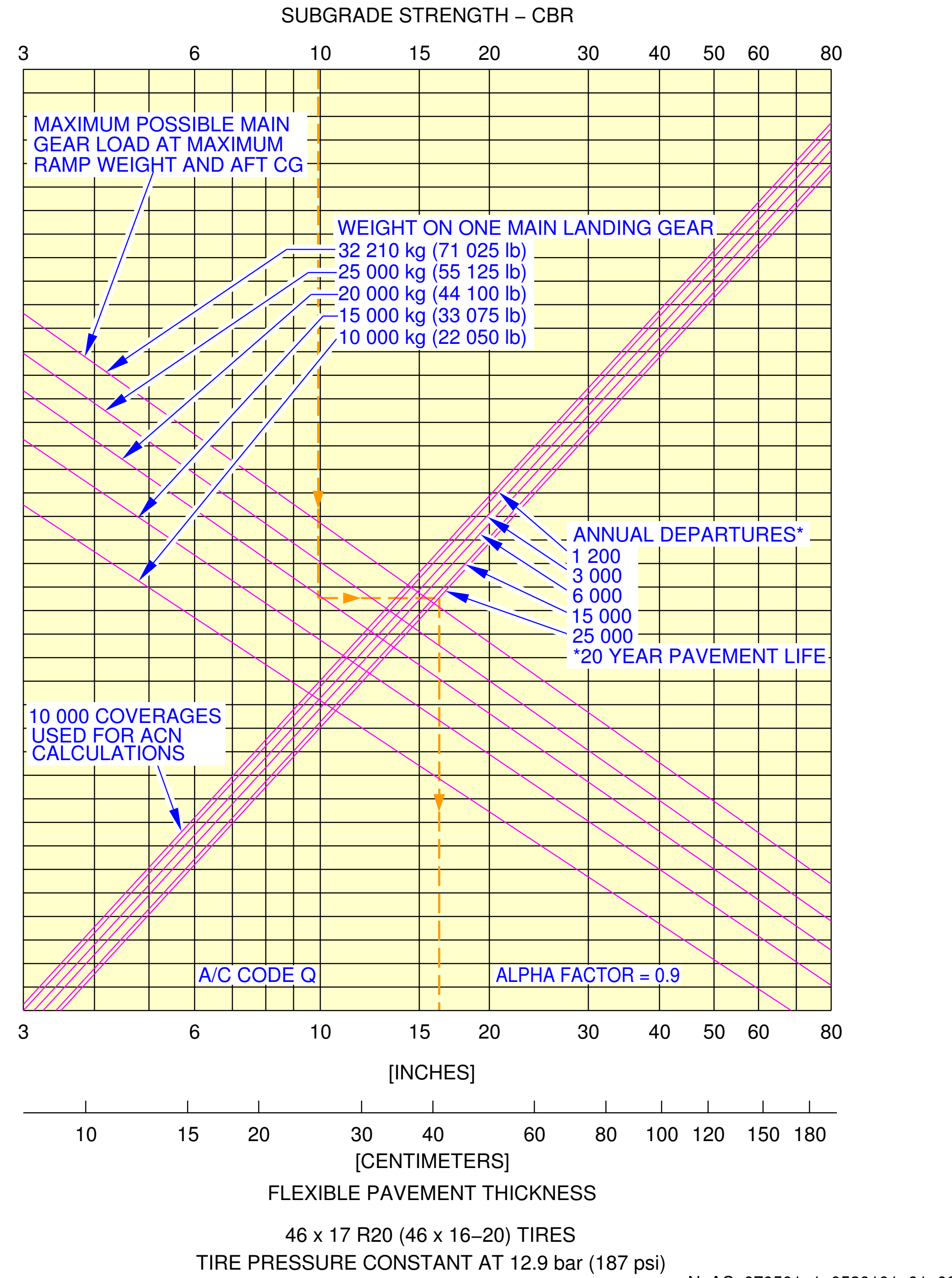
Flexible Pavement Requirements
FIGURE-7-5-1-991-050-A01

**ON A/C A319-100



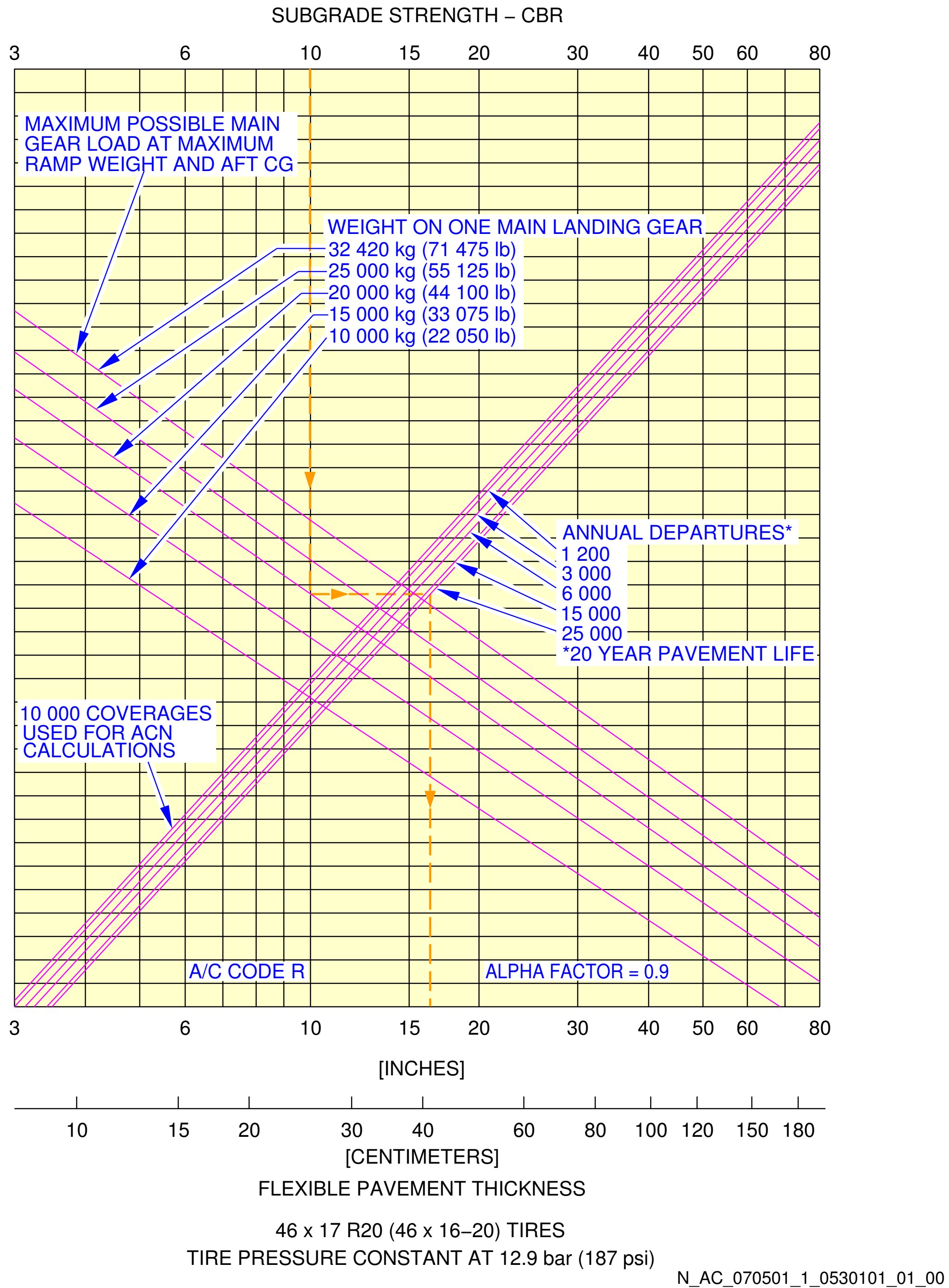
Flexible Pavement Requirements
FIGURE-7-5-1-991-051-A01

**ON A/C A319-100



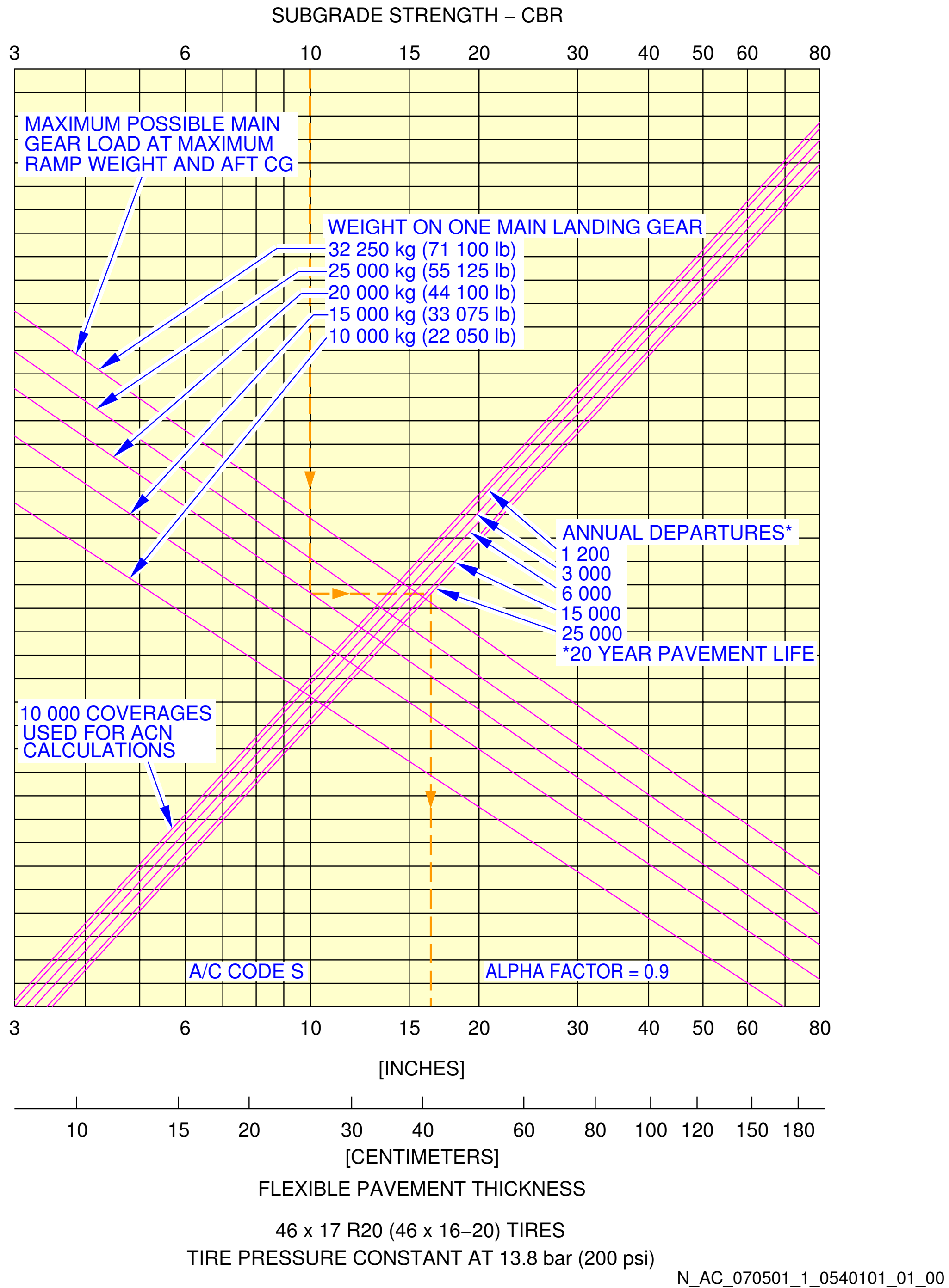
Flexible Pavement Requirements
FIGURE-7-5-1-991-052-A01

**ON A/C A319-100



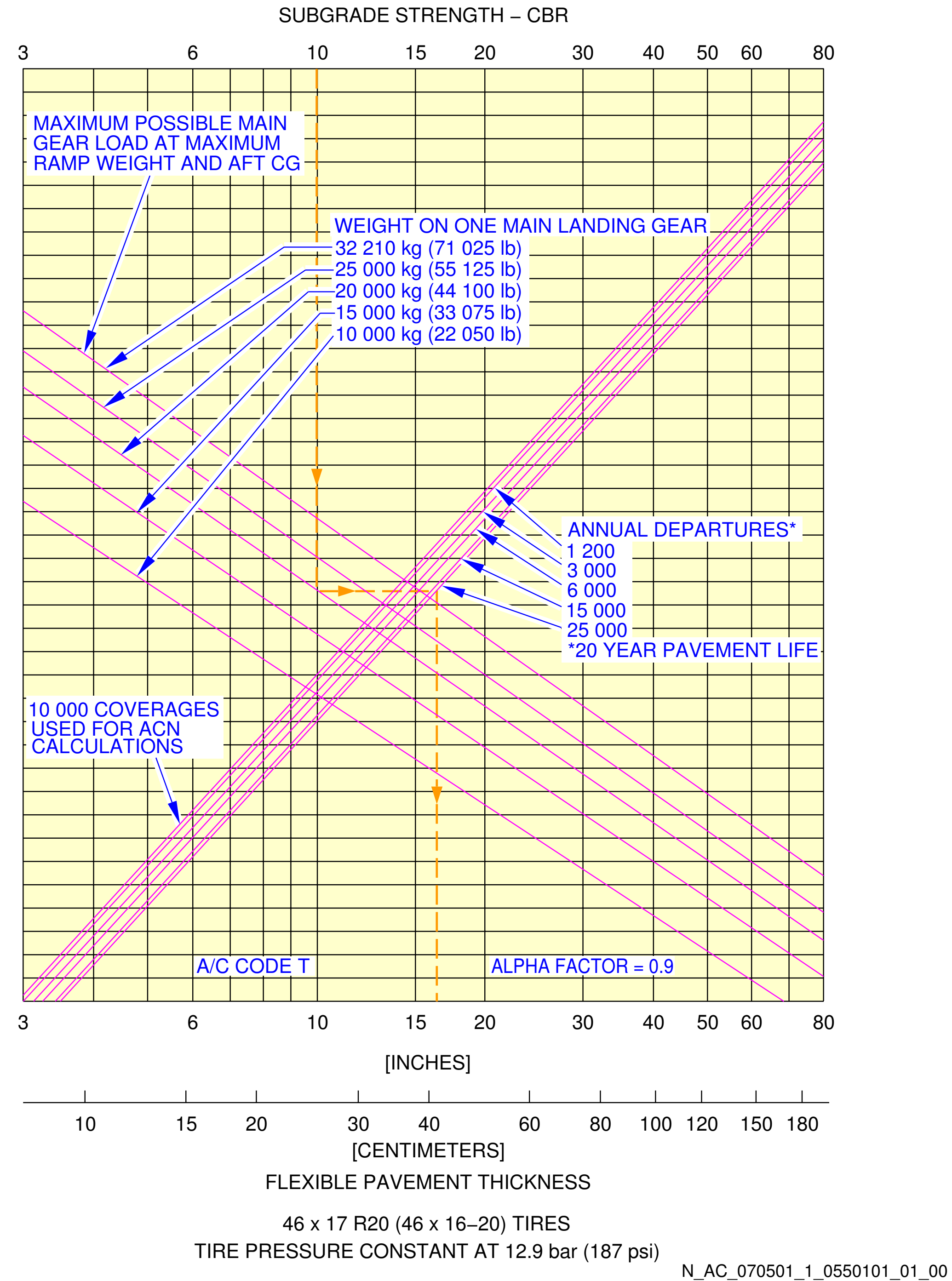
Flexible Pavement Requirements
FIGURE-7-5-1-991-053-A01

**ON A/C A319-100



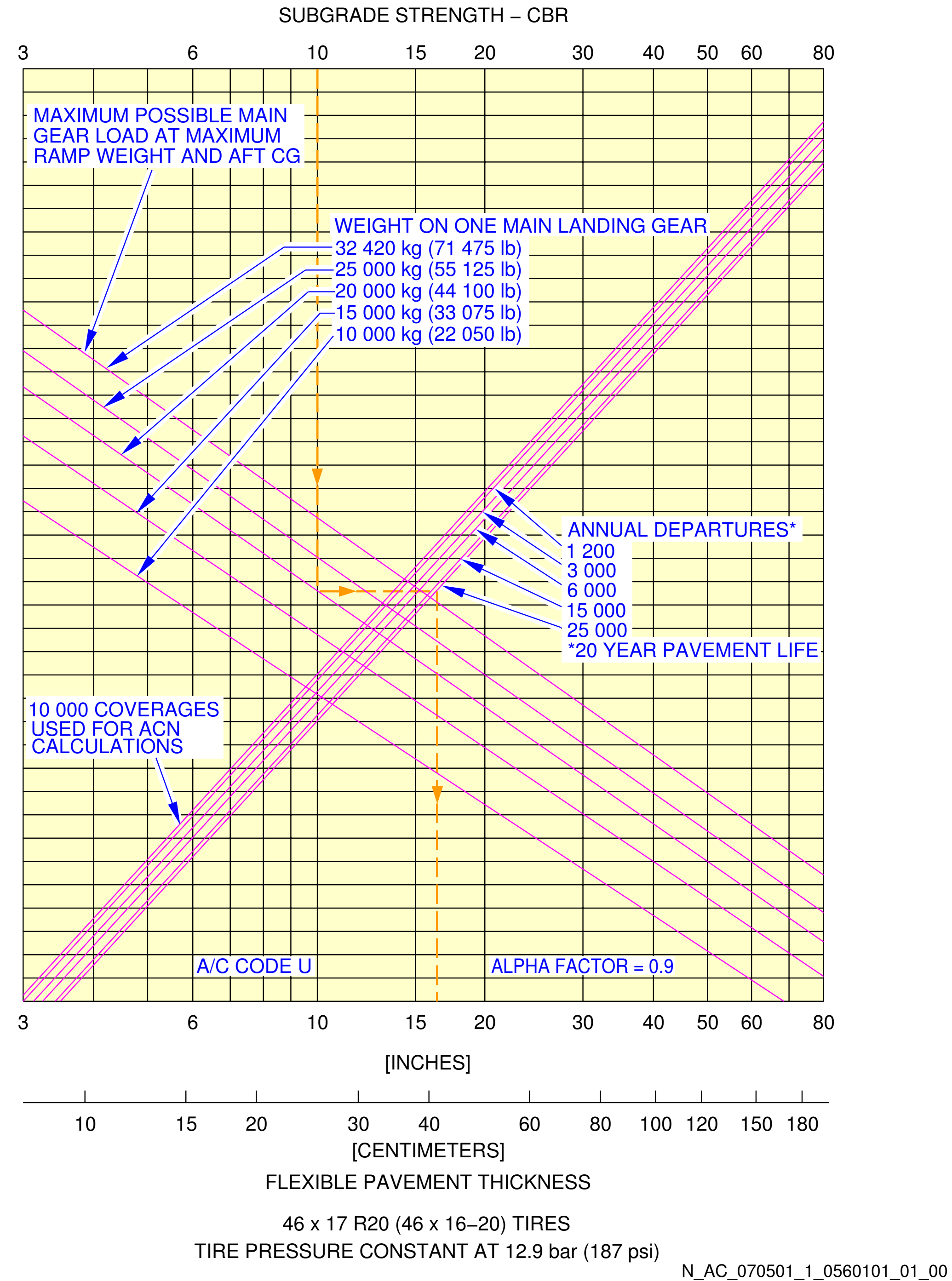
Flexible Pavement Requirements
FIGURE-7-5-1-991-054-A01

**ON A/C A319-100



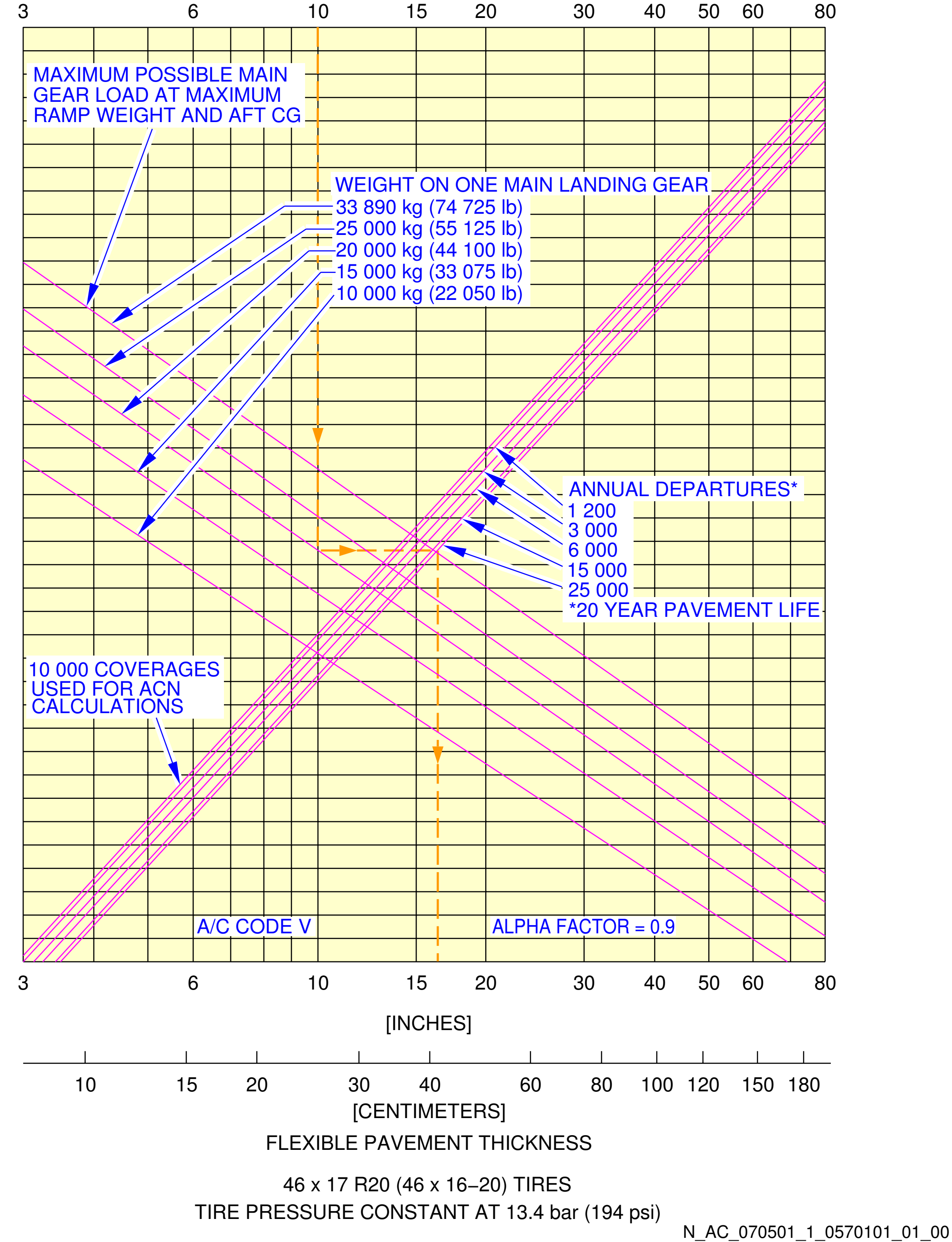
Flexible Pavement Requirements
FIGURE-7-5-1-991-055-A01

**ON A/C A319-100



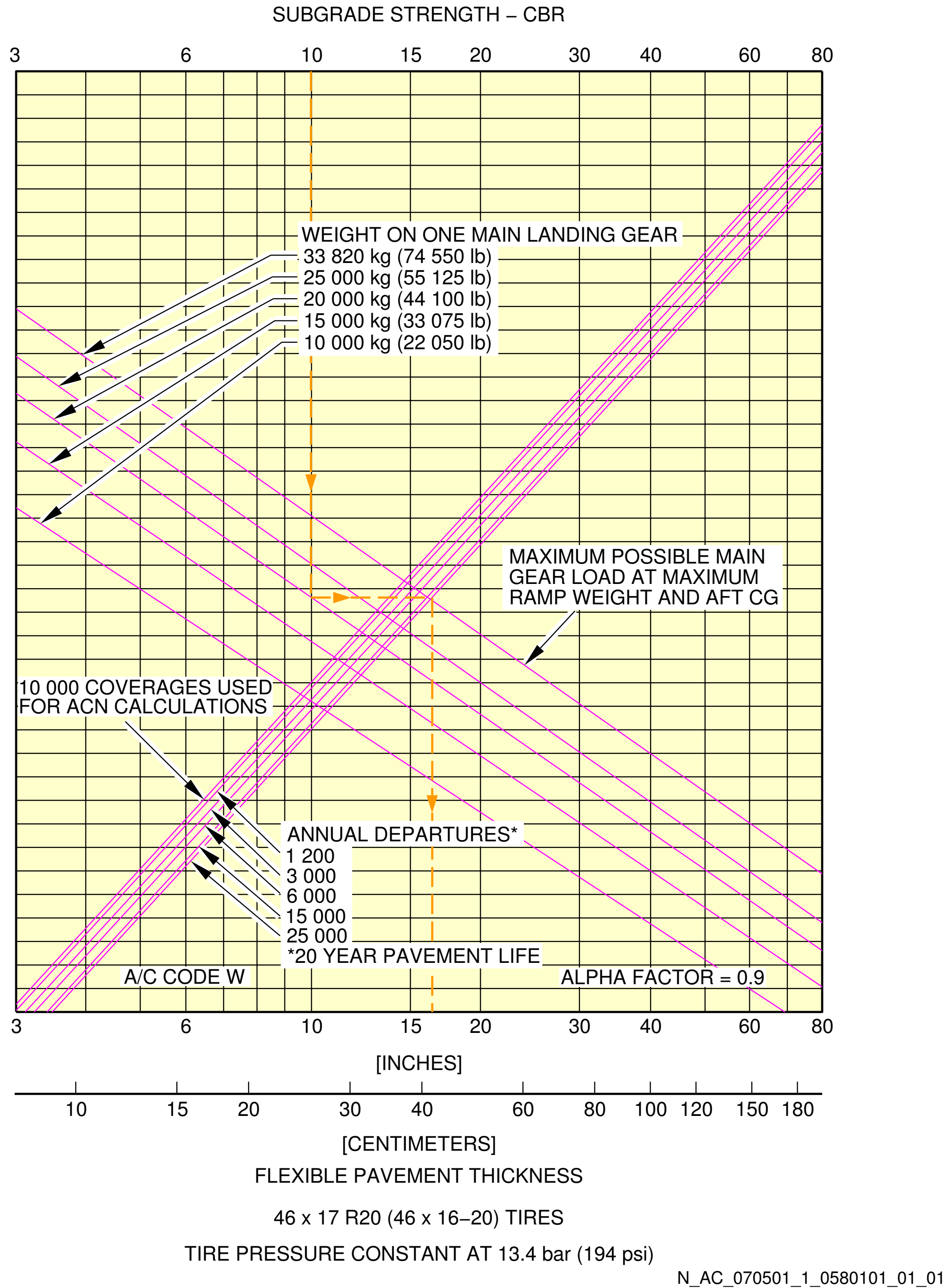
Flexible Pavement Requirements
FIGURE-7-5-1-991-056-A01

****ON A/C A319-100**



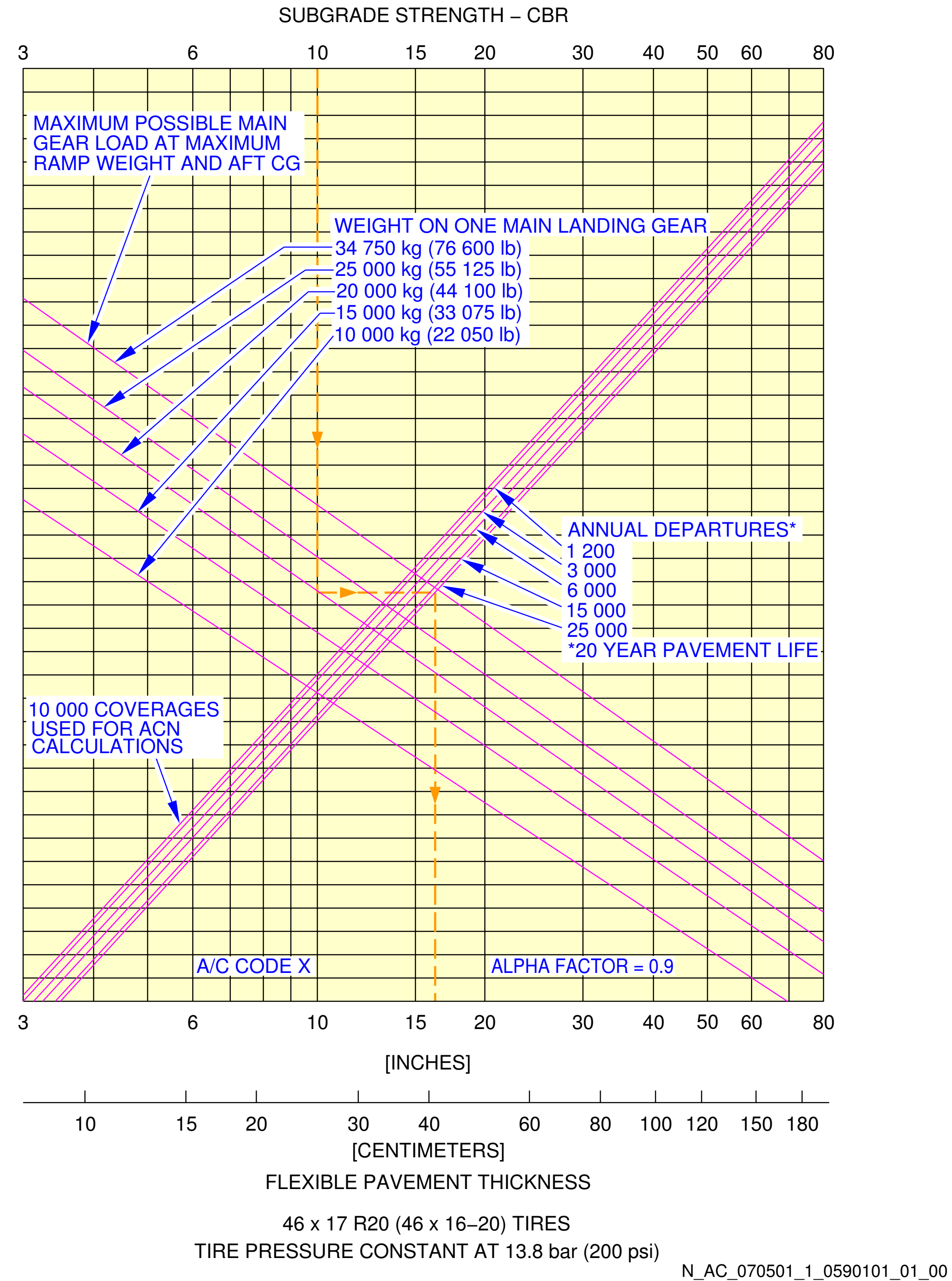
Flexible Pavement Requirements
FIGURE-7-5-1-991-057-A01

**ON A/C A319-100



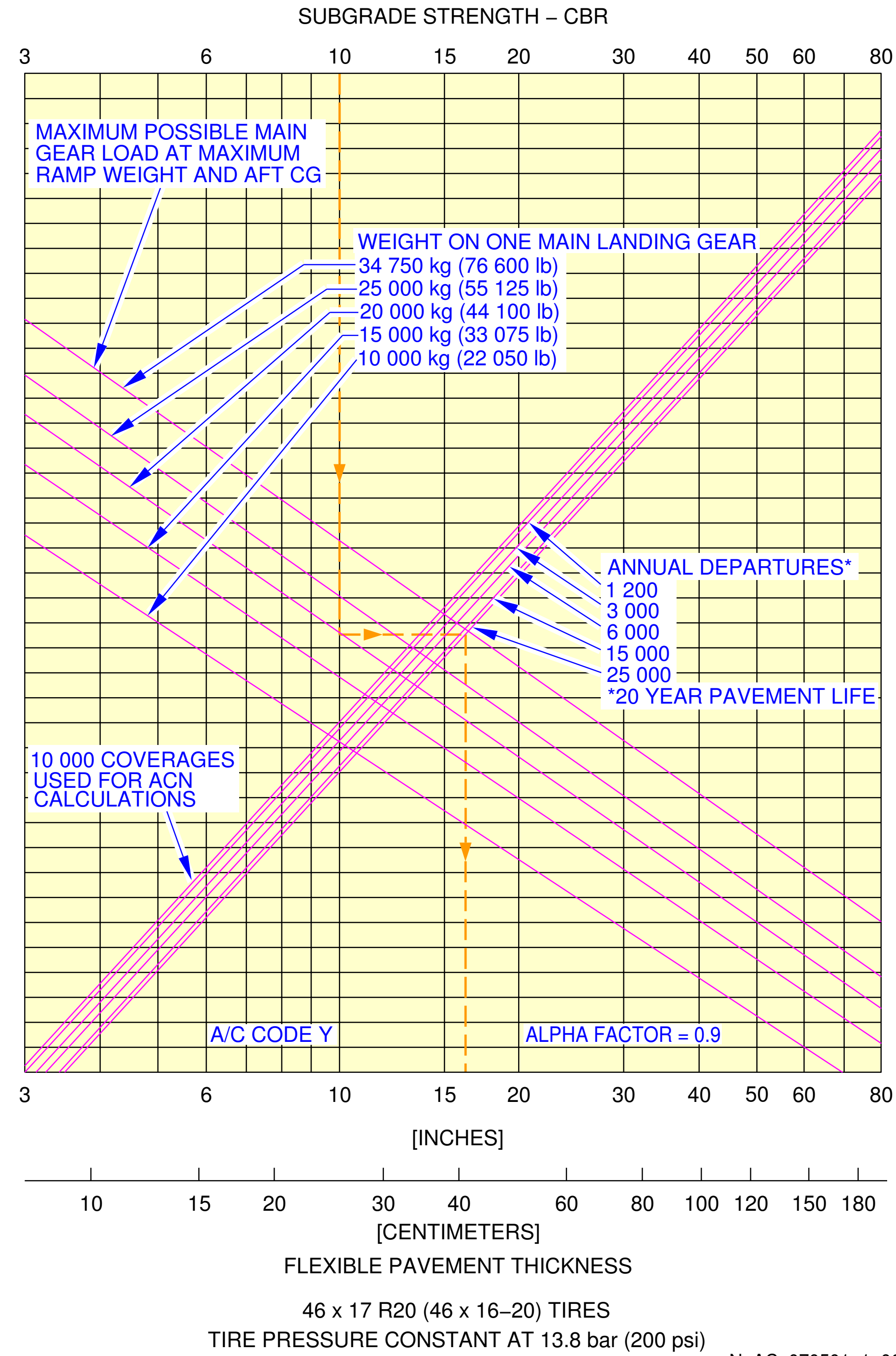
Flexible Pavement Requirements
FIGURE-7-5-1-991-058-A01

**ON A/C A319-100



Flexible Pavement Requirements
FIGURE-7-5-1-991-059-A01

**ON A/C A319-100



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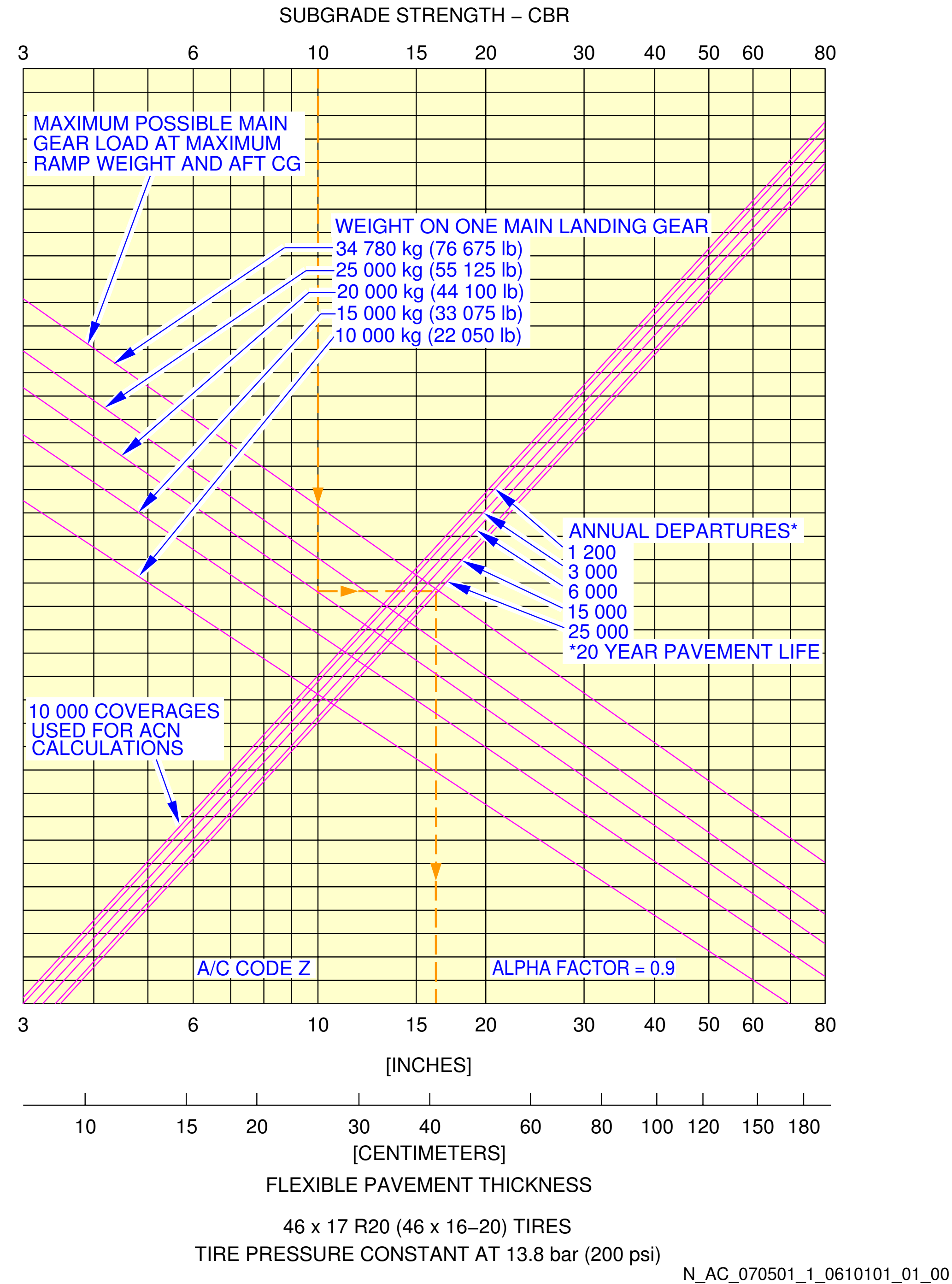
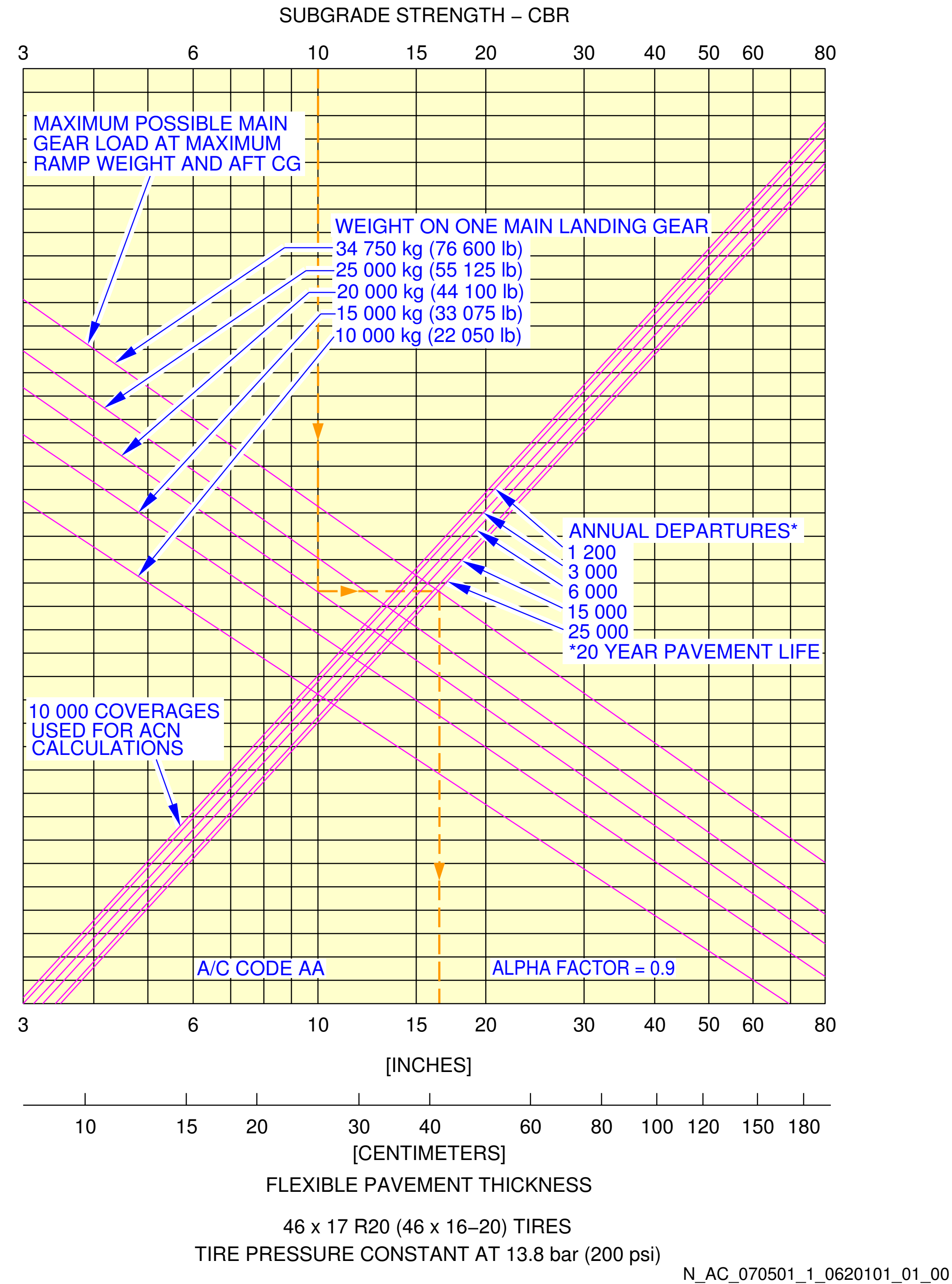
Flexible Pavement Requirements
FIGURE-7-5-1-991-060-A01

**ON A/C A319-100



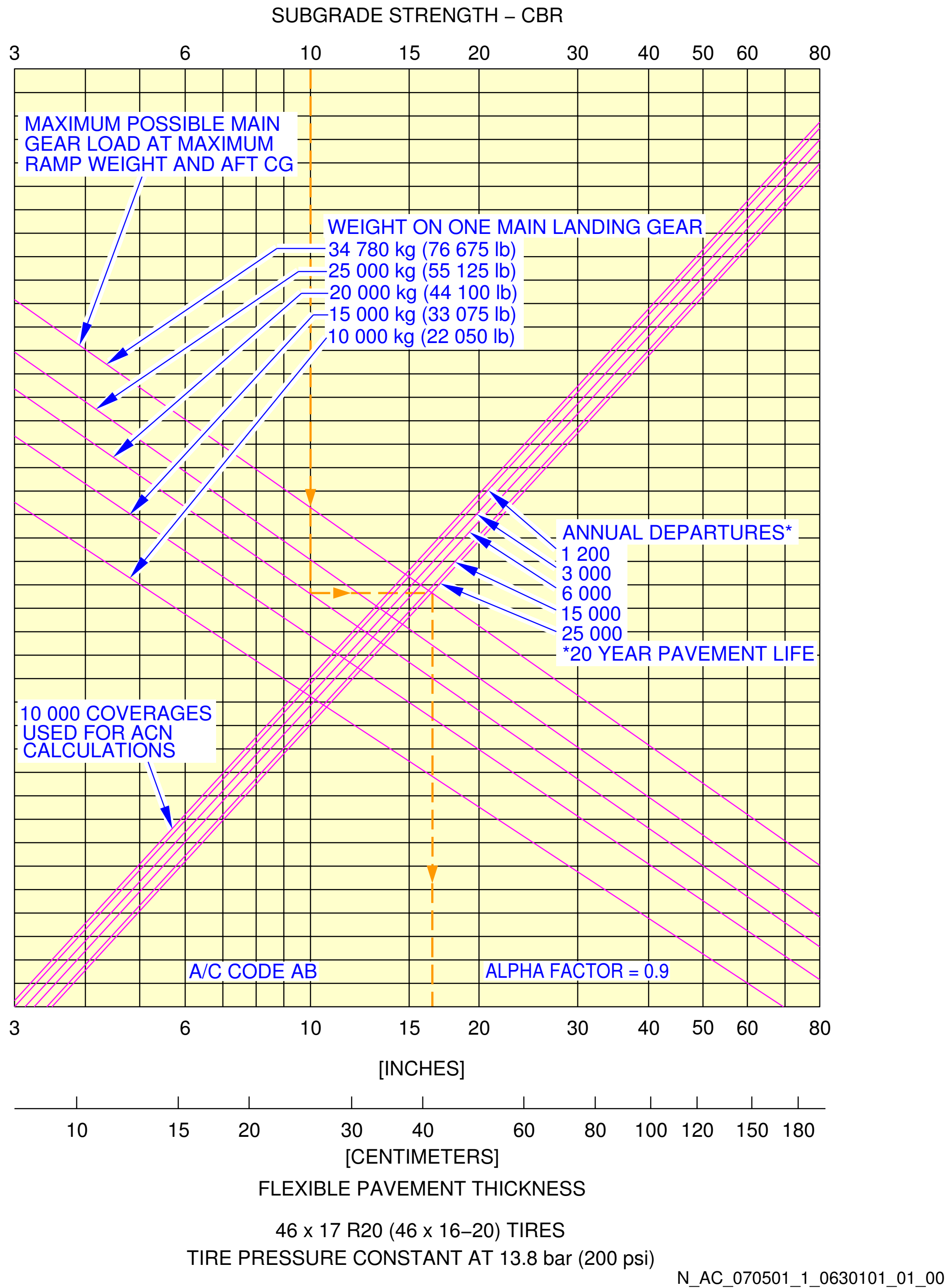
Flexible Pavement Requirements
FIGURE-7-5-1-991-061-A01

**ON A/C A319-100



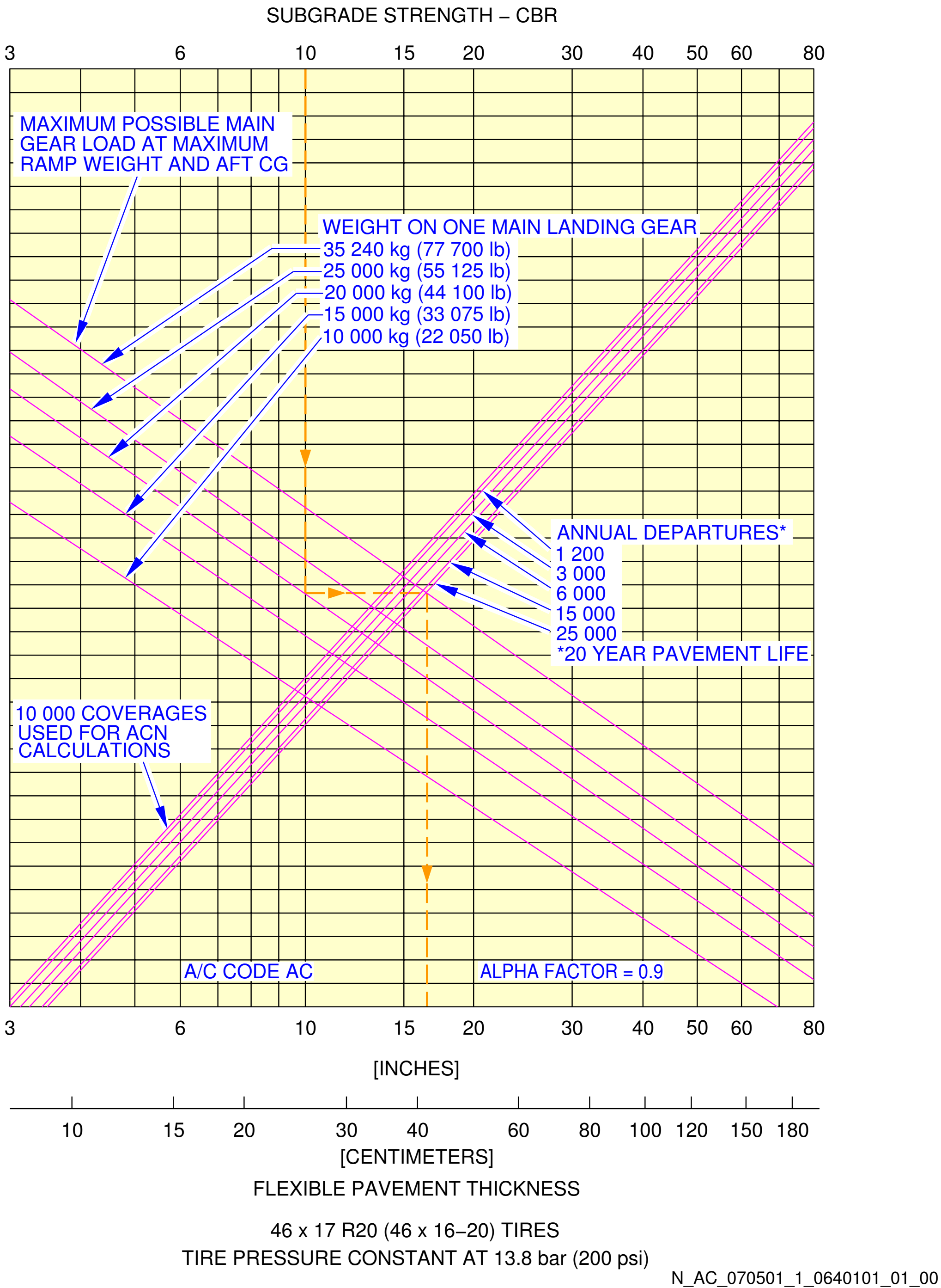
Flexible Pavement Requirements
FIGURE-7-5-1-991-062-A01

**ON A/C A319-100



Flexible Pavement Requirements
FIGURE-7-5-1-991-063-A01

**ON A/C A319-100



Flexible Pavement Requirements
FIGURE-7-5-1-991-064-A01

7-6-0 Flexible Pavement Requirements - LCN Conversion

****ON A/C A319-100**

Flexible Pavement Requirements - LCN Conversion

1. General

   In order to determine the airplane weight that can be accommodated on a particular Flexible Pavement, both the LCN of the pavement and the thickness (h) must be known.

   In the example shown in Section 7-6-1 Flexible Pavement Requirements - LCN Conversion, A/C Code C for:
   The thickness (h) is shown at 20 inches with an LCN of 52.3.

   For these conditions, the weight on one Main Landing Gear is 25 000 kg (55 125 lb).

7-6-1 Flexible Pavement Requirements - LCN Conversion

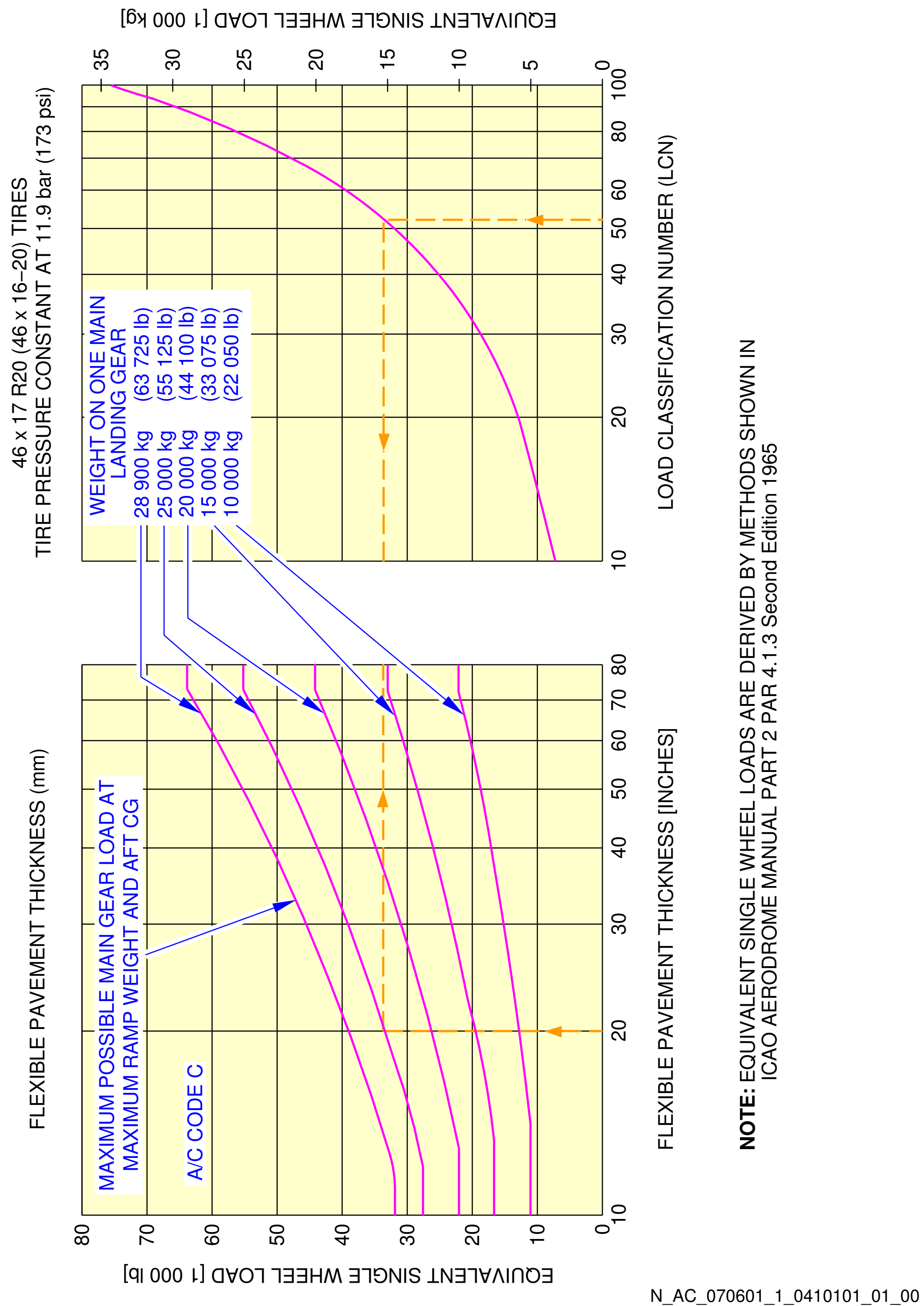
****ON A/C A319-100**

Flexible Pavement Requirements - LCN Conversion

1. This section gives Flexible Pavement Requirements - LCN Conversion.

   NOTE : For A/C Code definition, refer to chapter 7-1-0.

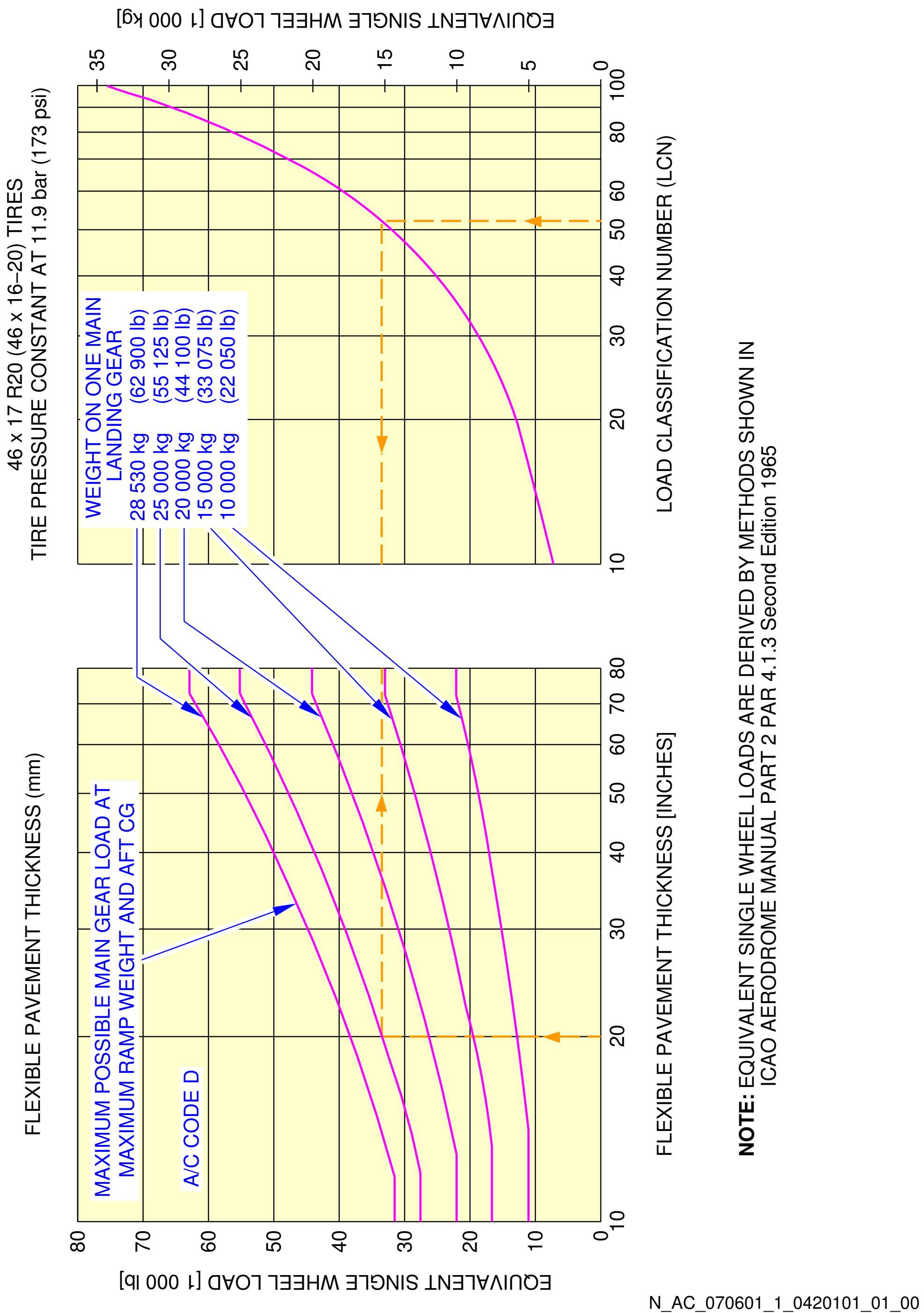
****ON A/C A319-100**



N_AC_070601_1_0410101_01_00

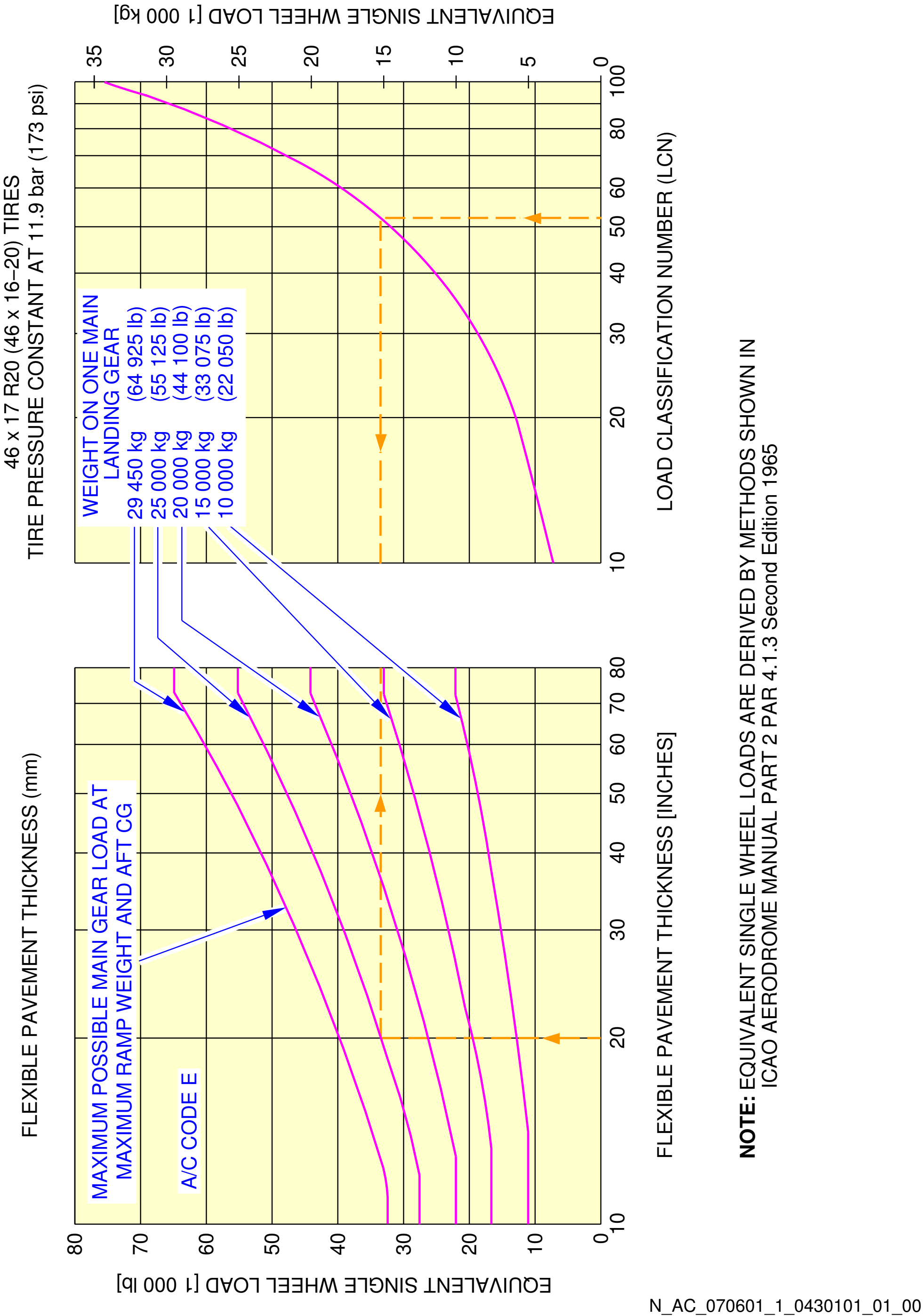
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-041-A01

**ON A/C A319-100



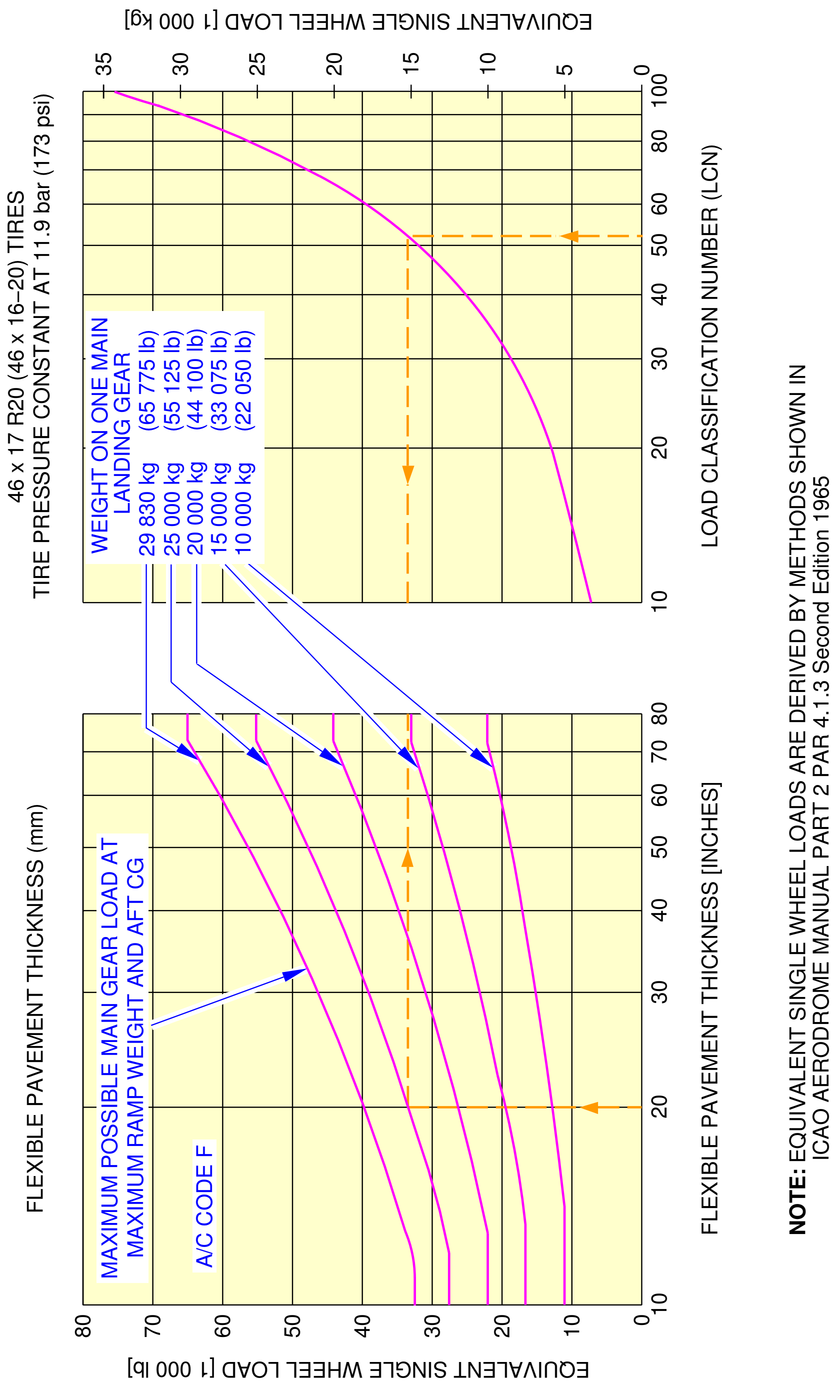
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-042-A01

****ON A/C A319-100**



Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-043-A01

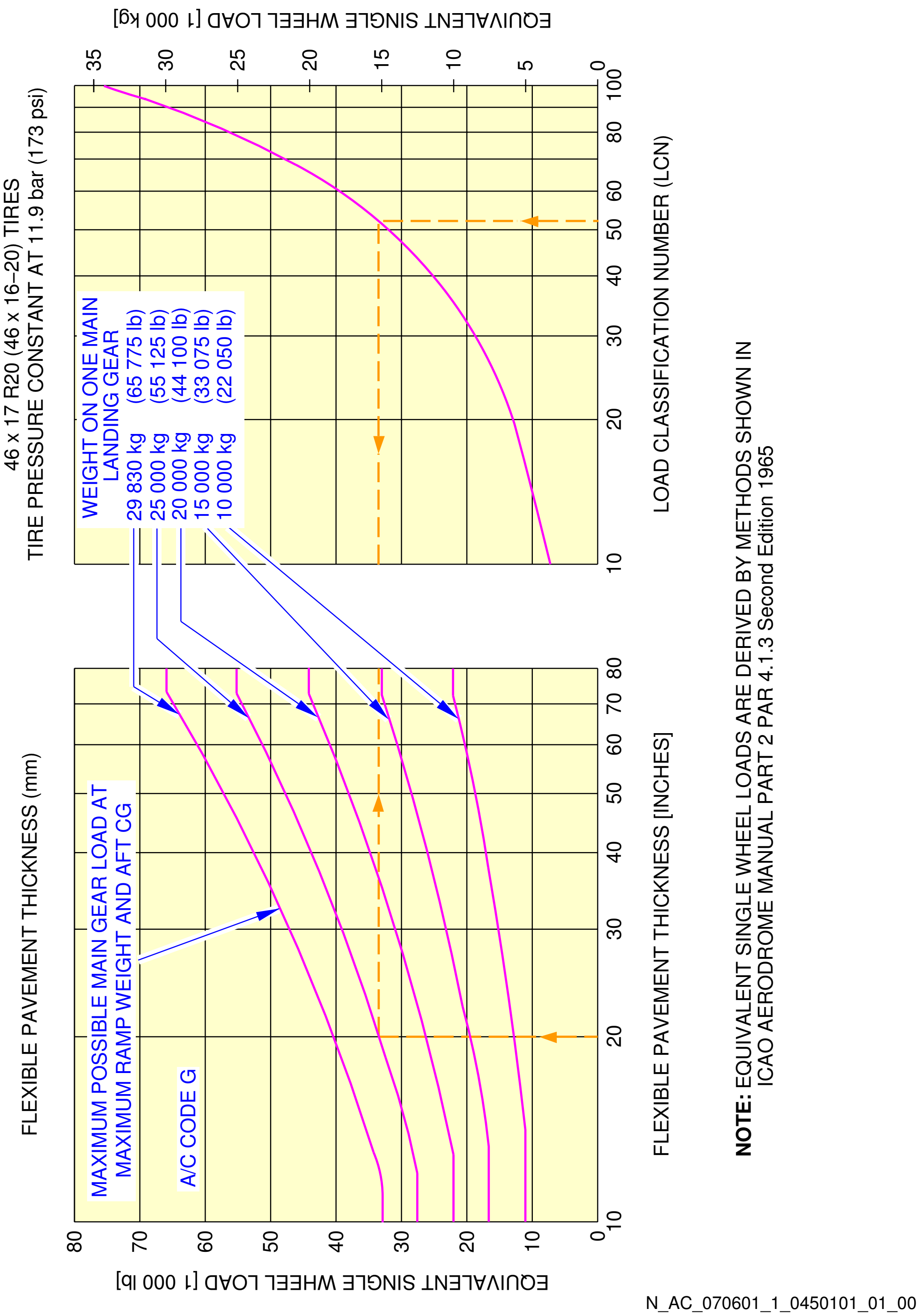
**ON A/C A319-100



N_AC_070601_1_0440101_01_00

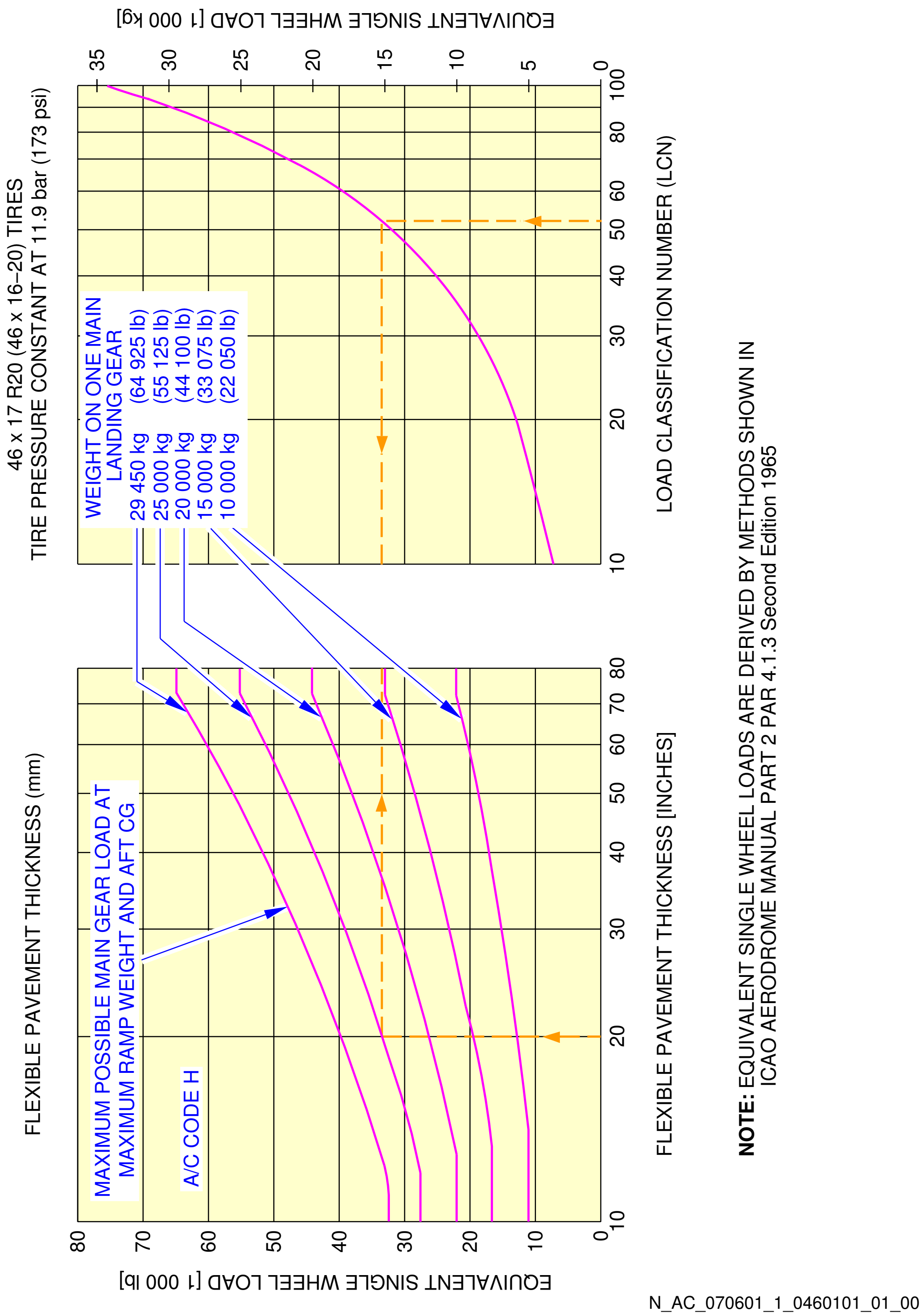
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-044-A01

****ON A/C A319-100**



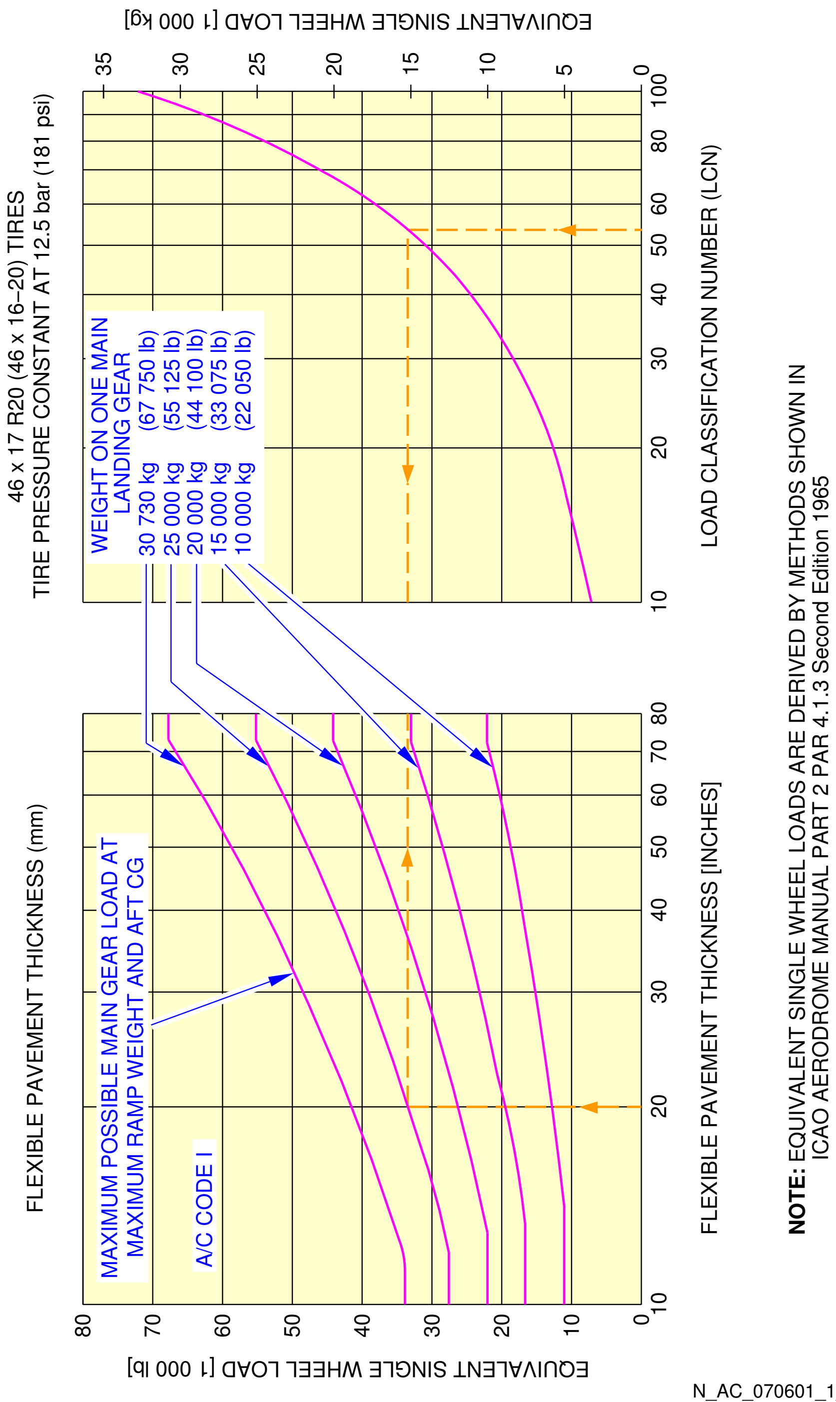
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-045-A01

