

AIRBUS

A318/A319/A320/A321



WEIGHT AND BALANCE MANUAL

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Issue date: 23 APR 26

This is the WEIGHT AND BALANCE MANUAL at issue date 23 APR 26 for the A318/A319/A320/A321 and replacing last issue dated 16 APR 26

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Please incorporate this revision as follow:

Localization Subsection Title	Remove	Insert
		Rev. Date
PLP-LESS LIST OF EFFECTIVE SECTIONS/SUBSECTIONS	ALL	23 APR 26
PLP-LEDU LIST OF EFFECTIVE DOCUMENTARY UNITS	ALL	23 APR 26
PLP-LADU LIST OF APPROVED DOCUMENTARY UNITS	ALL	23 APR 26
CTL-PLP-TOC TABLE OF CONTENTS	ALL	23 APR 26
CTL-PLP-SOH SUMMARY OF HIGHLIGHTS	ALL	23 APR 26
CTL-GEN General	ALL	23 APR 26
CTL-LIM-FWD-INT Introduction	ALL	23 APR 26
CTL-LIM-FWD-FLL Floor Loading Limits	ALL	23 APR 26
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CTL-LIM-AFT-BCPP-CHL Cargo Hold Loading	ALL	23 APR 26
CTL-FUEL-QTY Fuel Quantities and H-Arms	ALL	23 APR 26

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(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

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	CTL-INT		Airbus Copyright & Export Control Classification	00024266.0001001	09 MAR 26
	Criteria: ST1 Applicable to: ALL				
	CTL-INT		Purpose of the manual	00017214.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-INT		Organization	00017213.0001001	20 JAN 25
	Criteria: ST1 Applicable to: ALL				
	CTL-INT		Customization	00022199.0001001	19 JUL 24
	Criteria: ST1 Applicable to: ALL				
	CTL-INT		Revision	00017211.0001001	27 JUN 22
	Criteria: ST1 Applicable to: ALL				
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	Criteria: ST1 Applicable to: ALL				
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	Criteria: ST1 Applicable to: ALL				
	CTL-GEN		Abbreviations	00017223.0001001	19 JUL 24
	Criteria: ST1 Applicable to: ALL				
	CTL-GEN		Glossary	00017222.0001001	30 JAN 18
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	CTL-GEN		Units of Measurement	00017221.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GEN		Conversion Factors	00017220.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GEN		Aircraft Reference System	00017219.0013001	17 JUN 21
	Criteria: 20268, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253				
	CTL-GEN		Aircraft Reference System	00017219.0008001	17 JUN 21
	Criteria: 160500, 20268, ST1 Applicable to: MSN 05746, 07784, 07792				
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	CTL-GEN		Aircraft Main Dimensions	00017217.0013001	31 JUL 18
	Criteria: 20268, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253				
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	CTL-GEN		Pitch Trim Setting	00017216.0011001	16 JUN 20
	Criteria: 20653, 22548, ST1 Applicable to: ALL				
	CTL-GEN		Effect of Moving Components on the Aircraft CG	00017215.0001001	25 AUG 20
	Criteria: 20802, ST1 Applicable to: ALL				
	CTL-LIM-INT		Introduction	00017224.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: ST1 Applicable to: ALL				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 010	00017238.0009001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 23264, 23900, ST1 Applicable to: MSN 07784, 07792				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 011	00017237.0008001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 23900, 30307, 35311, 35735, ST1 Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 012	00017236.0004001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 23900, 30479, 35311, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 016	00017232.0004001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 23900, 35311, 35735, ST1 Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-LIM-DWCG-DCG		CG Limits for Weight Variant (WV) 010	00017259.0025001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
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	CTL-LIM-DWCG-DCG		CG Limits for Weight Variant (WV) 012	00017257.0015001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 320-214, 23900, 30479, 35311, ST1				
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	CTL-LIM-DWCG-DCG		CG Limits for Weight Variant (WV) 016	00017253.0013001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 320-214, 320-216, 23900, 35311, 35735, ST1				
	Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-LIM-CCL		Certified Cumulative Loads	00020497.0020001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 23900, ST1				
	Applicable to: MSN 07784, 07792				
	CTL-LIM-CCL		Certified Cumulative Loads	00020497.0022001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 23900, 30307, 30479, ST1				
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253, 05746				
	CTL-LIM-JACK		Jacking Points of the Aircraft	00017226.0005001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 20802, ST1				
	Applicable to: ALL				
	CTL-LIM-JACK		Jacking Points of the Landing Gears	00017227.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: ST1				
	Applicable to: ALL				
	CTL-LIM-STAB		Aircraft Stability on Jacks	00017271.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: ST1				
	Applicable to: ALL				
	CTL-LIM-STAB		Aircraft Stability on Wheels	00017270.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: ST1				
	Applicable to: ALL				
	CTL-LIM-CAB-INT		Introduction	00017272.0001001	03 JUN 25
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	CTL-LIM-CAB-FLL		Floor Loading Limits	00017273.0001001	03 JUN 25
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	Criteria: ST1 Applicable to: ALL				
	CTL-LIM-FWD-INT		Introduction	00017275.0066001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 27375, 27686, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD-INT		Introduction	00017275.0046001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 03060				
	CTL-LIM-FWD-INT		Introduction	00017275.0017001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 28330, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				
R	CTL-LIM-FWD-INT		Introduction	00017275.0006001	24 MAR 25
	Approval reference: 00D080AW056/C01 Approved by Airbus under the authority of DOA ref. EASA. 21J.031				
	Criteria: 27375, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
R	CTL-LIM-FWD-FLL		Floor Loading Limits	00017277.0053001	24 MAR 25
	Approval reference: 00D080AW056/C01 Approved by Airbus under the authority of DOA ref. EASA. 21J.031				
	Criteria: 27375, 27686, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
R	CTL-LIM-FWD-FLL		Floor Loading Limits	00017277.0045001	24 MAR 25
	Approval reference: 00D080AW056/C01 Approved by Airbus under the authority of DOA ref. EASA. 21J.031				
	Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 03060				
	CTL-LIM-FWD-FLL		Floor Loading Limits	00017277.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 28330, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-LIM-FWD-FLL		Floor Loading Limits	00017277.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
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	CTL-LIM-FWD-LDF		Load Factors	00017276.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
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	Approval reference: 10087236		Approved by EASA		
	Criteria: ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BULK-CHL		Restraint Conditions	00017279.0002001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 23172, ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BULK-CHL		Fastening Load Requirements	00017280.0001001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BULK-NMF		Net Malfunctions	00021284.0001001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BCLS-CHL		Cargo Hold Capacity	00019790.0036001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 27375, 28330, 28440, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-FWD-BCLS-CHL		Restraint Conditions	00019789.0041001	03 JUN 25
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	Criteria: 23172, 27375, 28330, 28440, ST1				
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	CTL-LIM-FWD-BCLS-CHL		Fastening Load Requirements	00019788.0019001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
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	Approval reference: 10087236		Approved by EASA		
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R	CTL-LIM-FWD-BCPP-CHL		Cargo Hold Capacity	00019794.0007001	24 MAR 25
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	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD-BCPP-CHL		Restraint Conditions	00019793.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD-BCPP-CHL		Fastening Load Requirements	00019792.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD-BCPP-NMF		Net Malfunctions	00021276.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD-ULD-CHL		Cargo Hold Capacity for ULDs	00019829.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD-ULD-CHL		ULD Center of Gravity	00019828.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD-ULD-UTR		ULD Transport Requirements	00019826.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD-ULD-CMF		Introduction	00021998.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				

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	CTL-LIM-FWD-ULD-CMF		CLS Malfunctions	00021267.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD-ULD-NLOD		Introduction	00019827.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD-ULD-NLOD		Types of Non-Unitized Loads	00019824.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD-ULD-NLOD		Restraint Conditions	00019823.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-INT		Introduction	00019616.0097001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 27686, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-INT		Introduction	00019616.0056001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 03060				
	CTL-LIM-AFT-INT		Introduction	00019616.0042001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28335, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-INT		Introduction	00019616.0005001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28327, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0052001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27686, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0046001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				

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	Criteria: 28327, 28335, 28440, ST1 Applicable to: MSN 03060				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0010001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28327, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-LDF		Load Factors	00019618.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, ST1 Applicable to: ALL				
	CTL-LIM-AFT-BULK-CHL		Cargo Hold Capacity	00019622.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-BULK-CHL		Restraint Conditions	00019621.0003001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 23172, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-BULK-CHL		Fastening Load Requirements	00019620.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-BULK-NMF		Net Malfunctions	00021286.0009001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-BCLS-CHL		Cargo Hold Capacity	00019631.0063001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-AFT-BCLS-CHL		Restraint Conditions	00019630.0048001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 23172, 28327, 28335, 28440, ST1				

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	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-AFT-BCLS-CHL		Fastening Load Requirements	00019629.0026001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 21103, 28327, 28335, 28440, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-AFT-BCLS-NMF		Net Malfunctions	00021295.0007001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 21103, 28327, 28335, 28440, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
R	CTL-LIM-AFT-BCPP-CHL		Cargo Hold Capacity	00020390.0007001	24 MAR 25
	Approval reference: 00D080AW056/C01		Approved by Airbus under the authority of DOA ref. EASA. 21J.031		
	Criteria: 27686, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-BCPP-CHL		Restraint Conditions	00019634.0007001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 27686, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-BCPP-CHL		Fastening Load Requirements	00019633.0007001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 27686, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-BCPP-NMF		Net Malfunctions	00021297.0002001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 27686, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-ULD-CHL		Cargo Hold Capacity for ULDs	00019647.0017001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 21103, 28335, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-CHL		ULD Center of Gravity	00019646.0007001	03 JUN 25
	Approval reference: 10087236		Approved by EASA		
	Criteria: 28335, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				

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	CTL-LIM-AFT-ULD-UTR		ULD Transport requirements	00019645.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-CMF		Introduction	00022009.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-CMF		CLS Malfunctions	00021315.0005001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-NLOD		Introduction	00019643.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-NLOD		Types of Non-Unitized Loads	00019642.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-NLOD		Restraint Conditions	00019641.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-REAR-INT		Introduction	00019615.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-REAR-FLL		Floor Loading Limits	00019614.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-REAR-LDF		Load Factors	00019613.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				

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	CTL-LIM-REAR-BULK-CHL		Cargo Hold Capacity	00019612.0016001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 20029, ST1 Applicable to: ALL				
	CTL-LIM-REAR-BULK-CHL		Restraint Conditions	00019611.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 20029, 23172, ST1 Applicable to: ALL				
	CTL-LIM-REAR-BULK-CHL		Fastening Load Requirements	00019610.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-REAR-BULK-NMF		Net Malfunctions	00021325.0003001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 20029, ST1 Applicable to: ALL				
	CTL-FUEL-INT		Introduction	00019078.0001001	01 FEB 18
	Criteria: ST1 Applicable to: ALL				
	CTL-FUEL-QTY		Usable Fuel in Outer Tanks	00019079.0001001	17 DEC 18
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253				
	CTL-FUEL-QTY		Usable Fuel in Outer Tanks	00019079.0005001	01 FEB 18
	Criteria: 160001, ST1 Applicable to: MSN 05746, 07784, 07792				
	CTL-FUEL-QTY		Usable Fuel in Inner Tanks	00019080.0004001	17 JUN 21
	Criteria: 37331, ST1 Applicable to: MSN 04392, 05152, 05162, 05253				
	CTL-FUEL-QTY		Usable Fuel in Inner Tanks	00019080.0010001	17 JUN 21
	Criteria: 160001, 37331, ST1 Applicable to: MSN 05746, 07784, 07792				
	CTL-FUEL-QTY		Usable Fuel in Inner Tanks	00019080.0001001	17 DEC 18
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060				
R	CTL-FUEL-QTY		Usable Fuel in Center Tank	00019081.0014001	20 APR 26
	Criteria: ST1				

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	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253				
R	CTL-FUEL-QTY		Usable Fuel in Center Tank	00019081.0005001	20 APR 26
	Criteria: 160001, ST1 Applicable to: MSN 05746, 07784, 07792				
	CTL-FUEL-QTY		Unusable Fuel	00019082.0001001	25 AUG 20
	Criteria: ST1 Applicable to: ALL				
	CTL-FUEL-QTY		Undrainable Fuel	00019083.0001001	17 MAR 25
	Criteria: ST1 Applicable to: ALL				
	CTL-FUEL-QTY		Unpumpable Fuel	00026881.0001001	17 MAR 25
	Criteria: ST1 Applicable to: ALL				
	CTL-FUEL-MGT		Refueling Logic	00019084.0020001	29 JAN 20
	Criteria: 160001, 37331, ST1 Applicable to: MSN 05746, 07784, 07792				
	CTL-FUEL-MGT		Refueling Logic	00019084.0007001	29 JAN 20
	Criteria: 37331, ST1 Applicable to: MSN 04392, 05152, 05162, 05253				
	CTL-FUEL-MGT		Refueling Logic	00019084.0001001	29 JAN 20
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-FUEL-MGT		All Flight Phases	00019085.0017001	16 MAR 26
	Criteria: 154327, ST1 Applicable to: MSN 07784, 07792				
	CTL-FUEL-MGT		All Flight Phases	00019085.0001001	16 MAR 26
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253, 05746				
	CTL-FUEL-DFL		Defueling Procedure before Aircraft Weighing	00019086.0001001	27 JUL 23
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253, 05746				
	CTL-FUEL-DFL		Defueling Procedure before Aircraft Weighing	00019086.0036001	17 MAR 25
	Criteria: 154327, ST1 Applicable to: MSN 07784, 07792				
	CTL-FLD		Introduction	00018752.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				

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	CTL-FLD Criteria: CFMI, ST1 Applicable to: ALL		Oil	00018753.0015001	30 JAN 18
	CTL-FLD Criteria: CFMI, ST1 Applicable to: ALL		Hydraulic Fluids	00018754.0007001	30 JAN 18
	CTL-FLD Criteria: 21003, ST1 Applicable to: ALL		Potable Water Tank	00018755.0010001	02 JUN 20
	CTL-FLD Criteria: 20109, ST1 Applicable to: ALL		Waste Tank	00018756.0006001	27 JUL 23
	CTL-PERS Criteria: ST1 Applicable to: ALL		Introduction	00017200.0001001	30 JAN 18
	CTL-PERS Criteria: 20047, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746, 07784, 07792		Cockpit Layout	00017201.0008001	02 JUN 20
	CTL-PERS Criteria: ST1 Applicable to: MSN 02926, 02944		Cockpit Layout	00017201.0002001	02 JUN 20
	CTL-PERS Criteria: 160386, ST1 Applicable to: MSN 07784, 07792		Cabin Layout	00019959.0799001	01 FEB 18
	CTL-PERS Criteria: 150016, 150375, 39728, ST1 Applicable to: MSN 04392		Cabin Layout	00019959.0471001	30 JAN 18
	CTL-PERS Criteria: 39106, ST1 Applicable to: MSN 05152, 05162, 05253, 05746		Cabin Layout	00019959.0165001	30 JAN 18
	CTL-PERS Criteria: 35662, ST1 Applicable to: MSN 02926, 02944		Cabin Layout	00019959.0137001	30 JAN 18
	CTL-PERS Criteria: 32428, 35911, WBM004, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060		Cabin Layout	00019959.0002001	30 JAN 18
	CTL-PERS Criteria: 160386, 20047, ST1 Applicable to: MSN 07784, 07792		Flight and Cabin Crewmembers	00020628.0963001	25 AUG 20
	CTL-PERS Criteria: 20047, 39106, ST1		Flight and Cabin Crewmembers	00020628.0205001	25 AUG 20

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	Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-PERS		Flight and Cabin Crewmembers	00020628.0202001	25 AUG 20
	Criteria: 150375, 20047, 39728, ST1				
	Applicable to: MSN 04392				
	CTL-PERS		Flight and Cabin Crewmembers	00020628.0162001	25 AUG 20
	Criteria: 20047, 35911, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-PERS		Flight and Cabin Crewmembers	00020628.0142001	25 AUG 20
	Criteria: 20047, 32428, ST1				
	Applicable to: MSN 02155, 02212				
	CTL-PERS		Flight and Cabin Crewmembers	00020628.0014001	30 JAN 18
	Criteria: 35662, ST1				
	Applicable to: MSN 02926, 02944				
	CTL-PERS		Passengers	00017204.0759001	01 FEB 18
	Criteria: 160386, ST1				
	Applicable to: MSN 07784, 07792				
	CTL-PERS		Passengers	00017204.0438001	30 JAN 18
	Criteria: 150375, 39728, ST1				
	Applicable to: MSN 04392				
	CTL-PERS		Passengers	00017204.0268001	02 JUN 20
	Criteria: 32428, WBM003, ST1				
	Applicable to: MSN 02155, 02212				
	CTL-PERS		Passengers	00017204.0261001	30 JAN 18
	Criteria: 39106, ST1				
	Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-PERS		Passengers	00017204.0122001	30 JAN 18
	Criteria: 35662, ST1				
	Applicable to: MSN 02926, 02944				
	CTL-PERS		Passengers	00017204.0002001	02 JUN 20
	Criteria: 35911, WBM003, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-INTA		Crewmember Stowage Units	00017205.0001001	30 JAN 18
	Criteria: ST1				
	Applicable to: ALL				
	CTL-INTA		Overhead Stowage Compartments	00019732.0151001	01 FEB 18
	Criteria: 39106, ST1				
	Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-INTA		Overhead Stowage Compartments	00019732.0088001	01 FEB 18
	Criteria: 35911, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-INTA		Overhead Stowage Compartments	00019732.0018001	01 FEB 18
	Criteria: 39728, ST1				

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	Applicable to: MSN 04392				
	CTL-INTA		Overhead Stowage Compartments	00019732.0004001	01 FEB 18
	Criteria: 160386, 32428, 35662, ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 07784, 07792				
	CTL-INTA		Galley Units	00019209.0570001	30 JAN 18
	Criteria: 35662, ST1				
	Applicable to: MSN 02926, 02944				
	CTL-INTA		Galley Units	00019209.0504001	30 JAN 18
	Criteria: 160386, ST1				
	Applicable to: MSN 07784, 07792				
	CTL-INTA		Galley Units	00019209.0340001	30 JAN 18
	Criteria: 150016, 150375, 39728, ST1				
	Applicable to: MSN 04392				
	CTL-INTA		Galley Units	00019209.0195001	30 JAN 18
	Criteria: 39106, ST1				
	Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-INTA		Galley Units	00019209.0012001	30 JAN 18
	Criteria: 32428, ST1				
	Applicable to: MSN 02155, 02212				
	CTL-INTA		Galley Units	00019209.0001001	30 JAN 18
	Criteria: 35911, WBM001, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-INTA		Lavatories	00019203.0092001	30 JAN 18
	Criteria: 150016, 150375, 39728, ST1				
	Applicable to: MSN 04392				
	CTL-INTA		Lavatories	00019203.0042001	30 JAN 18
	Criteria: 160386, ST1				
	Applicable to: MSN 07784, 07792				
	CTL-INTA		Lavatories	00019203.0021001	27 JUL 23
	Criteria: 32428, 35911, 39106, ST1				
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-INTA		Lavatories	00019203.0004001	30 JAN 18
	Criteria: 35662, ST1				
	Applicable to: MSN 02926, 02944				
	CTL-INTA		Additional Cabin Stowage Compartments	00019183.0638001	30 JAN 18
	Criteria: 160386, ST1				
	Applicable to: MSN 07784, 07792				
	CTL-INTA		Additional Cabin Stowage Compartments	00019183.0144001	30 JAN 18
	Criteria: 39728, ST1				
	Applicable to: MSN 04392				

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	CTL-INTA		Additional Cabin Stowage Compartments	00019183.0131001	30 JAN 18
	Criteria: 39106, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-INTA		Additional Cabin Stowage Compartments	00019183.0003001	30 JAN 18
	Criteria: 32428, ST1 Applicable to: MSN 02155, 02212				
	CTL-INTA		Additional Cabin Stowage Compartments	00019183.0002001	30 JAN 18
	Criteria: 35911, WBM001, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-INT		Introduction	00019551.0008001	30 JAN 18
	Criteria: 20071, 21103, ST1 Applicable to: ALL				
	CTL-CGO-FWD-BULK-CHD		Cargo Hold Door	00019412.0006001	27 JUL 23
	Criteria: 23172, 26213, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-FWD-BULK-XSC		Cross Section	00019413.0006001	31 JAN 18
	Criteria: 23172, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-FWD-BULK-CHA		Section Arrangement	00019411.0001001	01 FEB 18
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-FWD-BULK-CHA		Tie-Down Point Location	00021283.0001001	02 JUN 20
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-FWD-BULK-RECO		Loading Recommendations	00019414.0002001	31 JAN 18
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-FWD-BCLS-CHD		Cargo Hold Door	00021506.0053001	27 JUL 23
	Criteria: 23172, 26213, 27375, 28330, 28440, 28618, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-FWD-BCLS-XSC		Cross Section	00019423.0027001	31 JAN 18
	Criteria: 23172, 27375, 28330, 28440, ST1				

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	Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-FWD-BCLS-CHA		Section Arrangement	00019425.0035001	01 FEB 18
	Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-FWD-BCLS-CHA		Tie-Down Point Location	00021277.0005001	02 JUN 20
	Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-FWD-BCLS-RECO		Loading Recommendations	00019426.0034001	31 JAN 18
	Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-FWD-BCPP-CHD		Cargo Hold Door	00019427.0019001	27 JUL 23
	Criteria: 23172, 26213, 27686, 28618, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-FWD-BCPP-XSC		Cross Section	00019428.0011001	31 JAN 18
	Criteria: 23172, 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-FWD-BCPP-CHA		Section Arrangement	00019430.0007001	01 FEB 18
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-FWD-BCPP-CHD		Tie-Down Point Location	00021275.0002001	02 JUN 20
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-FWD-BCPP-RECO		Loading Recommendations	00019431.0007001	31 JAN 18
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-FWD-ULD-CHD		Cargo Hold Door	00019442.0053001	27 JUL 23
	Criteria: 23172, 26213, 27375, 28330, 28440, 28618, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-FWD-ULD-CHD		Cargo Hold Door	00019442.0012001	27 JUL 23
	Criteria: 23172, 26213, 28330, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				

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M ⁽¹⁾	Localization	T ⁽²⁾	DU Title	DU identification	DU date
	CTL-CGO-FWD-ULD-XSC		Cross Section	00019443.0007001	31 JAN 18
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-FWD-ULD-CHA		ULD Position Arrangement	00019446.0008001	25 AUG 20
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-FWD-ULD-CHA		Latch Location	00019445.0007001	25 AUG 20
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-FWD-ULD-CHA		Tie-Down Point Location	00021266.0002001	25 AUG 20
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-FWD-ULD-RECO		Loading Recommendations	00019447.0037001	31 JAN 18
	Criteria: 20057, 20082, 28330, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-CGO-FWD-ULD-RECO		Loading Recommendations	00019447.0013001	31 JAN 18
	Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-AFT-BULK-CHD		Cargo Hold Door	00019448.0025001	27 JUL 23
	Criteria: 23172, 26213, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-AFT-BULK-XSC		Cross Section	00019461.0015001	31 JAN 18
	Criteria: 23172, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-AFT-BULK-CHA		Section Arrangement	00019475.0020001	01 FEB 18
	Criteria: 21103, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-CGO-AFT-BULK-CHA		Tie-Down Point Location	00021285.0009001	17 JUN 21
	Criteria: 21103, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				

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M ⁽¹⁾	Localization	T ⁽²⁾	DU Title	DU identification	DU date
	CTL-CGO-AFT-BULK-RECO		Loading Recommendations	00019504.0082001	31 JAN 18
	Criteria: 20059, 21103, ST1 Applicable to: MSN 07784, 07792				
	CTL-CGO-AFT-BULK-RECO		Loading Recommendations	00019504.0080001	31 JAN 18
	Criteria: 21103, ST1 Applicable to: MSN 02926, 02944				
	CTL-CGO-AFT-BULK-RECO		Loading Recommendations	00019504.0041001	31 JAN 18
	Criteria: 20059, 20084, 21103, ST1 Applicable to: MSN 02155, 02212, 04392				
	CTL-CGO-AFT-BCLS-CHD		Cargo Hold Door	00019450.0067001	27 JUL 23
	Criteria: 23172, 26213, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-AFT-BCLS-XSC		Cross Section	00019463.0052001	31 JAN 18
	Criteria: 23172, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-AFT-BCLS-CHA		Section Arrangement	00019477.0053001	01 FEB 18
	Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-AFT-BCLS-CHA		Tie-Down Point Location	00021294.0007001	02 JUN 20
	Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-AFT-BCLS-RECO		Loading Recommendations	00019506.0123001	31 JAN 18
	Criteria: 20059, 20084, 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-AFT-BCPP-CHD		Cargo Hold Door	00019451.0013001	27 JUL 23
	Criteria: 23172, 26213, 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-AFT-BCPP-XSC		Cross Section	00019464.0010001	31 JAN 18
	Criteria: 23172, 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				

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	CTL-CGO-AFT-BCPP-CHA		Section Arrangement	00019478.0007001	01 FEB 18
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-AFT-BCPP-CHA		Tie-Down Point Location	00021296.0002001	02 JUN 20
	Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-AFT-BCPP-RECO		Loading Recommendations	00019507.0023001	31 JAN 18
	Criteria: 20059, 20084, 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-CGO-AFT-ULD-CHD		Cargo Hold Door	00019458.0020001	27 JUL 23
	Criteria: 23172, 26213, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-AFT-ULD-XSC		Cross Section	00019471.0007001	31 JAN 18
	Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-AFT-ULD-CHA		ULD Position Arrangement	00019485.0014001	25 AUG 20
	Criteria: 21103, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-AFT-ULD-CHA		Latch Location	00019501.0014001	01 FEB 18
	Criteria: 21103, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-AFT-ULD-CHA		Tie-Down Point Location	00021314.0005001	25 AUG 20
	Criteria: 21103, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-CGO-AFT-ULD-RECO		Loading Recommendations	00019514.0042001	31 JAN 18
	Criteria: 20059, 20084, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-CGO-AFT-ULD-RECO		Loading Recommendations	00019514.0012001	31 JAN 18
	Criteria: 28335, ST1 Applicable to: MSN 05152, 05162, 05253, 05746				

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	CTL-CGO-REAR-BULK-CHD		Cargo Hold Door	00019525.0005001	27 JUL 23
	Criteria: 20029, ST1 Applicable to: ALL				
	CTL-CGO-REAR-BULK-XSC		Cross Section	00019530.0015001	31 JAN 18
	Criteria: 20029, 23172, ST1 Applicable to: ALL				
	CTL-CGO-REAR-BULK-CHA		Section Arrangement	00019541.0005001	12 JUN 18
	Criteria: 20029, ST1 Applicable to: ALL				
	CTL-CGO-REAR-BULK-CHA		Tie-Down Point Location	00021324.0027001	28 MAR 25
	Criteria: 20029, 21103, ST1 Applicable to: ALL				
	CTL-CGO-REAR-BULK-RECO		Loading Recommendations	00019550.0033001	31 JAN 18
	Criteria: 20029, 20059, 20084, 28195, ST1 Applicable to: MSN 02155, 02212				
	CTL-CGO-REAR-BULK-RECO		Loading Recommendations	00019550.0025001	27 JUN 22
	Criteria: 20029, 20059, 20084, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 04392				
	CTL-CGO-REAR-BULK-RECO		Loading Recommendations	00019550.0021001	27 JUN 22
	Criteria: 20029, 20059, ST1 Applicable to: MSN 07784, 07792				
	CTL-CGO-REAR-BULK-RECO		Loading Recommendations	00019550.0005001	27 JUN 22
	Criteria: 20029, ST1 Applicable to: MSN 02926, 02944, 05152, 05162, 05253, 05746				
	CTL-GRD-INT		Introduction	00015508.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-WJP		Location of the Wheels	00015510.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-WJP		Location of the Jacking Points	00015509.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				

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	CTL-GRD-AWG		Introduction	00015511.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-AWG		Weighing per Landing Gear	00018757.0001001	06 JUL 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-AWG		Weighing per Landing Gear Jacking Point	00018759.0001001	06 JUL 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-AWG		Weighing per Aircraft Jacking Point	00018760.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-EQP		Introduction	00018761.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-EQP		Fuselage	00018762.0059001	30 JAN 18
	Criteria: 20029, ST1 Applicable to: ALL				
	CTL-GRD-EQP		Wing	00018763.0021001	30 JAN 18
	Criteria: 160500, ST1 Applicable to: MSN 05746, 07784, 07792				
	CTL-GRD-EQP		Wing	00018763.0017001	30 JAN 18
	Criteria: ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253				
	CTL-GRD-EQP		Vertical Tail Plane	00018765.0001001	30 JAN 18
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-EQP		Horizontal Tail Plane	00018766.0006001	02 JUN 20
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-EQP		Nose Landing Gear	00018767.0001001	02 JUN 20
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-EQP		Main Landing Gears	00018768.0001001	02 JUN 20
	Criteria: ST1 Applicable to: ALL				
	CTL-GRD-EQP		Power Plant and Pylon	00018770.0001001	16 JUL 18
	Criteria: 23083, ST1 Applicable to: ALL				

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	CTL-GRD-EQP Criteria: ST1 Applicable to: ALL		Auxiliary Power Unit	00018771.0001001	30 JAN 18
	CTL-EXP-INT Criteria: ST1 Applicable to: ALL		Introduction	00018811.0001001	30 JAN 18
	CTL-EXP-ASM Criteria: ST1 Applicable to: ALL		Aircraft Characteristics	00018812.0001001	30 JAN 18
	CTL-EXP-ASM Criteria: ST1 Applicable to: ALL		Loading Case	00018813.0001001	30 JAN 18
	CTL-EXP-WBC Criteria: ST1 Applicable to: ALL		OWE Calculation	00018814.0001001	30 JAN 18
	CTL-EXP-WBC Criteria: ST1 Applicable to: ALL		Loading Summary	00018815.0001001	30 JAN 18

(1) Evolution code : N=New, R=Revised, E=Effectivity

(2) Temporary information

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	CTL-LIM-INT		Introduction	00017224.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 010	00017238.0009001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23264, 23900, ST1 Applicable to: MSN 07784, 07792				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 011	00017237.0008001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23900, 30307, 35311, 35735, ST1 Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 012	00017236.0004001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23900, 30479, 35311, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746				
	CTL-LIM-DWCG-DWV		Weight Variant (WV) 016	00017232.0004001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23900, 35311, 35735, ST1 Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-LIM-DWCG-DCG		CG Limits for Weight Variant (WV) 010	00017259.0025001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 320-214, 23264, 23900, ST1 Applicable to: MSN 07784, 07792				
	CTL-LIM-DWCG-DCG		CG Limits for Weight Variant (WV) 011	00017258.0028001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 320-214, 320-216, 23900, 30307, 35311, 35735, ST1 Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-LIM-DWCG-DCG		CG Limits for Weight Variant (WV) 012	00017257.0015001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 320-214, 23900, 30479, 35311, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746				

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	CTL-LIM-DWCG-DCG		CG Limits for Weight Variant (WV) 016	00017253.0013001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 320-214, 320-216, 23900, 35311, 35735, ST1 Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060				
	CTL-LIM-CCL		Certified Cumulative Loads	00020497.0020001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23900, ST1 Applicable to: MSN 07784, 07792				
	CTL-LIM-CCL		Certified Cumulative Loads	00020497.0022001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23900, 30307, 30479, ST1 Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253, 05746				
	CTL-LIM-JACK		Jacking Points of the Aircraft	00017226.0005001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 20802, ST1 Applicable to: ALL				
	CTL-LIM-JACK		Jacking Points of the Landing Gears	00017227.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-STAB		Aircraft Stability on Jacks	00017271.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-STAB		Aircraft Stability on Wheels	00017270.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-CAB-INT		Introduction	00017272.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-CAB-FLL		Floor Loading Limits	00017273.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				

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	CTL-LIM-FWD-INT		Introduction Approval reference: 10087236 Criteria: 27375, 27686, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031	00017275.0066001 Approved by EASA	03 JUN 25
	CTL-LIM-FWD-INT		Introduction Approval reference: 10087236 Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 03060	00017275.0046001 Approved by EASA	03 JUN 25
	CTL-LIM-FWD-INT		Introduction Approval reference: 10087236 Criteria: 28330, ST1 Applicable to: MSN 05152, 05162, 05253, 05746	00017275.0017001 Approved by EASA	03 JUN 25
R	CTL-LIM-FWD-INT		Introduction Approval reference: 00D080AW056/C01 Criteria: 27375, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792	00017275.0006001 Approved by Airbus under the authority of DOA ref. EASA. 21J.031	24 MAR 25
R	CTL-LIM-FWD-FLL		Floor Loading Limits Approval reference: 00D080AW056/C01 Criteria: 27375, 27686, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031	00017277.0053001 Approved by Airbus under the authority of DOA ref. EASA. 21J.031	24 MAR 25
R	CTL-LIM-FWD-FLL		Floor Loading Limits Approval reference: 00D080AW056/C01 Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 03060	00017277.0045001 Approved by Airbus under the authority of DOA ref. EASA. 21J.031	24 MAR 25
	CTL-LIM-FWD-FLL		Floor Loading Limits Approval reference: 10087236 Criteria: 28330, ST1 Applicable to: MSN 05152, 05162, 05253, 05746	00017277.0007001 Approved by EASA	03 JUN 25
	CTL-LIM-FWD-FLL		Floor Loading Limits Approval reference: 10087236 Criteria: 27375, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792	00017277.0001001 Approved by EASA	03 JUN 25

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	CTL-LIM-FWD-LDF		Load Factors	00017276.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-FWD-BULK-CHL		Cargo Hold Capacity	00017278.0004001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BULK-CHL		Restraint Conditions	00017279.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23172, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BULK-CHL		Fastening Load Requirements	00017280.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BULK-NMF		Net Malfunctions	00021284.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-FWD-BCLS-CHL		Cargo Hold Capacity	00019790.0036001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-FWD-BCLS-CHL		Restraint Conditions	00019789.0041001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 23172, 27375, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-FWD-BCLS-CHL		Fastening Load Requirements	00019788.0019001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				

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M ⁽⁷⁾	Localization	T ⁽²⁾	DU Title	DU identification	DU date
	Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-FWD- BCLS-NMF		Net Malfunctions	00021279.0005001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27375, 28330, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
R	CTL-LIM-FWD- BCPP-CHL		Cargo Hold Capacity	00019794.0007001	24 MAR 25
	Approval reference: 00D080AW056/C01 Approved by Airbus under the authority of DOA ref. EASA. 21J.031 Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD- BCPP-CHL		Restraint Conditions	00019793.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD- BCPP-CHL		Fastening Load Requirements	00019792.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD- BCPP-NMF		Net Malfunctions	00021276.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-FWD- ULD-CHL		Cargo Hold Capacity for ULDs	00019829.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD- ULD-CHL		ULD Center of Gravity	00019828.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				

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	CTL-LIM-FWD- ULD-UTR		ULD Transport Requirements	00019826.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD- ULD-CMF		Introduction	00021998.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD- ULD-CMF		CLS Malfunctions	00021267.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD- ULD-NLOD		Introduction	00019827.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD- ULD-NLOD		Types of Non-Unitized Loads	00019824.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-FWD- ULD-NLOD		Restraint Conditions	00019823.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28330, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-INT		Introduction	00019616.0097001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 27686, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-INT		Introduction	00019616.0056001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 03060				

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M ⁽¹⁾	Localization	T ⁽²⁾	DU Title	DU identification	DU date
	CTL-LIM-AFT-INT		Introduction	00019616.0042001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 21103, 28335, ST1				
	Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-INT		Introduction	00019616.0005001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 21103, 28327, ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0052001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 27686, 28327, 28335, 28440, ST1				
	Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0046001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 28327, 28335, 28440, ST1				
	Applicable to: MSN 03060				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0010001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 28335, ST1				
	Applicable to: MSN 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-FLL		Floor Loading Limits	00019617.0001001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 28327, ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-LDF		Load Factors	00019618.0007001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 21103, ST1				
	Applicable to: ALL				
	CTL-LIM-AFT-BULK-CHL		Cargo Hold Capacity	00019622.0007001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 21103, ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-BULK-CHL		Restraint Conditions	00019621.0003001	03 JUN 25
	Approval reference: 10087236			Approved by EASA	
	Criteria: 21103, 23172, ST1				
	Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				

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M ⁽¹⁾	Localization	T ⁽²⁾	DU Title	DU identification	DU date
	CTL-LIM-AFT-BULK-CHL		Fastening Load Requirements	00019620.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-BULK-NMF		Net Malfunctions	00021286.0009001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792				
	CTL-LIM-AFT-BCLS-CHL		Cargo Hold Capacity	00019631.0063001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-AFT-BCLS-CHL		Restraint Conditions	00019630.0048001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 23172, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-AFT-BCLS-CHL		Fastening Load Requirements	00019629.0026001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
	CTL-LIM-AFT-BCLS-NMF		Net Malfunctions	00021295.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060				
R	CTL-LIM-AFT-BCPP-CHL		Cargo Hold Capacity	00020390.0007001	24 MAR 25
	Approval reference: 00D080AW056/C01 Approved by Airbus under the authority of DOA ref. EASA. 21J.031 Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				

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M ⁽¹⁾	Localization	T ⁽²⁾	DU Title	DU identification	DU date
	CTL-LIM-AFT- BCPP-CHL		Restraint Conditions	00019634.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT- BCPP-CHL		Fastening Load Requirements	00019633.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT- BCPP-NMF		Net Malfunctions	00021297.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 27686, ST1 Applicable to: MSN 02719, 02758, 02789, 03031				
	CTL-LIM-AFT- ULD-CHL		Cargo Hold Capacity for ULDs	00019647.0017001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 21103, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT- ULD-CHL		ULD Center of Gravity	00019646.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT- ULD-UTR		ULD Transport requirements	00019645.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT- ULD-CMF		Introduction	00022009.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT- ULD-CMF		CLS Malfunctions	00021315.0005001	03 JUN 25
	Approval reference: 10087236 Approved by EASA				