****ON A/C A319-100**



Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-046-A01

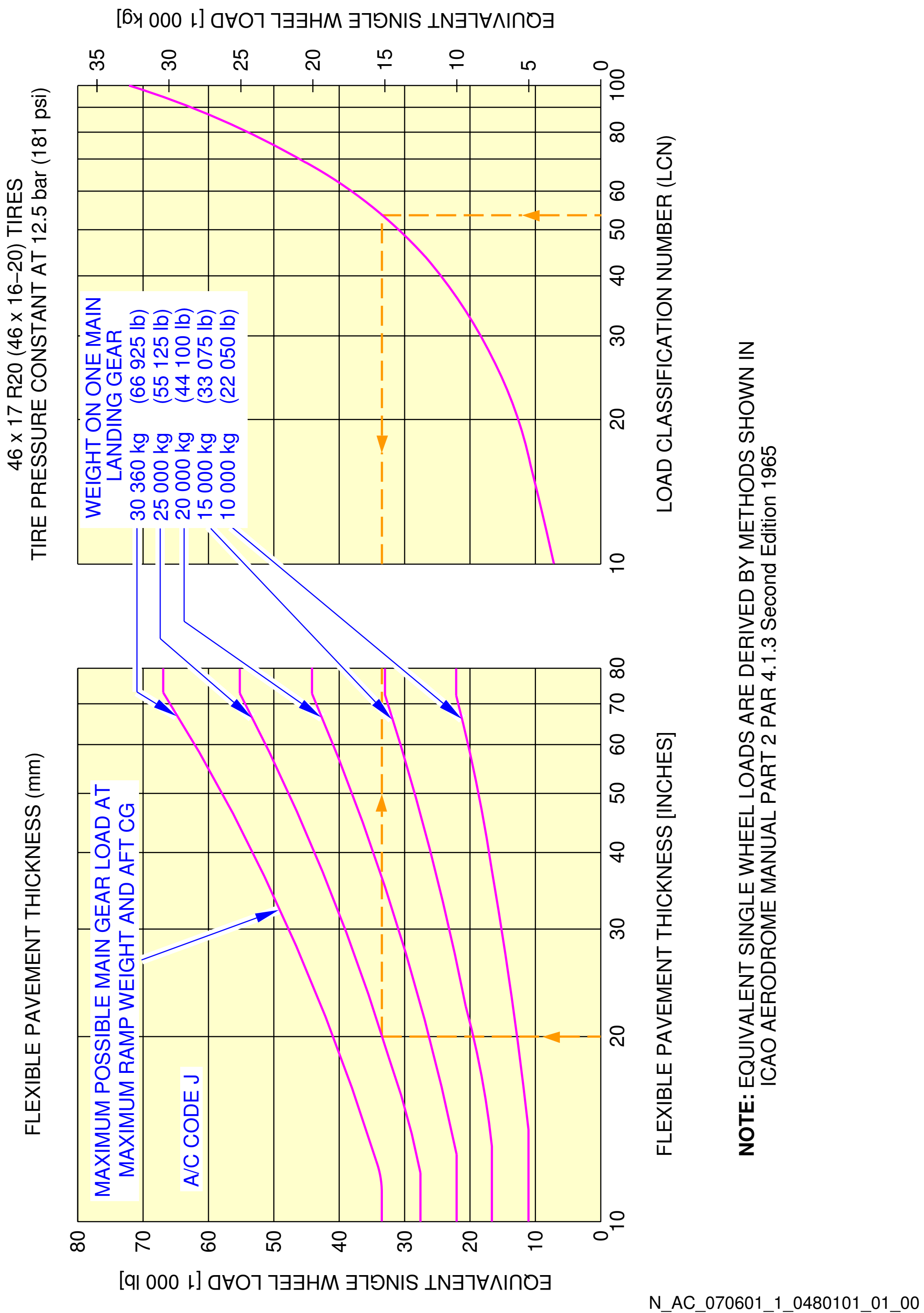
**ON A/C A319-100



N_AC_070601_1_0470101_01_00

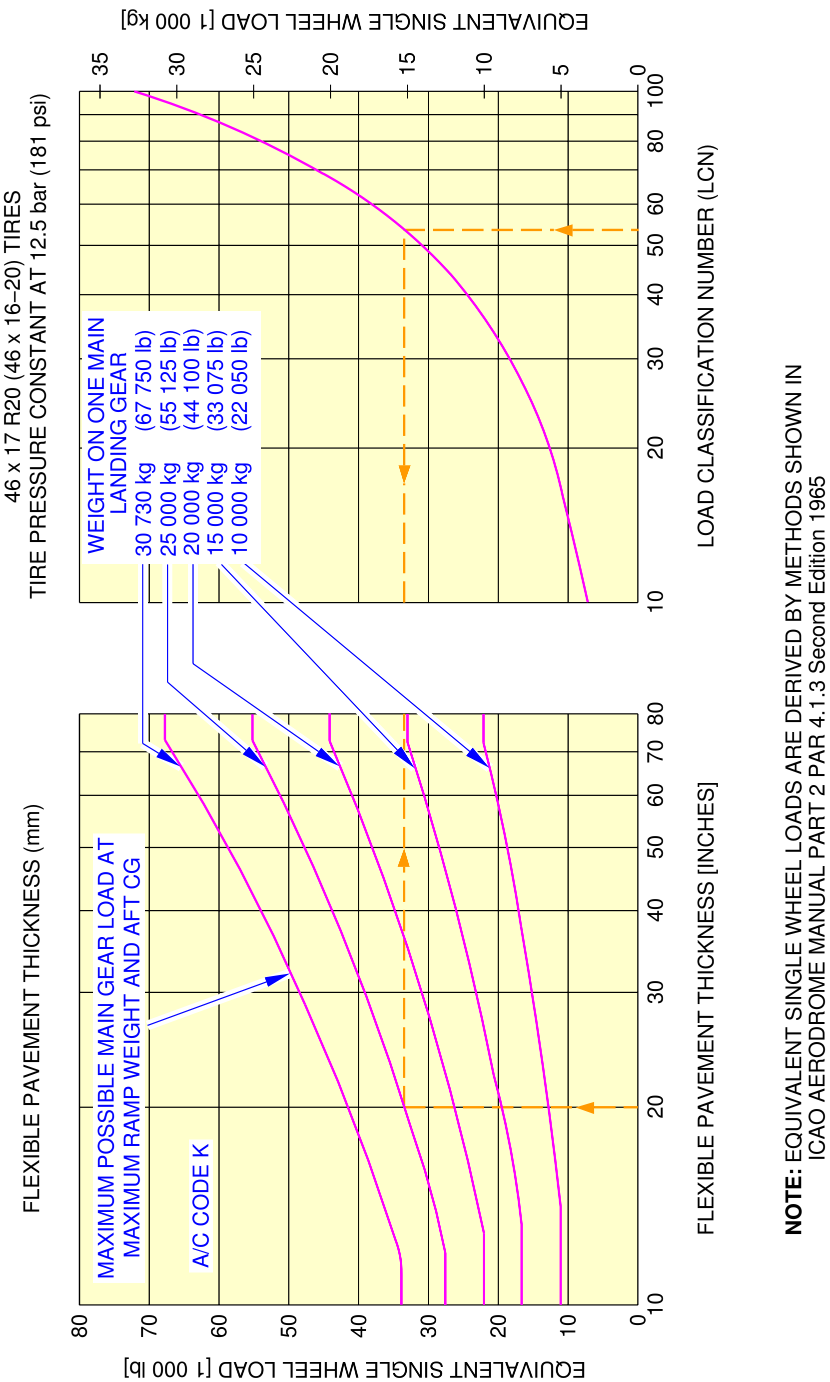
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-047-A01

**ON A/C A319-100



Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-048-A01

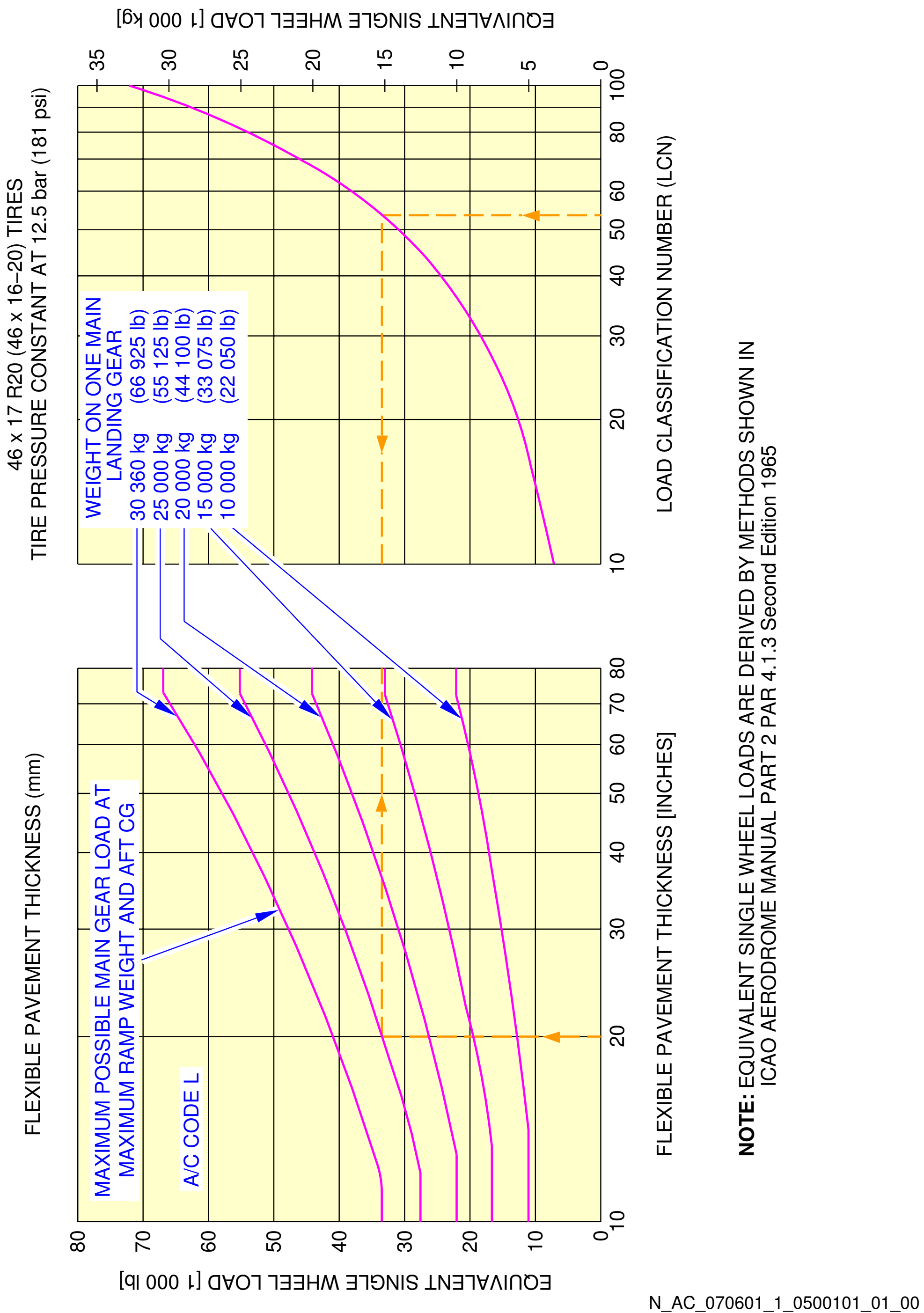
**ON A/C A319-100



N_AC_070601_1_0490101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-049-A01

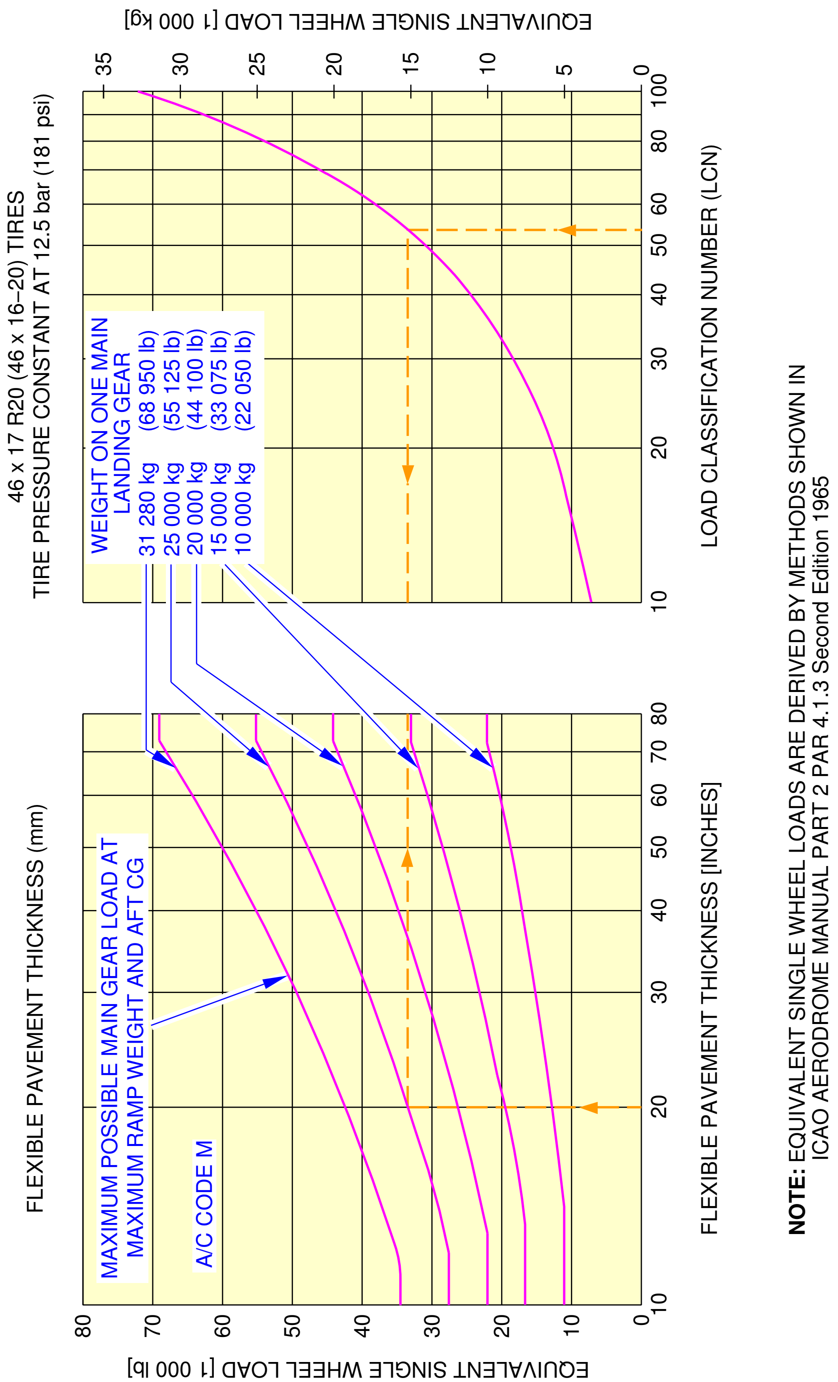
**ON A/C A319-100



N_AC_070601_1_0500101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-050-A01

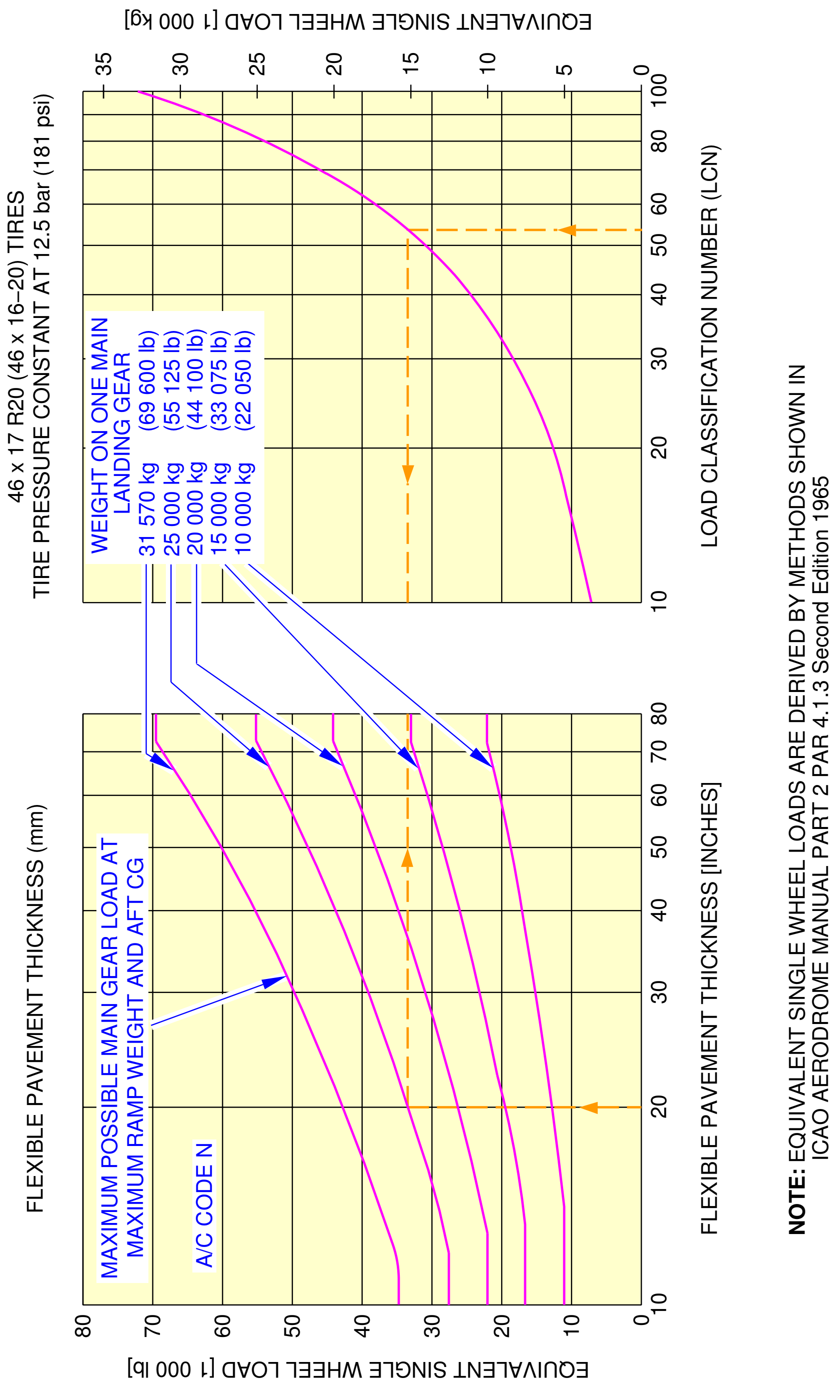
**ON A/C A319-100



N_AC_070601_1_0510101_01_00

Flexible Pavement Requirements - LCN Conversion
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-051-A01

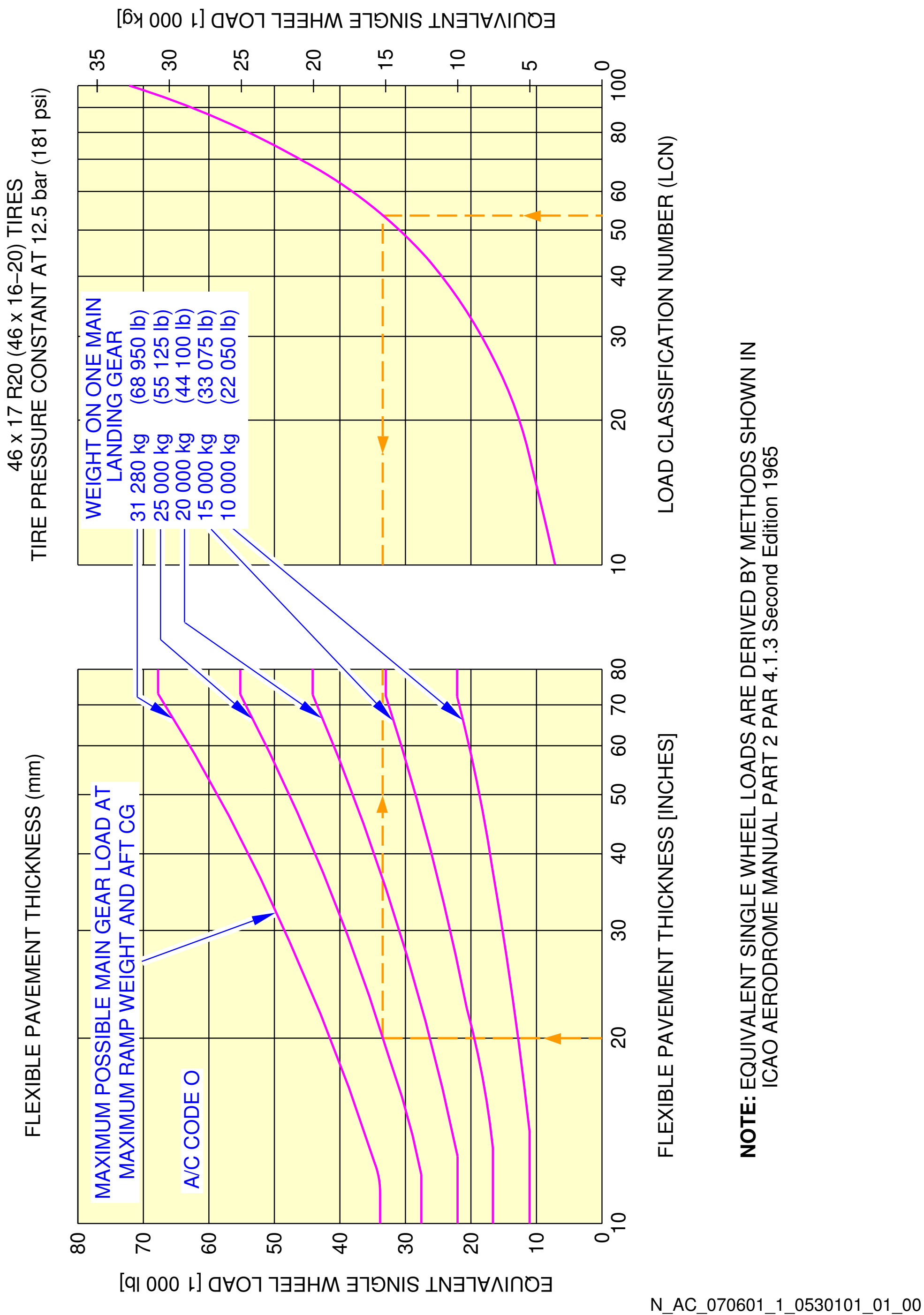
**ON A/C A319-100



N_AC_070601_1_0520101_01_00

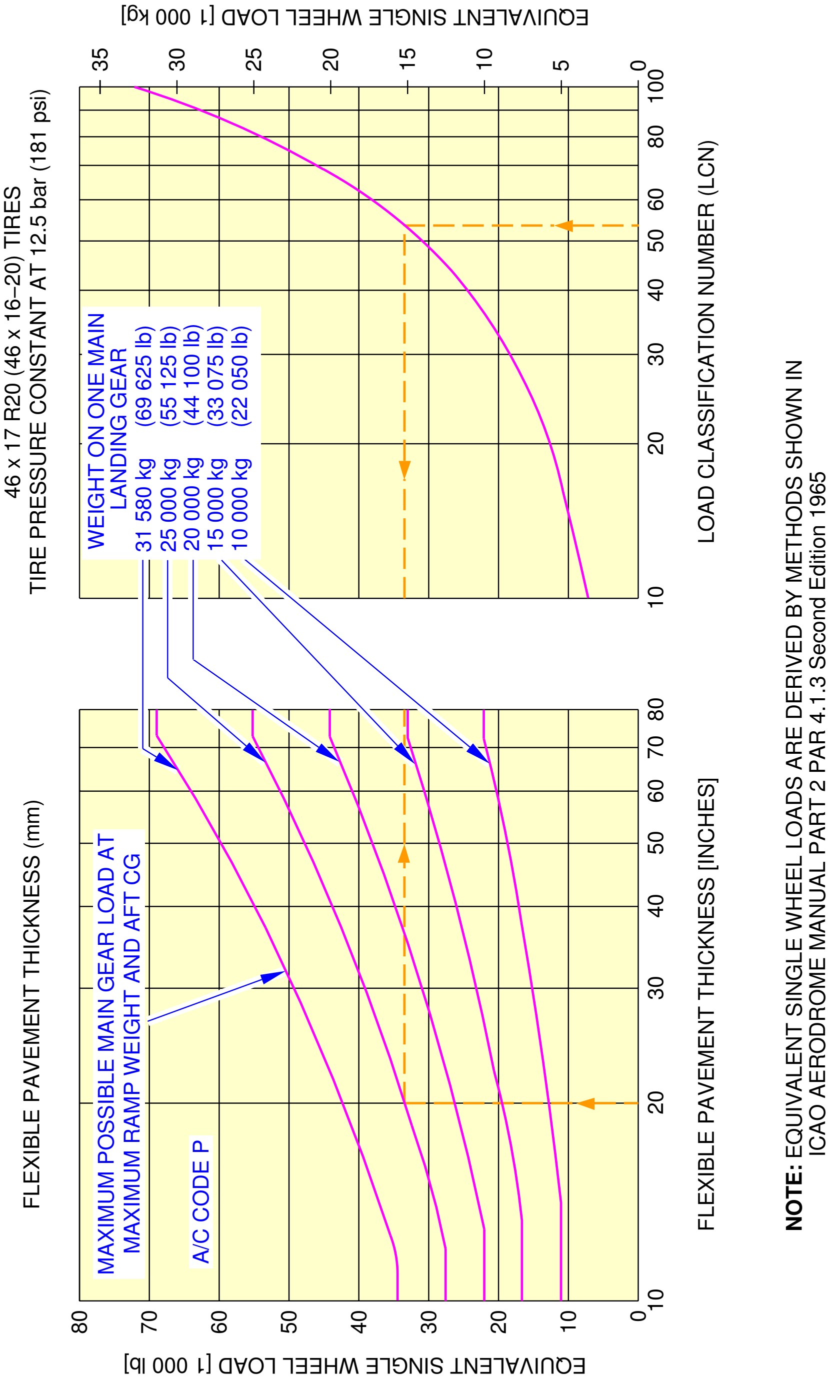
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-052-A01

**ON A/C A319-100



Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-053-A01

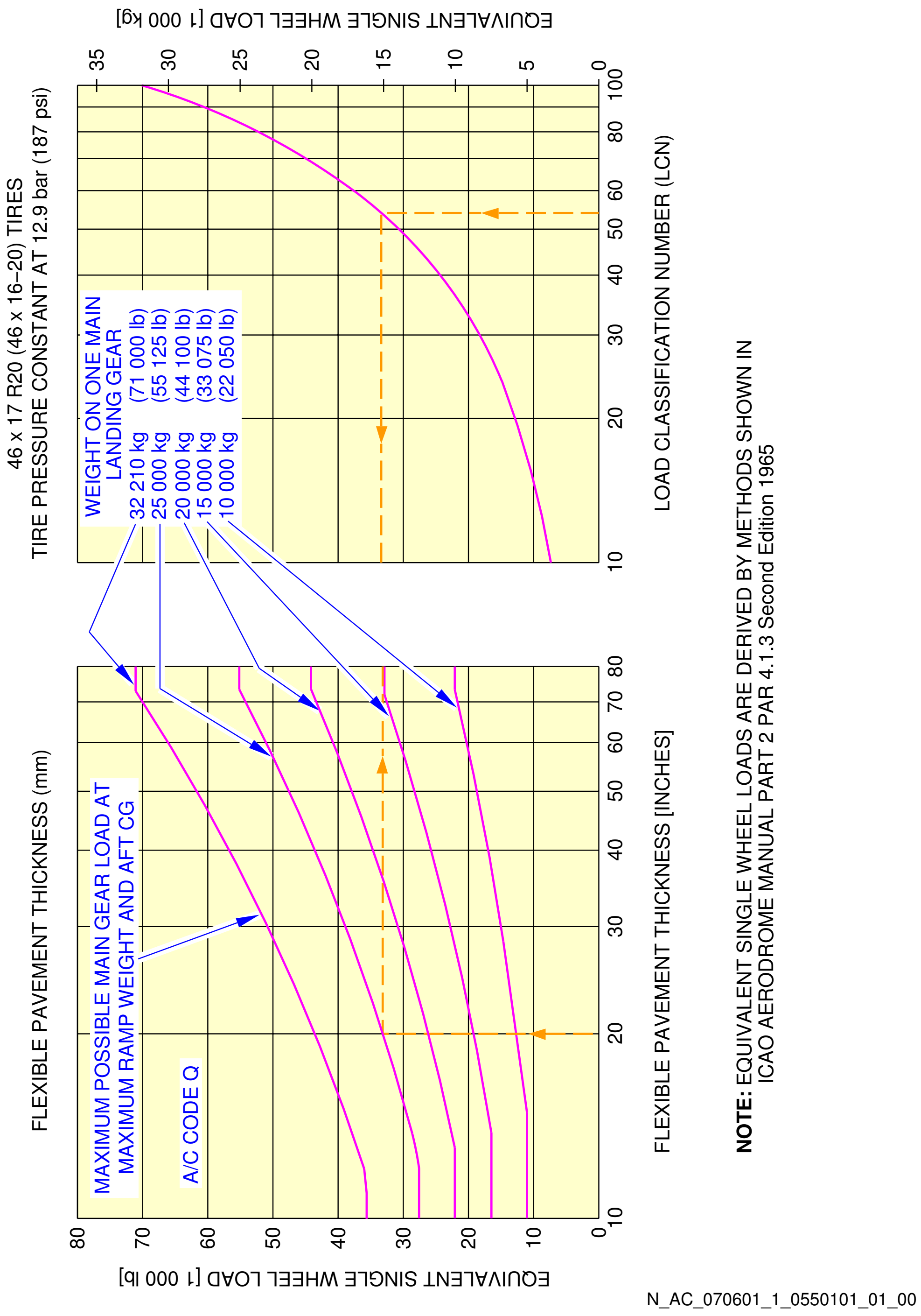
****ON A/C A319-100**



N_AC_070601_1_0540101_01_00

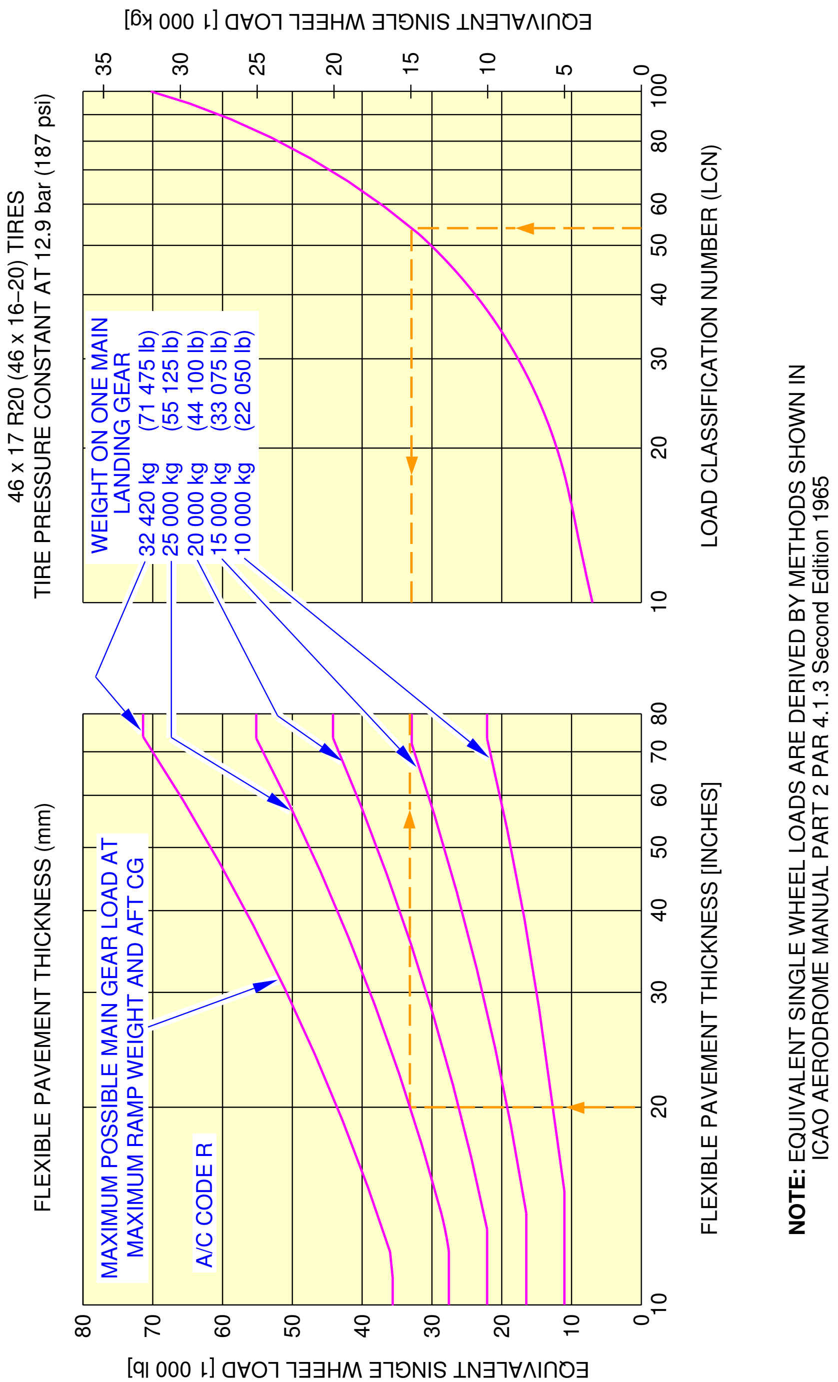
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-054-A01

****ON A/C A319-100**



Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-055-A01

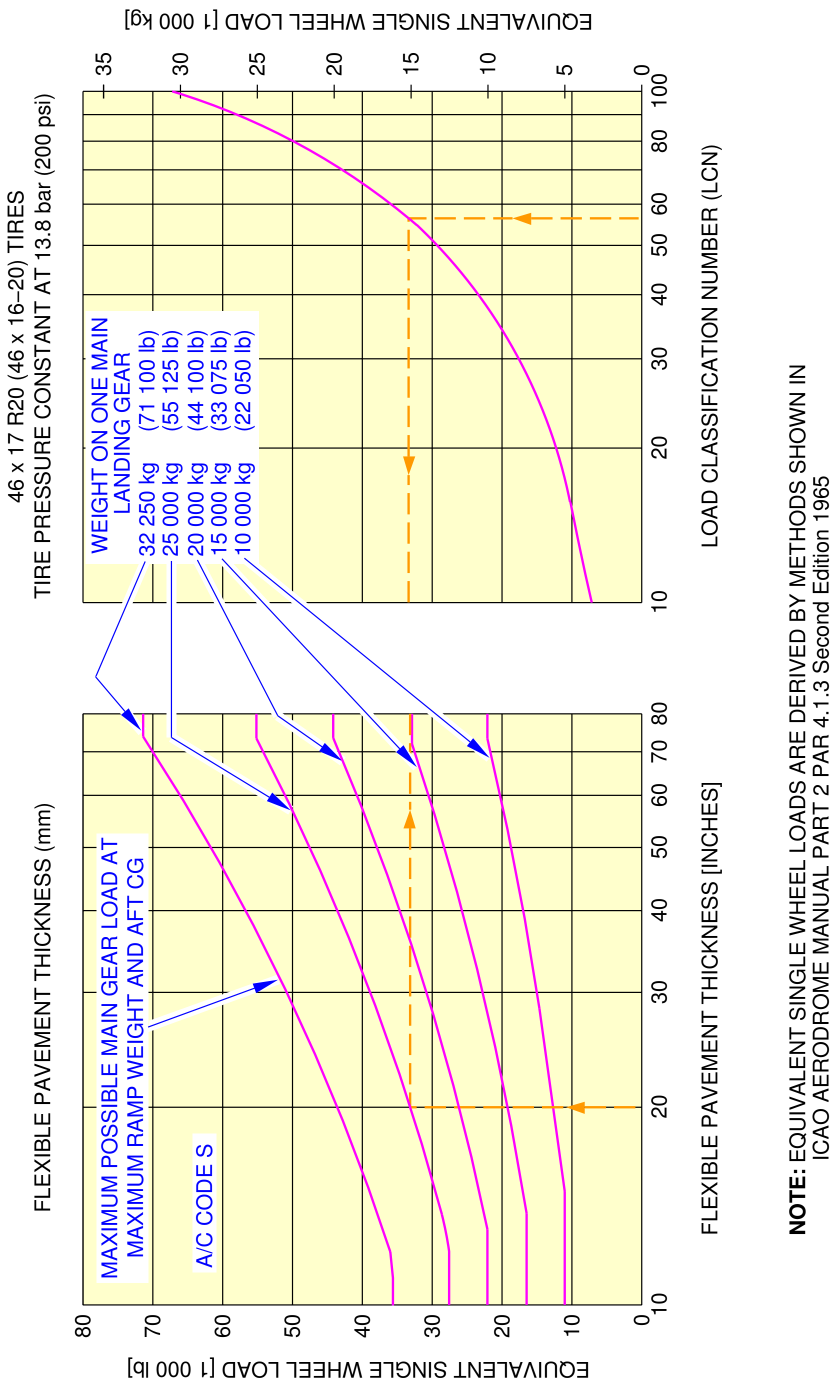
****ON A/C A319-100**



N_AC_070601_1_0560101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-056-A01

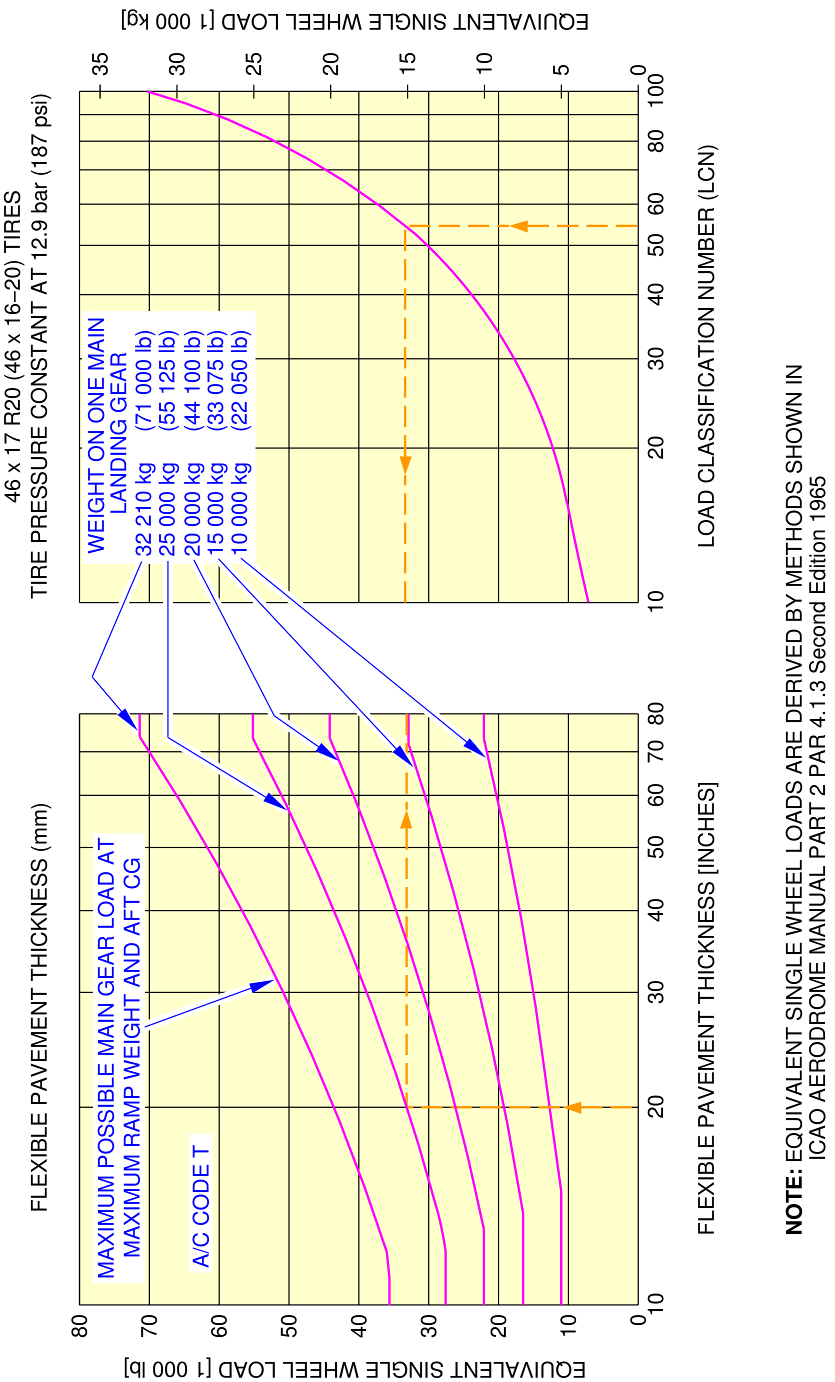
**ON A/C A319-100



N_AC_070601_1_0570101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-057-A01

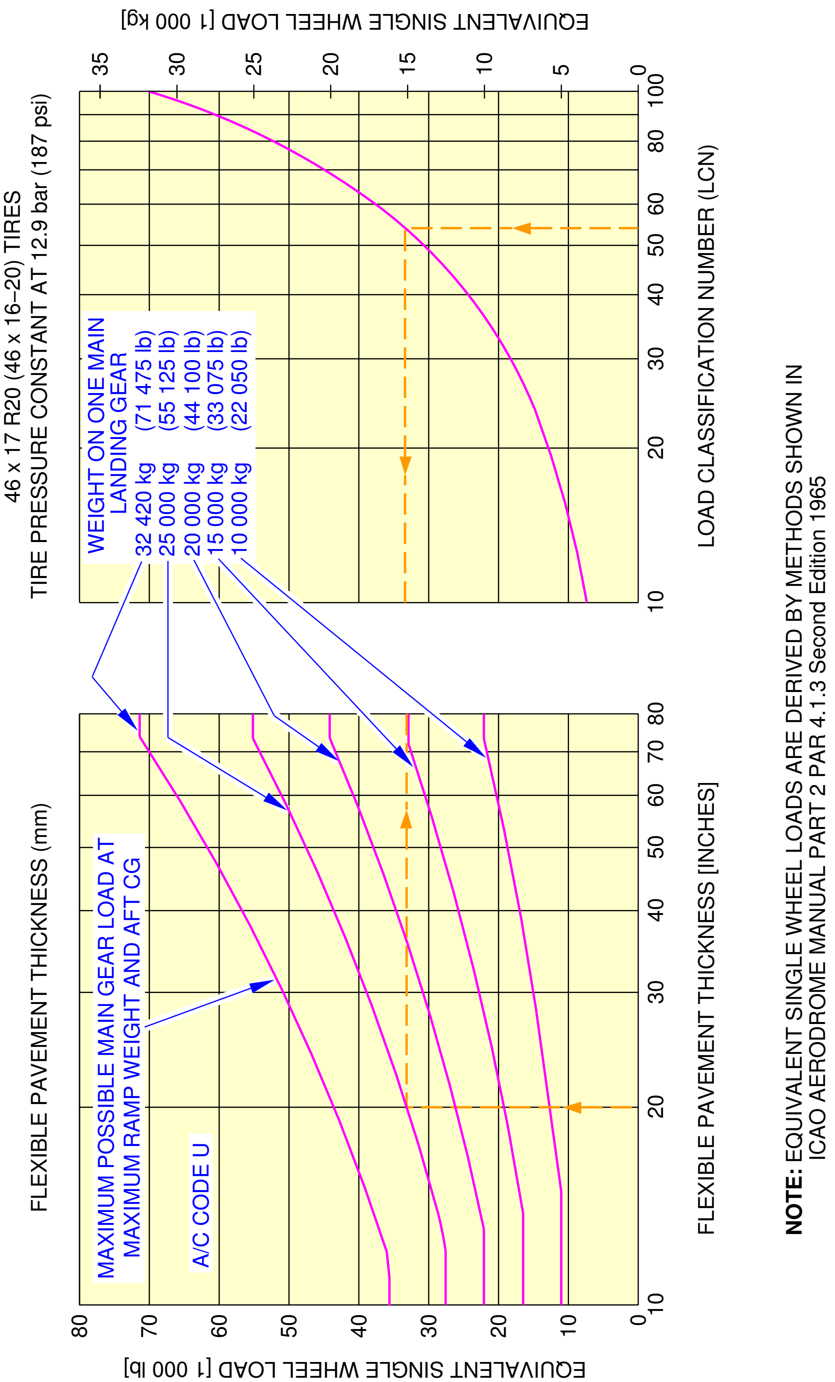
****ON A/C A319-100**



N_AC_070601_1_0580101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-058-A01

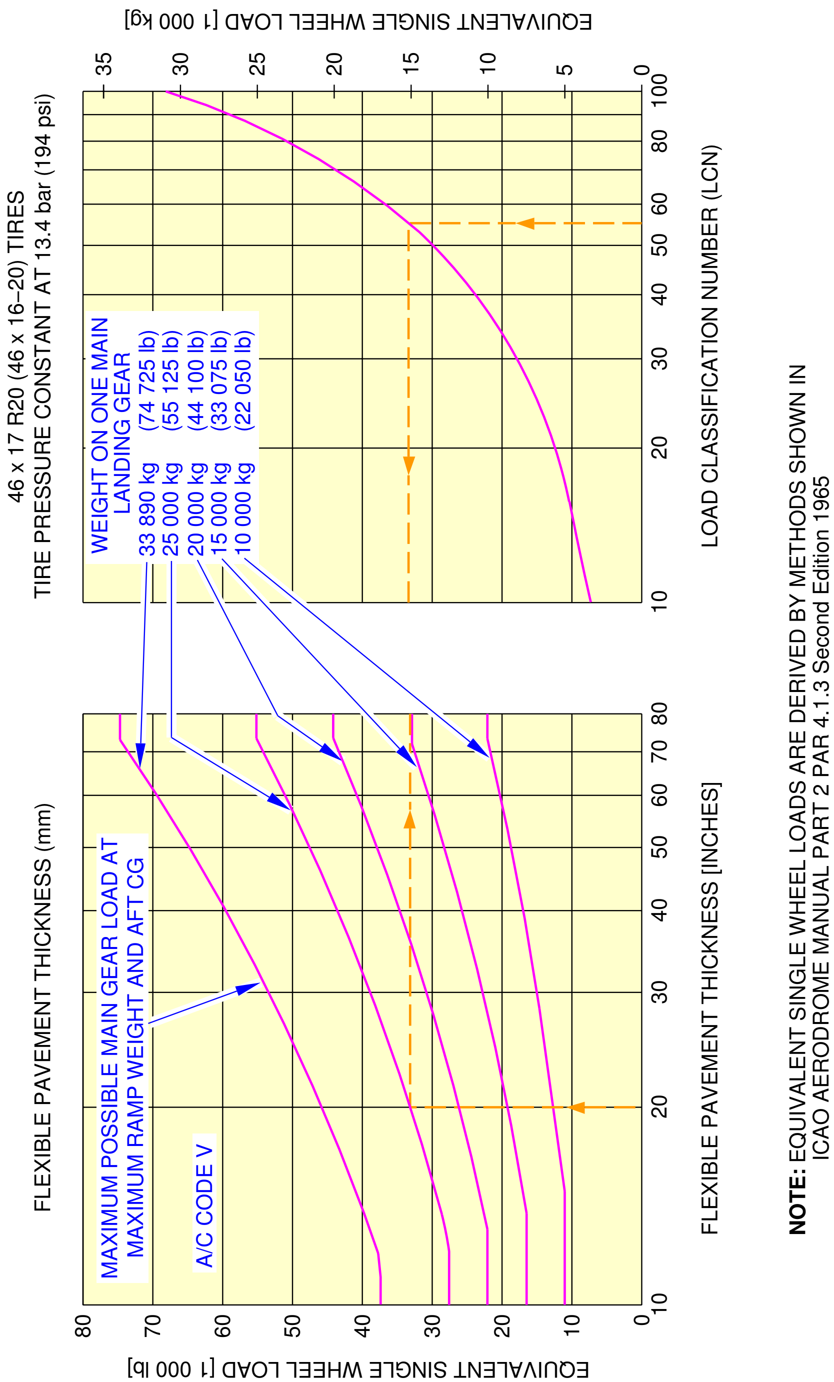
**ON A/C A319-100



N_AC_070601_1_0590101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-059-A01

****ON A/C A319-100**



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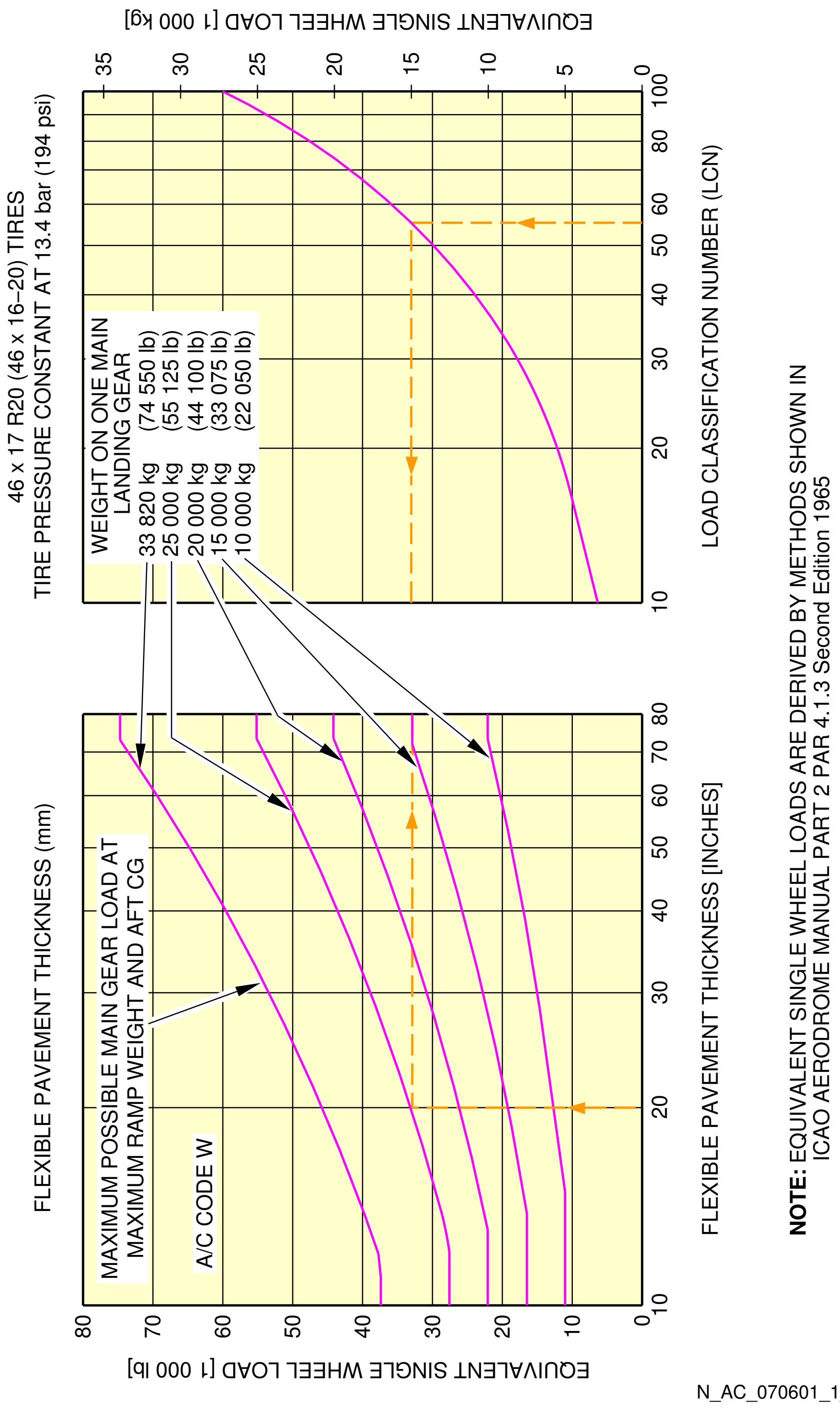
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-060-A01

****ON A/C A319-100**



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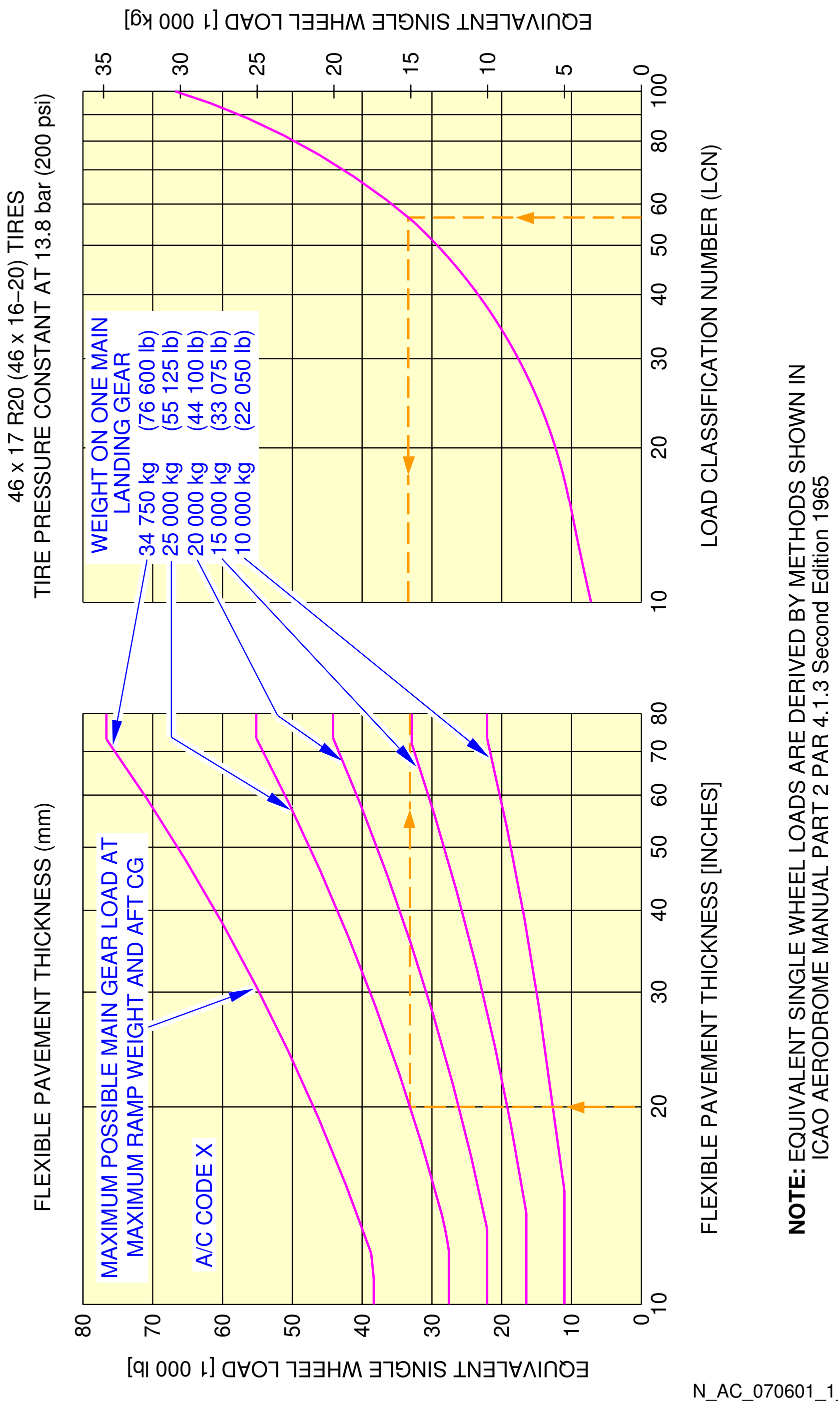
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-061-A01

**ON A/C A319-100



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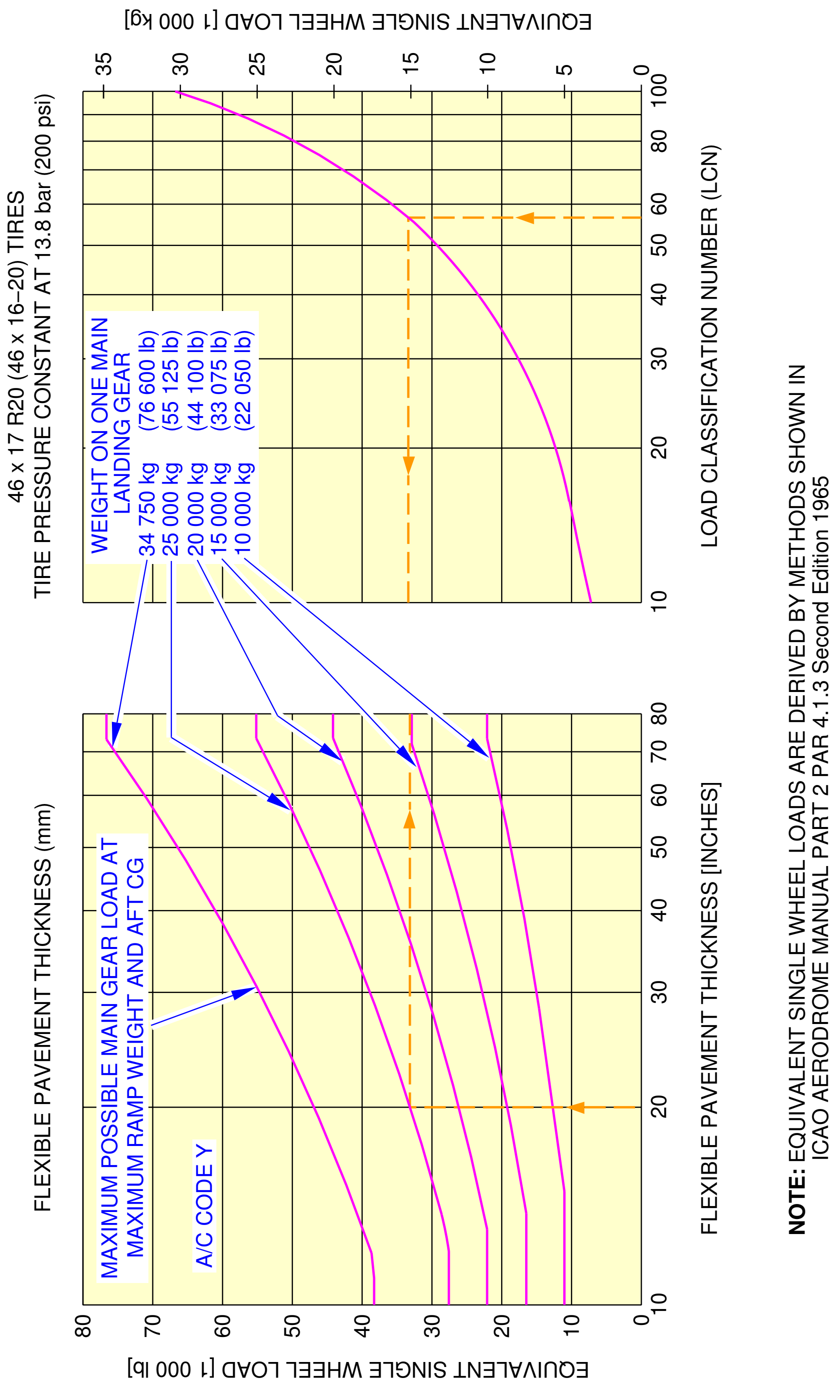
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-062-A01

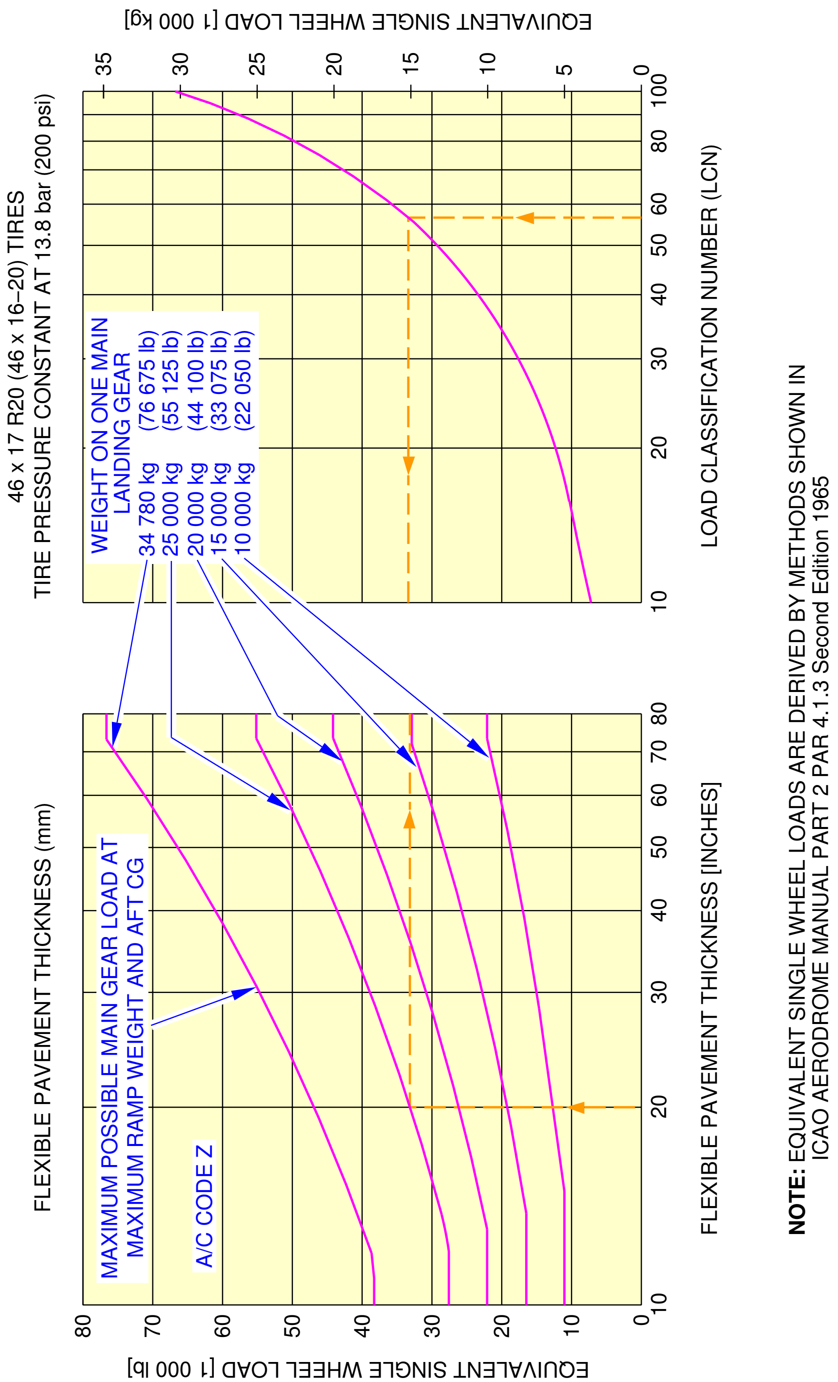
****ON A/C A319-100**



N_AC_070601_1_0630101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-063-A01

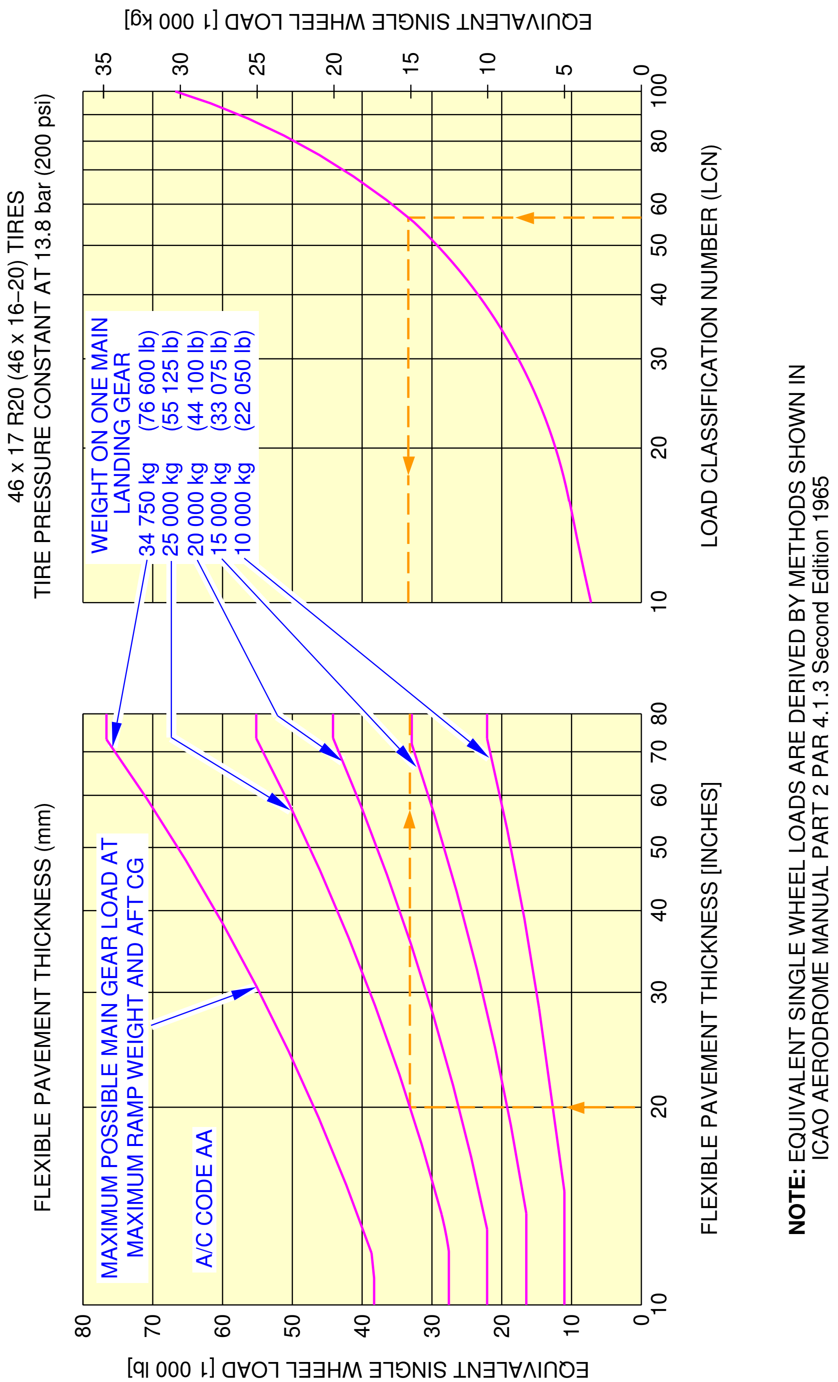
**ON A/C A319-100



N_AC_070601_1_0640101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-064-A01

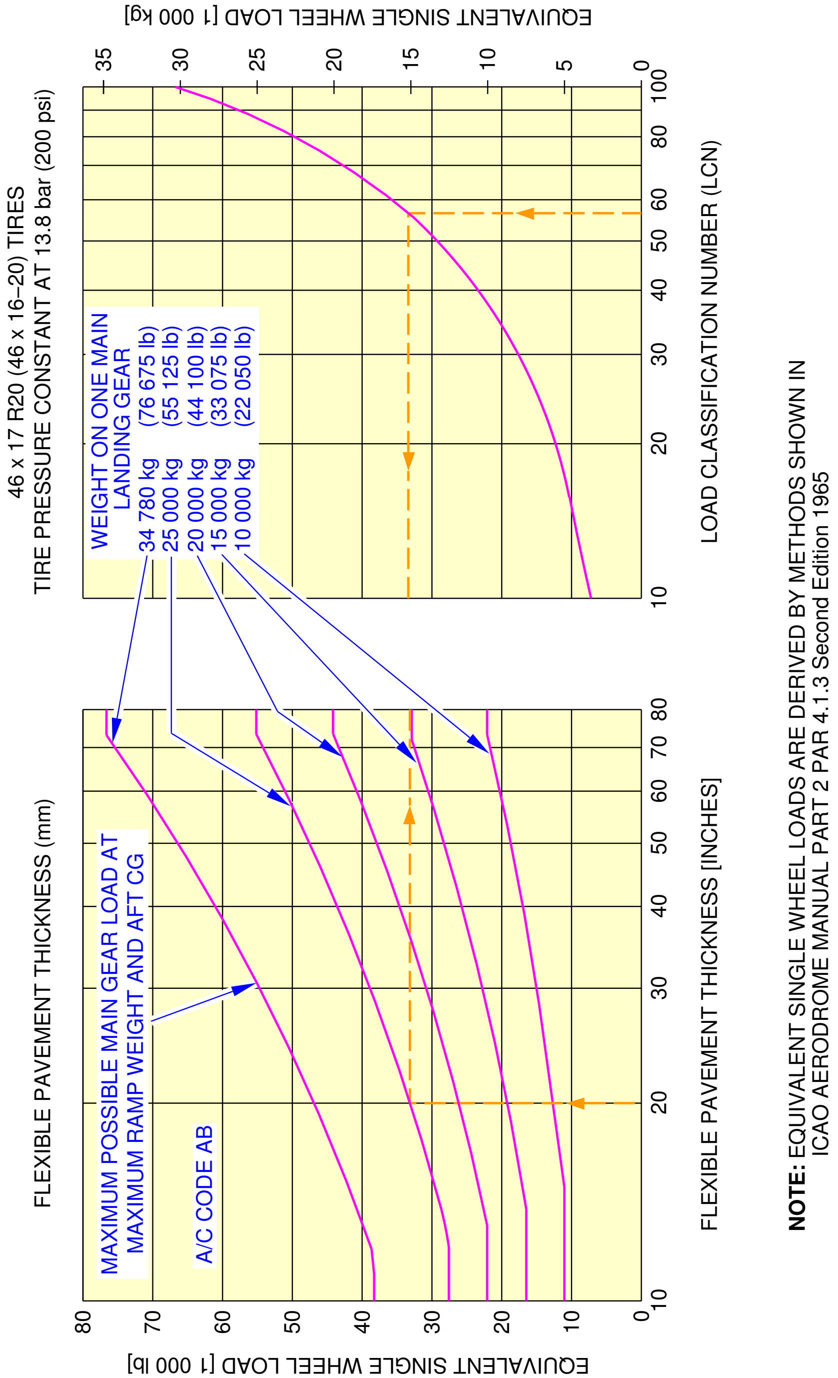
**ON A/C A319-100



N_AC_070601_1_0650101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-065-A01

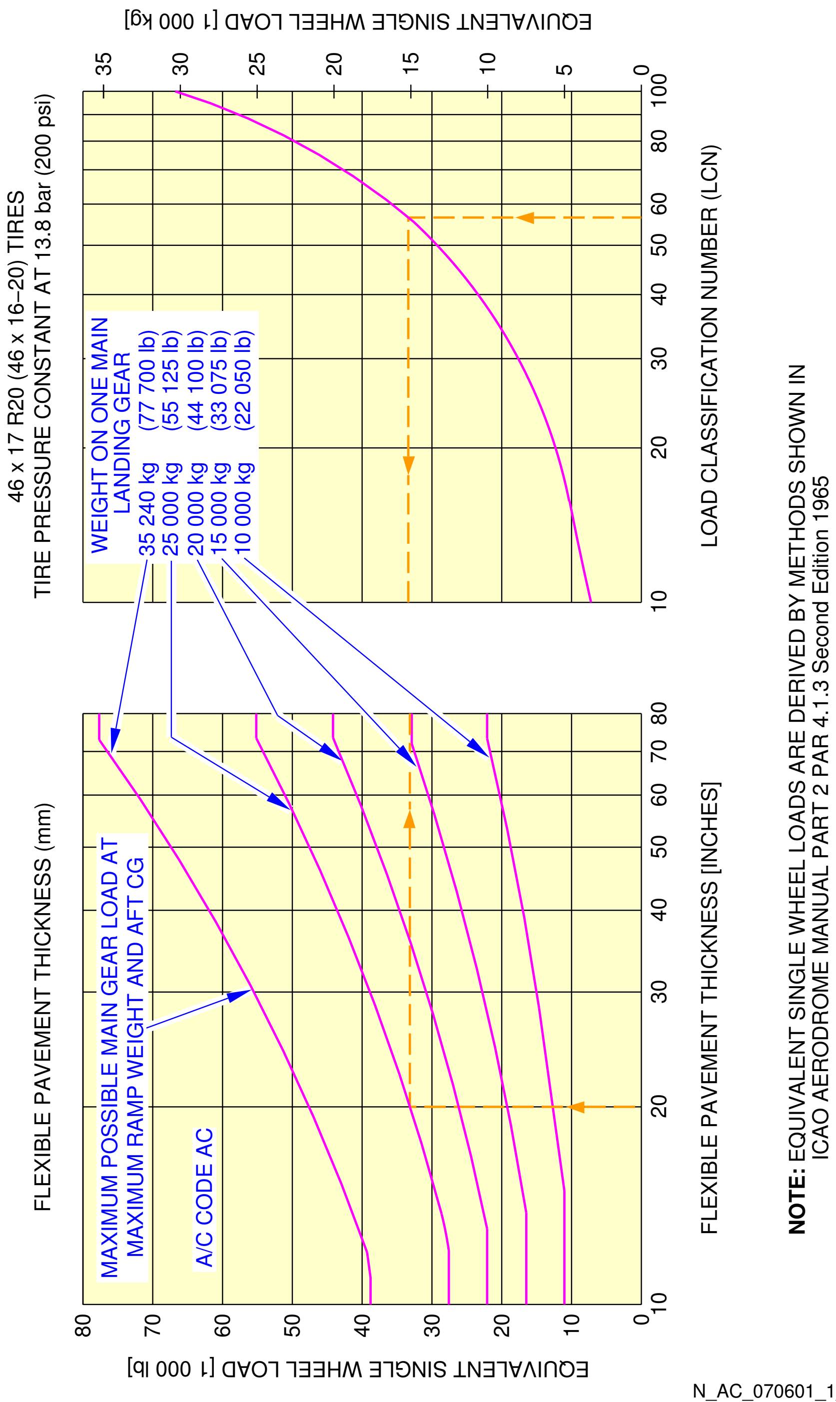
****ON A/C A319-100**



N_AC_070601_1_0660101_01_00

Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-066-A01

**ON A/C A319-100



N_AC_070601_1_0670101_01_00

Flexible Pavement Requirements - LCN Conversion
Flexible Pavement Requirements - LCN Conversion
FIGURE-7-6-1-991-067-A01

7-7-0 Rigid Pavement Requirements - Portland Cement Association Design Method

****ON A/C A319-100**

Rigid Pavement Requirements - Portland Cement Association Design Method

1. General

In order to determine a particular Rigid Pavement Thickness, the Subgrade Modulus (k), the allowable working stress and the weight on one Main Landing Gear must be known.

In the example shown in Section 7-7-1 Rigid Pavement Requirements (PCA), A/C Code C for:
- a "k" value of 150 MN/m^3 (550 lbf/in^3)
- an allowable working stress of 31.6 kgf/cm^2 (450 lbf/in^2)
- the load on one MLG of 20 000 kg (44 100 lb).

For these conditions, the Rigid Pavement Thickness is 18.9 cm (7.4 in).

7-7-1 Rigid Pavement Requirements - Portland Cement Association Design Method

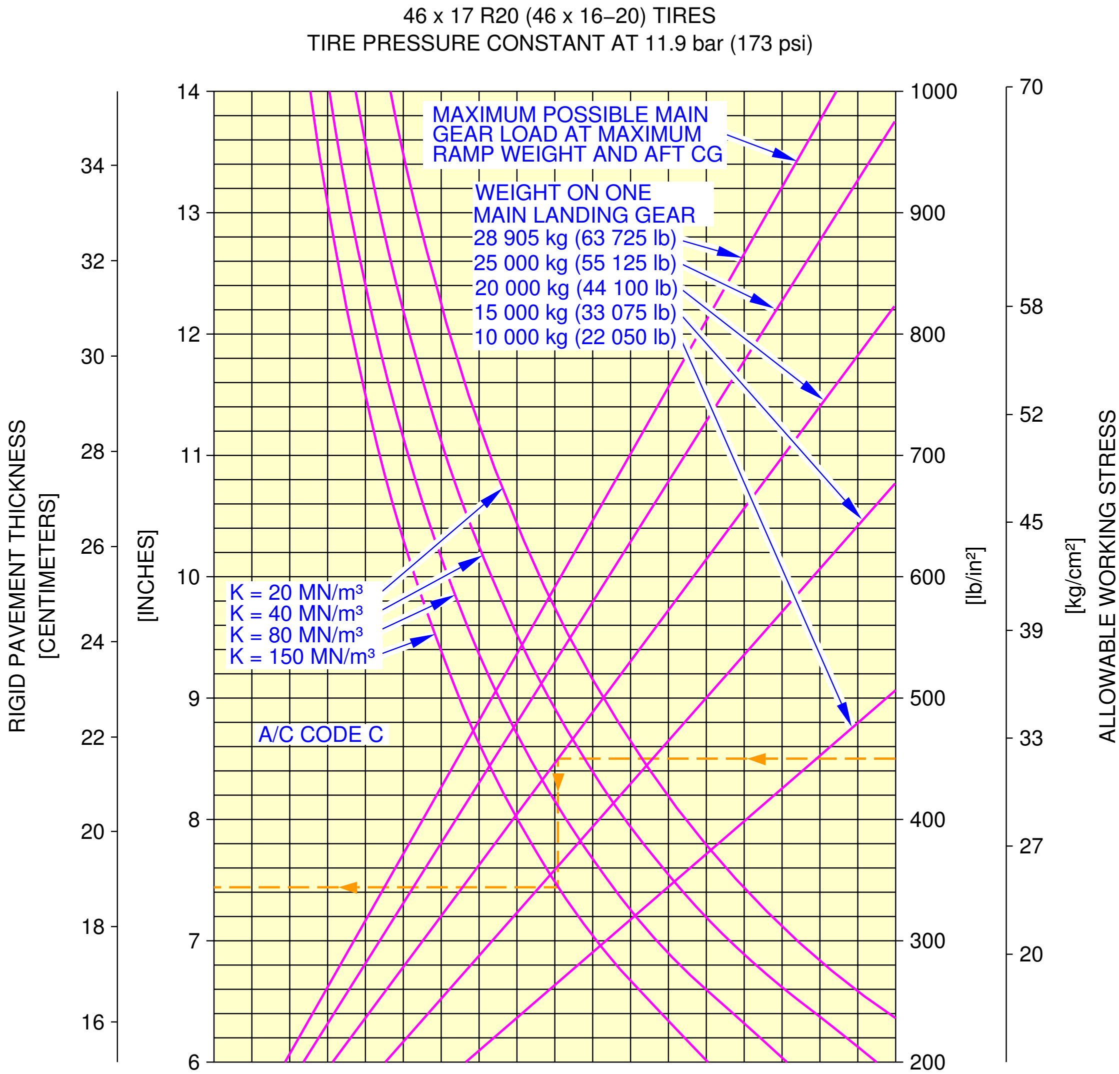
ON A/C A319-100

Rigid Pavement Requirements - Portland Cement Association Design Method

1. This section gives Rigid Pavement Requirements.

   NOTE : For A/C Code definition, refer to chapter 7-1-0.

**ON A/C A319-100



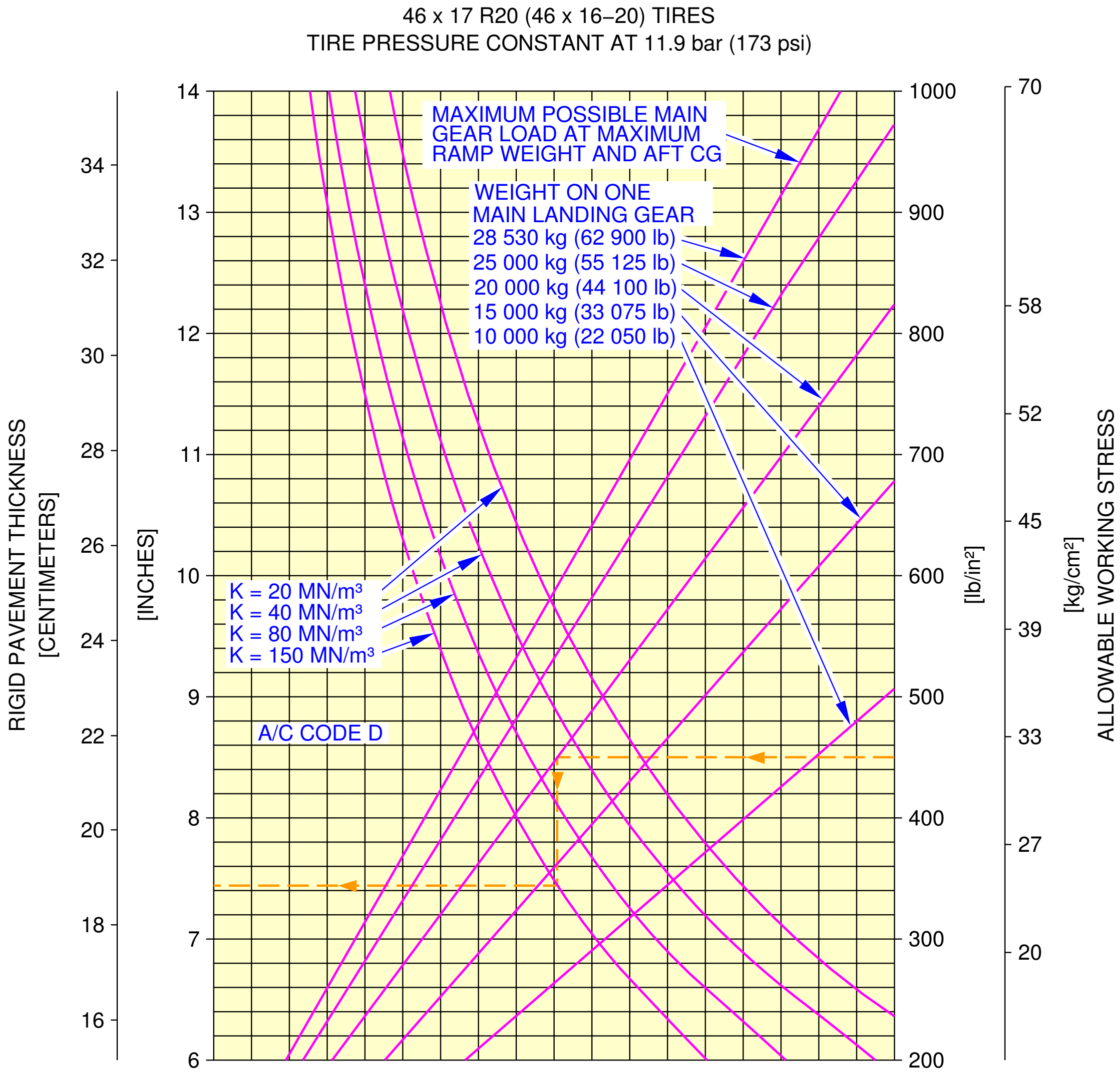
NOTE:
THE VALUES OBTAINED BY USING THE MAXIMUM LOAD REFERENCE LINE AND ANY VALUES FOR K ARE EXACT. FOR LOADS LESS THAN MAXIMUM, THE CURVES ARE EXACT FOR K = 80 MN/m³ BUT DEVIATE SLIGHTLY FOR ANY OTHER VALUES OF K

REFERENCE:
"DESIGN OF CONCRETE AIRPORT PAVEMENTS" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN – PROGRAM PDILB" PORTLAND CEMENT ASSOCIATION

N_AC_070701_1_0380101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-038-A01

****ON A/C A319-100**



NOTE:
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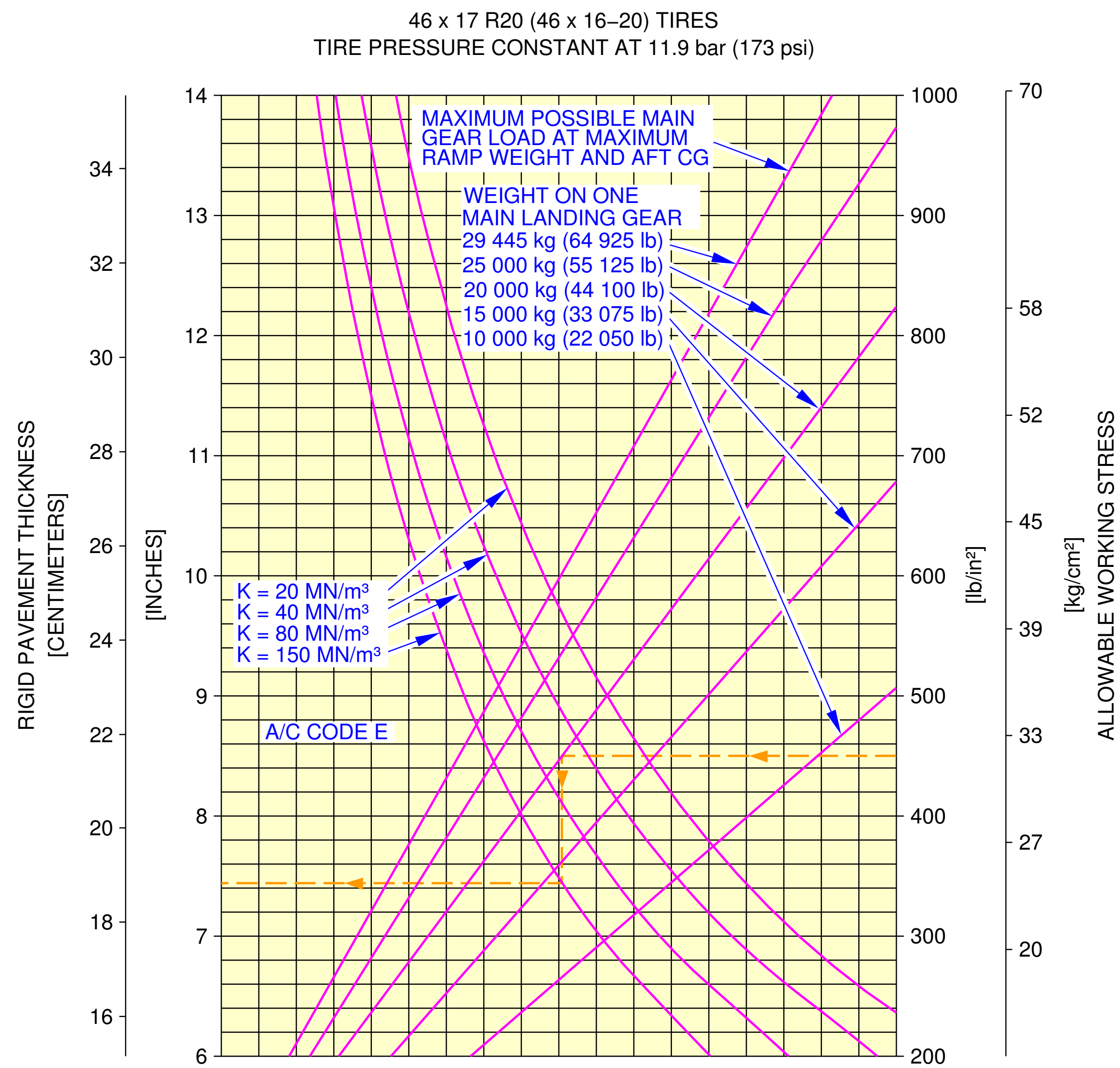
N_AC_070701_1_0390101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-039-A01

**ON A/C A319-100



NOTE:
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REFERENCE:
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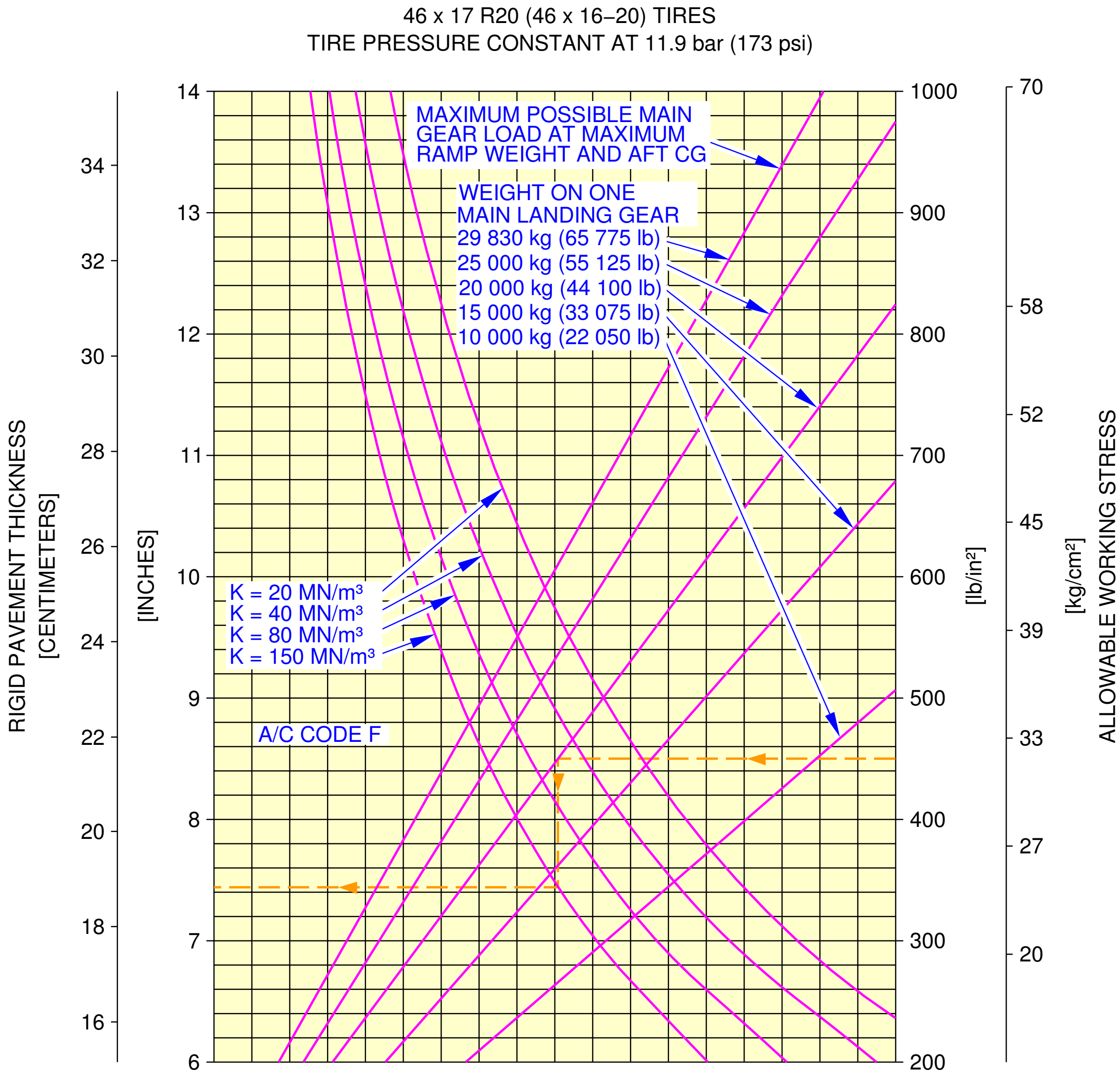
N_AC_070701_1_0400101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-040-A01

**ON A/C A319-100



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/m³ BUT DEVIATE SLIGHTLY FOR ANY OTHER VALUES OF K

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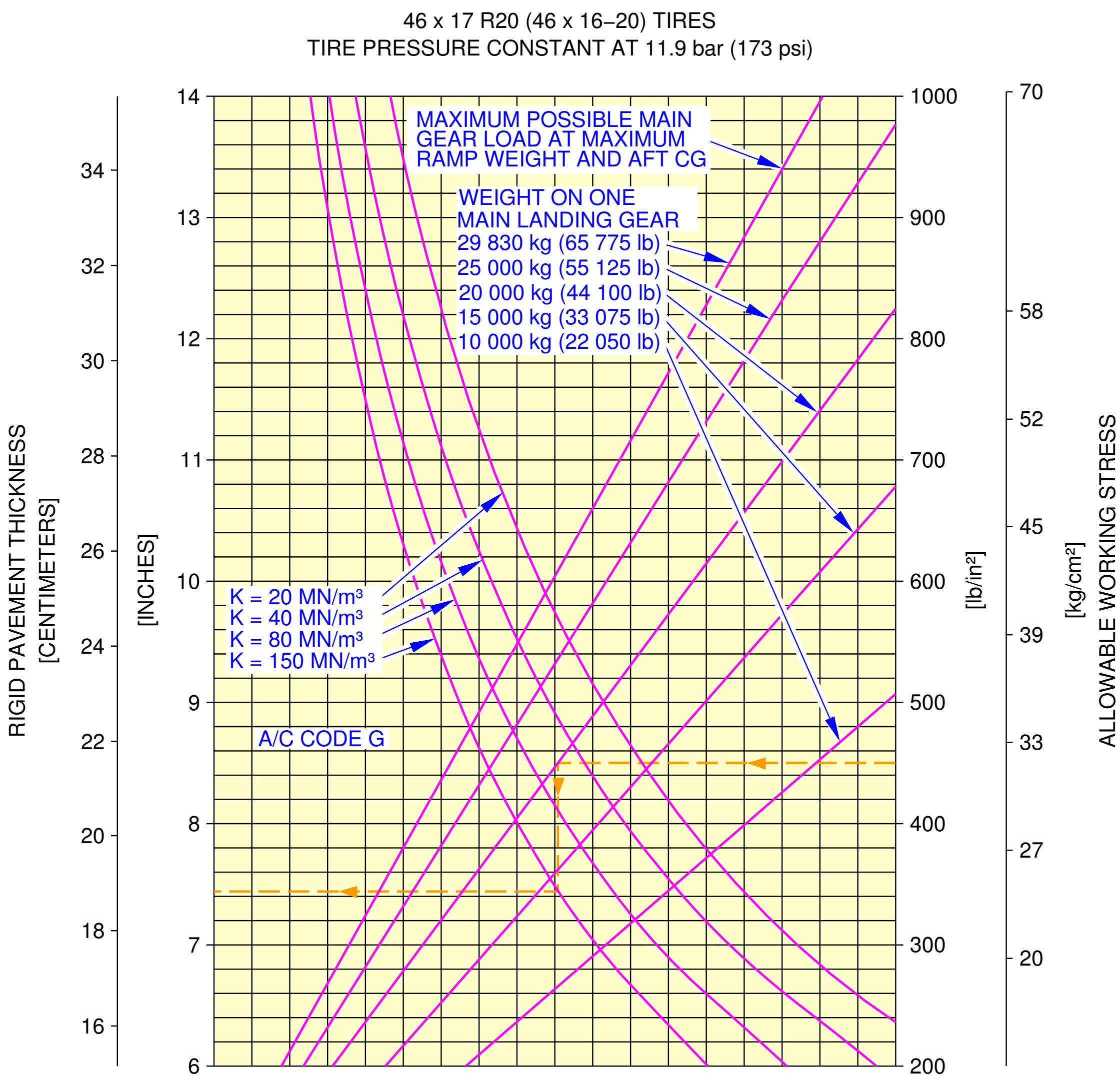
N_AC_070701_1_0410101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-041-A01

**ON A/C A319-100



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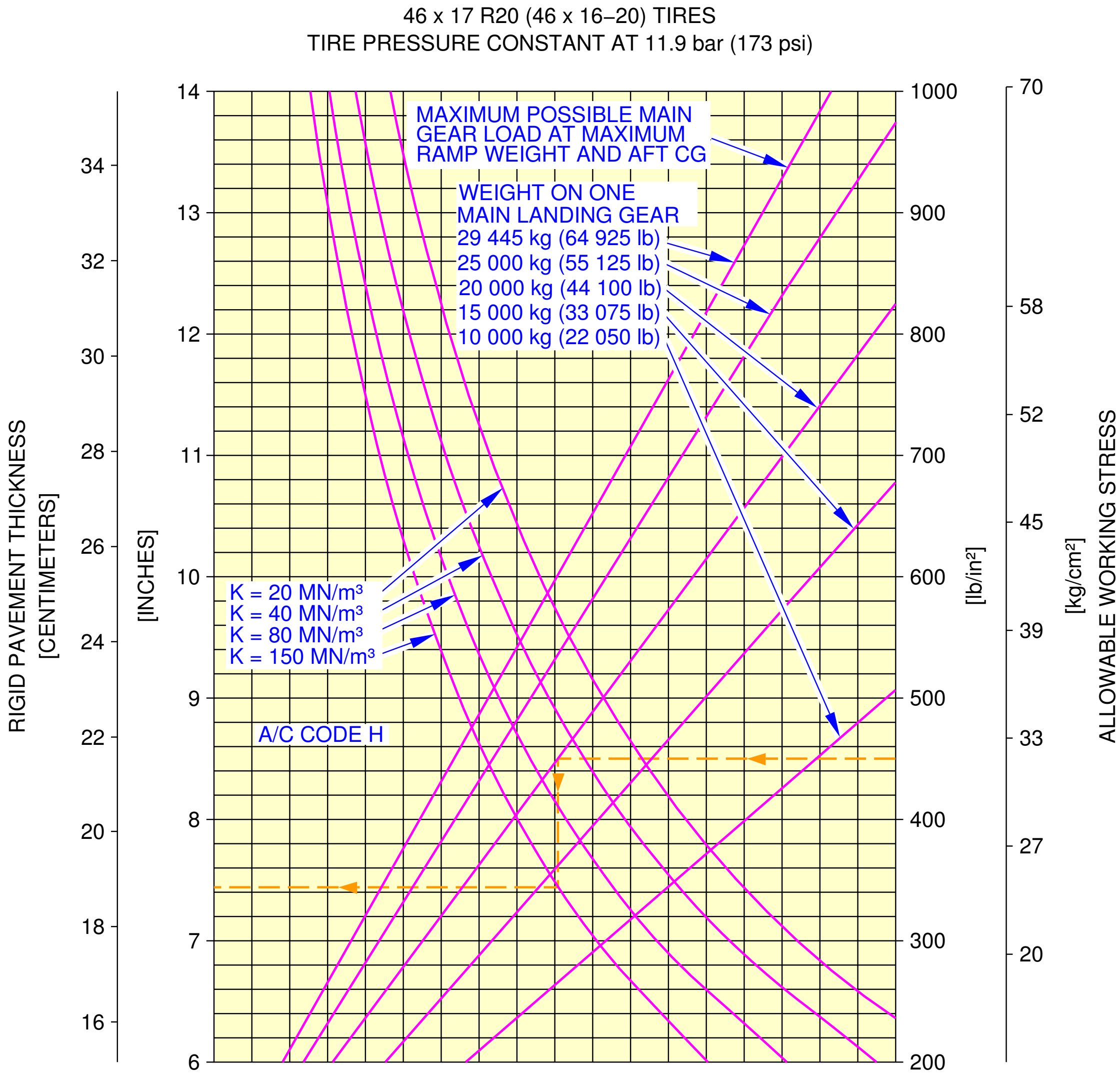
N_AC_070701_1_0420101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-042-A01

**ON A/C A319-100



NOTE:
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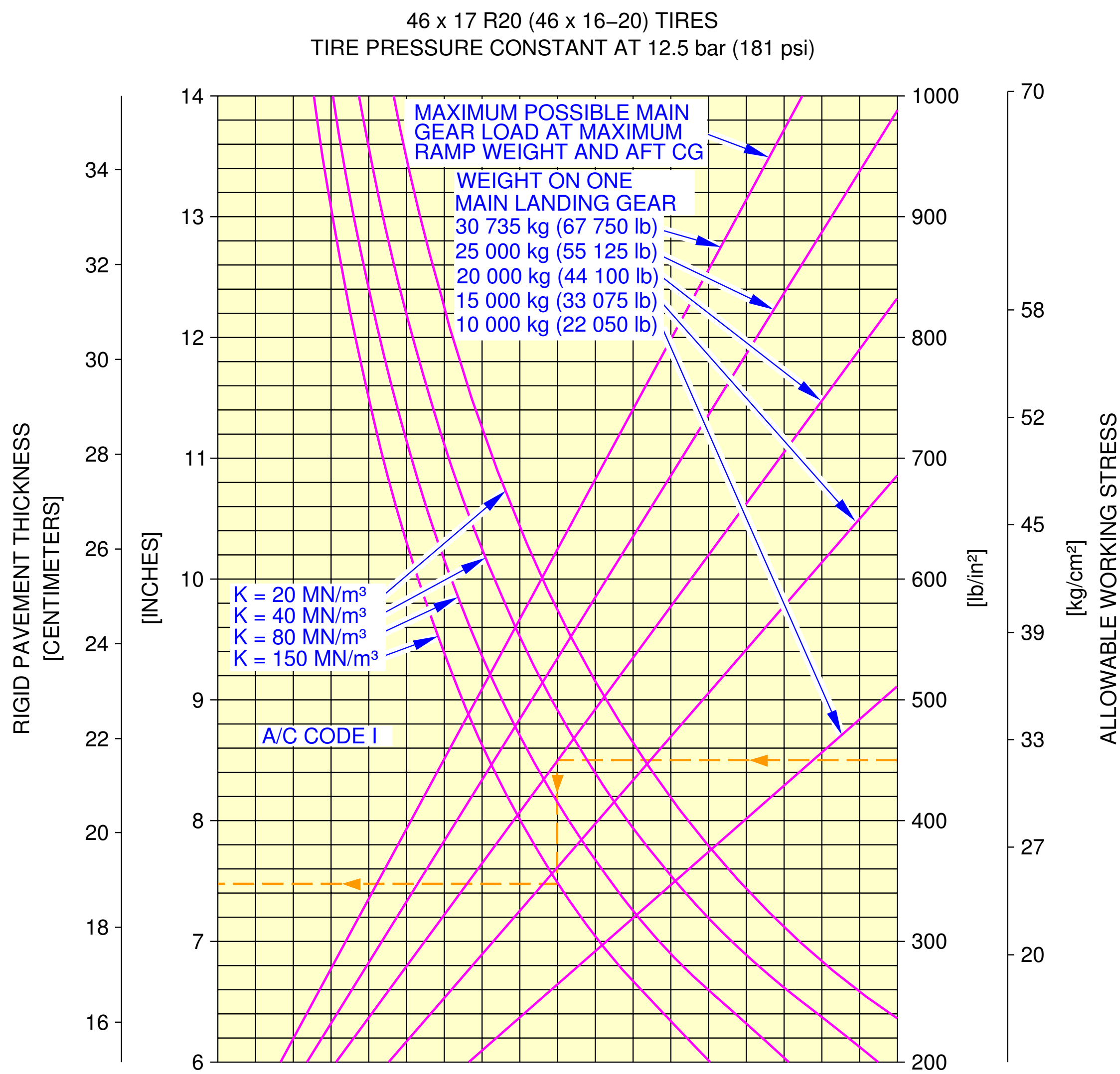
N_AC_070701_1_0430101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-043-A01

**ON A/C A319-100



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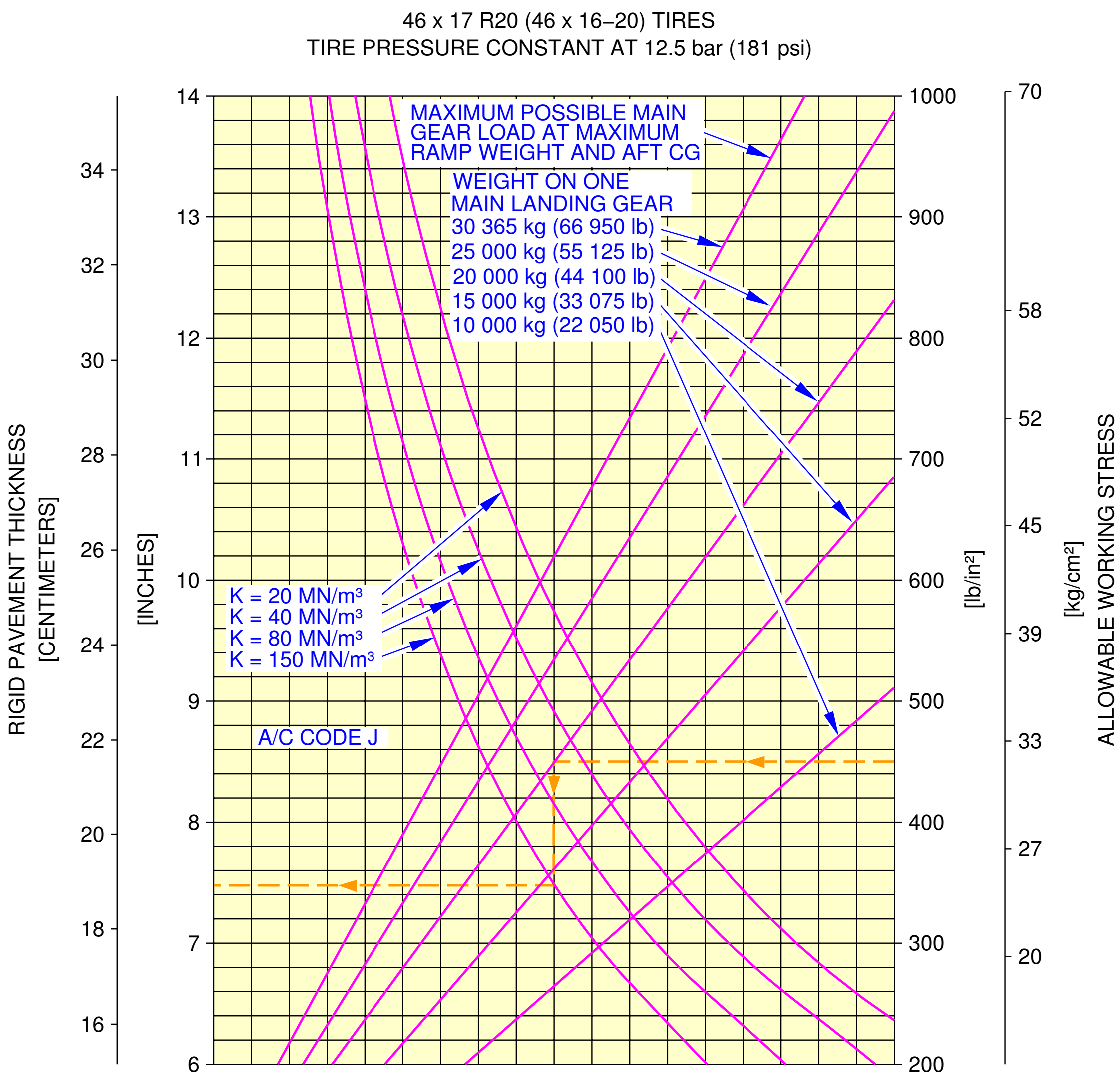
N_AC_070701_1_0440101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-044-A01

**ON A/C A319-100



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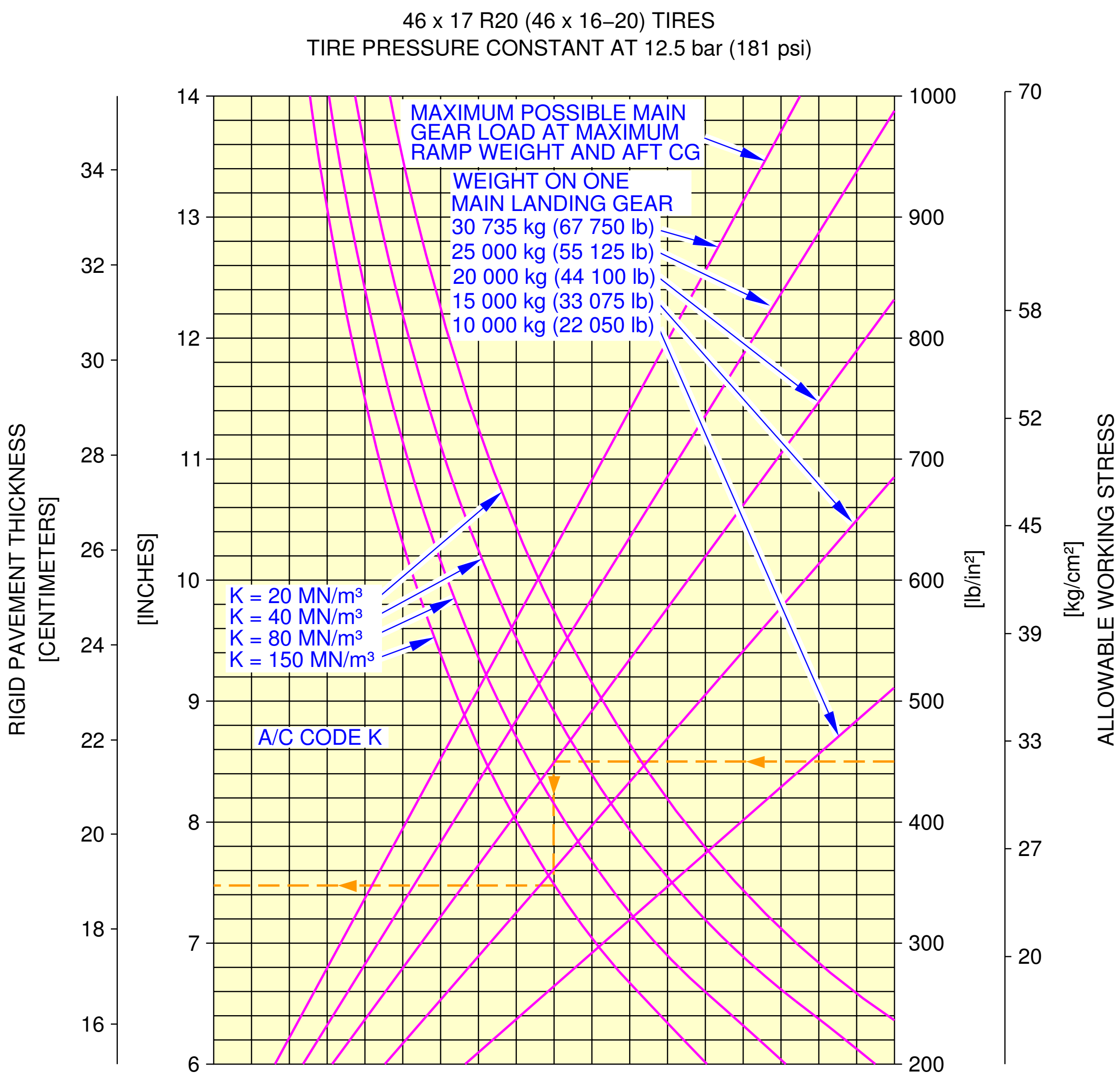
N_AC_070701_1_0450101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-045-A01

**ON A/C A319-100



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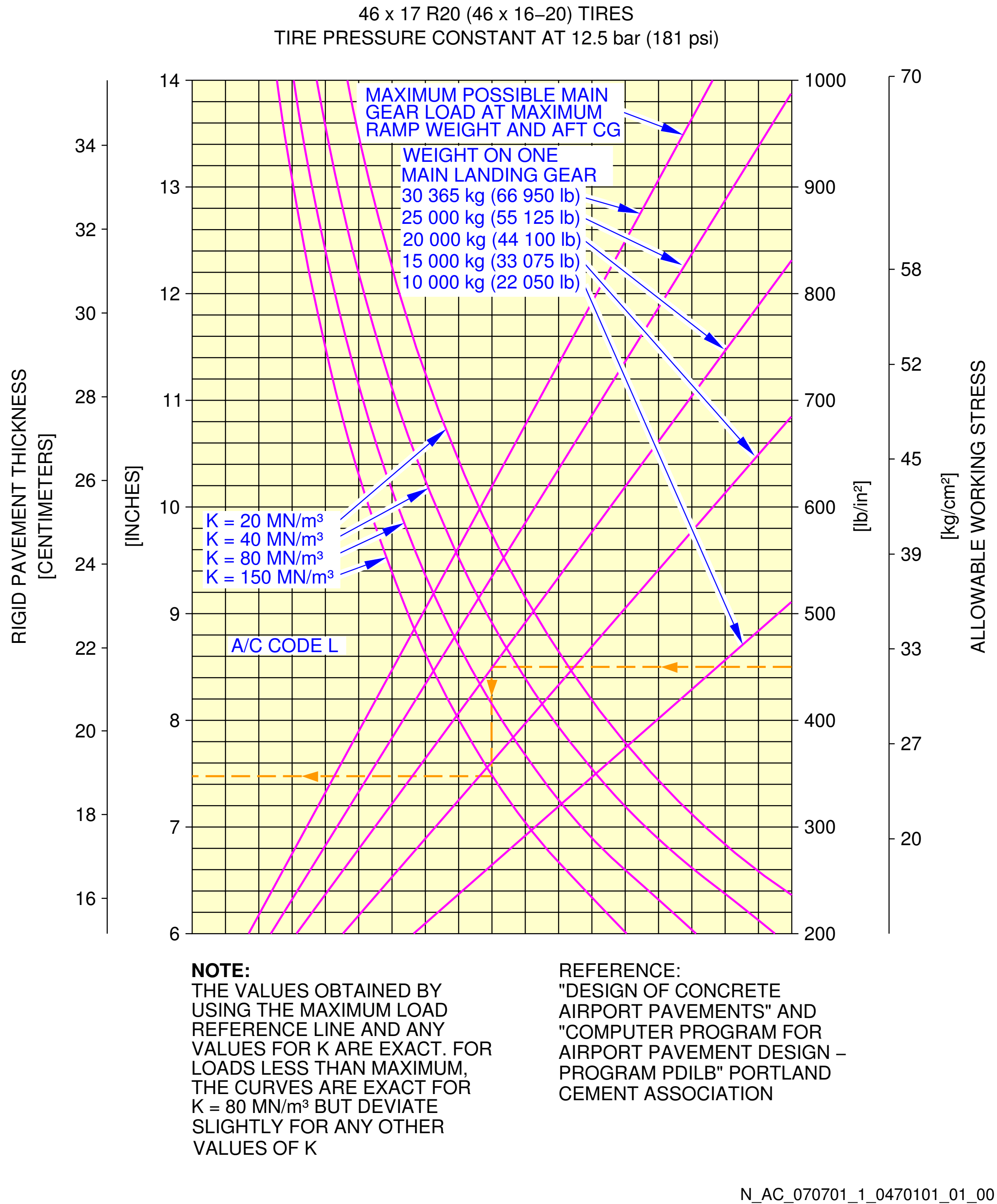
N_AC_070701_1_0460101_01_00

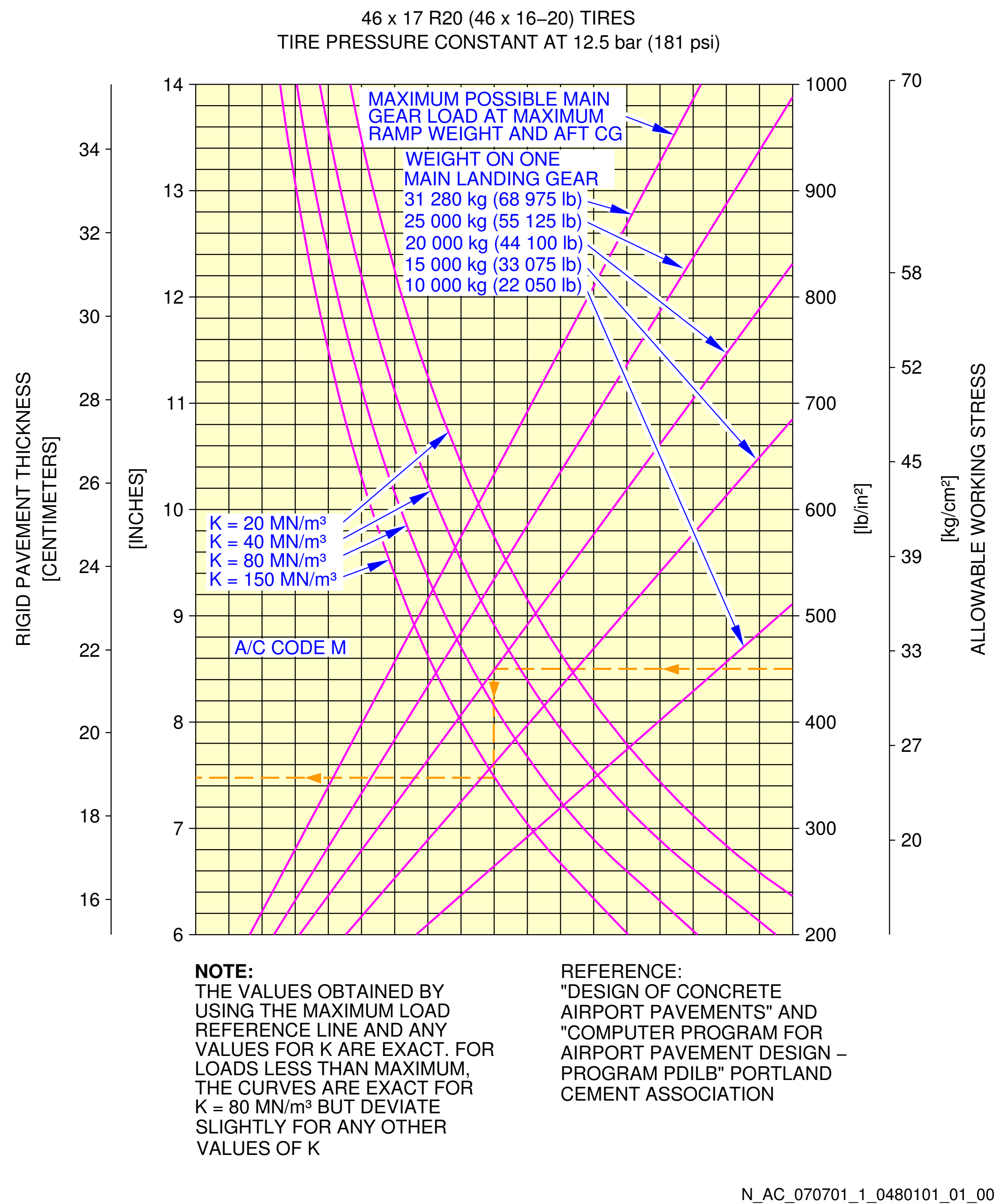
Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-046-A01

**ON A/C A319-100



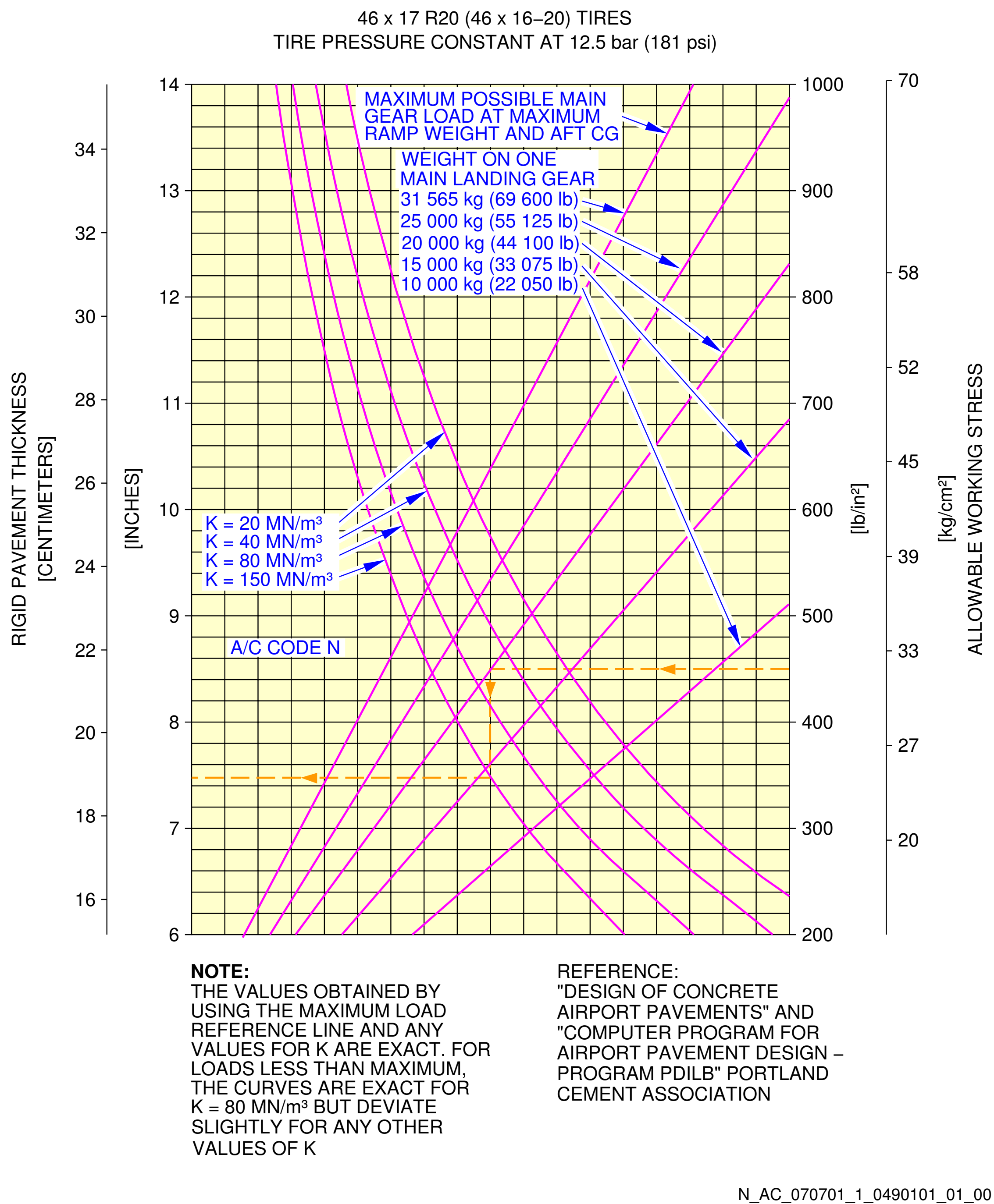
Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-047-A01

**ON A/C A319-100



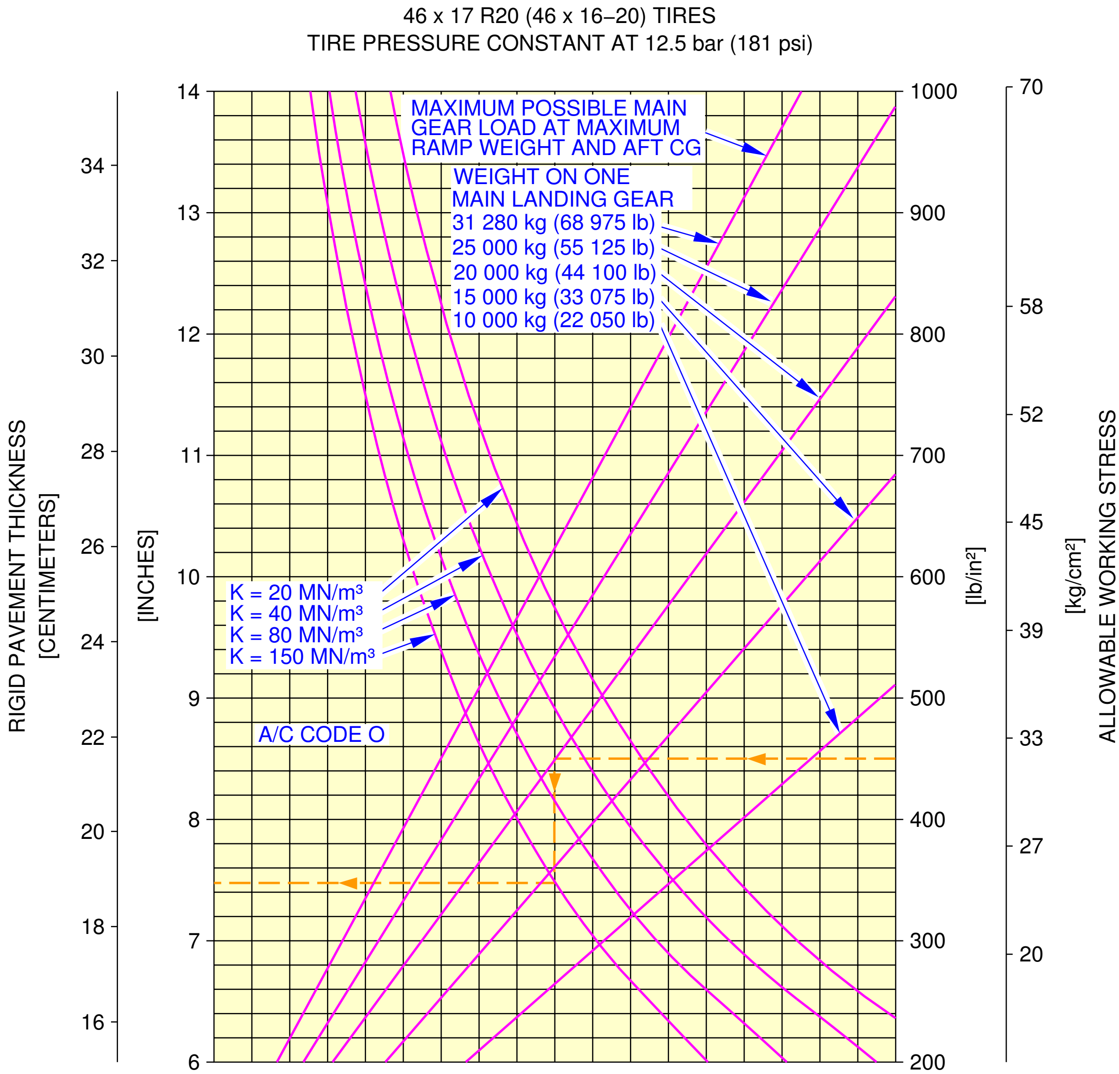
Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-048-A01

**ON A/C A319-100



Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-049-A01

**ON A/C A319-100



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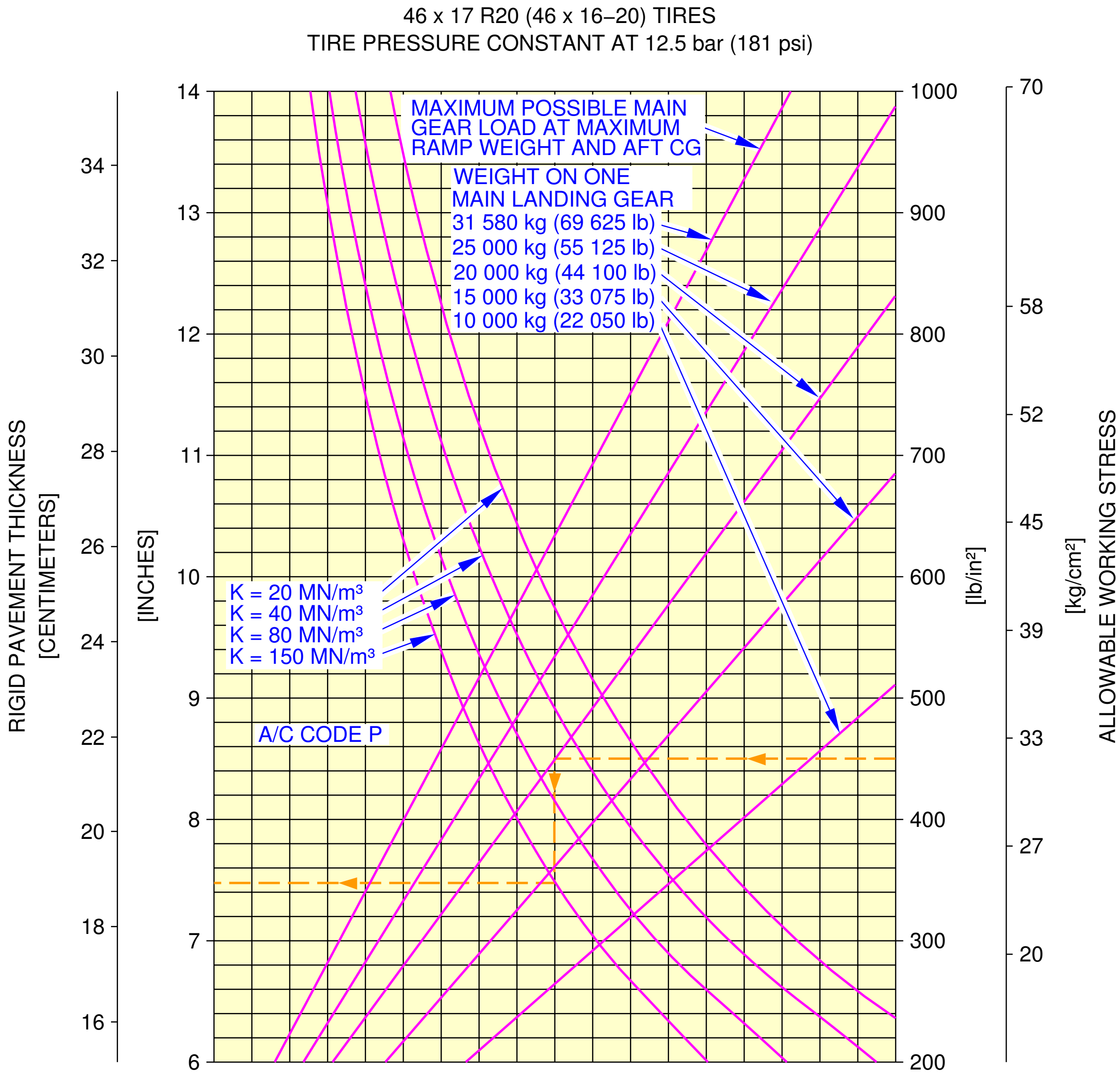
N_AC_070701_1_0500101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-050-A01

**ON A/C A319-100



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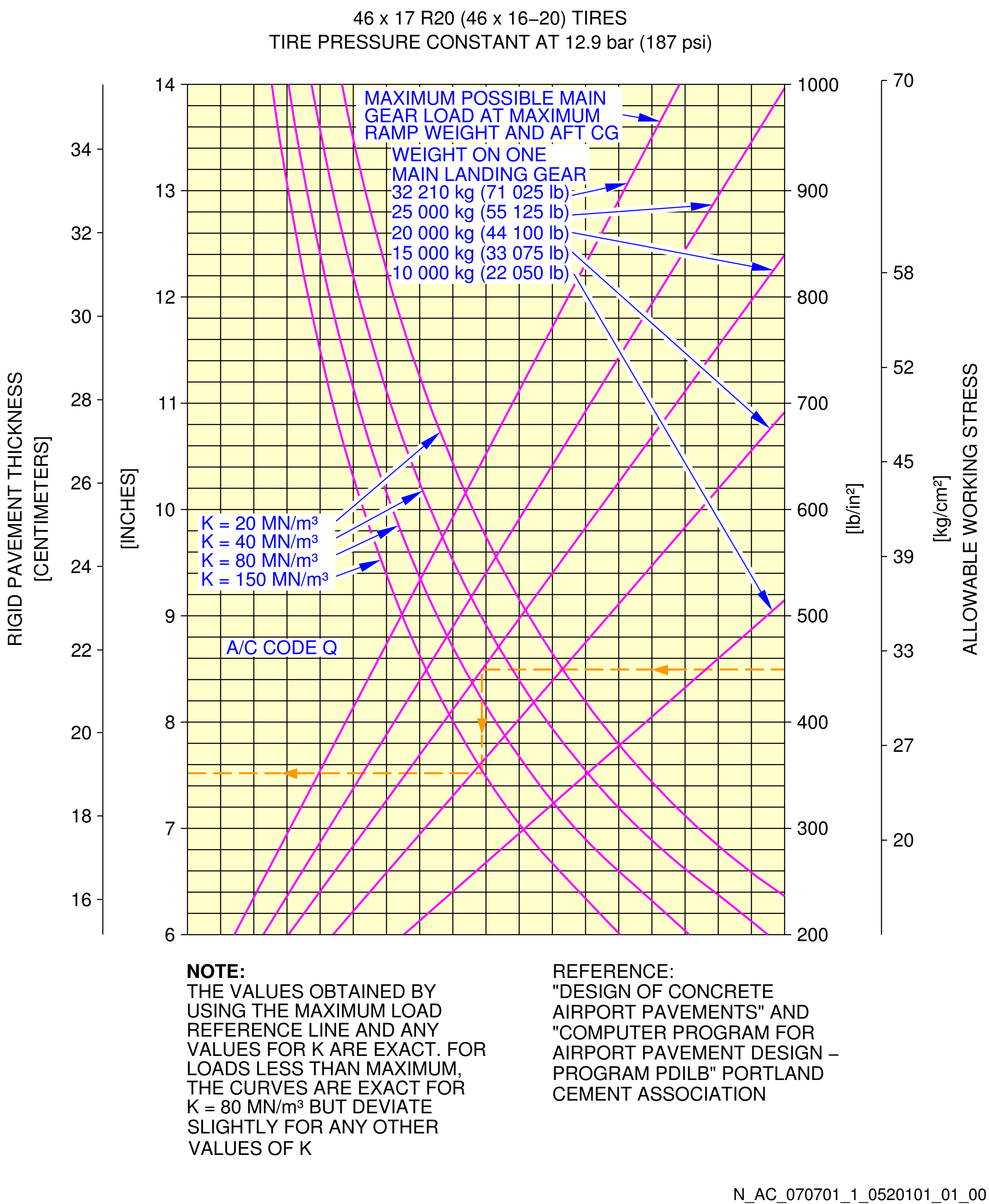
N_AC_070701_1_0510101_01_00

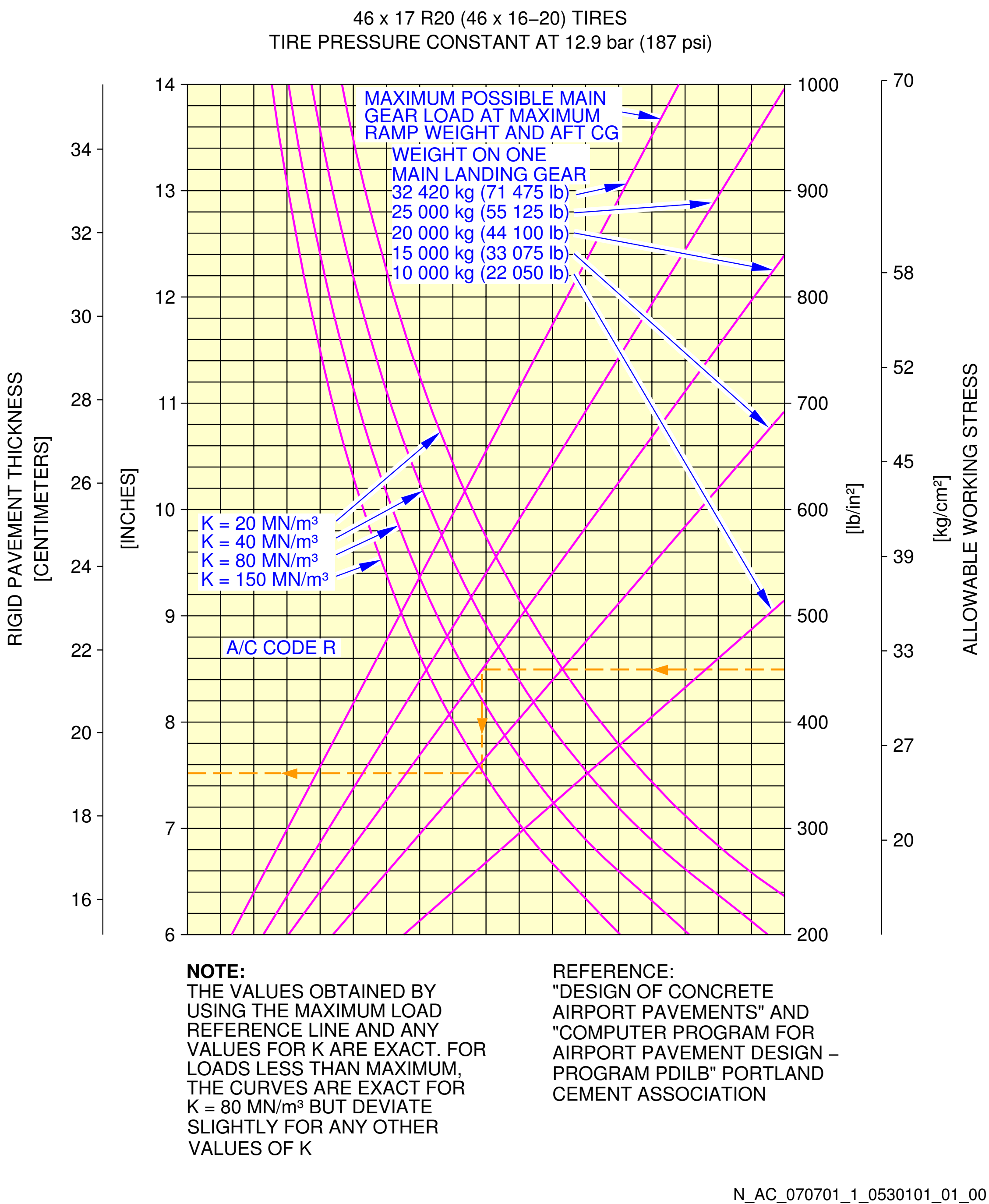
Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-051-A01

**ON A/C A319-100



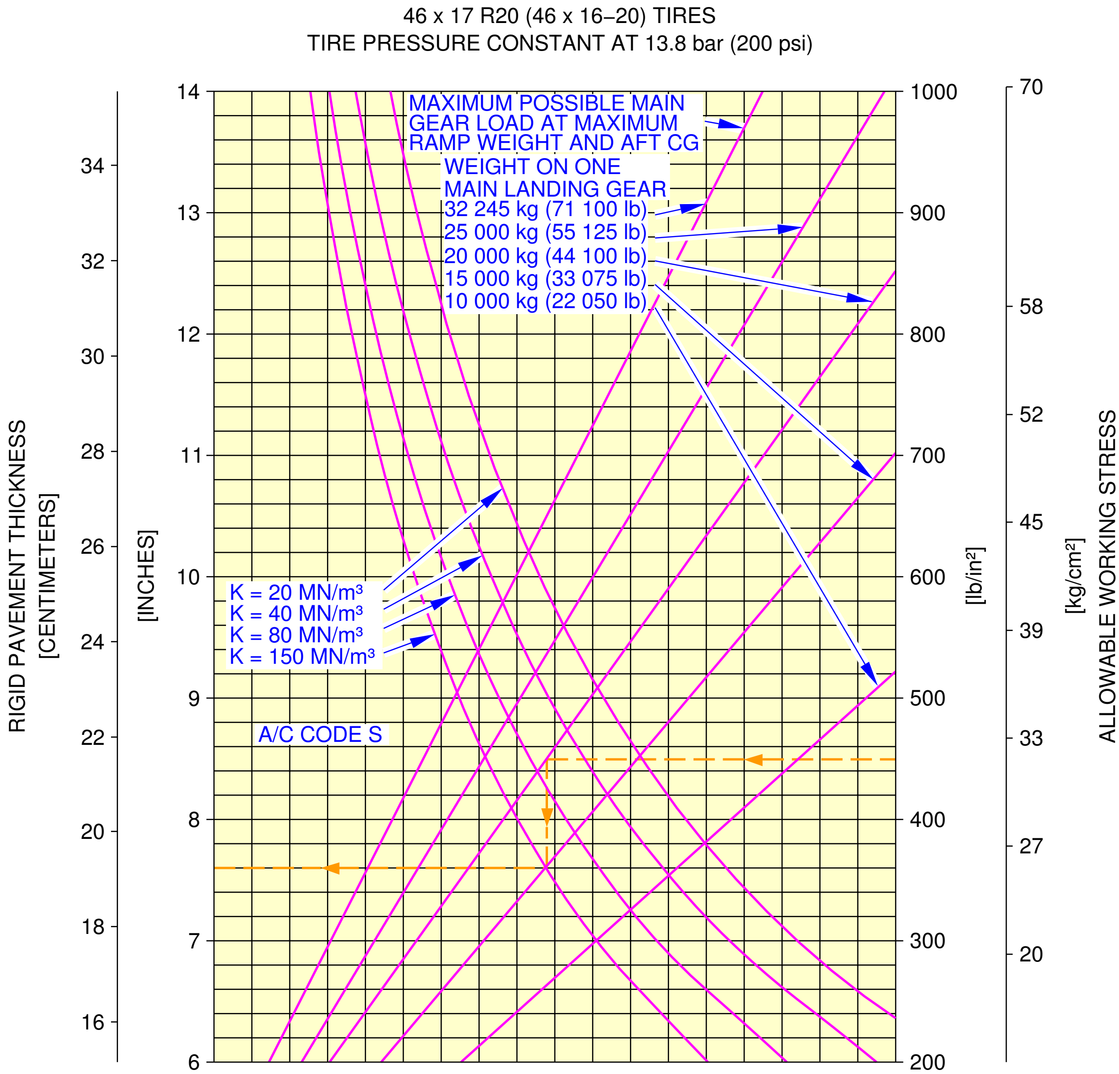
Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-052-A01

**ON A/C A319-100



Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-053-A01

**ON A/C A319-100



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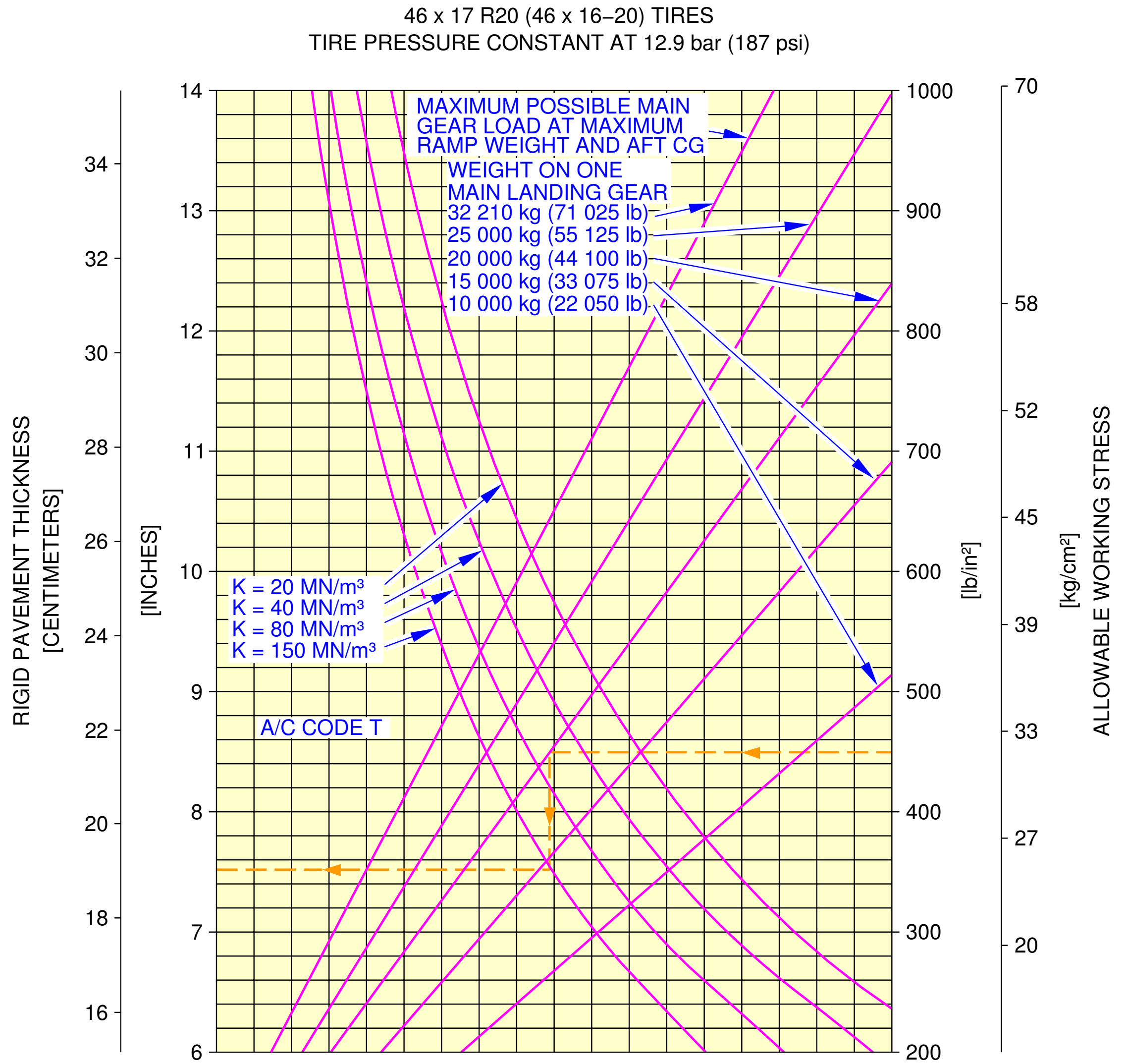
N_AC_070701_1_0540101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-054-A01

**ON A/C A319-100



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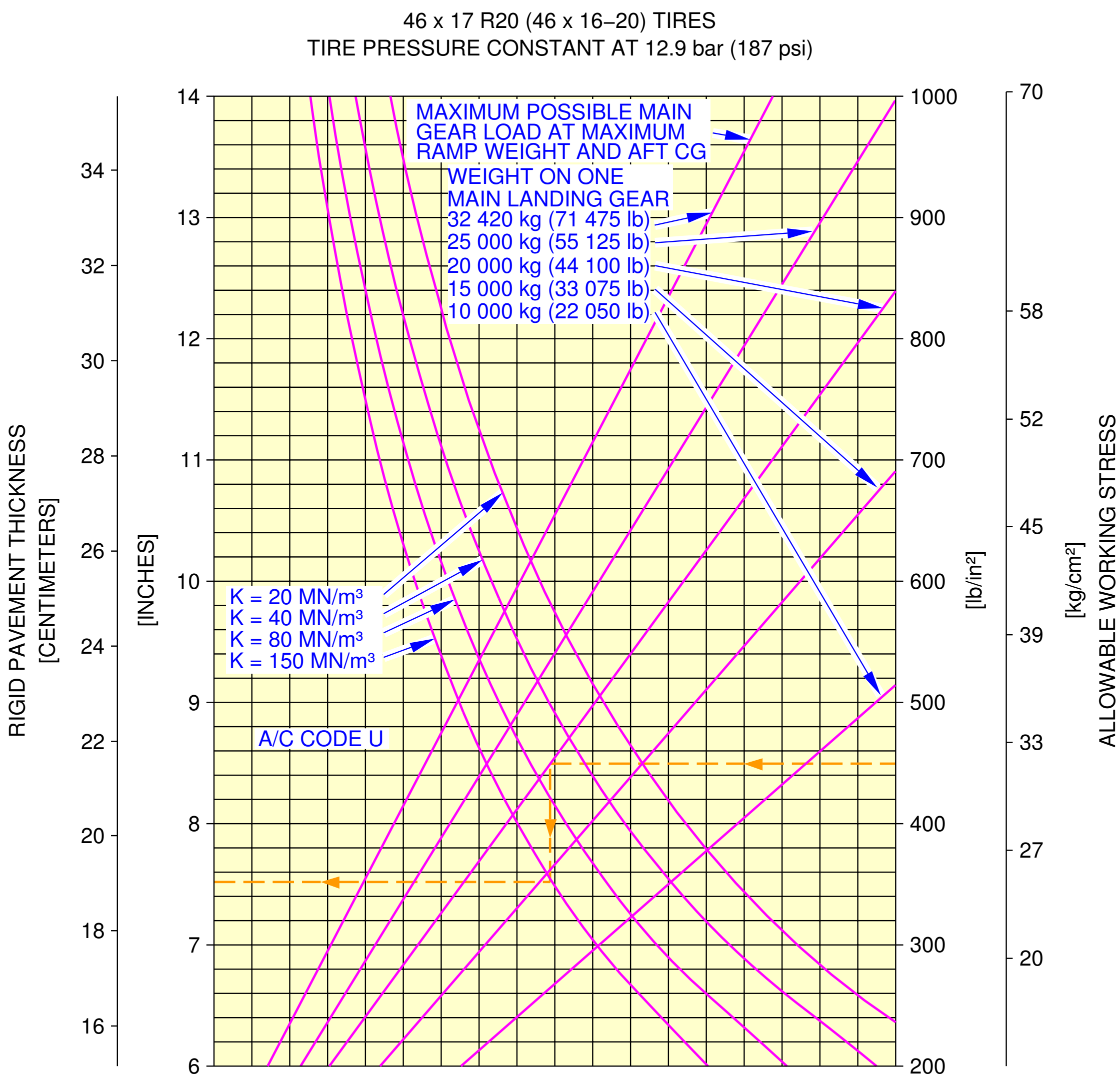
N_AC_070701_1_0550101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-055-A01

**ON A/C A319-100



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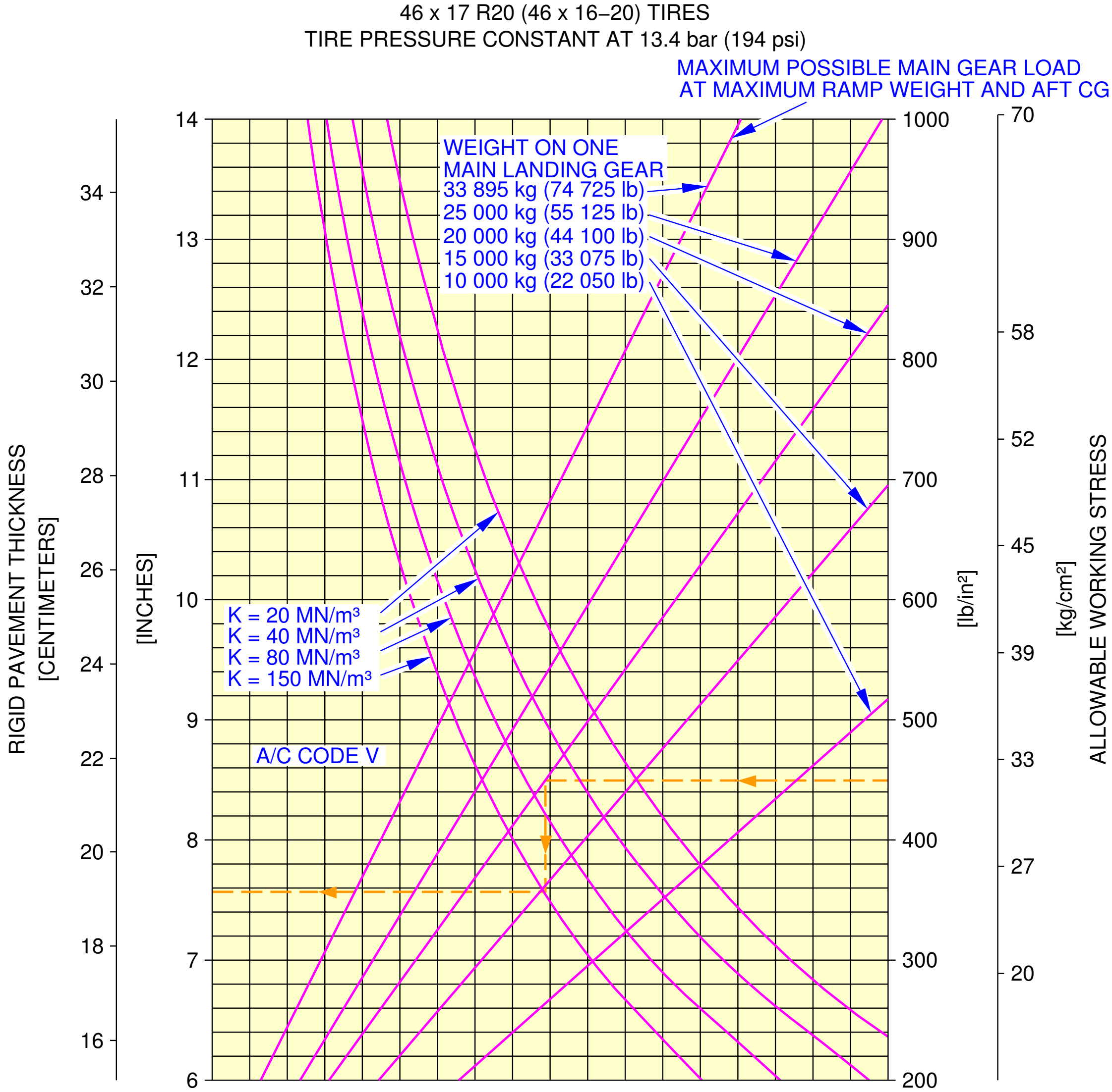
"DESIGN OF CONCRETE AIRPORT PAVEMENTS" AND "COMPUTER PROGRAM FOR AIRPORT PAVEMENT DESIGN – PROGRAM PDILB" PORTLAND CEMENT ASSOCIATION