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M ⁽¹⁾	Localization	T ⁽²⁾	DU Title	DU identification	DU date
	Criteria: 21103, 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-NLOD		Introduction	00019643.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-NLOD		Types of Non-Unitized Loads	00019642.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-AFT-ULD-NLOD		Restraint Conditions	00019641.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 28335, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746				
	CTL-LIM-REAR-INT		Introduction	00019615.0002001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-REAR-FLL		Floor Loading Limits	00019614.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-REAR-LDF		Load Factors	00019613.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-REAR-BULK-CHL		Cargo Hold Capacity	00019612.0016001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 20029, ST1 Applicable to: ALL				

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M⁽¹⁾	Localization	T⁽²⁾	DU Title	DU identification	DU date
	CTL-LIM-REAR-BULK-CHL		Restraint Conditions	00019611.0007001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 20029, 23172, ST1 Applicable to: ALL				
	CTL-LIM-REAR-BULK-CHL		Fastening Load Requirements	00019610.0001001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: ST1 Applicable to: ALL				
	CTL-LIM-REAR-BULK-NMF		Net Malfunctions	00021325.0003001	03 JUN 25
	Approval reference: 10087236 Approved by EASA Criteria: 20029, ST1 Applicable to: ALL				

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LIST OF APPROVAL REFERENCES

Approval Date	Approval Reference	Approved By
03 JUN 25	10087236	EASA
24 MAR 25	00D080AW056/C01	Airbus under the authority of DOA ref. EASA. 21J.031

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AIRCRAFT ALLOCATION TABLE

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M⁽¹⁾	MSN	FSN	Registration Number	Model
	02155		AP-BLB	320-214
	02212		AP-BLC	320-214
	02719		AP-BLU	320-214
	02758		AP-BLV	320-214
	02789		AP-BLW	320-214
	02926		AP-BLY	320-216
	02944		AP-BLZ	320-216
	03031		AP-BLA	320-214
	03060		AP-BLS	320-214
	04392		AP-BMX	320-214
	05152		AP-BMV	320-214
	05162		AP-BMY	320-214
	05253		AP-BOM	320-214
	05746		AP-BON	320-214
	07784		AP-BOK	320-214
	07792		AP-BOL	320-214

(1) Evolution code : N=New, R=Revised

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AIRCRAFT ALLOCATION TABLE

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M⁽¹⁾	CRITERION	Incorp. Date	Title
	20029	14 MAR 18	DOORS- BULK CARGO COMPARTMENT- INSTALL AN ADDITIONAL DOOR AT FR 60/62-
	Applicable to: ALL		
	20047	14 MAR 18	EQUIPMENT/FURNISHINGS - FLIGHT COMPARTMENT - INSTALL A 4TH OCCUPANT SEAT
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746, 07784, 07792		
	20057	25 JAN 22	AIR CONDITIONING - CARGO COMPARTMENT VENTILATION - INSTALL VENTILATION SYSTEM IN FWD CARGO COMPARTMENT
	Applicable to: MSN 05152, 05162, 05253, 05746		
	20059	14 MAR 18	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 07784, 07792		
	20071	14 MAR 18	FIRE PROTECTION - CARGO COMPARTMENT FIRE EXTINGUISHING - INSTALL A SINGLE SHOT SYSTEM -
	Applicable to: ALL		
	20082	25 JAN 22	AIR CONDITIONING - FWD CARGO COMPARTMENT - INSTALL HEATING SYSTEM
	Applicable to: MSN 05152, 05162, 05253, 05746		
	20084	14 MAR 18	AIR CONDITIONING - AFT CARGO COMPARTMENT - INSTALL HEATING SYSTEM
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392		
	20109	14 MAR 18	WATER/WASTE- INSTALL VACUUM TOILET SYSTEM -
	Applicable to: ALL		
	20268	14 MAR 18	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL		
	20653	14 MAR 18	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL		
	20802	14 MAR 18	GENERAL - REINFORCE STRUCTURE FOR MTOW 73,5 T / MLW 64,5 T AND MZFW 60,5 T -
	Applicable to: ALL		
	21003	14 MAR 18	WATER/WASTE - RELOCATE POTABLE WATER TANK -
	Applicable to: ALL		
	21103	14 MAR 18	EQUIPMENT/FURNISHINGS - CARGO COMPARTMENT - REARRANGE COMPARTMENT 4 INTO TWO ZONES -
	Applicable to: ALL		
	22548	14 MAR 18	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL		
	23083	14 MAR 18	POWER PLANT - INSTALL CFM 56-5B1 ENGINES RATED AT 30.000 LBS FOR A321.
	Applicable to: ALL		

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M⁽¹⁾	CRITERION	Incorp. Date	Title
	23172	14 MAR 18	EQUIPMENT/FURNISHINGS - CARGO COMPARTMENT - REMOVE SMOKE CHANNELS
	Applicable to: ALL		
	23264	14 MAR 18	GENERAL - INCREASE DESIGN WEIGHT TO 77T MTOW
	Applicable to: MSN 07784, 07792		
	23900	14 MAR 18	GENERAL - INCREASE DESIGN WEIGHT TO 61T MZFW
	Applicable to: ALL		
	26213	14 MAR 18	DOORS-CARGO-MODIFY FWD AND AFT CARGO DOORS
	Applicable to: ALL		
	27375	14 MAR 18	E/F-CARGO COMPARTMENTS-INSTALL SET 4.1A IN FWD CARGO COMPARTMENT IN BULK CONFIGURATION (A320)
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 07784, 07792		
	27686	14 MAR 18	EQPT/FURN-SEMI AUTOMATIC CARGO LOADING- PROTECT CARGO SYS COMPONENTS FOR HEAVY USAGE DURING BULK LOADING ON TOP OF CLS
	Applicable to: MSN 02719, 02758, 02789, 03031		
	28195	14 MAR 18	DOORS - BULK CARGO COMPARTMENT DOOR - DEACTIVATE BULK CARGO DOOR
	Applicable to: MSN 02155, 02212		
	28327	14 MAR 18	EQUIPMENT/FURNISHINGS-CARGO COMPT-INSTL SET 4.1C CARGO COMPONENTS IN AFT CARGO HOLD IN BULK CONFIGURATION FOR A320
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 07784, 07792		
	28330	14 MAR 18	EQUIPMENT/FURNISHINGS-FWD CARGO COMPT- INSTALL CARGO COMPONENTS FOR CLS CONFIGURATION (SET 4.1B) FOR A320
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746		
	28335	14 MAR 18	EQUIPMENT/FURNISHINGS-AFT CARGO COMPT- INSTALL CARGO COMPONENTS FOR CLS CONFIGURATION (SET 4.1D) FOR A320
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746		
	28440	14 MAR 18	PLACARDS AND MARKINGS - FWD/AFT CARGO - INSTALL PLACARDS SET 7.1D FOR CLS WITH FULL BULK CAPABILITY
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060		
	28618	14 MAR 18	EQUIPMENT/FURNISHINGS-CARGO COMPT- INSTALL FENDER AT PARTITION C24A IN FORWARD CARGO COMPARTMENT
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060		
	30307	14 MAR 18	GENERAL - DESIGN WEIGHT - INCREASE A320 DESIGN WEIGHT TO 75,5T MTOW, 66,0T MLW AND 62,5T MZFW
	Applicable to: MSN 02926, 02944		
	30479	14 MAR 18	GENERAL - DESIGN WEIGHT - INCREASE A320 DESIGN WEIGHTS TO 77.0 MTOW, 66.0T MLW AND 62.5T MZFW (WV 012)
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746		

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M⁽⁷⁾	CRITERION	Incorp. Date	Title
	32428	14 MAR 18	EQUIPMENT/FURNISHINGS-PAX COMPARTMENT : INSTALL A CABIN LAYOUT FOR CES02 - VERSION
	Applicable to: MSN 02155, 02212		
	35311	14 MAR 18	GENERAL - DESIGN WEIGHTS- MULTIPLE WEIGHT VARIANT CAPABILITY - MTOW 73.5T, 75.5T & 77T
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060		
	35662	14 MAR 18	EQUIPMENT/FURNISHINGS-PAX COMPARTMENT- INSTALL CABIN LAYOUT FOR AXM01 VERSION
	Applicable to: MSN 02926, 02944		
	35735	14 MAR 18	GENERAL - DESIGN WEIGHTS- DUAL WEIGHT VARIANT CERTIFICATION- WV011 (75.5T/ /66T/62.5T) AND WV016(73.5T/66T/62.5T)
	Applicable to: MSN 02926, 02944		
	35911	14 MAR 18	EQUIPMENT/FURNISHINGS-PAX COMPARTMENT- INSTALL CABIN LAYOUT FOR CSA01 VERS.
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060		
	37331	28 NOV 19	WINGS - FIXED PARTITION - INTRODUCE A STANDARD OF BOX WITHOUT DRY BAY
	Applicable to: MSN 04392, 05152, 05162, 05253, 05746, 07784, 07792		
	39106	25 JAN 22	EQUIPMENT/FURNISHINGS - PAX COMPARTMENT - INSTALL A 2 CLASS CABIN LAYOUT FOR MEA02 VERSION
	Applicable to: MSN 05152, 05162, 05253, 05746		
	39728	28 NOV 19	EQUIPMENT/FURNISHINGS - PAX COMPARTMENT INSTALL CABIN LAYOUT FOR SVA01 VERSION
	Applicable to: MSN 04392		
	150016	28 NOV 19	DOORS - EMERGENCY EXIT- DE-ACTIVATE FORWARD OVERWING EMERGENCY EXIT ON A320 A/C
	Applicable to: MSN 04392		
	150375	28 NOV 19	EQUIPMENT/FURNISHINGS - PAX COMPARTMENT ADAPT CABIN LAYOUT FOR SVA01 VERSION
	Applicable to: MSN 04392		
	154327	01 JUL 21	FUEL - MAIN TRANSFER SYSTEM - INTRODUCE THE A321 CENTRE TANK FUEL TRANSFER SYSTEM ONTO A319 AND A320 VARIANTS
	Applicable to: MSN 07784, 07792		
	160001	01 JUL 21	WINGS-GENERAL-DEFINE AND CERTIFY STRUCTURAL PROVISIONS FOR SHARKLET FOR A320/A319/A318
	Applicable to: MSN 05746, 07784, 07792		
	160386	01 JUL 21	EQUIPMENT/FURNISHINGS- PAX COMPARTMENT - INSTALL SINGLE CLASS CABIN LAYOUT FOR 61X04 VERSION - INTERJET
	Applicable to: MSN 07784, 07792		

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	160500	01 JUL 21	WINGS-GENERAL-CERTIFY SHARKLET INSTALLATION FOR A320/A319/A318
	Applicable to: MSN 05746, 07784, 07792		
	161209	01 JUL 21	FLIGHT CONTROLS - ELEVATOR AILERON COMPUTER SYSTEM (ELAC) - Install ELAC L98 STANDARD WITH DATA LOADING CAPABILITY
	Applicable to: MSN 04392, 05152, 05162, 05253, 05746, 07784, 07792		
	165706	16 APR 26	INDICATING/RECORDING SYSTEMS -FWC - ACQUISITION/INTERFACE - Install F12B
	Applicable to: MSN 02155, 02212, 02944, 03060, 04392, 05152, 05162, 05253, 05746, 07792		
	WBM001	14 MAR 18	Galley configuration changed by the operator (WBM survey)
	Applicable to: MSN 02719, 02758, 02789, 03031, 03060		
	WBM003	14 MAR 18	Passenger seat configuration changed by the operator (WBM survey)
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060		
	WBM004	14 MAR 18	Cabin configuration changed by the operator (WBM survey)
	Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060		

(1) Evolution code : N=New, R=Revised, E=Effectivity

WEIGHT AND BALANCE CONTROL

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Localization Title	Toc Index	ID	Reason
CTL-LIM-FWD-INT Introduction	A	1	Documentation update: Deletion of information.
CTL-LIM-FWD-BCPP-CHL Cargo Hold Capacity	A	1	Metadata update. No technical change.
CTL-LIM-AFT-BCPP-CHL Cargo Hold Capacity	A	1	Metadata update. No technical change.

WEIGHT AND BALANCE CONTROL

PRELIMINARY PAGES

SUMMARY OF HIGHLIGHTS

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WEIGHT AND BALANCE CONTROL

Introduction

AIRBUS COPYRIGHT & EXPORT CONTROL CLASSIFICATION

Ident.: CTL-INT-00024266.0001001 / 09 MAR 26

Criteria: ST1

Applicable to: ALL

This Manual has been reviewed under European Export control Regulations (EU) 2021/821 and was determined as EC_EU_NotListed (Not Listed: This Item is not listed against the EC regulations in the EU).

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PURPOSE OF THE MANUAL

Ident.: CTL-INT-00017214.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

The Weight and Balance Manual (WBM) is the support document for the Operator's weight and balance engineering.

The WBM provides the Operator with the necessary data about the aircraft weight and balance, to analyze and establish the weight and balance procedures required to operate the aircraft.

The WBM provides the Operator with a basis for the development of the operational documentation of the airline (Operations manual, Loadsheets, ...).

The WBM is based on all the structural and center of gravity limitations determined during the certification process.

The WBM complements the approved Airplane Flight Manual (AFM) about the limitations related to the weight and center of gravity of the aircraft.

ORGANIZATION

Ident.: CTL-INT-00017213.0001001 / 20 JAN 25

Criteria: ST1

Applicable to: ALL

The main chapter Weight and Balance Control contains the weight and balance data, limitations and other information that the Operator needs to control:

- The aircraft weight and center of gravity
- The weights loaded in the aircraft.

The main chapter Weight and Balance Control is divided into the following 10 chapters:

- Introduction
- General

WEIGHT AND BALANCE CONTROL

Introduction

- Limitations
- Fuel
- Fluids
- Personnel
- Interior Arrangement
- Cargo Arrangement
- Ground Operations
- Examples.

The chapters are divided into sections. The technical information of a section is in one or several Documentary Units (DUs). The DU is the smallest part of information with a technical content. The DUs are listed in the List of Effective Documentary Units (LEDU). For the definition of the LEDU Refer to CTL-INT Revision.

A letter code identifies all the chapters and sections of the WBM. The letter code of a parent chapter is added to the letter code of a child chapter in order to help the reader move from one part of the WBM to another.

EXAMPLE	The "CTL-LIM-FWD-FLL Floor Loading Limits" chapter contains information about the floor loading limits (letter code: FLL) of the forward cargo hold (letter code: FWD). This information is part of the limitations (letter code: LIM) for the weight and balance control (letter code: CTL) of the aircraft.
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In previous versions of the WBM, instead of a letter code, a number identified the chapters and sections.

The following table provides the correspondence between the previous and current WBM structure.

Chapter Identifier		Chapter Title
Letter Code	Chapter Number	
CTL	1	Weight and Balance Control
CTL-INT	0-00	Introduction
CTL-GEN	1-00	General
CTL-LIM	1-10	Limitations
CTL-FUEL	1-20	Fuel
CTL-FLD	1-30	Fluids
CTL-PERS	1-40	Personnel
CTL-INTA	1-50	Interior Arrangement
CTL-CGO	1-60	Cargo Arrangement
CTL-GRD	1-80	Ground Operations
CTL-EXP	1-90	Examples

CUSTOMIZATION

Ident.: CTL-INT-00022199.0001001 / 19 JUL 24

Criteria: ST1

Applicable to: ALL

The WBM is customized in accordance with the Operator's fleet of aircraft. The Aircraft Allocation Table provides the list of the aircraft to which the WBM is applicable.

The WBM takes into account the configuration criteria specific to each aircraft of the Operator's fleet.

Airbus considers the following type of configuration criteria for the customization of the WBM:

- the aircraft certification Standard (ST)
- the aircraft model
- the engine family
- aircraft Modifications (MOD)
- aircraft Service Bulletins (SB)

The WBM reflects:

- The aircraft configuration at delivery
- The aircraft configuration changes after the embodiment of Airbus approved modifications.

The Operator/owner must inform Airbus of the effective changes to the aircraft delivery configuration made in accordance with an Airbus Service Bulletin (SB). This enables Airbus to provide the Operator/owner with a WBM revision.

Airbus does not provide WBM revisions, and disclaims any and all responsibility in this respect for any modification that the Operator/owner of the aircraft made to the aircraft:

- Without application of an Airbus SB, or
- With application of an Airbus SB, if the Operator/owner of the aircraft has not reported the embodiment of the SB to Airbus.

The List of Modifications (LOM) provides a list of the configuration criteria that affect the WBM.

The LOM consists of 4 fields:

- The "M" field that provides the evolution code of the configuration criteria:
 - The "N" letter identifies a new criterion introduced by a WBM revision
 - The "R" letter identifies a change in the criterion title
 - The "E" letter identifies a change of the criterion validity: the list of MSNs for which the criterion applies is different from the previous WBM revision, by addition or removal of one or several MSNs.
- The "Modification" or "MOD Nb." field that provides the criterion reference (MOD number)
- The "Incorp. Date" field that indicates the publication date of the criterion in the WBM
- The "Title" field that provides the title of the criterion.

Note: The aircraft certification standards correspond to the following aircraft definitions:

- ST1: A320ceo
- ST2: A321ceo
- ST3: A319ceo
- ST4: A318
- ST5: A320neo
- ST6: A321neo
- ST7: A319neo
- ST8: A321neo ACF
- ST9: A321neo XLR

REVISION

Ident.: CTL-INT-00017211.0001001 / 27 JUN 22

Criteria: ST1

Applicable to: ALL

Airbus publishes WBM revisions every time it is needed to add, update, or revise information.

A revision mark in the left margin identifies the changes associated with a WBM revision.

For each revision, the WBM includes a new LEDU.

The LEDU identifies the localization, title, identification and publication date of each DU.

The LEDU consists of 6 fields:

- The "M" field that provides the evolution code of the DU:
 - The "N" letter identifies a new DU introduced by the WBM revision
 - The "R" letter identifies a revised DU: the WBM revision updates the content of the DU
 - The "E" letter identifies a change of the DU validity: the list of MSNs for which the DU is valid is different from the previous WBM revision, by addition or removal of one or several MSNs.
- The "Localization" field that helps the reader find the DU in the manual
- The "T" field. This field is not used in the WBM
- The "DU title" field that provides the title of the DU
- The "DU identification" field that identifies the DU with its identification number
- The "DU date" field that indicates the publication date of the DU.

COMMENTS

Ident.: CTL-INT-00017210.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

Airbus encourages all WBM holders and users to submit any questions and suggestions related to the manual via the Airbus TechRequest tool.

The Operator must first connect to AirbusWorld, in order to access TechRequest.

If the Operator do not have an AirbusWorld account, please contact your local AirbusWorld User Entity Administrator (UEA), or the AirbusWorld support team at airbusworld@airbus.com.

WEIGHT AND BALANCE CONTROL

Introduction

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MAIN WBM CHANGES

Ident.: CTL-GEN-00023212.0001001 / 20 APR 26

Criteria: ST1

Applicable to: ALL

INTRODUCTION**PURPOSE**

The purpose of the MAIN WBM CHANGES section is to provide general information about the latest WBM revisions, and to highlight the main changes.

In addition, each Documentary Unit (DU) highlights the reason(s) for change, and contains revision bars to indicate the revised sections.

For more information, *Refer to CTL-INT Revision*

TIMEFRAME

The MAIN WBM CHANGES section is updated on a yearly basis, regardless of the other revisions that are applicable to each Operator.

2026**METADATA UPDATE**

The new generation of exchange files read the data of the WBM. Hidden information called metadata makes the links between the WBM and the exchange files. The addition or update of metadata has no impact on the technical content of the WBM. Revision bars highlight the additions/updates of the metadata in the WBM pages but there might be no associated highlights.

2025**METADATA UPDATE**

The new generation of exchange files read the data of the WBM. Hidden information called metadata makes the links between the WBM and the exchange files. The addition or update of metadata has no impact on the technical content of the WBM. Revision bars highlight the additions/updates of the metadata in the WBM pages but there might be no associated highlights.

AIRBUS COPYRIGHT & EXPORT CONTROL CLASSIFICATION

For legal purpose the "Airbus Copyright" section has been replaced by "Airbus Copyright & Export Control Classification" section. *Refer to CTL-INT Airbus Copyright & Export Control Classification*

REMOVABLE EQUIPMENT

Update of the weight and the H-ARM of some components due to continuous follow-up of the information.

2024**METADATA UPDATE**

Hidden information called metadata is necessary for the document content validation has been updated. It has no impact on the technical content of the WBM. Revision bars highlight the additions/changes of the metadata in the WBM pages but there might be no associated highlights.

AIRBUS COPYRIGHT & EXPORT CONTROL CLASSIFICATION

For legal purpose the "Airbus Copyright" section has been replaced by "Airbus Copyright & Export Control Classification" section. *Refer to CTL-INT Airbus Copyright & Export Control Classification*

DEFUELING PROCEDURE PRIOR TO WEIGHING

For A319 NEO, A319 CEO with jet pumps, A320 NEO and A320 CEO with jet pumps, the procedure is updated to be able to defuel the aircraft to the unpumpable or the undrainable fuel levels.

In addition, for A319 CEO with jet pumps and A320 CEO with jet pumps, the minimum weight of fuel requested in the tanks before the defueling is reduced to the same values as the A319 NEO and A320 NEO aircraft.

UNDRAINABLE FUEL

The value of the undrainable fuel is provided per tank. *Refer to CTL-FUEL-QTY Undrainable Fuel*

2023**MEAN AERODYNAMIC CHORD (MAC) VALUE**

The value of the MAC is changed from 4.193 m to 4.1935 m to be consistent with the Weighing Report (WR).

UNPUMPABLE FUEL (A319 NEO AND A320 NEO ONLY)

Following the update of the defueling procedure before aircraft weighing done in 2022, the unpumpable fuel values are moved in a dedicated chapter of the WBM.

METADATA UPDATE

The new generation of the Load and Trim Sheet (LTS) software (N-Performance LTS) reads the data of the WBM. Hidden information called metadata makes the links between the WBM and the N-Performance LTS Software. Revision bars highlight the additions/changes of the metadata in the WBM pages but there is no associated highlights.

2022

DEFUELING PROCEDURE BEFORE AIRCRAFT WEIGHING (A319 NEO AND A320 NEO ONLY)

The minimum weight of fuel requested in the tanks before the defueling is reduced. In addition, the defueling procedure before weighing leads to the wing tanks and the center tank defueled to the unpumpable condition instead of the undrainable condition.

CHANGE OF THE AUTHORIZING CONFIGURATION FOR A321NX WITH ACTS

The structure of the WBM is changed. Whatever the number of ACTs installed in the aircraft, the WBM provides the pages associated to the provisions for the ACTs and the ACTs installed.

FLUIDS

The data is aligned with the standard specifications.

METADATA UPDATE

The new generation of the Load and Trim Sheet (LTS) software (N-Performance LTS) reads the data of the WBM. Hidden information called metadata makes the links between the WBM and the N-Performance LTS Software. Revision bars highlight the additions/changes of the metadata in the WBM pages but there is no associated highlights.

2021

COPYRIGHT

For legal purpose a "Copyright" section has been added. *Refer to CTL-INT Airbus Copyright & Export Control Classification*

AIRWORTHINESS REFERENCE

Regulatory information has been added to satisfy new airworthiness requirements. *Refer to CTL-LIM-INT Introduction*

METADATA UPDATE

The new generation of the Load and Trim Sheet (LTS) software (N-Performance LTS) reads the data of the WBM. Hidden information called metadata makes the links between the WBM

and the N-Performance LTS Software. Revision bars highlight the additions/changes of the metadata in the WBM pages but there is no associated highlights.

2020

MANAGEMENT OF THE FUEL INFORMATION

The cargo information provides the data for all the ACT configurations (provision and installation). The fuel information is now in accordance with the cargo information. The refueling logic, the fuel management during flight and the defueling procedure before aircraft weighing take into account all the ACT configurations (*Refer to CTL-FUEL-MGT All Flight Phases and Refer to CTL-FUEL-DFL Defueling Procedure before Aircraft Weighing*).

NOSE AND MAIN LANDING GEAR WEIGHT

Correction of the definition of the equipped component (*Refer to CTL-GRD-EQP Nose Landing Gear and Refer to CTL-GRD-EQP Main Landing Gears*).

METADATA UPDATE

The new generation of the Load and Trim Sheet (LTS) software (N-Performance LTS) reads the data of the WBM. Hidden information called metadata makes the links between the WBM and the N-Performance LTS Software. Revision bars highlight the additions/changes of the metadata in the WBM pages but there is no associated highlights.

2019

AIRCRAFT STABILITY

The stability graphs have been revised to show the former graphs (from legacy WBM). In addition, tables have been added to ease the use of the information. *Refer to CTL-LIM-STAB Aircraft Stability on Wheels*

ENGINE WEIGHT

Correction of the engine weight to indicate the engine bare weight (*Refer to CTL-GRD-EQP Power Plant and Pylon*).

ABBREVIATIONS

Ident.: CTL-GEN-00017223.0001001 / 19 JUL 24

Criteria: ST1

Applicable to: ALL

A

Abbreviation	Full Text Definition
A/C	Aircraft
ACF	Aircraft Cabin Flex
ACT	Additional Center Tank
AD	Aircraft Datum
AFM	Airplane Flight Manual
ALI	Aircraft Loadability Interface
AMM	Aircraft Maintenance Manual
APU	Auxiliary Power Unit
AS	Aerospace Standard

B

Abbreviation	Full Text Definition
BC	Business Class

C

Abbreviation	Full Text Definition
CAS	Cabin Attendant Seat
CG	Center of Gravity
CLS	Cargo Loading System
CTR	Center

D

Abbreviation	Full Text Definition
DU	Documentary Unit

E

Abbreviation	Full Text Definition
ECAM	Electronic Centralized Aircraft Monitoring

F

Abbreviation	Full Text Definition
FC	First Class
FAR	Federal Aviation Regulations
FCOM	Flight Crew Operating Manual
FQIS	Fuel Quantity Indicator System
FWD	Forward

H

Abbreviation	Full Text Definition
H-arm	Horizontal Arm
HTP	Horizontal Tail Plane

I

Abbreviation	Full Text Definition
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IFE	In-Flight Entertainment

L

Abbreviation	Full Text Definition
L/G	Landing Gears
LD	Lower Deck
LEDU	List of Effective Documentary Units
LEMAC	Leading Edge Mean Aerodynamic Chord
LH	Left-Hand
LOM	List Of Modification

M

Abbreviation	Full Text Definition
MAC	Mean Aerodynamic Chord
MAX	Maximum
MD	Main Deck
MEW	Manufacturer's Empty Weight
MLG	Main Landing Gear
MLW	Maximum design Landing Weight
MOD	Modification
MSN	Manufacturer Serial Number
MTOW	Maximum design Takeoff Weight
MTW	Maximum design Taxi Weight
MZFW	Maximum design Zero Fuel Weight

N

Abbreviation	Full Text Definition
NAS	National Aerospace Standard
NLG	Nose Landing Gear

WEIGHT AND BALANCE CONTROL

General

O

Abbreviation	Full Text Definition
OEW	Operational Empty Weight
OHP	Overhead Panel
OHSC	Overhead Stowage Compartment

P

Abbreviation	Full Text Definition
PAX	Passenger
PFQ	Preselected Fuel Quantity

Q

Abbreviation	Full Text Definition
QTY	Quantity

R

Abbreviation	Full Text Definition
RH	Right-Hand
RCT	Rear Center Tank

S

Abbreviation	Full Text Definition
SB	Service Bulletin
SCS	Sliding Carpet System

T

Abbreviation	Full Text Definition
TOCG	Takeoff Center of Gravity
TOW	Takeoff Weight
TTOL	Taxi Takeoff and Landing

U

Abbreviation	Full Text Definition
UD	Upper Deck
ULD	Unit Load Device
US	United States

V

Abbreviation	Full Text Definition
VCC	Video Control Center
VIP	Very Important Person
VTP	Vertical Tail Plane

WEIGHT AND BALANCE CONTROL

General

W

Abbreviation	Full Text Definition
WBM	Weight and Balance Manual
WV	Weight Variant

X

Abbreviation	Full Text Definition
XLR	EXtra Long Range

Y

Abbreviation	Full Text Definition
YC	Tourist Class or Economy Class
YC+	Premium Tourist Class
Y-arm	Lateral Arm

Z

Abbreviation	Full Text Definition
Z-arm	Vertical Arm
ZFCG	Zero Fuel Center of Gravity
ZFW	Zero Fuel Weight

GLOSSARY

Ident.: CTL-GEN-00017222.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

The weight and balance terms used throughout the WBM are listed below together with their respective definitions.

BULK

Bulk loads are defined as loose items, baggage, or freight that can be loaded within a net section.

CARGO LOADING SYSTEM (CLS)

The CLS is the equipment installed on the floor of the cargo hold:

- To load Unit Load Devices (ULDs) and non-unitized loads
- To restrain ULDs and non-unitized loads against the load factors induced by aircraft accelerations.

GROSS WEIGHT

The gross weight of a unit is the total of:

- The tare weight of the unit
- The weight of the load
- The weight of the unit equipment.

H-ARM

The H-ARM is the distance from the origin of the reference system along the longitudinal (X) axis of the aircraft. The H-ARM is also known as "X-arm" or as "balance arm".

MANUFACTURER'S EMPTY WEIGHT (MEW)

The MEW is the weight of structure, power plant, furnishings, systems, and other items of equipment that are an integral part of a particular aircraft configuration, including the fluids contained in closed systems. The weights of all operator's items are excluded.

MAXIMUM DESIGN LANDING WEIGHT (MLW)

The MLW is the maximum weight at which the aircraft should land.

MAXIMUM DESIGN TAKEOFF WEIGHT (MTOW)

The MTOW is the maximum weight permitted for takeoff as limited by aircraft strength and airworthiness requirements. The MTOW is the maximum weight permitted for the Takeoff Weight (TOW).

MAXIMUM DESIGN TAXI WEIGHT (MTW)

The MTW is the maximum weight permitted for ground maneuver. The MTW takes into account the weight of the fuel necessary for engine start and for taxi.

MAXIMUM DESIGN ZERO FUEL WEIGHT (MZFW)

The MZFW is the maximum weight for the aircraft without the usable fuel. The MZFW is the maximum weight permitted for the Zero Fuel Weight (ZFW).

MINIMUM WEIGHT

The Minimum Weight is the minimum permitted weight at which the aircraft must be operated.

NET RESTRAINT SYSTEM

The net restraint system is an arrangement of nets that is certified to restrain the bulk items against the load factors induced by aircraft accelerations. All parts of the net restraint system are mandatory.

NET SECTION

A net section is a section delimited by 2 successive nets or by a net and a wall.

OPERATIONAL EMPTY WEIGHT (OEW)

The OEW is the total of the MEW and the weight of the operator's items.

OPERATOR'S ITEMS

The operator's items correspond to the catering, the crewmembers, and the items of equipment that are not part of the MEW.

The list of operator's items may include, but is not limited to, the following items:

- Unusable fuel
- Oil for engines, engine-driven generators, and Auxiliary Power Unit (APU)
- Water for galley units and lavatories
- Chemical fluid for waste tanks
- Aircraft documents
- Tool kits
- Passenger seats and life vests
- Structure and fixed equipment of the galley units
- Catering
- Emergency equipment
- Crewmembers and their baggage.

PAYLOAD

The payload is the total of the weights of passengers, cargo, and baggage. The payload may produce revenue or not.

TAKEOFF WEIGHT (TOW)

The TOW is the weight at the start of the takeoff run.

UNIT LOAD DEVICE (ULD)

A ULD is a container or a pallet, and the equipment of the pallet (nets, igloo, etc.). A ULD enables the operator to assemble and restrain individual items in a standard-sized unit.

Y-ARM

The Y-ARM is the distance from the origin of the reference system along the lateral (Y) axis of the aircraft.

Z-ARM

The Z-ARM is the distance from the origin of the reference system along the vertical (Z) axis of the aircraft.

WEIGHT AND BALANCE CONTROL

General

ZERO FUEL WEIGHT (ZFW)

The ZFW is the total of OEW and payload.

UNITS OF MEASUREMENT

Ident.: CTL-GEN-00017221.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

	Unit	Full Text Definition
Weight	kg	kilogram
	lb	pound
Length	mm	millimeter
	m	meter
	in	inch
	ft	foot
	%MAC	percent of the Mean Aerodynamic Chord
Area	m ²	square meter
	in ²	square inch
	ft ²	square foot
Volume	l	liter
	US Gal	US gallon
	m ³	cubic meter
	ft ³	cubic foot
Moment	kg.m	kilogram meter
	lb.in	pound inch
Weight Distribution	kg/m	kilogram per meter
	lb/in	pound per inch
Velocity	km/h	kilometer per hour
	kt	knot
Density	kg/l	kilogram per liter
	lb/US Gal	pound per US gallon
	kg/m ³	kilogram per cubic meter
	lb/ft ³	pound per cubic foot
Pressure	kg/m ²	kilogram per square meter
	lb/in ²	pound per square inch
	lb/ft ²	pound per square foot
Angle	°	degree
Force	daN	decanewton
	lbf	pound-force

WEIGHT AND BALANCE CONTROL

General

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

CONVERSION FACTORS

Ident.: CTL-GEN-00017220.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

	Multiply	By	To Obtain
Weight	kilograms	2.204622	pounds
	pounds	0.453592	kilograms
Length	millimeters	0.03937008	inches
	meters	39.37008	inches
	meters	3.28084	feet
	inches	0.0254	meters
	inches	25.4	millimeters
	feet	0.3048	meters
Area	square meters	1550.003	square inches
	square meters	10.76391	square feet
	square inches	0.00064516	square meters
	square feet	0.09290304	square meters
Volume	liters	0.264172	US gallons
	US gallons	3.785412	liters
	cubic meters	35.31466	cubic feet
	cubic feet	0.02831685	cubic meters
Velocity	kilometers per hour	0.53996	knots
	knots	1.852	kilometers per hour
Density	kilograms per liter	8.34541	pounds per US gallon
	pounds per US gallon	0.11983	kilograms per liter
	kilograms per cubic meter	0.06242797	pounds per cubic foot
	pounds per cubic foot	16.018463	kilograms per cubic meter
Pressure	kilograms per square meter	0.2048161	pounds per square foot
	pounds per square foot	4.882429	kilograms per square meter
Force	decanewton	2.248089	pound-force
	pound-force	0.4448222	decanewton

AIRCRAFT REFERENCE SYSTEM

Ident.: CTL-GEN-00017219.0013001 / 17 JUN 21

Criteria: 20268, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253

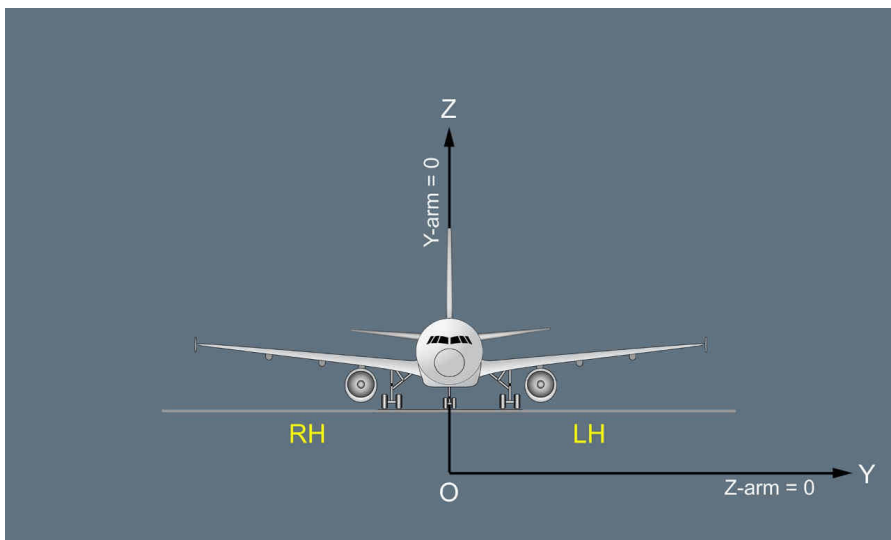
AIRCRAFT REFERENCE SYSTEM

The aircraft reference system (OX, OY, OZ) is defined by the three following reference planes:

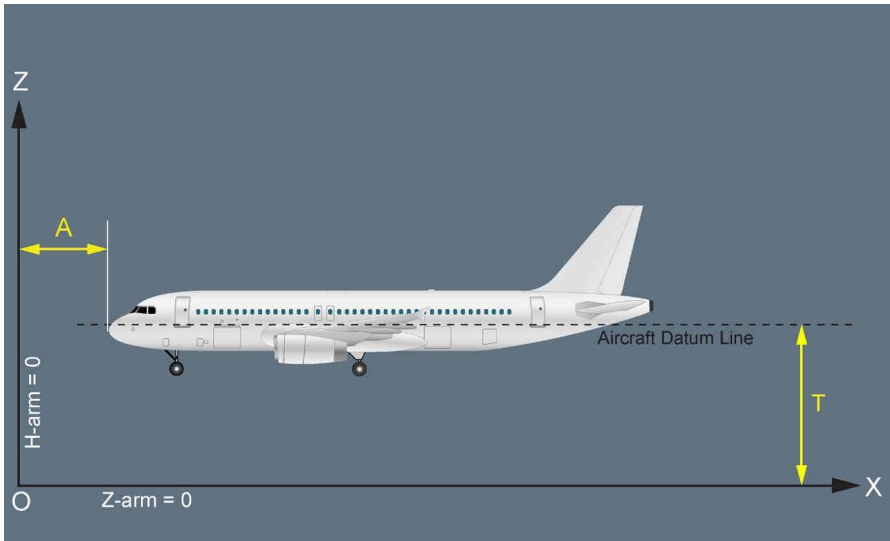
- YOZ plane where H-ARM = 0 is 2.540 m (100.00 in) forward of the aircraft nose (A)
- XOZ plane where Y-ARM = 0 is on the aircraft datum (AD) line. The XOZ plane is the plane of symmetry of the aircraft
- XOY plane where Z-ARM = 0 is 7.000 m (275.59 in) below the aircraft datum line (T).