N_AC_070701_1_0560101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-056-A01

**ON A/C A319-100



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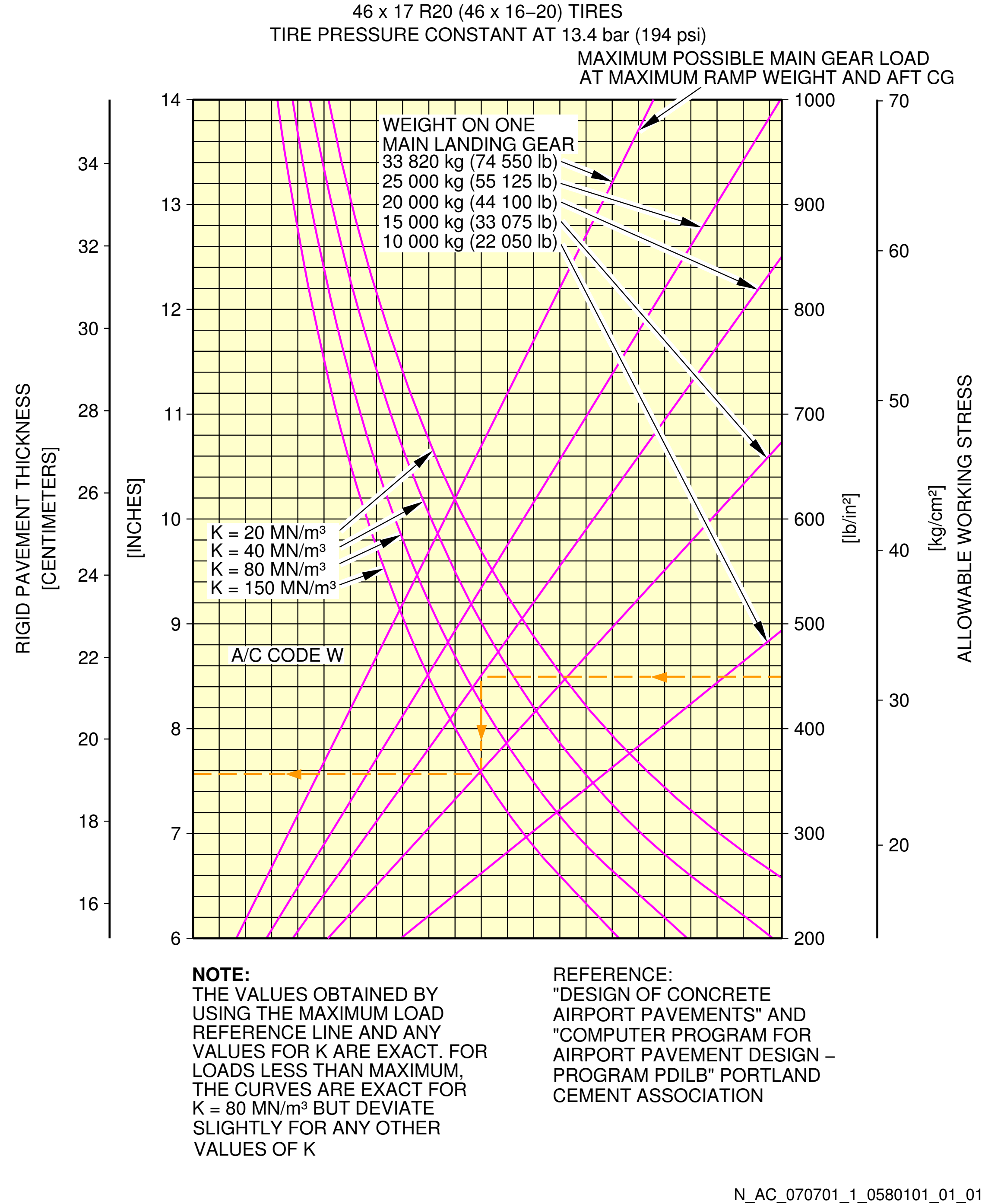
N_AC_070701_1_0570101_01_00

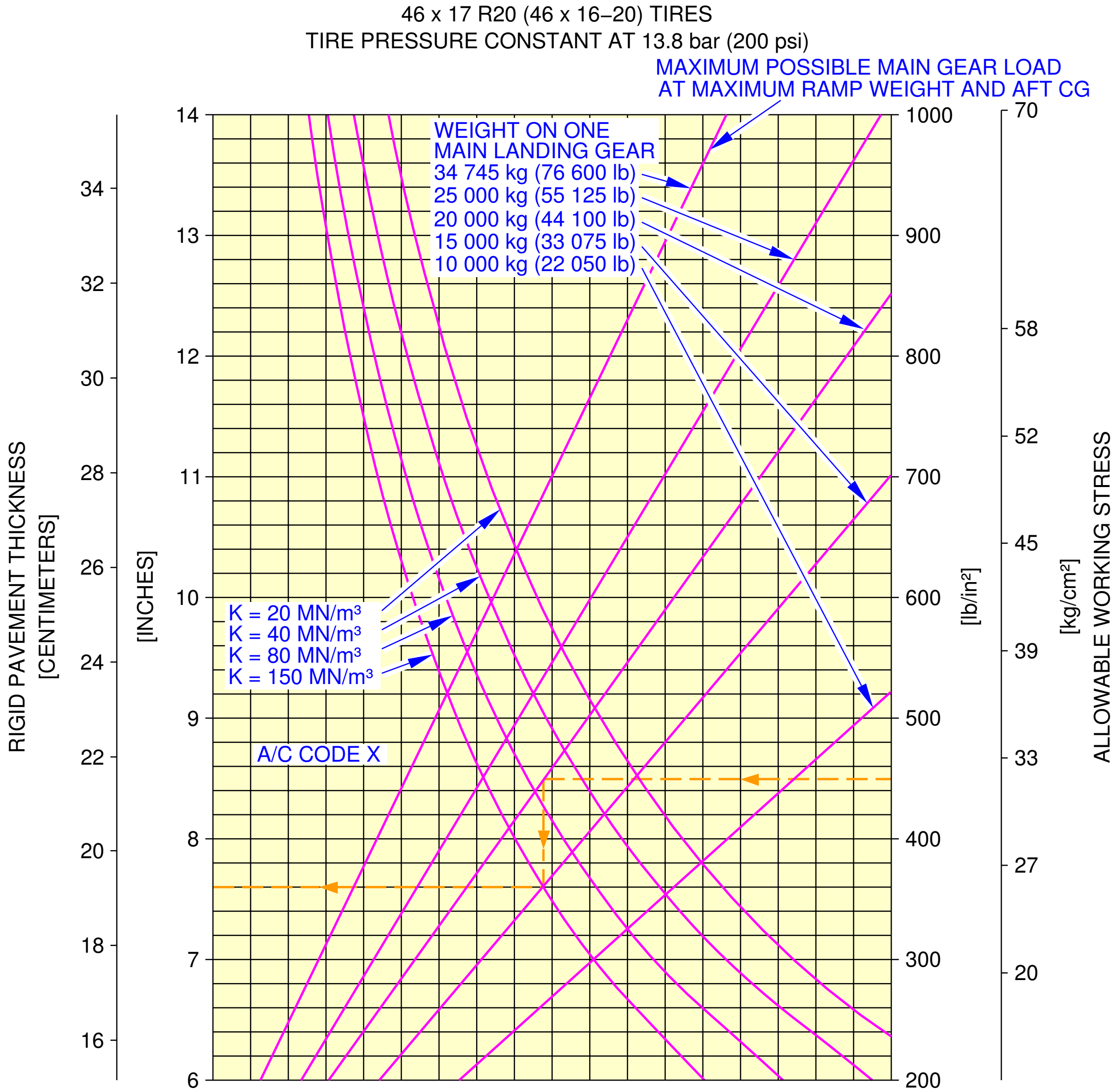
Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-057-A01

**ON A/C A319-100



Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-058-A01

**ON A/C A319-100



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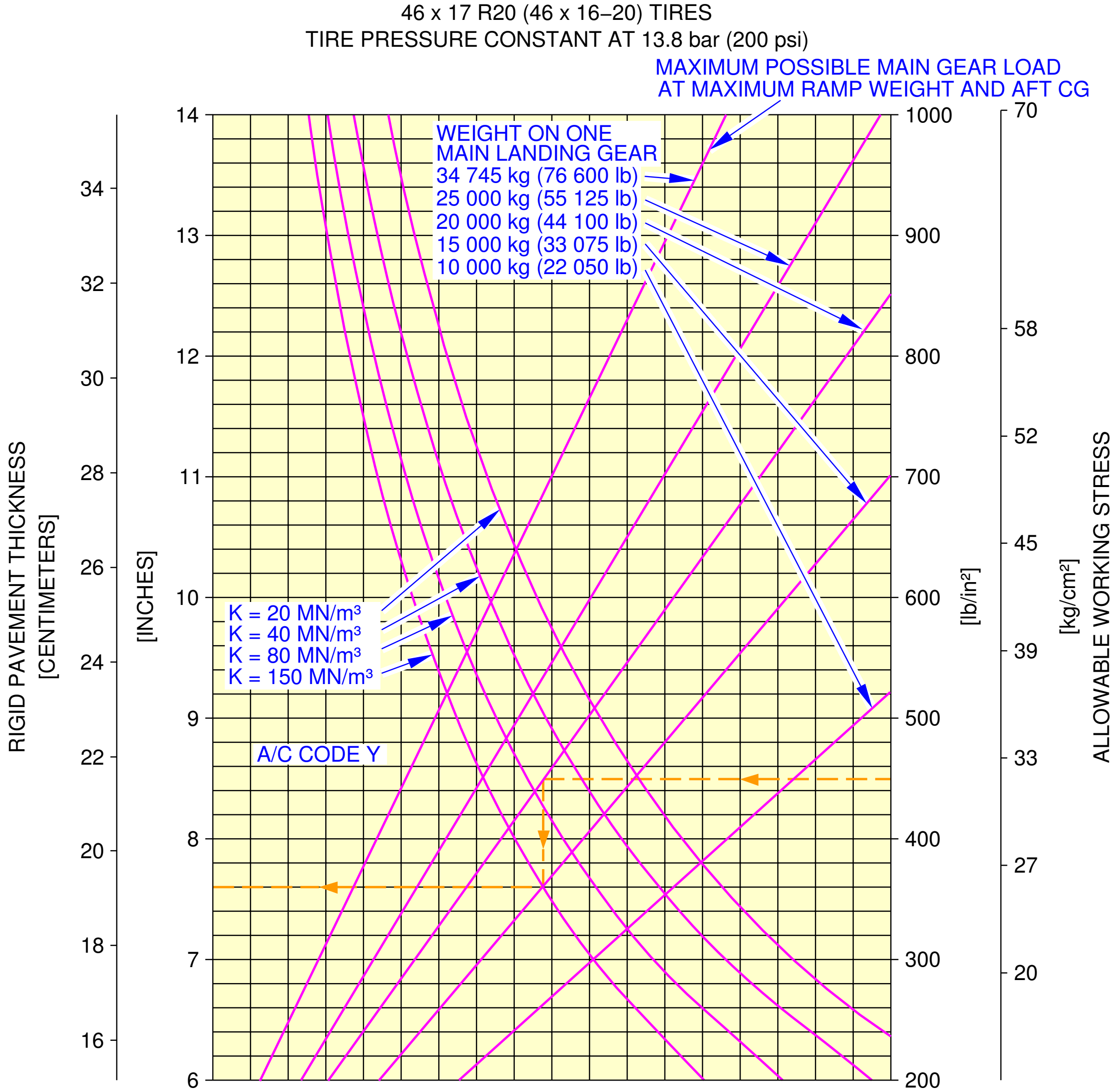
N_AC_070701_1_0590101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-059-A01

**ON A/C A319-100



NOTE:
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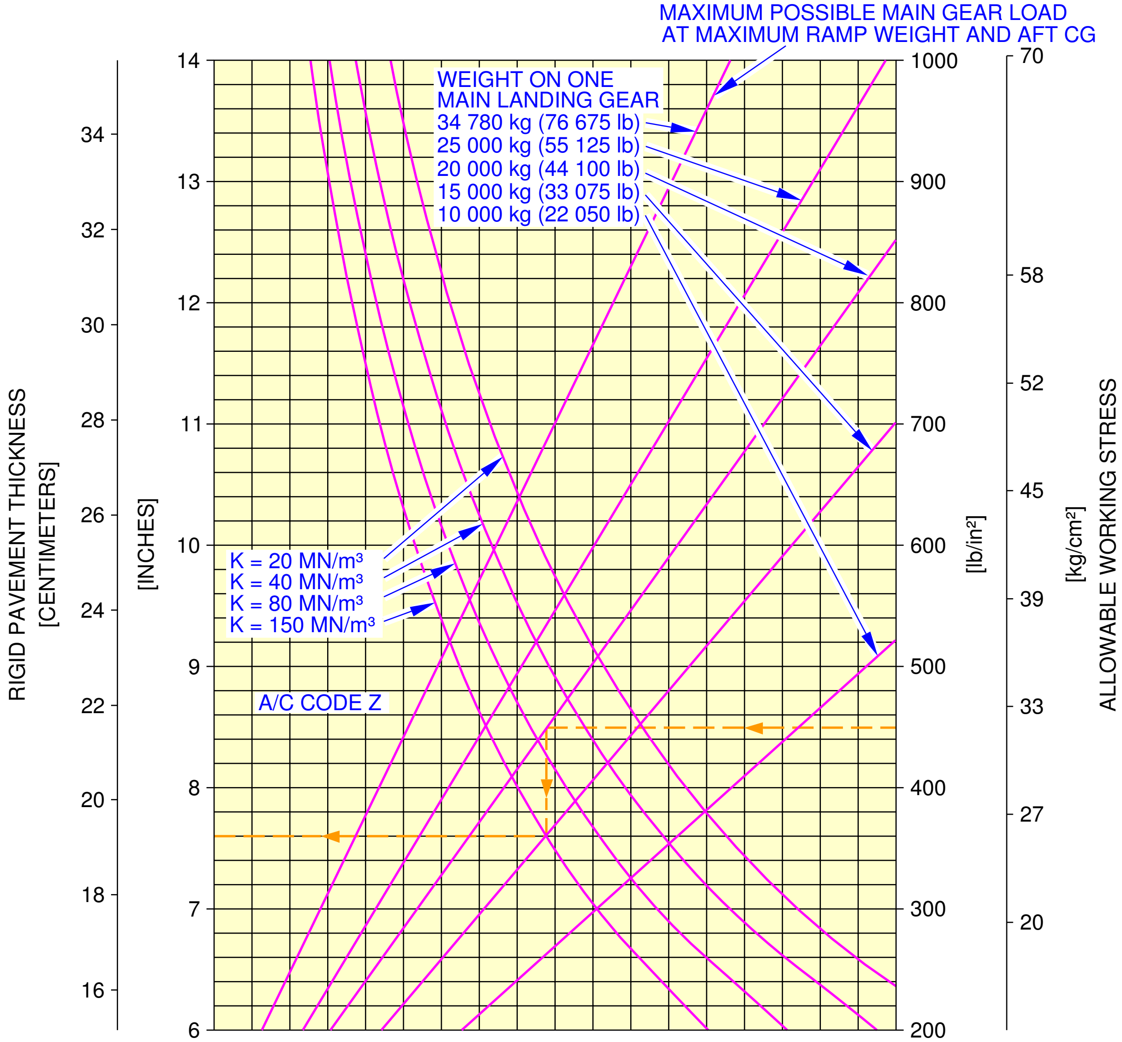
N_AC_070701_1_0600101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-060-A01

**ON A/C A319-100



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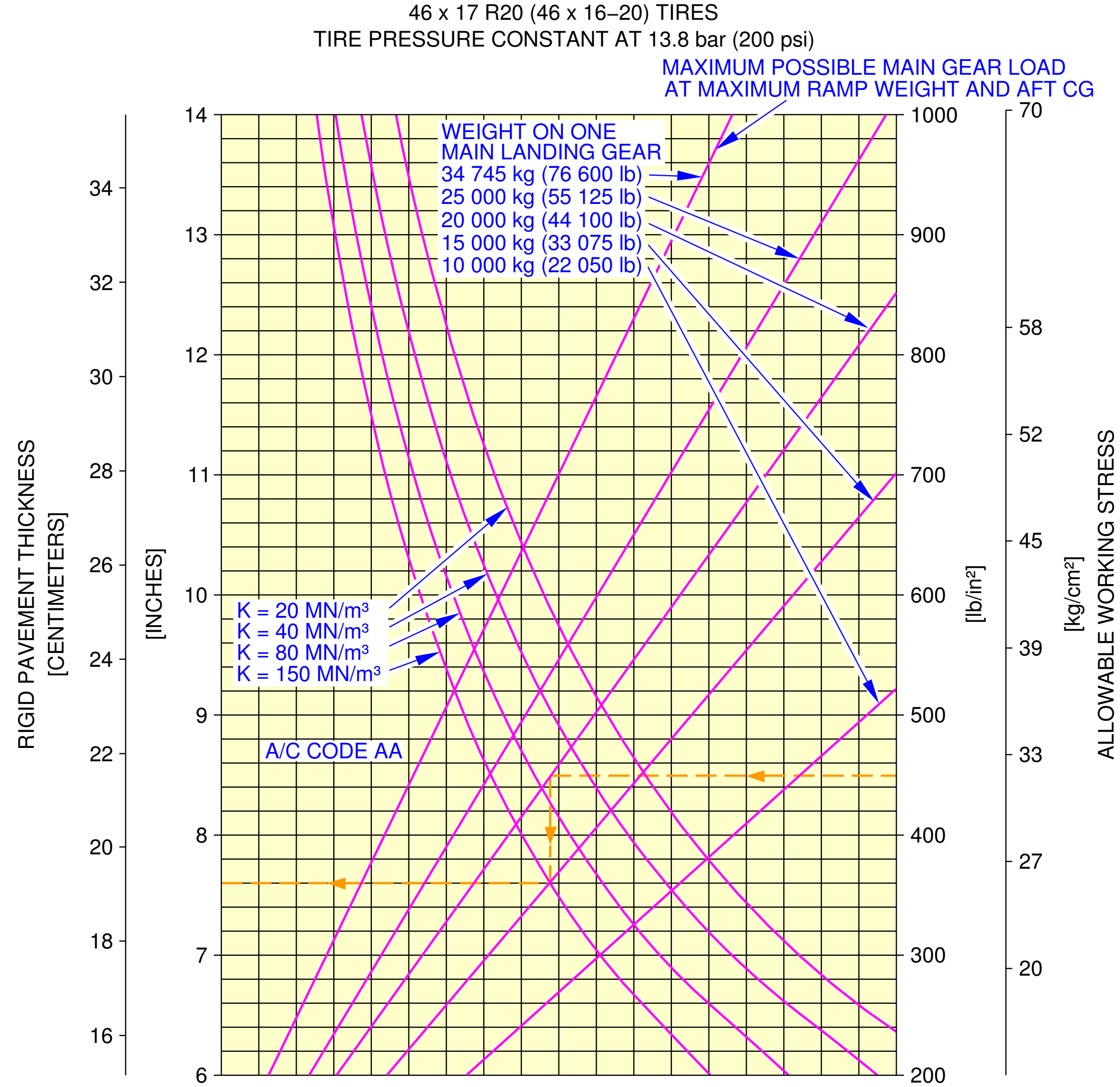
N_AC_070701_1_0610101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-061-A01

**ON A/C A319-100



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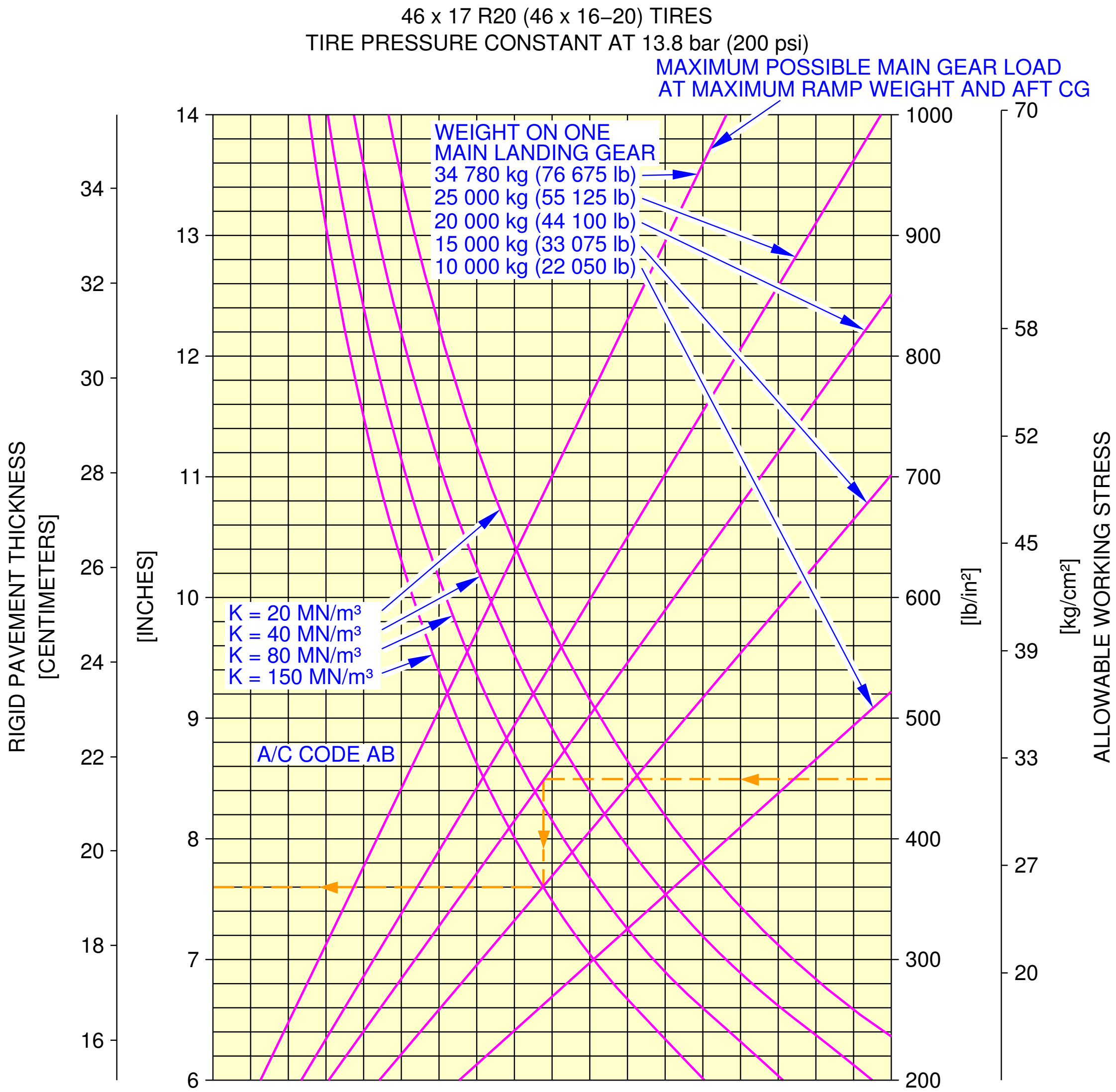
N_AC_070701_1_0620101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-062-A01

**ON A/C A319-100



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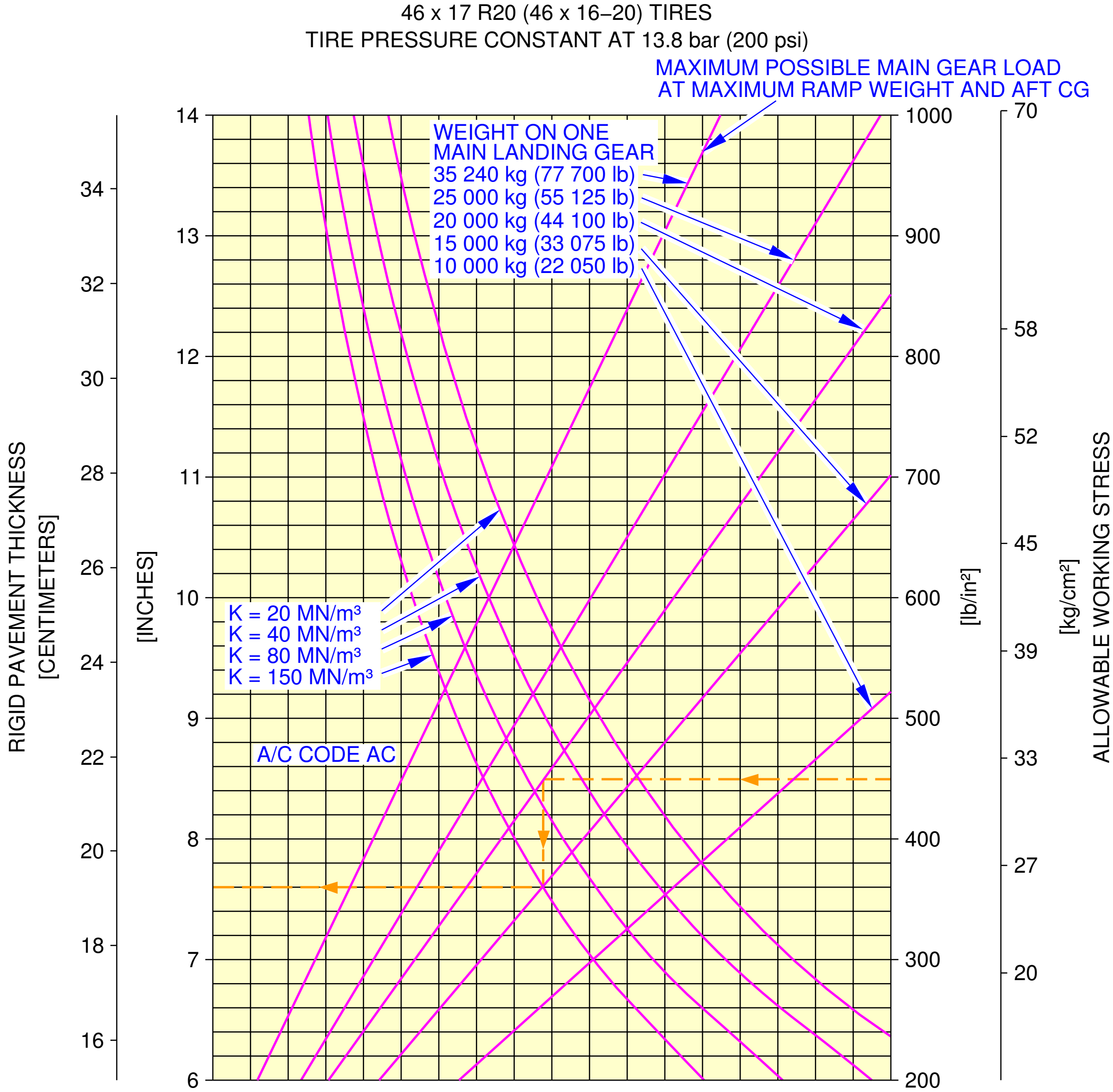
N_AC_070701_1_0630101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-063-A01

**ON A/C A319-100



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N_AC_070701_1_0640101_01_00

Rigid Pavement Requirements (PCA)
FIGURE-7-7-1-991-064-A01

7-8-1 Radius of Relative Stiffness

****ON A/C A319-100**

Radius of Relative Stiffness

1. This section gives Radius of Relative Stiffness.

**ON A/C A319-100

RADIUS OF RELATIVE STIFFNESS (L)
VALUES IN INCHES

$$L = \sqrt[4]{\frac{Ed^3}{12\,(1-\mu^2)\,k}} = 24.1652\,\sqrt[4]{\frac{d^3}{k}}$$

WHERE E = YOUNG'S MODULUS = 4×10^6 psi
k = SUBGRADE MODULUS, lb/in^3
d = RIGID PAVEMENT THICKNESS, (in)
μ = POISSON'S RATIO = 0.15

d	k=75	k=100	k=150	k=200	k=250	k=300	k=350	k=400	k=550
6.0	31.48	29.30	26.47	24.63	23.30	22.26	21.42	20.72	19.13
6.5	33.43	31.11	28.11	26.16	24.74	23.64	22.74	22.00	20.31
7.0	35.34	32.89	29.72	27.65	26.15	24.99	24.04	23.25	21.47
7.5	37.22	34.63	31.29	29.12	27.54	26.32	25.32	24.49	22.61
8.0	39.06	36.35	32.85	30.57	28.91	27.62	26.58	25.70	23.74
8.5	40.88	38.04	34.37	31.99	30.25	28.91	27.81	26.90	24.84
9.0	42.67	39.71	35.88	33.39	31.58	30.17	29.03	28.08	25.93
9.5	44.43	41.35	37.36	34.77	32.89	31.42	30.23	29.24	27.00
10.0	46.18	42.97	38.83	36.14	34.17	32.65	31.42	30.39	28.06
10.5	47.90	44.57	40.28	37.48	35.45	33.87	32.59	31.52	29.11
11.0	49.60	46.16	41.71	38.81	36.71	35.07	33.75	32.64	30.14
11.5	51.28	47.72	43.12	40.13	37.95	36.26	34.89	33.74	32.16
12.0	52.94	49.27	44.52	41.43	39.18	37.44	36.02	34.84	32.17
12.5	54.59	50.80	45.90	42.72	40.40	38.60	37.14	35.92	33.17
13.0	56.22	52.32	47.27	43.99	41.61	39.75	38.25	36.99	34.16
13.5	57.83	53.82	48.63	45.26	42.80	40.89	39.35	38.06	35.14
14.0	59.43	55.31	49.98	46.51	43.98	42.02	40.44	39.11	36.12
14.5	61.02	56.78	51.31	47.75	45.16	43.15	41.51	40.15	37.08
15.0	62.59	58.25	52.63	48.98	46.32	44.26	42.58	41.19	38.03
15.5	64.15	59.70	53.94	50.20	47.47	45.36	43.64	42.21	38.98
16.0	65.69	61.13	55.24	51.41	48.62	46.45	44.70	43.23	39.92
16.5	67.23	62.56	56.53	52.61	49.75	47.54	45.74	44.24	40.85
17.0	68.75	63.98	57.81	53.80	50.88	48.61	46.77	45.24	41.78
17.5	70.26	65.38	59.08	54.98	52.00	49.68	47.80	46.23	42.70
18.0	71.76	66.78	60.34	56.15	53.11	50.74	48.82	47.22	43.61
19.0	74.73	69.54	62.84	58.48	55.31	52.84	50.84	49.17	45.41
20.0	77.66	72.27	65.30	60.77	57.47	54.91	52.84	51.10	47.19
21.0	80.55	74.96	67.74	63.04	59.62	56.96	54.81	53.01	48.95
22.0	83.41	77.63	70.14	65.28	61.73	58.98	56.75	54.89	50.69
23.0	86.24	80.26	72.52	67.49	63.83	60.98	58.68	56.75	52.41
24.0	89.04	82.86	74.87	69.68	65.90	62.96	60.58	58.59	54.11
25.0	91.81	85.44	77.20	71.84	67.95	64.92	62.46	60.41	55.79

N_AC_070801_1_0020101_01_02

Radius of Relative Stiffness
(Reference: Portland Cement Association)
FIGURE-7-8-1-991-002-A01

7-8-2 Rigid Pavement Requirements - LCN Conversion

****ON A/C A319-100**

Rigid Pavement Requirements - LCN Conversion

1. General

   In order to determine the airplane weight that can be accommodated on a particular Rigid Pavement, both the LCN of the pavement and the Radius of Relative Stiffness (L) must be known.

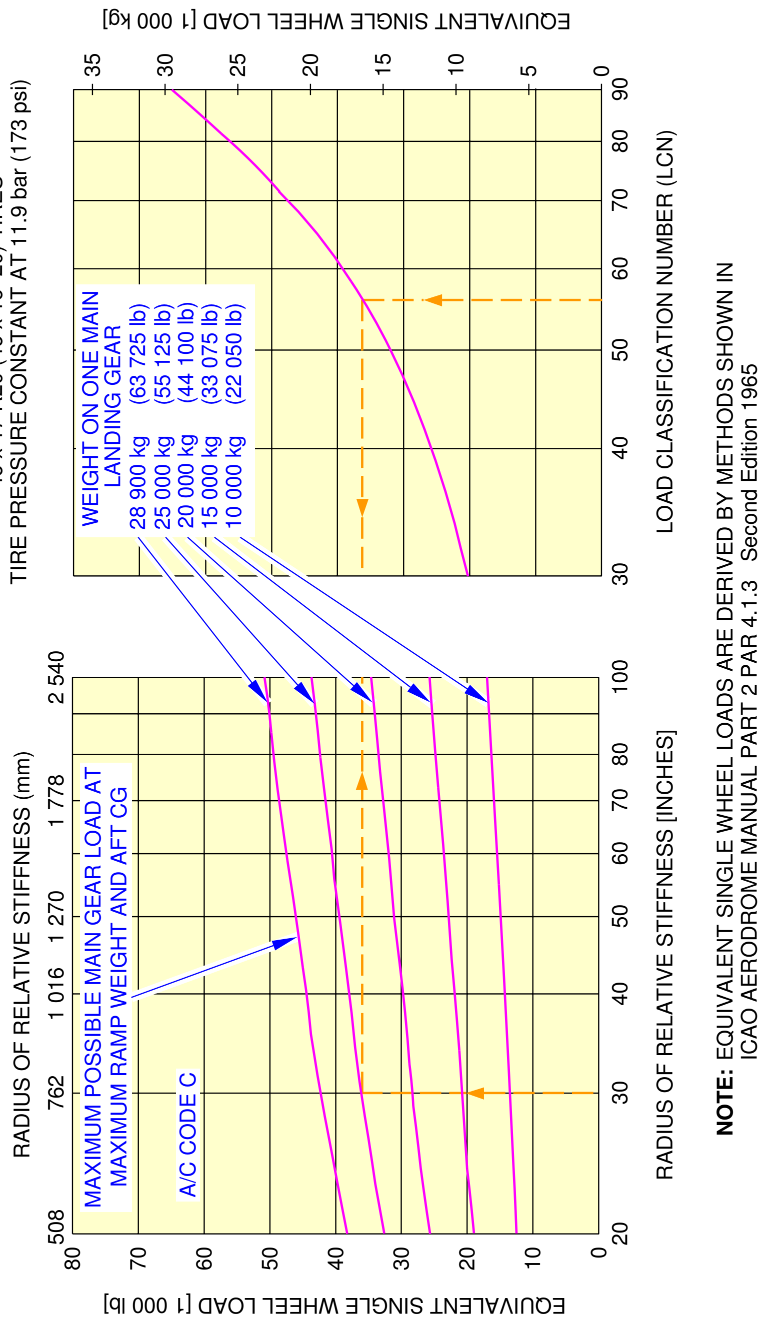
   In the example shown in this section Rigid Pavement Requirements - LCN Conversion, A/C Code C for:

   - The Radius of Relative Stiffness is shown at 762 mm (30 in) with an LCN of 56.

   For these conditions, the weight on one Main Landing Gear is 25 000 kg (55 125 lb).

   NOTE : For A/C Code definition, refer to chapter 7-1-0.

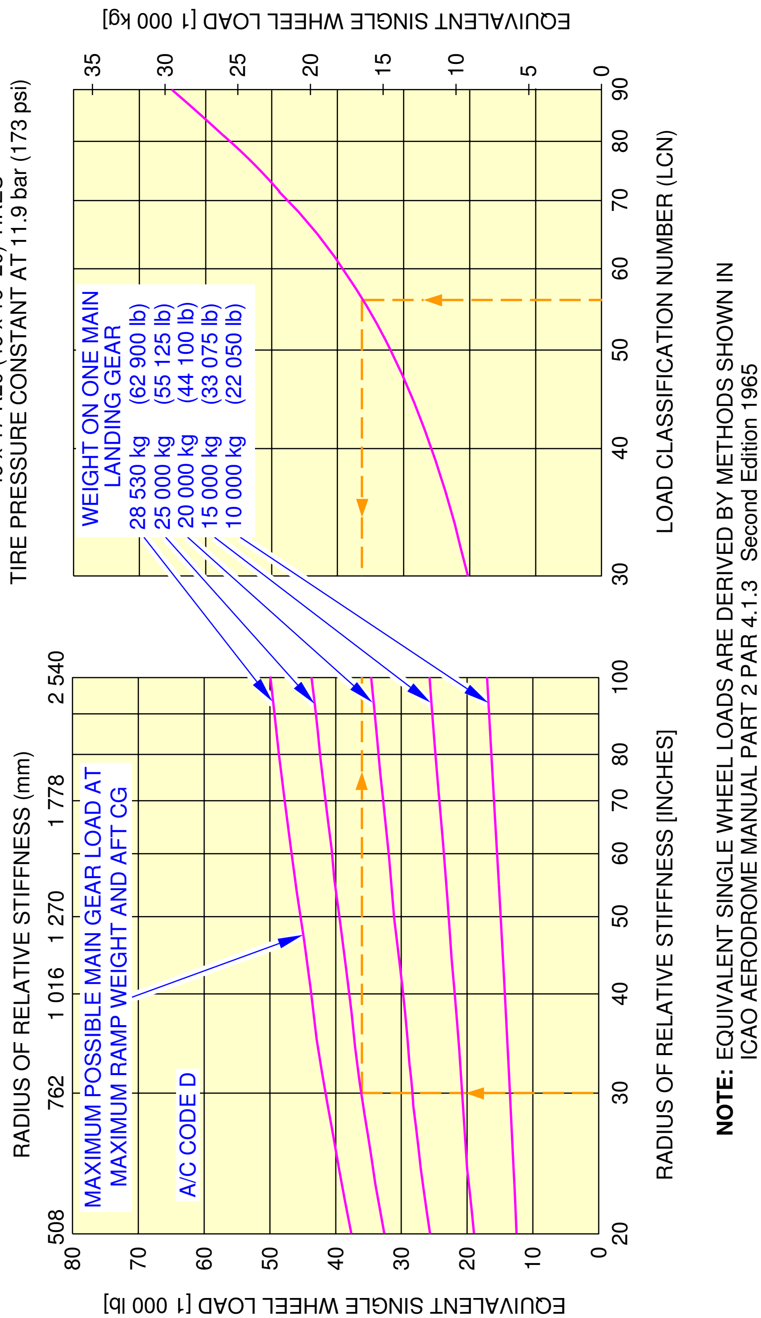
****ON A/C A319-100**



N_AC_070802_1_0410101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-041-A01

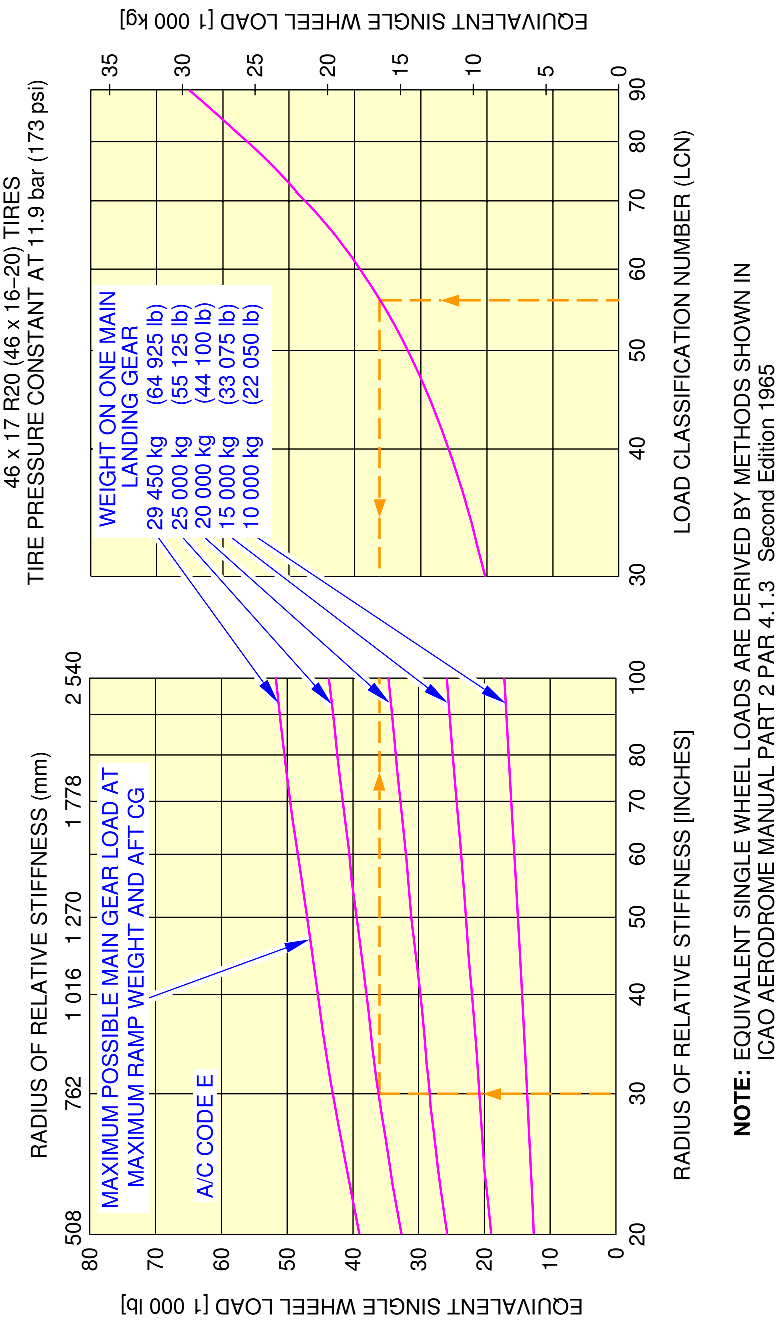
****ON A/C A319-100**



N_AC_070802_1_0420101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-042-A01

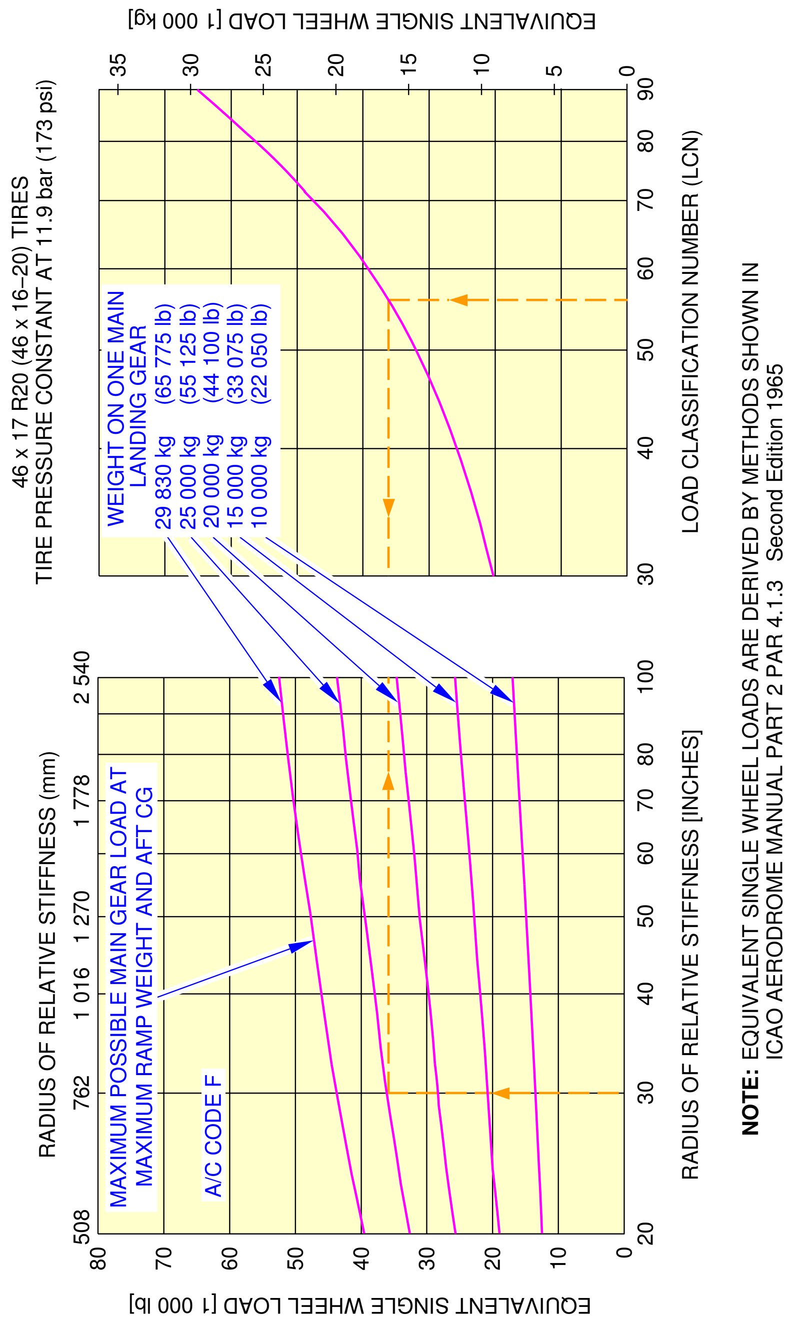
****ON A/C A319-100**



N_AC_070802_1_0430101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-043-A01

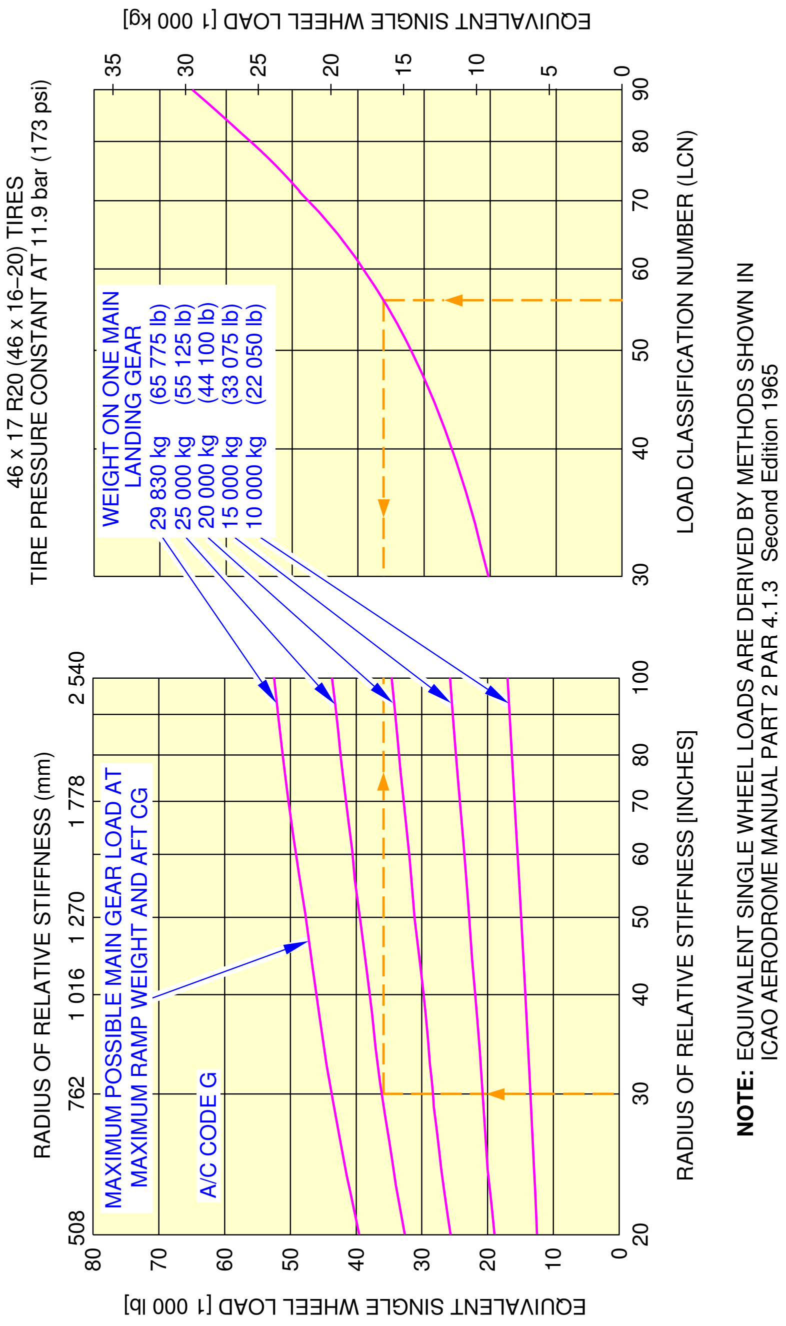
****ON A/C A319-100**



N_AC_070802_1_0440101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-044-A01

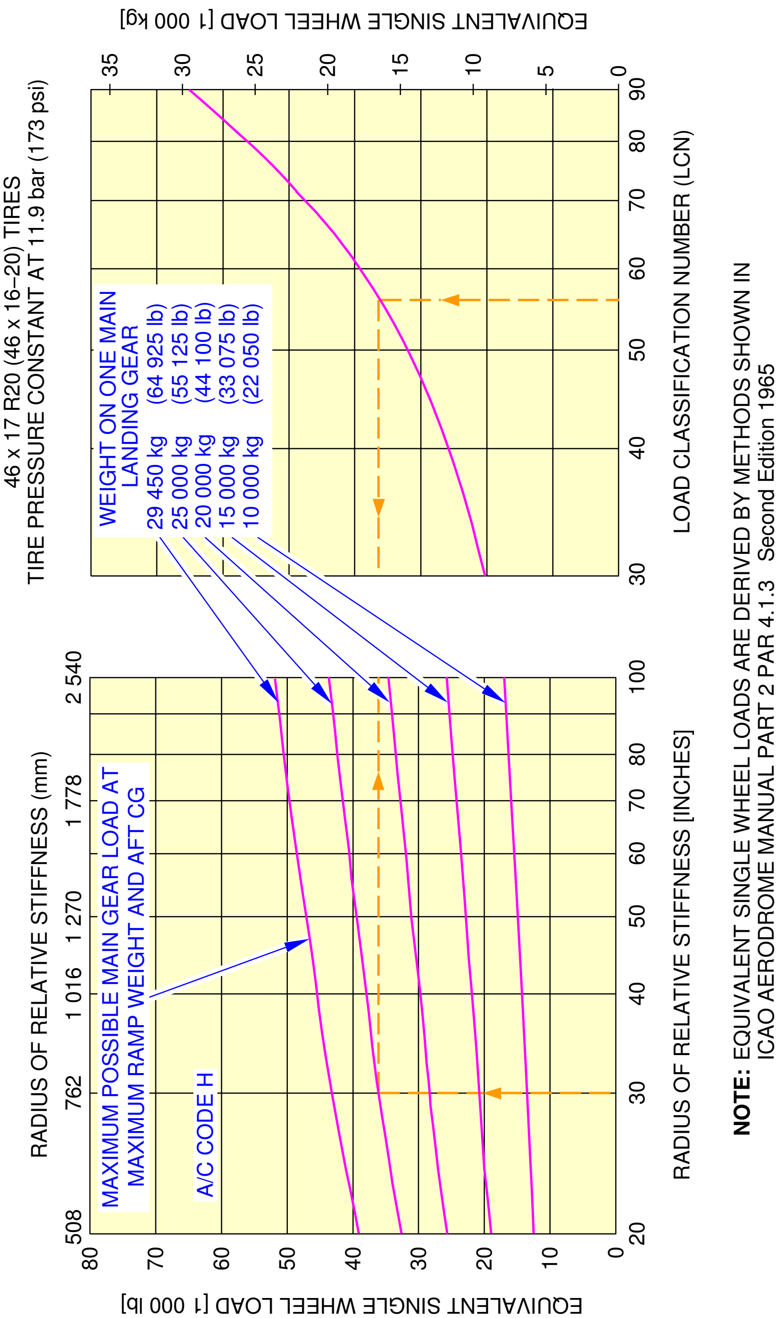
****ON A/C A319-100**



N_AC_070802_1_0450101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-045-A01

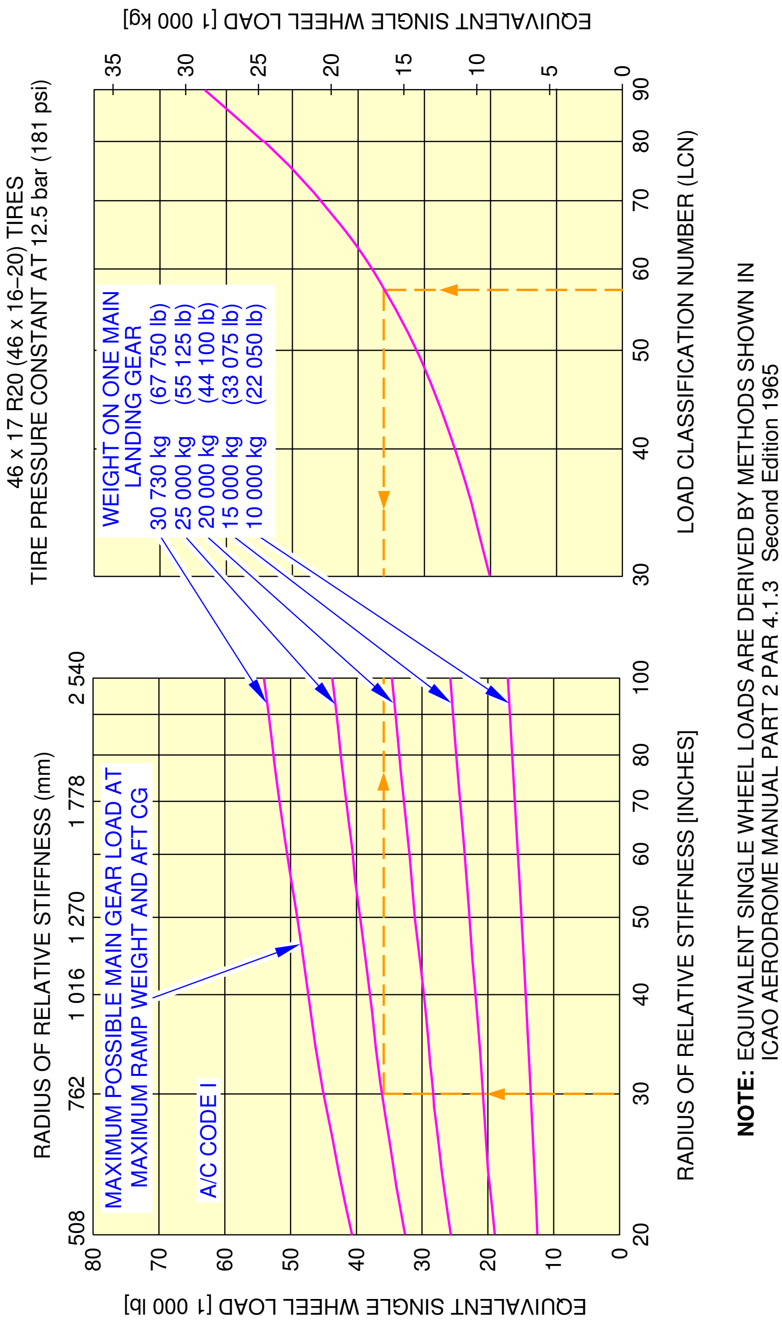
****ON A/C A319-100**



N_AC_070802_1_0460101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-046-A01

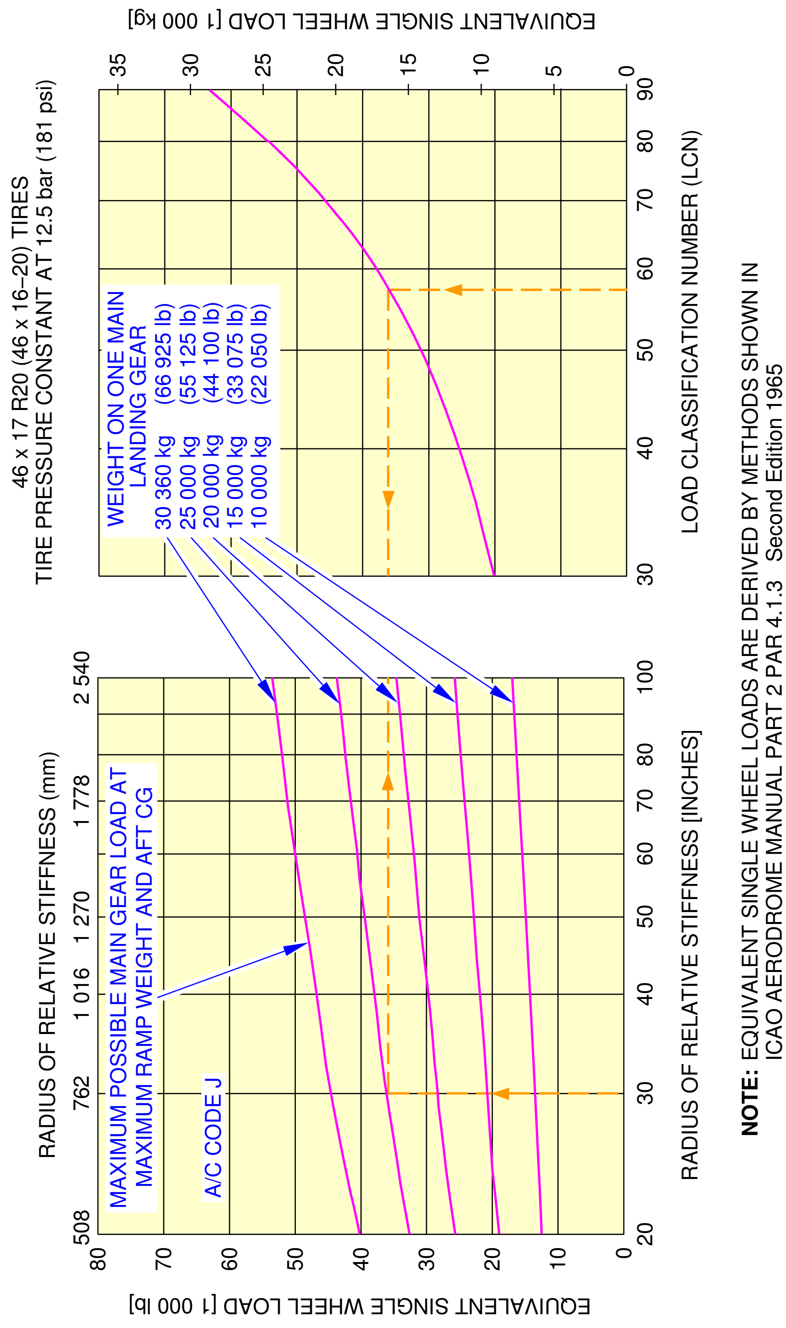
****ON A/C A319-100**



N_AC_070802_1_0470101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-047-A01

****ON A/C A319-100**



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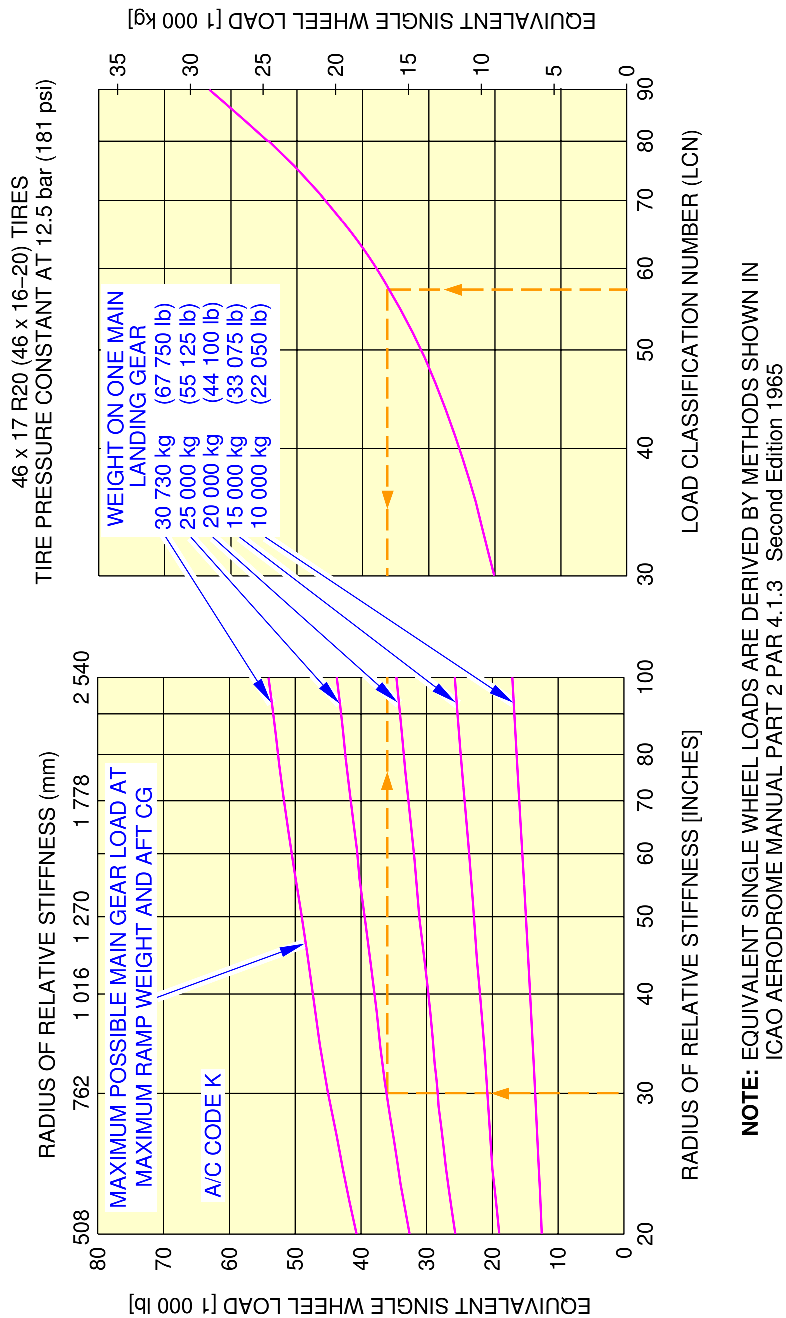
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-048-A01

****ON A/C A319-100**



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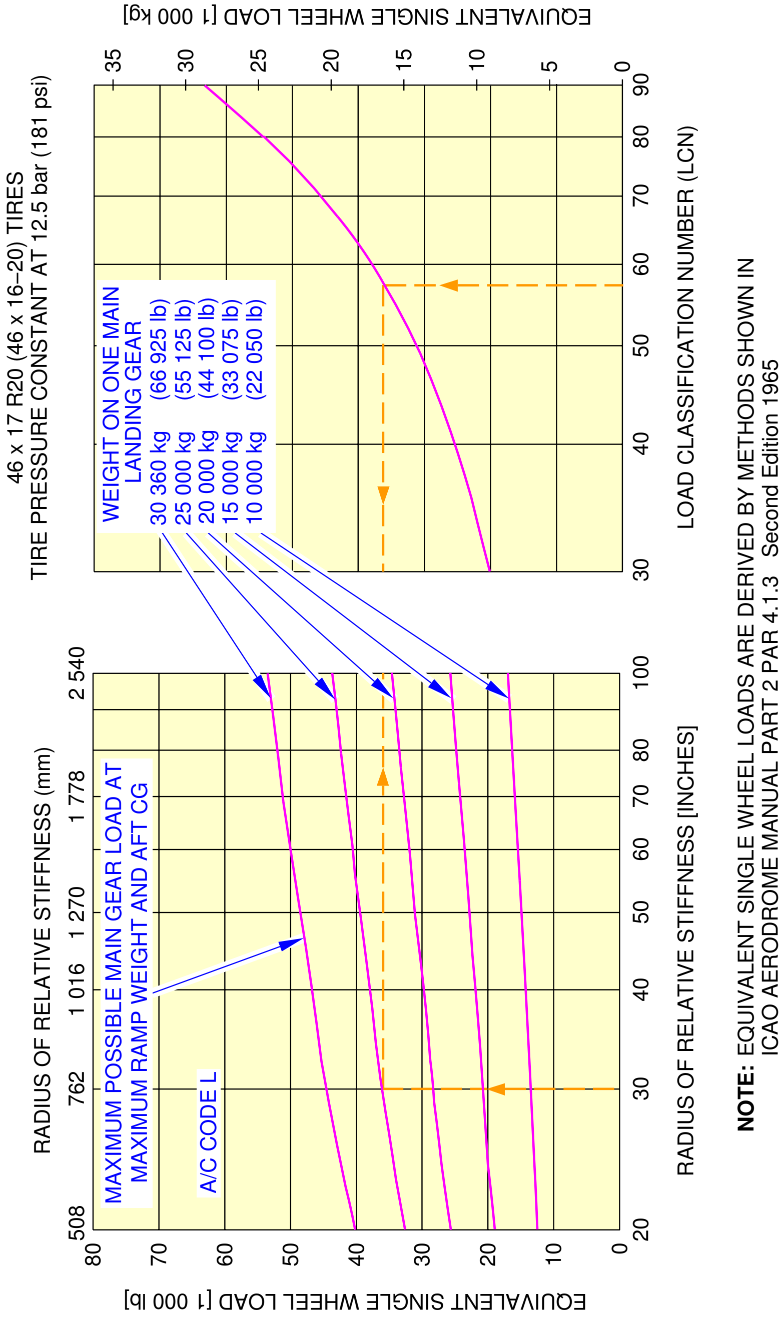
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-049-A01

**ON A/C A319-100



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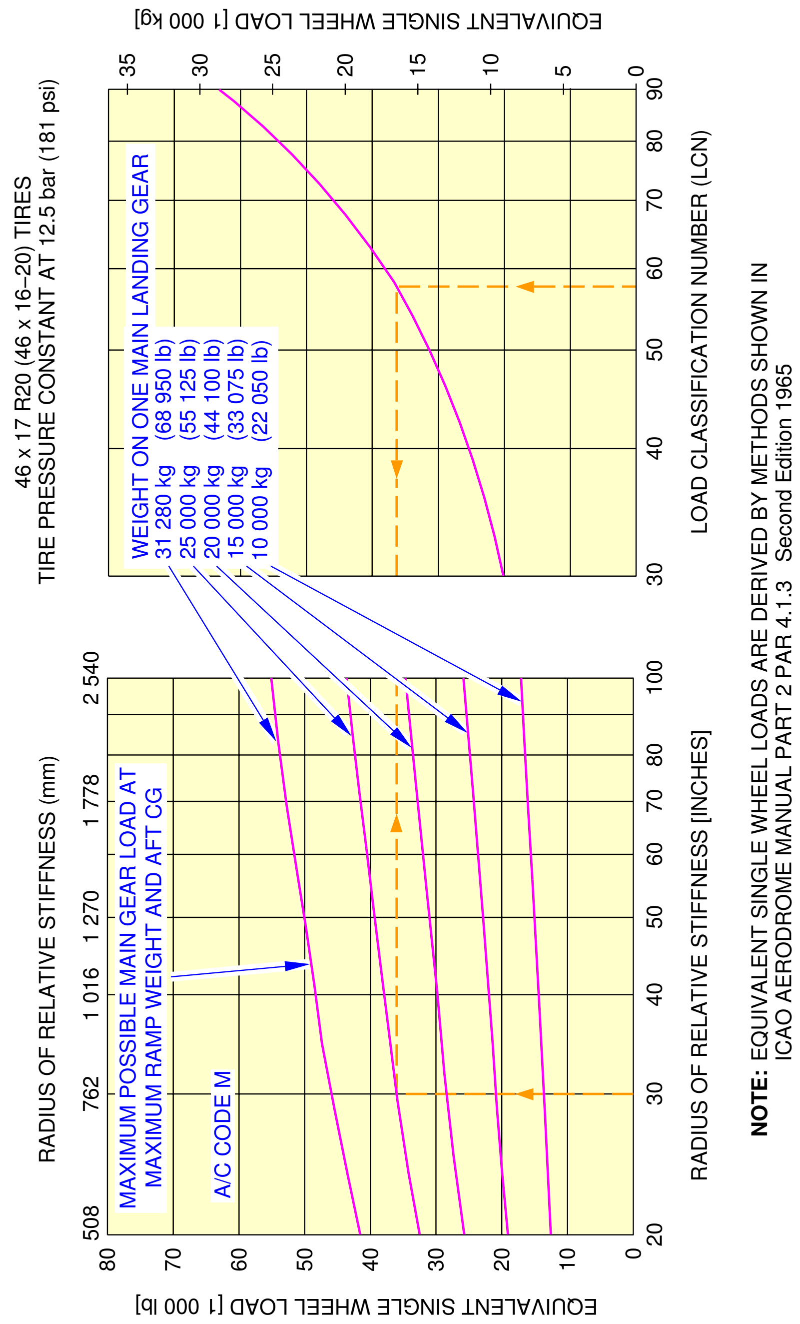
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-050-A01

**ON A/C A319-100



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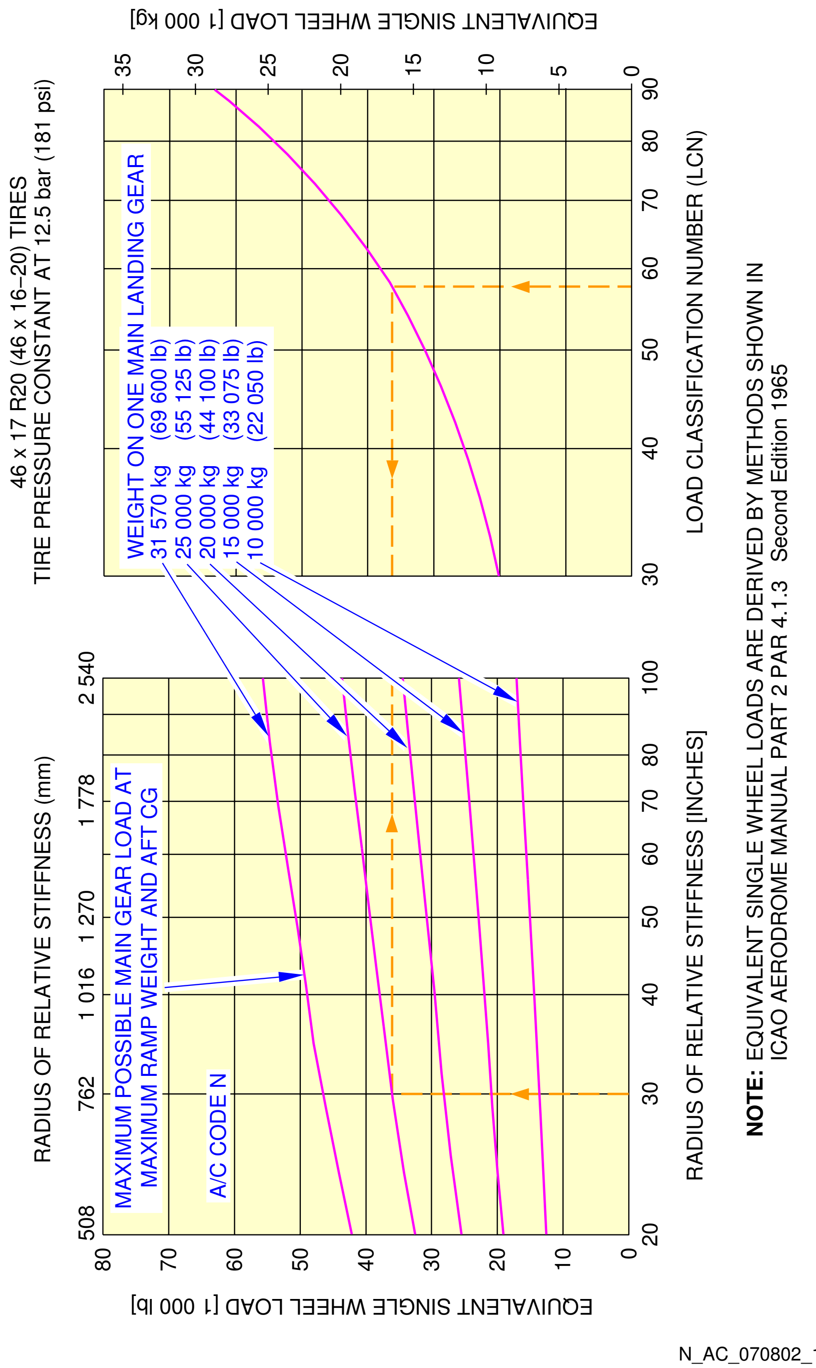
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-051-A01

****ON A/C A319-100**



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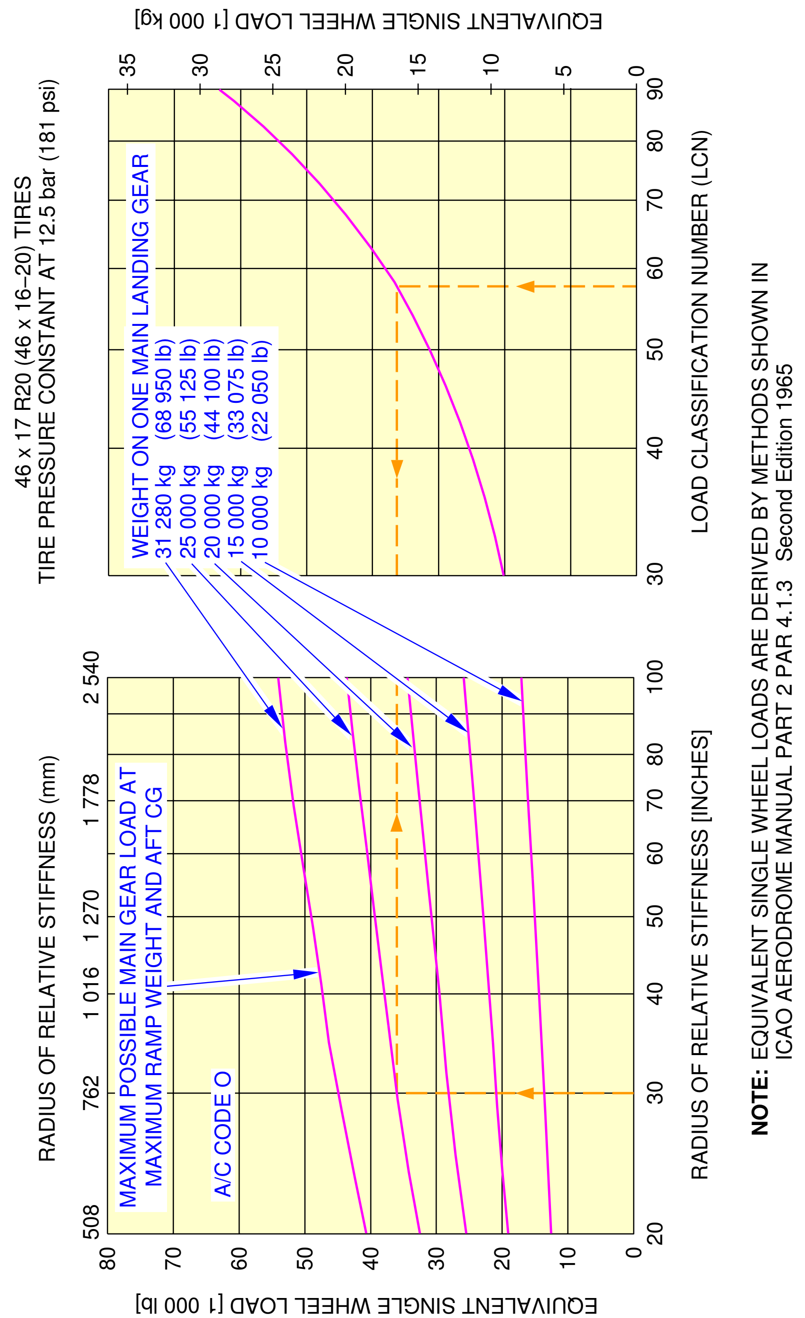
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-052-A01