The Y-ARM is positive on the Left-Hand (LH) side of the aircraft.

Front View



Side View



AIRCRAFT REFERENCE SYSTEM

Ident.: CTL-GEN-00017219.0008001 / 17 JUN 21

Criteria: 160500, 20268, ST1

Applicable to: MSN 05746, 07784, 07792

AIRCRAFT REFERENCE SYSTEM

The aircraft reference system (OX, OY, OZ) is defined by the three following reference planes:

- YOZ plane where H-ARM = 0 is 2.540 m (100.00 in) forward of the aircraft nose (**A**)
- XOZ plane where Y-ARM = 0 is on the aircraft datum (AD) line. The XOZ plane is the plane of symmetry of the aircraft
- XOY plane where Z-ARM = 0 is 7.000 m (275.59 in) below the aircraft datum line (**T**).

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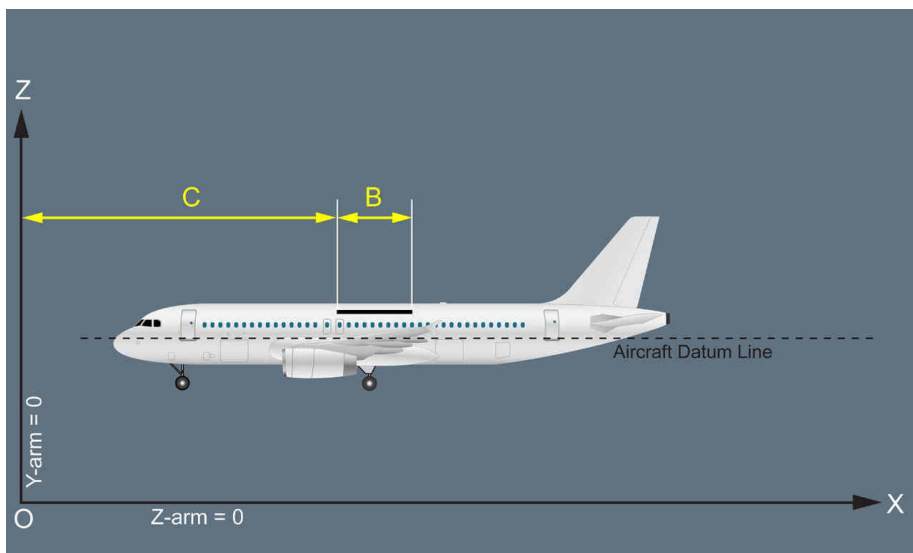
MEAN AERODYNAMIC CHORD (MAC)

Ident.: CTL-GEN-00017218.0013001 / 27 JUL 23

Criteria: 20268, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253

A Center of Gravity (CG) position can be provided in terms of percent of a reference chord.
 For Airbus WBM, the reference chord is the Mean Aerodynamic Chord (MAC) of the aircraft.
 The length of the MAC is 4.1935 m (165.10 in) **(B)**.
 The H-ARM of the Leading Edge of the Mean Aerodynamic Chord (LEMAC) is 17.8015 m (700.85 in) **(C)**.

MAC


Symbol	Definition	Unit	
		Metric	US
H-ARM	Horizontal arm	m	in
B	MAC		
C	LEMAC		

%MAC AND H-ARM CONVERSION

An H-ARM can be converted into a percent of the MAC via the following calculations:

Metric Units:

$$\%MAC = \frac{H-arm - LEMAC}{\left(\frac{MAC}{100}\right)} = \frac{H-arm - 17.8015}{(0.041935)}$$

US Units:

$$\%MAC = \frac{H-arm - LEMAC}{\left(\frac{MAC}{100}\right)} = \frac{H-arm - 700.85}{(1.651)}$$

A percent of the MAC can be converted into H-ARM via the following calculations:

Metric Units:

$$H-arm(m) = (\%MAC \times \left(\frac{MAC}{100}\right)) + LEMAC = (\%MAC \times 0.041935) + 17.8015$$

US Units:

$$H-arm(in) = (\%MAC \times \left(\frac{MAC}{100}\right)) + LEMAC = (\%MAC \times 1.651) + 700.85$$

MEAN AERODYNAMIC CHORD (MAC)

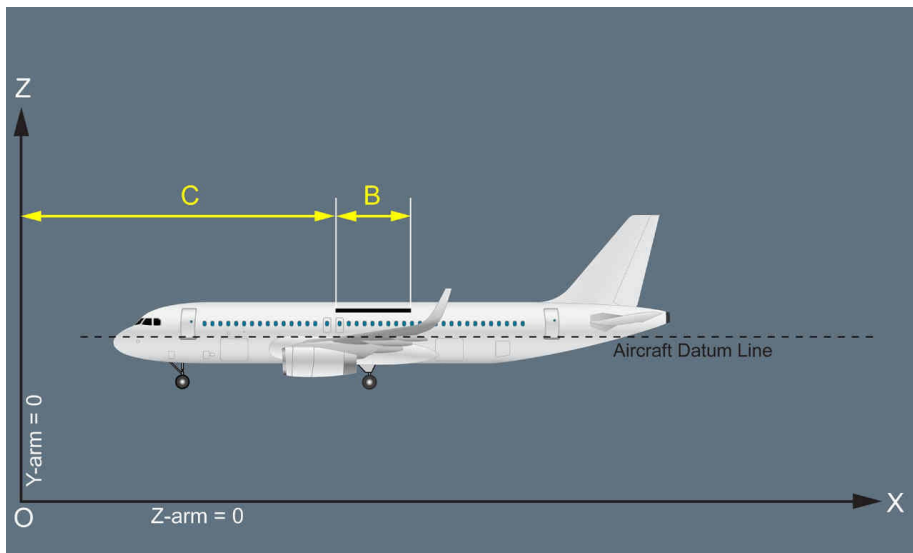
Ident.: CTL-GEN-00017218.0008001 / 27 JUL 23

Criteria: 160500, 20268, ST1

Applicable to: MSN 05746, 07784, 07792

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A percent of the MAC can be converted into H-ARM via the following calculations:

Metric Units:

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$$H\text{-arm(in)} = (\%MAC \times \left(\frac{MAC}{100} \right)) + LEMAC = (\%MAC \times 1.651) + 700.85$$

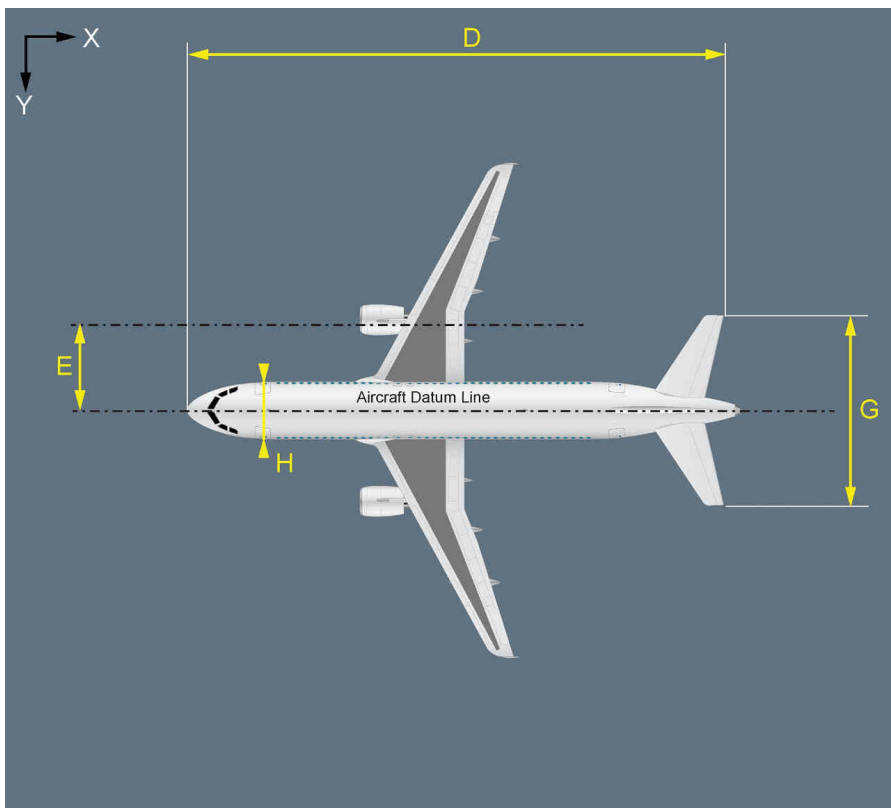
AIRCRAFT MAIN DIMENSIONS

Ident.: CTL-GEN-00017217.0013001 / 31 JUL 18

Criteria: 20268, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253

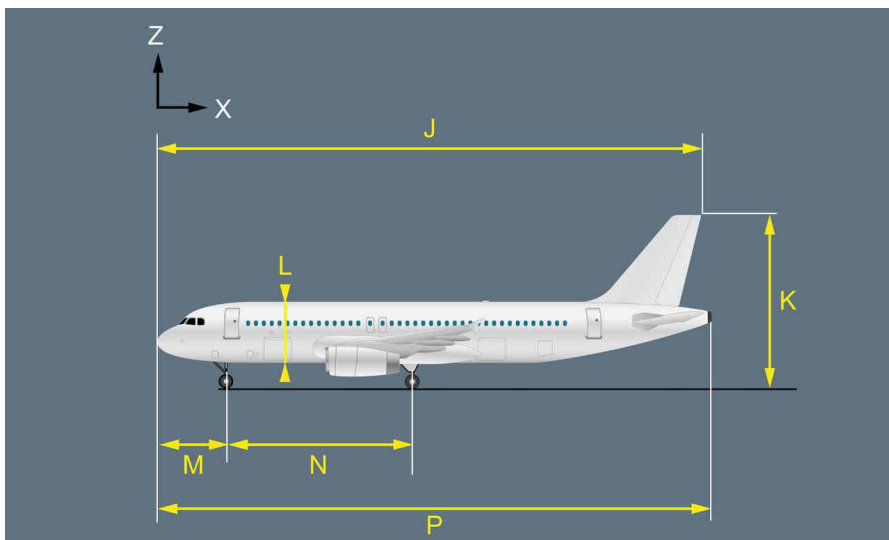
TOP VIEW



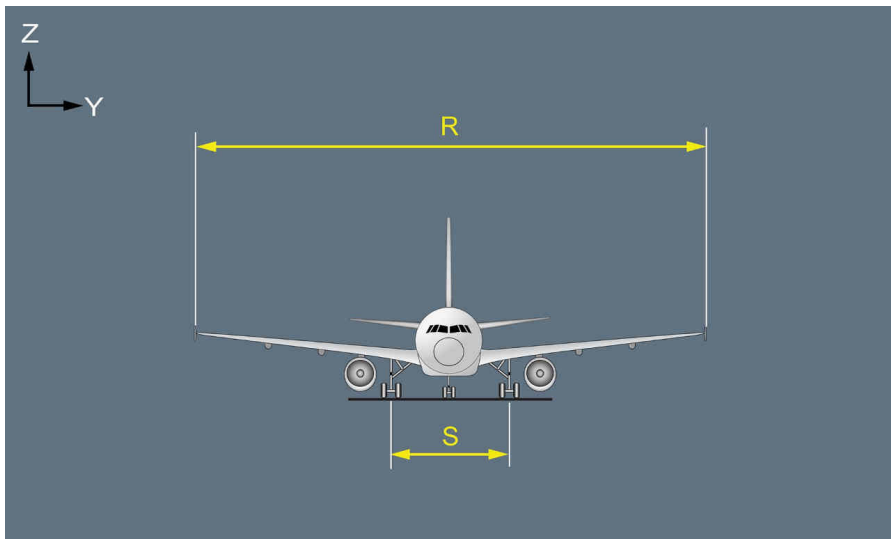
Legend	Designation	Dimensions	
		(m)	(in)
D	Distance between the A/C nose and the end of the Horizontal Tail Plane (HTP)	36.758	1 447.16
E	Distance between the AD line and the CG of the engine	5.755	226.57
G	Span of Horizontal Tail Plane (HTP)	12.450	490.16
H	Fuselage width	3.950	155.51

SIDE VIEW

The dimensions **M**, **K**, and **N** indicated in the following illustration are nominal for aircraft at Maximum Taxi Weight (MTW) and CG location at 25 %MAC.



Legend	Designation	Dimensions	
		(m)	(in)
J	Distance between the A/C nose and the end of the Vertical Tail Plane (VTP)	36.843	1 450.51
K	Overall height from ground	11.755	462.80
L	Fuselage height	3.950	155.51
M	Distance between the A/C nose and the Nose Landing Gear (NLG)	5.073	199.72
N	Distance between the NLG and the Main Landing Gear (MLG)	12.639	497.60
P	Overall length	37.573	1 479.25

FRONT VIEW


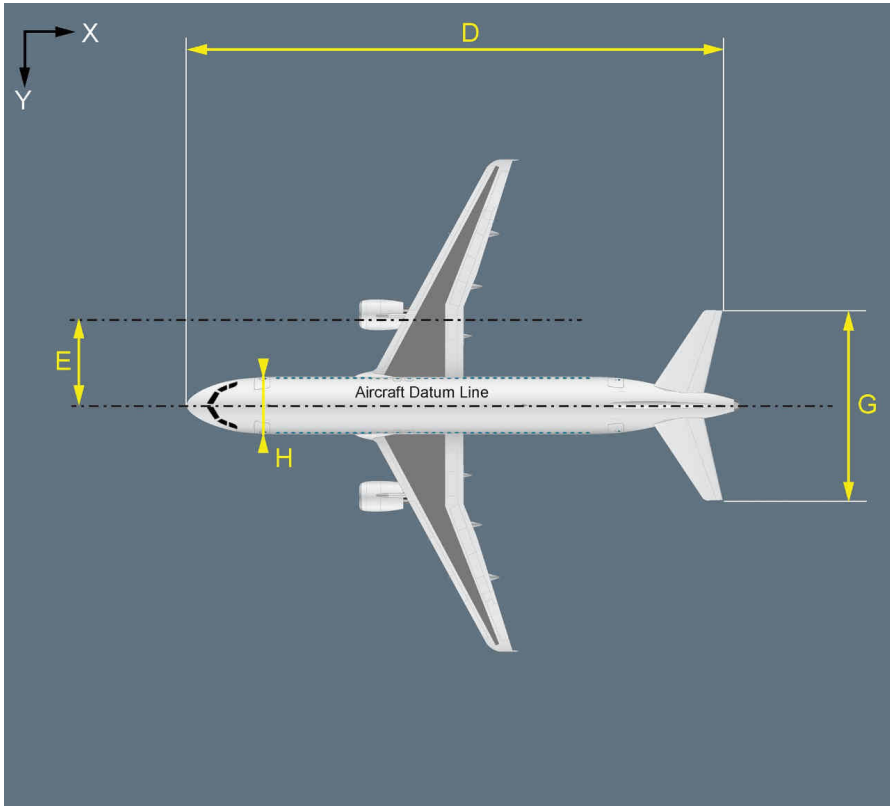
Legend	Designation	Dimensions	
		(m)	(in)
R	Wing span	34.100	1 342.52
S	Distance between the MLG right and the MLG left	7.590	298.82

AIRCRAFT MAIN DIMENSIONS

Ident.: CTL-GEN-00017217.0008001 / 31 JUL 18

Criteria: 160500, 20268, ST1

Applicable to: MSN 05746, 07784, 07792

TOP VIEW


Legend	Designation	Dimensions	
		(m)	(in)
D	Distance between the A/C nose and the end of the Horizontal Tail Plane (HTP)	36.758	1 447.16
E	Distance between the AD line and the CG of the engine	5.755	226.57

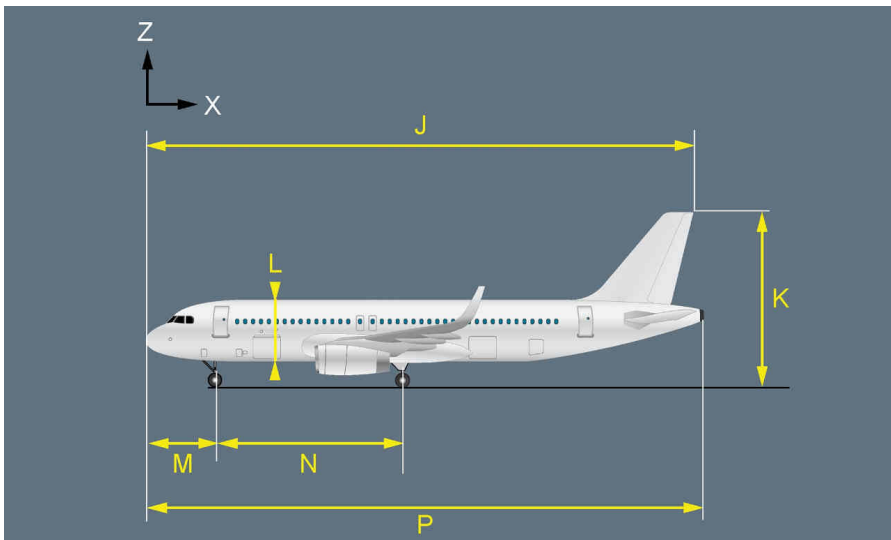
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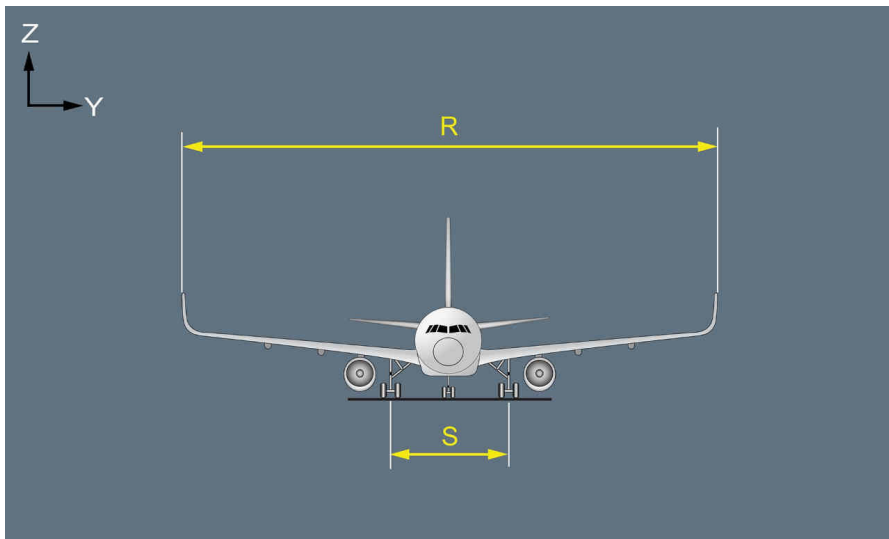
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A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL
FRONT VIEW


Legend	Designation	Dimensions	
		(m)	(in)
R	Wing span	35.800	1 409.45
S	Distance between the MLG right and the MLG left	7.590	298.82

PITCH TRIM SETTING

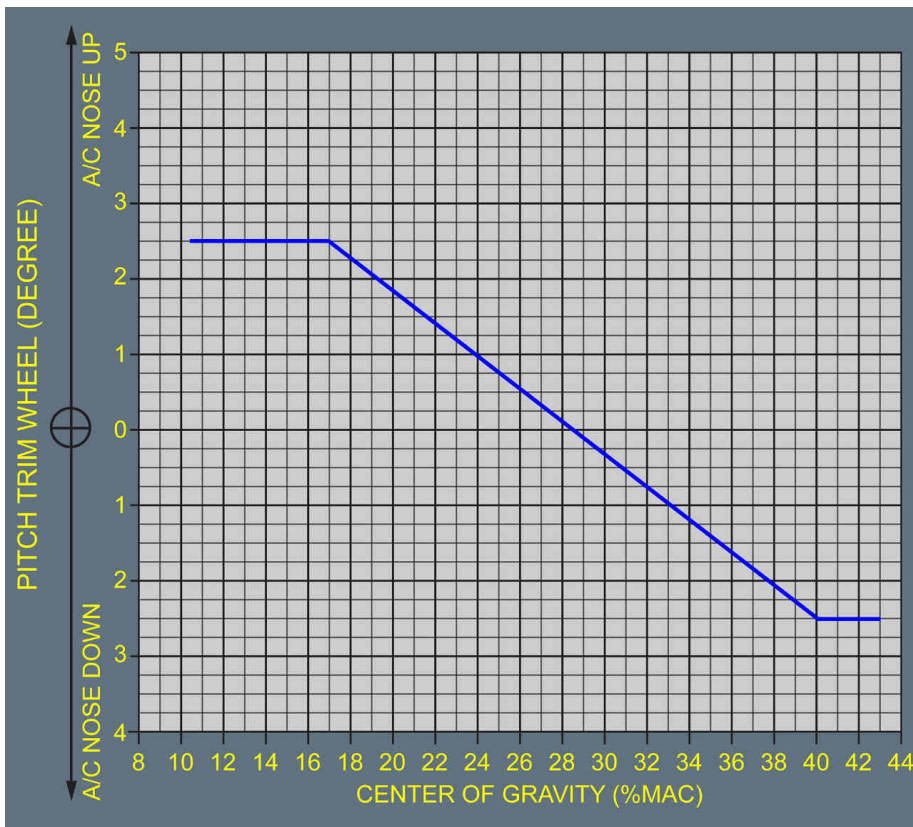
Ident.: CTL-GEN-00017216.0011001 / 16 JUN 20

Criteria: 20653, 22548, ST1

Applicable to: ALL

The following illustration can be used to determine the setting of the pitch trim wheel, and takes into account all weights and configurations.

Pitch Trim Wheel Setting



Center of Gravity (%MAC)	Pitch Trim Wheel (Degree)
10.5	2.5 UP ⁽¹⁾
17.0	2.5 UP ⁽¹⁾
40.0	2.5 DN ⁽²⁾
43.0	2.5 DN ⁽²⁾

⁽¹⁾ UP: A/C Nose Up

⁽²⁾ DN: A/C Nose Down

A tolerance of 5 %MAC forward and 5 %MAC aft between the real and calculated Takeoff Center of Gravity (TOCG) is acceptable when the Operator sets the takeoff pitch trim setting.

EFFECT OF MOVING COMPONENTS ON THE AIRCRAFT CG

Ident.: CTL-GEN-00017215.0001001 / 25 AUG 20

Criteria: 20802, ST1

Applicable to: ALL

The movement of the following components affect the aircraft CG position:

- Slats and flaps
- Thrust reversers
- Landing gears.

This part provides the balance effect due to the movement of each component.

EXTENSION OF THE SLATS AND FLAPS

The following table provides for all lever positions the moment due to the extension of slats and flaps:

Lever Position	Total Moment	
	(kg.m)	(lb.in)
0 (Cruise)	0	0
1 (Holding)	-100	-8 679
1+F (Takeoff)	120	10 415
2 (Takeoff, Approach)	170	14 755
3 (Takeoff, Approach, Landing)	230	19 963
Full (Landing)	240	20 831

EXTENSION OF THE THRUST REVERSERS

The extension of the thrust reversers has a negligible balance effect on the aircraft CG.

RETRACTION OF THE LANDING GEARS

The following table provides the moment due to the retraction of each landing gear:

	Total Moment	
	(kg.m)	(lb.in)
Nose Landing Gear (NLG)	-200	-17 359
Main Landing Gears (MLG) ⁽¹⁾	-750	-65 097

⁽¹⁾ The MLG total moment takes into account both main landing gears (LH and RH).

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Introduction
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INTRODUCTION

Ident.: CTL-LIM-INT-00017224.0001001 / 03 JUN 25 Criteria: ST1 Applicable to: ALL	<u>APPROVED</u>
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The LIM Limitations chapter defines rules for the operation of the aircraft in terms of weight and balance.

The Operator must operate the aircraft within the limits provided in the current chapter.

The LIM-WGHT-Loading chapter of the Airplane Flight Manual (AFM) refers to the content of the LIM Limitations chapter.

The technical content of the chapter LIM - Limitations is approved by the European Aviation Safety Agency (EASA), or by Airbus under DOA reference EASA.21J.031 for WBM minor changes.

WEIGHT AND BALANCE CONTROL

Limitations

Introduction

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WEIGHT AND BALANCE CONTROL

Limitations

Design Weights and CG

Design Weights

WEIGHT VARIANT (WV) 010

Ident.: CTL-LIM-DWCG-DWV-00017238.0009001 / 03 JUN 25

APPROVED

Criteria: 23264, 23900, ST1

Applicable to: MSN 07784, 07792

The aircraft has the design Weight Variant (WV) 010.

WV 010	Design Weight	
	(kg)	(lb)
Maximum design Taxi Weight (MTW)	77 400	170 637
Maximum design Takeoff Weight (MTOW)	77 000	169 755
Maximum design Landing Weight (MLW)	64 500	142 198
Maximum design Zero Fuel Weight (MZFW)	61 000	134 481
Minimum weight	37 230	82 079

WEIGHT VARIANT (WV) 011

Ident.: CTL-LIM-DWCG-DWV-00017237.0008001 / 03 JUN 25

APPROVED

Criteria: 23900, 30307, 35311, 35735, ST1

Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060

The aircraft has the design Weight Variant (WV) 011.

WV 011	Design Weight	
	(kg)	(lb)
Maximum design Taxi Weight (MTW)	75 900	167 330
Maximum design Takeoff Weight (MTOW)	75 500	166 448
Maximum design Landing Weight (MLW)	66 000	145 505
Maximum design Zero Fuel Weight (MZFW)	62 500	137 788
Minimum weight	37 230	82 079

WEIGHT VARIANT (WV) 012

Ident.: CTL-LIM-DWCG-DWV-00017236.0004001 / 03 JUN 25

APPROVED

Criteria: 23900, 30479, 35311, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746

The aircraft has the design Weight Variant (WV) 012.

WV 012	Design Weight	
	(kg)	(lb)
Maximum design Taxi Weight (MTW)	77 400	170 637
Maximum design Takeoff Weight (MTOW)	77 000	169 755
Maximum design Landing Weight (MLW)	66 000	145 505

Continued on the following page

WEIGHT AND BALANCE CONTROL

Limitations

Design Weights and CG

Continued from the previous page

WV 012	Design Weight	
	(kg)	(lb)
Maximum design Zero Fuel Weight (MZFW)	62 500	137 788
Minimum weight	37 230	82 079

WEIGHT VARIANT (WV) 016

Ident.: CTL-LIM-DWCG-DWV-00017232.0004001 / 03 JUN 25

Criteria: 23900, 35311, 35735, ST1

Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060

APPROVED

The aircraft has the design Weight Variant (WV) 016.

WV 016	Design Weight	
	(kg)	(lb)
Maximum design Taxi Weight (MTW)	73 900	162 921
Maximum design Takeoff Weight (MTOW)	73 500	162 039
Maximum design Landing Weight (MLW)	66 000	145 505
Maximum design Zero Fuel Weight (MZFW)	62 500	137 788
Minimum weight	37 230	82 079

WEIGHT AND BALANCE CONTROL

Limitations

Design Weights and CG

Design Center of Gravity Limits

CG LIMITS FOR WEIGHT VARIANT (WV) 010

Ident.: CTL-LIM-DWCG-DCG-00017259.0025001 / 03 JUN 25

APPROVED

Criteria: 320-214, 23264, 23900, ST1

Applicable to: MSN 07784, 07792

The CG limit between two successive weights is a linear variation in term of moments.

CG TABLES WV 010

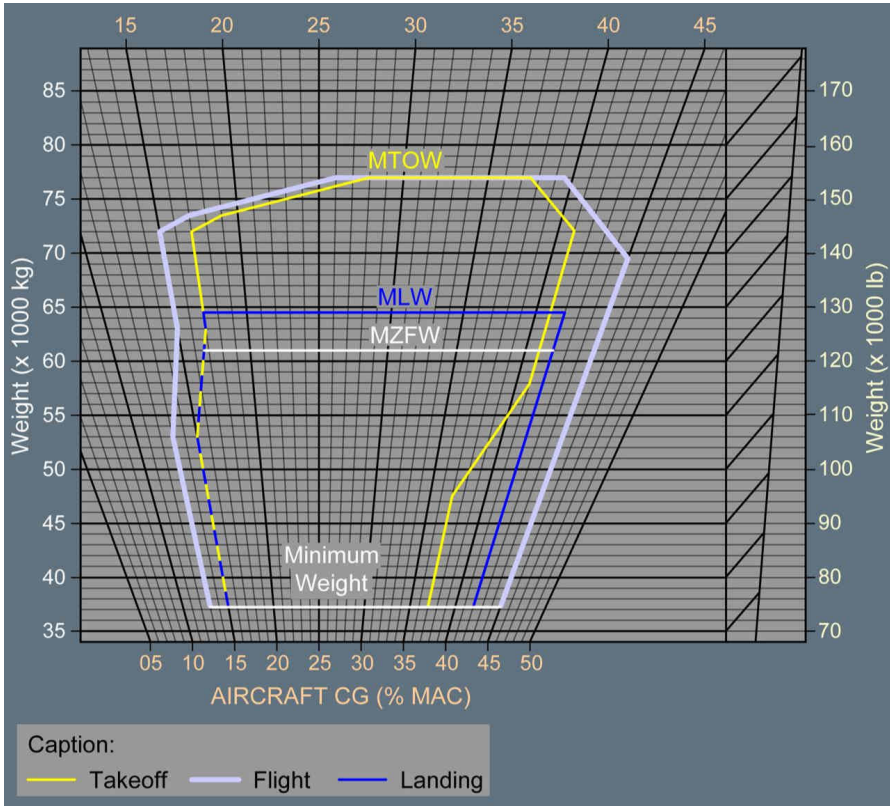
FORWARD CG LIMITS

A/C Weight		A/C CG					
		Takeoff (L/G, slats, and flaps down)		Flight (L/G, slats, and flaps up)		Landing (L/G, slats, and flaps down)	
		Extended Forward	Basic	Extended Forward	Basic	Extended Forward	Basic
(kg)	(lb)	(%MAC)		(%MAC)		(%MAC)	
37 230	82 079	15.00	25.00	13.00	23.00	15.00	25.00
53 000	116 844	15.00	25.00	13.00	23.00	15.00	25.00
63 000	138 891	17.00	25.00	15.00	23.00	17.00	25.00
64 500	142 198	17.00	25.00	15.00	23.00	17.00	25.00
72 000	158 732	17.00	25.00	15.00	23.00	-	-
73 500	162 039	18.90	25.00	16.90	23.00	-	-
75 810	167 132	-	25.00	-	23.00	-	-
77 000	169 755	28.00	28.00	26.00	26.00	-	-

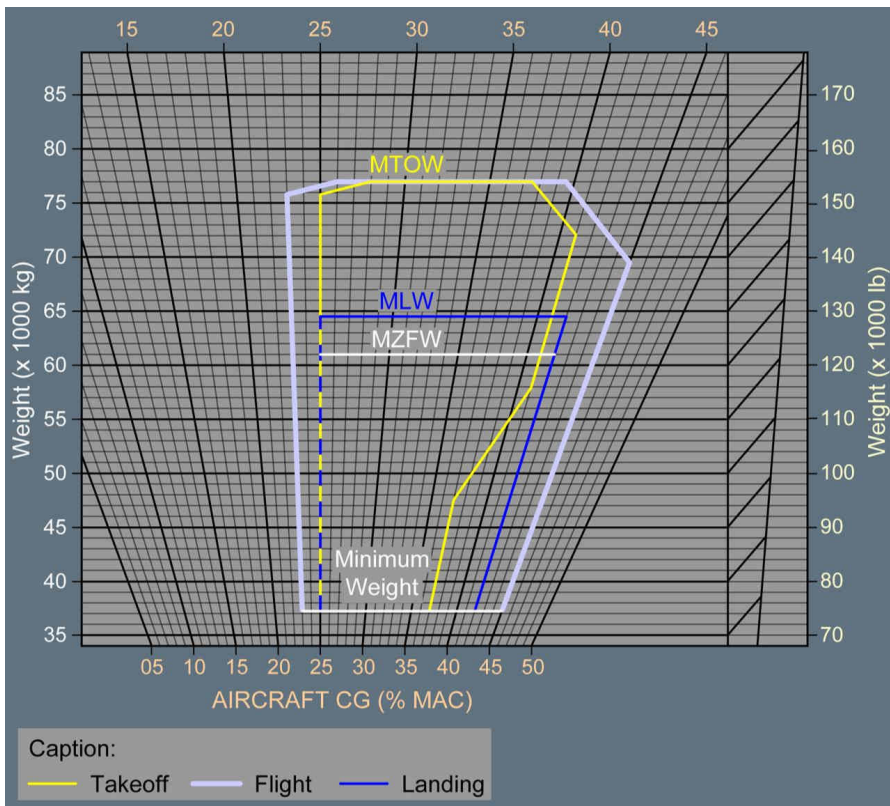
AFT CG LIMITS

A/C Weight		A/C CG		
		Takeoff (L/G, slats, and flaps down)	Flight (L/G, slats, and flaps up)	Landing (L/G, slats, and flaps down)
(kg)	(lb)	(%MAC)	(%MAC)	(%MAC)
37 230	82 079	37.00	45.00	42.00
47 500	104 719	37.00	45.00	42.00
57 900	127 647	41.00	45.00	42.00
64 500	142 198	41.00	45.00	42.00
69 500	153 221	41.00	45.00	-
72 100	158 953	41.00	-	-
77 000	169 755	37.50	39.50	-

CG DIAGRAM WV 010 EXTENDED FORWARD



CG DIAGRAM WV 010 BASIC



CG LIMITS FOR WEIGHT VARIANT (WV) 011

Ident.: CTL-LIM-DWCG-DCG-00017258.0028001 / 03 JUN 25

Criteria: 320-214, 320-216, 23900, 30307, 35311, 35735, ST1

Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060

APPROVED

The CG limit between two successive weights is a linear variation in term of moments.

WEIGHT AND BALANCE CONTROL
Limitations

Design Weights and CG

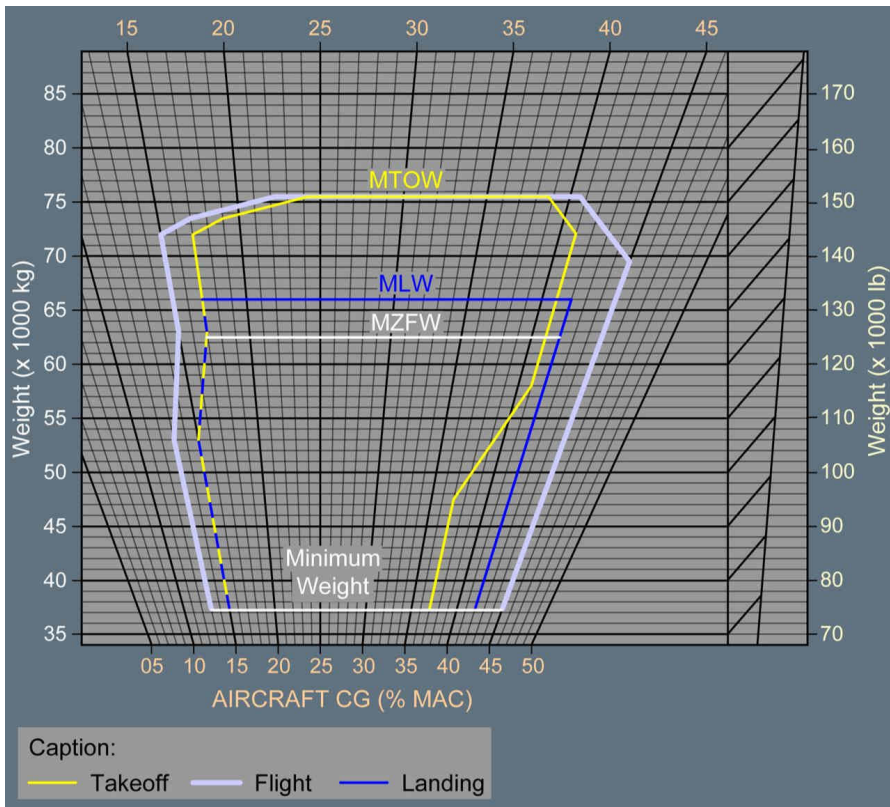
CG TABLES WV 011
FORWARD CG LIMITS

A/C Weight		A/C CG					
		Takeoff (L/G, slats, and flaps down)		Flight (L/G, slats, and flaps up)		Landing (L/G, slats, and flaps down)	
		Extended Forward	Basic	Extended Forward	Basic	Extended Forward	Basic
(kg)	(lb)	(%MAC)		(%MAC)		(%MAC)	
37 230	82 079	15.00	25.00	13.00	23.00	15.00	25.00
53 000	116 844	15.00	25.00	13.00	23.00	15.00	25.00
63 000	138 891	17.00	25.00	15.00	23.00	17.00	25.00
66 000	145 505	17.00	25.00	15.00	23.00	17.00	25.00
72 000	158 732	17.00	25.00	15.00	23.00	-	-
73 500	162 039	18.90	25.00	16.90	23.00	-	-
75 500	166 448	24.25	25.00	22.25	23.00	-	-

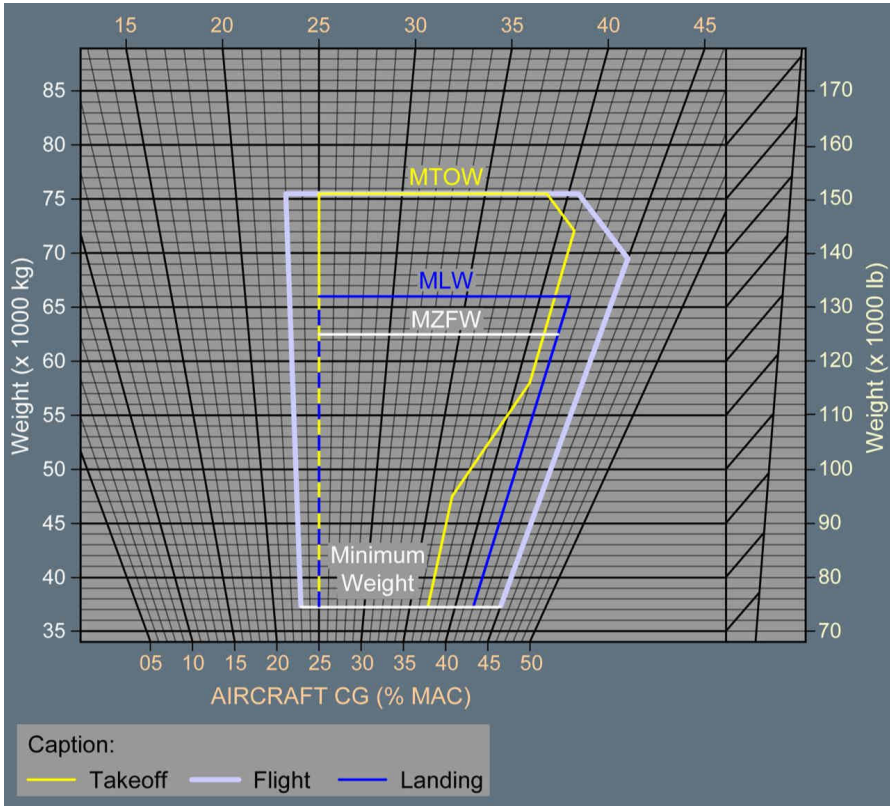
AFT CG LIMITS

A/C Weight		A/C CG		
		Takeoff (L/G, slats, and flaps down)	Flight (L/G, slats, and flaps up)	Landing (L/G, slats, and flaps down)
(kg)	(lb)	(%MAC)	(%MAC)	(%MAC)
37 230	82 079	37.00	45.00	42.00
47 500	104 719	37.00	45.00	42.00
57 900	127 647	41.00	45.00	42.00
66 000	145 505	41.00	45.00	42.00
69 500	153 221	41.00	45.00	-
72 100	158 953	41.00	-	-
75 500	166 448	38.70	40.60	-

CG DIAGRAM WV 011 EXTENDED FORWARD



CG DIAGRAM WV 011 BASIC



CG LIMITS FOR WEIGHT VARIANT (WV) 012

Ident.: CTL-LIM-DWCG-DCG-00017257.0015001 / 03 JUN 25

Criteria: 320-214, 23900, 30479, 35311, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746

APPROVED

The CG limit between two successive weights is a linear variation in term of moments.