****ON A/C A319-100**



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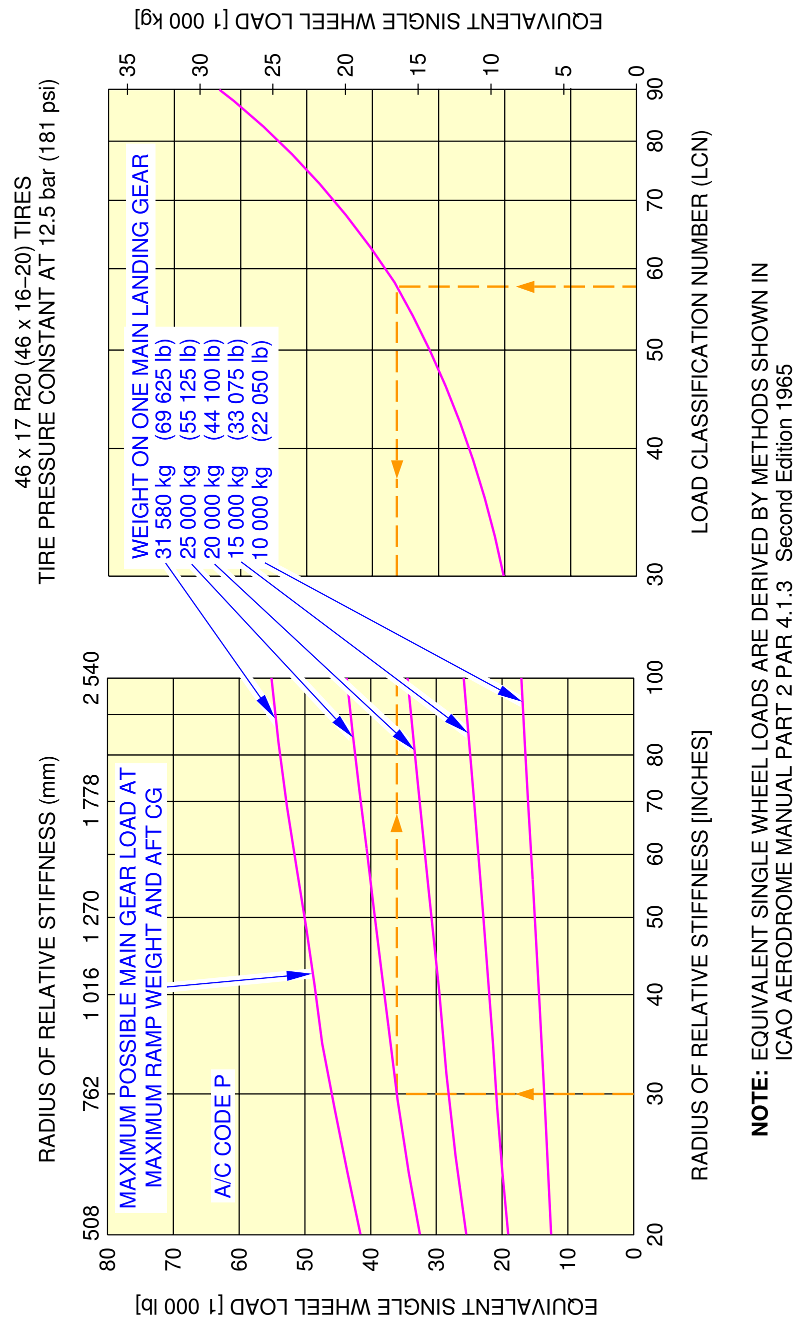
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-053-A01

**ON A/C A319-100



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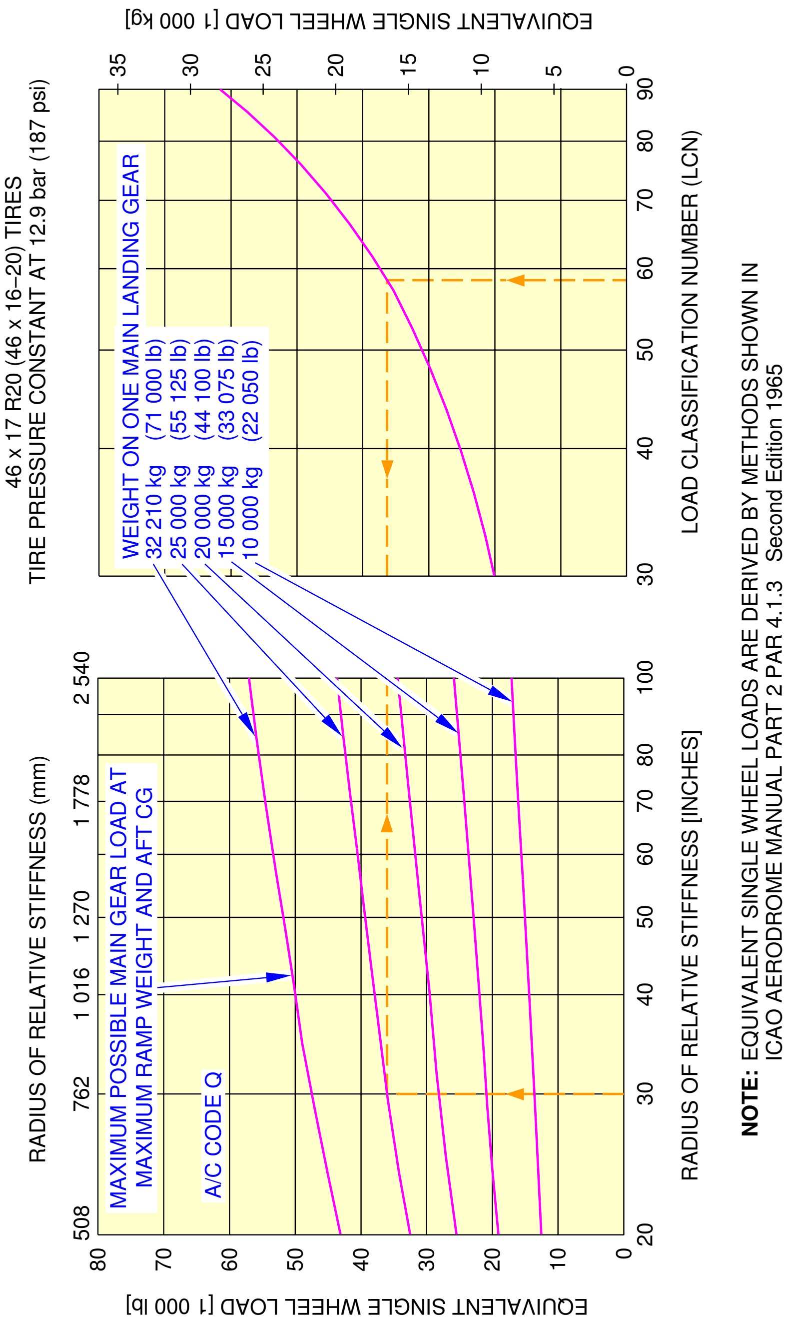
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-054-A01

**ON A/C A319-100



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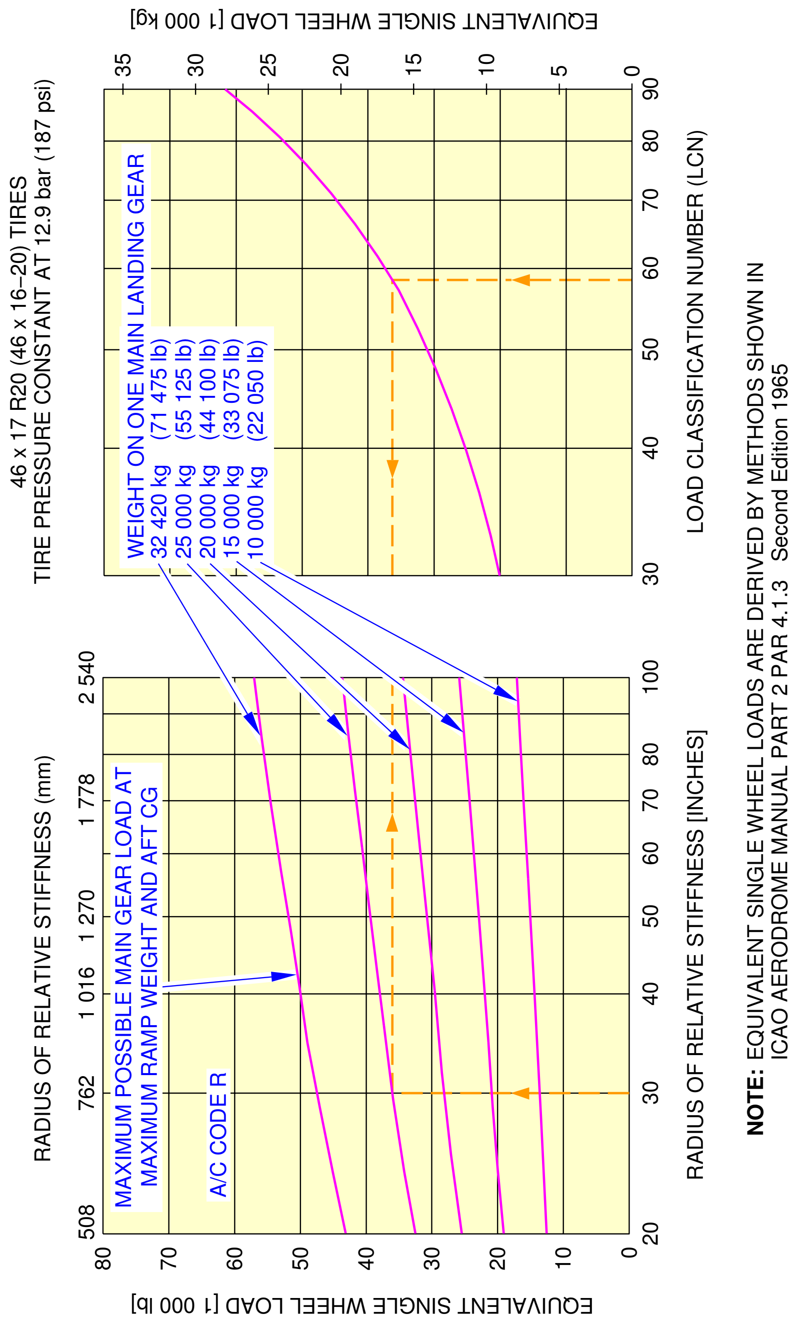
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-055-A01

**ON A/C A319-100



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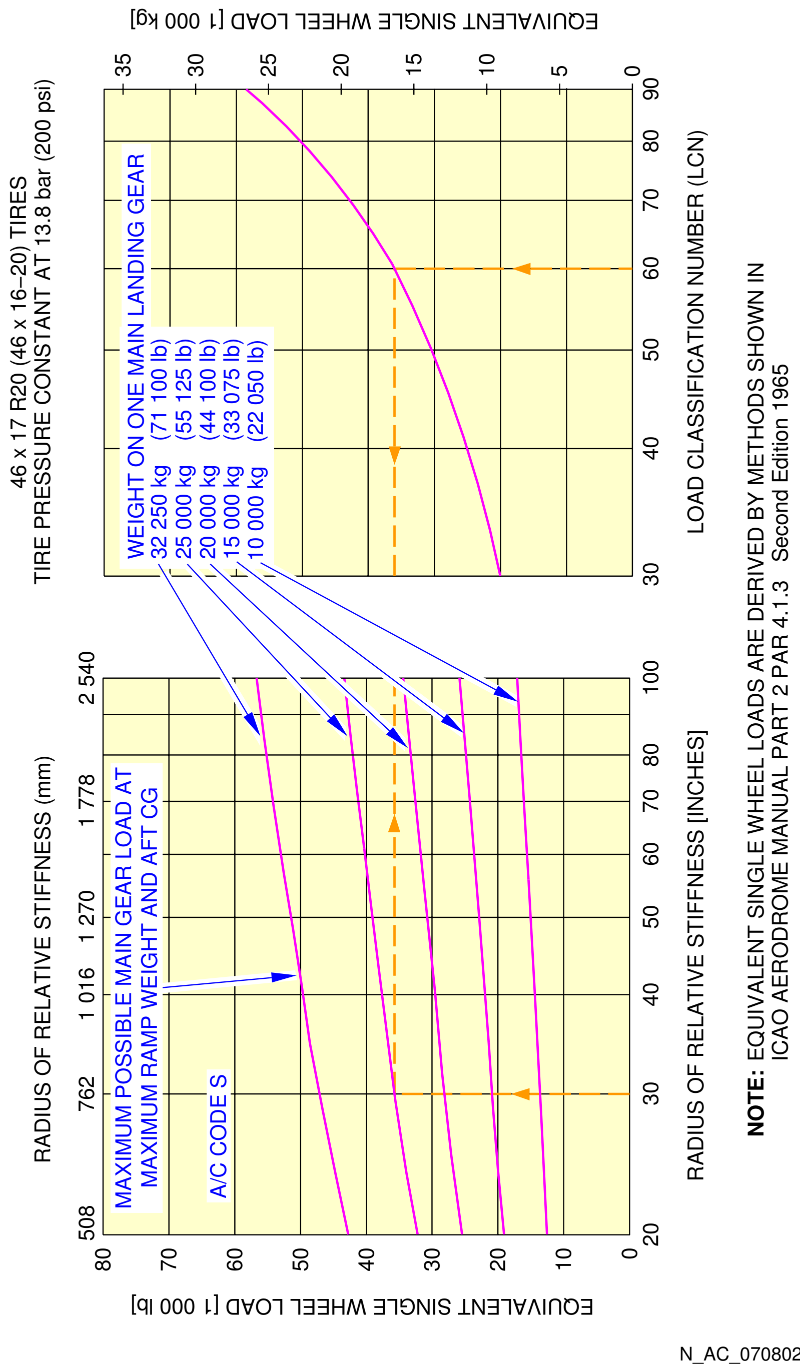
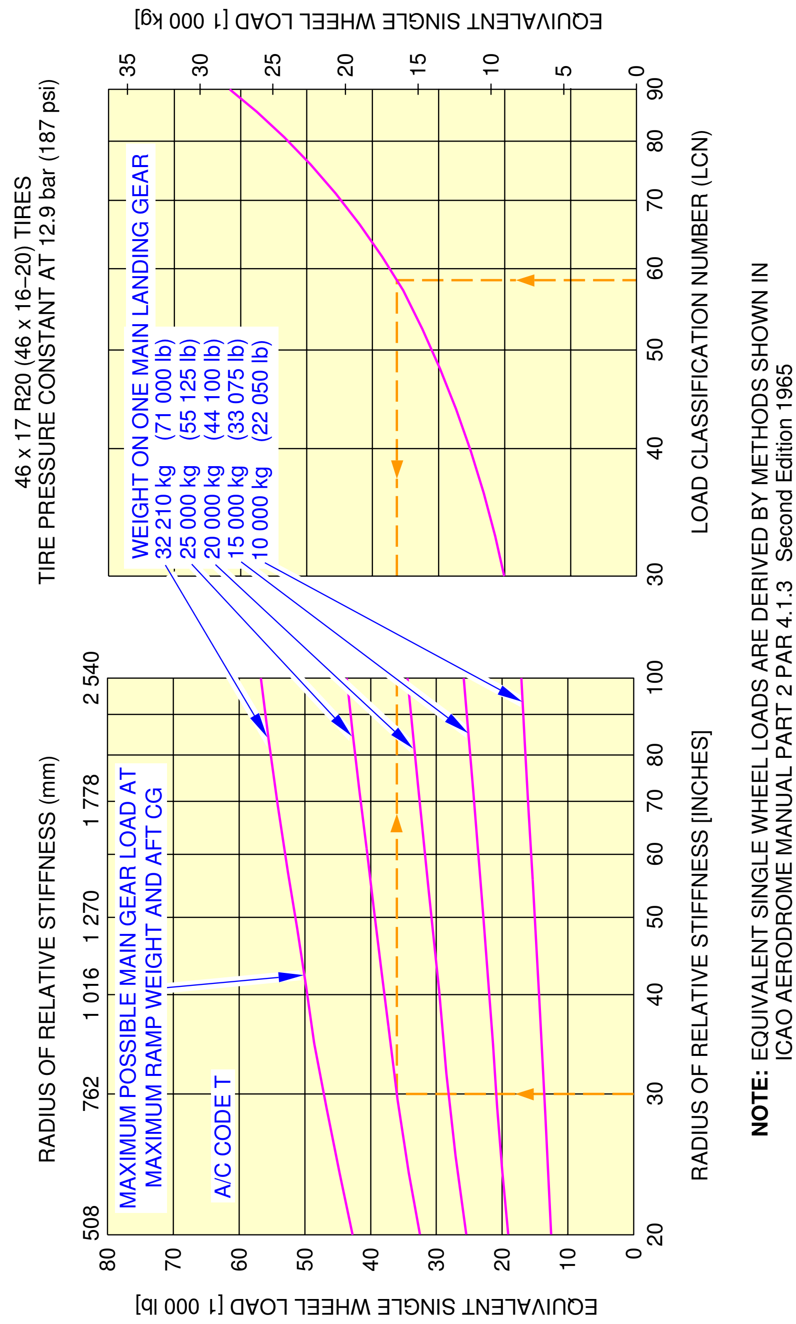
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-056-A01

****ON A/C A319-100**



Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-057-A01

**ON A/C A319-100



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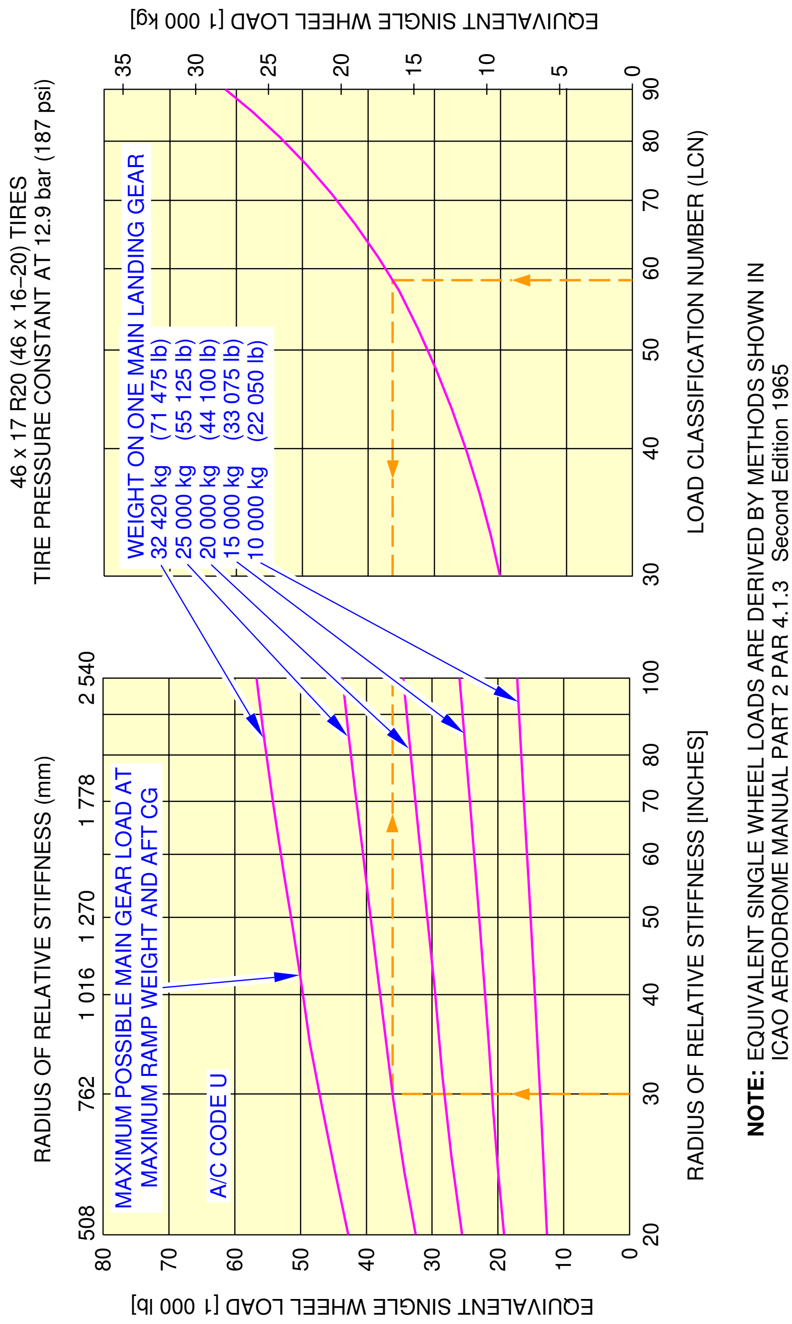
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-058-A01

**ON A/C A319-100



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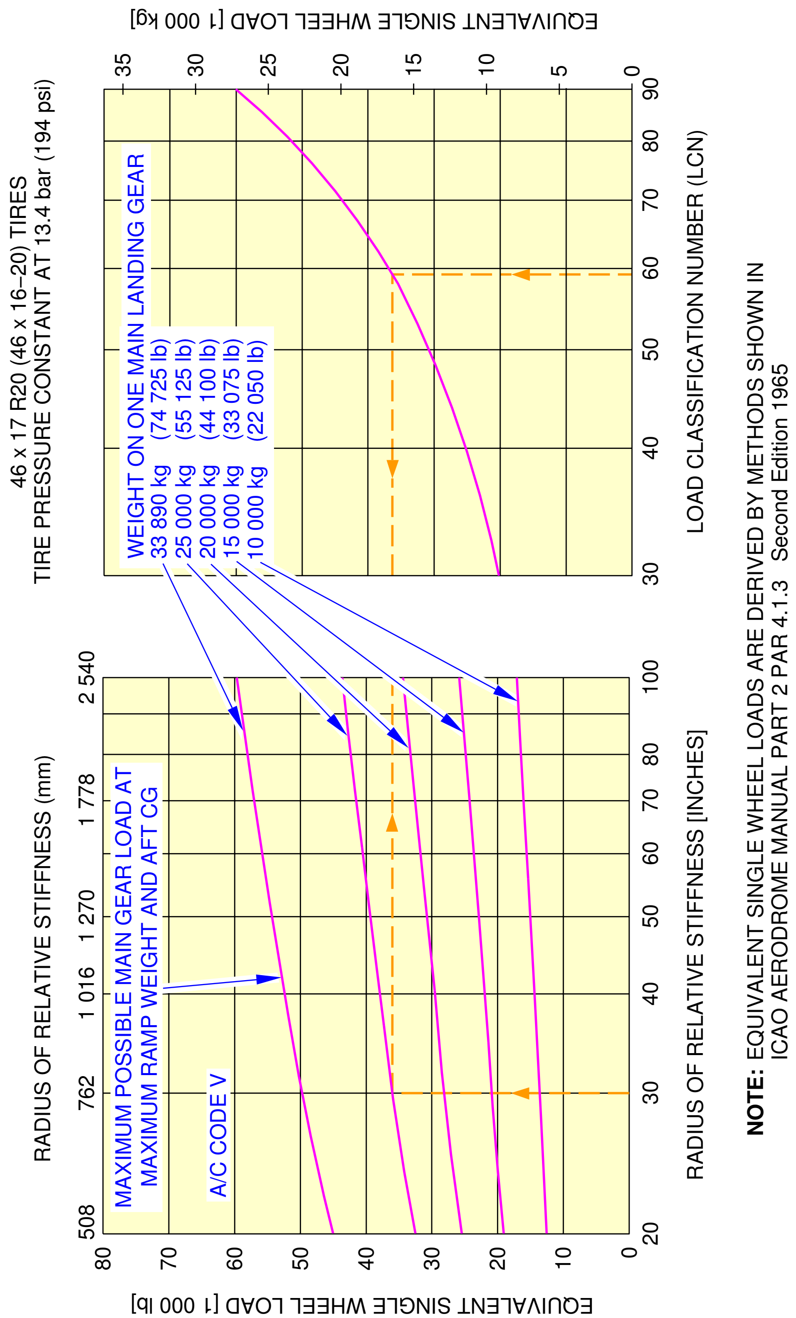
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-059-A01

**ON A/C A319-100



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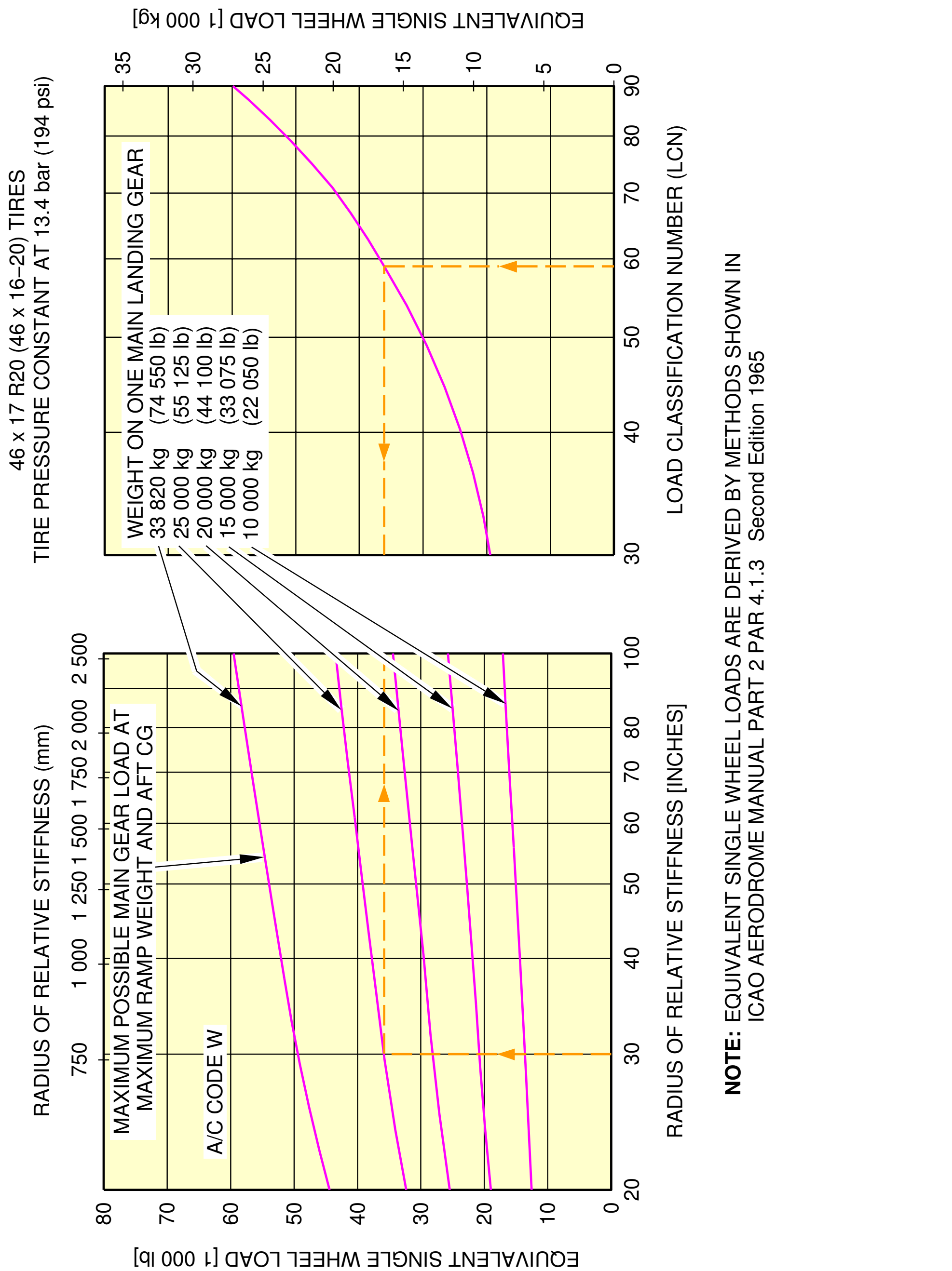
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-060-A01

**ON A/C A319-100



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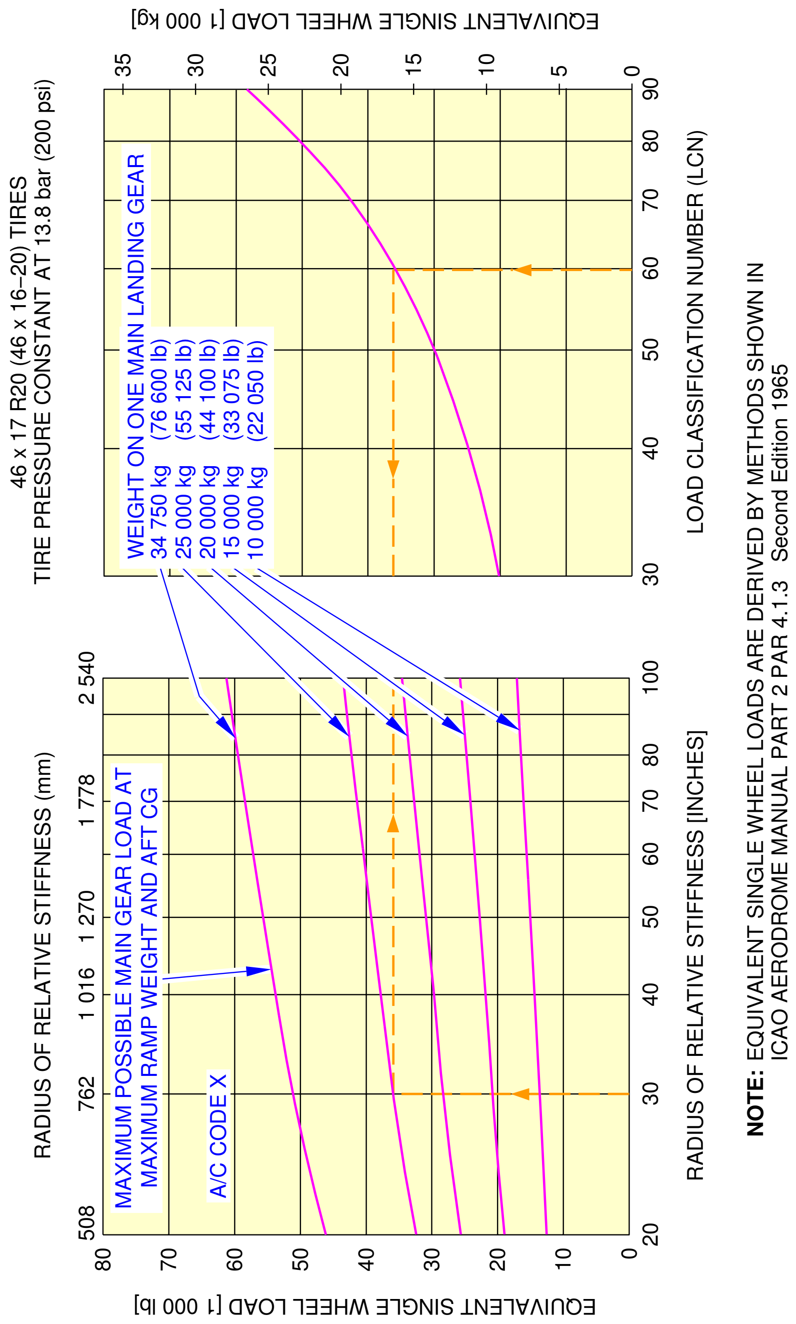
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-061-A01

**ON A/C A319-100



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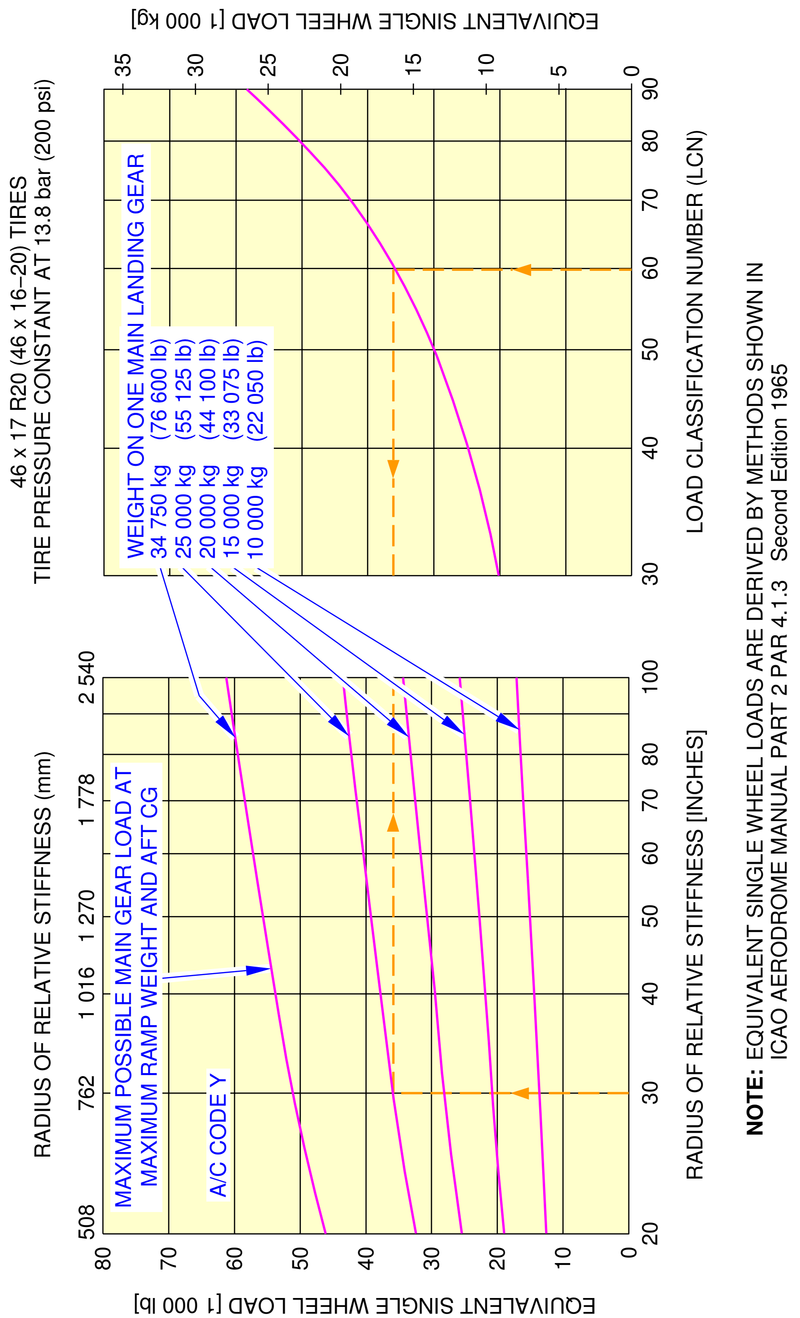
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-062-A01

**ON A/C A319-100



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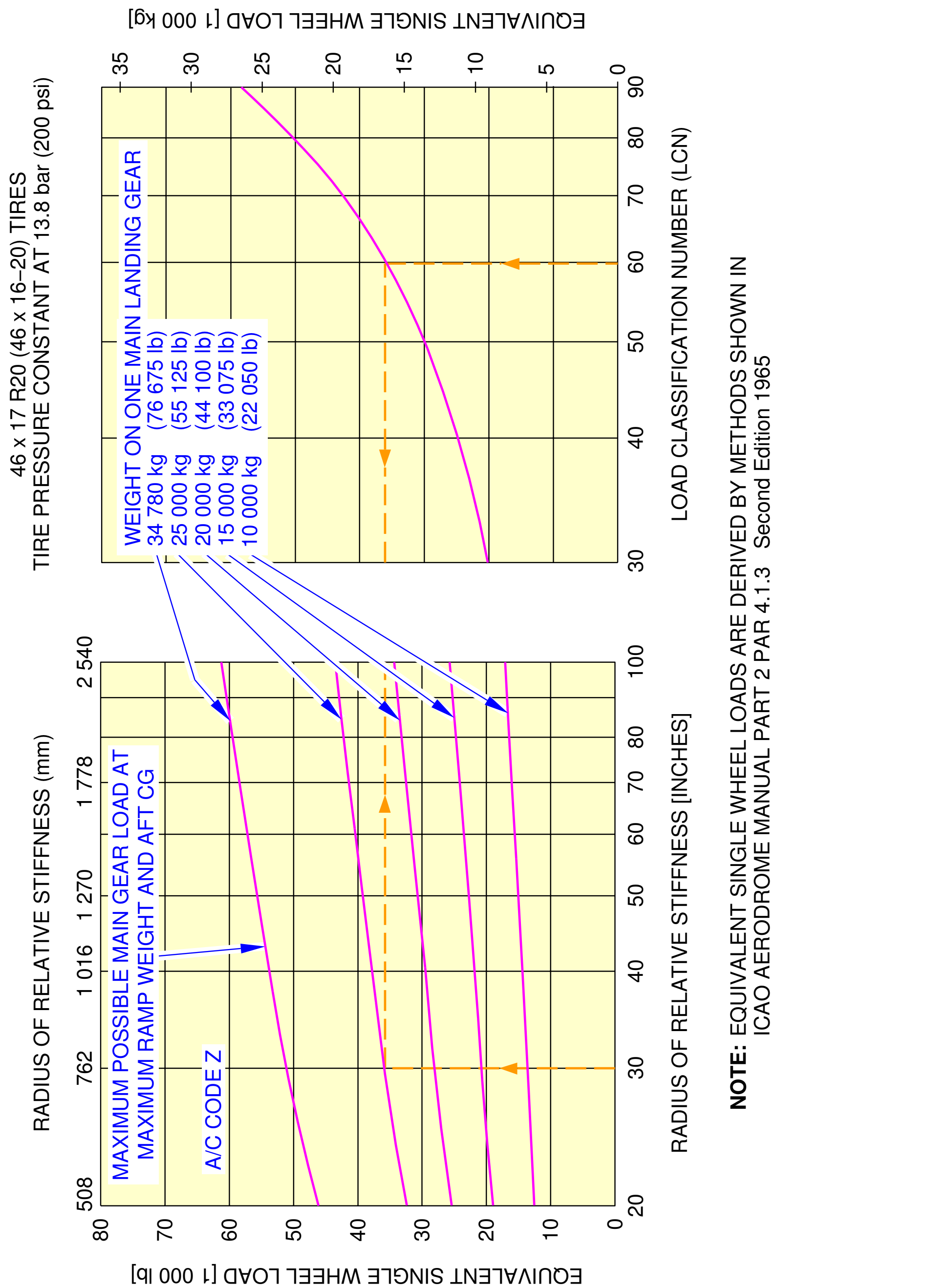
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-063-A01

****ON A/C A319-100**



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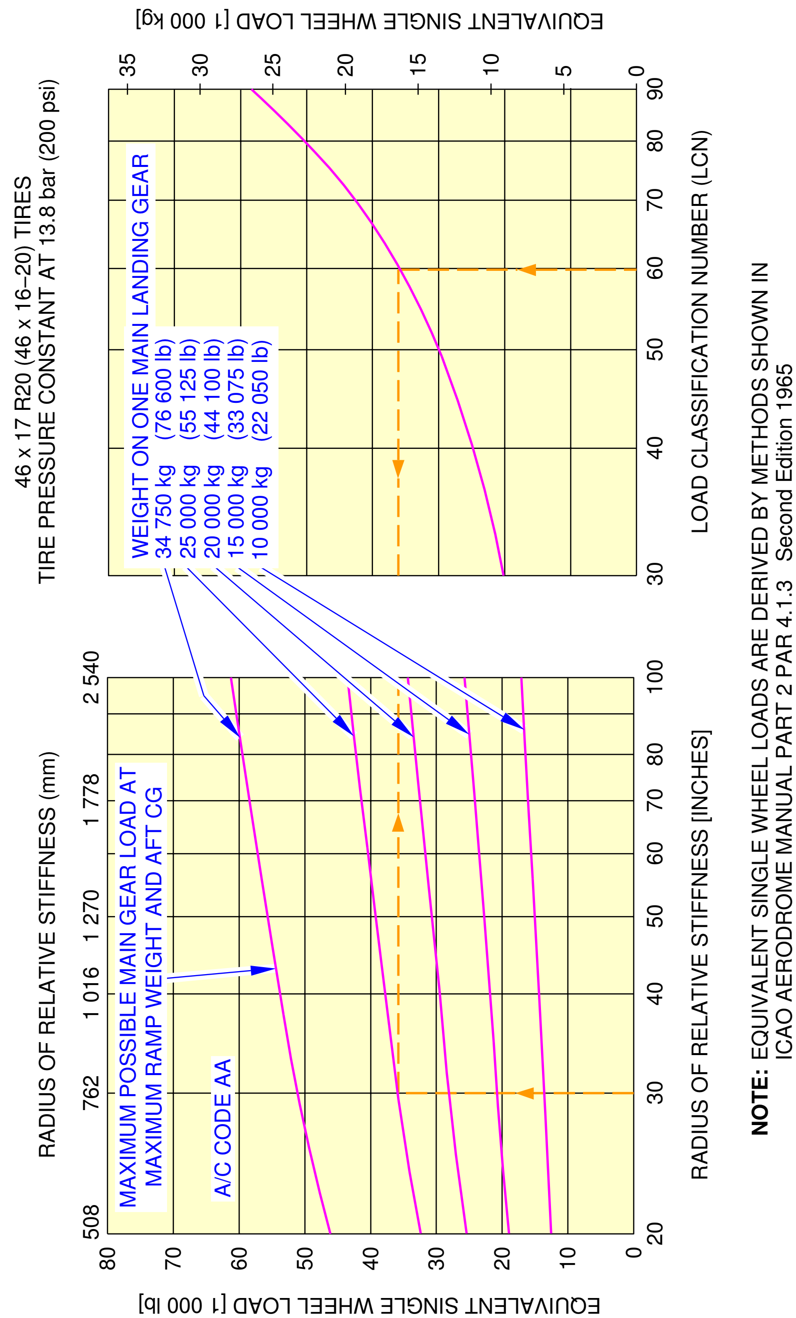
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-064-A01

**ON A/C A319-100



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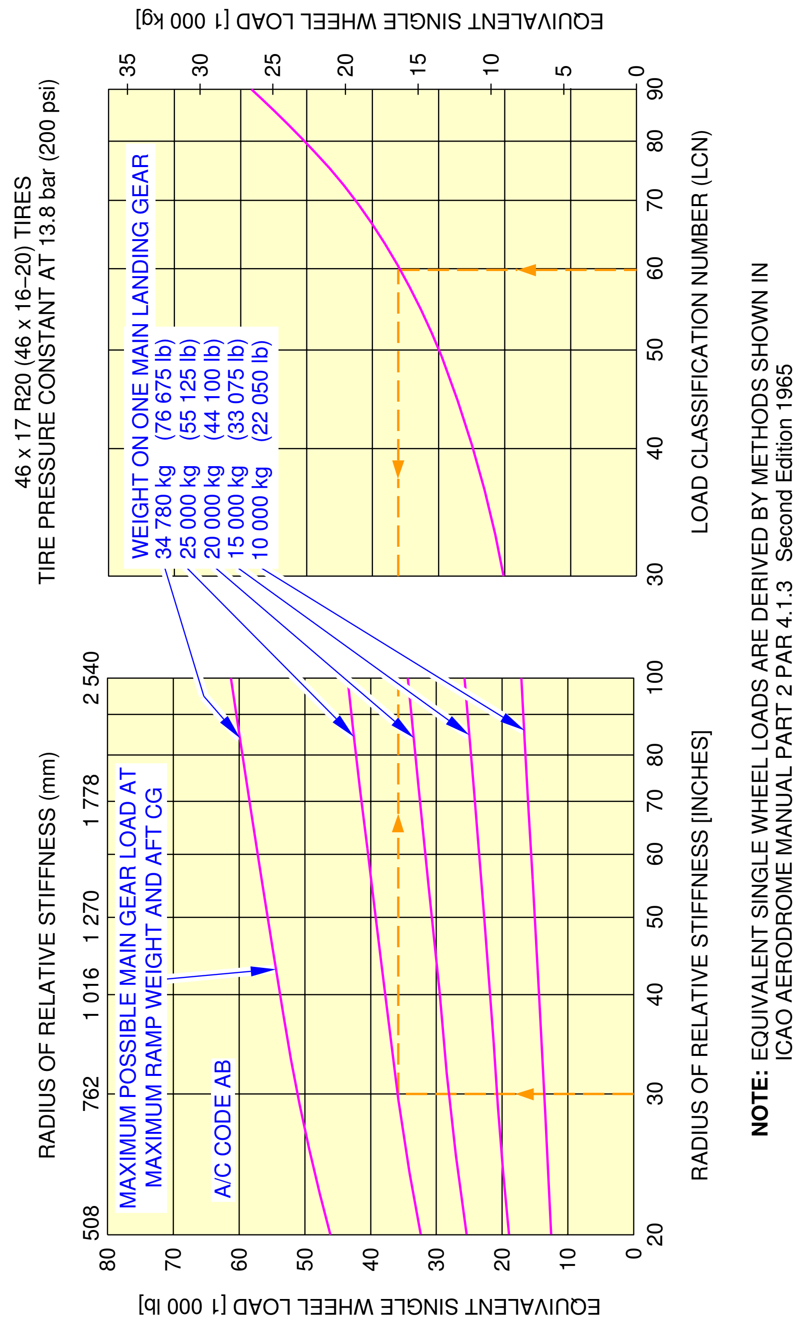
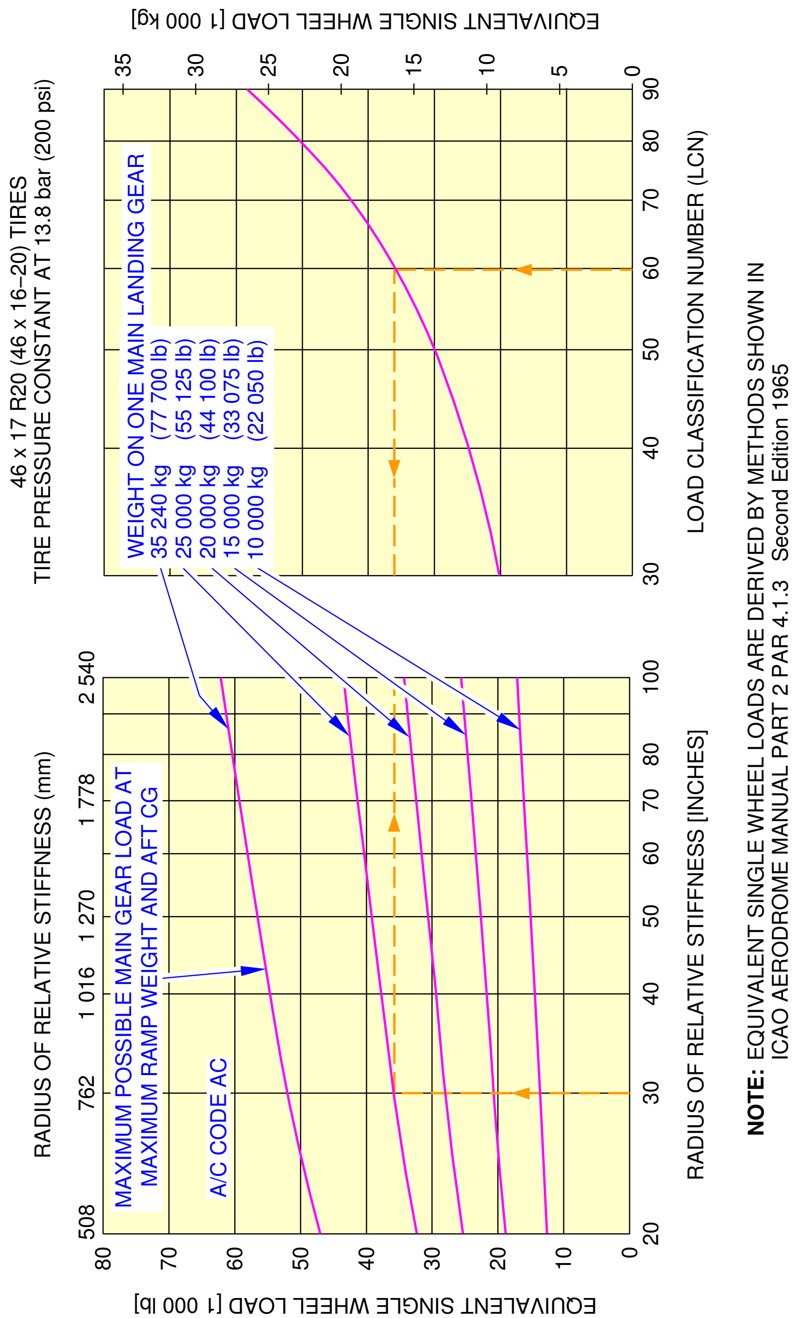
Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-065-A01

**ON A/C A319-100



Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-066-A01

****ON A/C A319-100**



N_AC_070802_1_0670101_01_00

Rigid Pavement Requirements - LCN Conversion
FIGURE-7-8-2-991-067-A01

7-8-3 Radius of Relative Stiffness (Other values of E and L)

****ON A/C A319-100**

Radius of Relative Stiffness (Other values of "E" and "L")

1. General

   The table of Section 7-8-1, Radius of Relative Stiffness, presents "L" values based on Young's Modulus (E) of 4 000 000 psi and Poisson's Ratio (μ) of 0.15.

   To find "L" values based on other values of "E" and "μ", see Section 7-8-4.

   For example, to find an "L" value based on an "E" of 3 000 000 psi, the "E" factor of 0.931 is multiplied by the "L" value found in the table of Section 7-8-1.

   The effect of variations of "μ" on the "L" value is treated in a similar manner.

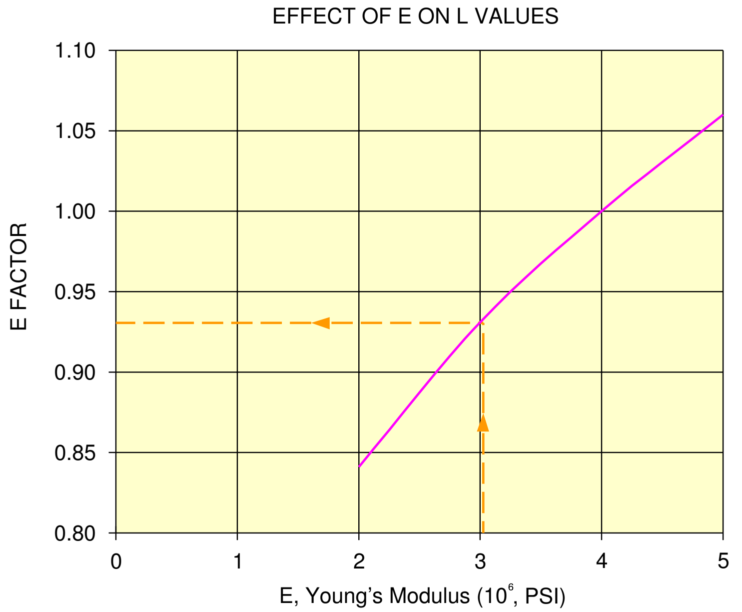
7-8-4 Radius of Relative Stiffness

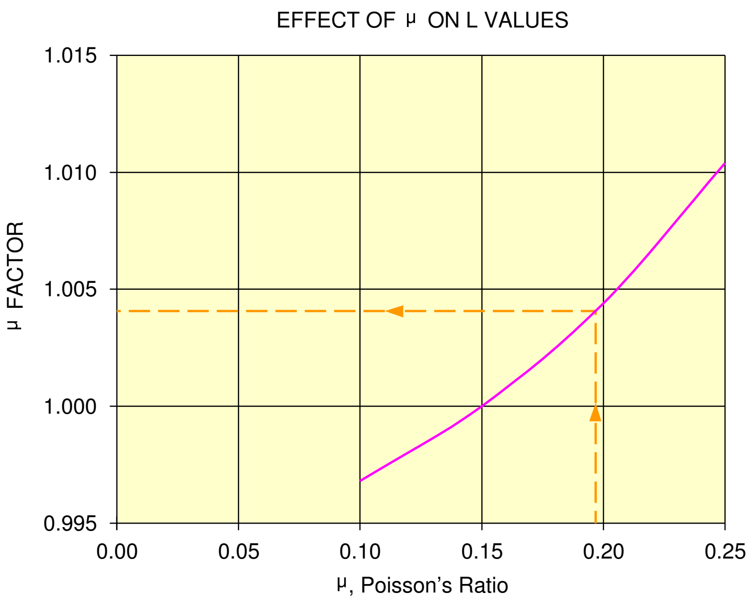
ON A/C A319-100

Radius of Relative Stiffness

1. This section gives Radius of Relative Stiffness.

**ON A/C A319-100





NOTE: BOTH CURVES ON THIS PAGE ARE USED TO ADJUST THE L VALUES OF TABLE 7–8–1

N_AC_070804_1_0020101_01_02

Radius of Relative Stiffness
(Effect E and μ on "L" values)
FIGURE-7-8-4-991-002-A01

7-9-0 ACN/PCN Reporting System

**ON A/C A319-100

ACN/PCN Reporting System

1. General

To determine the ACN of an aircraft on flexible or rigid pavement, both the aircraft gross weight and the subgrade strength must be known.

In the example shown in Section 7-9-1 Aircraft Classification Number – Flexible Pavement, A/C Code C, for an aircraft gross weight of 55 000 kg (121 250 lb) and low subgrade strength (code C), the ACN for the flexible pavement is 29.9.

In the example shown in Section 7-9-2 Aircraft Classification Number – Rigid Pavement, A/C Code C, for an aircraft gross weight of 55 000 kg (121 250 lb) and medium subgrade strength (code B), the ACN for the rigid pavement is 30.8.

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).

7-9-1 Aircraft Classification Number - Flexible Pavement

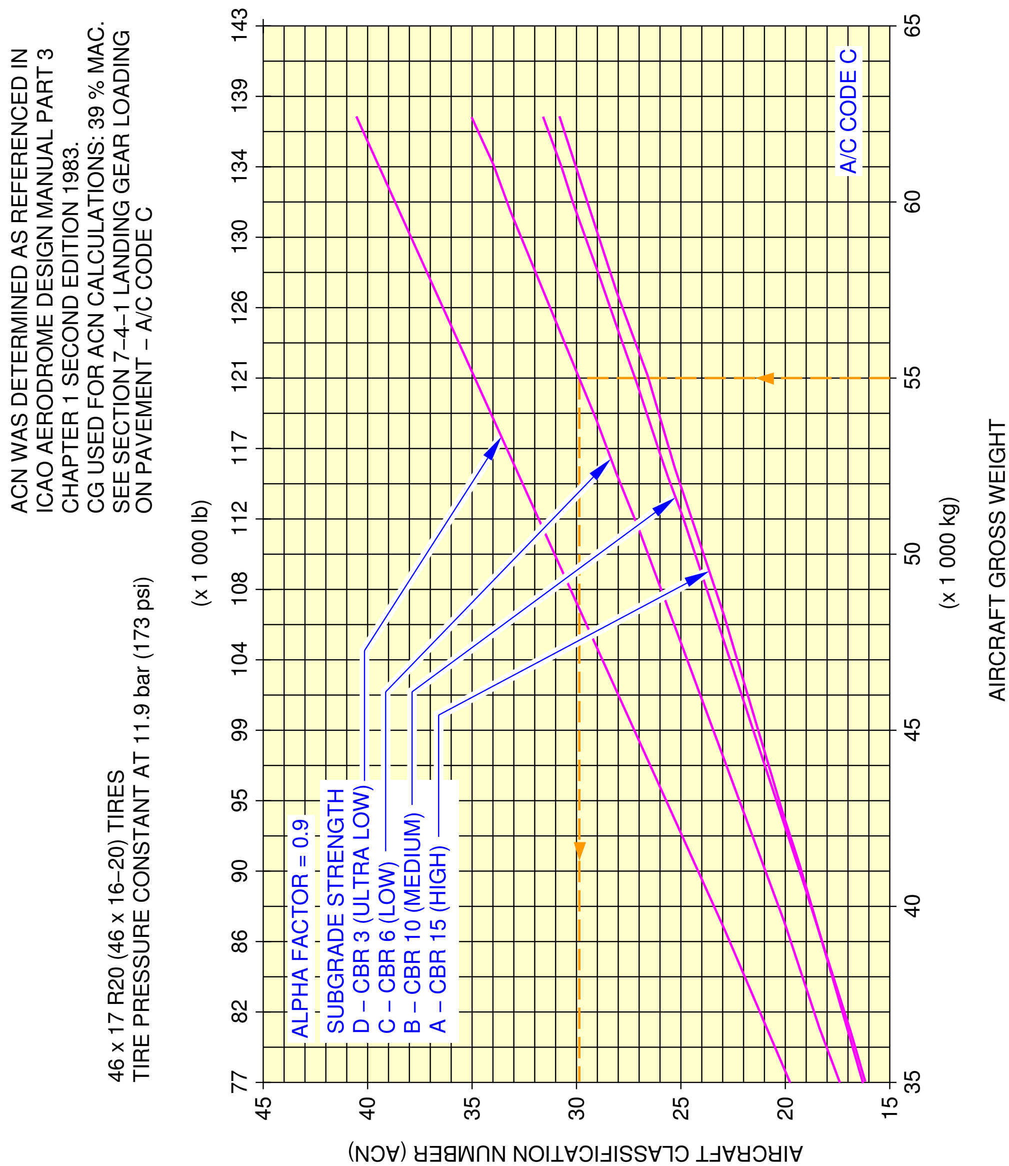
****ON A/C A319-100**

Aircraft Classification Number - Flexible Pavement

1. This section gives the Aircraft Classification Number - Flexible Pavement.

   NOTE : For A/C Code definition, refer to chapter 7-1-0.

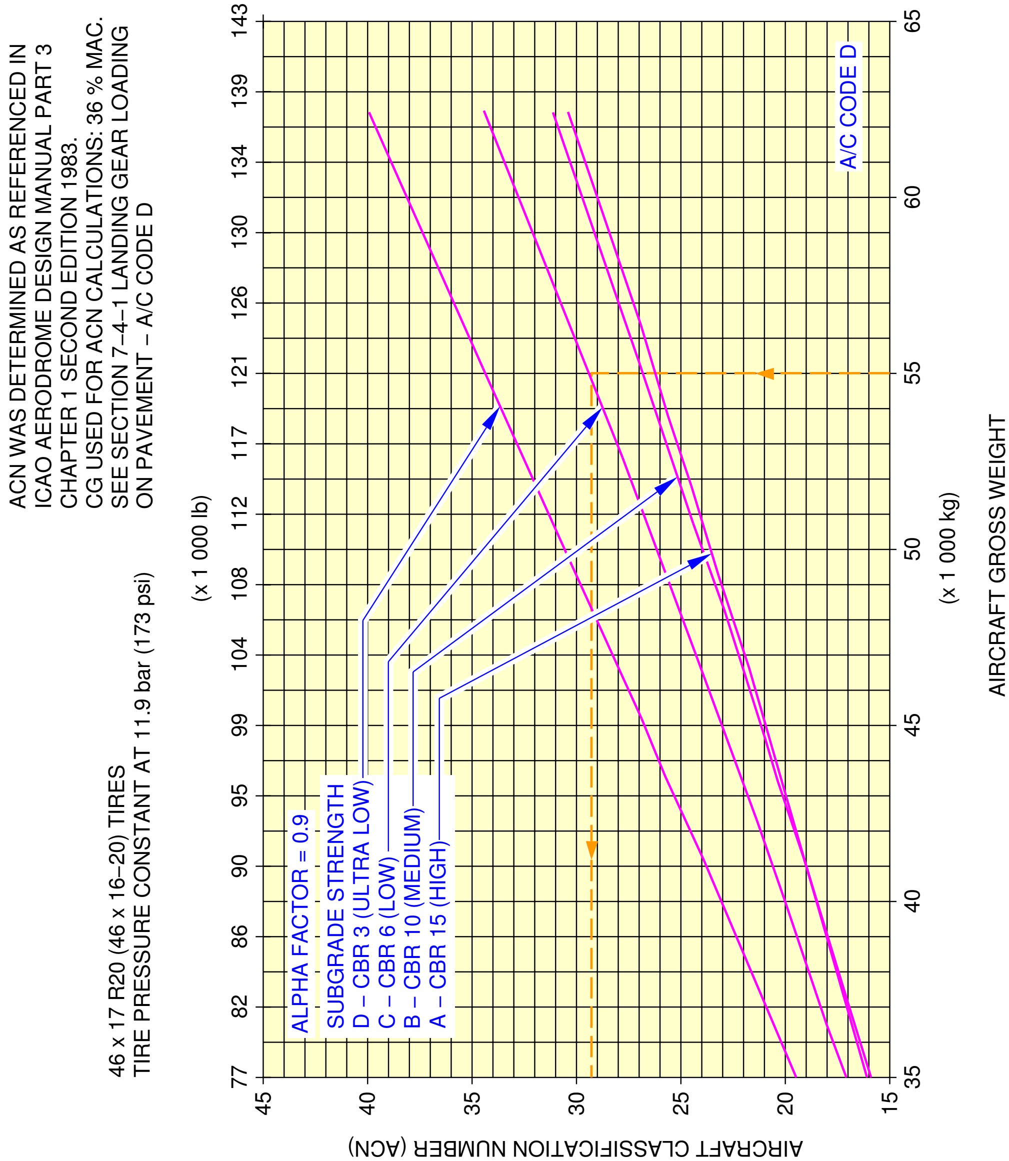
**ON A/C A319-100



N_AC_070901_1_0510101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-051-A01

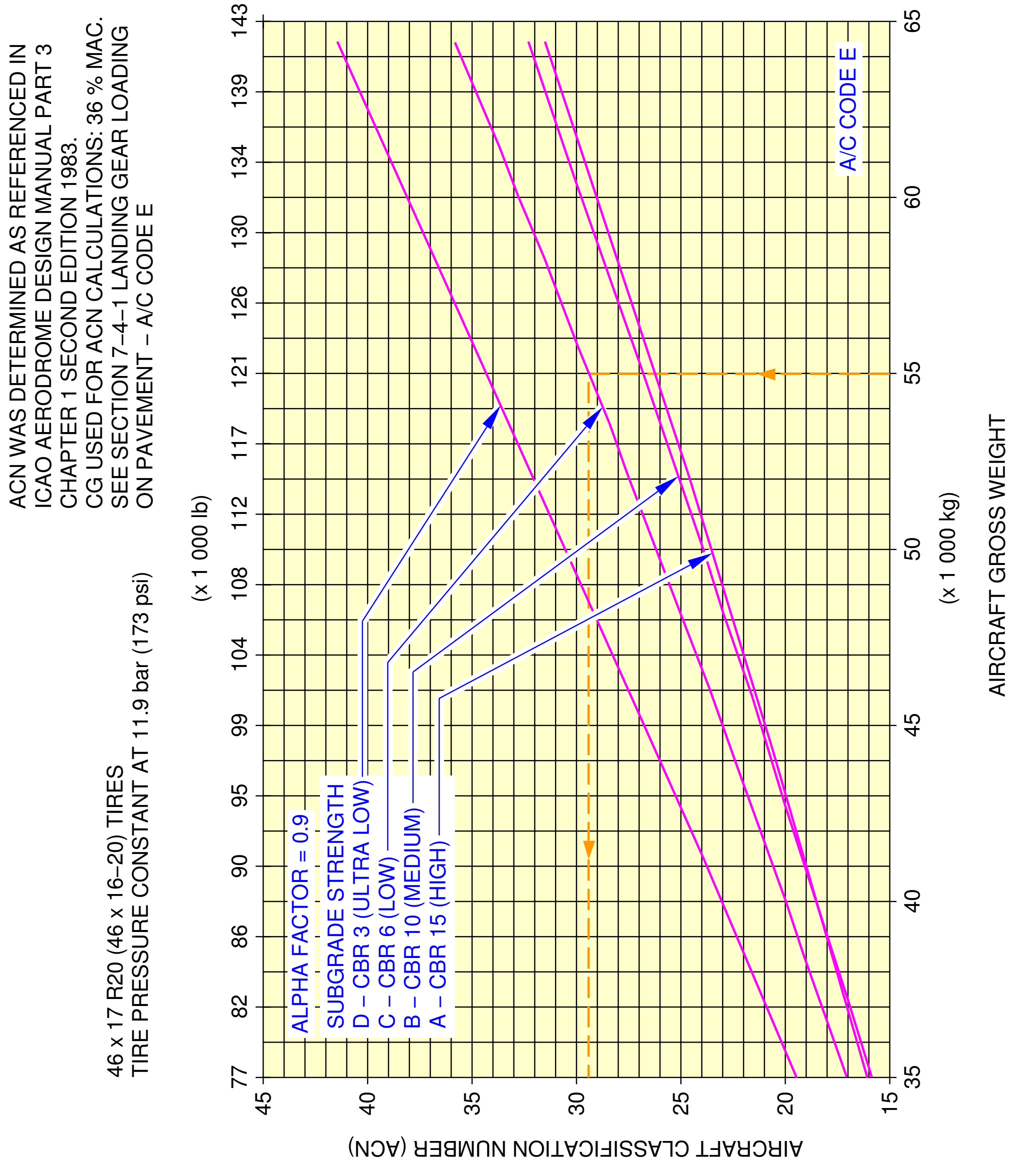
**ON A/C A319-100



N_AC_070901_1_0520101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-052-A01

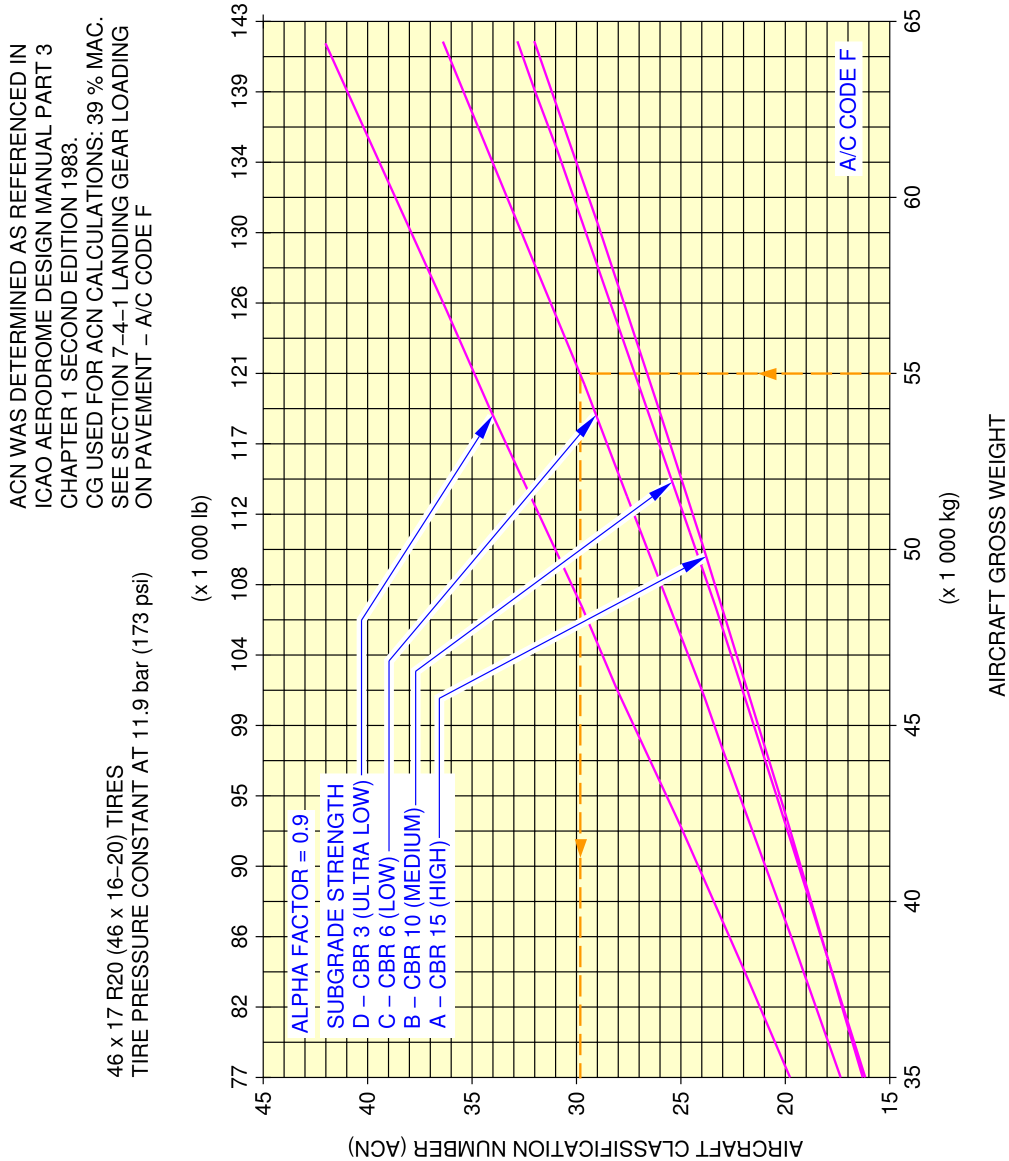
****ON A/C A319-100**



N_AC_070901_1_0530101_01_00

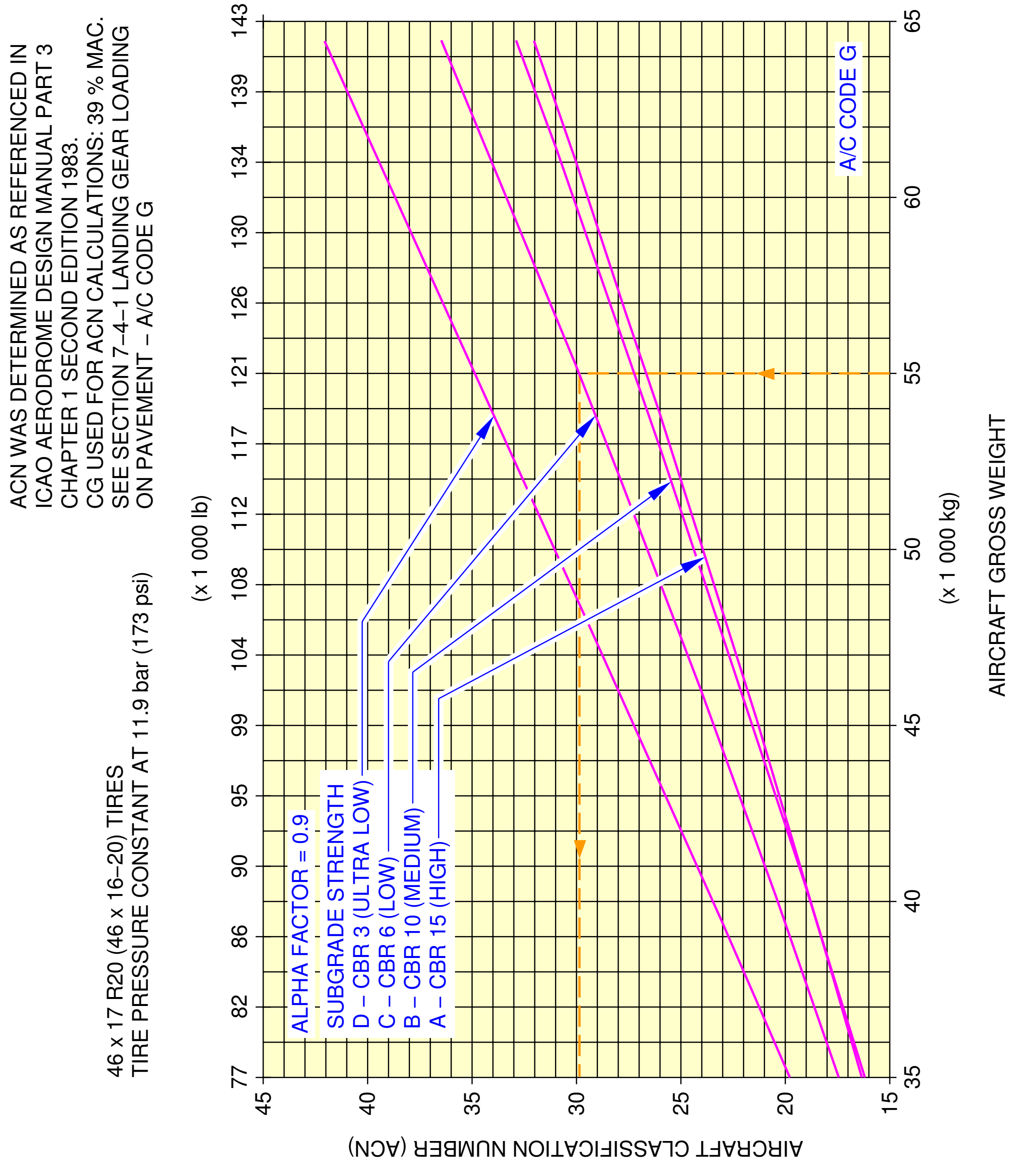
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-053-A01

**ON A/C A319-100



Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-054-A01

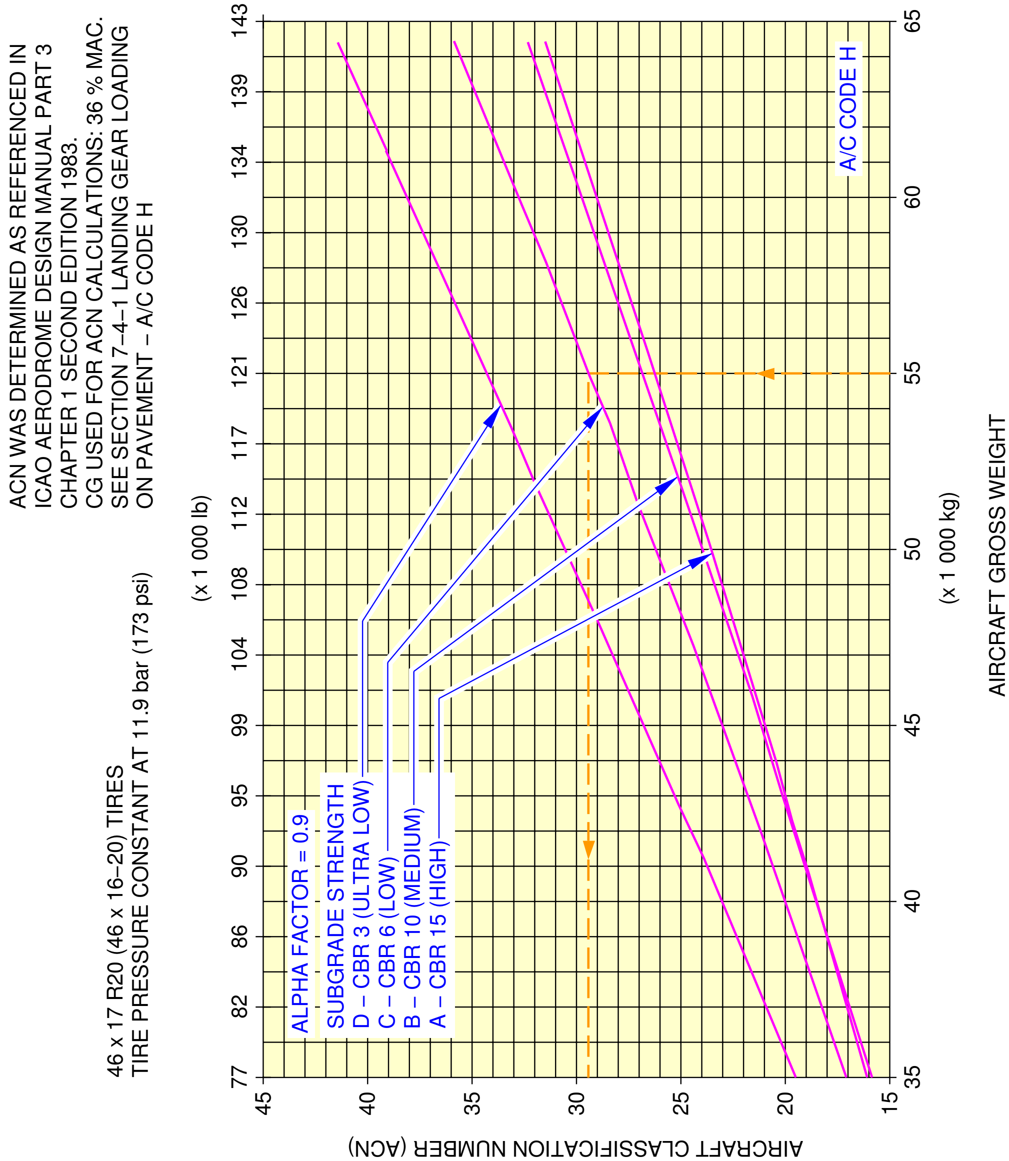
**ON A/C A319-100



N_AC_070901_1_0550101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-055-A01