WEIGHT AND BALANCE CONTROL

Limitations

Design Weights and CG

CG TABLES WV 012

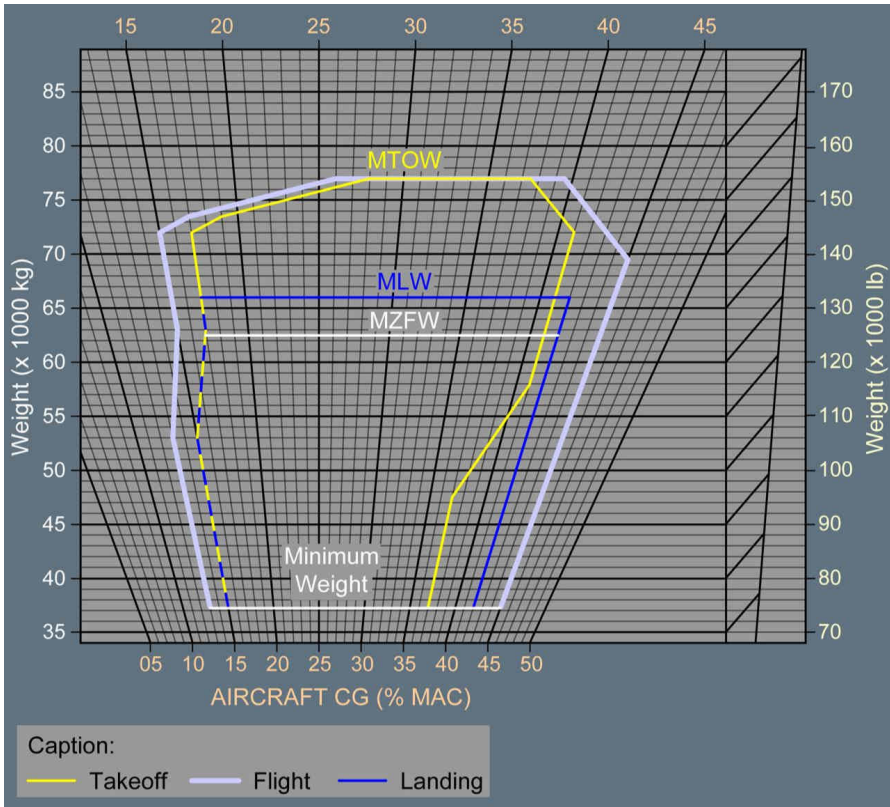
FORWARD CG LIMITS

A/C Weight		A/C CG					
		Takeoff (L/G, slats, and flaps down)		Flight (L/G, slats, and flaps up)		Landing (L/G, slats, and flaps down)	
		Extended Forward	Basic	Extended Forward	Basic	Extended Forward	Basic
(kg)	(lb)	(%MAC)		(%MAC)		(%MAC)	
37 230	82 079	15.00	25.00	13.00	23.00	15.00	25.00
53 000	116 844	15.00	25.00	13.00	23.00	15.00	25.00
63 000	138 891	17.00	25.00	15.00	23.00	17.00	25.00
66 000	145 505	17.00	25.00	15.00	23.00	17.00	25.00
72 000	158 732	17.00	25.00	15.00	23.00	-	-
73 500	162 039	18.90	25.00	16.90	23.00	-	-
75 810	167 132	-	25.00	-	23.00	-	-
77 000	169 755	28.00	28.00	26.00	26.00	-	-

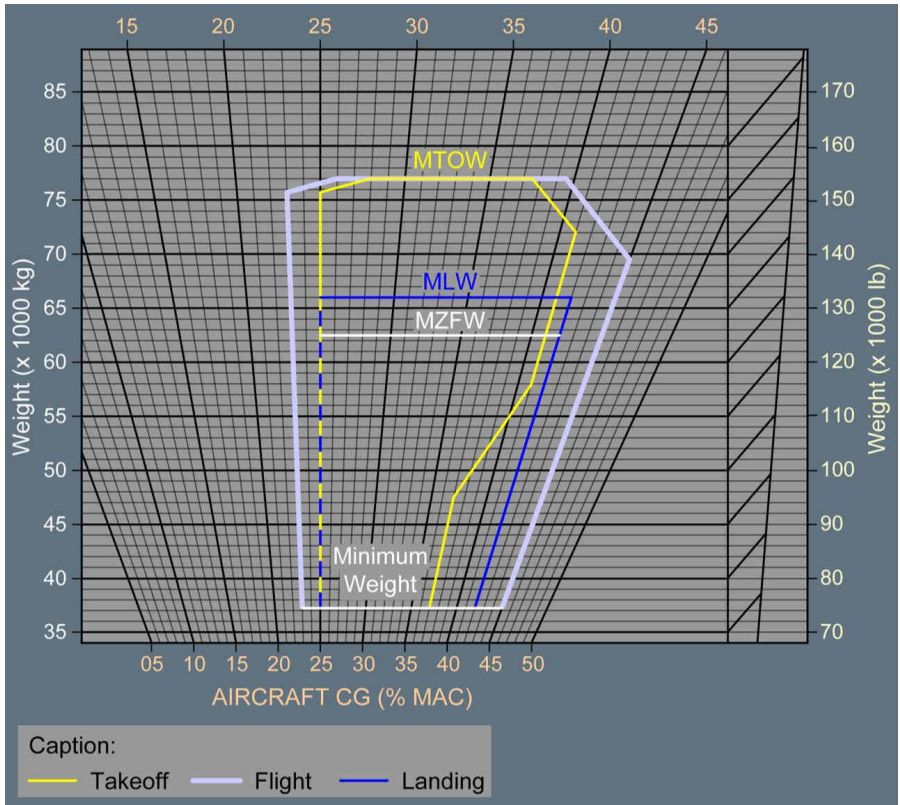
AFT CG LIMITS

A/C Weight		A/C CG		
		Takeoff (L/G, slats, and flaps down)	Flight (L/G, slats, and flaps up)	Landing (L/G, slats, and flaps down)
(kg)	(lb)	(%MAC)	(%MAC)	(%MAC)
37 230	82 079	37.00	45.00	42.00
47 500	104 719	37.00	45.00	42.00
57 900	127 647	41.00	45.00	42.00
66 000	145 505	41.00	45.00	42.00
69 500	153 221	41.00	45.00	-
72 100	158 953	41.00	-	-
77 000	169 755	37.50	39.50	-

CG DIAGRAM WV 012 EXTENDED FORWARD



CG DIAGRAM WV 012 BASIC



CG LIMITS FOR WEIGHT VARIANT (WV) 016

Ident.: CTL-LIM-DWCG-DCG-00017253.0013001 / 03 JUN 25

Criteria: 320-214, 320-216, 23900, 35311, 35735, ST1

Applicable to: MSN 02719, 02758, 02789, 02926, 02944, 03031, 03060

APPROVED

The CG limit between two successive weights is a linear variation in term of moments.

WEIGHT AND BALANCE CONTROL

Limitations

Design Weights and CG

CG TABLES WV 016

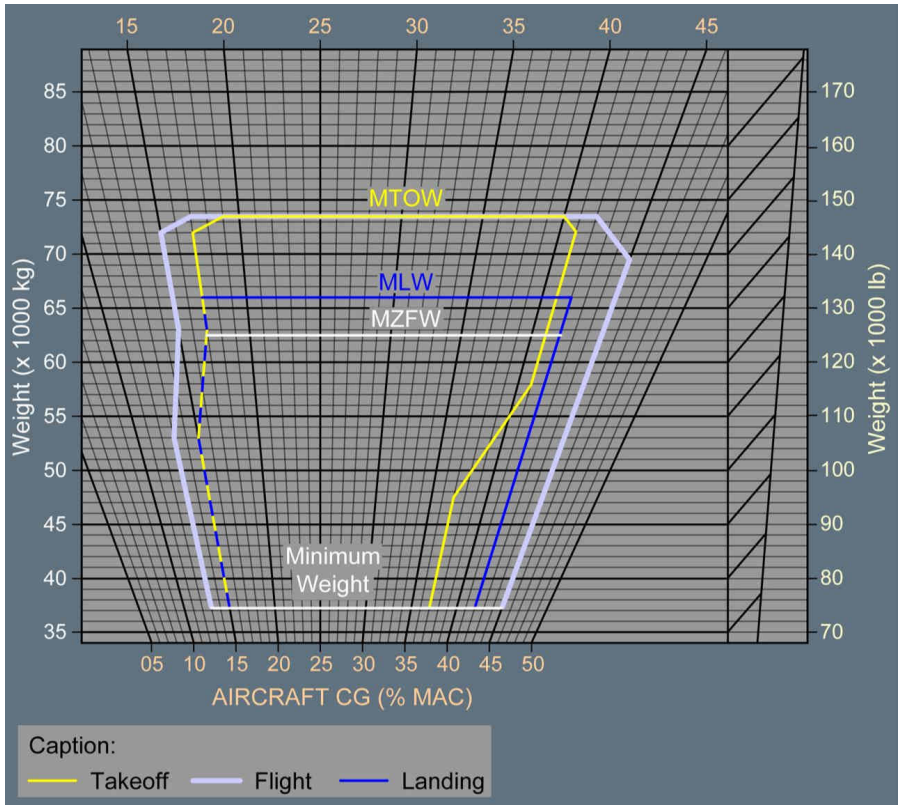
FORWARD CG LIMITS

A/C Weight		A/C CG					
		Takeoff (L/G, slats, and flaps down)		Flight (L/G, slats, and flaps up)		Landing (L/G, slats, and flaps down)	
		Extended Forward	Basic	Extended Forward	Basic	Extended Forward	Basic
(kg)	(lb)	(%MAC)		(%MAC)		(%MAC)	
37 230	82 079	15.00	25.00	13.00	23.00	15.00	25.00
53 000	116 844	15.00	25.00	13.00	23.00	15.00	25.00
63 000	138 891	17.00	25.00	15.00	23.00	17.00	25.00
66 000	145 505	17.00	25.00	15.00	23.00	17.00	25.00
72 000	158 732	17.00	25.00	15.00	23.00	-	-
73 500	162 039	18.90	25.00	16.90	23.00	-	-

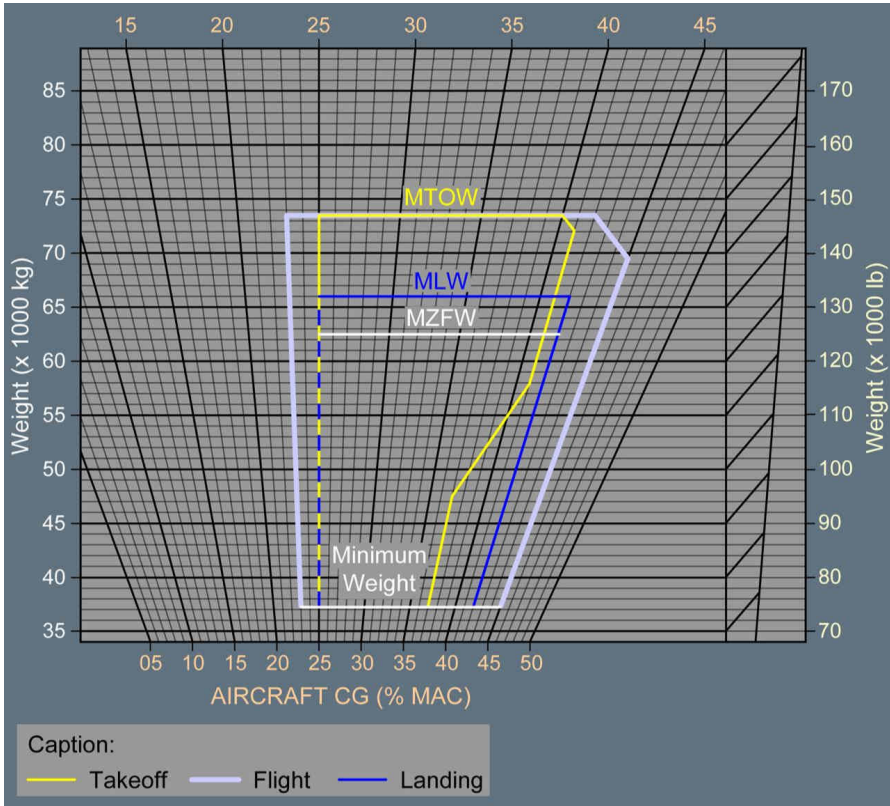
AFT CG LIMITS

A/C Weight		A/C CG		
		Takeoff (L/G, slats, and flaps down)	Flight (L/G, slats, and flaps up)	Landing (L/G, slats, and flaps down)
(kg)	(lb)	(%MAC)	(%MAC)	(%MAC)
37 230	82 079	37.00	45.00	42.00
47 500	104 719	37.00	45.00	42.00
57 900	127 647	41.00	45.00	42.00
66 000	145 505	41.00	45.00	42.00
69 500	153 221	41.00	45.00	-
72 100	158 953	41.00	-	-
73 500	162 039	40.00	42.00	-

CG DIAGRAM WV 016 EXTENDED FORWARD



CG DIAGRAM WV 016 BASIC



WEIGHT AND BALANCE CONTROL

Limitations

Certified Cumulative Loads

CERTIFIED CUMULATIVE LOADS

Ident.: CTL-LIM-CCL-00020497.0020001 / 03 JUN 25

Criteria: 23900, ST1

Applicable to: MSN 07784, 07792

APPROVED

This section describes the certified limits for fuselage shear loads and the fuselage bending moments due to payload (i.e. passengers and cargo).

The fuselage shear loads and fuselage bending moments depend on the Zero Fuel Center of Gravity (ZFCG).

The illustrations and tables below provide the certified limits for the fuselage shear loads and the fuselage bending moments for both of the following fuselage sections:

- The forward fuselage section, from the nose of the aircraft to the forward side of the wing box, at H-ARM = 15.900 m (625.98 in)
- The aft fuselage section, from the aft side of the wing box, at H-ARM = 18.694 m (735.98 in), to the end of the fuselage.

There are no restrictions for the fuselage shear loads and the fuselage bending moments between the forward fuselage section and the aft fuselage section.

FUSELAGE SHEAR LOADS

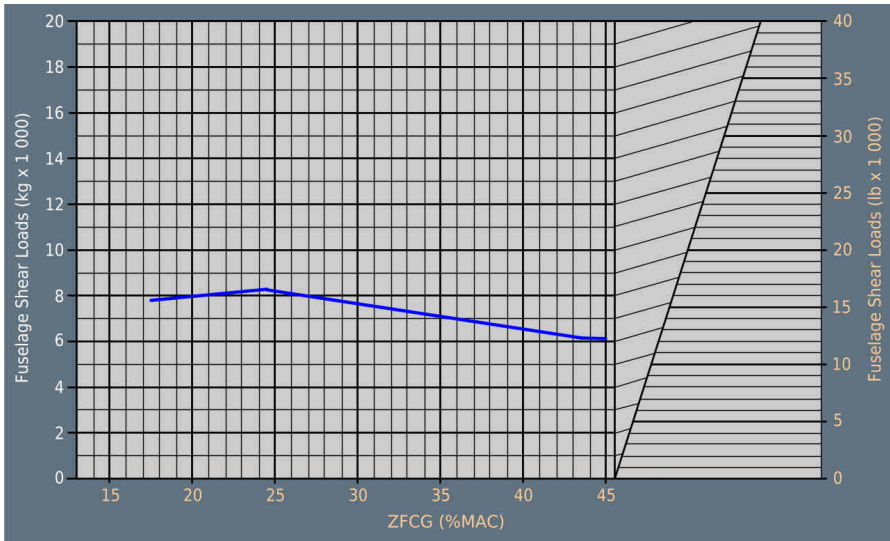
FWD Fuselage Section		
ZFCG	MAX Fuselage Shear Load	
(%MAC)	(kg)	(lb)
17.5	7 800	17 196
24.5	8 300	18 298
43.5	6 200	13 669
45.0	6 150	13 558

WEIGHT AND BALANCE CONTROL

Limitations

Certified Cumulative Loads

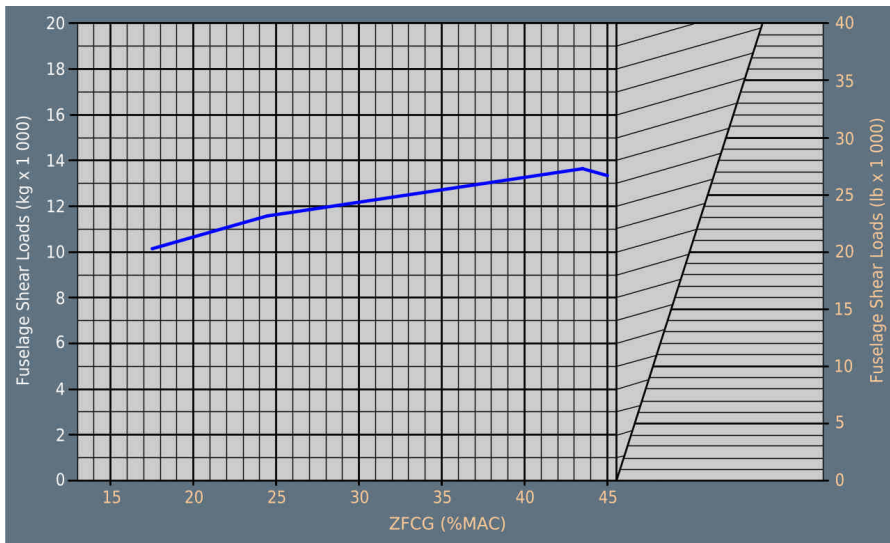
Fuselage Shear Loads - FWD



Aft Fuselage Section

ZFCG (%MAC)	MAX Fuselage Shear Load		
	(kg)		(lb)
17.5	10 100		22 267
24.5	11 600		25 574
43.5	13 700		30 203
45.0	13 300		29 321

Fuselage Shear Loads - Aft



FUSELAGE BENDING MOMENTS

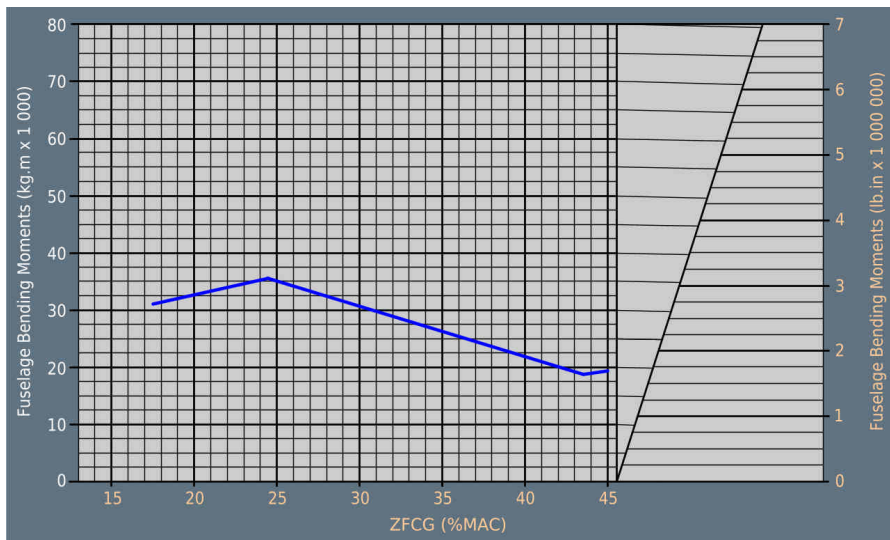
FWD Fuselage Section		
ZFCG	MAX Fuselage Bending Moment	
(%MAC)	(kg.m)	(lb.in)
17.5	31 000	2 690 681
24.5	35 500	3 081 264
43.5	19 000	1 649 127
45.0	19 500	1 692 525

WEIGHT AND BALANCE CONTROL

Limitations

Certified Cumulative Loads

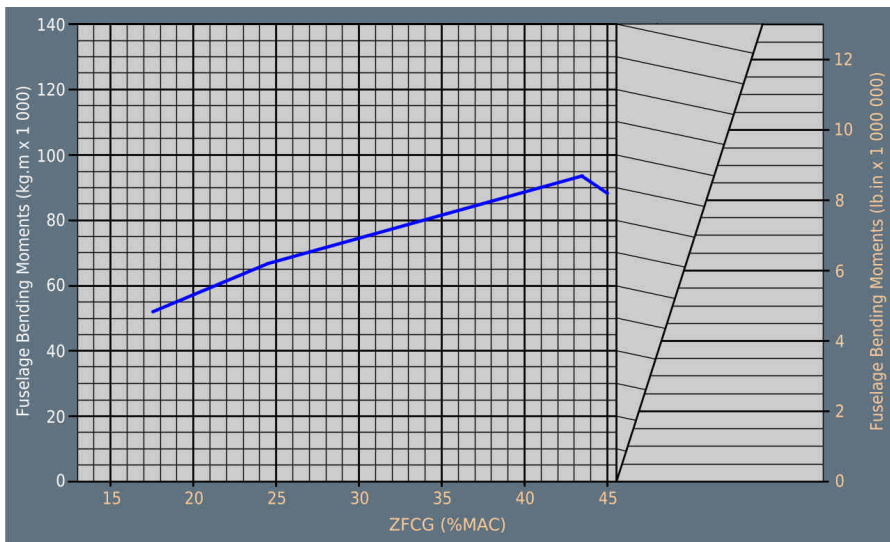
Fuselage Bending Moments - FWD



Aft Fuselage Section

ZFCG (%MAC)	MAX Fuselage Bending Moment		
	(kg.m)		(lb.in)
17.5	52 000		4 513 401
24.5	67 000		5 815 343
43.5	93 000		8 072 043
45.0	88 000		7 638 063

Fuselage Bending Moments - Aft



The operator does not need to check the fuselage shear loads and the fuselage bending moments if:

- The loading complies with the limitations included in the LIM-Limitations chapter
- The operator prefers pyramidal loadings and loads the heaviest items close to the wing box:
 - Aft of the forward cargo hold
 - Forward of the aft cargo hold.

CERTIFIED CUMULATIVE LOADS

Ident.: CTL-LIM-CCL-00020497.0022001 / 03 JUN 25

APPROVED

Criteria: 23900, 30307, 30479, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253, 05746

This section describes the certified limits for fuselage shear loads and the fuselage bending moments due to payload (i.e. passengers and cargo).

The fuselage shear loads and fuselage bending moments depend on the Zero Fuel Center of Gravity (ZFCG).

The illustrations and tables below provide the certified limits for the fuselage shear loads and the fuselage bending moments for both of the following fuselage sections:

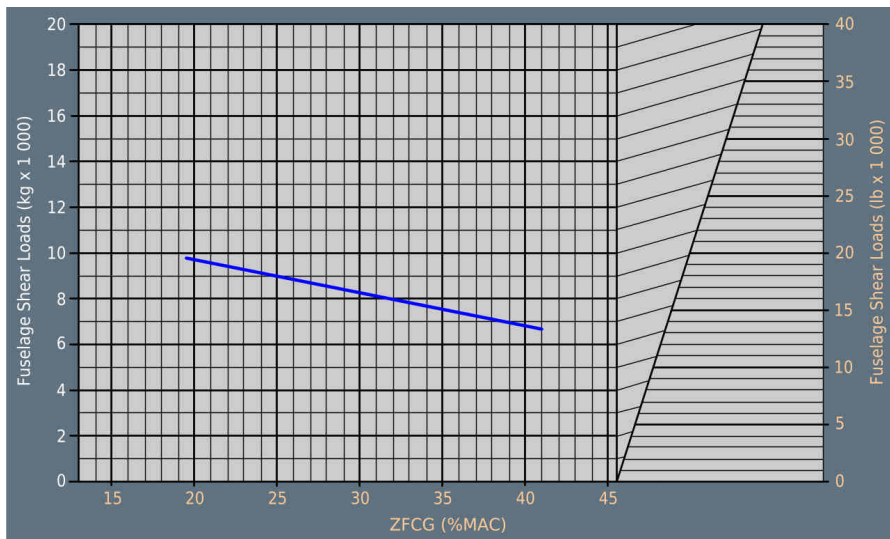
- The forward fuselage section, from the nose of the aircraft to the forward side of the wing box, at H-ARM = 15.900 m (625.98 in)
- The aft fuselage section, from the aft side of the wing box, at H-ARM = 18.694 m (735.98 in), to the end of the fuselage.

There are no restrictions for the fuselage shear loads and the fuselage bending moments between the forward fuselage section and the aft fuselage section.

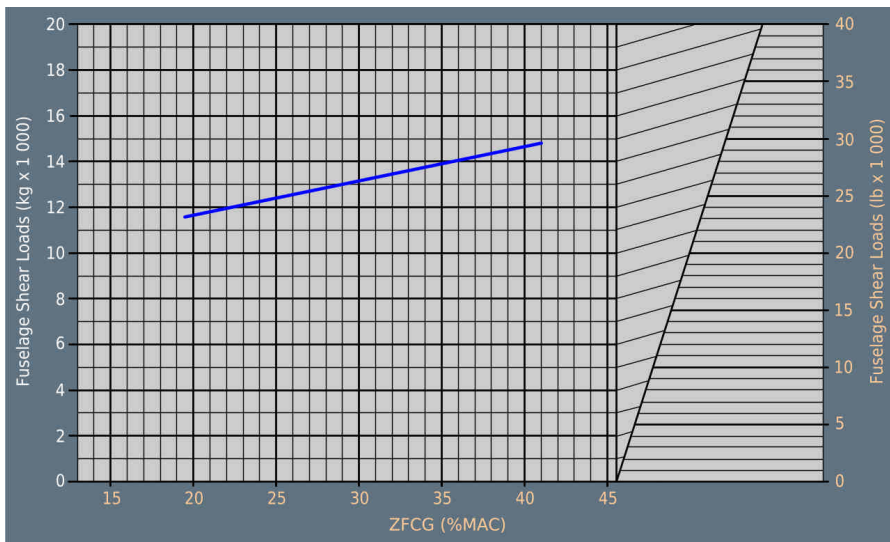
FUSELAGE SHEAR LOADS

FWD Fuselage Section		
ZFCG	MAX Fuselage Shear Load	
(%MAC)	(kg)	(lb)
19.5	9 800	21 605
41.0	6 700	14 771

Fuselage Shear Loads - FWD



Aft Fuselage Section		
ZFCG	MAX Fuselage Shear Load	
(%MAC)	(kg)	(lb)
19.5	11 600	25 574
41.0	14 800	32 628

Fuselage Shear Loads - Aft

FUSELAGE BENDING MOMENTS

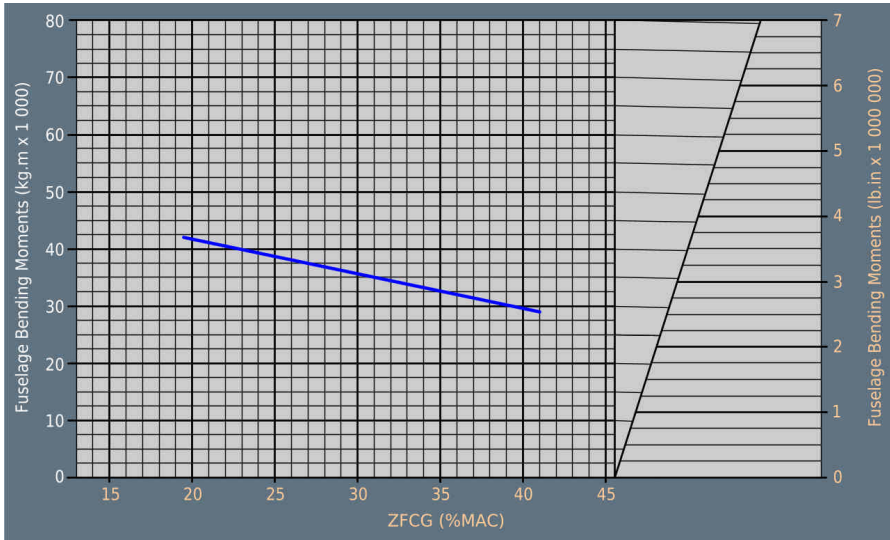
FWD Fuselage Section		
ZFCG	MAX Fuselage Bending Moment	
(%MAC)	(kg.m)	(lb.in)
19.5	42 000	3 645 439
41.0	29 000	2 517 089

WEIGHT AND BALANCE CONTROL

Limitations

Certified Cumulative Loads

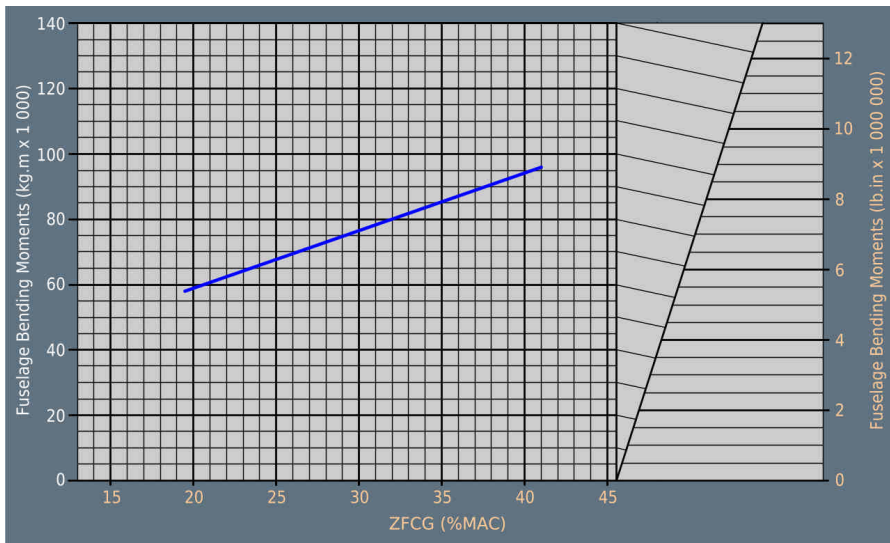
Fuselage Bending Moments - FWD



Aft Fuselage Section

ZFCG (%MAC)	MAX Fuselage Bending Moment		
	(kg.m)	(lb.in)	
19.5	58 000	5 034 178	
41.0	96 000	8 332 432	

Fuselage Bending Moments - Aft



The operator does not need to check the fuselage shear loads and the fuselage bending moments if:

- The loading complies with the limitations included in the LIM-Limitations chapter
- The operator prefers pyramidal loadings and loads the heaviest items close to the wing box:
 - Aft of the forward cargo hold
 - Forward of the aft cargo hold.

WEIGHT AND BALANCE CONTROL**Limitations**

Certified Cumulative Loads

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WEIGHT AND BALANCE CONTROL

Limitations

Maximum Jacking Loads

JACKING POINTS OF THE AIRCRAFT

Ident.: CTL-LIM-JACK-00017226.0005001 / 03 JUN 25

Criteria: 20802, ST1

Applicable to: ALL

APPROVED

To lift the aircraft on jacks for maintenance operations or weighing, the operator must:

- Use only the three primary jacking points
- Ensure that the aircraft weight is below 59 000 kg (130 073 lb).

To prevent the tipping of the aircraft while the aircraft is on jacks, the operator can use the auxiliary stabilizing point.

To see the position of the jacking points of the aircraft, *Refer to CTL-GRD-WJP Location of the Jacking Points.*

PRIMARY JACKING POINTS

Location		MAX Load	
		(kg)	(lb)
Fuselage jacking point	CTR	6 932	15 282
Wing jacking point	RH	29 052	64 048
	LH	29 052	64 048

AUXILIARY STABILIZING POINT

Location		MAX Load	
		(kg)	(lb)
Fuselage stabilizing point	CTR	2 039	4 495

JACKING POINTS OF THE LANDING GEARS

Ident.: CTL-LIM-JACK-00017227.0001001 / 03 JUN 25

Criteria: ST1

Applicable to: ALL

APPROVED

To weigh the aircraft or change a wheel, the operator can use the jacking points of the landing gears to lift the aircraft on jacks.

The operator must ensure that:

- The aircraft weight is below the MTW
- The aircraft CG, the aircraft weight, and the wind speed comply with the aircraft stability limitations on ground.

To see the position of the jacking points of the landing gears and the weighing procedure, *Refer to CTL-GRD-WJP Location of the Jacking Points and, Refer to CTL-GRD-AWG Introduction.*

WEIGHT AND BALANCE CONTROL

Limitations

Maximum Jacking Loads

Intentionally left blank

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Aircraft Stability on Ground
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AIRCRAFT STABILITY ON JACKS

Ident.: CTL-LIM-STAB-00017271.0001001 / 03 JUN 25 Criteria: ST1 Applicable to: ALL	<u>APPROVED</u>
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The operator must ensure the stability of the aircraft while it is on jacks, via the three primary jacking points, particularly when the CG changes due to maintenance operations.

The operator is responsible for the method used to ensure aircraft stability.

If the wind speed exceeds the permitted wind speed, the operator must lift the aircraft on jacks in an area protected from the wind.

The operator can use the graph below to calculate the permitted wind speed as a function of the aircraft weight and CG. Therefore, the operator must take both of the following into account:

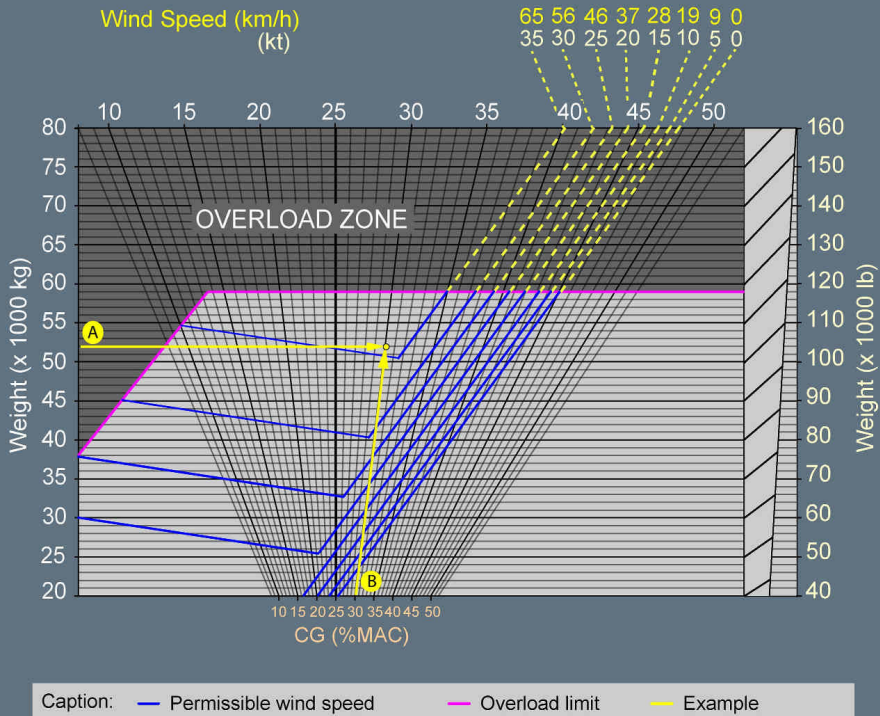
- Aircraft stability is ensured as long as the wind speed remains below the permitted wind speed
- Aircraft stability may not be ensured if the wind speed exceeds the permitted wind speed.

The operator must not lift the aircraft on jacks if the weight and CG plot on the graph below is in the overload zone. The overload zone is the zone where either the maximum aircraft weight or the maximum loads on jacking points are exceeded.