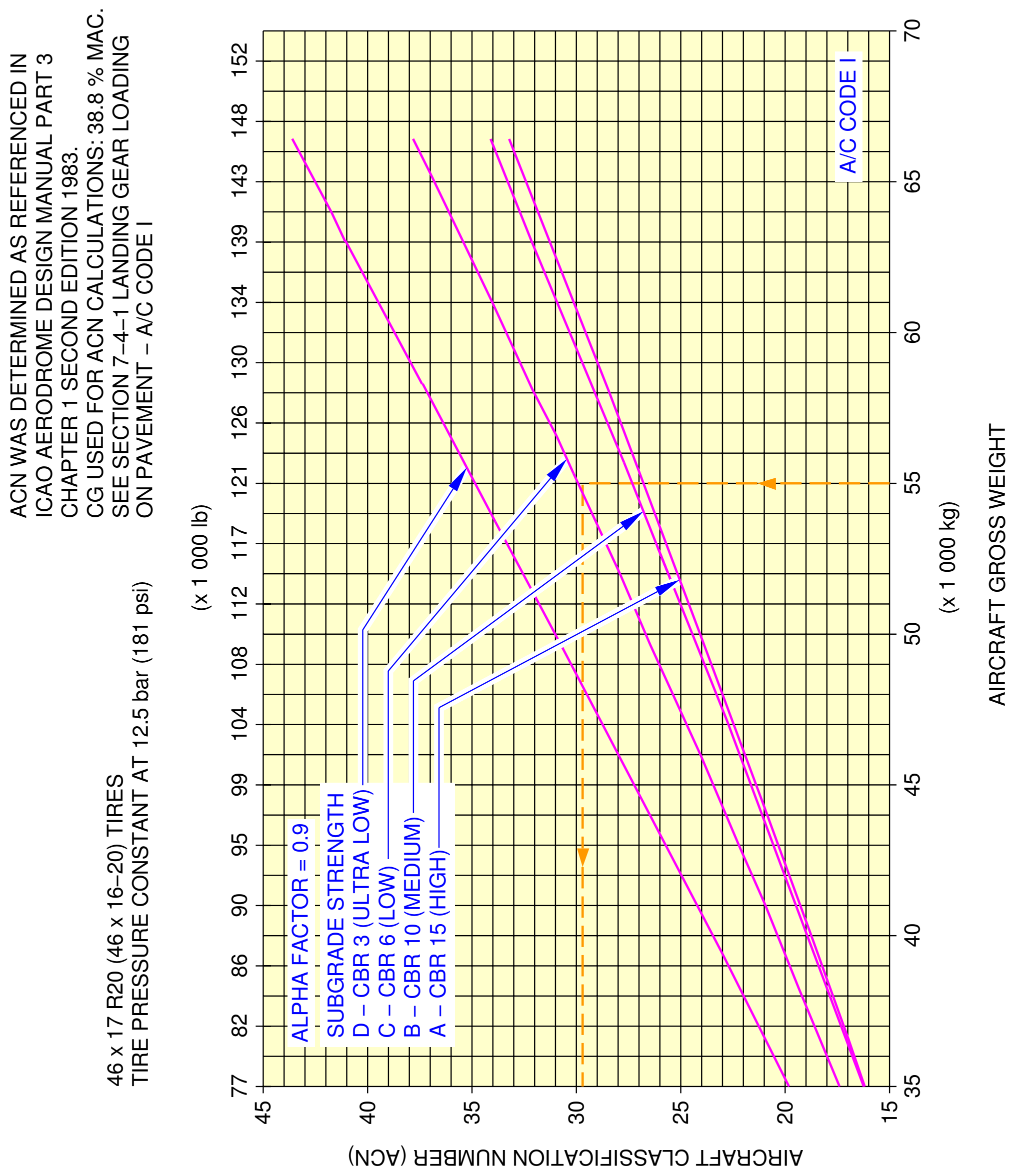
**ON A/C A319-100



N_AC_070901_1_0560101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-056-A01

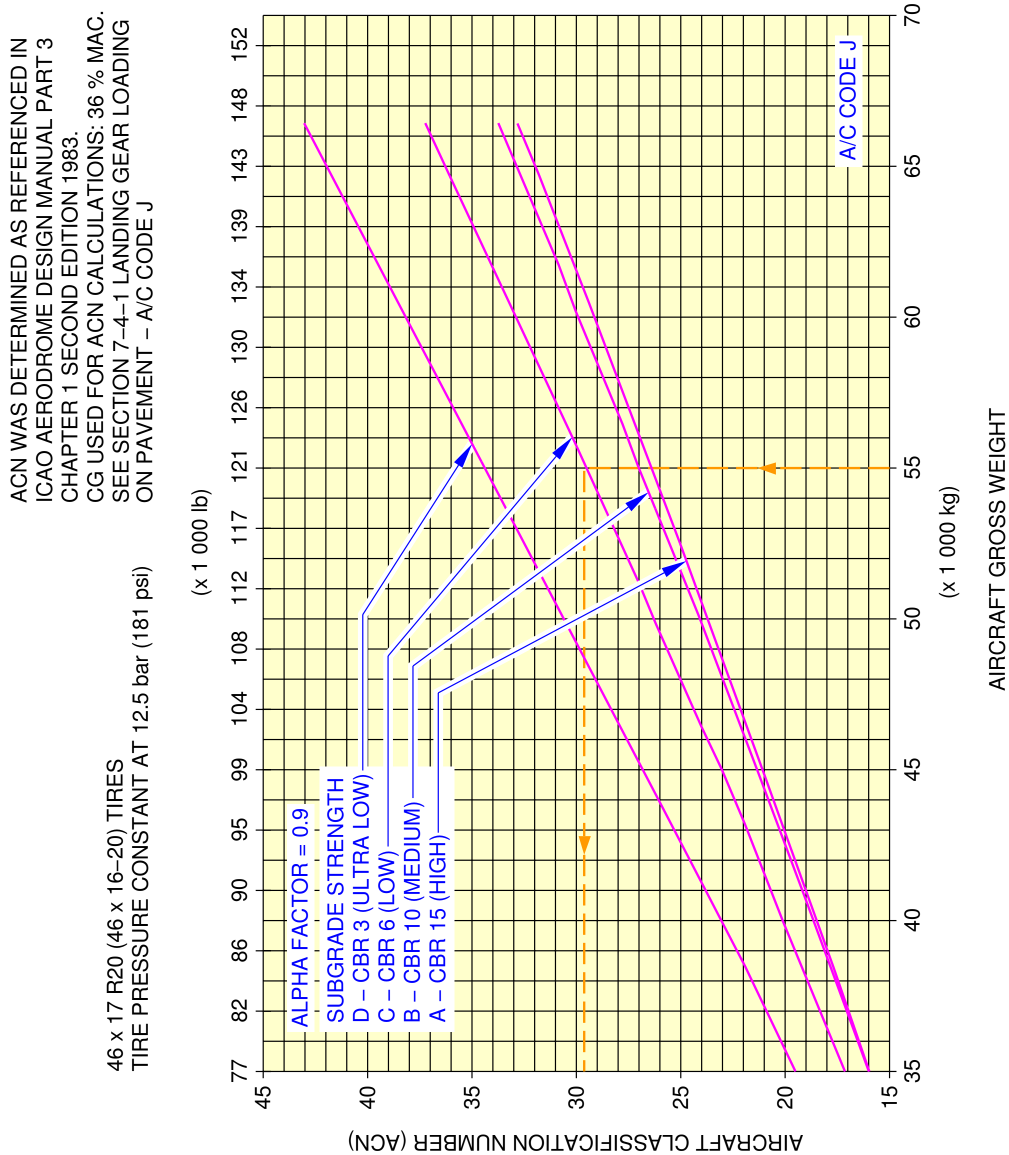
****ON A/C A319-100**



N_AC_070901_1_0570101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-057-A01

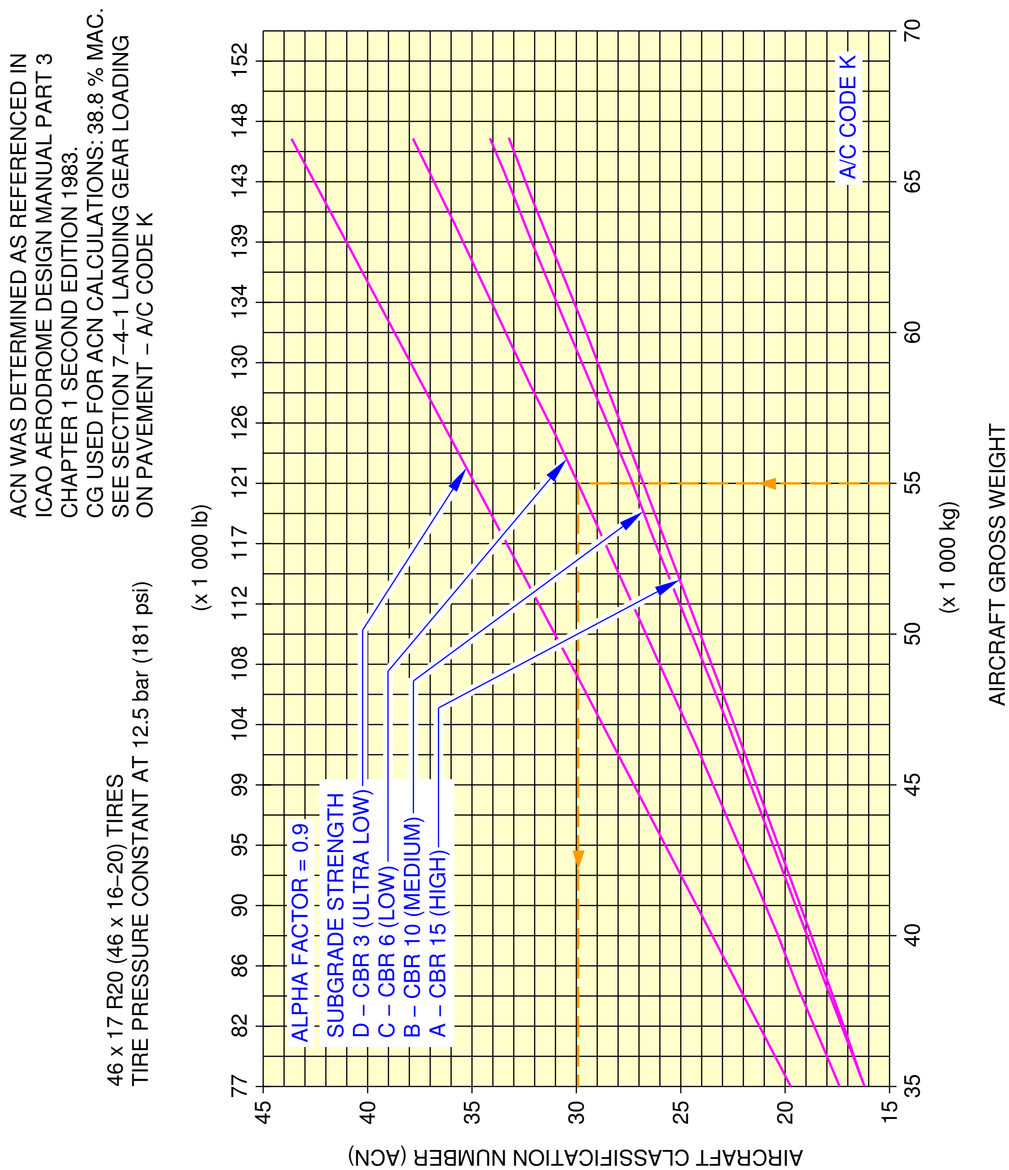
****ON A/C A319-100**



N_AC_070901_1_0580101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-058-A01

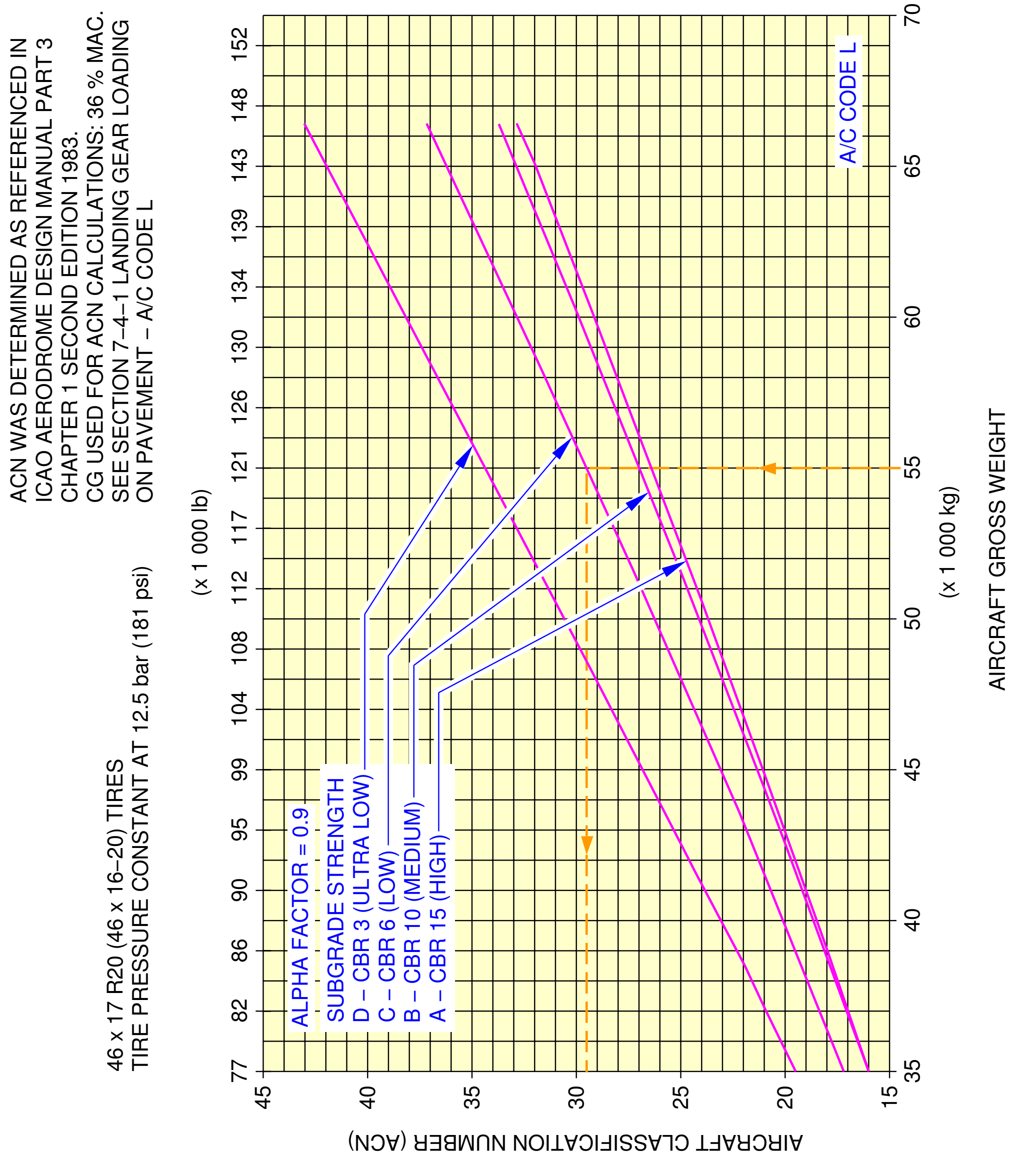
**ON A/C A319-100



N_AC_070901_1_0590101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-059-A01

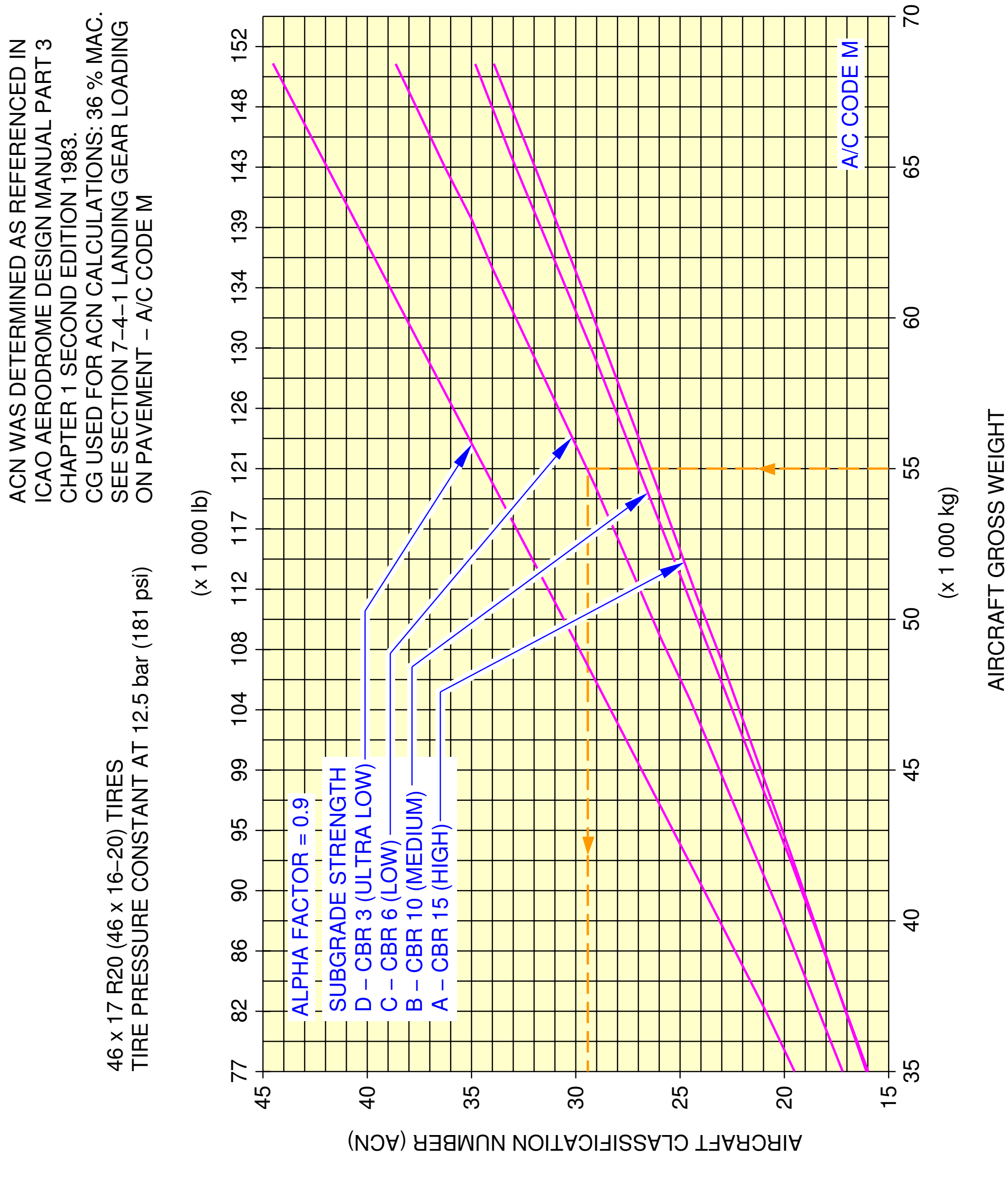
**ON A/C A319-100



N_AC_070901_1_0600101_01_00

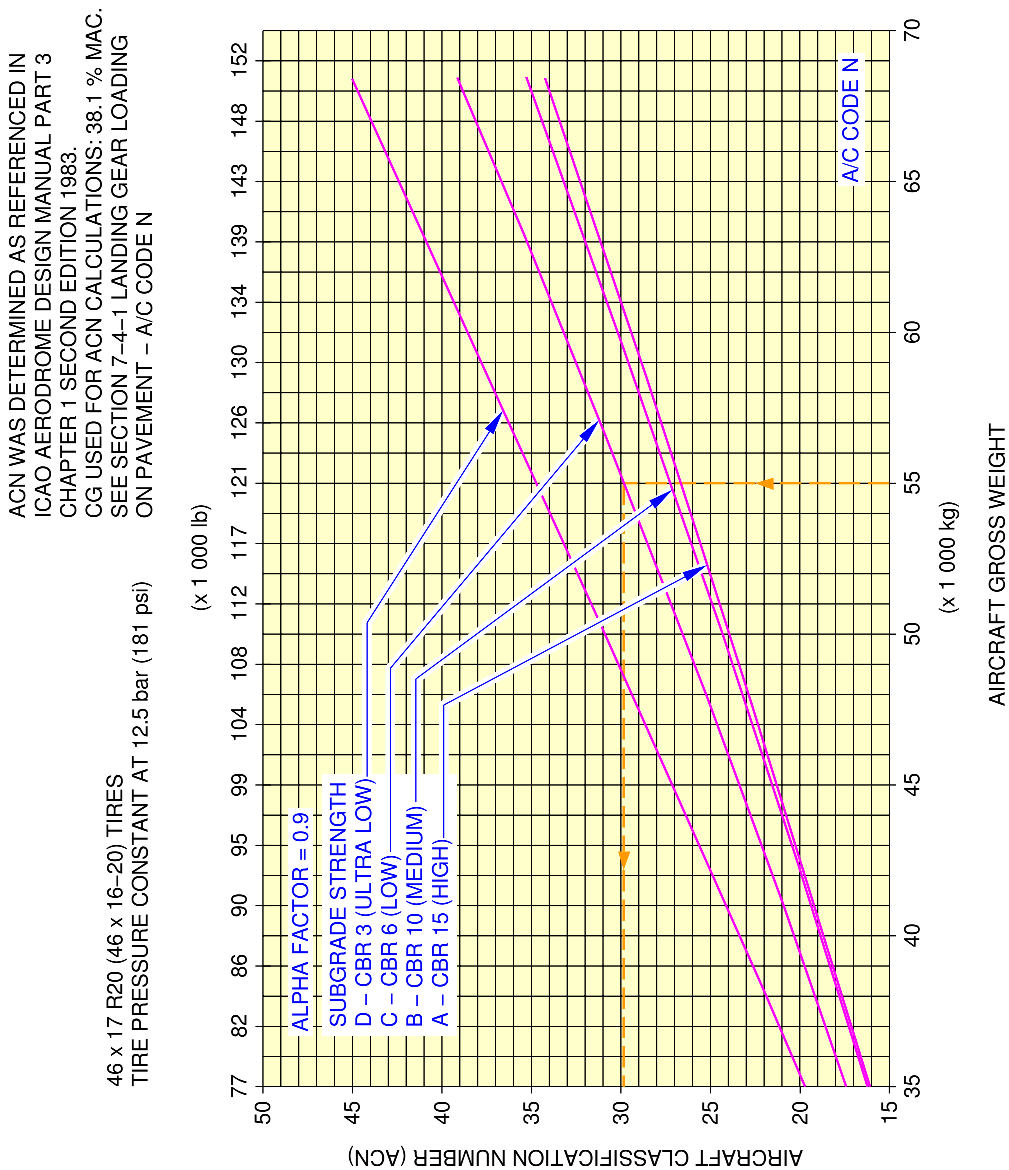
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-060-A01

****ON A/C A319-100**



Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-061-A01

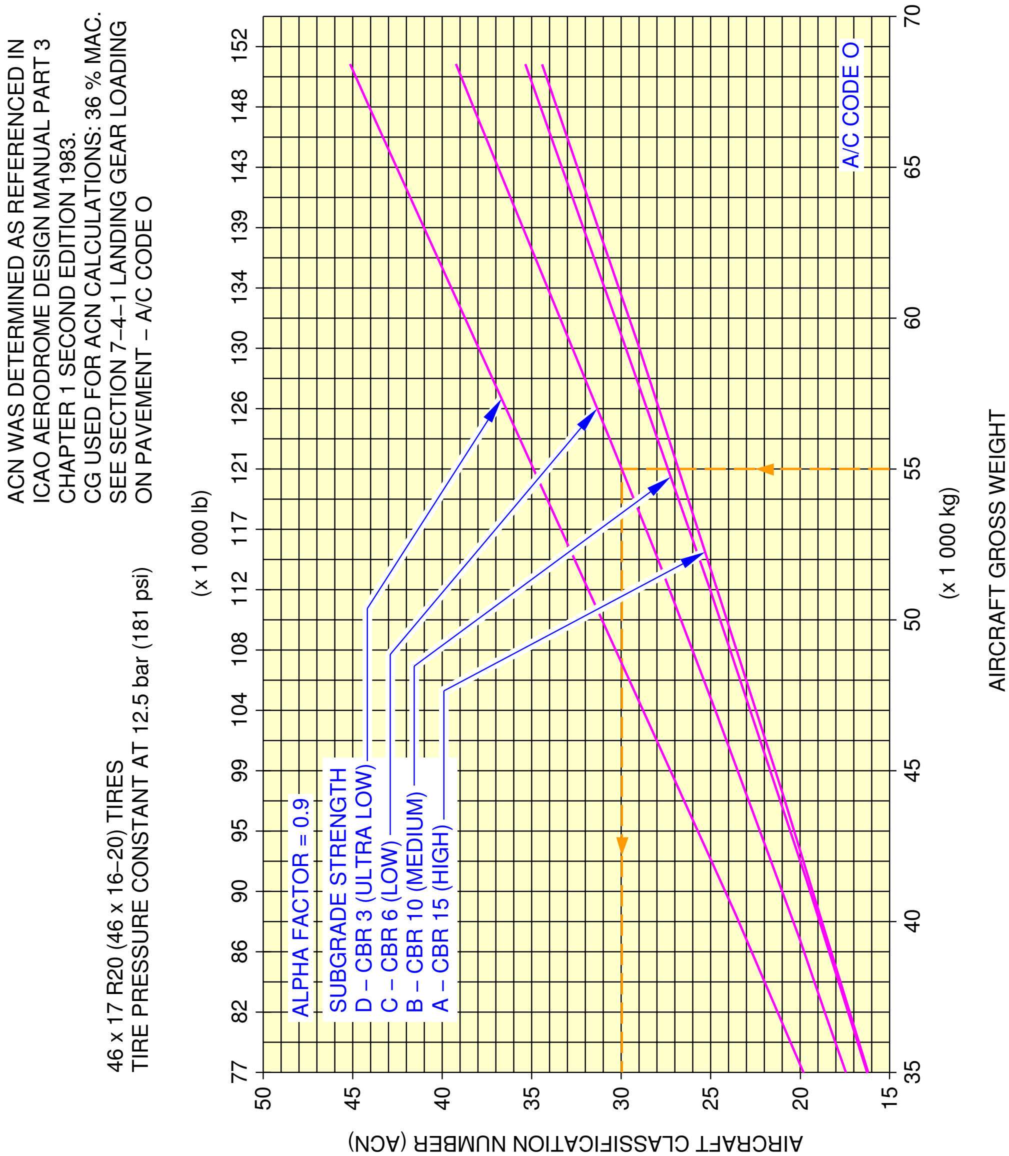
**ON A/C A319-100



N_AC_070901_1_0620101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-062-A01

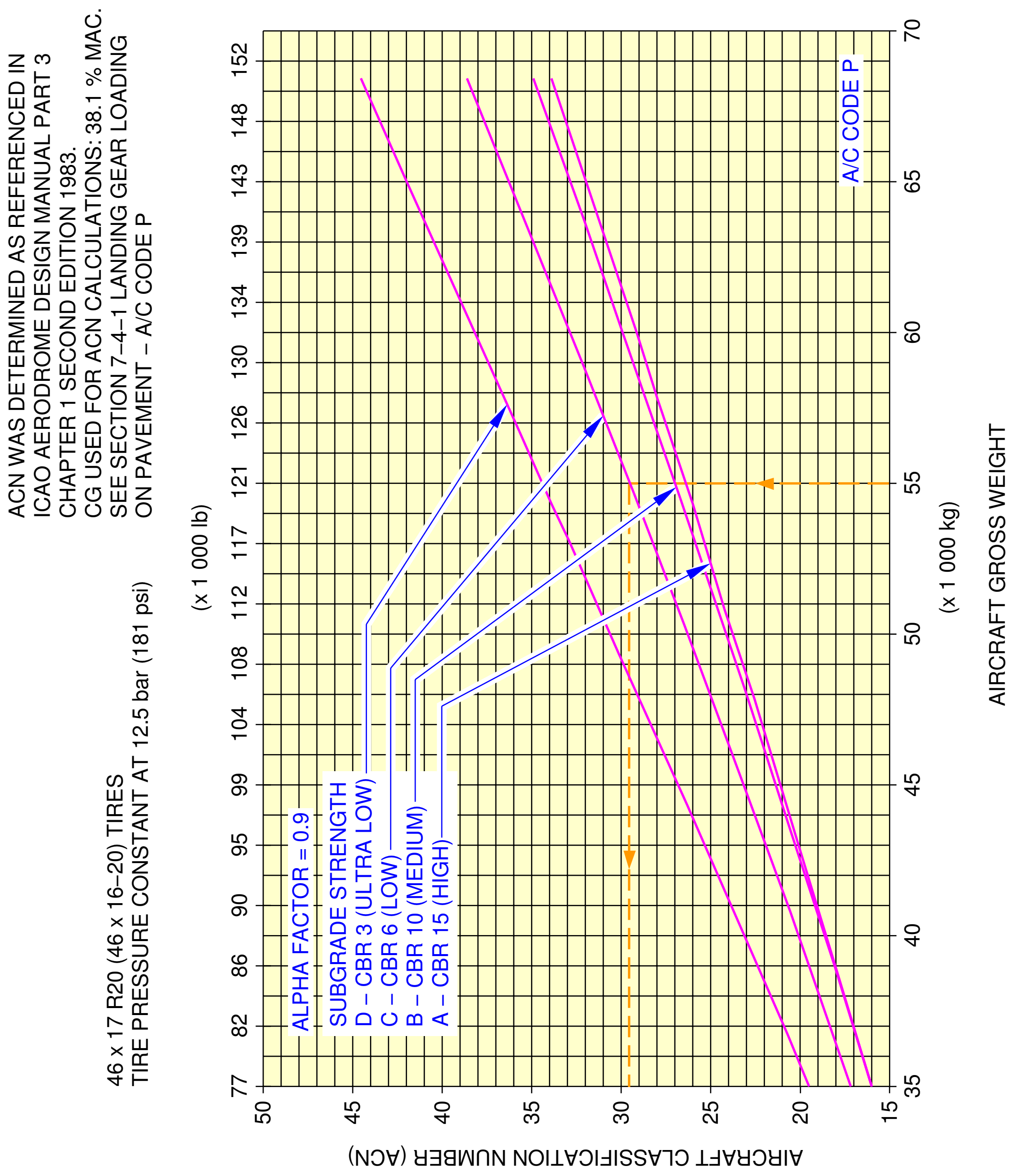
**ON A/C A319-100



N_AC_070901_1_0630101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-063-A01

**ON A/C A319-100



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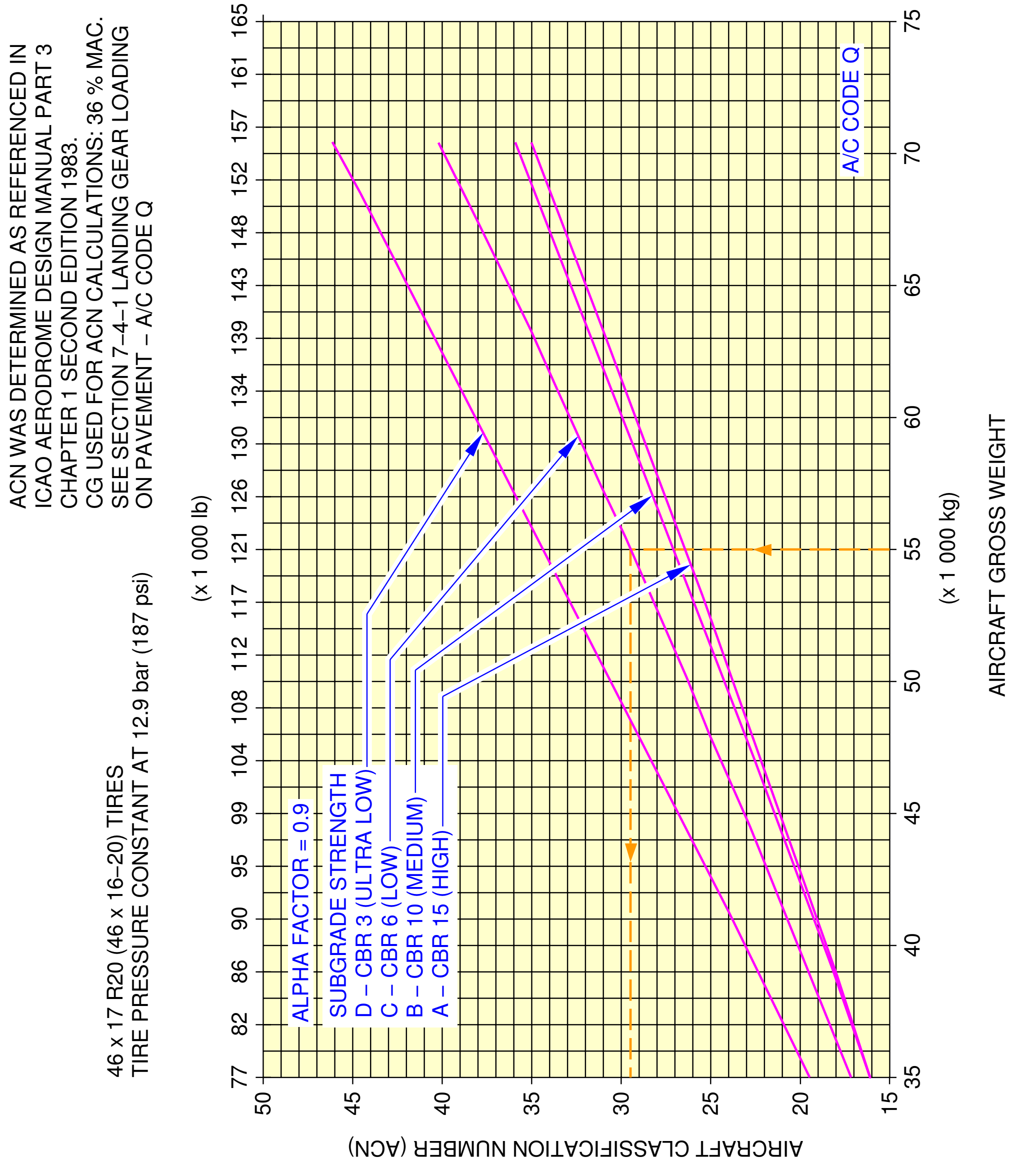
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-064-A01

**ON A/C A319-100



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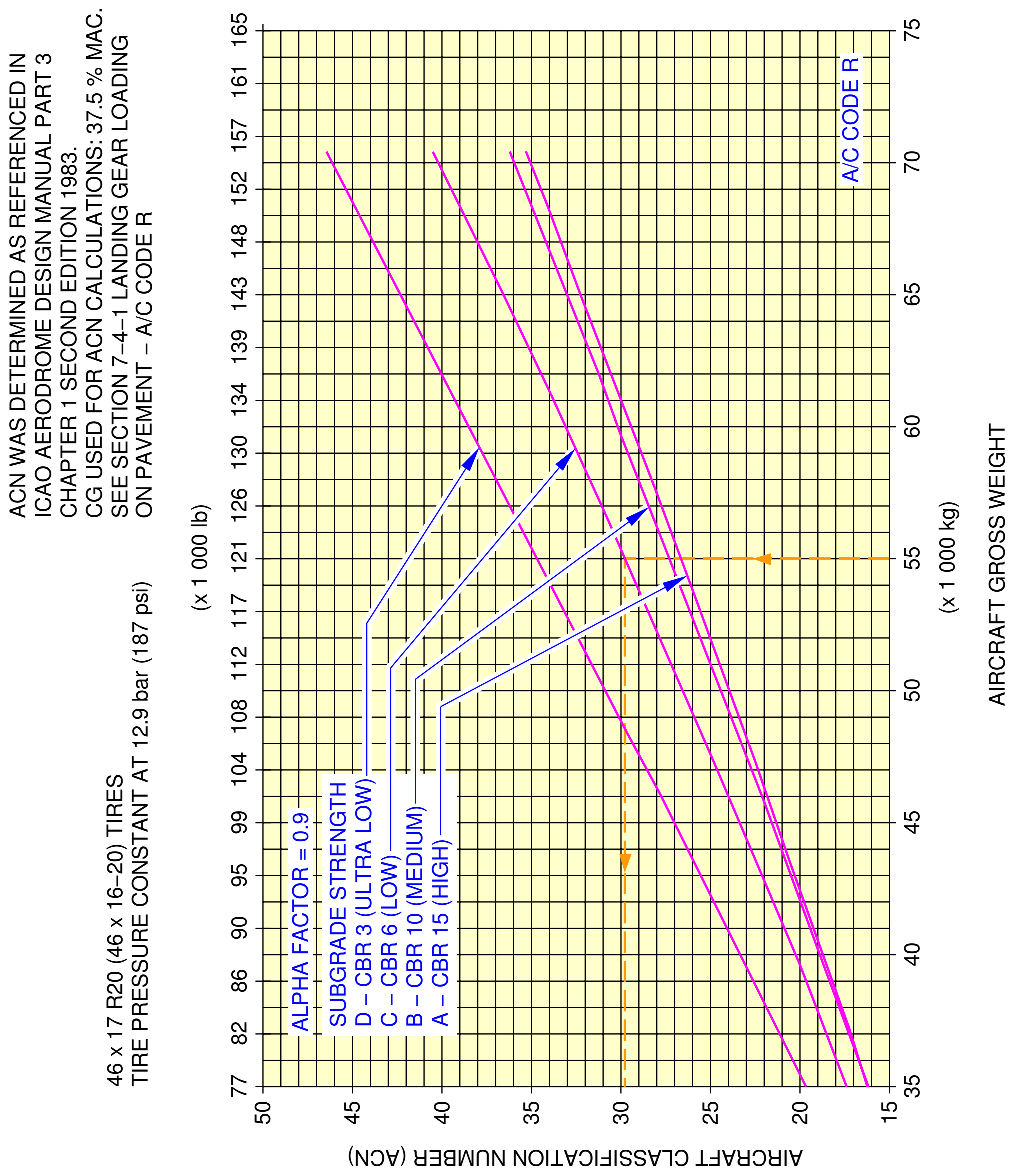
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-065-A01

**ON A/C A319-100



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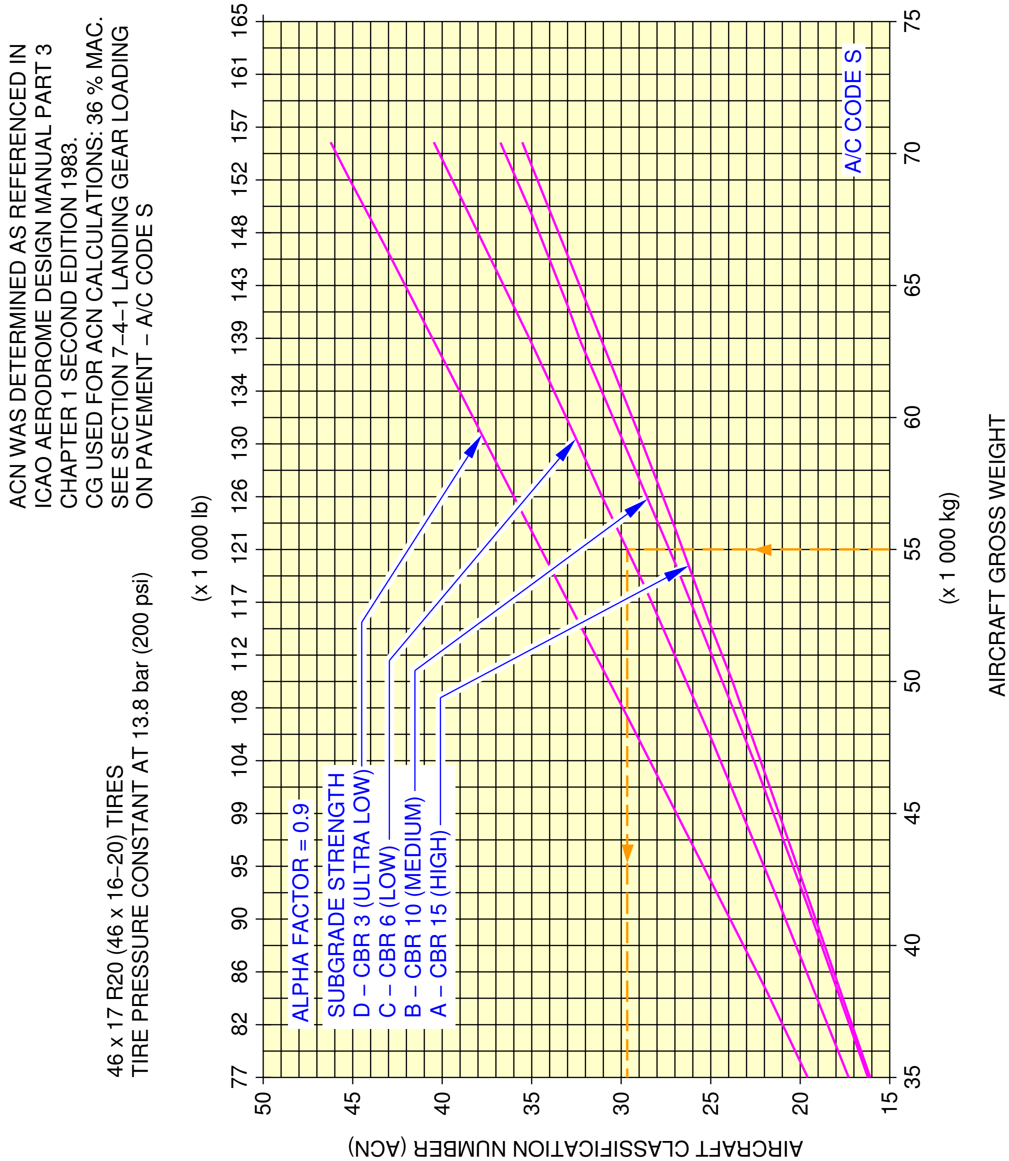
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-066-A01

**ON A/C A319-100



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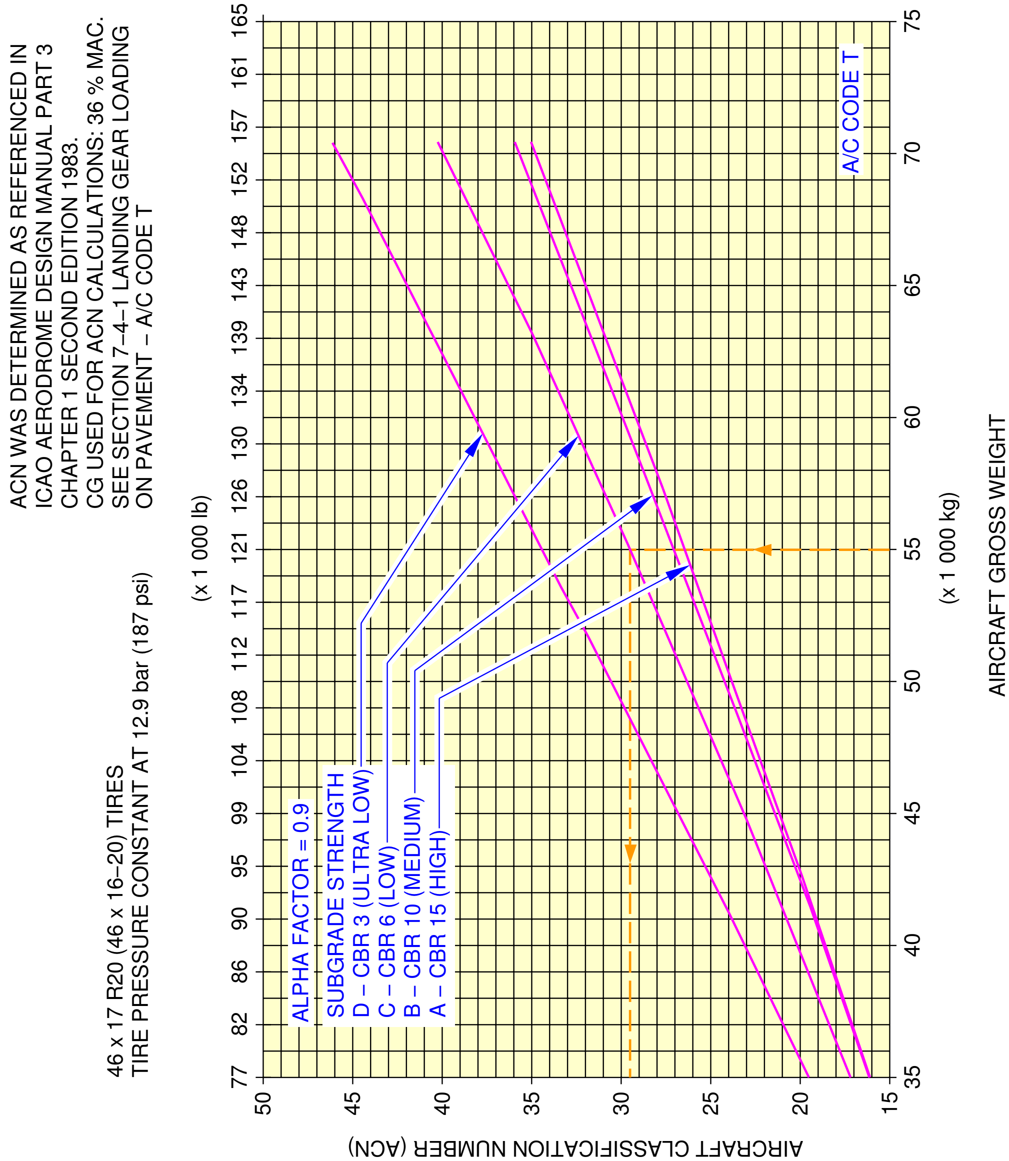
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-067-A01

**ON A/C A319-100



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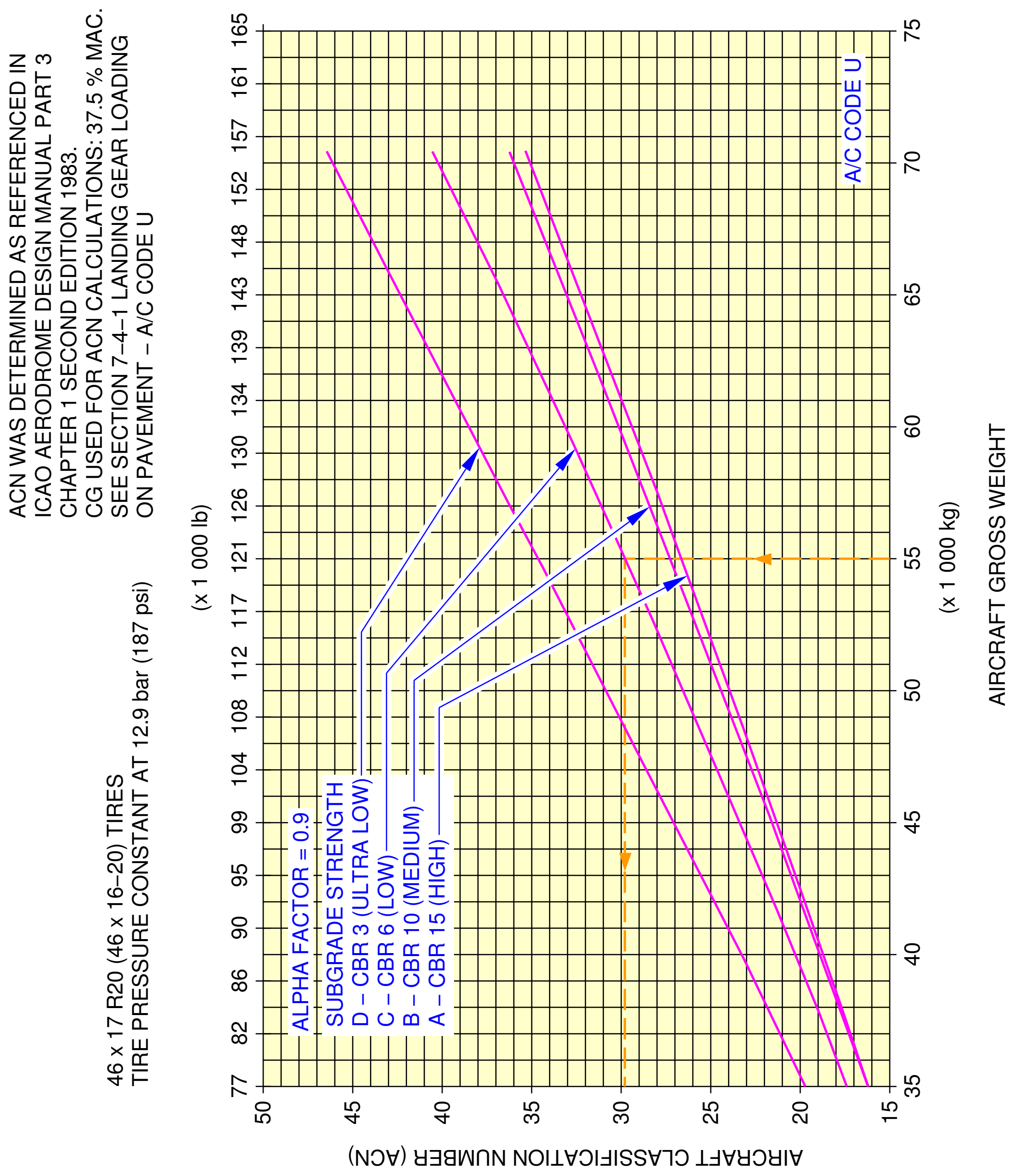
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-068-A01

****ON A/C A319-100**



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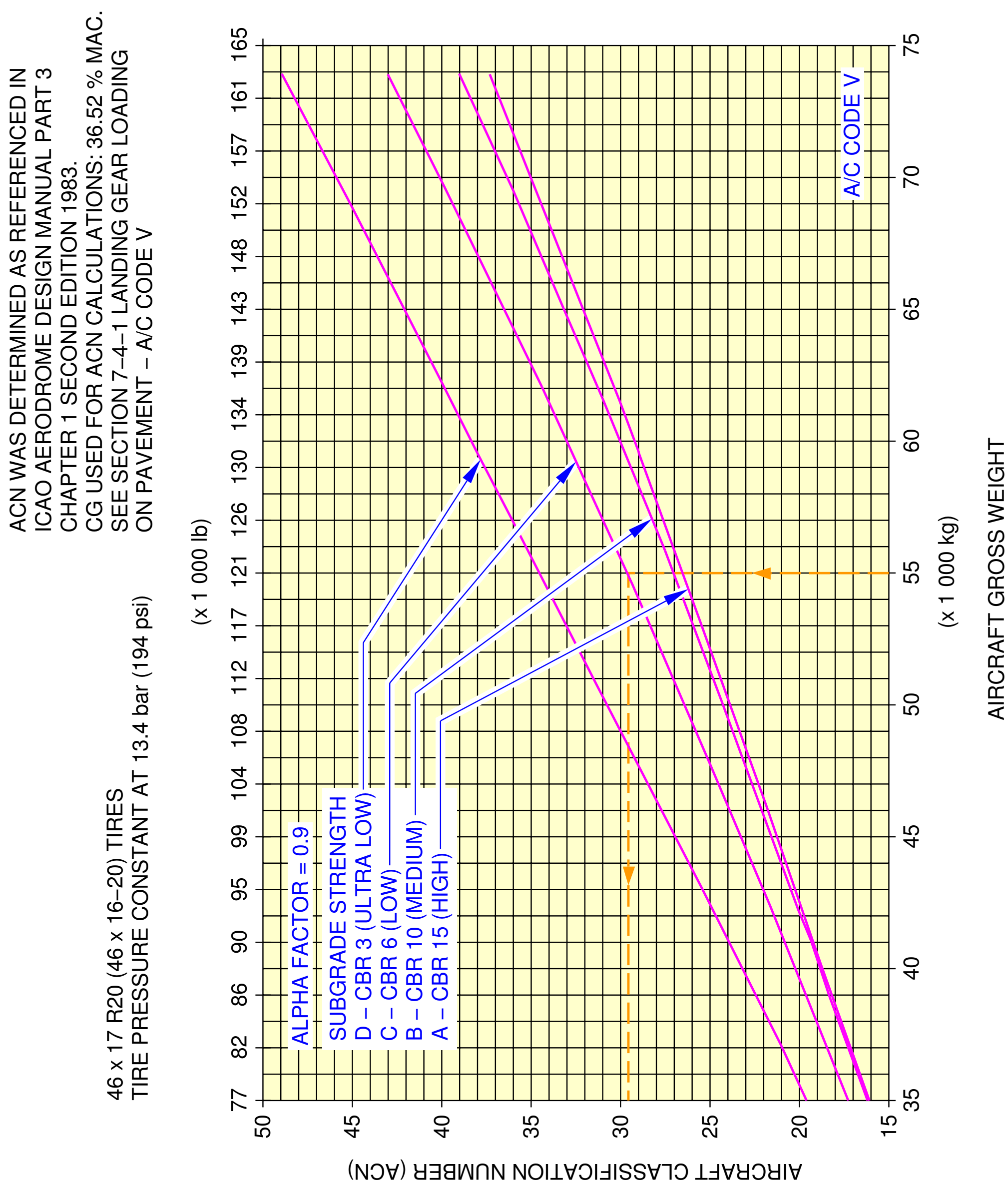
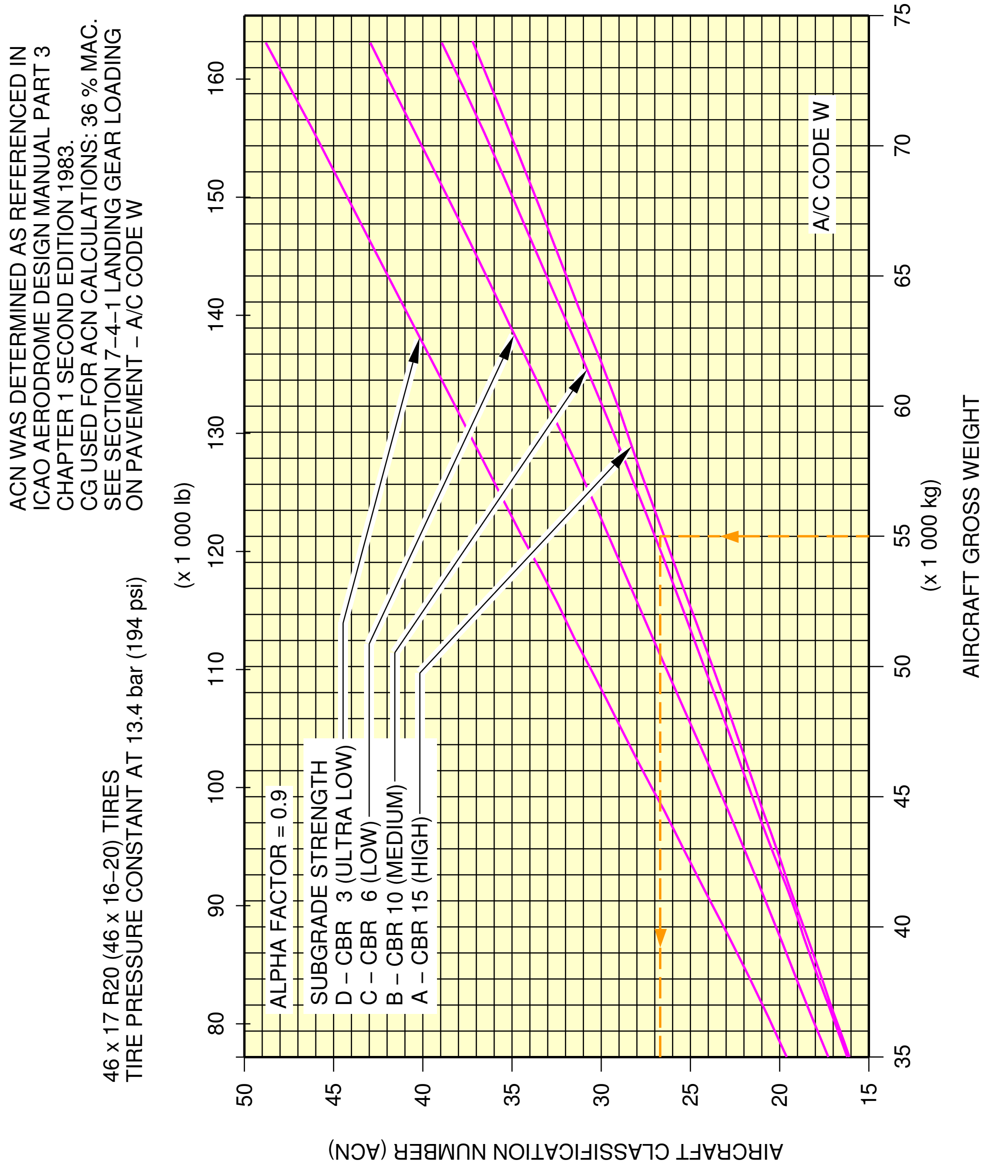
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-069-A01

****ON A/C A319-100**



Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-070-A01

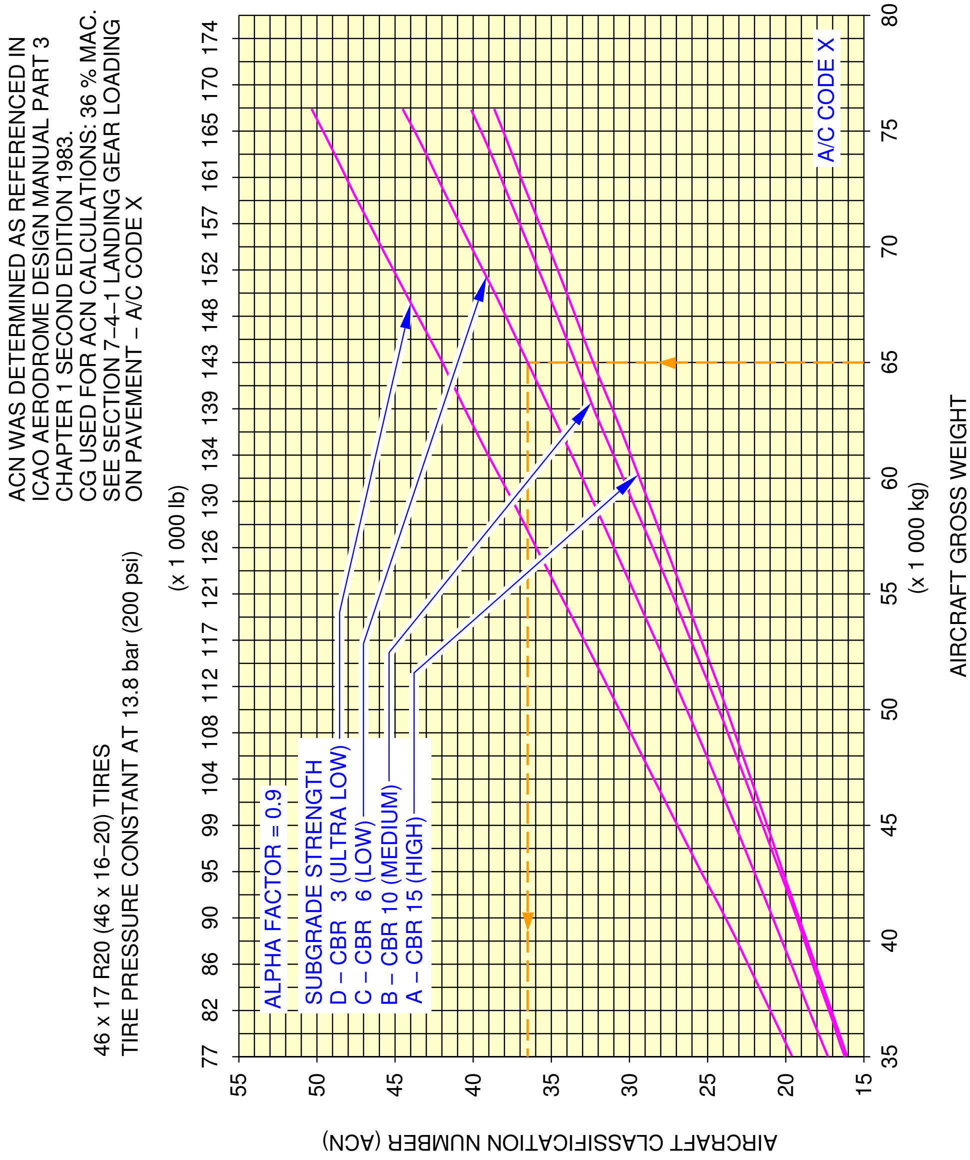
****ON A/C A319-100**



N_AC_070901_1_0710101_01_01

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-071-A01

****ON A/C A319-100**



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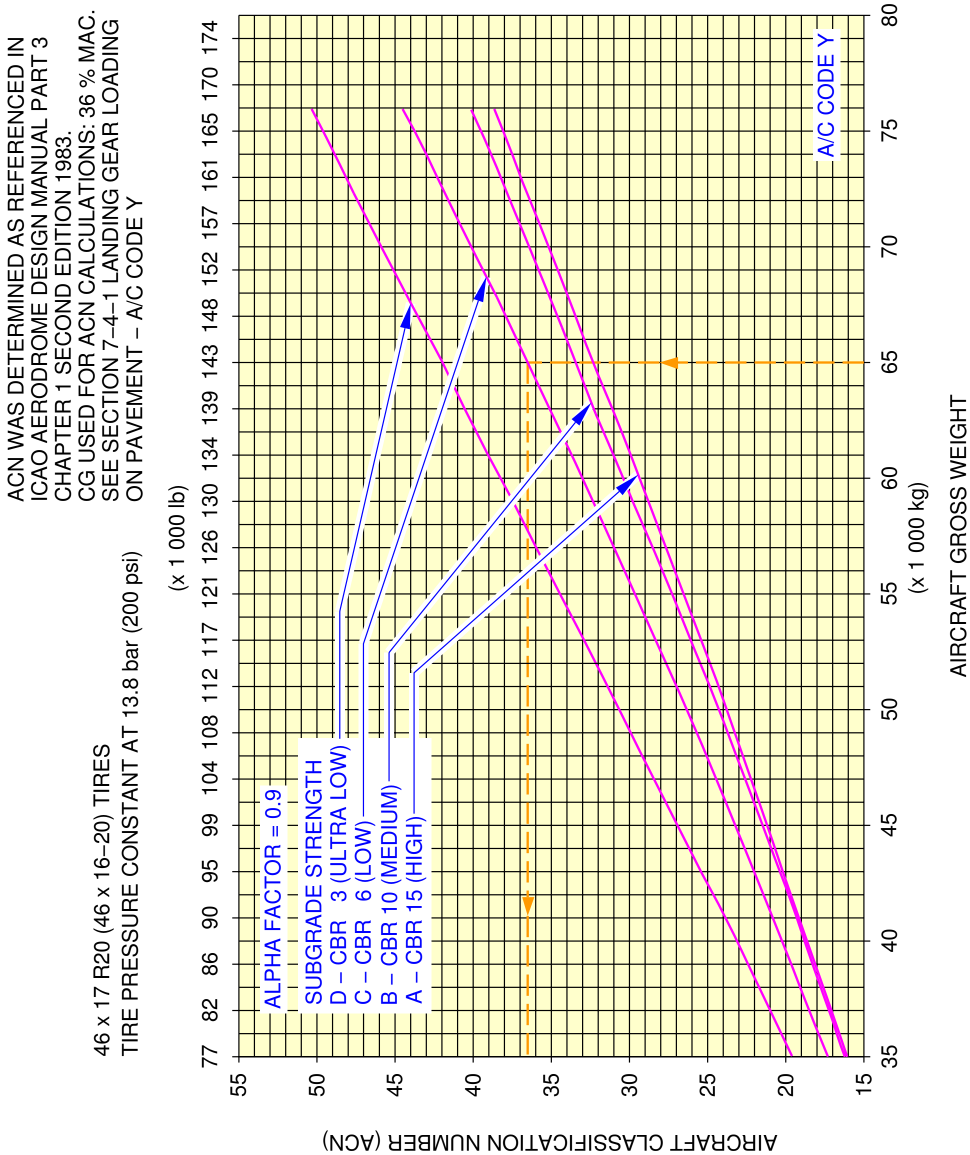
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-072-A01

**ON A/C A319-100



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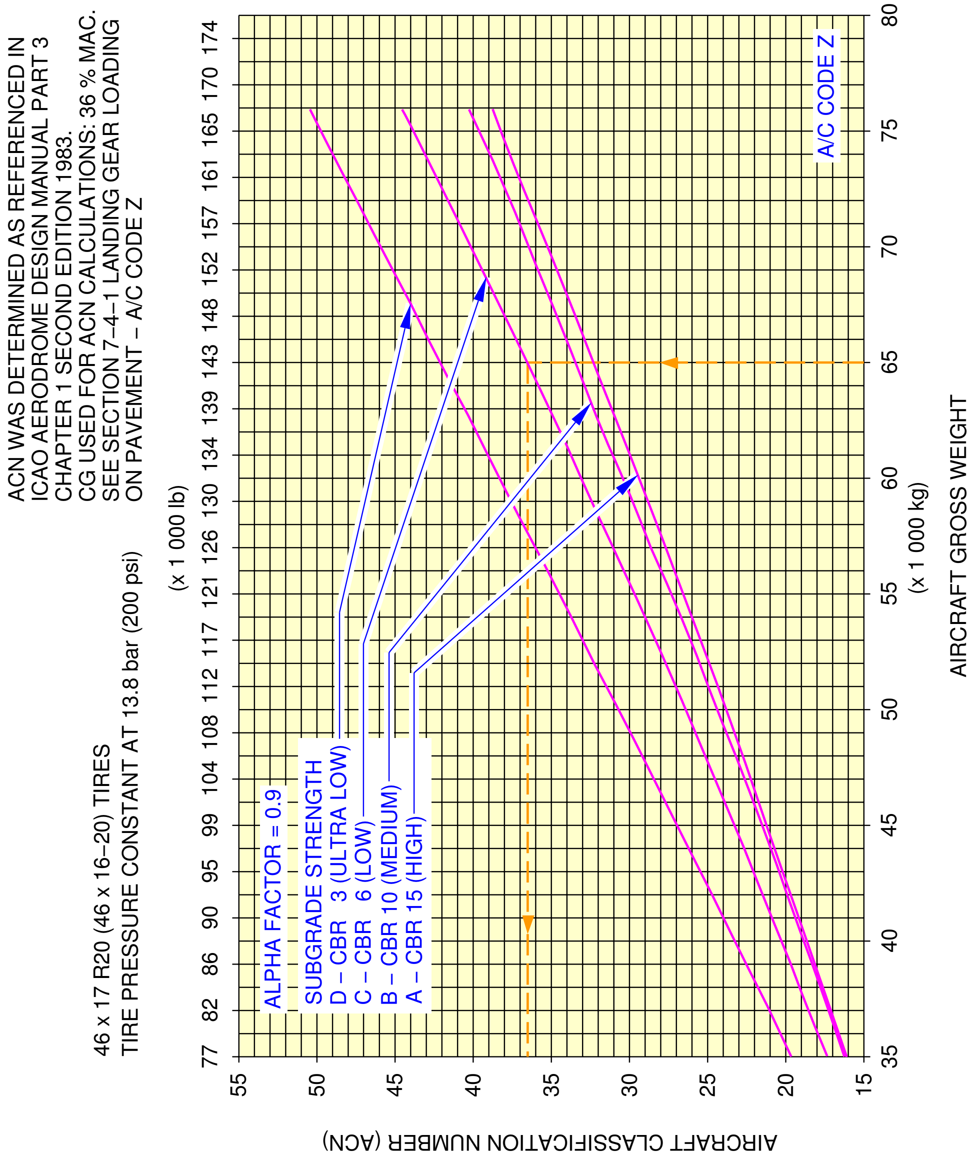
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-073-A01

**ON A/C A319-100



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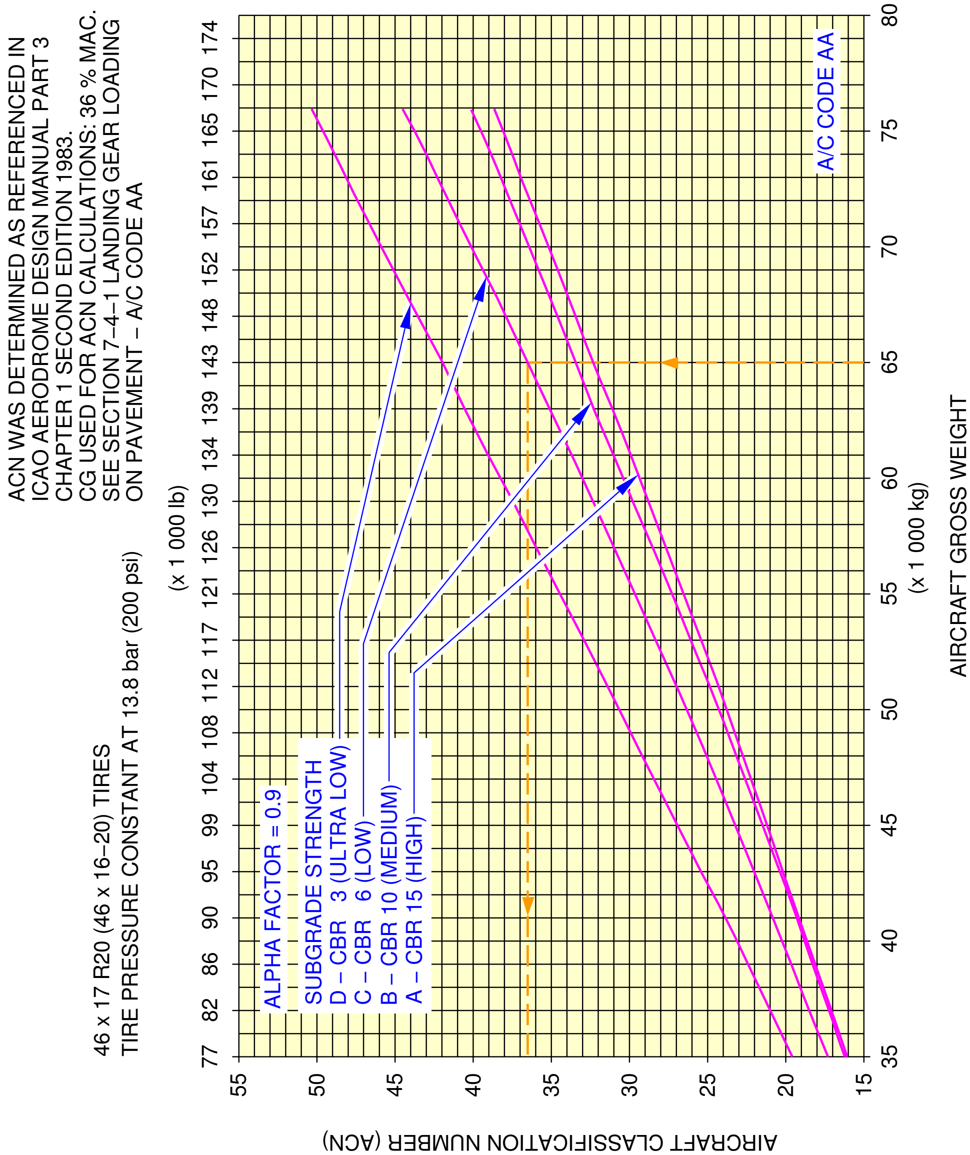
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-074-A01

****ON A/C A319-100**



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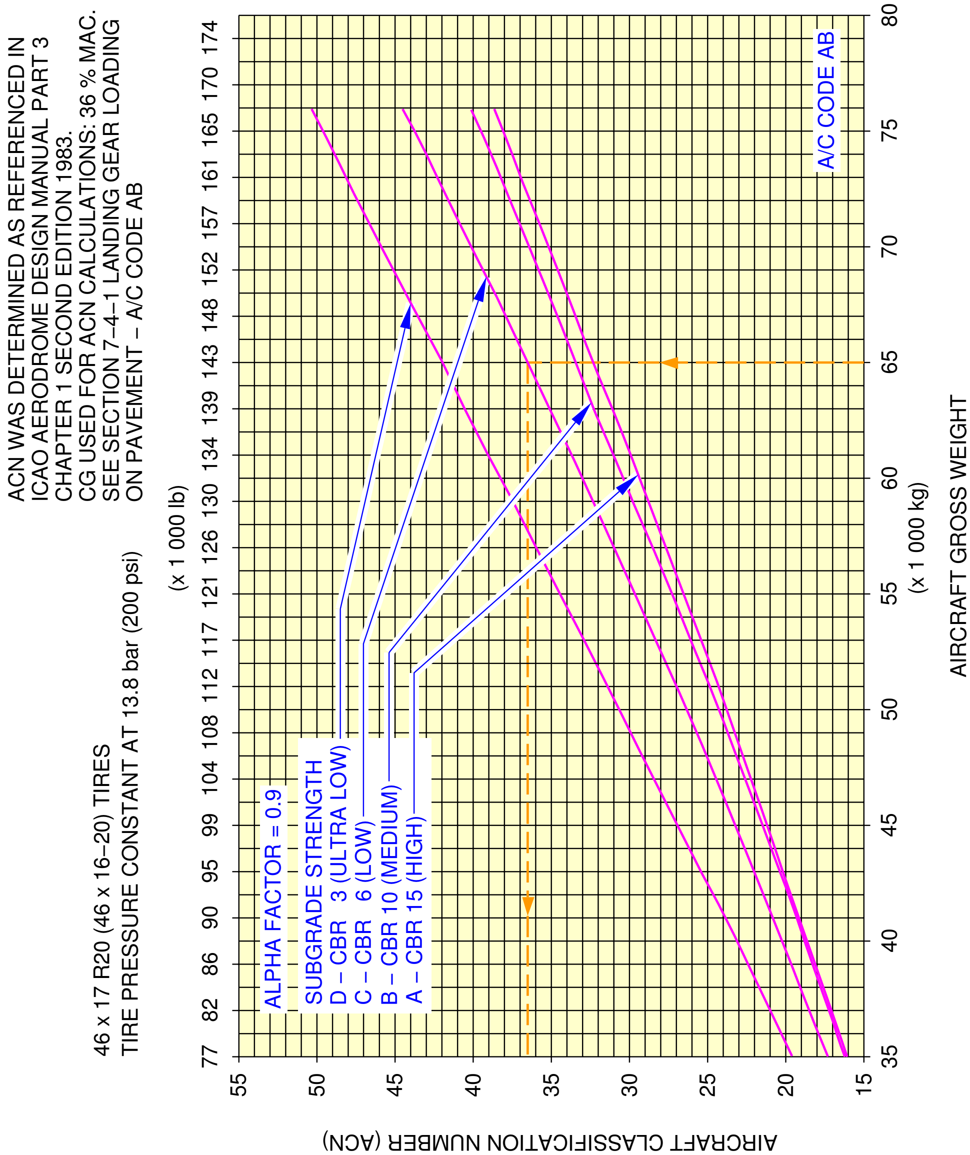
Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-075-A01

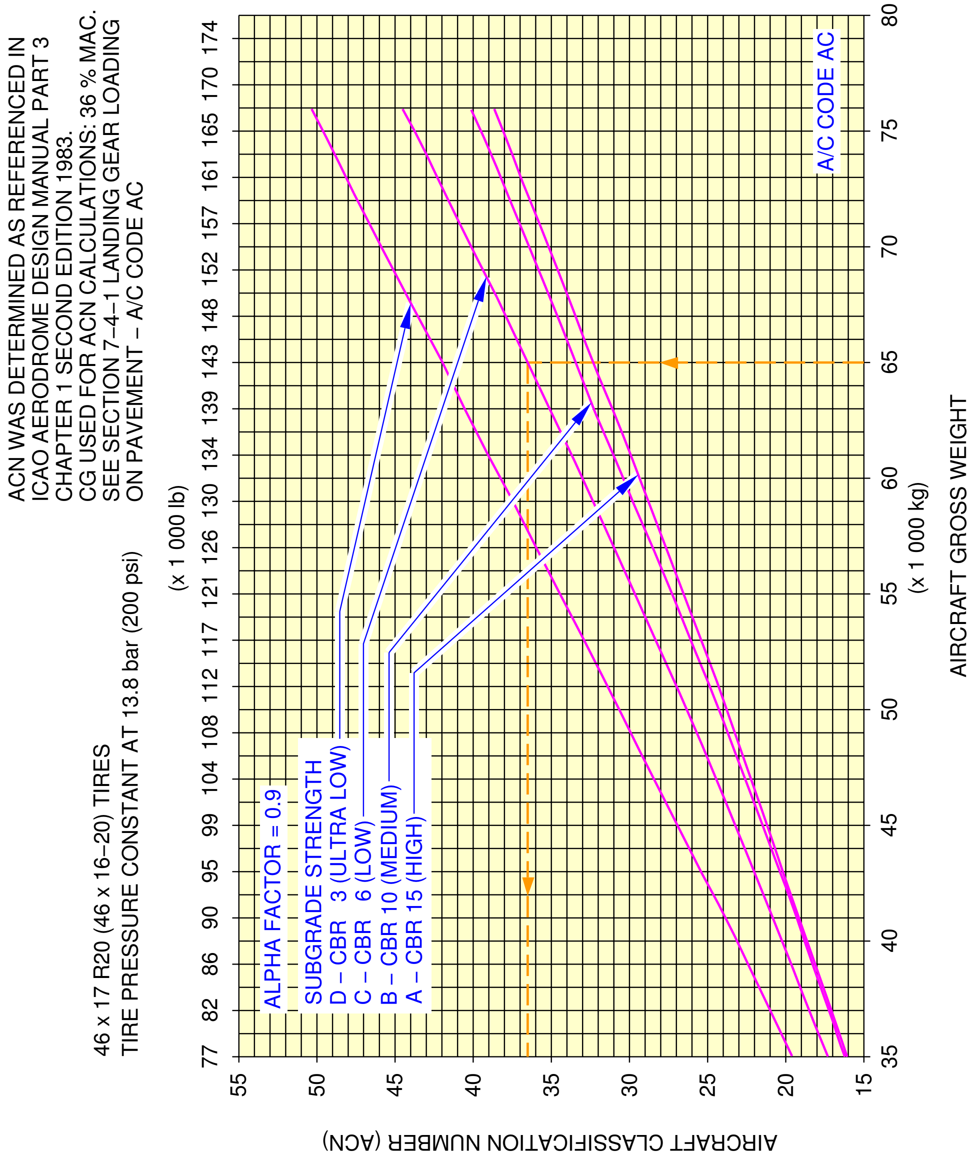
**ON A/C A319-100



N_AC_070901_1_0760101_01_00

Aircraft Classification Number − Flexible Pavement
FIGURE-7-9-1-991-076-A01

**ON A/C A319-100



N_AC_070901_1_0770101_01_00

Aircraft Classification Number – Flexible Pavement
FIGURE-7-9-1-991-077-A01

7-9-2 Aircraft Classification Number - Rigid Pavement

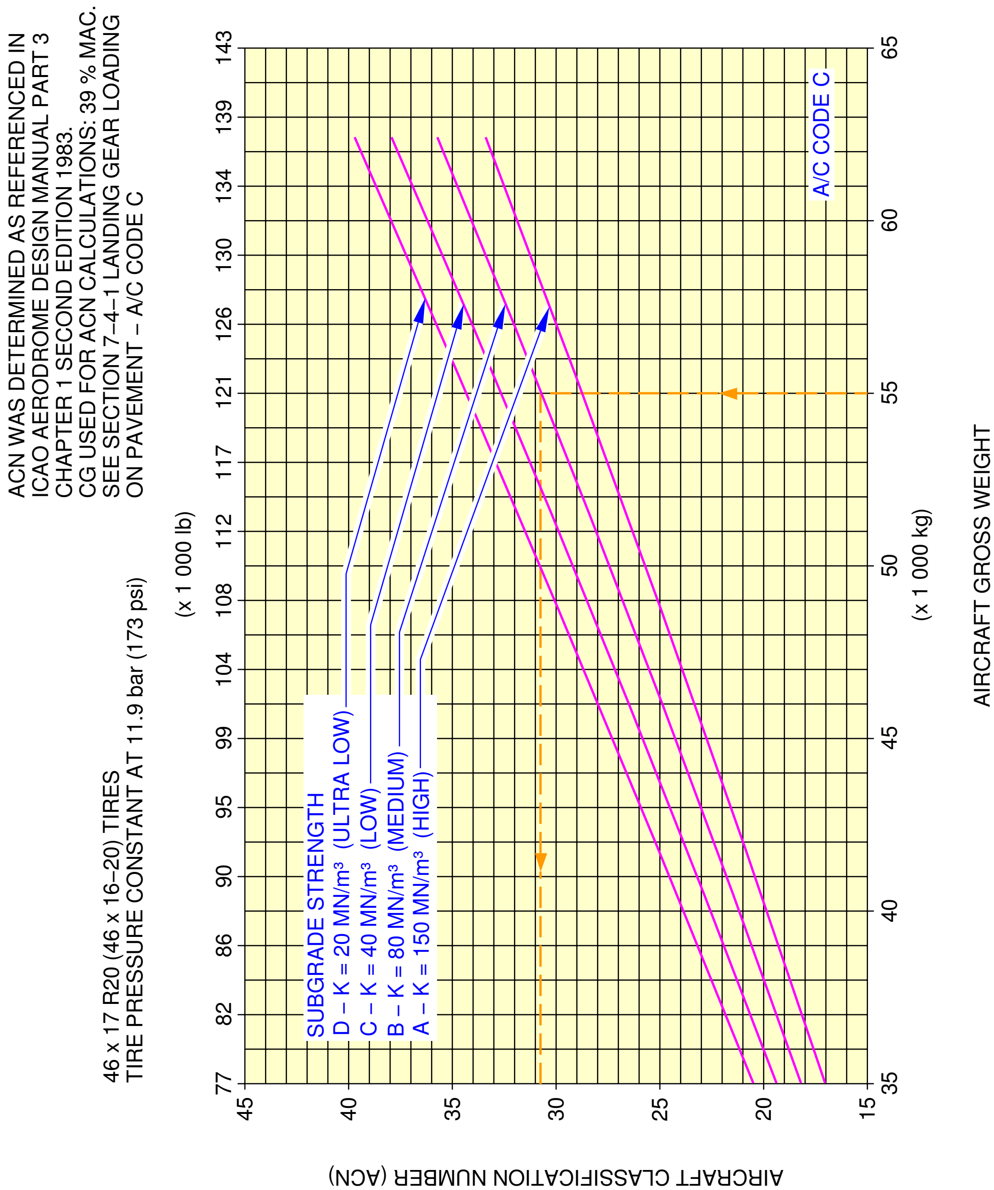
****ON A/C A319-100**

Aircraft Classification Number - Rigid Pavement

1. This section gives the Aircraft Classification Number - Rigid Pavement.

   NOTE : For A/C Code definition, refer to chapter 7-1-0.