The chapter 05-57 of the AMM provides the stability check procedure for maintenance operations.

GRAPH OF AIRCRAFT STABILITY WHEN LIFTED ON JACKS

The following graph illustrates the stability limits of an aircraft when it is on jacks via the three primary jacking points.



EXAMPLE

Assumptions : The aircraft has both of the following:

- A gross weight of 52 000 kg (114 640 lb) (A)
- A CG at 30 %MAC (B).

Graph output : The permitted wind speed to lift the aircraft on jacks is 65 km/h (35 kt).

AIRCRAFT STABILITY ON WHEELS

Ident.: CTL-LIM-STAB-00017270.0001001 / 03 JUN 25

Criteria: ST1

Applicable to: ALL

APPROVED

The operator must ensure the stability of the aircraft on the ground, particularly when the CG changes due to any of the following:

- The embarkation and disembarkation of passengers
- The loading and unloading of baggage and cargo
- Maintenance operations.

The operator is responsible for the method used to ensure aircraft stability.

The stability limit is a function of the aircraft CG, the aircraft weight, and the wind speed.

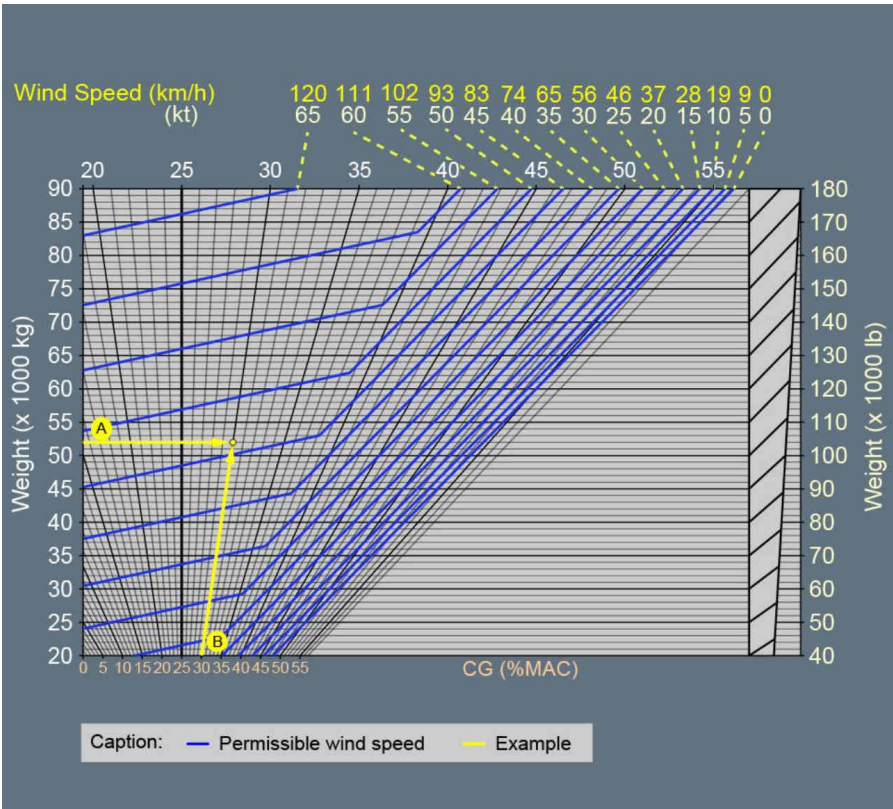
The operator can use the graph below to calculate the permitted wind speed as a function of the aircraft weight and CG. Therefore, the operator must take both of the following into account:

- Aircraft stability is ensured as long as the wind speed remains below the permitted wind speed
- Aircraft stability may not be ensured if the wind speed exceeds the permitted wind speed.

The chapter 05-57 of the AMM provides the stability check procedure for maintenance operations.

GRAPH OF AIRCRAFT STABILITY ON THE GROUND

The following graph illustrates the stability limits of an aircraft on the ground that rests on its landing gears.



EXAMPLE	Assumptions : - The aircraft has both of the following: - A gross weight of 52 000 kg (114 640 lb) (A) - A CG at 30 %MAC (B). Graph output : The permitted wind speed to ensure the stability of an aircraft on the ground when it rests on its landing gears is 83 km/h (45 kt).
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TABLE OF AIRCRAFT STABILITY ON THE GROUND

The following table provides the values of the permitted wind speed as a function of aircraft weight and CG.

The CG limit between two successive weights is a linear variation in terms of moments.

WEIGHT AND BALANCE CONTROL

Limitations

Aircraft Stability on Ground

Wind Speed		Weight		CG
(km/h)	(kt)	(kg)	(lb)	(%MAC)
0	0	90 000	198 415	56.14
		20 000	44 092	48.03
9	5	90 000	198 415	55.64
		20 000	44 092	45.79
19	10	90 000	198 415	55.00
		20 000	44 092	42.89
28	15	90 000	198 415	54.22
		20 000	44 092	39.36
37	20	90 000	198 415	53.28
		20 000	44 092	35.20
46	25	90 000	198 415	52.22
		22 866	50 410	33.90
		20 000	44 092	12.94
56	30	90 000	198 415	51.01
		29 269	64 527	35.54
		24 057	53 036	4.22
65	35	90 000	198 415	49.66
		36 426	80 305	36.69
		30 457	67 146	8.58
74	40	90 000	198 415	48.15
		44 335	97 741	37.53
		37 530	82 739	11.68
83	45	90 000	198 415	46.52
		52 998	116 840	38.17
		45 275	99 814	13.96
93	50	90 000	198 415	44.73
		62 412	137 594	38.66
		53 694	118 374	15.69
102	55	90 000	198 415	42.81
		72 583	160 018	39.05
		62 787	138 421	17.04
111	60	90 000	198 415	40.73
		83 505	184 096	39.35
		72 555	159 956	18.11
120	65	90 000	198 415	31.52
		82 993	182 968	18.98

WEIGHT AND BALANCE CONTROL

Limitations

Aircraft Stability on Ground

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Introduction

INTRODUCTION

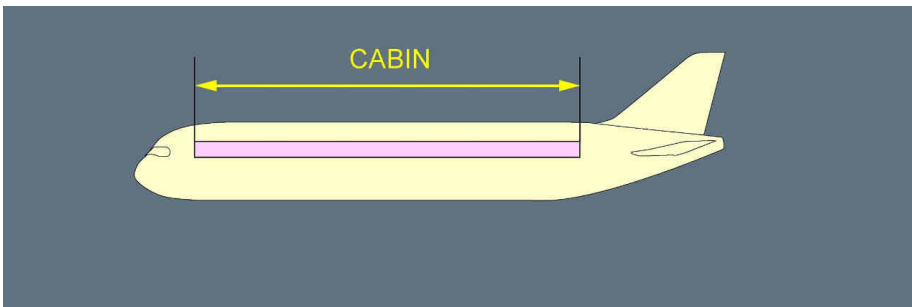
Ident.: CTL-LIM-CAB-INT-00017272.0001001 / 03 JUN 25

APPROVED

Criteria: ST1

Applicable to: ALL

The main deck of the aircraft has one passenger compartment (cabin).



WEIGHT AND BALANCE CONTROL

Limitations

Cabin

Intentionally left blank

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Cabin
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Floor Loading Limits

FLOOR LOADING LIMITS

Ident.: CTL-LIM-CAB-FLL-00017273.0001001 / 03 JUN 25 **APPROVED**
Criteria: ST1
Applicable to: ALL

The passenger compartment is designed to accommodate passenger seats up to a configuration of 6 seats abreast.

STRUCTURE

The floor structure can sustain the following load:

Running Load	
(kg/m)	(lb/in)
768	43

The running load limit is the maximum weight acceptable on the distance, in the flight direction, between two successive seat front studs.

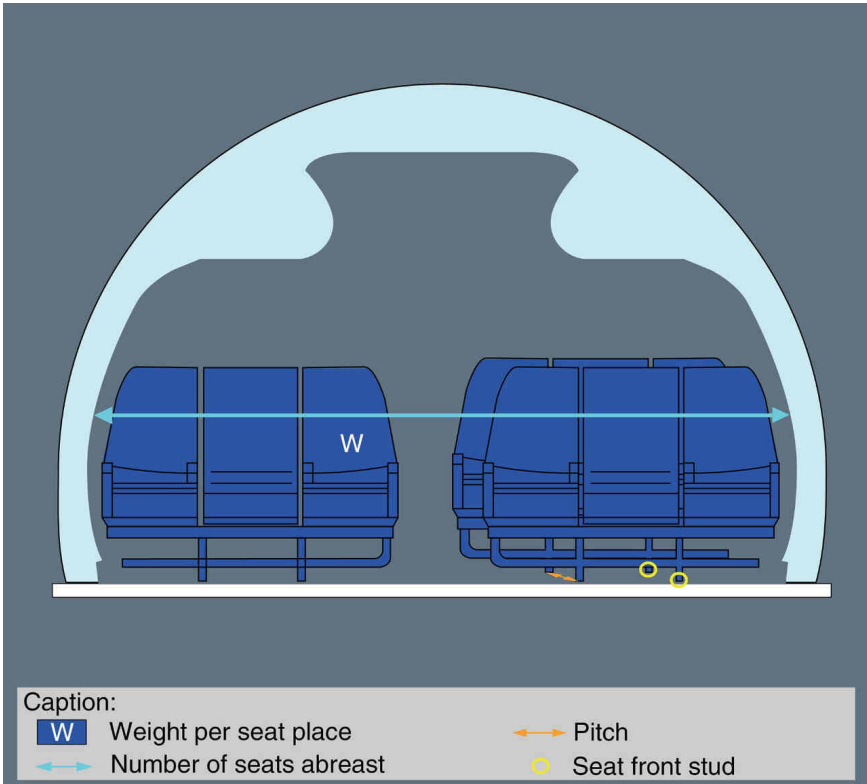
The distance between two successive seat front studs is the seat row pitch.

The running load depends on the number of seats per row, the seat row pitch, and the assigned weight per seat place.

The weight per seat place is the sum of all of the following:

- The weight of the seat
- The weight of the seat equipment (IFE, life vest, etc.)
- The assigned weight of the passenger hand baggage, transported on the cabin floor
- The assigned weight of the passenger.

EXAMPLE:



$$\text{Running Load} = \frac{\text{Number of seats abreast} \times \text{Weight per seat place}}{\text{Pitch}}$$

PANELS

The operator has no floor loading limits to check for the floor panels.

The floor panels can sustain typical walking loads and trolley loads that occur during embarkation, disembarkation, or in-flight services.

Introduction

INTRODUCTION

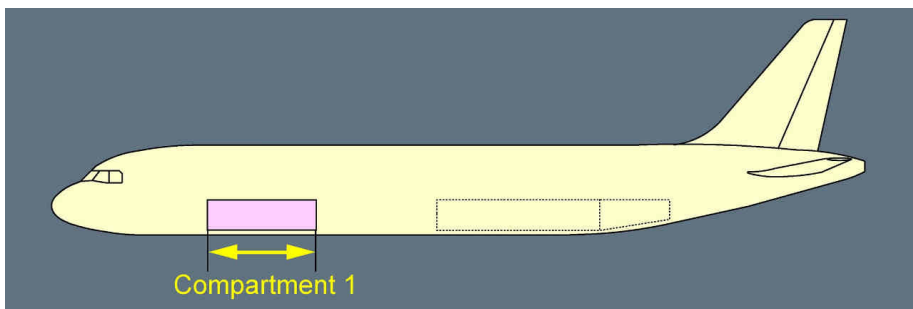
Ident.: CTL-LIM-FWD-INT-00017275.0066001 / 03 JUN 25

APPROVED

Criteria: 27375, 27686, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The forward cargo hold has one compartment (compartment 1).



The cargo hold is equipped with a Cargo Loading System (CLS) and a net restraint system for both of the following:

- The transport of Unit Load Devices (ULDs) and non-unitized loads
- The transport of bulk loads.

The operator can transport the bulk loads either directly on the CLS, or on protection panels installed on the CLS.

The CLS is the equipment installed on the floor of the cargo hold:

- To load ULDs and non-unitized load
- To restrain ULDs and non-unitized loads against the load factors induced by aircraft accelerations.

The net restraint system is an arrangement of nets that is certified to restrain the bulk items against the load factors induced by aircraft accelerations.

The limitations of the forward cargo hold depend on the type of loads as indicated in the following table.

Type of Loads	
ULDs and non-unitized loads	<i>Refer to Transport of ULDs</i>
Bulk loads on the CLS	<i>Refer to Transport of Bulk Loads on CLS</i>
Bulk loads on protection panels	<i>Refer to Transport of Bulk Loads on Protection Panels</i>

Note: A ULD is a container or a pallet, and the equipment of the pallet (nets, igloo, etc.). A ULD enables the operator to assemble and restrain individual items in a standard-sized unit. Bulk loads are defined as loose items, baggage, or freight that can be loaded in a net section. A net section is a section defined by two successive nets, or by a net and a wall.

INTRODUCTION

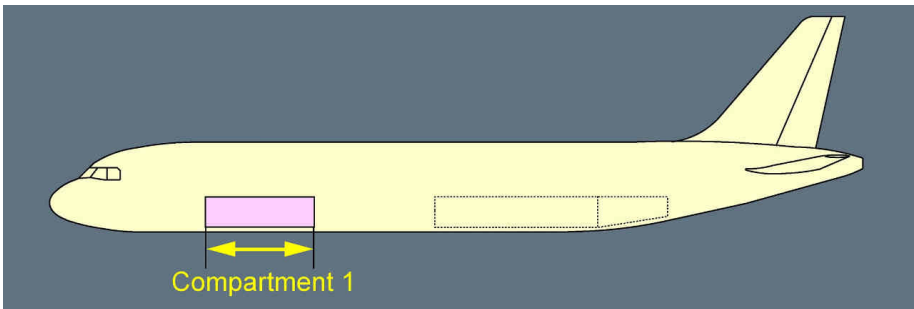
Ident.: CTL-LIM-FWD-INT-00017275.0046001 / 03 JUN 25

Criteria: 27375, 28330, 28440, ST1

Applicable to: MSN 03060

APPROVED

The forward cargo hold has one compartment (compartment 1)



The cargo hold is equipped with a Cargo Loading System (CLS) and a net restraint system for both of the following:

- The transport of Unit Load Devices (ULDs) and non-unitized loads
- The transport of bulk loads on the CLS.

The CLS is the equipment installed on the floor of the cargo hold:

- To load ULDs and non-unitized load
- To restrain ULDs and non-unitized loads against the load factors induced by aircraft accelerations.

The net restraint system is an arrangement of nets that is certified to restrain the bulk items against the load factors induced by aircraft accelerations.

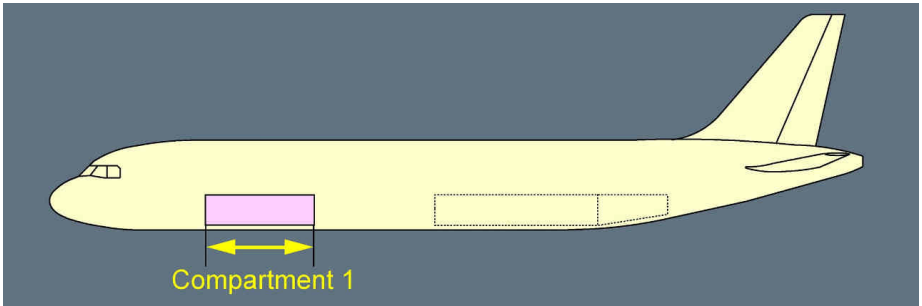
Note: A ULD is a container or a pallet, and the equipment of the pallet (nets, igloo, etc.). A ULD enables the operator to assemble and restrain individual items in a standard-sized unit. Bulk loads are defined as loose items, baggage, or freight that can be loaded in a net section. A net section is a section defined by two successive nets, or by a net and a wall.

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Forward Cargo Hold
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INTRODUCTION

Ident.: CTL-LIM-FWD-INT-00017275.0017001 / 03 JUN 25 Criteria: 28330, ST1 Applicable to: MSN 05152, 05162, 05253, 05746	APPROVED
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The forward cargo hold has one compartment (compartment 1).



The cargo hold is equipped with a Cargo Loading System (CLS) for the transport of Unit Load Devices (ULDs) and non-unitized loads.

The CLS is the equipment installed on the floor of the cargo hold:

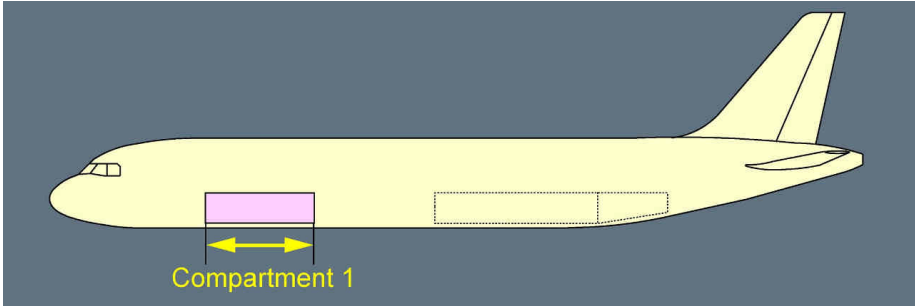
- To load ULDs and non-unitized load
- To restrain ULDs and non-unitized loads against the load factors induced by aircraft accelerations.

Note: A ULD is a container or a pallet, and the equipment of the pallet (nets, igloo, etc.). A ULD enables the operator to assemble and restrain individual items in a standard-sized unit.

INTRODUCTION

Ident.: CTL-LIM-FWD-INT-00017275.0006001 / 24 MAR 25 Criteria: 27375, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792	APPROVED
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- ¹ The forward cargo hold has one compartment (compartment 1).



The cargo hold is equipped with a net restraint system for the transport of bulk loads. The net restraint system is an arrangement of nets that is certified to restrain the bulk loads against the load factors induced by aircraft accelerations.

Note: Bulk loads are defined as loose items, baggage, or freight that can be loaded in a net section. A net section is a section defined by two successive nets, or by a net and a wall.

Floor Loading Limits

FLOOR LOADING LIMITS

Ident.: CTL-LIM-FWD-FLL-00017277.0053001 / 24 MAR 25

APPROVED

Criteria: 27375, 27686, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The operator must check all the limits, provided in this section, without taking into account the load factors.

BULK LOADING

STRUCTURE

The floor structure can sustain the following load on the flat and sloped floor or on the protection panels:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via floor panels	732	150
Via protection panels	366	75
Via ball mats or roller tracks	488	100

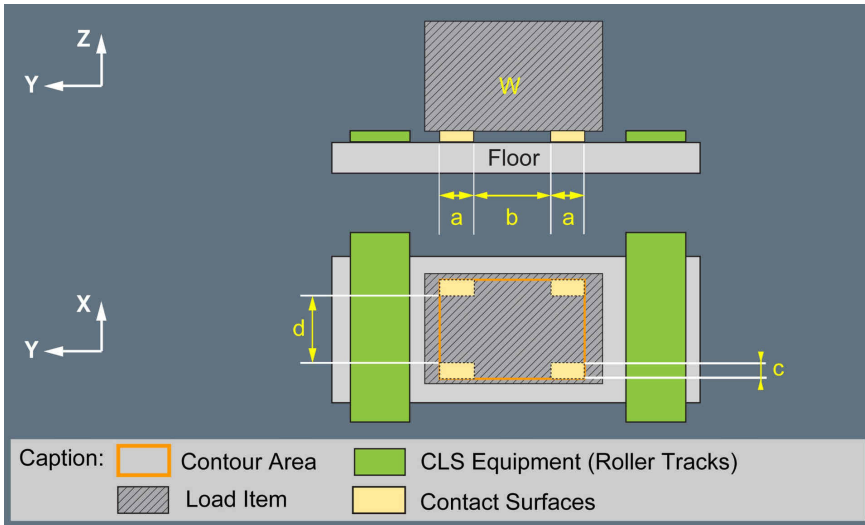
The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the load and the floor or the protection panels.

PANELS

Each floor panel and the protection panels can sustain the following loads:

	Local Load	
	(kg/0.093m ²)	(lb/1ft ²)
On the flat or sloped floor panels	906	2 000
On the protection panels	204	450

The local load limit is the maximum weight acceptable on any floor panel area of 0.093 m² (1.00 ft²) that will not lead to permanent deformations.

FLOOR LOADING EXAMPLE: BULK LOADING ON CLS


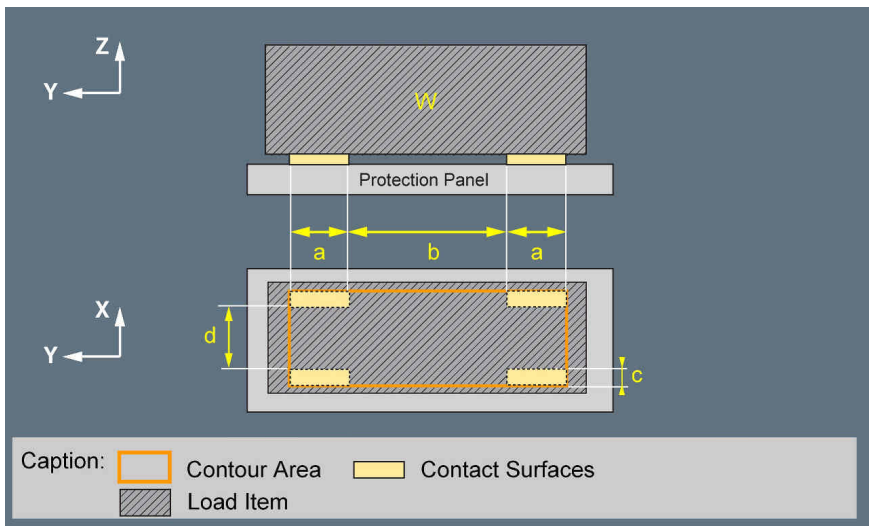
Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

FLOOR LOADING EXAMPLE: BULK LOADING ON PROTECTION PANELS


Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

Metric Units

$$\text{DistributedLoad (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US Units

$$\text{DistributedLoad (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

ULD LOADING
STRUCTURE

The floor structure can sustain the following loads:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via ball mats or roller tracks	488	100

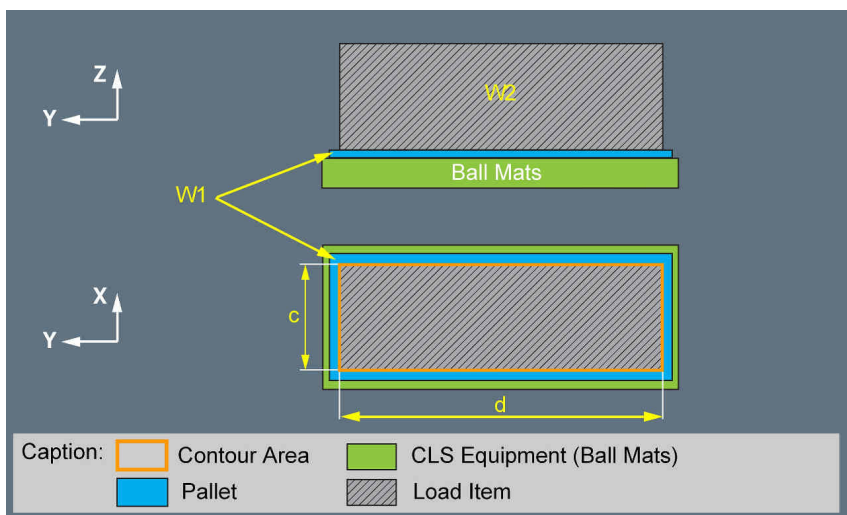
The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the ULD and ball mats or roller tracks.

PANELS

The operator has no floor loading limits to check for the panels.

FLOOR LOADING EXAMPLES

Via the Ball Mats



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
c	Length of the load item	m	in
d	Width of the load item		

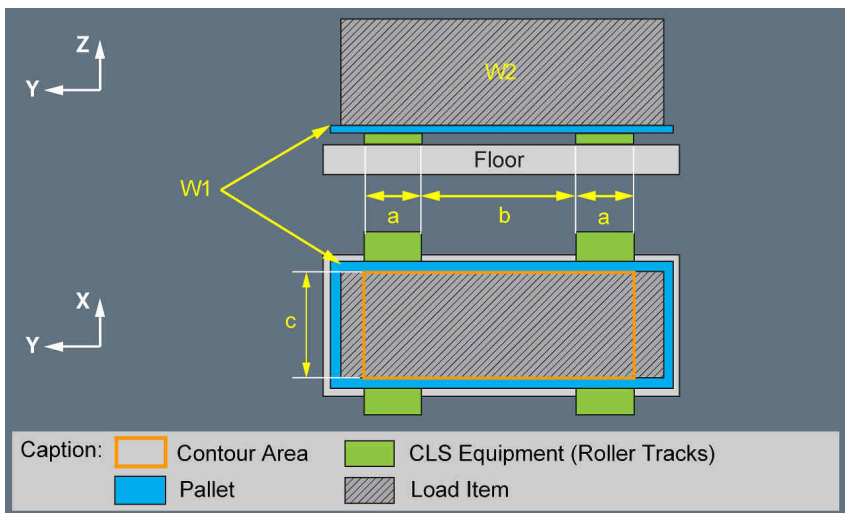
Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{c \times d}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{c \times d}$$

Via the Roller Tracks



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
a	Width of the roller track	m	in
b	Longitudinal distance between two roller tracks		
c	Length of the load item		

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{(2a + b) \times c}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{(2a + b) \times c}$$

FLOOR LOADING LIMITS

Ident.: CTL-LIM-FWD-FLL-00017277.0045001 / 24 MAR 25

Criteria: 27375, 28330, 28440, ST1

Applicable to: MSN 03060

APPROVED

The operator must check all the limits, provided in this section, without taking into account the load factors.

ULD LOADING

STRUCTURE

The floor structure can sustain the following loads:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via ball mats or roller tracks	488	100

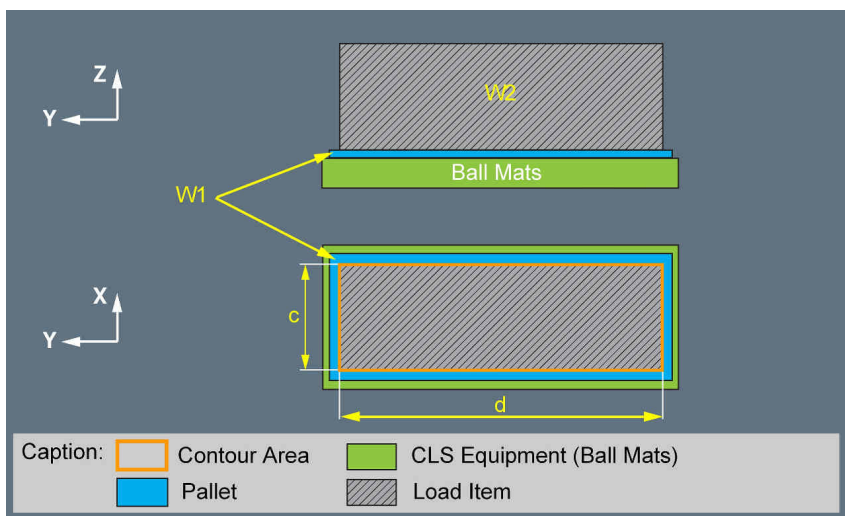
The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the ULD and ball mats or roller tracks.

PANELS

The operator has no floor loading limits to check for the panels.

FLOOR LOADING EXAMPLES

Via the Ball Mats



 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Forward Cargo Hold
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Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
c	Length of the load item	m	in
d	Width of the load item		

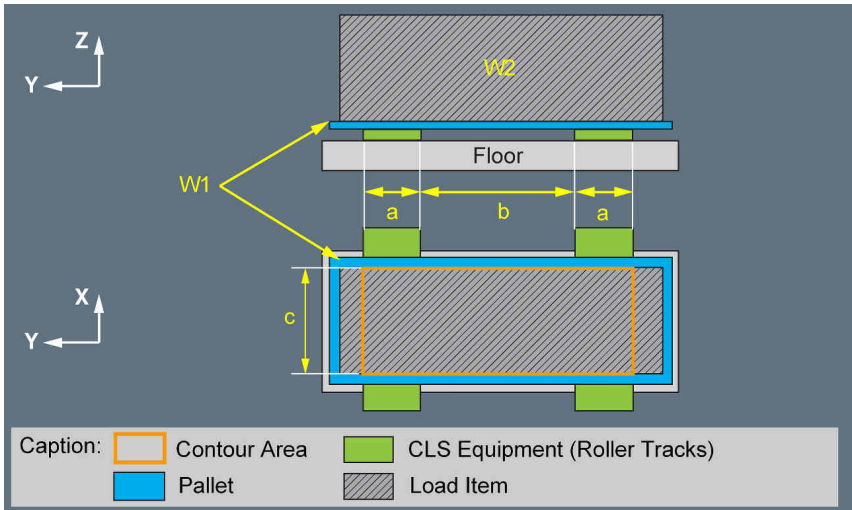
Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{c \times d}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{c \times d}$$

Via the Roller Tracks



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
a	Width of the roller track	m	in
b	Longitudinal distance between two roller tracks		
c	Length of the load item		

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{(2a + b) \times c}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{(2a + b) \times c}$$

BULK LOADING

STRUCTURE

The floor structure can sustain the following load on the flat and sloped floor:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via floor panels	732	150
Via ball mats or roller tracks	488	100

The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the load and the floor.

PANELS

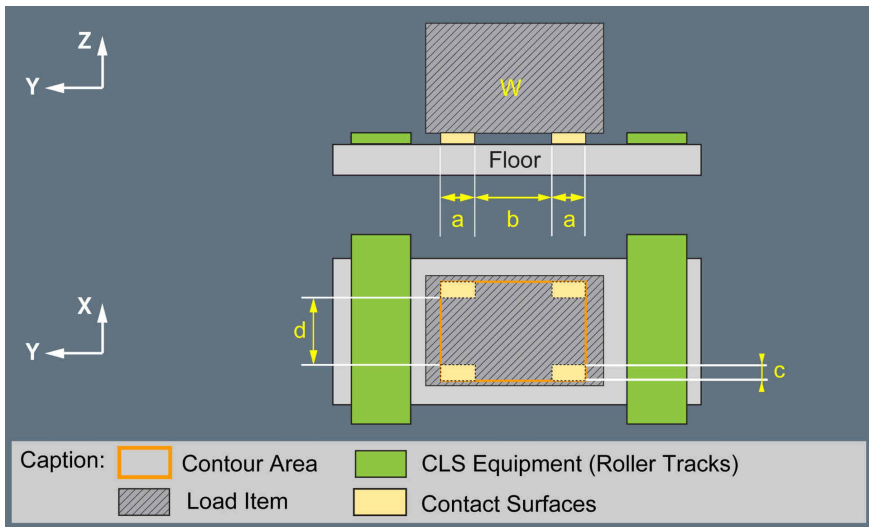
Each floor panel can sustain the following loads:

	Local Load		Point Load	
	(kg/0.093m ²)	(lb/1ft ²)	(kg/cm ²)	(lb/in ²)
On the flat floor	906	2 000	6.6	94
On the sloped floor	906	2 000	6.6	94

The local load limit is the maximum weight acceptable on any floor panel area of 0.093 m² (1.00 ft²) that will not lead to permanent deformations.

The point load limit is the maximum weight acceptable on any unit of surface of the floor panel that will not lead to puncture of the panel.

FLOOR LOADING EXAMPLE



Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

Metric Units

$$\text{DistributedLoad (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US Units

$$\text{DistributedLoad (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

FLOOR LOADING LIMITS

Ident.: CTL-LIM-FWD-FLL-00017277.0007001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

The operator must check all the limits, provided in this section, without taking into account the load factors.

STRUCTURE

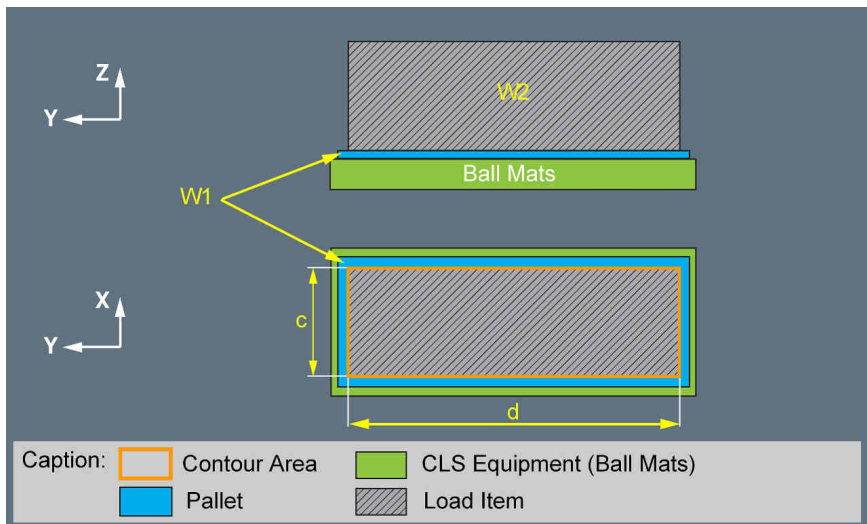
The floor structure can sustain the following loads:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via ball mats or roller tracks	488	100

The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the ULD and ball mats or roller tracks.

PANELS

The operator has no floor loading limits to check for the panels.

FLOOR LOADING EXAMPLES
VIA THE BALL MATS


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Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
c	Length of the load item	m	in
d	Width of the load item		

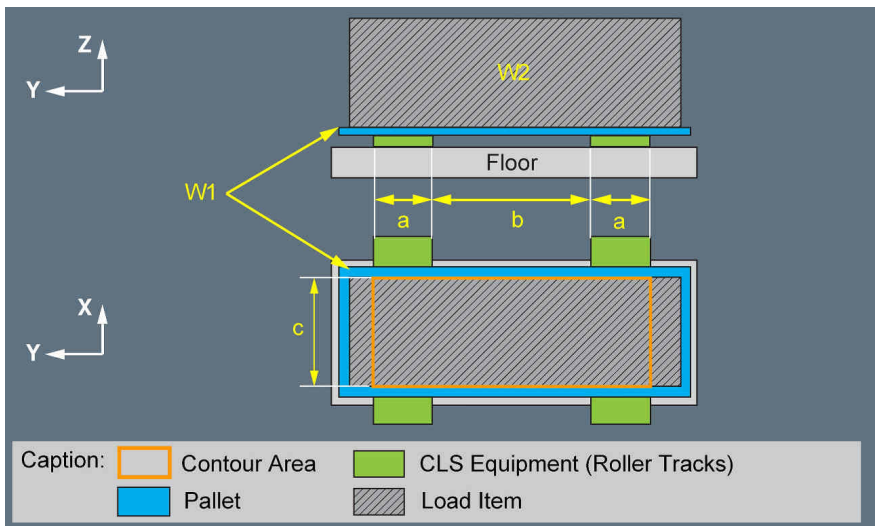
Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{c \times d}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{c \times d}$$

VIA THE ROLLER TRACKS



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
a	Width of the roller track	m	in
b	Longitudinal distance between two roller tracks		
c	Length of the load item		

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{(2a + b) \times c}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{(2a + b) \times c}$$

FLOOR LOADING LIMITS

Ident.: CTL-LIM-FWD-FLL-00017277.0001001 / 03 JUN 25

Criteria: 27375, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

APPROVED

The operator must check all the limits, provided in this section, without taking into account the load factors.

STRUCTURE

The floor structure can sustain the following load on the flat and sloped floor:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via floor panels	732	150

The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the load and the floor.

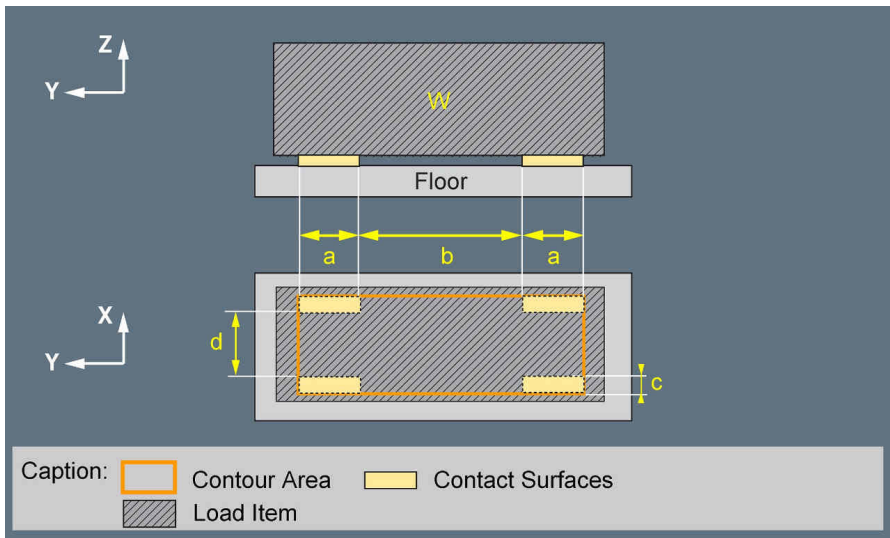
PANELS

Each floor panel can sustain the following loads:

	Local Load		Point Load	
	(kg/0.093m ²)	(lb/1ft ²)	(kg/cm ²)	(lb/in ²)
On the flat floor	906	2 000	6.6	94
On the sloped floor	906	2 000	6.6	94

The local load limit is the maximum weight acceptable on any floor panel area of 0.093 m² (1.00 ft²) that will not lead to permanent deformations.

The point load limit is the maximum weight acceptable on any unit of surface of the floor panel that will not lead to puncture of the panel.

FLOOR LOADING EXAMPLE


Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

METRIC UNITS

$$\text{DistributedLoad (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US UNITS

$$\text{DistributedLoad (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Load Factors

LOAD FACTORS

Ident.: CTL-LIM-FWD-LDF-00017276.0001001 / 03 JUN 25

APPROVED

Criteria: ST1

Applicable to: ALL

When a restraint system is required to fasten an item, the operator must ensure that the restraint system resists the maximum apparent weight of the item in each direction.

In order to calculate the apparent weight of an item in each direction, the operator must use the load factors provided in the following table.

Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
1	1.69	1.12	0.88	2.57

EXAMPLE:

ASSUMPTIONS:

The operator loads an item with a weight of 200 kg (441 lb). In accordance with the "Load Factors" table, the item is subject to a load factor of 1.69 in the forward direction.

OUTPUTS:

The apparent weight of the item in the forward direction is 338 kg (200 kg x 1.69) or 745 lb (441 lb x 1.69). This apparent weight is identical to the weight of an item with a weight of 338 kg (745 lb) not subject to a load factor.

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Intentionally left blank

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Transport of Bulk Loads

Cargo Hold Loading

CARGO HOLD CAPACITY

Ident.: CTL-LIM-FWD-BULK-CHL-00017278.0004001 / 03 JUN 25

APPROVED

Criteria: ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The capacity of the cargo hold is 3 402 kg (7 500 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
11	1 045	2 303
12	1 225	2 702
13	1 132	2 495

The loading of the cargo hold is subject to additional restraint requirements or weight restrictions in the case of a malfunction of the installed nets or stanchions (*Refer to CTL-LIM-FWD-BULK-NMF Net Malfunctions*).

RESTRAINT CONDITIONS

Ident.: CTL-LIM-FWD-BULK-CHL-00017279.0002001 / 03 JUN 25

APPROVED

Criteria: 23172, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

Mandatory door nets and stanchions ensure that the door area is not blocked, to be able to correctly open the cargo door.

A mandatory divider net separates the cargo hold in two net sections, to ensure the restraint of the load.

For additional information on the net section arrangement, *Refer to CTL-CGO-FWD-BULK-CHA Section Arrangement*.

For bulk loading, if the mandatory nets are installed, no additional restraints are required, except in either of the following cases:

- When a load item may be hazardous due to its nature, form, or density
- When a load item has a weight of more than 150 kg (330 lb).

The additional restraint of the above-mentioned items is achieved if:

- The operator fills the applicable net section to at least three quarters of its height, or
- The operator individually fastens the load items to the tie-down points of the aircraft.

WEIGHT AND BALANCE CONTROL**Limitations**

Forward Cargo Hold

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WEIGHT AND BALANCE MANUAL

A bulk item may be too large to fit in a net section. In this case, the operator is authorized to remove the mandatory divider net. Then, the operator must individually fasten all bulk items in the cargo hold. The operator must ensure that there is a minimum clearance of 2.00 in (0.051 m) between the top of the load and the cargo hold ceiling.

FASTENING LOAD REQUIREMENTS

Ident.: CTL-LIM-FWD-BULK-CHL-00017280.0001001 / 03 JUN 25

APPROVED

Criteria: ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The operator must use nets and straps to fasten the load to the tie-down points of the cargo hold floor.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The operator must arrange and fasten the load to the cargo hold floor in a way to ensure an even distribution of the load.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points (*Refer to CTL-CGO-FWD-BULK-CHA Tie-Down Point Location*) that are not already used to attach the nets.

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Forward Cargo Hold
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Transport of Bulk Loads

Net Malfunctions

NET MALFUNCTIONS

Ident.: CTL-LIM-FWD-BULK-NMF-00021284.0001001 / 03 JUN 25	<u>APPROVED</u>
Criteria: ST1	
Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792	

The loading is subject to restraint requirements or weight restrictions in the case of malfunctions of the installed nets and stanchions.

A "malfunction" refers to equipment that is either damaged or missing.

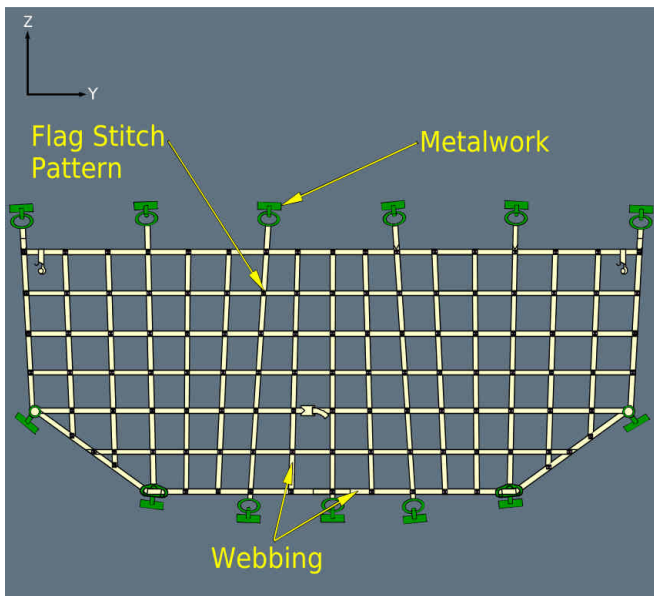
This section contains:

- An illustration of a stanchion and of each net type that can be installed. The mandatory and the optional nets, if any, are indicated.
- A list of possible malfunctions and the associated restrictions
- A correspondence table between the missing or damaged equipment, and the sections affected.

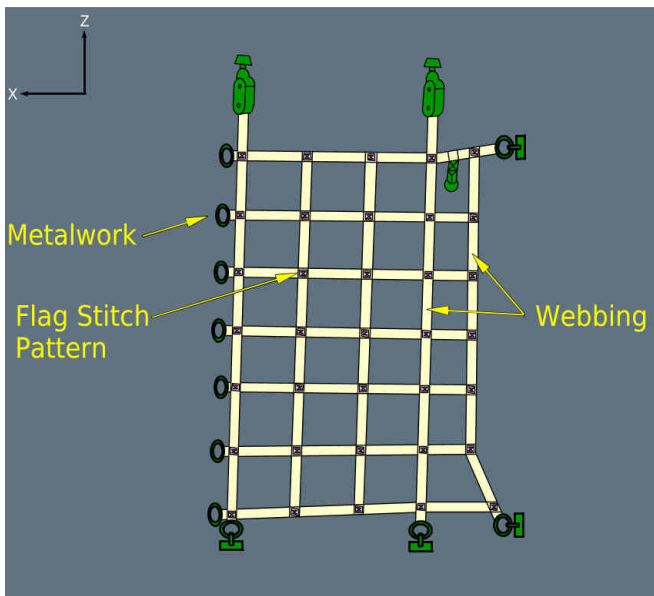
The operator should repair or change missing and damaged equipment as soon as possible.

NET TYPES AND STANCHION

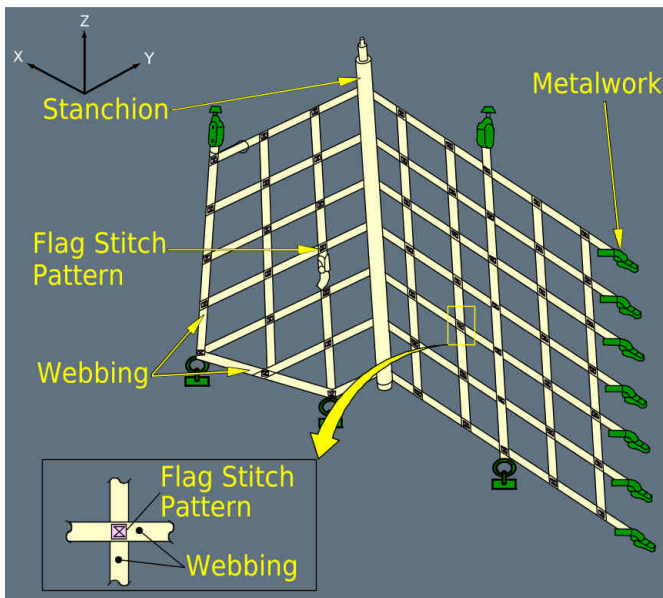
DIVIDER NET TYPE A2



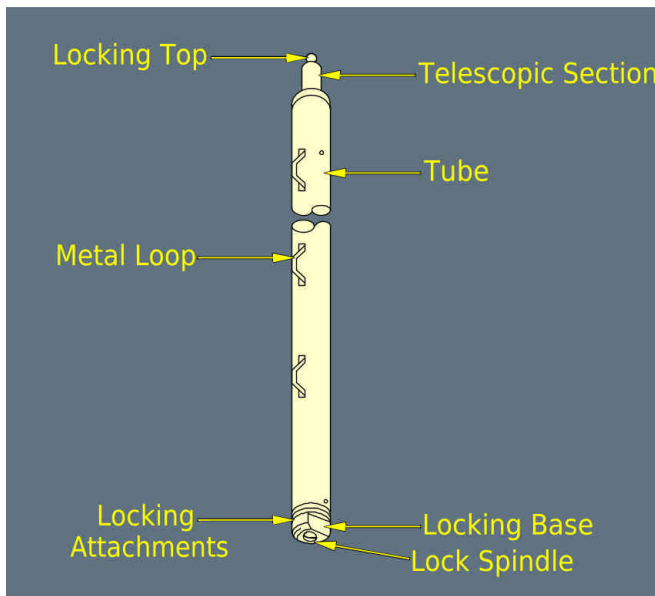
DOOR NET TYPE C



DOOR NET TYPE A



STANCHION



LIST OF POSSIBLE MALFUNCTIONS

The malfunction descriptions and the corresponding restrictions are valid for all net types.

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

NETS:

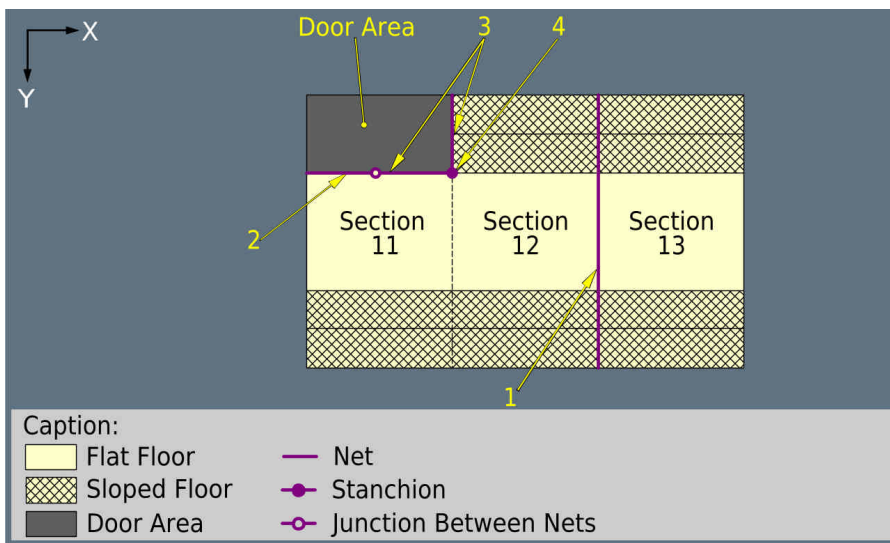
Malfunction Description		Restrictions
Parts Affected	Failure	
Webbing	- Slightly abraded but webbing not broken - Broken flag stitch pattern at web intersections. No more than two flag stitch patterns affected per net	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Metalwork	- Minor surface corrosion or damage that does not affect the function of the metalwork	
Nets with damage that: - Exceeds the quantity of affected webbing and metalwork above-mentioned - Affects the function of a net part - Exceeds the extent of the corrosion, or abrasion above-mentioned. Missing nets Damaged tie-down points used for net attachment		The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points

STANCHIONS:

Malfunction Description		Restrictions
Parts Affected	Failure	
Tube	- Minor surface corrosion - Small dents of a maximum depth of 2 mm (0.08 in)	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Locking mechanisms and telescopic section	- Minor damage that does not affect the function of the stanchion	
Metal loop	- Detached or missing. No more than one per stanchion	The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points.
Locking base and top	- Weak or broken locking mechanism - Broken lock spindle	
Stanchions with damage that: - Exceeds the quantity of affected metal loop above-mentioned - Affects the function of a stanchion part - Exceeds the extent of the corrosion, or dents above-mentioned. Missing stanchions		

CORRESPONDENCE TABLE:

The following illustration indicates the net arrangement in the cargo hold.



The following table provides:

- The correspondence between the missing or damaged equipment, and the sections affected
- The maximum gross weight per net section that the operator must apply, in the case of a required weight reduction.

Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider net type A2	11 + 12	1 702	3 752
		13	849	1 872
2	Door net type C	11 + 12	1 702	3 752
3	Door net type A	11 + 12	1 702	3 752
4	Stanchion	11 + 12	1 702	3 752

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Transport of Bulk Loads on CLS

Cargo Hold Loading

CARGO HOLD CAPACITY

Ident.: CTL-LIM-FWD-BCLS-CHL-00019790.0036001 / 03 JUN 25

APPROVED

Criteria: 27375, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The capacity of the cargo hold is 3 402 kg (7 500 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
11	1 045	2 303
12	1 225	2 702
13	1 132	2 495

The loading of the cargo hold is subject to additional restraint requirements or weight restrictions in the case of a malfunction of the installed nets or stanchions (*Refer to CTL-LIM-FWD-BCLS-NMF Net Malfunctions*).

RESTRAINT CONDITIONS

Ident.: CTL-LIM-FWD-BCLS-CHL-00019789.0041001 / 03 JUN 25

APPROVED

Criteria: 23172, 27375, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

Mandatory door nets and stanchions ensure that the door area is not blocked, to be able to correctly open the cargo door.

A mandatory divider net separates the cargo hold in two net sections, to ensure the restraint of the load.

For additional information on the net section arrangement, *Refer to CTL-CGO-FWD-BCLS-CHA Section Arrangement*.

For bulk loading, if the mandatory nets are installed, no additional restraints are required, except in either of the following cases:

- When a load item may be hazardous due to its nature, form, or density
- When a load item has a weight of more than 150 kg (330 lb).

The additional restraint of the above-mentioned items is achieved if:

- The operator fills the applicable net section to at least three quarters of its height, or
- The operator individually fastens the load items to the tie-down points of the aircraft.

WEIGHT AND BALANCE CONTROL**Limitations**

Forward Cargo Hold

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

A bulk item may be too large to fit in a net section. In this case, the operator is authorized to remove the mandatory divider net. Then, the operator must individually fasten all bulk items in the cargo hold. The operator must ensure that there is a minimum clearance of 2.00 in (0.051 m) between the top of the load and the cargo hold ceiling.

FASTENING LOAD REQUIREMENTS

Ident.: CTL-LIM-FWD-BCLS-CHL-00019788.0019001 / 03 JUN 25

APPROVED

Criteria: 27375, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The operator must use nets and straps to fasten the load to the tie-down points of the cargo hold floor or the fixed YZ-latches of the CLS.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The operator must arrange and fasten the load to the cargo hold floor in a way to ensure an even distribution of the load.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points (*Refer to CTL-CGO-FWD-BCLS-CHA Tie-Down Point Location*) that are not already used to attach the nets.

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Forward Cargo Hold
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Transport of Bulk Loads on CLS

Net Malfunctions

NET MALFUNCTIONS

Ident.: CTL-LIM-FWD-BCLS-NMF-00021279.0005001 / 03 JUN 25	<u>APPROVED</u>
Criteria: 27375, 28330, 28440, ST1	
Applicable to: MSN 02719, 02758, 02789, 03031, 03060	

The loading is subject to restraint requirements or weight restrictions in the case of malfunctions of the installed nets and stanchions.

A "malfunction" refers to equipment that is either damaged or missing.

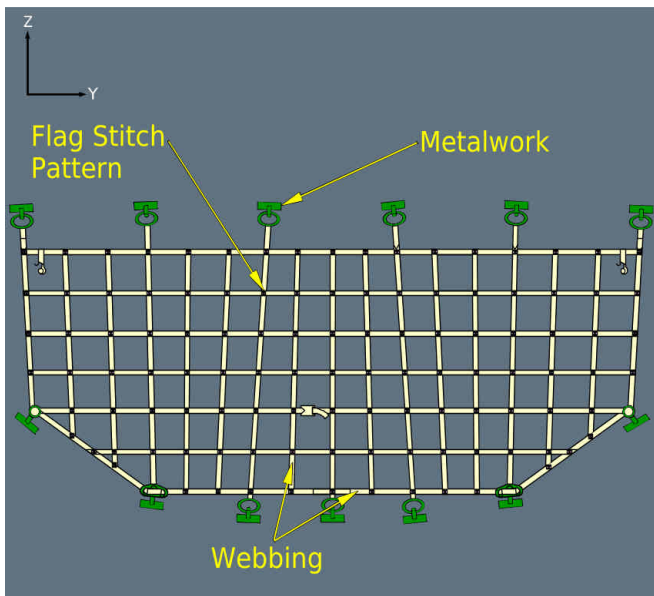
This section contains:

- An illustration of a stanchion and of each net type that can be installed. The mandatory and the optional nets, if any, are indicated.
- A list of possible malfunctions and the associated restrictions
- A correspondence table between the missing or damaged equipment, and the sections affected.

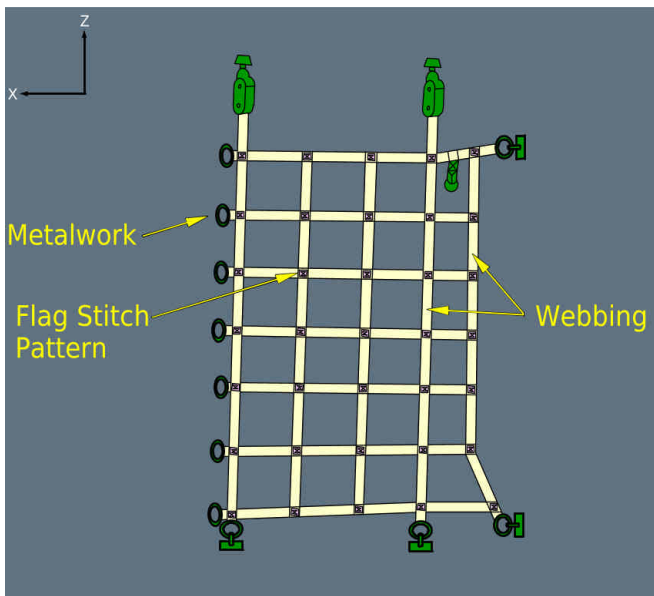
The operator should repair or change missing and damaged equipment as soon as possible.

NET TYPES AND STANCHION

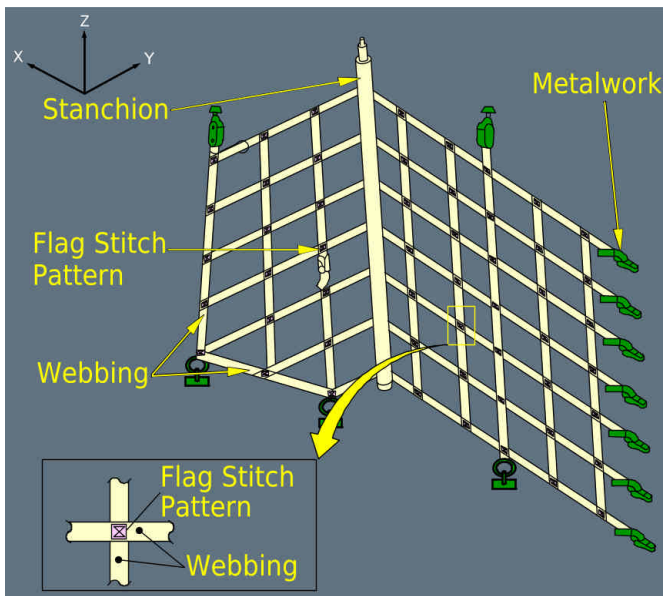
DIVIDER NET TYPE A2



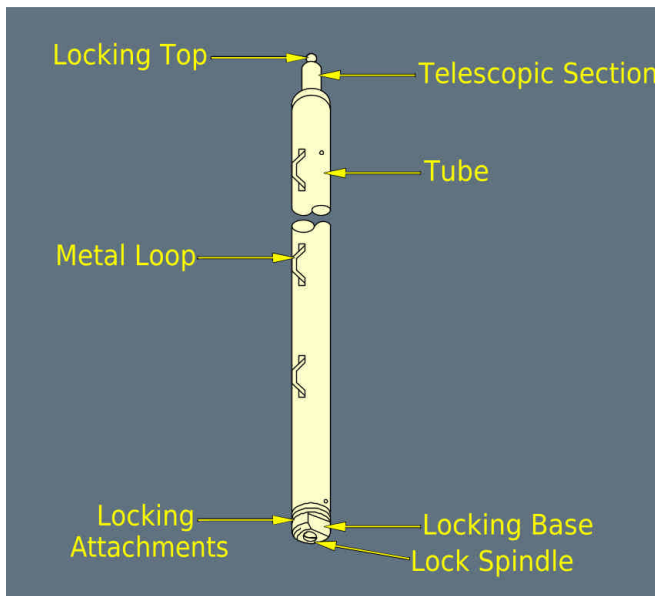
DOOR NET TYPE C



DOOR NET TYPE A



STANCHION



LIST OF POSSIBLE MALFUNCTIONS

The malfunction descriptions and the corresponding restrictions are valid for all net types.

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

NETS:

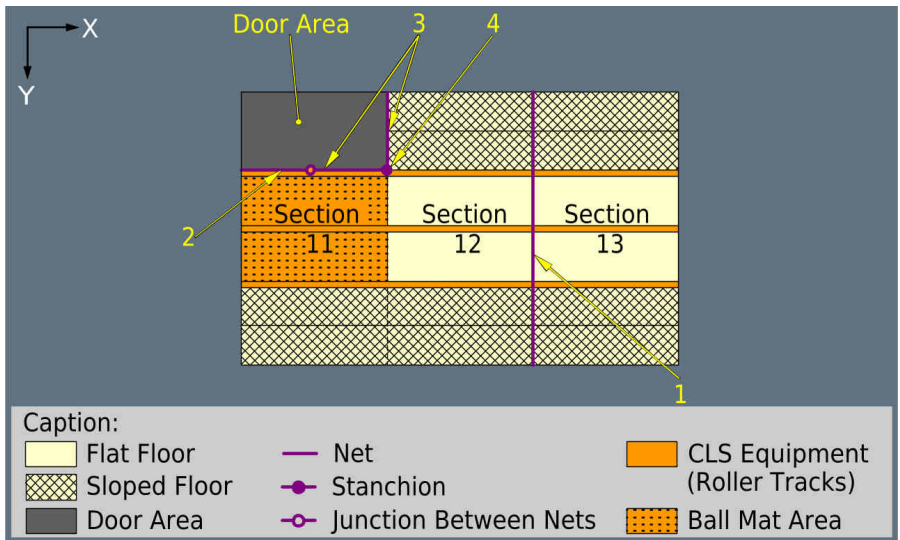
Malfunction Description		Restrictions
Parts Affected	Failure	
Webbing	- Slightly abraded but webbing not broken - Broken flag stitch pattern at web intersections. No more than two flag stitch patterns affected per net	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Metalwork	- Minor surface corrosion or damage that does not affect the function of the metalwork	
Nets with damage that: - Exceeds the quantity of affected webbing and metalwork above-mentioned - Affects the function of a net part - Exceeds the extent of the corrosion, or abrasion above-mentioned. Missing nets Damaged tie-down points used for net attachment		The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points

STANCHIONS:

Malfunction Description		Restrictions
Parts Affected	Failure	
Tube	- Minor surface corrosion - Small dents of a maximum depth of 2 mm (0.08 in)	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Locking mechanisms and telescopic section	- Minor damage that does not affect the function of the stanchion	
Metal loop	- Detached or missing. No more than one per stanchion	The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points.
Locking base and top	- Weak or broken locking mechanism - Broken lock spindle	
Stanchions with damage that: - Exceeds the quantity of affected metal loop above-mentioned - Affects the function of a stanchion part - Exceeds the extent of the corrosion, or dents above-mentioned. Missing stanchions		

CORRESPONDENCE TABLE:

The following illustration indicates the net arrangement in the cargo hold.



The following table provides:

- The correspondence between the missing or damaged equipment, and the sections affected
- The maximum gross weight per net section that the operator must apply, in the case of a required weight reduction.

Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider net type A2	11 + 12	1 702	3 752
		13	849	1 872
2	Door net type C	11 + 12	1 702	3 752
3	Door net type A	11 + 12	1 702	3 752
4	Stanchion	11 + 12	1 702	3 752

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

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Transport of Bulk Loads on CLS with Protection Panels
Cargo Hold Loading
CARGO HOLD CAPACITY

Ident.: CTL-LIM-FWD-BCPP-CHL-00019794.0007001 / 24 MAR 25

APPROVED

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The capacity of the forward cargo hold depends on the type of protection panels installed:

- With standard protection panels installed, the capacity of the cargo hold is 3 327 kg (7 335 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
11	1 020	2 249
12	1 193	2 630
13	1 114	2 456

- With aluminium coated protection panels installed, the capacity of the cargo hold is 3 315 kg (7 308 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
11	1 017	2 242
12	1 187	2 616
13	1 111	2 449

The loading of the cargo hold is subject to additional restraint requirements or weight restrictions in the case of a malfunction of the installed nets or stanchions (*Refer to CTL-LIM-FWD-BCPP-NMF Net Malfunctions*).

RESTRAINT CONDITIONS

Ident.: CTL-LIM-FWD-BCPP-CHL-00019793.0007001 / 03 JUN 25

APPROVED

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

Mandatory door nets and stanchions ensure that the door area is not blocked, to be able to correctly open the cargo door.

A mandatory divider net separates the cargo hold in two net sections, to ensure the restraint of the load.

For additional information on the net section arrangement, *Refer to CTL-CGO-FWD-BCPP-CHA Section Arrangement.*

For bulk loading, if the mandatory nets are installed, no additional restraints are required, except in either of the following cases:

- When a load item may be hazardous due to its nature, form, or density
- When a load item has a weight of more than 150 kg (330 lb).

The additional restraint of the above-mentioned items is achieved if:

- The operator fills the applicable net section to at least three quarters of its height, or
- The operator individually fastens the load items to the tie-down points of the aircraft.

A bulk item may be too large to fit in a net section. In this case, the operator is authorized to remove the mandatory divider net. Then, the operator must individually fasten all bulk items in the cargo hold. The operator must ensure that there is a minimum clearance of 2.00 in (0.051 m) between the top of the load and the cargo hold ceiling.

FASTENING LOAD REQUIREMENTS

Ident.: CTL-LIM-FWD-BCPP-CHL-00019792.0007001 / 03 JUN 25

APPROVED

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The operator must use nets and straps to fasten the load to the tie-down points of the fixed YZ-latches of the CLS.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The operator must arrange and fasten the load to the cargo hold floor in a way to ensure an even distribution of the load.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

The protection panels cover the tie-down points of the cargo hold floor.

To restrain bulk items, the operator only uses the standard tie-down points (*Refer to CTL-CGO-FWD-BCPP-CHA Tie-Down Point Location*) that are not already used to attach the nets.

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Forward Cargo Hold
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Transport of Bulk Loads on CLS with Protection Panels

Net Malfunctions

NET MALFUNCTIONS

Ident.: CTL-LIM-FWD-BCPP-NMF-00021276.0002001 / 03 JUN 25	<u>APPROVED</u>
Criteria: 27686, ST1	
Applicable to: MSN 02719, 02758, 02789, 03031	

The loading is subject to restraint requirements or weight restrictions in the case of malfunctions of the installed nets and stanchions.

A "malfunction" refers to equipment that is either damaged or missing.

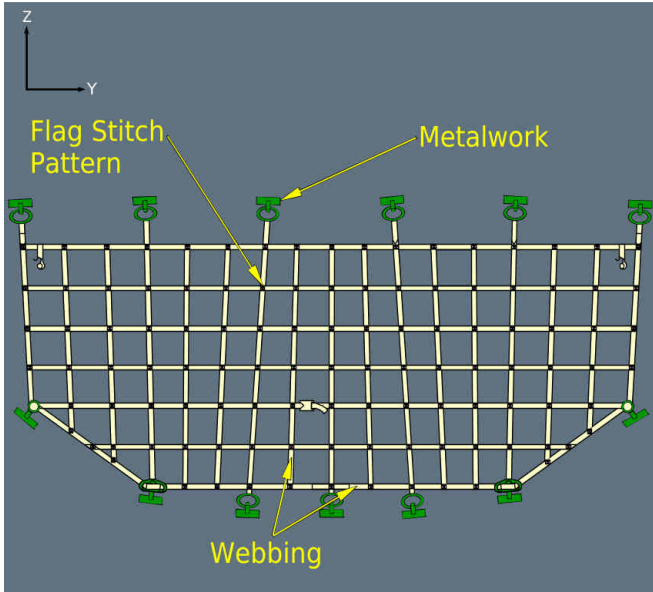
This section contains:

- An illustration of a stanchion and of each net type that can be installed. The mandatory and the optional nets, if any, are indicated.
- A list of possible malfunctions and the associated restrictions
- A correspondence table between the missing or damaged equipment, and the sections affected.

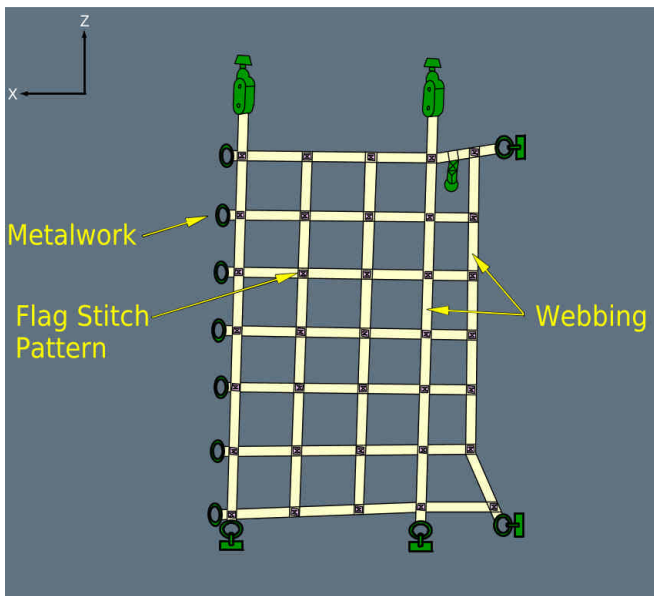
The operator should repair or change missing and damaged equipment as soon as possible.

NET TYPES AND STANCHION

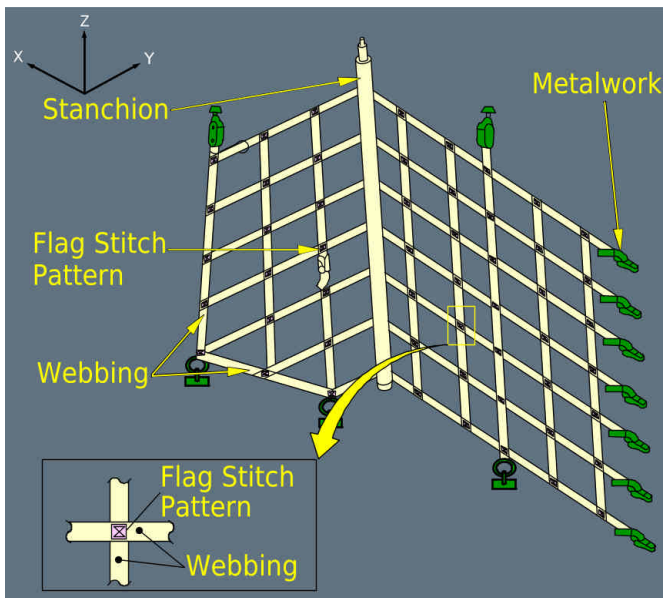
DIVIDER NET TYPE A2



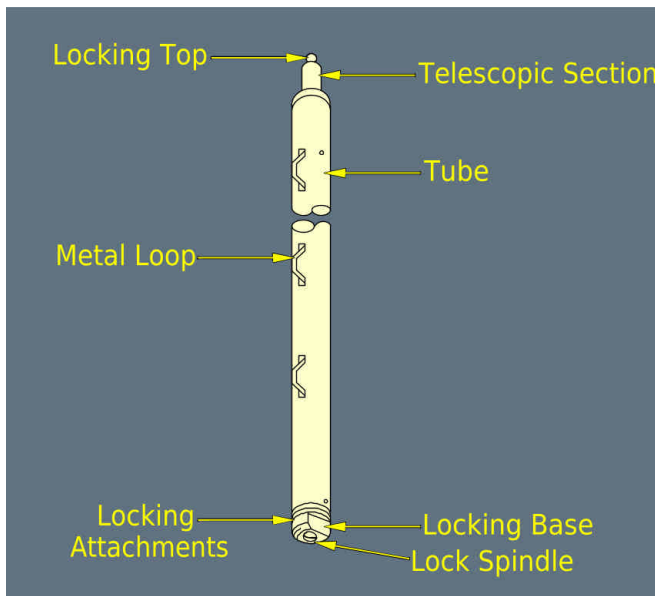
DOOR NET TYPE C



DOOR NET TYPE A



STANCHION



LIST OF POSSIBLE MALFUNCTIONS

The malfunction descriptions and the corresponding restrictions are valid for all net types.

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

NETS:

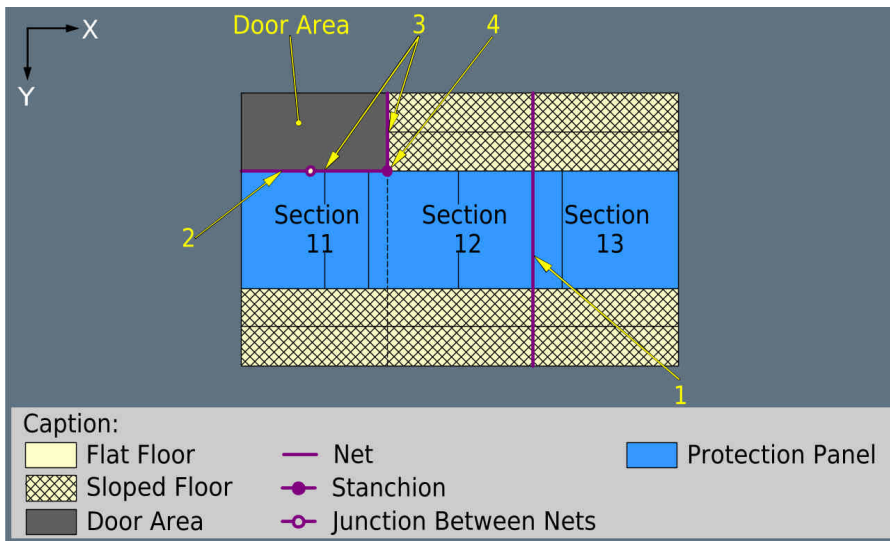
Malfunction Description		Restrictions
Parts Affected	Failure	
Webbing	- Slightly abraded but webbing not broken - Broken flag stitch pattern at web intersections. No more than two flag stitch patterns affected per net	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Metalwork	- Minor surface corrosion or damage that does not affect the function of the metalwork	
Nets with damage that: - Exceeds the quantity of affected webbing and metalwork above-mentioned - Affects the function of a net part - Exceeds the extent of the corrosion, or abrasion above-mentioned. Missing nets Damaged tie-down points used for net attachment		The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points

STANCHIONS:

Malfunction Description		Restrictions
Parts Affected	Failure	
Tube	- Minor surface corrosion - Small dents of a maximum depth of 2 mm (0.08 in)	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Locking mechanisms and telescopic section	- Minor damage that does not affect the function of the stanchion	
Metal loop	- Detached or missing. No more than one per stanchion	The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points.
Locking base and top	- Weak or broken locking mechanism - Broken lock spindle	
Stanchions with damage that: - Exceeds the quantity of affected metal loop above-mentioned - Affects the function of a stanchion part - Exceeds the extent of the corrosion, or dents above-mentioned. Missing stanchions		

CORRESPONDENCE TABLE:

The following illustration indicates the net arrangement in the cargo hold.



The following table provides:

- The correspondence between the missing or damaged equipment, and the sections affected
- The maximum gross weight per net section that the operator must apply, in the case of a required weight reduction.

Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider net type A2	11 + 12	1 702	3 752
		13	849	1 872
2	Door net type C	11 + 12	1 702	3 752
3	Door net type A	11 + 12	1 702	3 752
4	Stanchion	11 + 12	1 702	3 752

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Transport of ULDs

Cargo Hold Loading

CARGO HOLD CAPACITY FOR ULDS

Ident.: CTL-LIM-FWD-ULD-CHL-00019829.0007001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The operator must use the CLS to restrain the ULDs. The operator must ensure that the CLS is not damaged.

The capacity of the cargo hold is 3 402 kg (7 500 lb).

The operator must load the cargo hold with ULDs that comply with both of the following:

- The ULD Transport Requirements (*Refer to CTL-LIM-FWD-ULD-UTR ULD Transport Requirements*)
- The ULD baseplate dimensions and maximum gross weights that the table below provides.

For additional information on the ULD arrangement, *Refer to CTL-CGO-FWD-ULD-CHA ULD Position Arrangement*.

ULD Baseplate Dimensions (Length x Width) (in)	ULD Baseplate Code	Capacity	MAX Gross Weight per ULD		ULD Position
			(kg)	(lb)	
60.4 x 61.5	K	3	1 134	2 500	11,12,13

The gross weight of a container is the sum of both of the following:

- The tare weight of the container
- The weight of the load.

The gross weight of a pallet is the sum of all of the following:

- The tare weight of the pallet
- The weight of the load
- The weight of the pallet equipment (nets, igloo, etc.).

The loading is subject to restrictions in the case of a malfunction of the CLS (*Refer to CTL-LIM-FWD-ULD-CMF Introduction*).

Any ULD position may remain unoccupied, but all the latches of the cargo hold must be raised to limit inadvertent ULD movement, in the case of latch malfunctions.