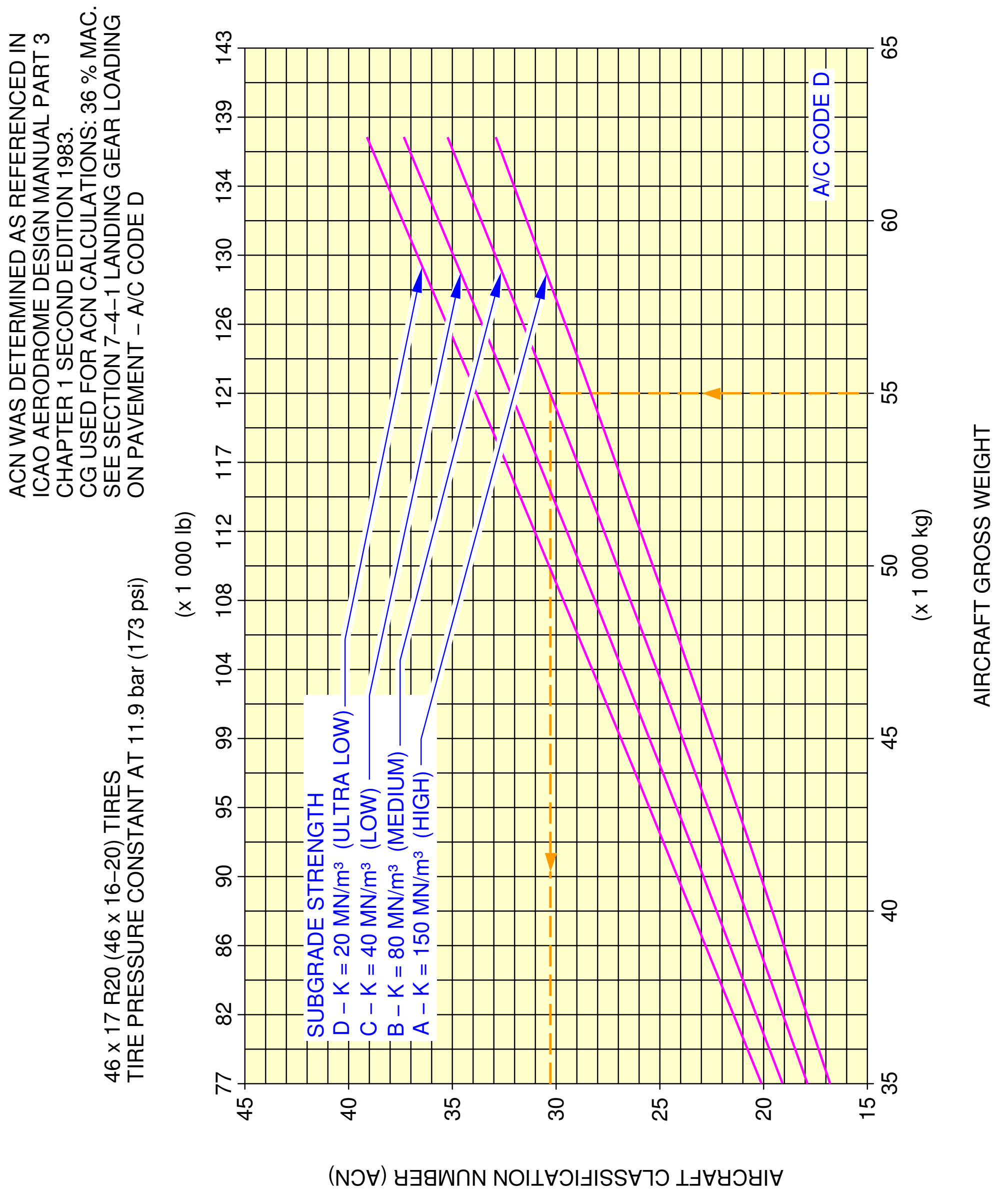
**ON A/C A319-100



N_AC_070902_1_0500101_01_00

Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-050-A01

**ON A/C A319-100



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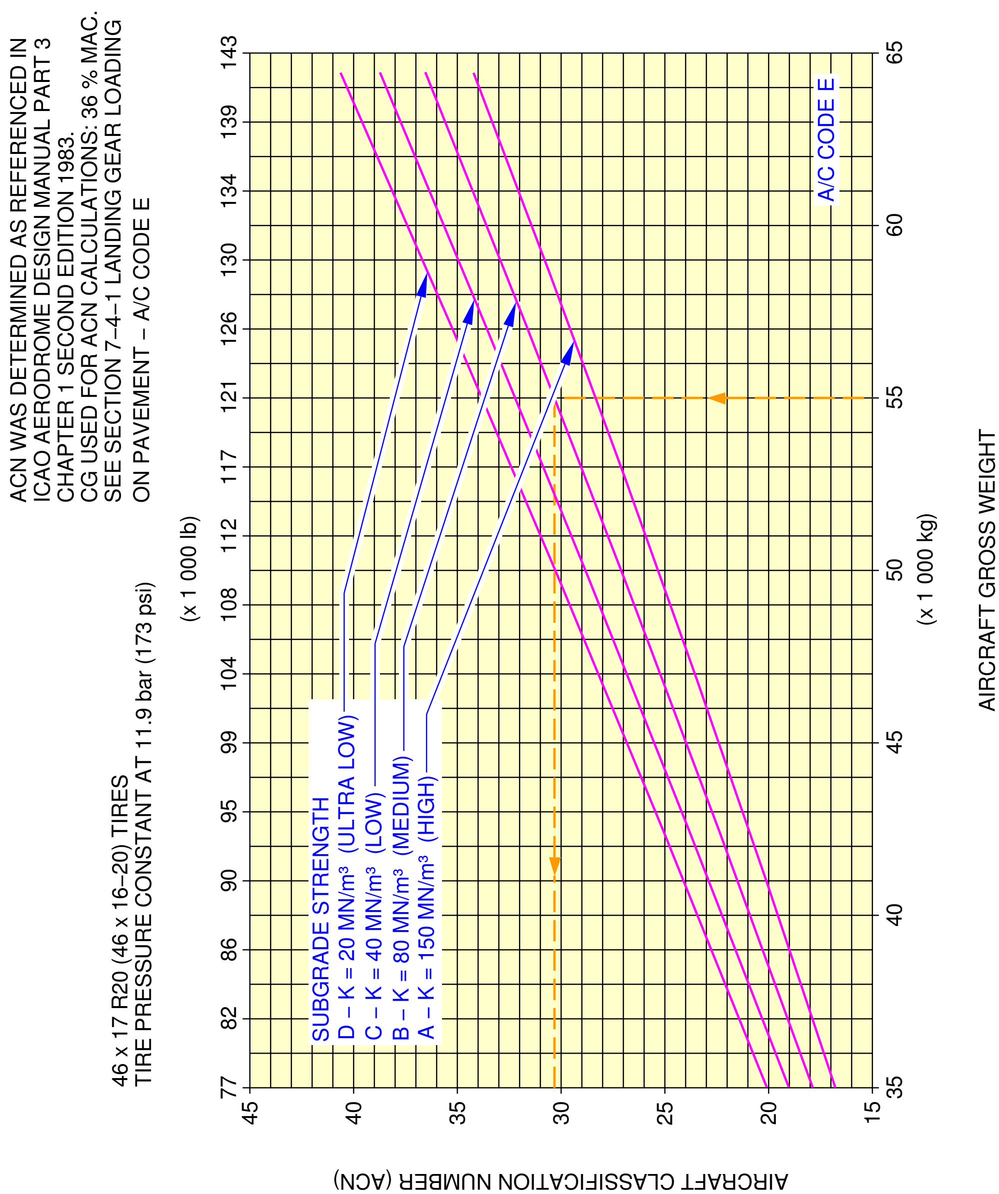
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-051-A01

****ON A/C A319-100**



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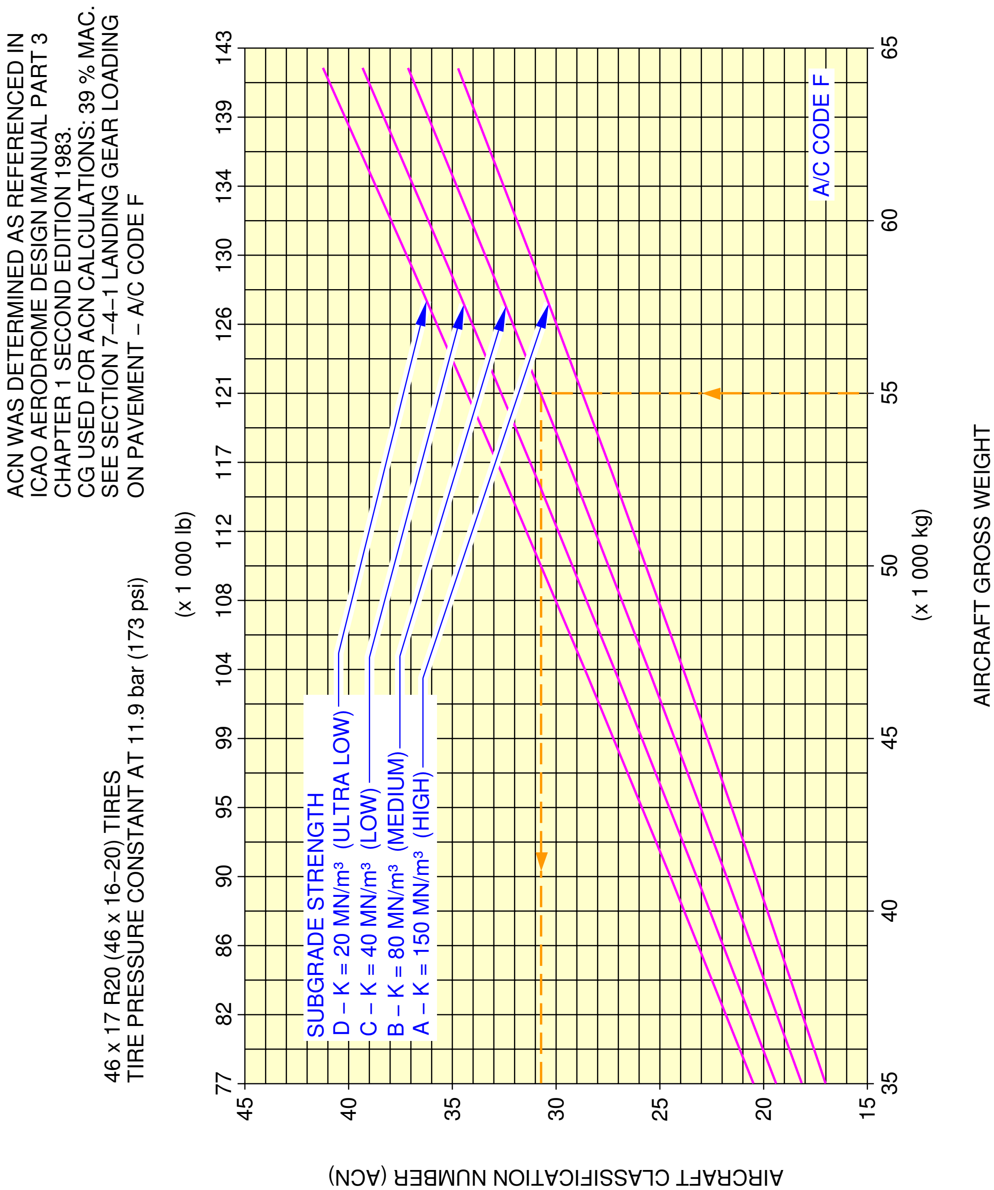
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-052-A01

****ON A/C A319-100**



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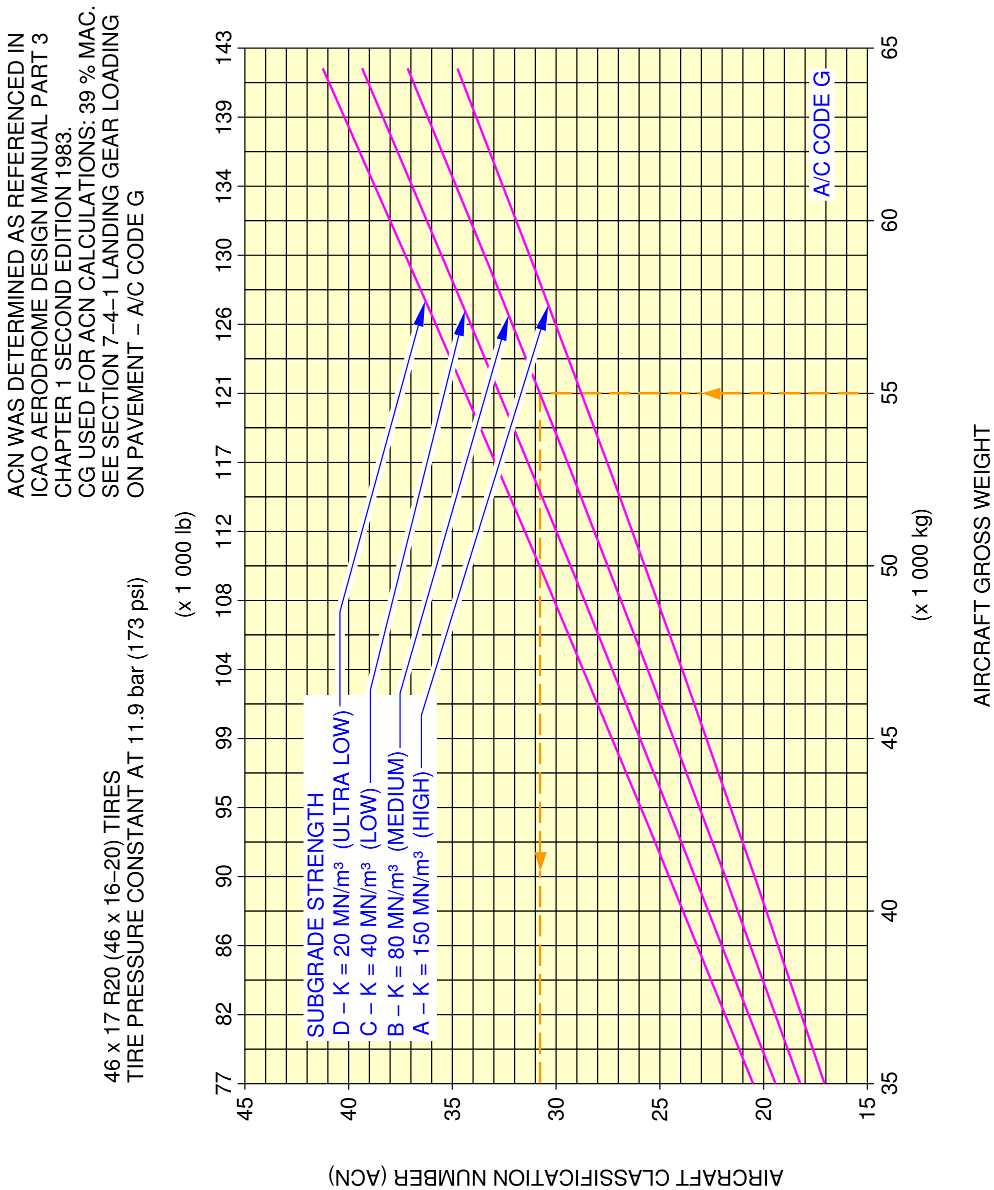
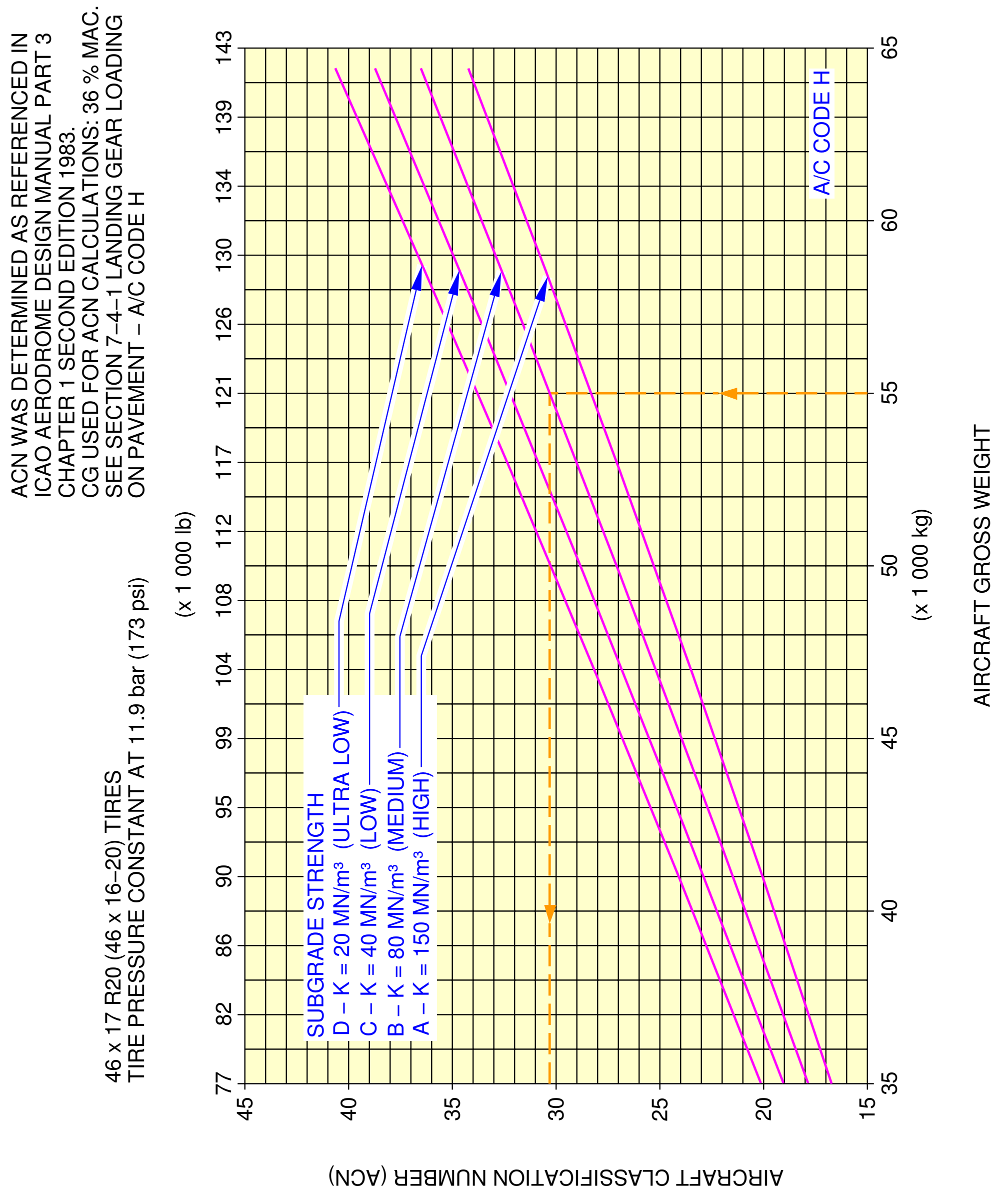
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-053-A01

****ON A/C A319-100**



Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-054-A01

**ON A/C A319-100



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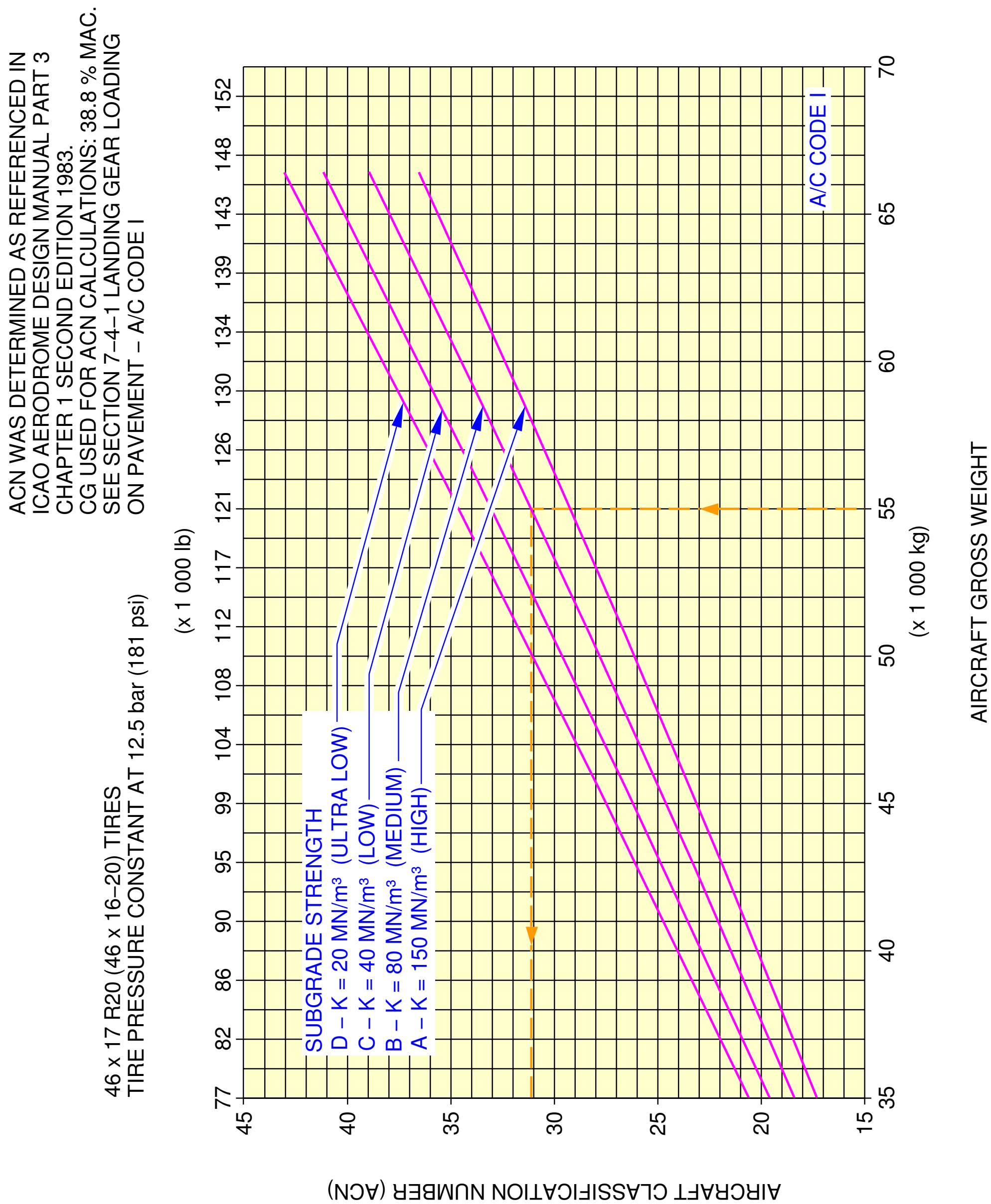
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-055-A01

**ON A/C A319-100



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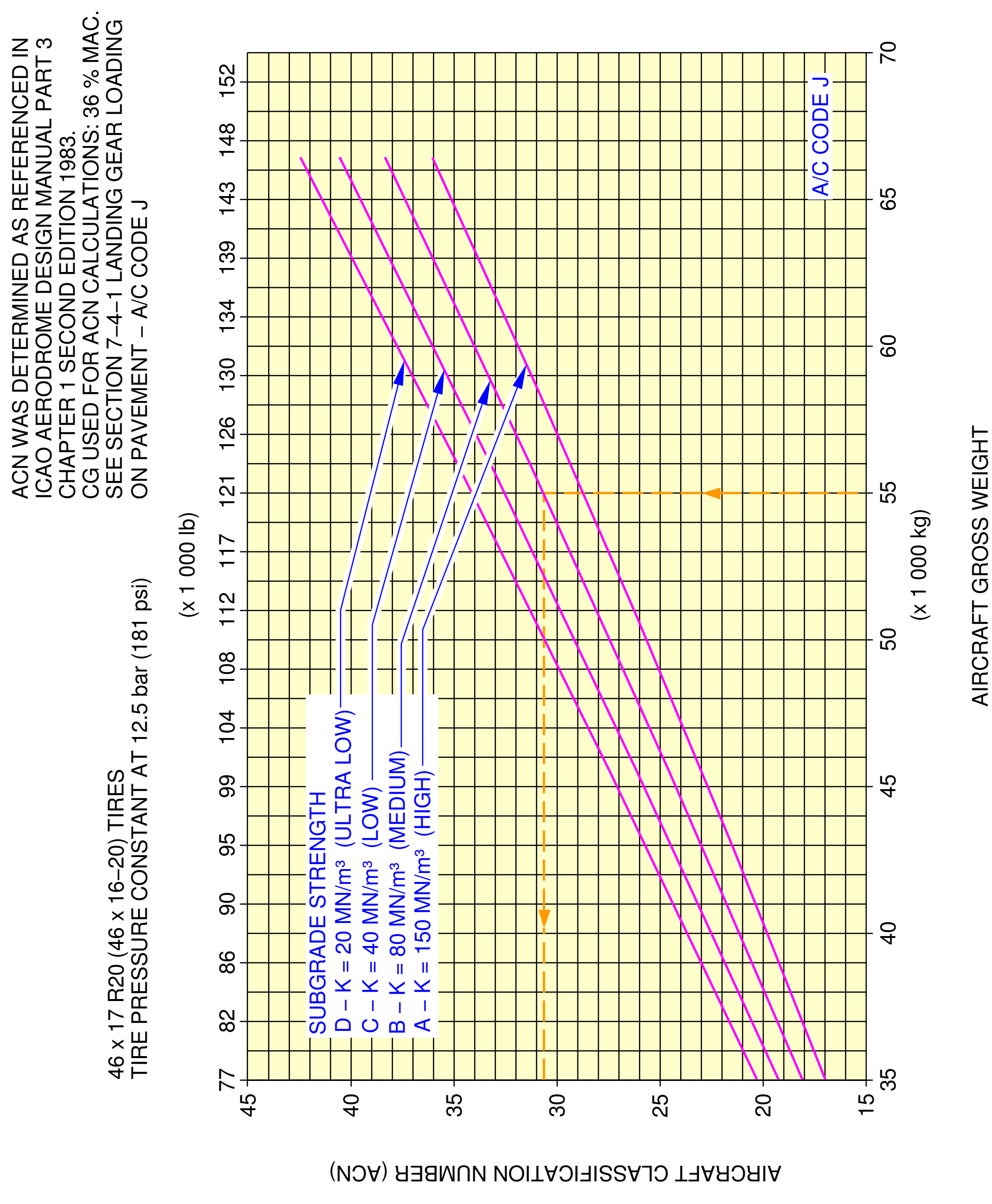
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-056-A01

****ON A/C A319-100**



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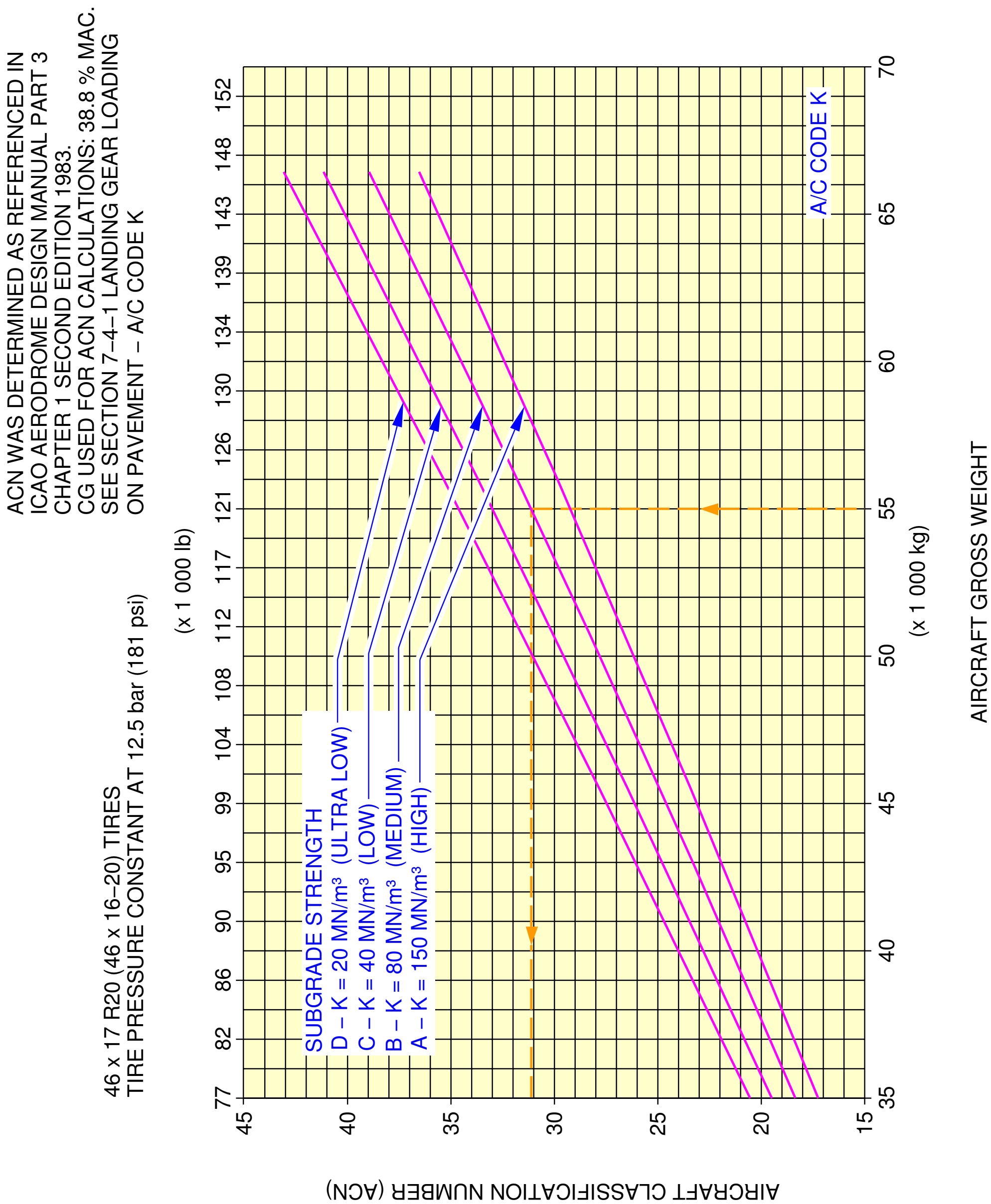
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-057-A01

****ON A/C A319-100**



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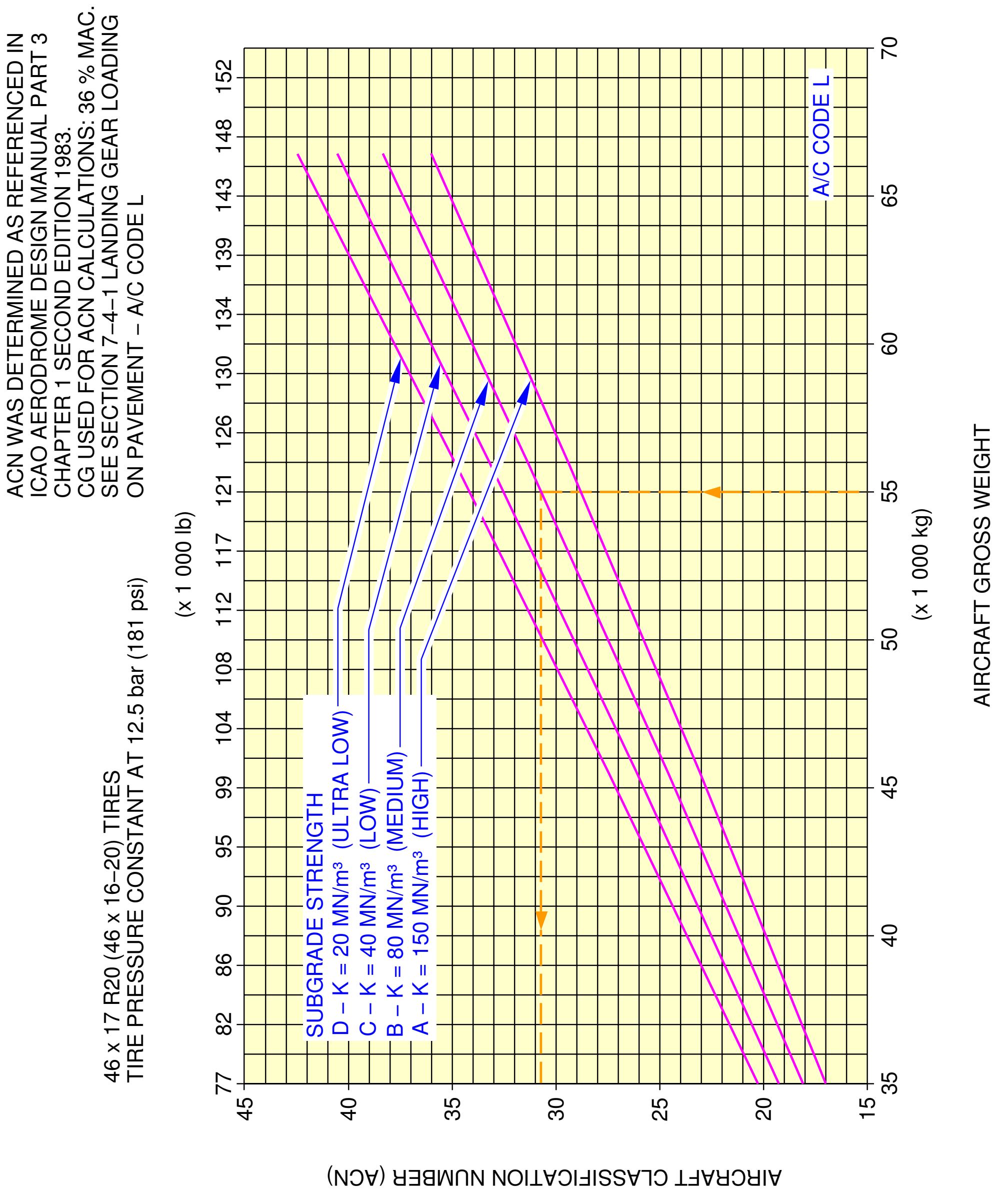
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-058-A01

**ON A/C A319-100



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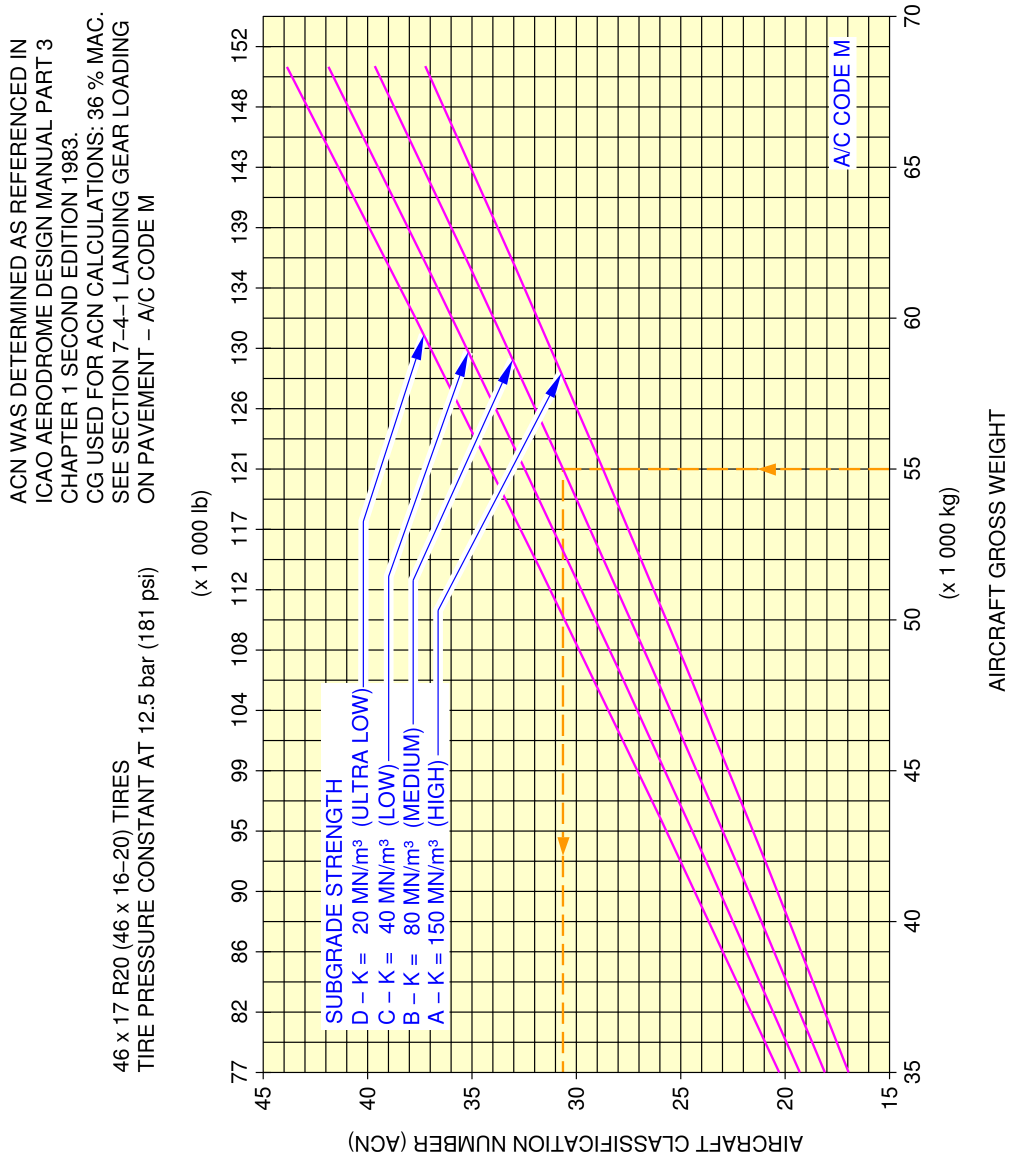
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-059-A01

**ON A/C A319-100



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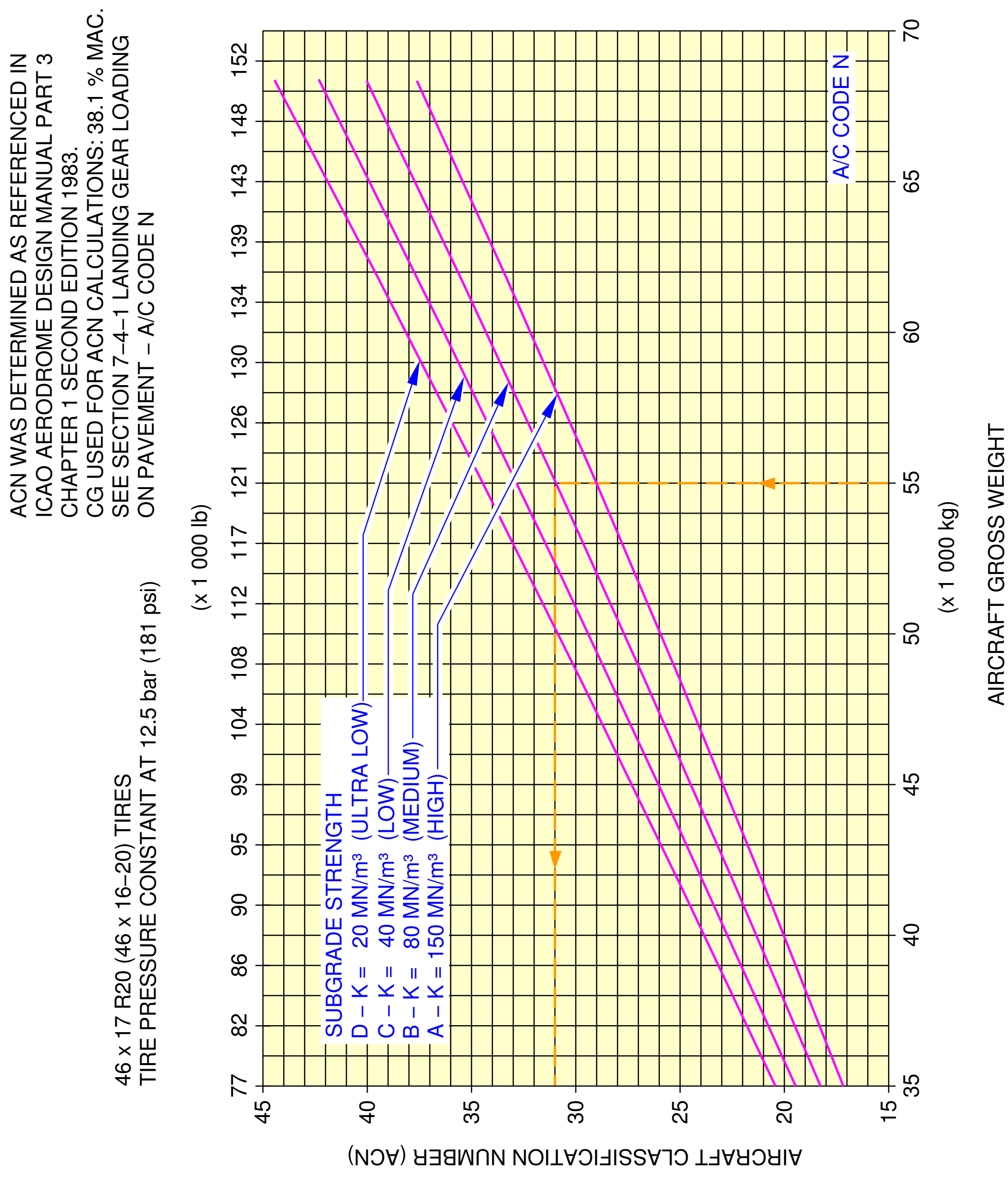
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-060-A01

****ON A/C A319-100**



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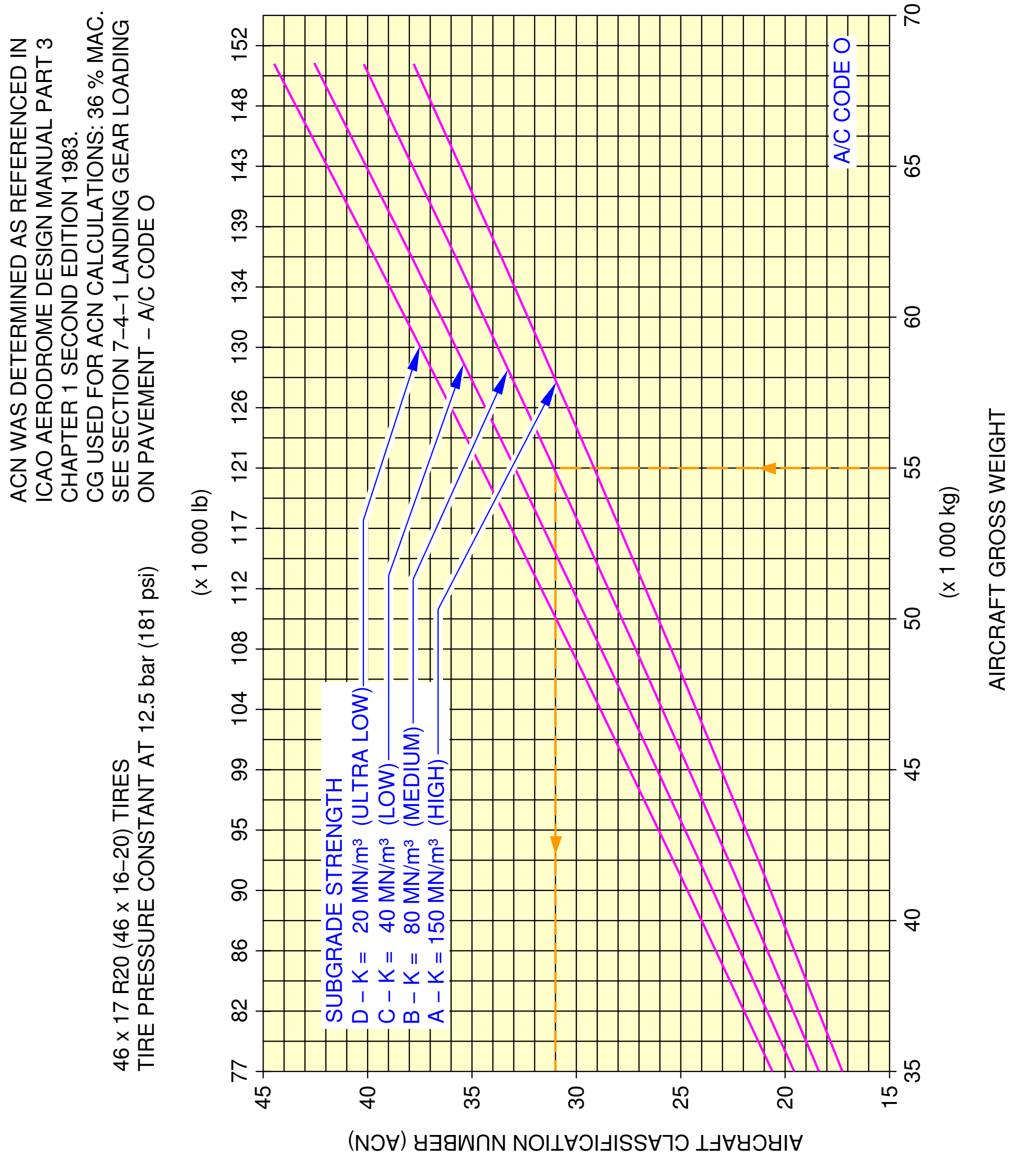
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-061-A01

**ON A/C A319-100



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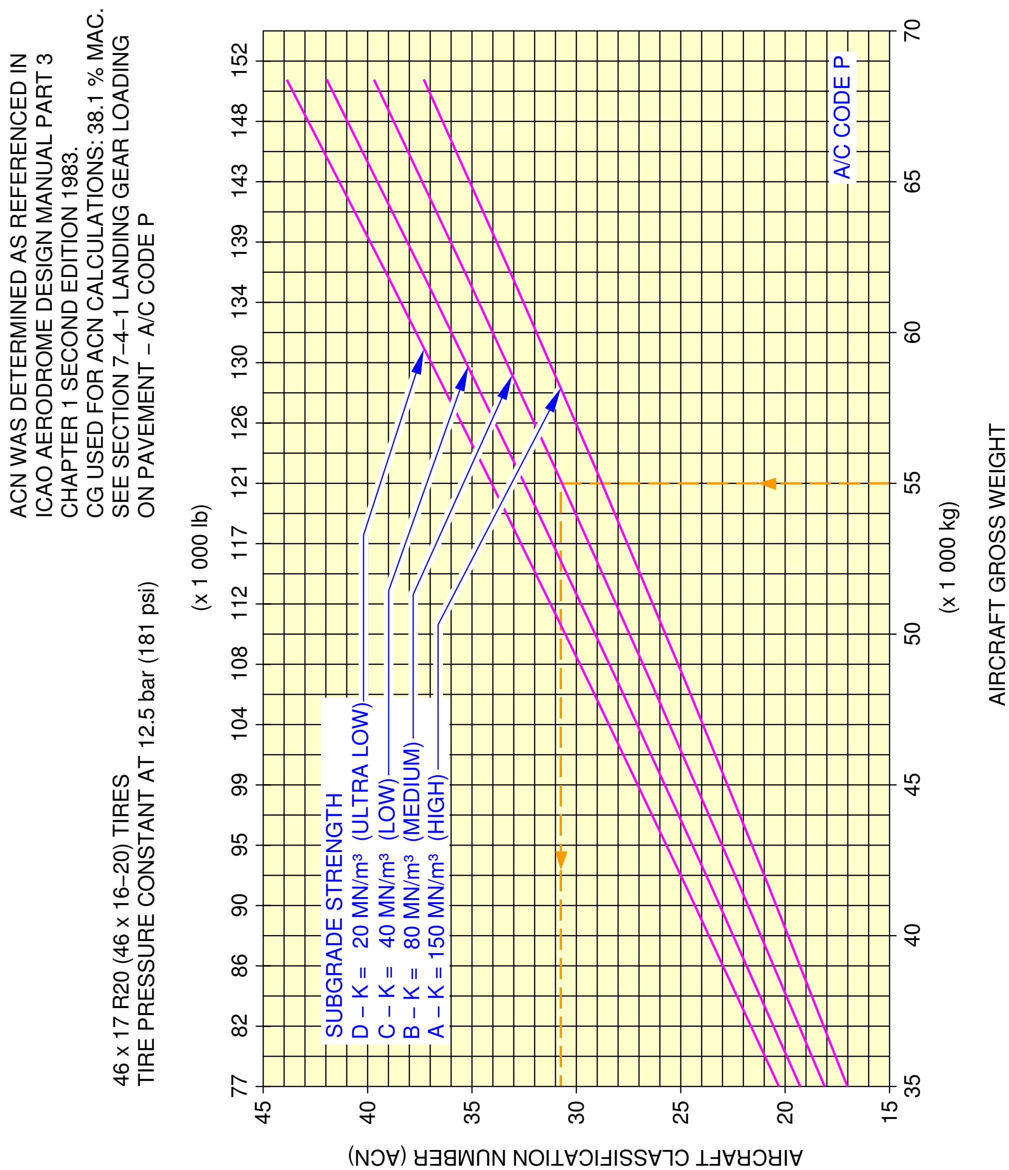
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-062-A01

****ON A/C A319-100**



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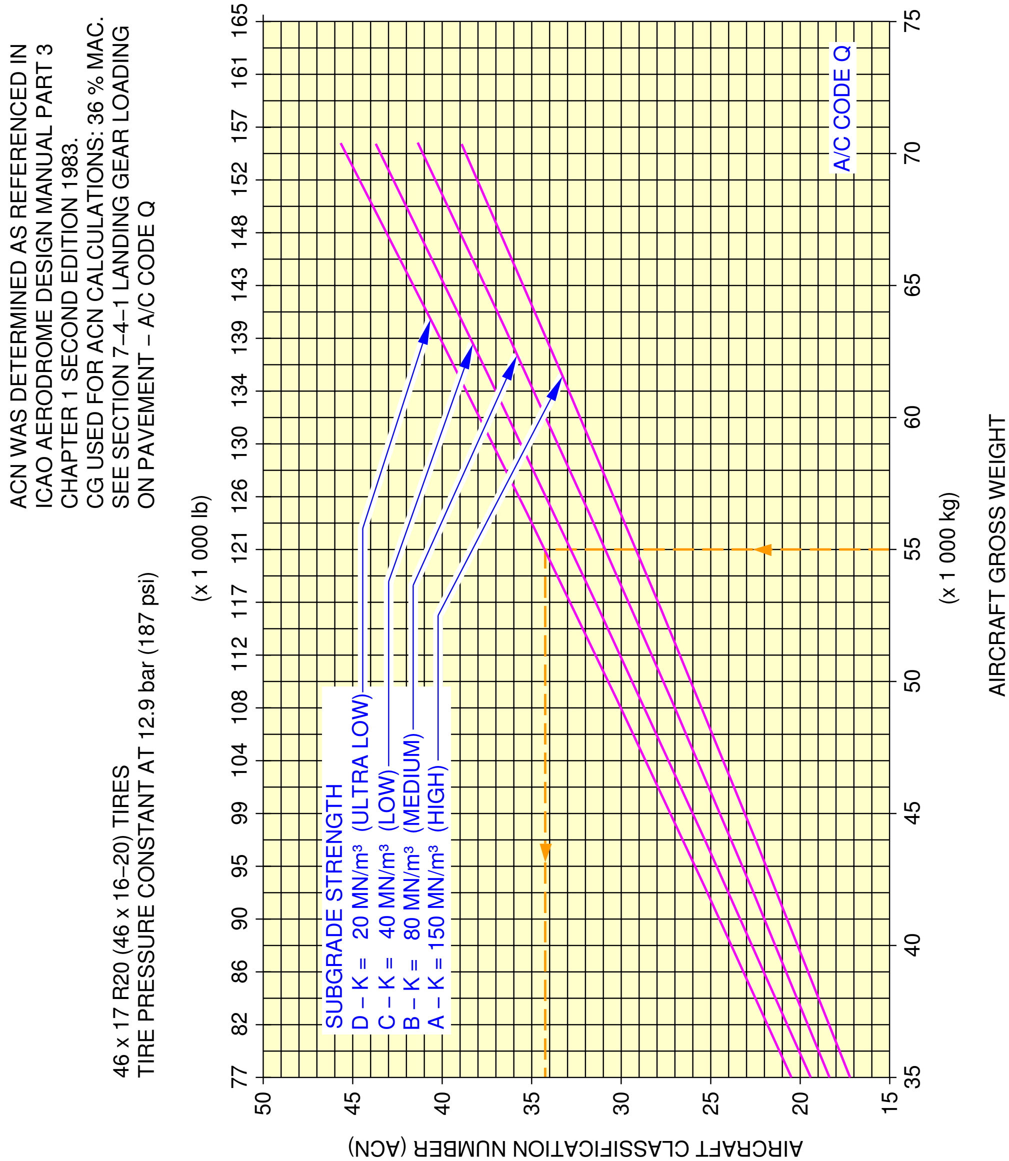
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-063-A01

**ON A/C A319-100



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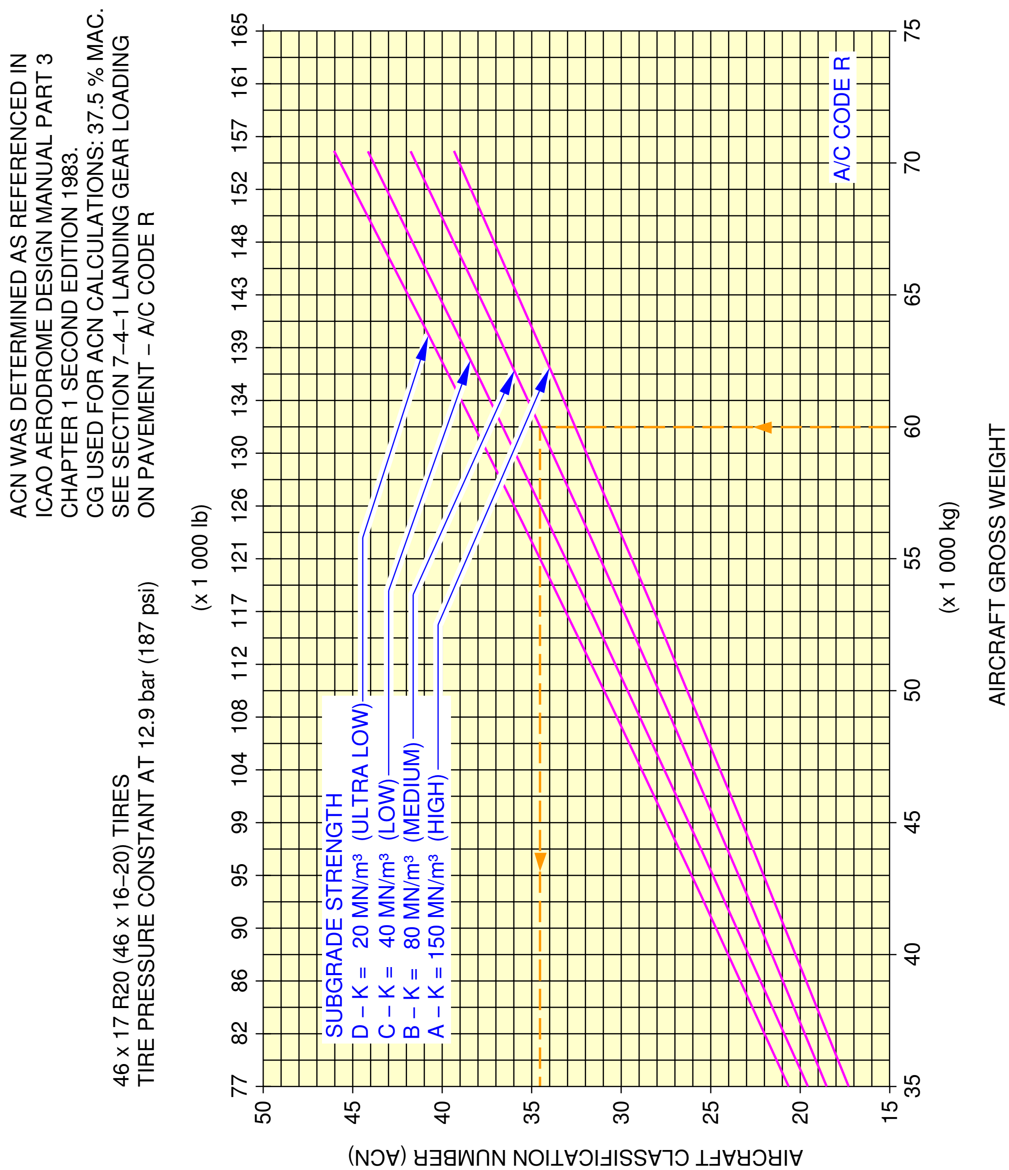
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-064-A01

**ON A/C A319-100



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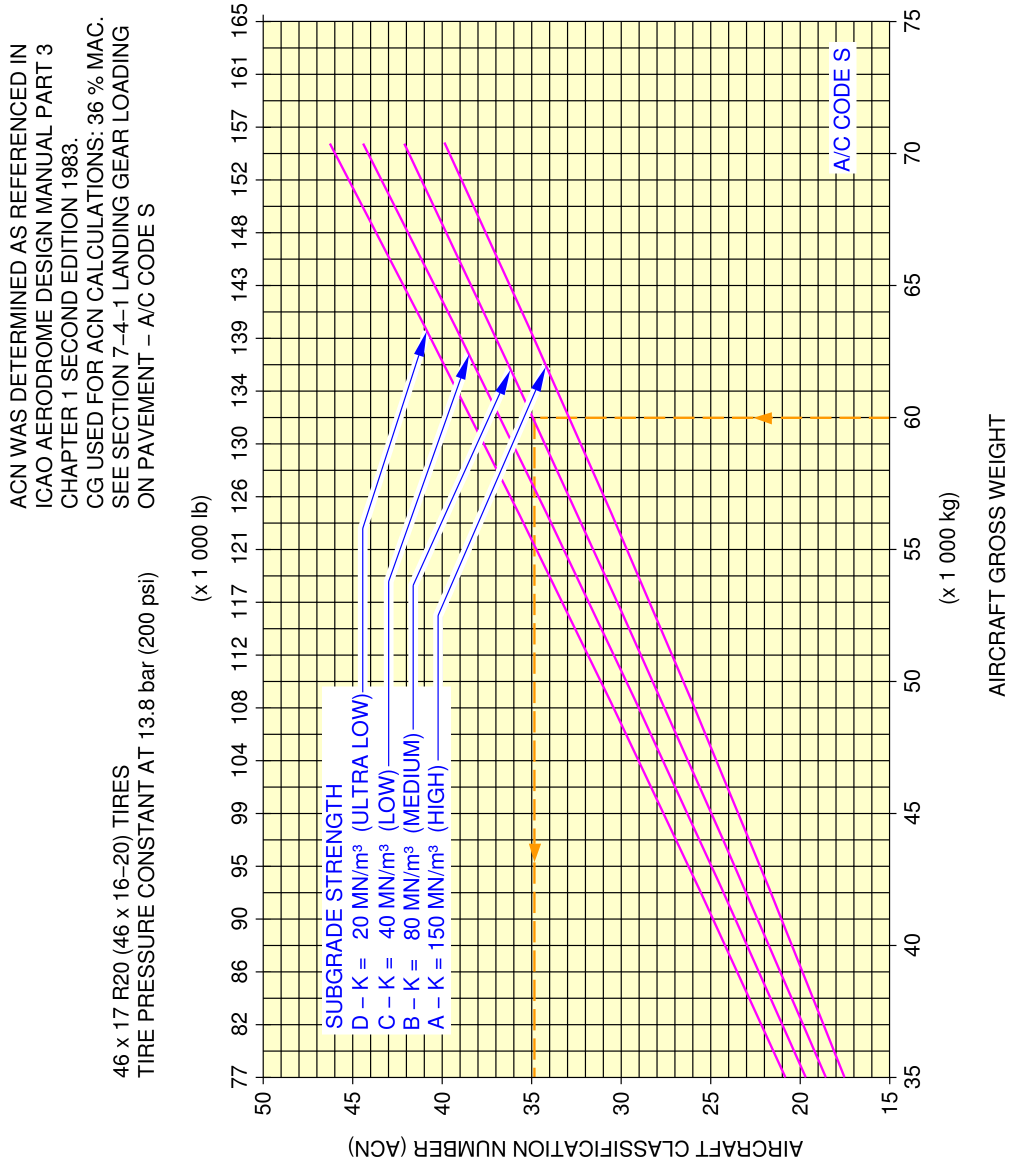
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-065-A01

**ON A/C A319-100



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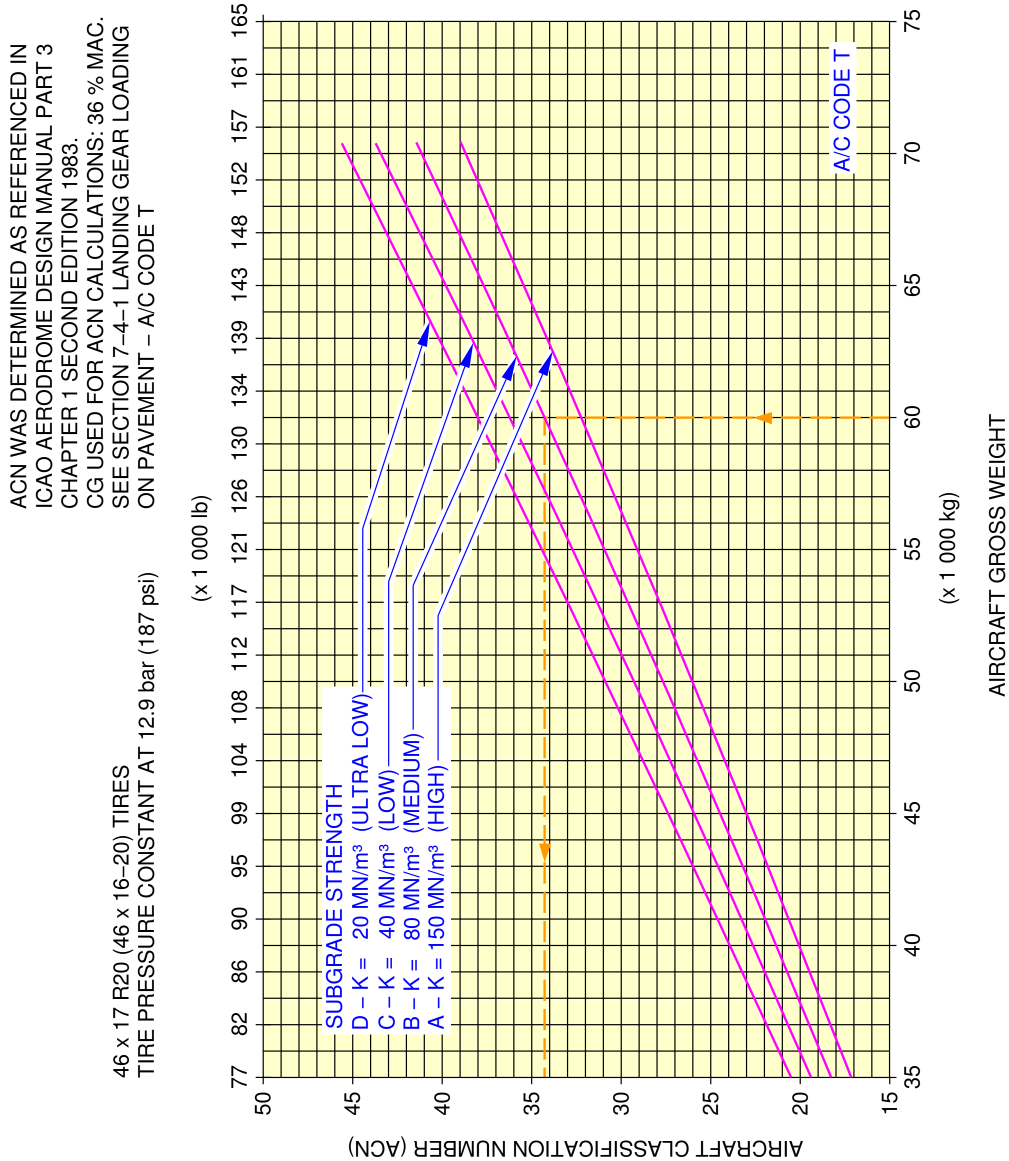
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-066-A01

**ON A/C A319-100



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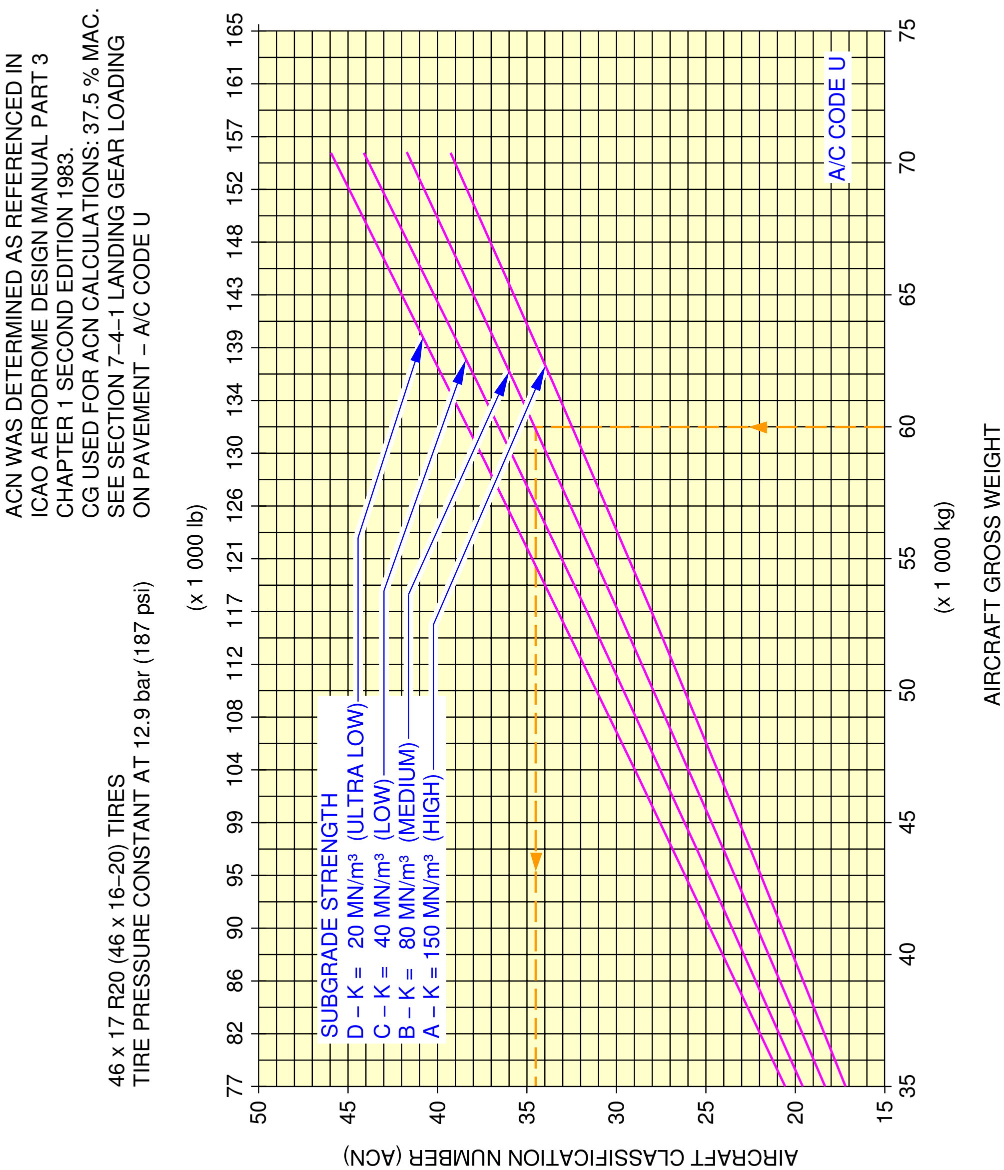
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-067-A01

****ON A/C A319-100**



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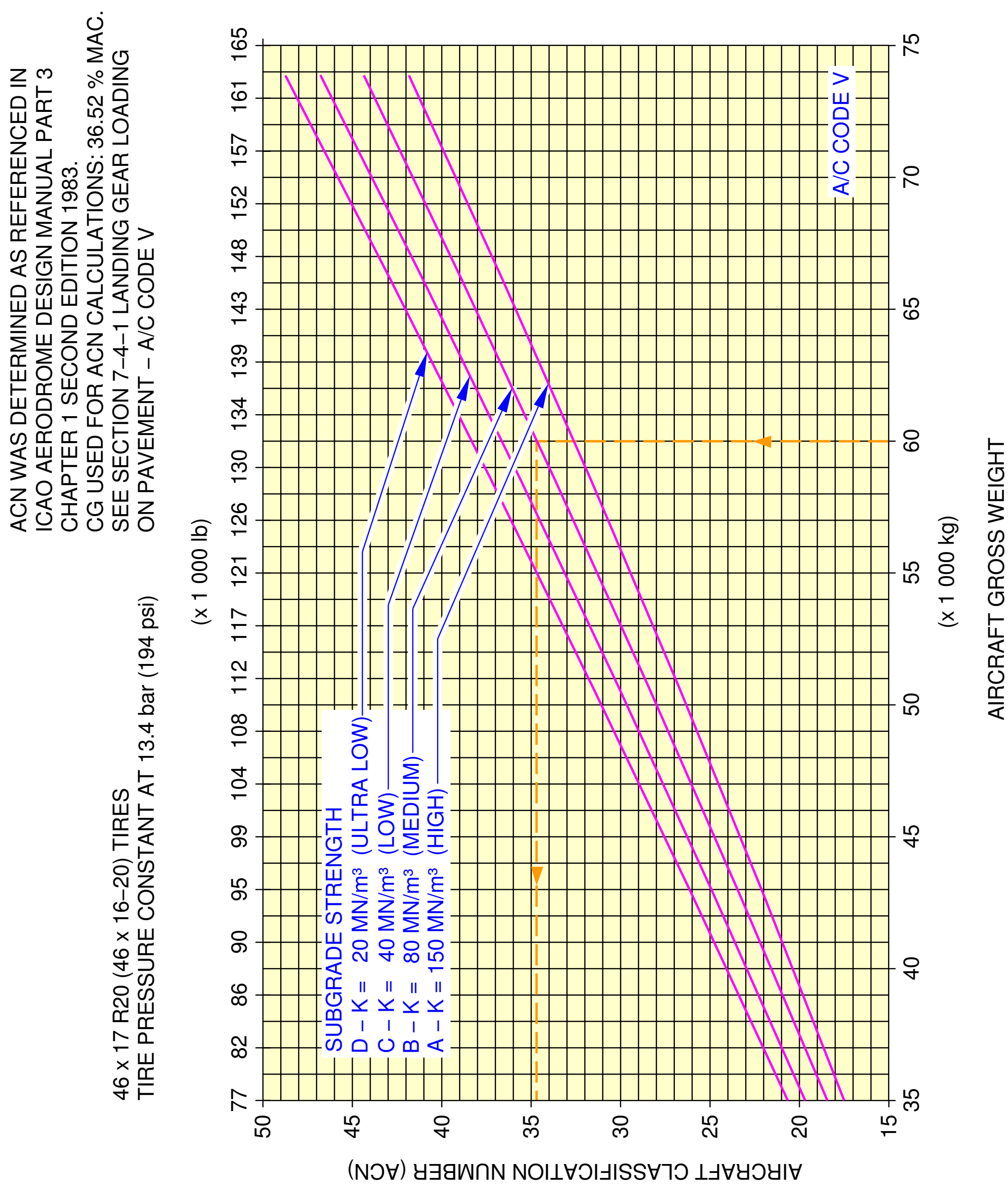
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-068-A01

**ON A/C A319-100



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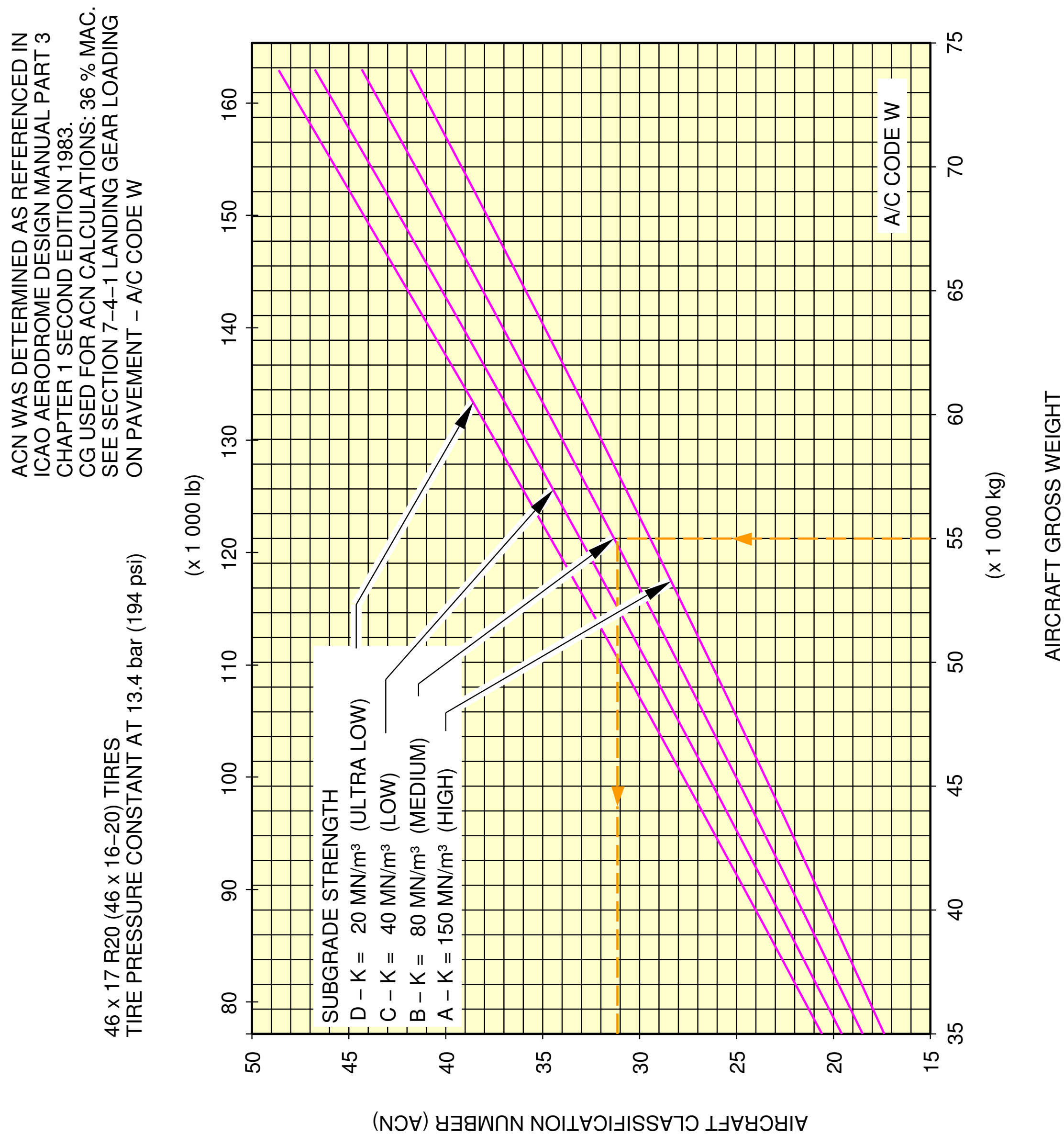
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-069-A01

****ON A/C A319-100**



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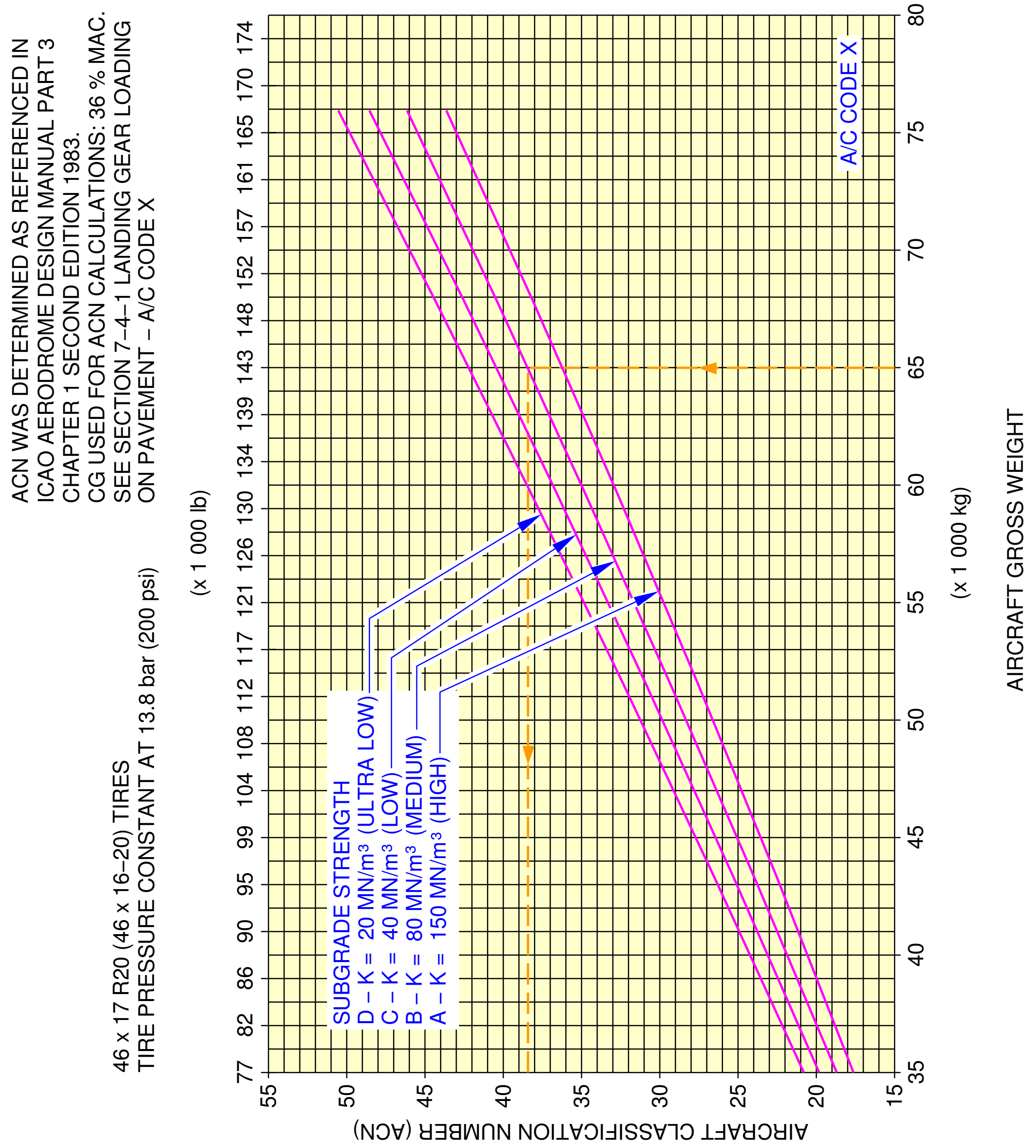
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-070-A01

**ON A/C A319-100



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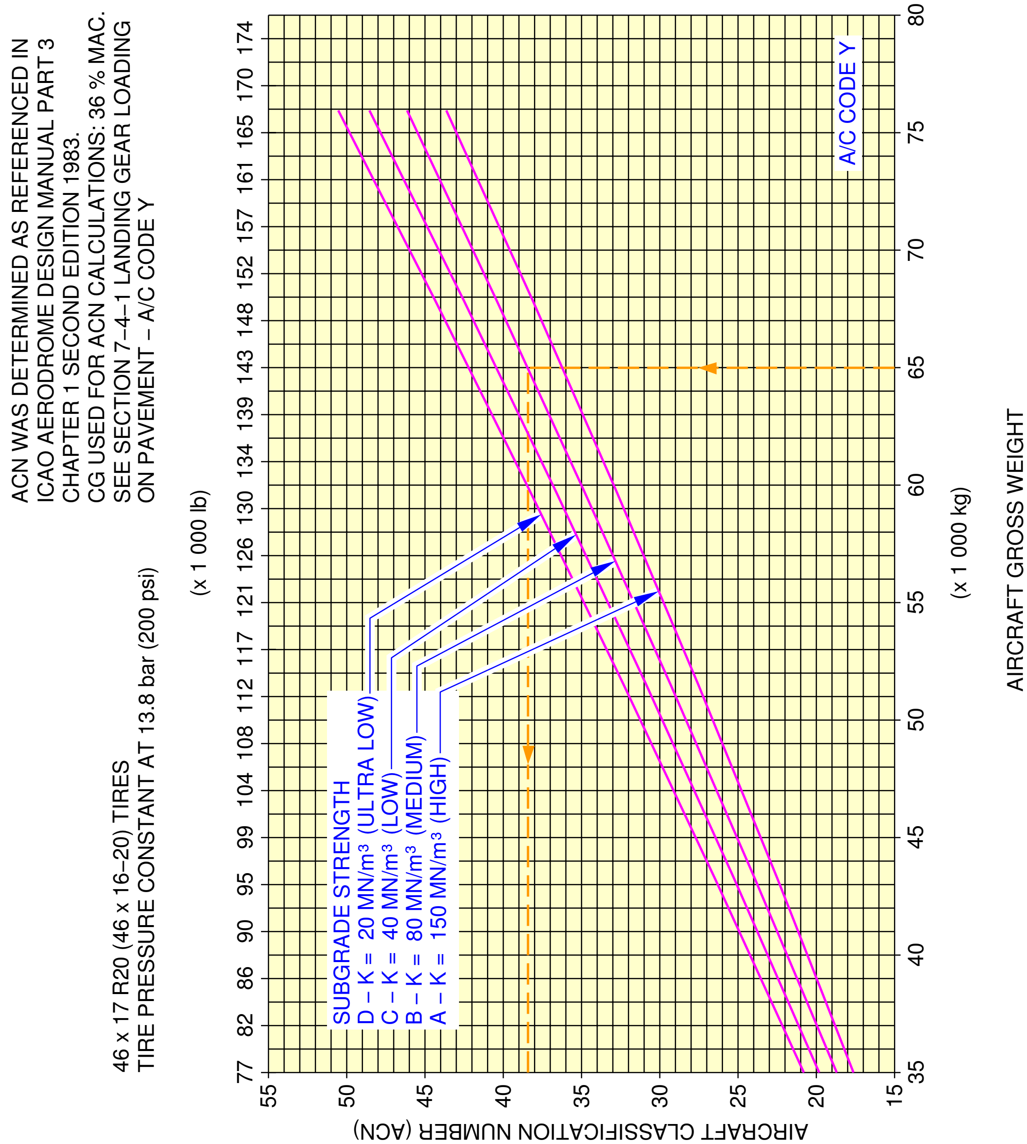
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-071-A01

****ON A/C A319-100**



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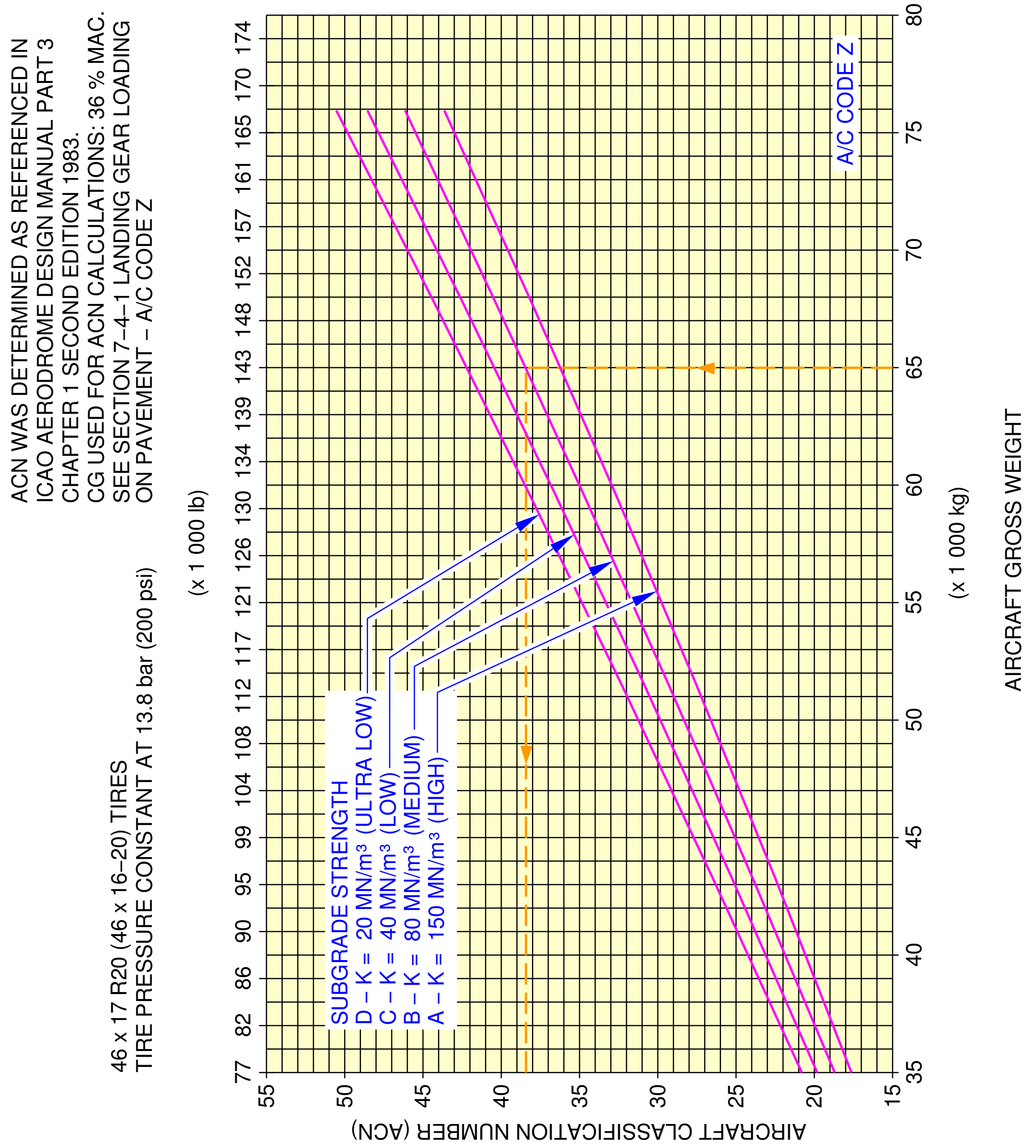
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-072-A01

**ON A/C A319-100



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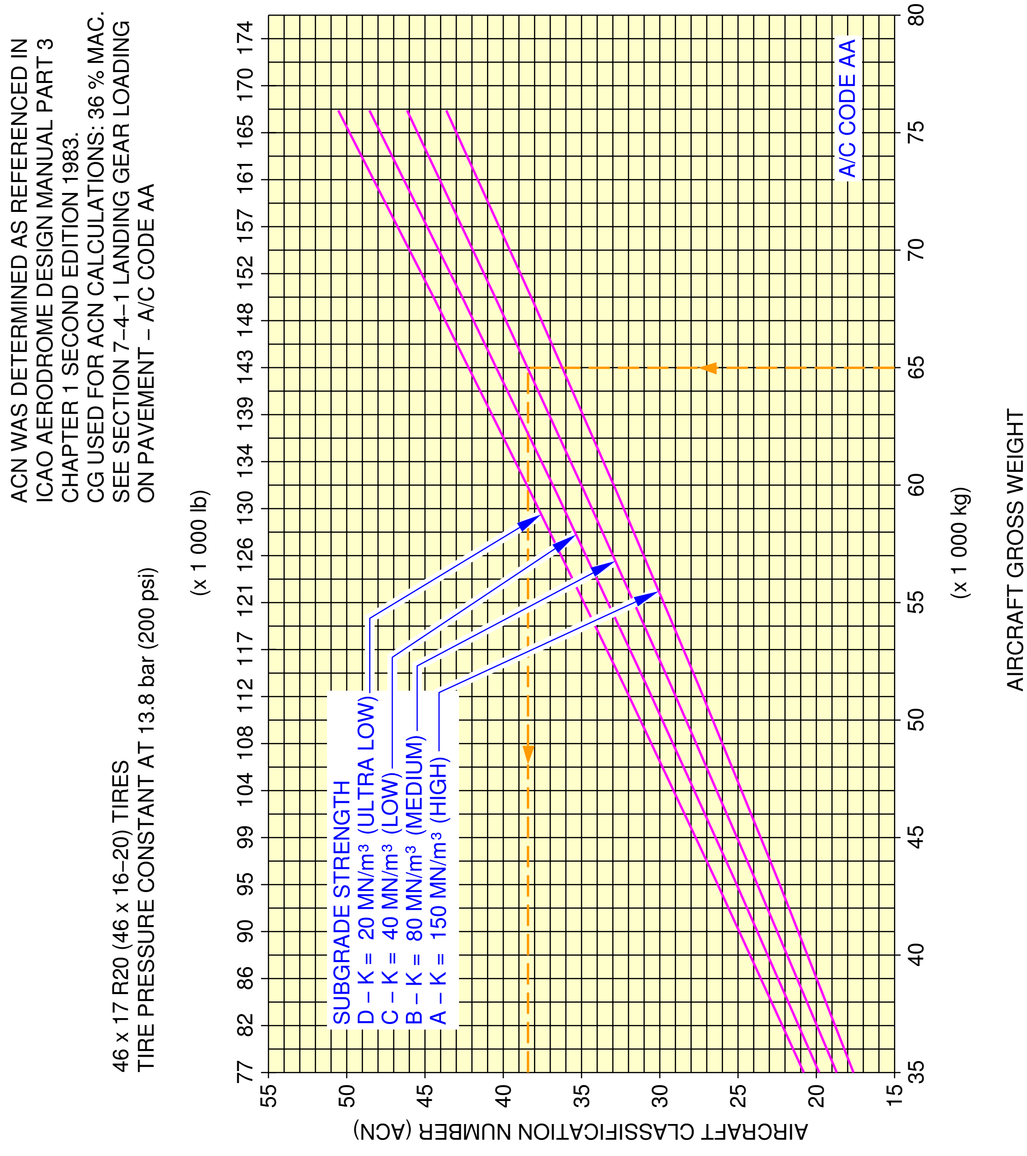
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-073-A01

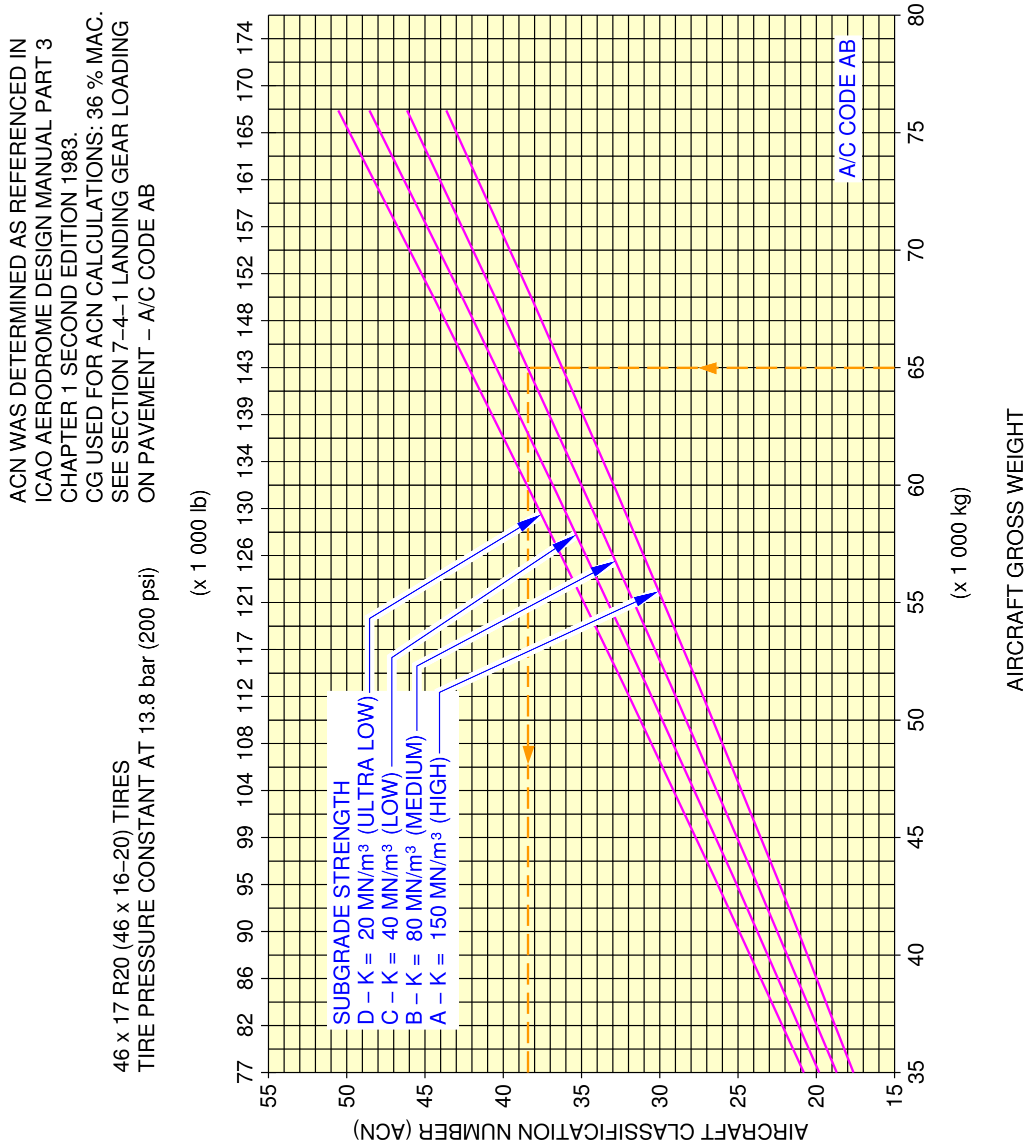
**ON A/C A319-100



N_AC_070902_1_0740101_01_00

Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-074-A01

**ON A/C A319-100



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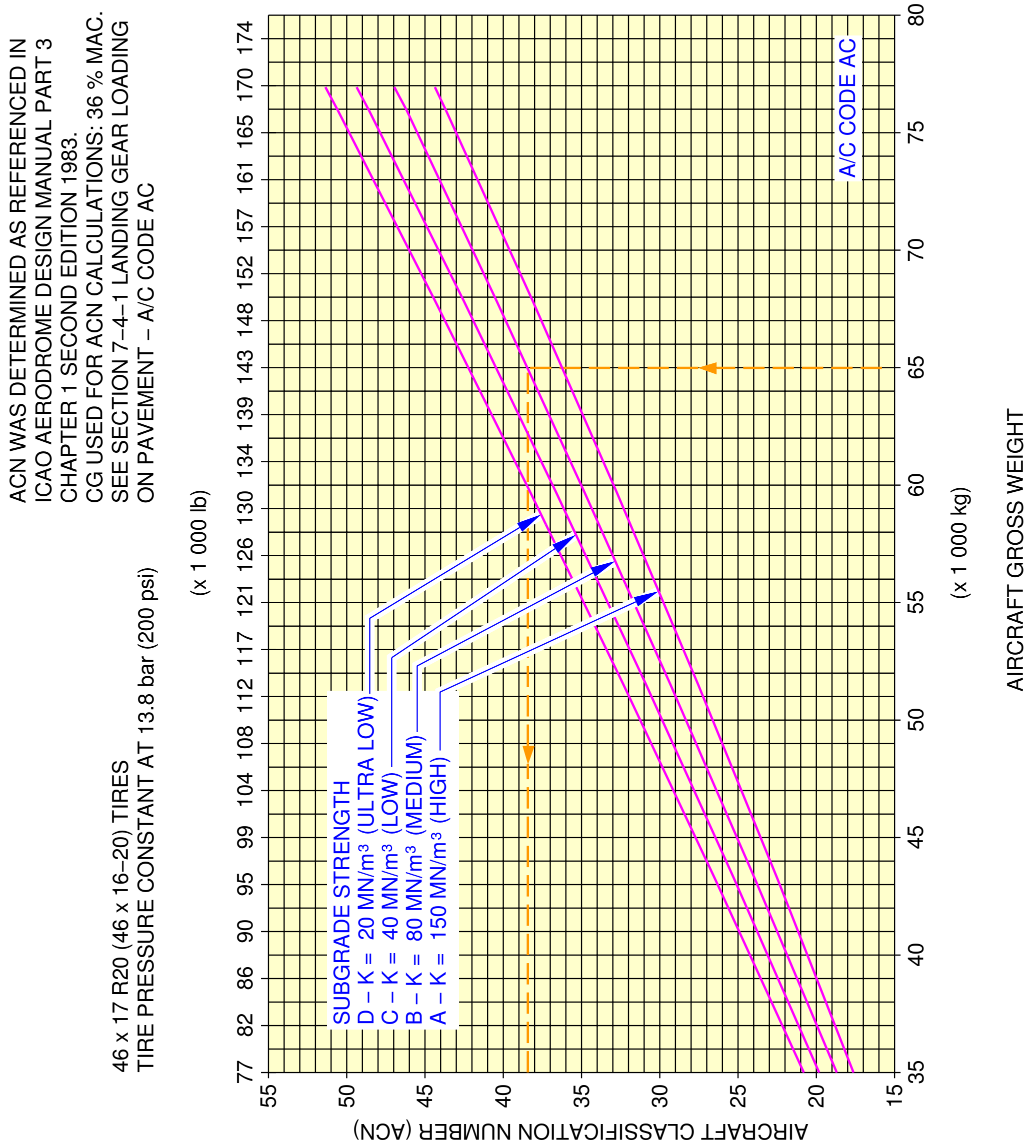
Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-075-A01

**ON A/C A319-100



N_AC_070902_1_0770101_01_00

Aircraft Classification Number – Rigid Pavement
FIGURE-7-9-2-991-077-A01

SCALED DRAWINGS

8-0-0 SCALED DRAWINGS

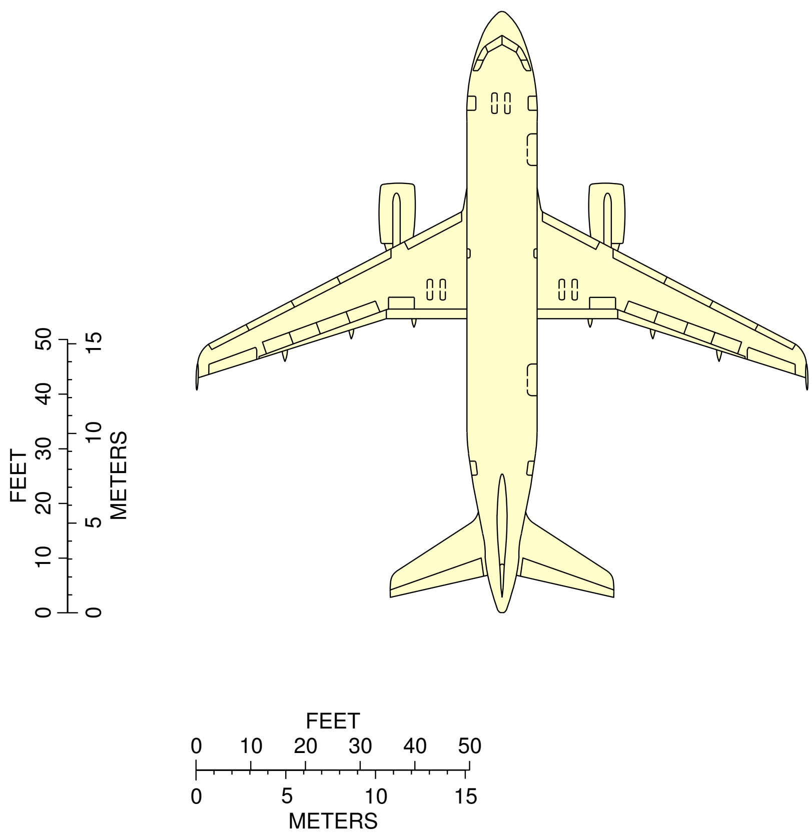
****ON A/C A319-100**

Scaled Drawings

1. This section provides the scaled drawings.

   NOTE : When printing this drawing, make sure to adjust for proper scaling.

**ON A/C A319-100



NOTE: WHEN PRINTING THIS DRAWING, MAKE SURE TO ADJUST FOR PROPER SCALING.

N_AC_080000_1_0020101_01_00

Scaled Drawing
FIGURE-8-0-0-991-002-A01

AIRCRAFT RESCUE AND FIRE FIGHTING

10-0-0 AIRCRAFT RESCUE AND FIRE FIGHTING

****ON A/C A319-100**

Aircraft Rescue and Fire Fighting

1. Aircraft Rescue and Fire Fighting Charts
   This sections gives 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 A319-100

AIRBUS

A319

Aircraft Rescue and Fire Fighting Chart

ARFC

NOTE:

THIS CHART GIVES THE GENERAL LAYOUT OF THE A319 STANDARD VERSION.
THE NUMBER AND ARRANGEMENT OF THE INDIVIDUAL ITEMS VARY WITH THE CUSTOMERS.
FIGURES CONTAINED IN THIS POSTER ARE AVAILABLE SEPARATLY IN THE CHAPTER 10 OF THE "AIRCRAFT CHARACTERISTICS – AIRPORT AND MAINTENANCE PLANNING" DOCUMENT.

ISSUED BY:

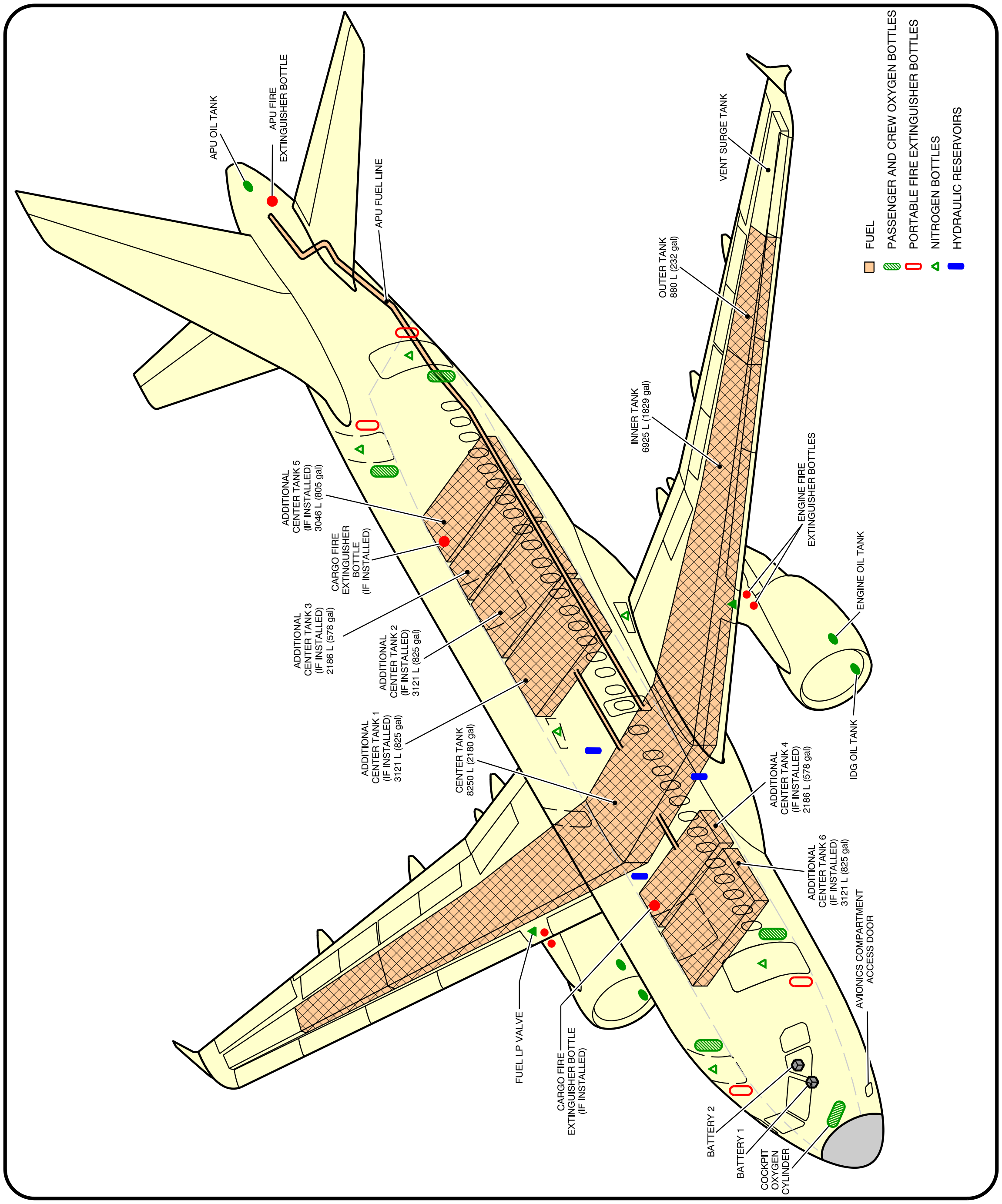
AIRBUS S.A.S
CUSTOMER SERVICES
TECHNICAL DATA SUPPORT AND SERVICES
31707 BLAGNAC CEDEX
FRANCE

REVISION DATE: JUNE 2012
REFERENCE : N_RF_000000_1_A319000
SHEET 1/2

N_AC_100000_1_0010201_01_00

Front Page
FIGURE-10-0-0-991-001-B01

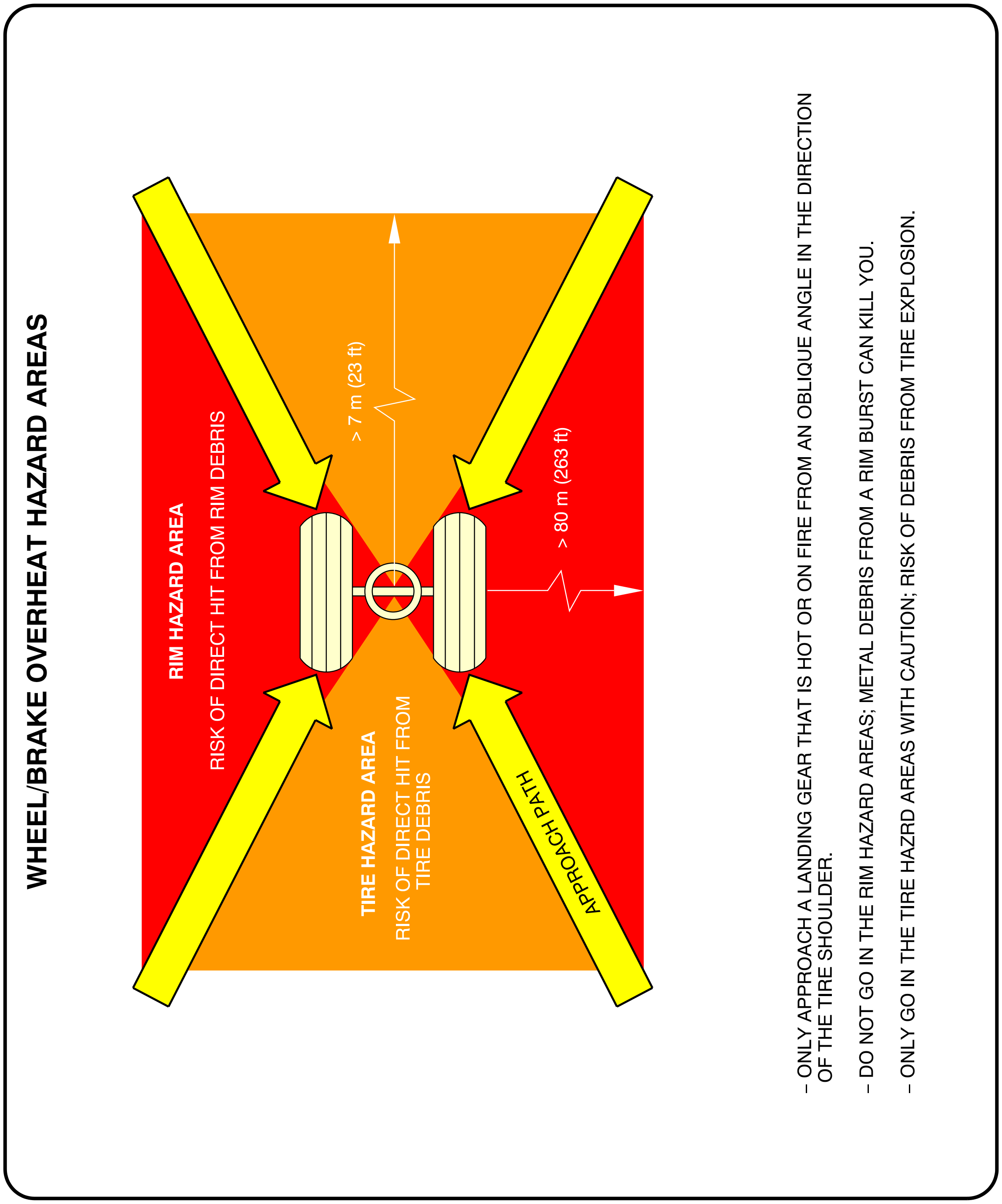
**ON A/C A319-100



N_AC_100000_1_0020201_01_00

Highly Flammable and Hazardous Materials and Components
FIGURE-10-0-0-991-002-B01

**ON A/C A319-100



Wheel Safety Area
(Sheet 1 of 2)
FIGURE-10-0-0-991-003-A01

**ON A/C A319-100

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.

<u>BRAKE OVERHEAT:</u>

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 CO2. THESE COOLING AGENTS (AND ESPECIALLY CO2, WHICH HAS A VERY STRONG COOLING EFFECT) CAN CAUSE THERMAL SHOCKS AND BURST OF HOT PARTS.

<u>LANDING GEAR FIRE:</u>

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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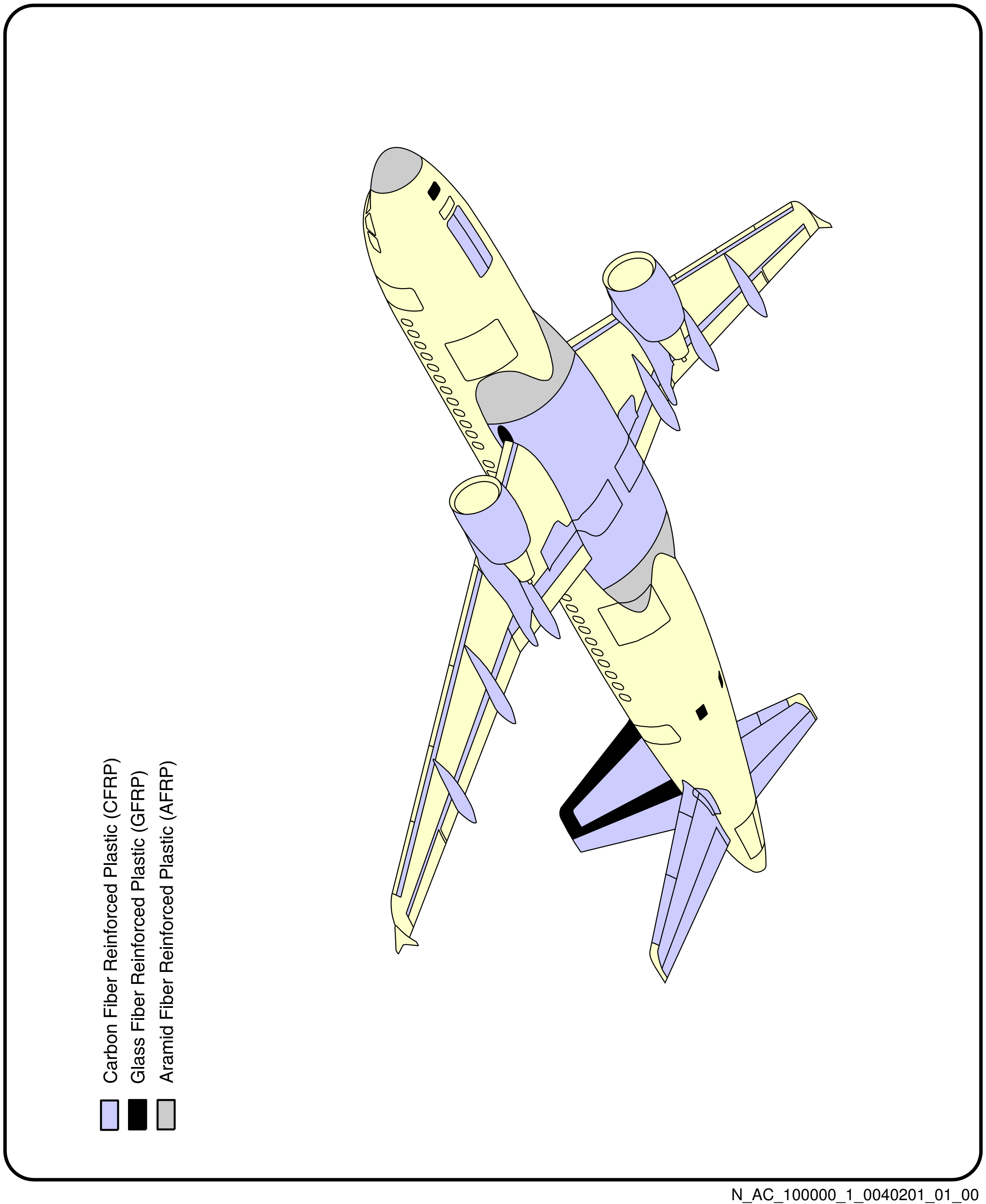
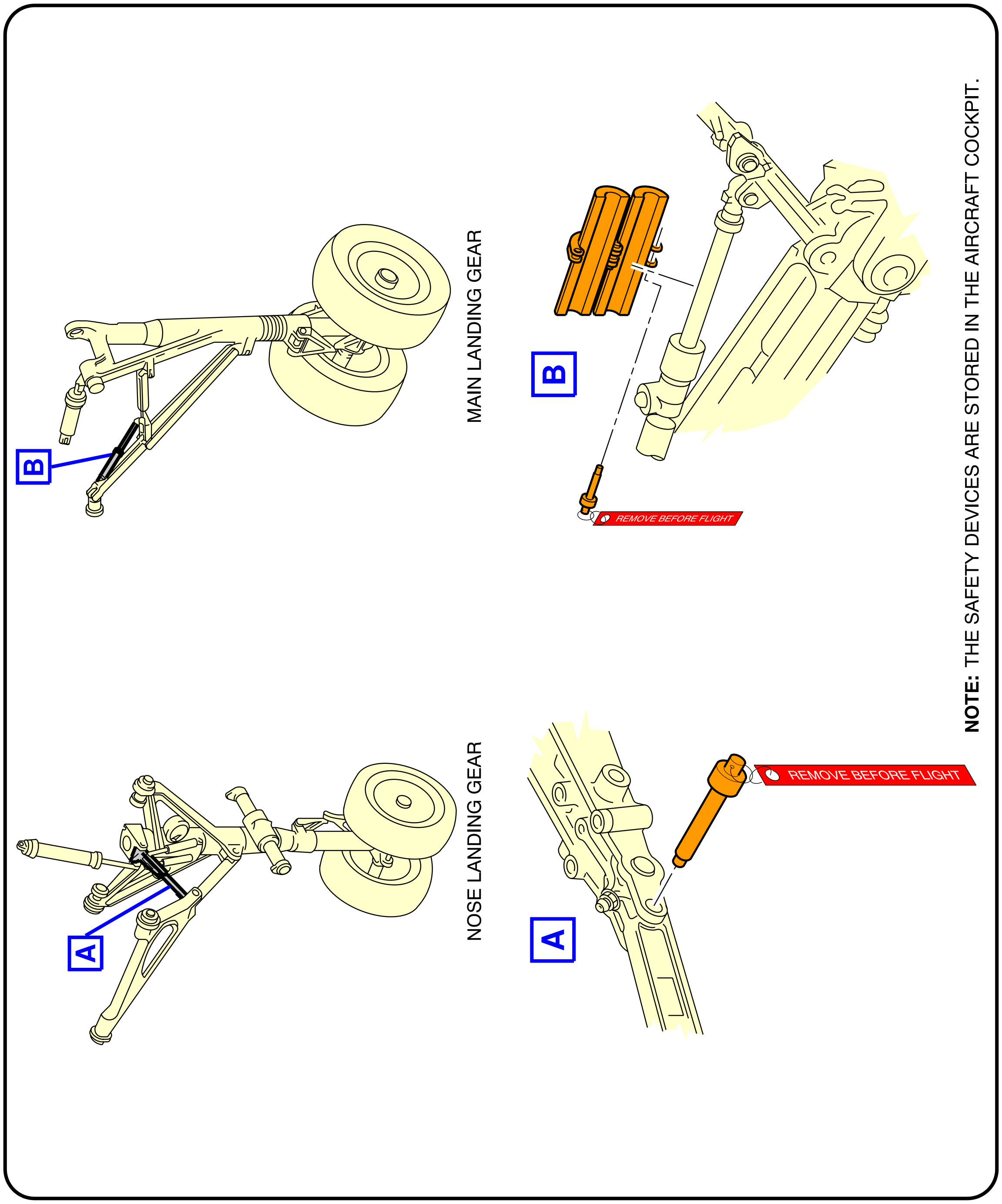
Wheel Safety Area
Recommendations (Sheet 2 of 2)
FIGURE-10-0-0-991-003-A01

**ON A/C A319-100



Composite Materials
FIGURE-10-0-0-991-004-B01

**ON A/C A319-100



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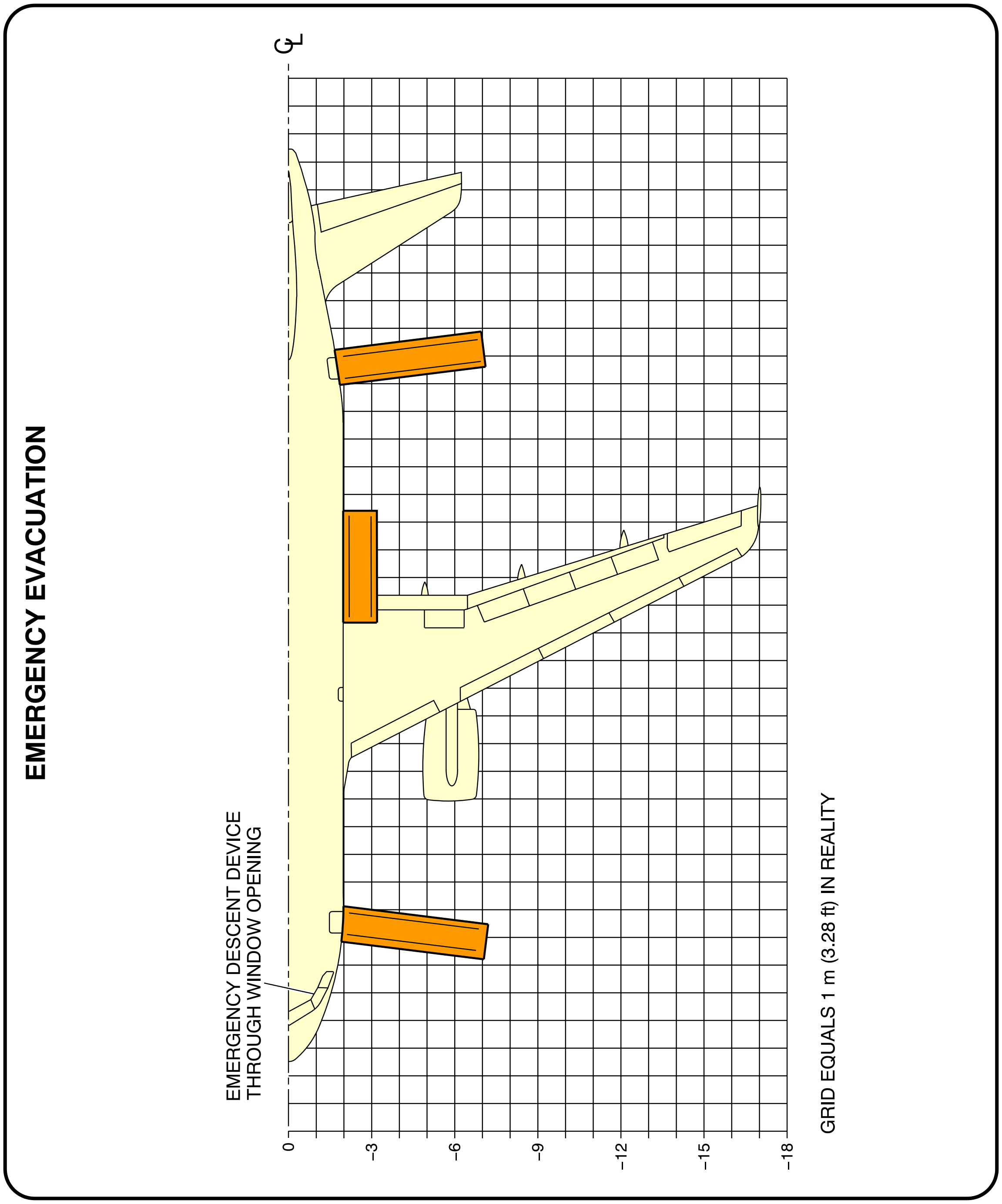
LG Ground Lock Safety Devices
FIGURE-10-0-0-991-005-A01

**ON A/C A319-100



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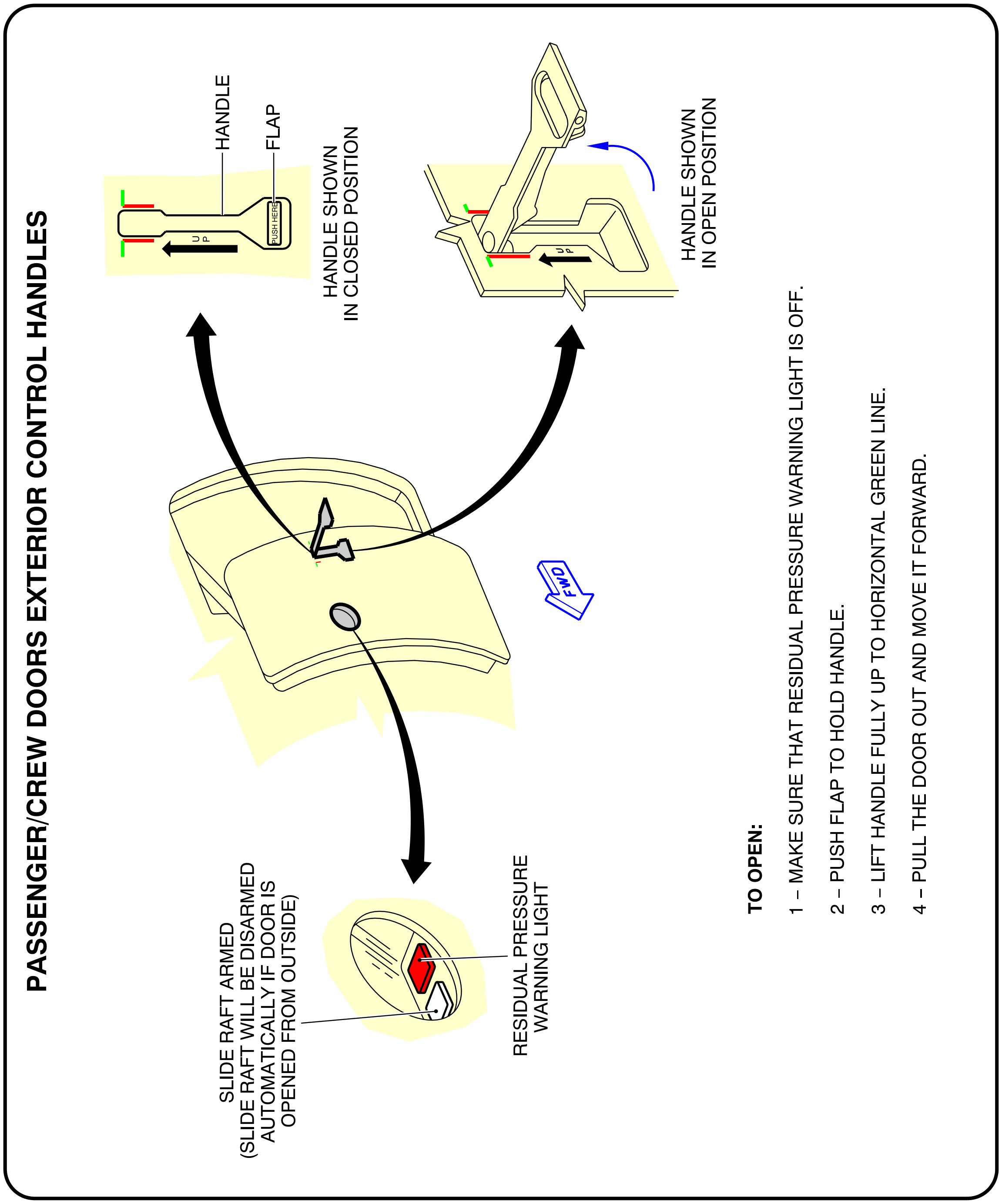
Evacuation/Escape Slide/Raft
FIGURE-10-0-0-991-006-B01

**ON A/C A319-100



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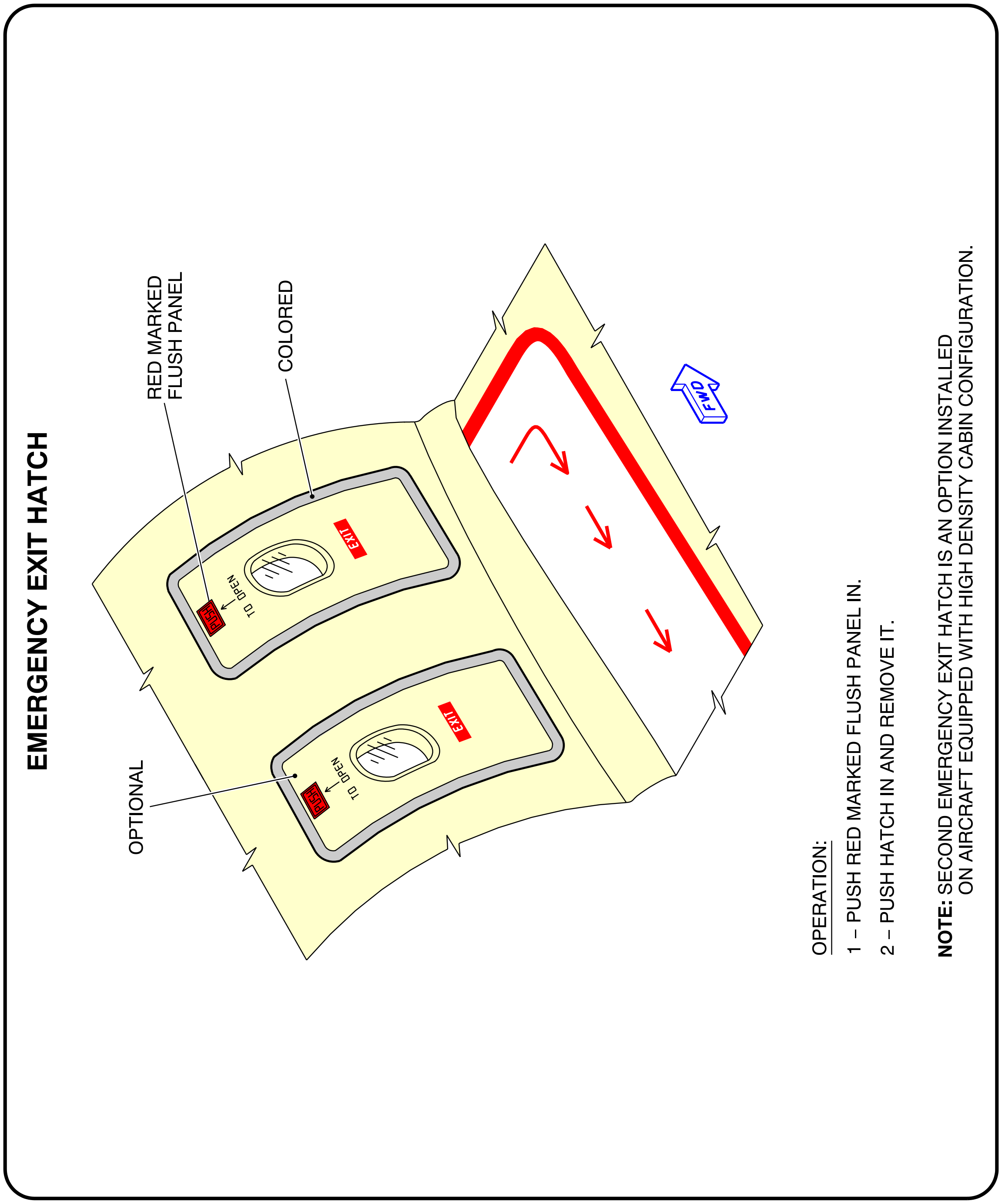
Pax/Crew Doors
FIGURE-10-0-0-991-007-A01

**ON A/C A319-100



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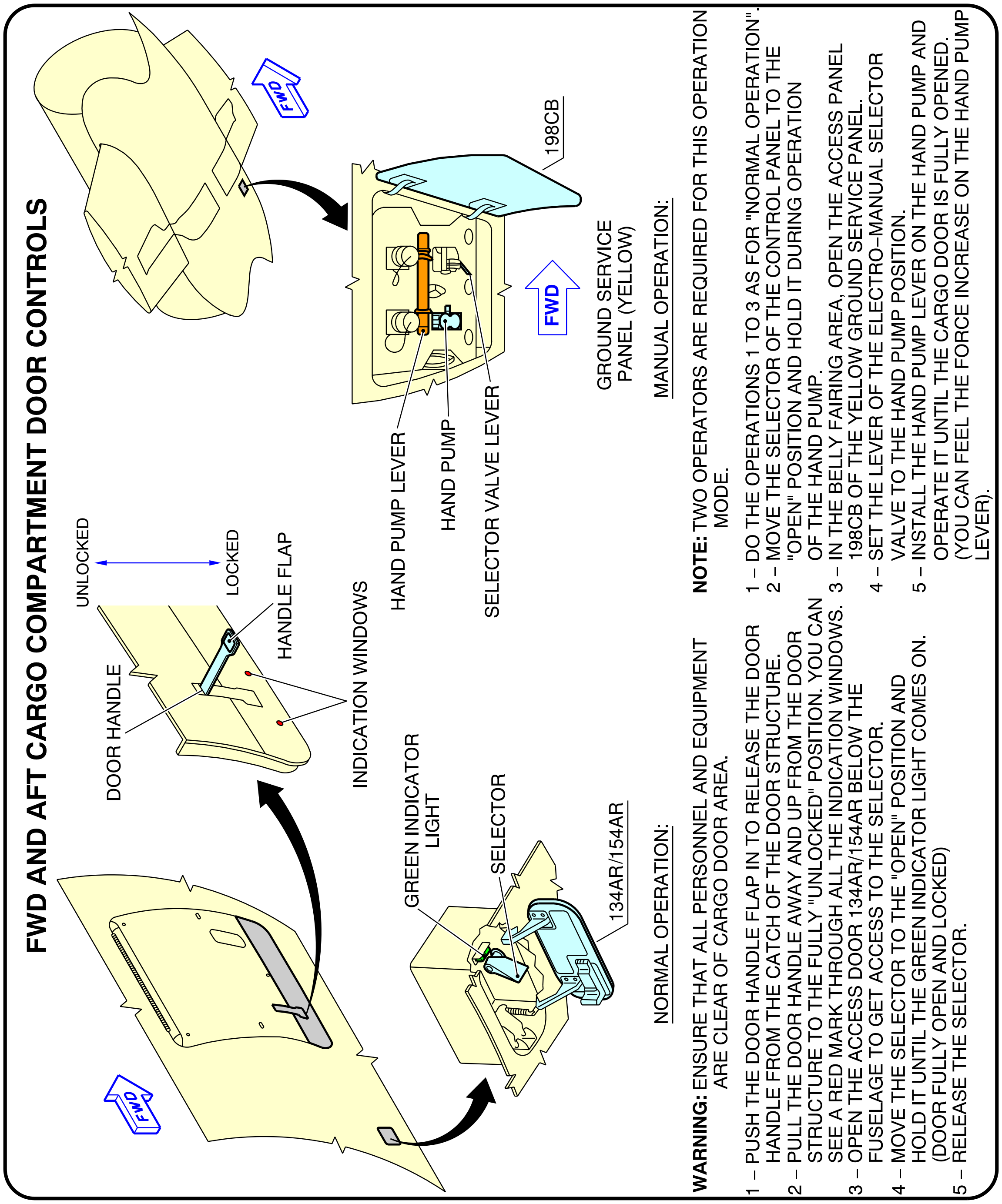
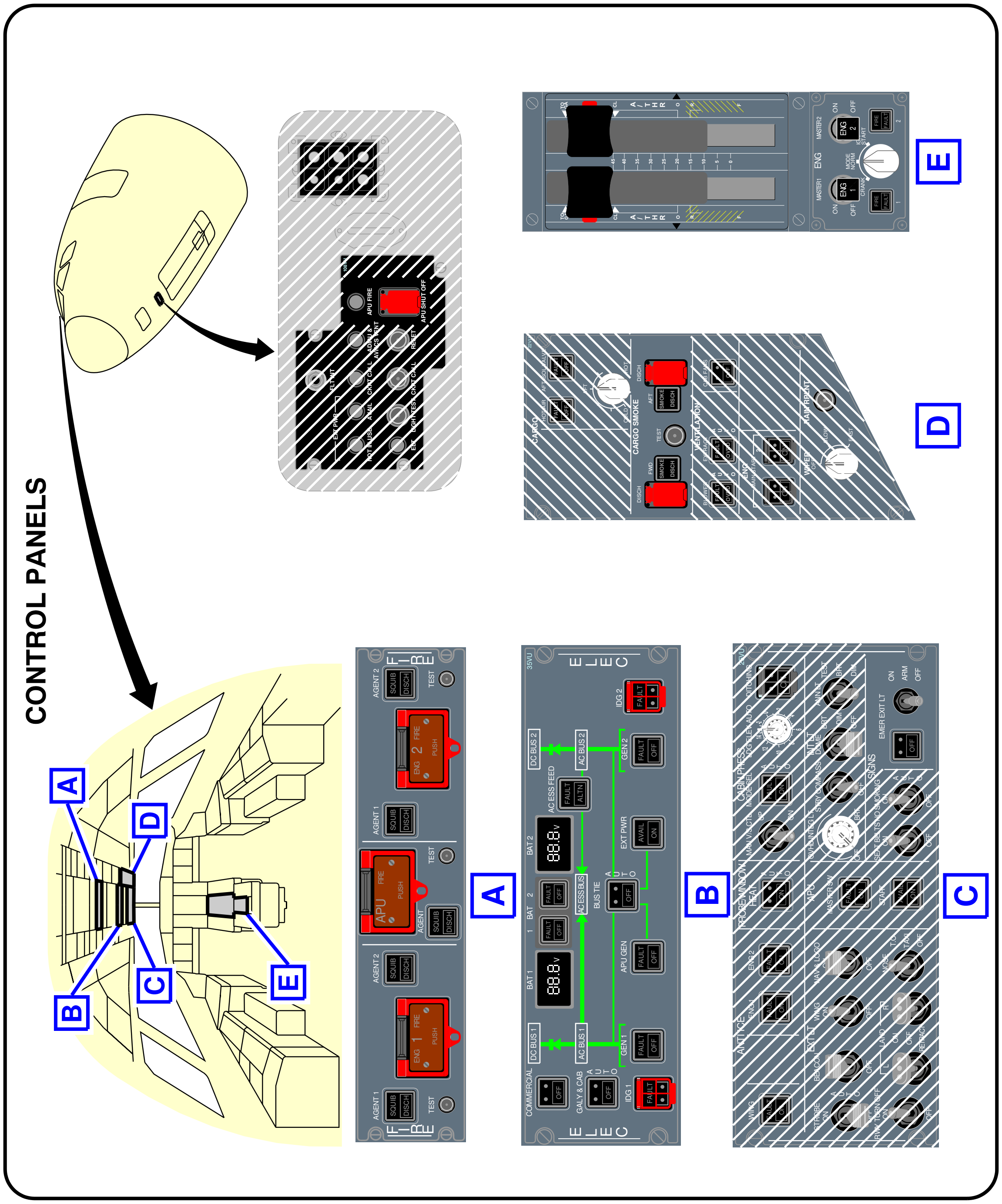
Emergency Exit Hatch
FIGURE-10-0-0-991-008-B01

**ON A/C A319-100



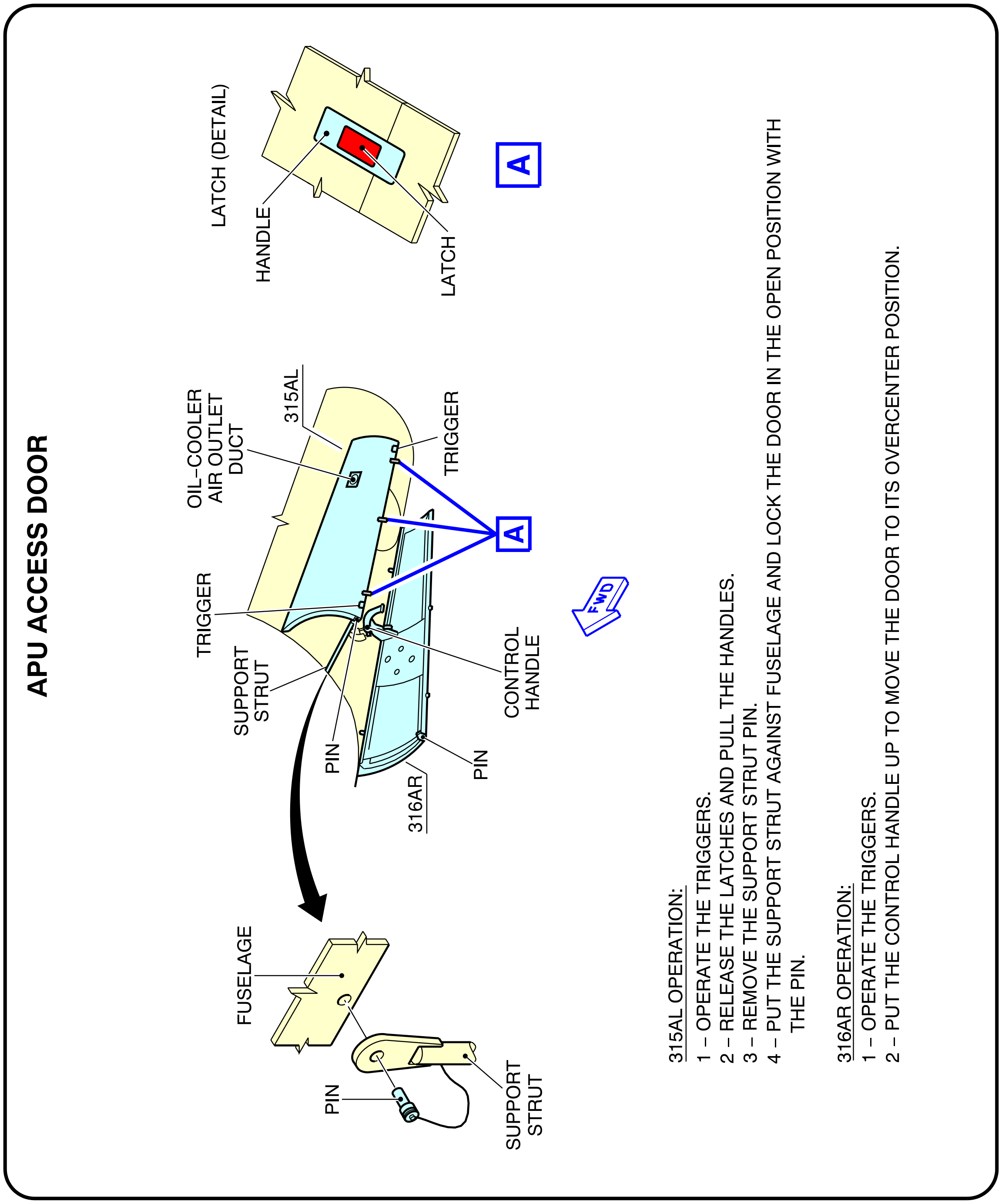
FWD and AFT Lower Deck Cargo Doors
FIGURE-10-0-0-991-009-A01

**ON A/C A319-100



Control Panels
FIGURE-10-0-0-991-012-A01

**ON A/C A319-100



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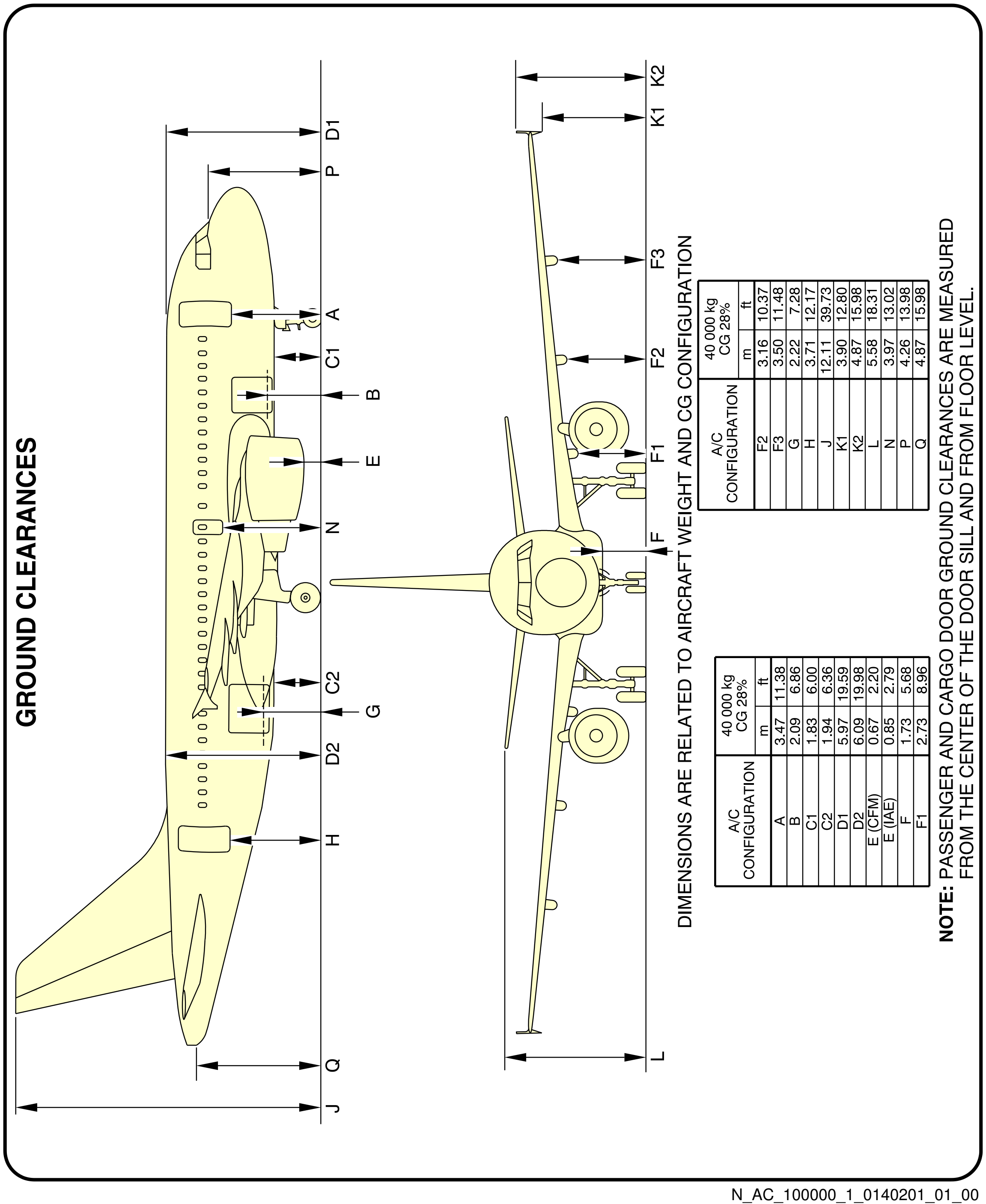
APU Access Door
FIGURE-10-0-0-991-013-A01

****ON A/C A319-100**

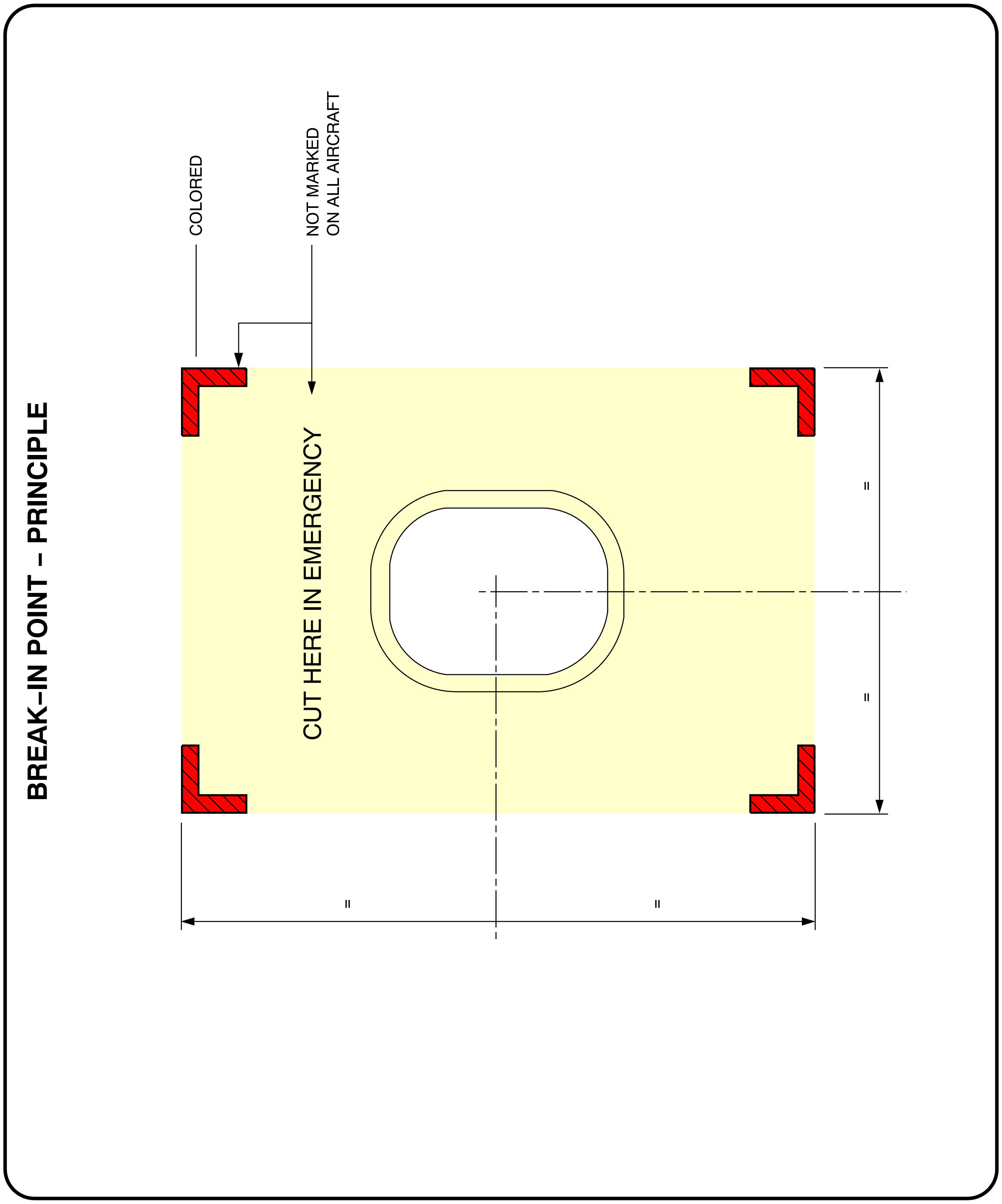


A/C CONFIGURATION	40 000 kg CG 28%	
	m	ft
A	3.47	11.38
B	2.09	6.86
C1	1.83	6.00
C2	1.94	6.36
D1	5.97	19.59
D2	6.09	19.98
E (CFM)	0.67	2.20
E (IAE)	0.85	2.79
F	1.73	5.68
F1	2.73	8.96

A/C CONFIGURATION	40 000 kg CG 28%	
	m	ft
F2	3.16	10.37
F3	3.50	11.48
G	2.22	7.28
H	3.71	12.17
J	12.11	39.73
K1	3.90	12.80
K2	4.87	15.98
L	5.58	18.31
N	3.97	13.02
P	4.26	13.98
Q	4.87	15.98

Aircraft Ground Clearances
FIGURE-10-0-0-991-014-B01

**ON A/C A319-100



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Structural Break-in Points
FIGURE-10-0-0-991-015-A01