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

ULD CENTER OF GRAVITY

Ident.: CTL-LIM-FWD-ULD-CHL-00019828.0007001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The CG of a loaded container is defined as the barycenter of the load and the empty container.
 The CG of a loaded pallet is defined as the barycenter of the load, the empty pallet, and the pallet equipment (nets, igloo, etc.).
 The CG of a loaded ULD must be within the limits defined in the tables below.
 The maximum CG height is measured from the bottom of the ULD baseplate.
 The lateral and longitudinal CG deviations are measured from the geometric center of the ULD baseplate.

CONTAINERS

ULD Baseplate Dimensions (Length x Width) (in)	IATA Contour Code	MAX CG Height		Longitudinal CG Deviation		Lateral CG Deviation	
		(m)	(in)	(m)	(in)	(m)	(in)
60.4 x 61.5	All ⁽¹⁾	0.635	25.00	± 0.153	± 6.04	± 0.156	± 6.15

⁽¹⁾ Any ULD with a contour that complies with the aircraft design (Refer to CTL-LIM-FWD-ULD-UTR ULD Transport Requirements).

PALLETS

ULD Baseplate Dimensions (Length x Width) (in)	IATA Contour Code	MAX CG Height		Longitudinal CG Deviation		Lateral CG Deviation	
		(m)	(in)	(m)	(in)	(m)	(in)
60.4 x 61.5	All ⁽¹⁾	0.635	25.00	± 0.153	± 6.04	± 0.156	± 6.15

⁽¹⁾ Any ULD with a contour that complies with the aircraft design (Refer to CTL-LIM-FWD-ULD-UTR ULD Transport Requirements).

Transport of ULDs**ULD Transport Requirements****ULD TRANSPORT REQUIREMENTS**

Ident.: CTL-LIM-FWD-ULD-UTR-00019826.0007001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

ULD CONTOUR**GENERAL**

The dimensions of the containers must remain within the limits of the Standard Contour H defined by the IATA.

When transporting a pallet, the operator must ensure a clearance of 2.00 in (0.051 m) between the contour of the loaded pallets (pallet, pallet equipment and load items) and:

- The cargo door
- The adjacent ULD
- The cargo hold sidewalls and ceiling.

The 2.00 in (0.051 m) clearance requirement does not apply to the distance between ULD baseplates.

Note: *The most recent revision of the IATA ULD Regulation defines all the following:*

- *The permitted ULD contours, that are described in section 50/0 of the regulation*
- *The maximum deflection limits for containers, that are described in section 50/4, attachment B, of the regulation*
- *The general envelope of pallets and the pallet equipment (nets, igloo, etc.), that are described in section 50/2 of the regulation.*

ULD CERTIFICATION**GENERAL**

Each ULD should comply with TSO-C90.

A ULD may not comply with the above-mentioned requirements. In this case, the operator must ensure that the manner in which the ULD is constructed and loaded prevents damage to the aircraft in all flight phases.

The ULD must comply with the most recent revision of section 50/0 of the IATA ULD Regulation.

HEAVY OR HAZARDOUS INDIVIDUAL ITEMS

For the loading of individual items in ULDs, a restraint is required in the following cases:

- When an individual item may be hazardous due to its nature, form, or density
- When an individual item has a weight of more than 150 kg (330 lb).

On a pallet, the restraint of the above-mentioned items is achieved if:

- The operator uses nets and straps fastened on the net attachment fittings of the pallet, or
- The operator covers the items with crushable cargo.

In a container, the restraint of the above-mentioned items is achieved if:

- The operator individually fastens the items to the attachment fittings of the container baseplate, or
- The operator fills the container with crushable cargo to at least three quarters of its height.

The operator must take into account the load factors of the aircraft when the operator restrains any heavy or hazardous individual item (*Refer to CTL-LIM-FWD-LDF Load Factors*).

To be considered as “crushable cargo”, the cargo must comply with all of the following criteria:

- The cargo does not contain large rigid items
- The cargo contains only deformable items
- If destruction or deformation of the cargo occurs, the cargo does not break into sharp debris
- The small items of the cargo are either fastened together or fastened to larger items
- The cargo density is between 80 kg/m³ (5 lb/ft³) and 240 kg/m³ (15 lb/ft³).

ITEMS IN DAMAGED CONTAINERS

The operator can use a damaged container, provided that its baseplate remains intact.

If the container is damaged, the operator must individually fasten the items to the baseplate of the container.

The operator must take into account the load factors of the aircraft when the operator fastens any item in damaged containers (*Refer to CTL-LIM-FWD-LDF Load Factors*).

ULD CONFIGURATION

The ULD must be lockable in the CLS. The dimensions of the ULD baseplate that include the edge profiles must comply with NAS3610/AS36100 requirements.

In addition, the ULD must comply with the following requirements:

- The baseplate dimensions tolerances must be 0 to -0.00635 m (0 to -0.25 in)
- The baseplate edge profile must comply with the most recent revision of section 50/1, attachment A, of the IATA ULD Regulation
- The ULD CG limits must comply with:
 - NAS3610/AS36100 requirements
 - The ULD center of gravity limits (*Refer to CTL-LIM-FWD-ULD-CHL ULD Center of Gravity*).

ULD GROSS WEIGHT

The gross weight of a ULD must not exceed the lowest of the following values:

- The maximum gross weight per position (*Refer to CTL-LIM-FWD-ULD-CHL Cargo Hold Capacity for ULDs*)
- The maximum ULD gross weight defined by:
 - NAS3610/AS36100 requirements, to which the load factors of the aircraft are applied, or
 - Design specifications associated to the ULD, to which the load factors of the aircraft are applied.

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

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Transport of ULDs**CLS Malfunctions****INTRODUCTION**

Ident.: CTL-LIM-FWD-ULD-CMF-00021998.0002001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The loading is subject to restrictions in the case of malfunctions of the Cargo Loading System (CLS). A "malfunction" refers to equipment that is either damaged or missing.

GENERAL RULE FOR MALFUNCTIONS

The Operator should repair or change missing and damaged equipment as soon as possible. This general rule applies to all CLS equipment, even if the applicable malfunctions are not described in the following section.

TRANSPORT ROLLER MALFUNCTIONS

The transport rollers are metal rollers that serve for the transport of Unit Load Devices (ULDs). Transport rollers are part of the roller tracks.

If there are two or more damaged or missing rollers in a ULD position, apply one of the following:

- The position can be loaded with an empty ULD, or
- The affected ULD position must remain unoccupied.

ENTRANCE GUIDE MALFUNCTIONS

The entrance guides provide guidance on the ball mat area during the loading and unloading of ULDs. The entrance guides prevent impact to the door frame.

If entrance guides are damaged or missing, the Operator must check the end stops on the Aircraft Datum (AD) of the affected positions for damage. The Operator must perform this check after every loading operation.

TIE-DOWN POINT MALFUNCTIONS

If the latch that is associated with a tie-down point is damaged, the Operator must not use the tie-down point.

LATCH MALFUNCTIONS

The following part contains both of the following:

- A correspondence table between the latch symbols and the latch types
- The ULD weight restrictions that the Operator must apply, in the case of a latch malfunction.

LATCH SYMBOLS AND TYPES

Symbol	Type	
	XZ-Latch (End Stop)	Fixed
	XZ-Single Latch	Retractable
	YZ-Latch	Fixed
	YZ-Latch (Door Sill)	Retractable

ULD WEIGHT RESTRICTIONS

A latch failure may have one of the following effects on the loading capacity of the affected ULD positions:

- No weight reduction
- A weight reduction
- No possibility to load.

In the latch malfunction tables:

- No combination of latch failures per affected ULD position is permitted.
In the case of a combination of failures of different latch types, the affected ULD position must remain unoccupied.
- A ULD weight reduction to "0" means that either:
 - The position can be loaded with an empty ULD, or
 - The affected ULD position must remain unoccupied.

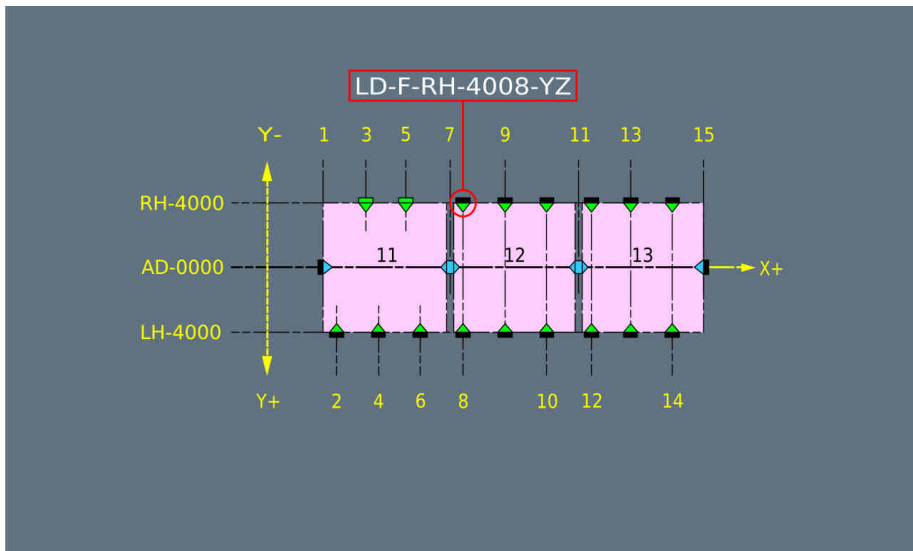
CLS MALFUNCTIONS

Ident.: CTL-LIM-FWD-ULD-CMF-00021267.0002001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746


 For a description of the latch codes, *Refer to CTL-CGO-FWD-ULD-CHA Latch Location.*

Latch Type	Applicable Position	Latch Code	Failed Latch(es) per Position	Required Conditions	Weight Reduced to	
					(kg)	(lb)
XZ-Single Latch	11, 12	LD-F-AD-0007-XZ	1 latch	ULDs removed	0	0
	12, 13	LD-F-AD-0011-XZ	1 latch	ULDs removed	0	0

Continued on the following page

WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Continued from the previous page

Latch Type	Applicable Position	Latch Code	Failed Latch(es) per Position	Required Conditions	Weight Reduced to	
					(kg)	(lb)
YZ-Latch	11	LD-F-LH-4002-YZ	1 latch	ULD removed	0	0
		LD-F-LH-4004-YZ LD-F-LH-4006-YZ	2 or more latches		0	0
	12	LD-F-RH-4008-YZ	1 latch	ULD removed	0	0
		LD-F-LH-4008-YZ LD-F-RH-4009-YZ LD-F-LH-4009-YZ LD-F-RH-4010-YZ LD-F-LH-4010-YZ	2 or more latches		0	0
		LD-F-RH-4012-YZ LD-F-LH-4012-YZ	1 latch		0	0
		LD-F-RH-4013-YZ LD-F-LH-4013-YZ LD-F-RH-4014-YZ LD-F-LH-4014-YZ	2 or more latches		0	0
	13	LD-F-RH-4012-YZ LD-F-LH-4012-YZ	1 latch	ULD removed	0	0
		LD-F-RH-4013-YZ LD-F-LH-4013-YZ LD-F-RH-4014-YZ LD-F-LH-4014-YZ	2 or more latches		0	0
	11	LD-F-RH-4003-YZ LD-F-RH-4005-YZ	1 or more latches	ULD removed	0	0
YZ-Latch (Door Sill)	11	LD-F-AD-0001-XZ	1 latch	ULD removed	0	0
XZ-Latch (End Stop)	13	LD-F-AD-0015-XZ	1 latch	ULD removed	0	0
For one applicable position, the failed latches are of different types.				ULD removed	0	0

Transport of ULDs**Non-Unitized Loads****INTRODUCTION**

Ident.: CTL-LIM-FWD-ULD-NLOD-00019827.0007001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

A non-unitized load is an item that cannot be netted or containerized into ULDs.

The operator may carry non-unitized loads on one of the following types of pallet:

- Latched pallets: standardized pallets, latched within the CLS
- Floating pallets: standardized pallets, fastened to the tie-down points on the fixed YZ-latches of the CLS, and on the cargo hold floor.

To load on the flat floor of the aircraft, the operator must use pallets:

- To achieve an even floor
- To avoid damage to the floor panels and the components of the CLS.

The pallet load may overhang the pallet dimensions. The overhang is only permitted if there is no adverse effect on the cargo door, compartment linings, equipment, or on cargo on the adjacent positions.

The operator must ensure that there is at least 2.00 in (0.051 m) between the pallet load and, the load on adjacent pallets and the above-mentioned cargo components.

The limitations due to CLS malfunctions also apply to the loading of non-unitized loads (*Refer to CTL-LIM-FWD-ULD-CMF CLS Malfunctions*).

TYPES OF NON-UNITIZED LOADS

Ident.: CTL-LIM-FWD-ULD-NLOD-00019824.0007001 / 03 JUN 25

APPROVED

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

LATCHED PALLETS

The operator must use one of the following types of pallet:

- Any pallet specified in part Cargo Hold Capacity for ULDs (*Refer to CTL-LIM-FWD-ULD-CHL Cargo Hold Capacity for ULDs*), or
- Any pallet with similar dimensions and design, that complies with NAS3610 or AS36100 requirements.

Pallets must comply with the ULD transport requirements (*Refer to CTL-LIM-FWD-ULD-UTR ULD Transport Requirements*).

The CG of the loaded pallet (pallet, pallet equipment and load items) must remain within the pallet CG limits (*Refer to CTL-LIM-FWD-ULD-CHL ULD Center of Gravity*).

The operator must latch the pallet, and fasten the load items to the pallet baseplate.

FLOATING PALLETS

If the operator cannot latch the pallet, due to the weight or geometry of an individual item, the operator must use one or more floating pallets.

The operator can use any pallet with a design that complies with NAS3610/AS36100 requirements and that fits in the cargo hold.

The operator must ensure that:

- The CG height for the loaded pallet (pallet, pallet equipment and load items) is less than 0.635 m (25.00 in) from the bottom of the pallet baseplate
- The lateral CG deviation from the geometric center of the pallet does not exceed $\pm 10\%$ of the width of the pallet
- The longitudinal CG deviation from the geometric center of the pallet does not exceed $\pm 10\%$ of the length of the pallet.

The operator must put each pallet in the CLS area. The center roller track and the transport rollers integrated in the YZ-latches must sustain the pallet baseplate.

The operator must not put floating pallets in the door area, because the door area has no fixed YZ-latches.

The operator must fasten the floating pallet to the aircraft. The load items must be fastened either:

- Individually, to the baseplate of the floating pallet, or
- All together with the floating pallet, to the aircraft.

RESTRAINT CONDITIONS

Ident.: CTL-LIM-FWD-ULD-NLOD-00019823.0007001 / 03 JUN 25

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

APPROVED

The operator must ensure that the manner in which the load is fastened satisfies the following criteria:

- The load does not cause damage to the aircraft in all flight phases
- The load is evenly distributed on the pallet rims, CLS, and aircraft structure, taking into account the extension of straps and nets.

RESTRAINT OF LOAD ITEMS TO THE BASEPLATES OF THE LATCHED AND FLOATING PALLETS

The operator must use nets and/or straps to fasten all individual items to the net attachment fittings of the pallet baseplate.

The net attachment fittings of the baseplate must be designed to sustain a load of at least 906 kg (2 000 lb) in any direction.

RESTRAINT OF THE LATCHED PALLETS TO THE AIRCRAFT

The operator must latch the pallets within the CLS. The operator must use all the latches of the ULD position.

RESTRAINT OF THE FLOATING PALLETS TO THE AIRCRAFT

Provided that the load items are fastened to the pallet baseplate, the operator must fasten to the aircraft either:

- The floating pallets, or
- The loaded pallet (floating pallet, pallet equipment and load items).

The operator must use straps and/or nets to fasten the load to the tie-down points.

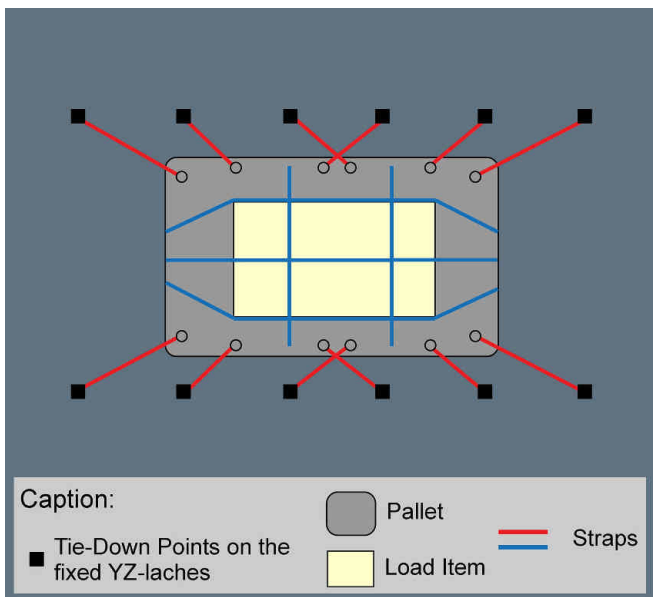
The operator must not restrain a floating pallet with latches.

The tie-down points are on the fixed YZ-latches of the CLS, and on the cargo hold floor.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The following illustrations provide examples of typical restraint systems:

Floating Pallet with Load Item Fastened to the Tie-Down Points of the Baseplate

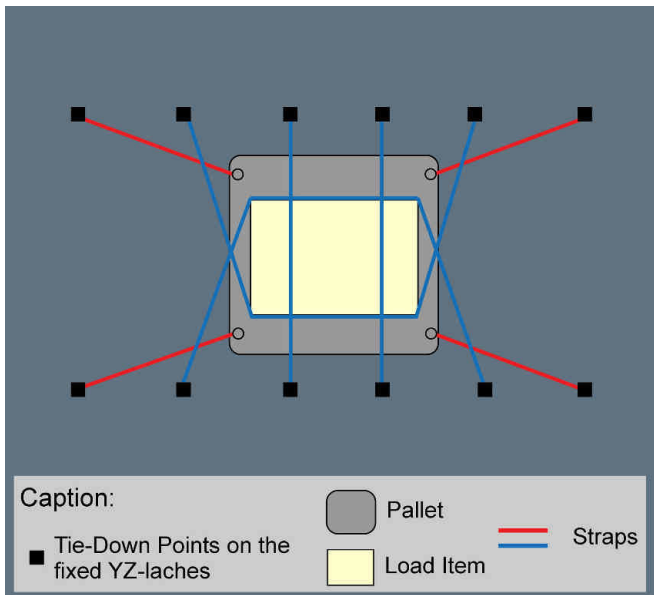


WEIGHT AND BALANCE CONTROL

Limitations

Forward Cargo Hold

Floating Pallet with Load Item Fastened to the Tie-Down Points of the Aircraft



Introduction

INTRODUCTION

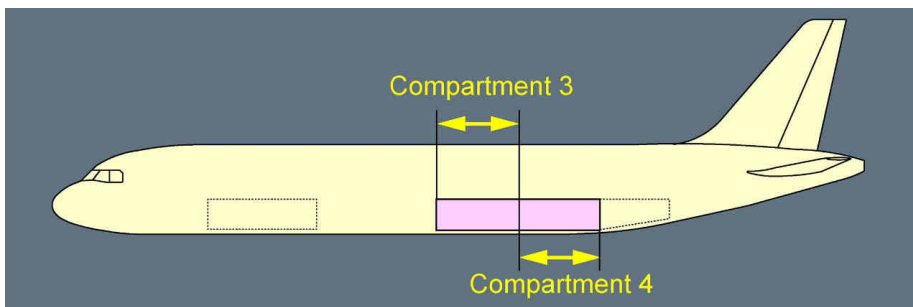
Ident.: CTL-LIM-AFT-INT-00019616.0097001 / 03 JUN 25

APPROVED

Criteria: 21103, 27686, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The aft cargo hold is divided into two compartments (compartments 3 and 4).



The cargo hold is equipped with a Cargo Loading System (CLS) and a net restraint system for both of the following:

- The transport of Unit Load Devices (ULDs) and non-unitized loads
- The transport of bulk loads.

The operator can transport the bulk loads either directly on the CLS, or on protection panels installed on the CLS.

The CLS is the equipment installed on the floor of the cargo hold:

- To load ULDs and non-unitized load
- To restrain ULDs and non-unitized loads against the load factors induced by aircraft accelerations.

The net restraint system is an arrangement of nets that is certified to restrain the bulk items against the load factors induced by aircraft accelerations.

The limitations of the aft cargo hold depend on the type of loads as indicated in the following table.

Type of Loads	
ULDs and non-unitized loads	<i>Refer to Transport of ULDs</i>
Bulk loads on the CLS	<i>Refer to Transport of Bulk Loads on CLS</i>
Bulk loads with protection panels installed on the CLS	<i>Refer to Transport of Bulk Loads on CLS with Protection panels</i>

Note: A ULD is a container or a pallet, and the equipment of the pallet (nets, igloo, etc.). A ULD enables the operator to assemble and restrain individual items in a standard-sized unit. Bulk loads are defined as loose items, baggage, or freight that can be loaded in a net section. A net section is a section defined by two successive nets, or by a net and a wall.

INTRODUCTION

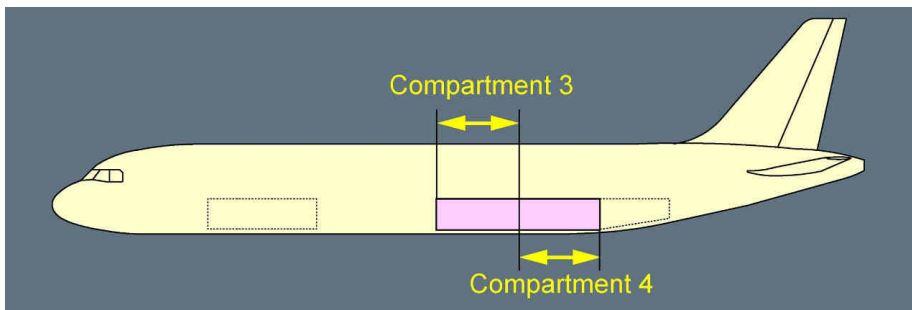
Ident.: CTL-LIM-AFT-INT-00019616.0056001 / 03 JUN 25

Criteria: 21103, 28327, 28335, 28440, ST1

Applicable to: MSN 03060

APPROVED

The aft cargo hold is divided into two compartments (compartments 3 and 4).



The cargo hold is equipped with a Cargo Loading System (CLS) and a net restraint system for both of the following:

- The transport of Unit Load Devices (ULDs) and non-unitized loads
- The transport of bulk loads on the CLS.

The CLS is the equipment installed on the floor of the cargo hold:

- To load ULDs and non-unitized load
- To restrain ULDs and non-unitized loads against the load factors induced by aircraft accelerations.

The net restraint system is an arrangement of nets that is certified to restrain the bulk items against the load factors induced by aircraft accelerations.

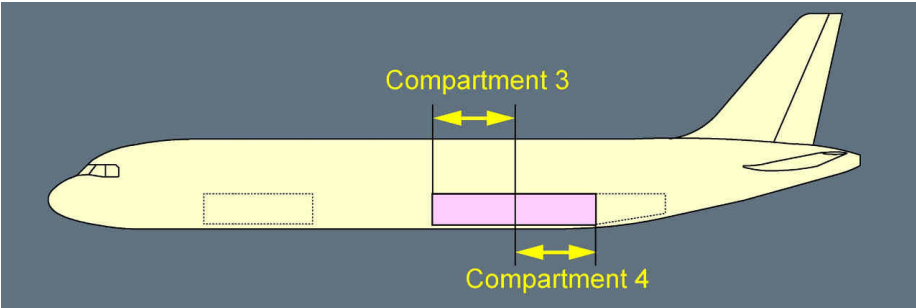
Note: A ULD is a container or a pallet, and the equipment of the pallet (nets, igloo, etc.). A ULD enables the operator to assemble and restrain individual items in a standard-sized unit. Bulk loads are defined as loose items, baggage, or freight that can be loaded in a net section. A net section is a section defined by two successive nets, or by a net and a wall.

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Aft Cargo Hold
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INTRODUCTION

Ident.: CTL-LIM-AFT-INT-00019616.0042001 / 03 JUN 25 Criteria: 21103, 28335, ST1 Applicable to: MSN 05152, 05162, 05253, 05746	<u>APPROVED</u>
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The aft cargo hold is divided into two compartments (compartments 3 and 4).



The cargo hold is equipped with a Cargo Loading System (CLS) for the transport of Unit Load Devices (ULDs) and non-unitized loads.

The CLS is the equipment installed on the floor of the cargo hold:

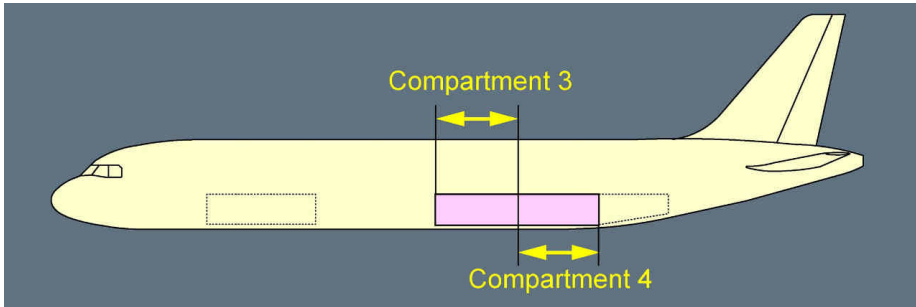
- To load ULDs and non-unitized load
- To restrain ULDs and non-unitized loads against the load factors induced by aircraft accelerations.

Note: A ULD is a container or a pallet, and the equipment of the pallet (nets, igloo, etc.). A ULD enables the operator to assemble and restrain individual items in a standard-sized unit.

INTRODUCTION

Ident.: CTL-LIM-AFT-INT-00019616.0005001 / 03 JUN 25 Criteria: 21103, 28327, ST1 Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792	<u>APPROVED</u>
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The aft cargo hold is divided into two compartments (compartments 3 and 4).



The cargo hold is equipped with a net restraint system for the transport of bulk loads.

The net restraint system is an arrangement of nets that is certified to restrain the bulk loads against the load factors induced by aircraft accelerations.

Note: Bulk loads are defined as loose items, baggage, or freight that can be loaded in a net section. A net section is a section defined by two successive nets, or by a net and a wall.

Floor Loading Limits

FLOOR LOADING LIMITS

Ident.: CTL-LIM-AFT-FLL-00019617.0052001 / 03 JUN 25

APPROVED

Criteria: 27686, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The operator must check all the limits, provided in this section, without taking into account the load factors.

BULK LOADING

STRUCTURE

The floor structure can sustain the following load on the flat and sloped floor or on the protection panels:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via floor panels	732	150
Via protection panels	366	75
Via ball mats or roller tracks	488	100

The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the load and the floor or the protection panels.

PANELS

Each floor panel and the protection panels can sustain the following loads:

	Local Load	
	(kg/0.093m ²)	(lb/1ft ²)
On the flat or sloped floor panels	906	2 000
On the protection panels	204	450

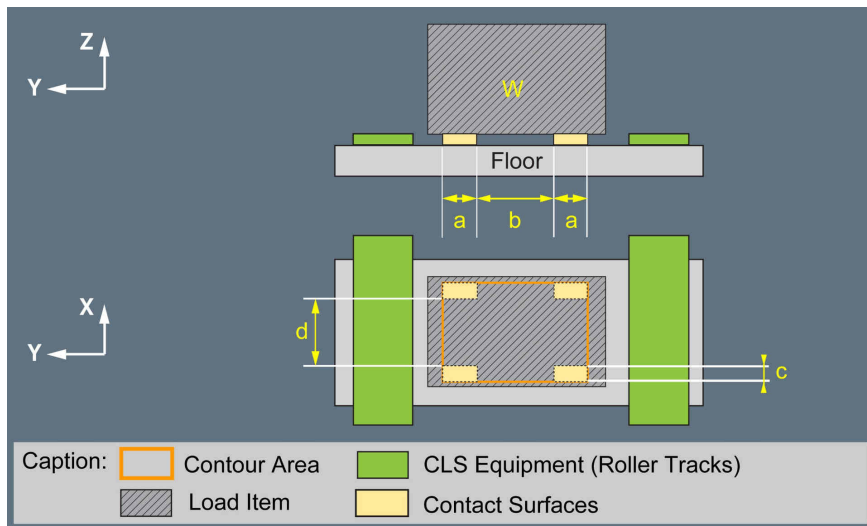
The local load limit is the maximum weight acceptable on any floor panel area of 0.093 m² (1.00 ft²) that will not lead to permanent deformations.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

FLOOR LOADING EXAMPLE: BULK LOADING ON CLS



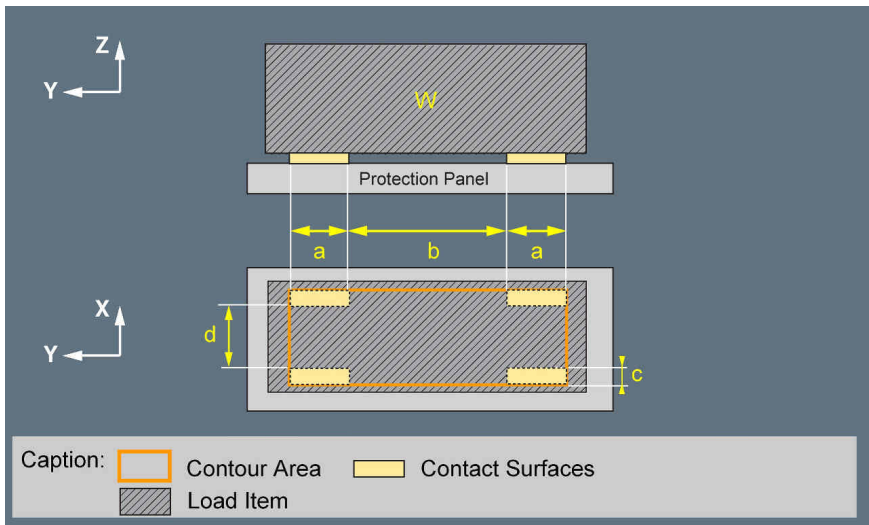
Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

FLOOR LOADING EXAMPLE: BULK LOADING ON PROTECTION PANELS


Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

Metric Units

$$\text{DistributedLoad (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US Units

$$\text{DistributedLoad (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

ULD LOADING
STRUCTURE

The floor structure can sustain the following loads:

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via ball mats or roller tracks	488	100

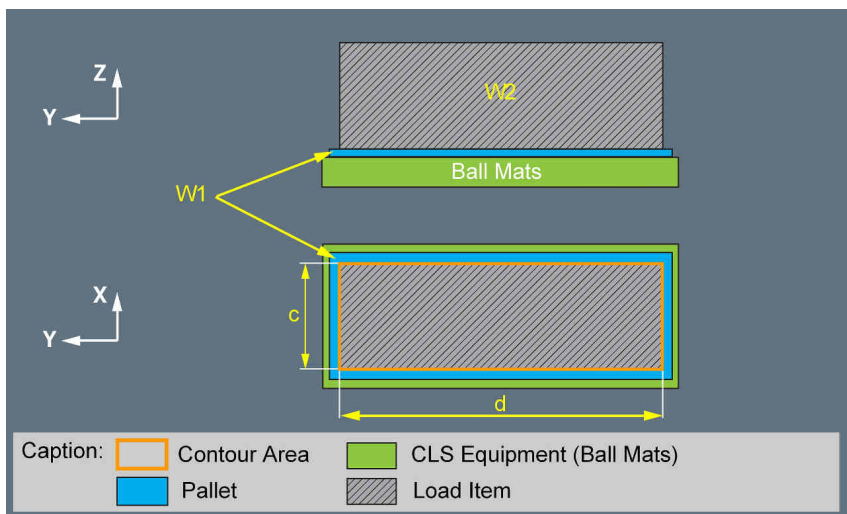
The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the ULD and ball mats or roller tracks.

PANELS

The operator has no floor loading limits to check for the panels.

FLOOR LOADING EXAMPLES

Via the Ball Mats



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
c	Length of the load item	m	in
d	Width of the load item		

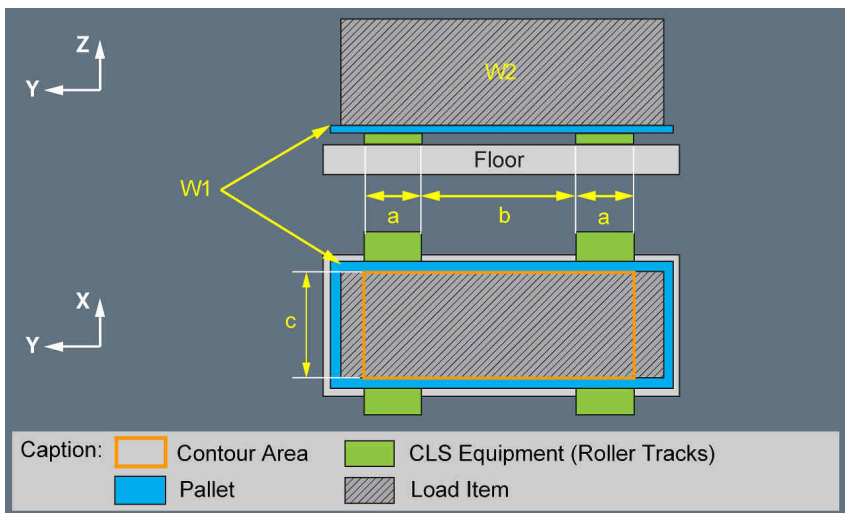
Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{c \times d}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{c \times d}$$

Via the Roller Tracks



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
a	Width of the roller track	m	in
b	Longitudinal distance between two roller tracks		
c	Length of the load item		

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{(2a + b) \times c}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{(2a + b) \times c}$$

FLOOR LOADING LIMITS

Ident.: CTL-LIM-AFT-FLL-00019617.0046001 / 03 JUN 25

Criteria: 28327, 28335, 28440, ST1

Applicable to: MSN 03060

APPROVED

The operator must check all the limits, provided in this section, without taking into account the load factors.

ULD LOADING

STRUCTURE

The floor structure can sustain the following loads:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via ball mats or roller tracks	488	100

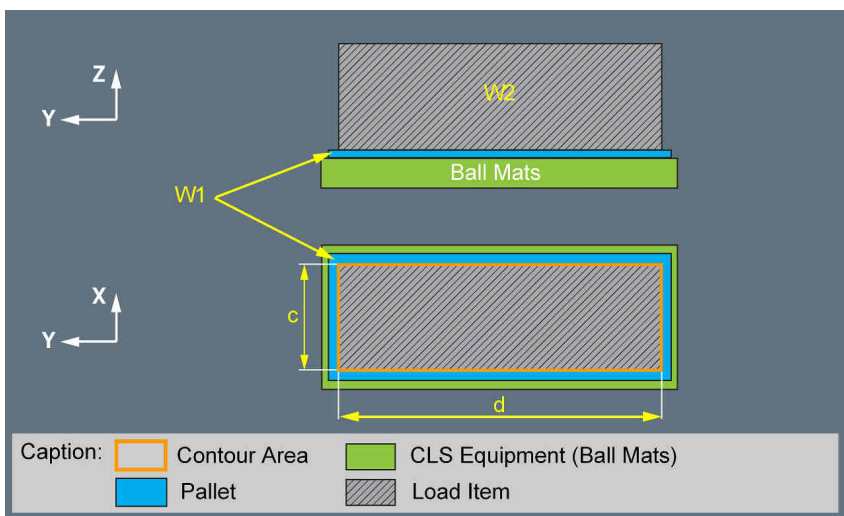
The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the ULD and ball mats or roller tracks.

PANELS

The operator has no floor loading limits to check for the panels.

FLOOR LOADING EXAMPLES

Via the Ball Mats



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
c	Length of the load item	m	in
d	Width of the load item		

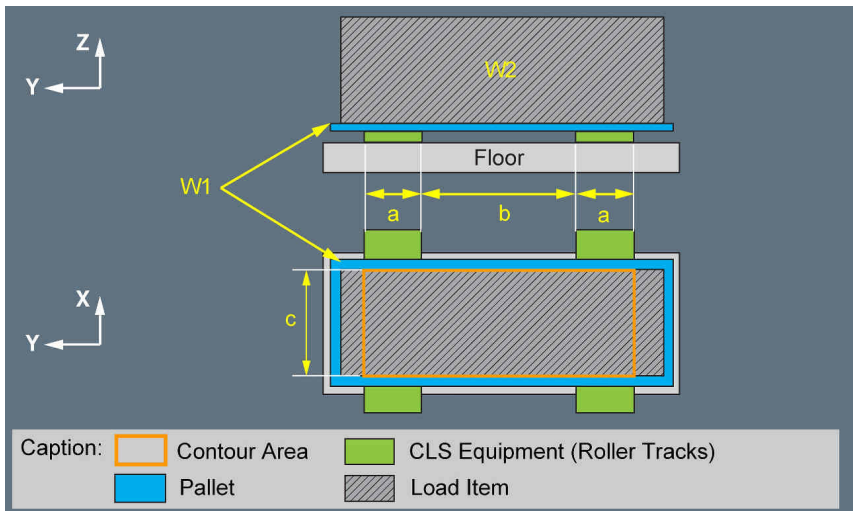
Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{c \times d}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{c \times d}$$

Via the Roller Tracks



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
a	Width of the roller track	m	in
b	Longitudinal distance between two roller tracks		
c	Length of the load item		

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{(2a + b) \times c}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{(2a + b) \times c}$$

BULK LOADING

STRUCTURE

The floor structure can sustain the following load on the flat and sloped floor:

	Distributed Load	
	(kg/m²)	(lb/ft²)
Via floor panels	732	150
Via ball mats or roller tracks	488	100

The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the load and the floor.

PANELS

Each floor panel can sustain the following loads:

	Local Load		Point Load	
	(kg/0.093m²)	(lb/1ft²)	(kg/cm²)	(lb/in²)
On the flat floor	906	2 000	6.6	94
On the sloped floor	906	2 000	6.6	94

The local load limit is the maximum weight acceptable on any floor panel area of 0.093 m² (1.00 ft²) that will not lead to permanent deformations.

The point load limit is the maximum weight acceptable on any unit of surface of the floor panel that will not lead to puncture of the panel.

FLOOR LOADING LIMITS

Ident.: CTL-LIM-AFT-FLL-00019617.0010001 / 03 JUN 25

APPROVED

Criteria: 28335, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

The operator must check all the limits, provided in this section, without taking into account the load factors.

STRUCTURE

The floor structure can sustain the following loads:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via ball mats or roller tracks	488	100

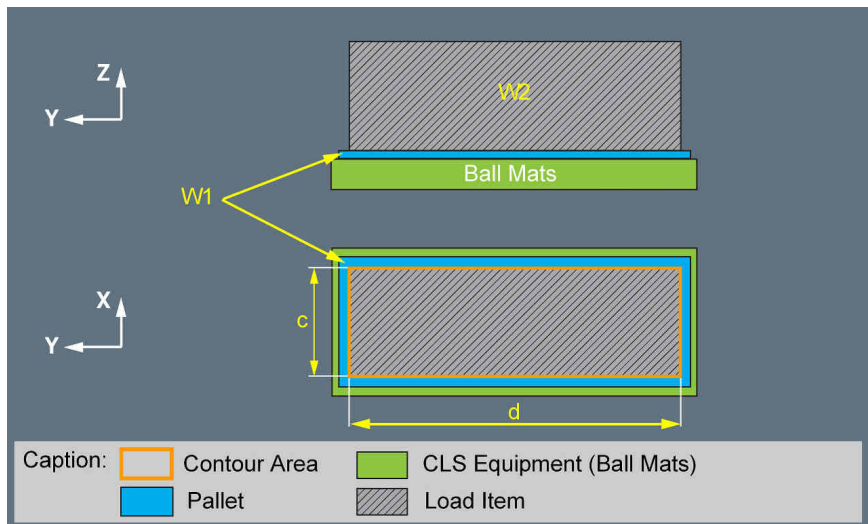
The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the ULD and ball mats or roller tracks.

PANELS

The operator has no floor loading limits to check for the panels.

FLOOR LOADING EXAMPLES

VIA THE BALL MATS



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Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
c	Length of the load item	m	in
d	Width of the load item		

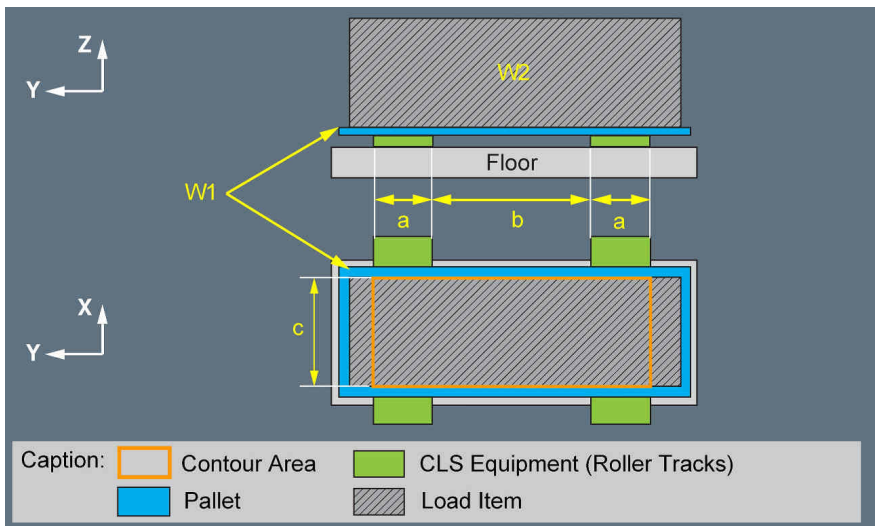
Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{c \times d}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{c \times d}$$

VIA THE ROLLER TRACKS



Legend	Definition	Unit	
		Metric	US
W1	Weight of the pallet and pallet equipment	kg	lb
W2	Weight of the load item		
a	Width of the roller track	m	in
b	Longitudinal distance between two roller tracks		
c	Length of the load item		

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Metric Units

$$\text{Distributed Load (kg/m}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = \frac{W_1 + W_2}{(2a + b) \times c}$$

US Units

$$\text{Distributed Load (lb/ft}^2\text{)} = \frac{\text{Weight of the ULD}}{\text{Contour Area}} = 144 \times \frac{W_1 + W_2}{(2a + b) \times c}$$

FLOOR LOADING LIMITS

Ident.: CTL-LIM-AFT-FLL-00019617.0001001 / 03 JUN 25

Criteria: 28327, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

APPROVED

The operator must check all the limits, provided in this section, without taking into account the load factors.

STRUCTURE

The floor structure can sustain the following load on the flat and sloped floor:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via floor panels	732	150

The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the load and the floor.

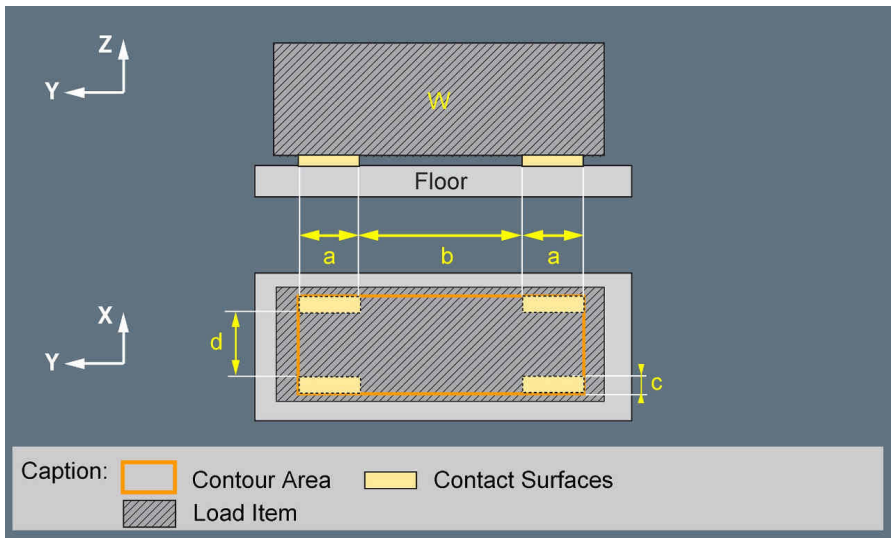
PANELS

Each floor panel can sustain the following loads:

	Local Load		Point Load	
	(kg/0.093m ²)	(lb/1ft ²)	(kg/cm ²)	(lb/in ²)
On the flat floor	906	2 000	6.6	94
On the sloped floor	906	2 000	6.6	94

The local load limit is the maximum weight acceptable on any floor panel area of 0.093 m² (1.00 ft²) that will not lead to permanent deformations.

The point load limit is the maximum weight acceptable on any unit of surface of the floor panel that will not lead to puncture of the panel.

FLOOR LOADING EXAMPLE


Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

METRIC UNITS

$$\text{DistributedLoad (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US UNITS

$$\text{DistributedLoad (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Load Factors

LOAD FACTORS

Ident.: CTL-LIM-AFT-LDF-00019618.0007001 / 03 JUN 25

APPROVED

Criteria: 21103, ST1

Applicable to: ALL

When a restraint system is required to fasten an item, the operator must ensure that the restraint system resists the maximum apparent weight of the item in each direction.

In order to calculate the apparent weight of an item in each direction, the operator must use the load factors provided in the following table.

Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
3	1.69	1.12	1.46	3.01
4	1.69	1.12	1.72	3.53

EXAMPLE:

ASSUMPTIONS:

The operator loads an item with a weight of 200 kg (441 lb). In accordance with the "Load Factors" table, the item is subject to a load factor of 1.69 in the forward direction.

OUTPUTS:

The apparent weight of the item in the forward direction is 338 kg (200 kg x 1.69) or 745 lb (441 lb x 1.69). This apparent weight is identical to the weight of an item with a weight of 338 kg (745 lb) not subject to a load factor.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Transport of Bulk Loads

Cargo Hold Loading

CARGO HOLD CAPACITY

Ident.: CTL-LIM-AFT-BULK-CHL-00019622.0007001 / 03 JUN 25

APPROVED

Criteria: 21103, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The capacity of the cargo hold is 4 536 kg (10 000 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
31	1 301	2 868
32	1 125	2 481
41	928	2 046
42	1 182	2 605

The loading of the cargo hold is subject to additional restraint requirements or weight restrictions in the case of a malfunction of the installed nets or stanchions (*Refer to CTL-LIM-AFT-BULK-NMF Net Malfunctions*).

RESTRAINT CONDITIONS

Ident.: CTL-LIM-AFT-BULK-CHL-00019621.0003001 / 03 JUN 25

APPROVED

Criteria: 21103, 23172, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

Mandatory door nets and stanchions ensure that the door area is not blocked, to be able to correctly open the cargo door.

Two mandatory divider nets separate the cargo hold in two net sections, to ensure the restraint of the load.

For additional information on the net section arrangement (*Refer to CTL-CGO-AFT-BULK-CHA Section Arrangement*).

For bulk loading, if the mandatory nets are installed, no additional restraints are required, except in either of the following cases:

- When a load item may be hazardous due to its nature, form, or density
- When a load item has a weight of more than 150 kg (330 lb).

The additional restraint of the above-mentioned items is achieved if:

- The operator fills the applicable net section to at least three quarters of its height, or
- The operator individually fastens the load items to the tie-down points of the aircraft.

A bulk item may be too large to fit in a net section. In this case, the operator is authorized to remove the mandatory divider nets, in order to create a larger net section. This new net section is defined by two successive mandatory divider nets, or by a mandatory divider net and a wall.

The operator must individually fasten all the bulk items which are located in this new net section.

The operator must ensure that there is a minimum clearance of 2.00 in (0.051 m) between the top of the load and the cargo hold ceiling.

FASTENING LOAD REQUIREMENTS

Ident.: CTL-LIM-AFT-BULK-CHL-00019620.0001001 / 03 JUN 25

Criteria: ST1

APPROVED

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The operator must use nets and straps to fasten the load to the tie-down points of the cargo hold floor.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The operator must arrange and fasten the load to the cargo hold floor in a way to ensure an even distribution of the load.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points (*Refer to CTL-CGO-AFT-BULK-CHA Tie-Down Point Location*) that are not already used to attach the nets.

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Transport of Bulk Loads

Net Malfunctions

NET MALFUNCTIONS

Ident.: CTL-LIM-AFT-BULK-NMF-00021286.0009001 / 03 JUN 25
Criteria: 21103, ST1
Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

APPROVED

The loading is subject to restraint requirements or weight restrictions in the case of malfunctions of the installed nets and stanchions.

A "malfunction" refers to equipment that is either damaged or missing.

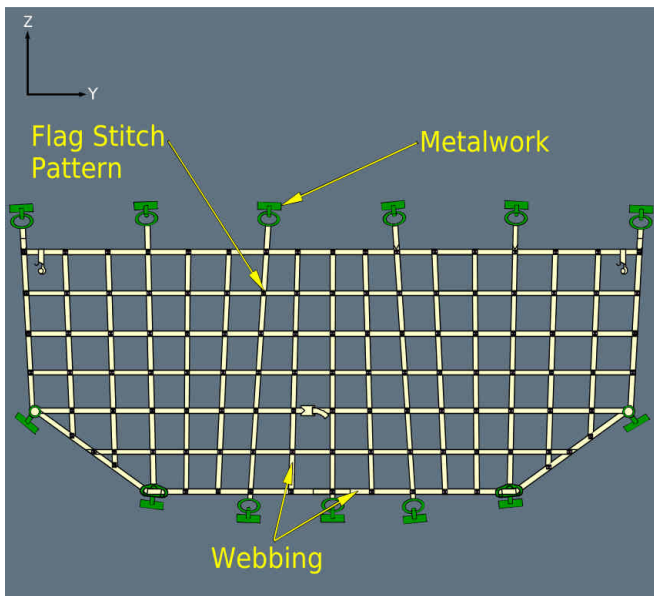
This section contains:

- An illustration of a stanchion and of each net type that can be installed. The mandatory and the optional nets, if any, are indicated.
- A list of possible malfunctions and the associated restrictions
- A correspondence table between the missing or damaged equipment, and the sections affected.

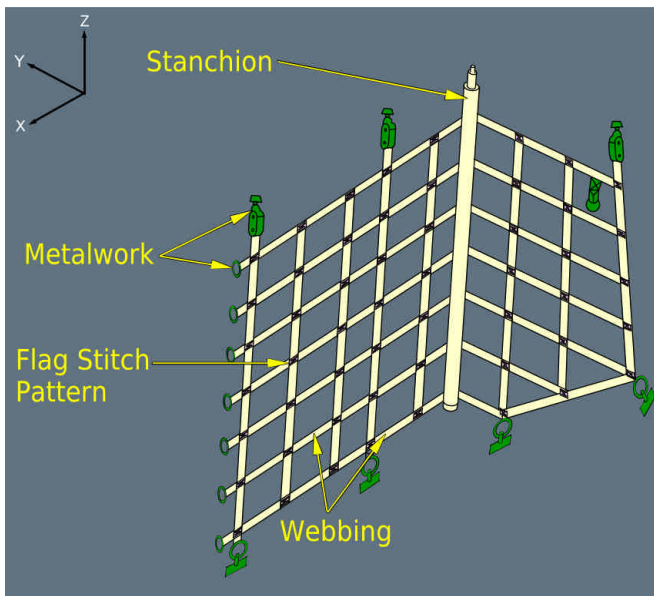
The operator should repair or change missing and damaged equipment as soon as possible.

NET TYPES AND STANCHION

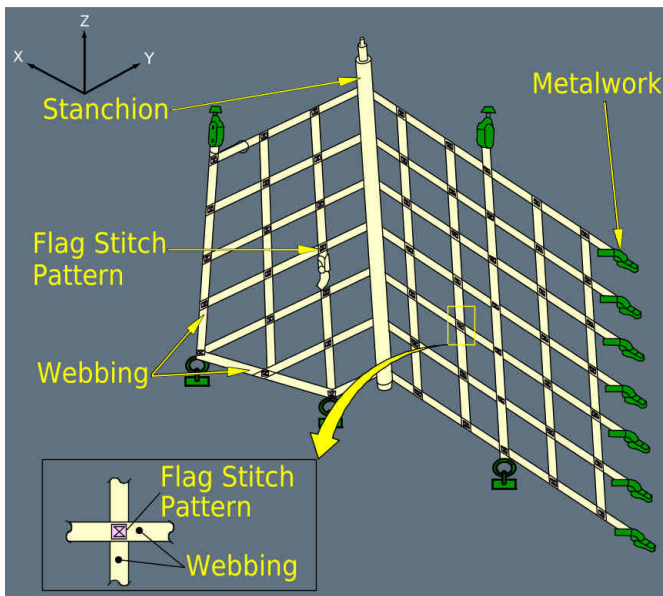
DIVIDER NET TYPE A1 AND A2



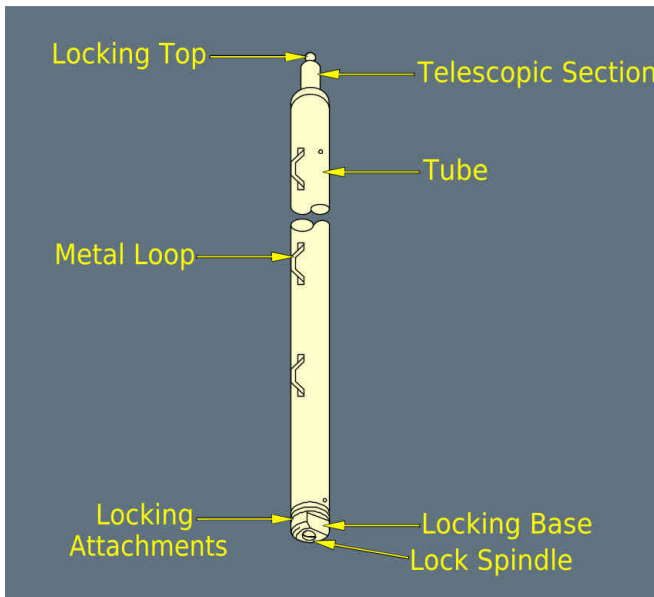
DOOR NET TYPE B



DOOR NET TYPE A



STANCHION



LIST OF POSSIBLE MALFUNCTIONS

The malfunction descriptions and the corresponding restrictions are valid for all net types.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

NETS:

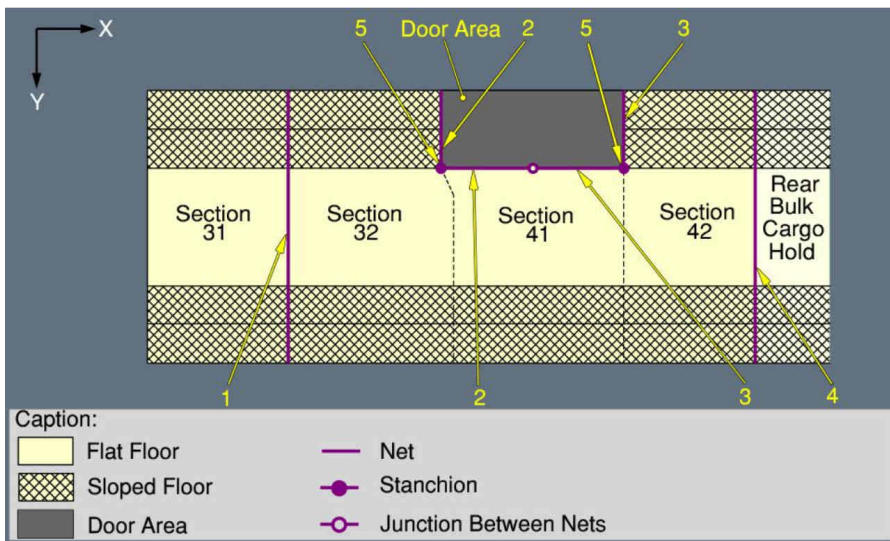
Malfunction Description		Restrictions
Parts Affected	Failure	
Webbing	- Slightly abraded but webbing not broken - Broken flag stitch pattern at web intersections. No more than two flag stitch patterns affected per net	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Metalwork	Minor surface corrosion or damage that does not affect the function of the metalwork	
Nets with damage that: - Exceeds the quantity of affected webbing and metalwork above-mentioned - Affects the function of a net part - Exceeds the extent of the corrosion, or abrasion above-mentioned. Missing nets Damaged tie-down points used for net attachment		The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points

STANCHIONS:

Malfunction Description		Restrictions
Parts Affected	Failure	
Tube	- Minor surface corrosion - Small dents of a maximum depth of 2 mm (0.08 in)	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Locking mechanisms and telescopic section	Minor damage that does not affect the function of the stanchion	
Metal loop	Detached or missing. No more than one per stanchion	The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points.
Locking base and top	- Weak or broken locking mechanism - Broken lock spindle	
Stanchions with damage that: - Exceeds the quantity of affected metal loop above-mentioned - Affects the function of a stanchion part - Exceeds the extent of the corrosion, or dents above-mentioned. Missing stanchions		

CORRESPONDENCE TABLE:

The following illustration indicates the net arrangement in the cargo hold.



The following table provides:

- The correspondence between the missing or damaged equipment, and the sections affected
- The maximum gross weight per net section that the operator must apply, in the case of a required weight reduction.

Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider net type A2	31	976	2 152
		32 + 41 + 42	2 426	5 348
2	Door net type B	32 + 41 + 42	2 426	5 348
3	Door net type A	32 + 41 + 42	2 426	5 348
4	Divider net type A1	32 + 41 + 42	2 426	5 348
5	Stanchion	32 + 41 + 42	2 426	5 348

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Transport of Bulk Loads on CLS

Cargo Hold Loading

CARGO HOLD CAPACITY

Ident.: CTL-LIM-AFT-BCLS-CHL-00019631.0063001 / 03 JUN 25

APPROVED

Criteria: 21103, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The capacity of the cargo hold is 4 536 kg (10 000 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
31	1 301	2 868
32	1 125	2 481
41	928	2 046
42	1 182	2 605

The loading of the cargo hold is subject to additional restraint requirements or weight restrictions in the case of a malfunction of the installed nets or stanchions (*Refer to CTL-LIM-AFT-BCLS-NMF Net Malfunctions*).

RESTRAINT CONDITIONS

Ident.: CTL-LIM-AFT-BCLS-CHL-00019630.0048001 / 03 JUN 25

APPROVED

Criteria: 21103, 23172, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

Mandatory door nets and stanchions ensure that the door area is not blocked, to be able to correctly open the cargo door.

Two mandatory divider nets separate the cargo hold in two net sections, to ensure the restraint of the load.

For additional information on the net section arrangement, *Refer to CTL-CGO-AFT-BCLS-CHA Section Arrangement*.

For bulk loading, if the mandatory nets are installed, no additional restraints are required, except in either of the following cases:

- When a load item may be hazardous due to its nature, form, or density
- When a load item has a weight of more than 150 kg (330 lb).

The additional restraint of the above-mentioned items is achieved if:

- The operator fills the applicable net section to at least three quarters of its height, or
- The operator individually fastens the load items to the tie-down points of the aircraft.

A bulk item may be too large to fit in a net section. In this case, the operator is authorized to remove the mandatory divider nets, in order to create a larger net section. This new net section is defined by two successive mandatory divider nets, or by a mandatory divider net and a wall.

The operator must individually fasten all the bulk items which are located in this new net section.

The operator must ensure that there is a minimum clearance of 2.00 in (0.051 m) between the top of the load and the cargo hold ceiling.

FASTENING LOAD REQUIREMENTS

Ident.: CTL-LIM-AFT-BCLS-CHL-00019629.0026001 / 03 JUN 25

Criteria: 21103, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

APPROVED

The operator must use nets and straps to fasten the load to the tie-down points of the cargo hold floor or the fixed YZ-latches of the CLS.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The operator must arrange and fasten the load to the cargo hold floor in a way to ensure an even distribution of the load.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points (*Refer to CTL-CGO-AFT-BCLS-CHA Tie-Down Point Location*) that are not already used to attach the nets.

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Transport of Bulk Loads on CLS

Net Malfunctions

NET MALFUNCTIONS

Ident.: CTL-LIM-AFT-BCLS-NMF-00021295.0007001 / 03 JUN 25 Criteria: 21103, 28327, 28335, 28440, ST1 Applicable to: MSN 02719, 02758, 02789, 03031, 03060	<u>APPROVED</u>
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The loading is subject to restraint requirements or weight restrictions in the case of malfunctions of the installed nets and stanchions.

A "malfunction" refers to equipment that is either damaged or missing.

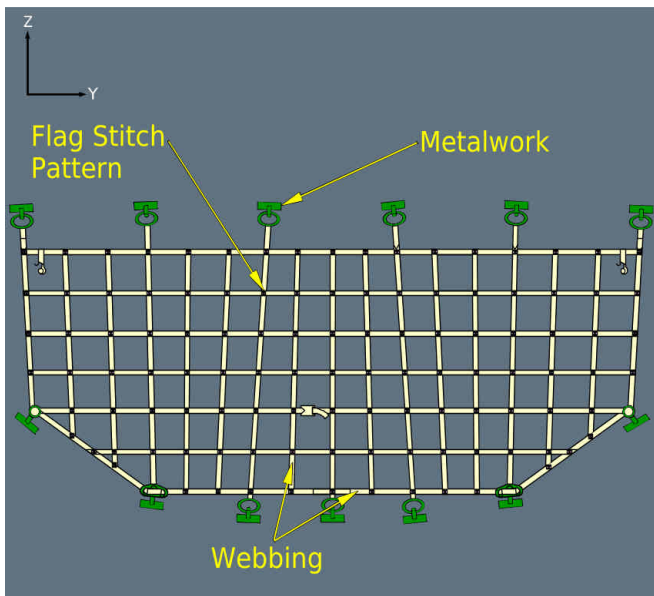
This section contains:

- An illustration of a stanchion and of each net type that can be installed. The mandatory and the optional nets, if any, are indicated.
- A list of possible malfunctions and the associated restrictions
- A correspondence table between the missing or damaged equipment, and the sections affected.

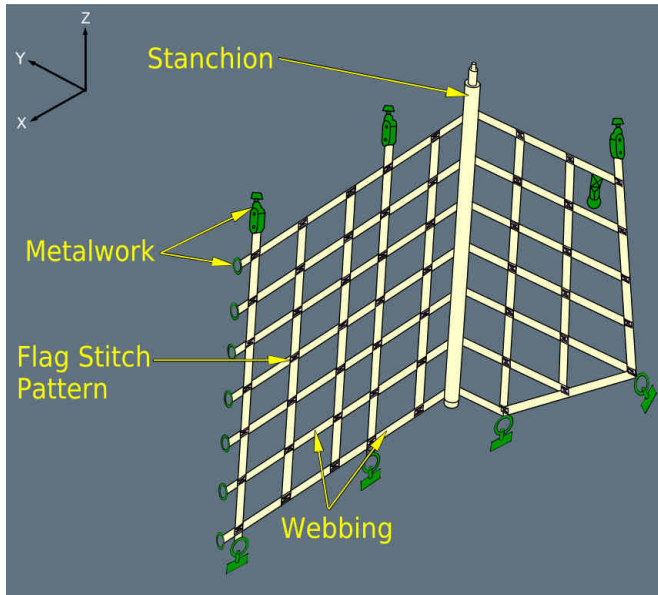
The operator should repair or change missing and damaged equipment as soon as possible.

NET TYPES AND STANCHION

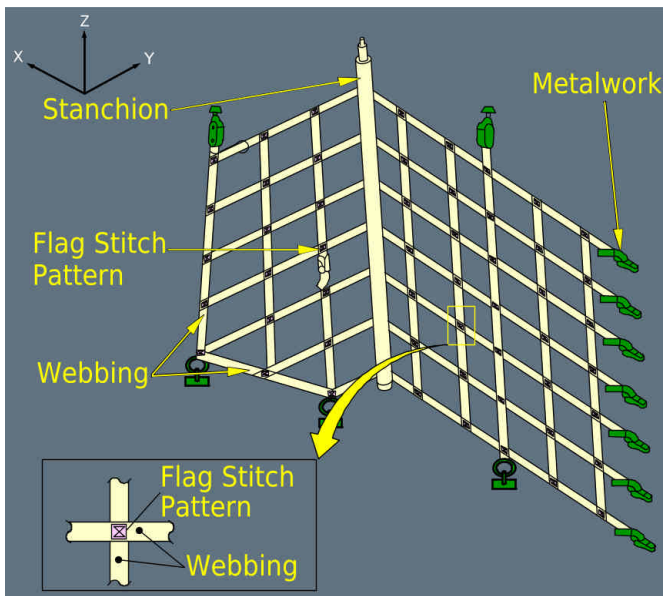
DIVIDER NET TYPE A1 AND A2



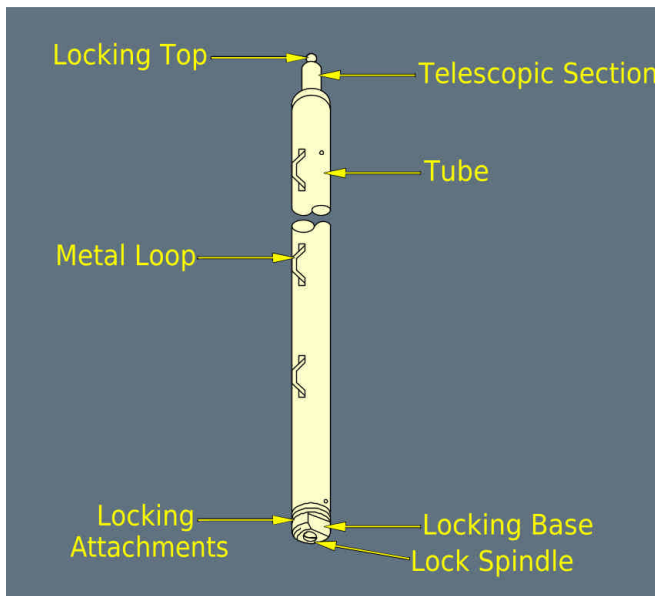
DOOR NET TYPE B



DOOR NET TYPE A



STANCHION



LIST OF POSSIBLE MALFUNCTIONS

The malfunction descriptions and the corresponding restrictions are valid for all net types.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

NETS:

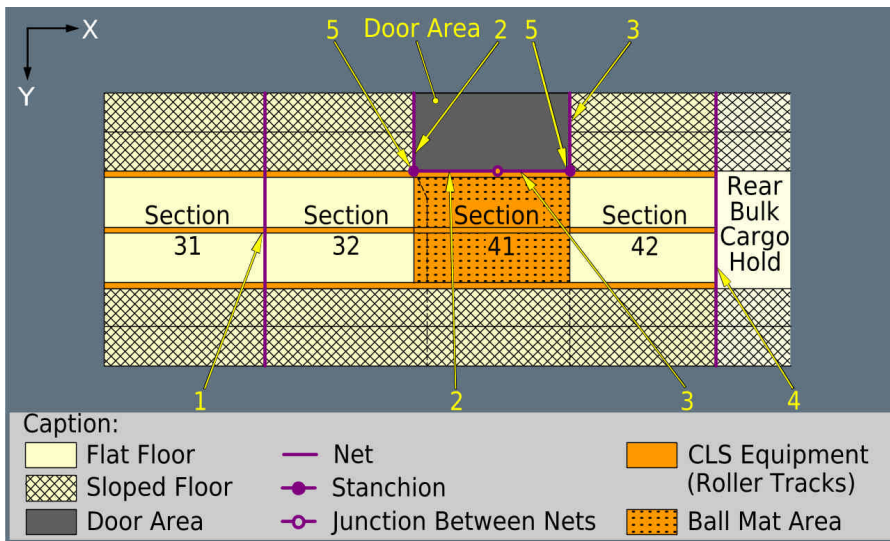
Malfunction Description		Restrictions
Parts Affected	Failure	
Webbing	- Slightly abraded but webbing not broken - Broken flag stitch pattern at web intersections. No more than two flag stitch patterns affected per net	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Metalwork	- Minor surface corrosion or damage that does not affect the function of the metalwork	
Nets with damage that: - Exceeds the quantity of affected webbing and metalwork above-mentioned - Affects the function of a net part - Exceeds the extent of the corrosion, or abrasion above-mentioned. Missing nets Damaged tie-down points used for net attachment		The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points

STANCHIONS:

Malfunction Description		Restrictions
Parts Affected	Failure	
Tube	- Minor surface corrosion - Small dents of a maximum depth of 2 mm (0.08 in)	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Locking mechanisms and telescopic section	- Minor damage that does not affect the function of the stanchion	
Metal loop	- Detached or missing. No more than one per stanchion	The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points.
Locking base and top	- Weak or broken locking mechanism - Broken lock spindle	
Stanchions with damage that: - Exceeds the quantity of affected metal loop above-mentioned - Affects the function of a stanchion part - Exceeds the extent of the corrosion, or dents above-mentioned. Missing stanchions		

CORRESPONDENCE TABLE:

The following illustration indicates the net arrangement in the cargo hold.



The following table provides:

- The correspondence between the missing or damaged equipment, and the sections affected
- The maximum gross weight per net section that the operator must apply, in the case of a required weight reduction.

Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider net type A2	31	976	2 152
		32 + 41 + 42	2 426	5 348
2	Door net type B	32 + 41 + 42	2 426	5 348
3	Door net type A	32 + 41 + 42	2 426	5 348
4	Divider net type A1	32 + 41 + 42	2 426	5 348
5	Stanchion	32 + 41 + 42	2 426	5 348

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

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Transport of Bulk Loads on CLS with Protection Panels
Cargo Hold Loading
CARGO HOLD CAPACITY

Ident.: CTL-LIM-AFT-BCPP-CHL-00020390.0007001 / 24 MAR 25

Criteria: 27686, ST1

APPROVED

Applicable to: MSN 02719, 02758, 02789, 03031

The capacity of the forward cargo hold depends on the type of protection panels installed:

- With standard protection panels installed, the capacity of the cargo hold is 4 439 kg (9 785 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
31	1 281	2 824
32	1 091	2 405
41	902	1 988
42	1 165	2 568

- With aluminium coated protection panels installed, the capacity of the cargo hold is 4 424 kg (9 751 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
31	1 278	2 817
32	1 086	2 394
41	898	1 979
42	1 162	2 561

The loading of the cargo hold is subject to additional restraint requirements or weight restrictions in the case of a malfunction of the installed nets or stanchions (*Refer to CTL-LIM-AFT-BCPP-NMF Net Malfunctions*).

WEIGHT AND BALANCE CONTROL**Limitations**

Aft Cargo Hold

RESTRAINT CONDITIONS

Ident.: CTL-LIM-AFT-BCPP-CHL-00019634.0007001 / 03 JUN 25

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

APPROVED

Mandatory door nets and stanchions ensure that the door area is not blocked, to be able to correctly open the cargo door.

Two mandatory divider nets separate the cargo hold in two net sections, to ensure the restraint of the load.

For additional information on the net section arrangement, *Refer to CTL-CGO-AFT-BCPP-CHA Section Arrangement.*

For bulk loading, if the mandatory nets are installed, no additional restraints are required, except in either of the following cases:

- When a load item may be hazardous due to its nature, form, or density
- When a load item has a weight of more than 150 kg (330 lb).

The additional restraint of the above-mentioned items is achieved if:

- The operator fills the applicable net section to at least three quarters of its height, or
- The operator individually fastens the load items to the tie-down points of the aircraft.

A bulk item may be too large to fit in a net section. In this case, the operator is authorized to remove the mandatory divider nets, in order to create a larger net section. This new net section is defined by two successive mandatory divider nets, or by a mandatory divider net and a wall.

The operator must individually fasten all the bulk items which are located in this new net section.

The operator must ensure that there is a minimum clearance of 2.00 in (0.051 m) between the top of the load and the cargo hold ceiling.

FASTENING LOAD REQUIREMENTS

Ident.: CTL-LIM-AFT-BCPP-CHL-00019633.0007001 / 03 JUN 25

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

APPROVED

The operator must use nets and straps to fasten the load to the tie-down points of the fixed YZ-latches of the CLS.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The operator must arrange and fasten the load to the cargo hold floor in a way to ensure an even distribution of the load.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

The protection panels cover the tie-down points of the cargo hold floor.

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To restrain bulk items, the operator only uses the standard tie-down points (*Refer to CTL-CGO-AFT-BCPP-CHA Tie-Down Point Location*) that are not already used to attach the nets.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Intentionally left blank

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Aft Cargo Hold
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Transport of Bulk Loads on CLS with Protection Panels

Net Malfunctions

NET MALFUNCTIONS

Ident.: CTL-LIM-AFT-BCPP-NMF-00021297.0002001 / 03 JUN 25	<u>APPROVED</u>
Criteria: 27686, ST1	
Applicable to: MSN 02719, 02758, 02789, 03031	

The loading is subject to restraint requirements or weight restrictions in the case of malfunctions of the installed nets and stanchions.

A "malfunction" refers to equipment that is either damaged or missing.

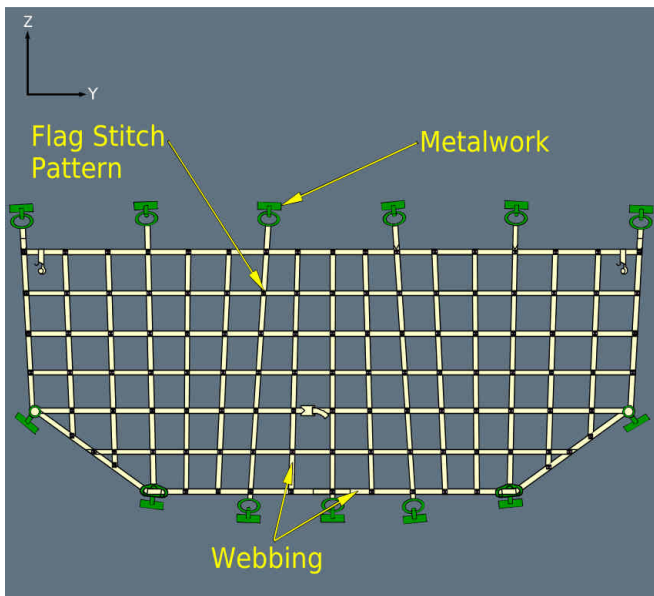
This section contains:

- An illustration of a stanchion and of each net type that can be installed. The mandatory and the optional nets, if any, are indicated.
- A list of possible malfunctions and the associated restrictions
- A correspondence table between the missing or damaged equipment, and the sections affected.

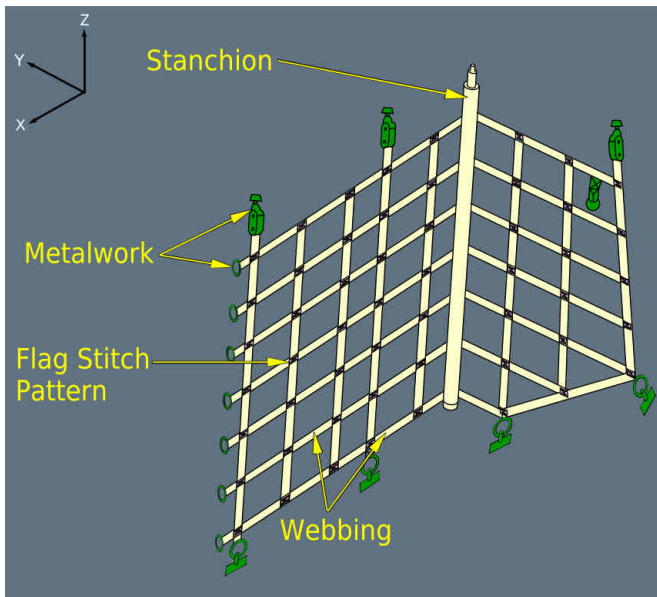
The operator should repair or change missing and damaged equipment as soon as possible.

NET TYPES AND STANCHION

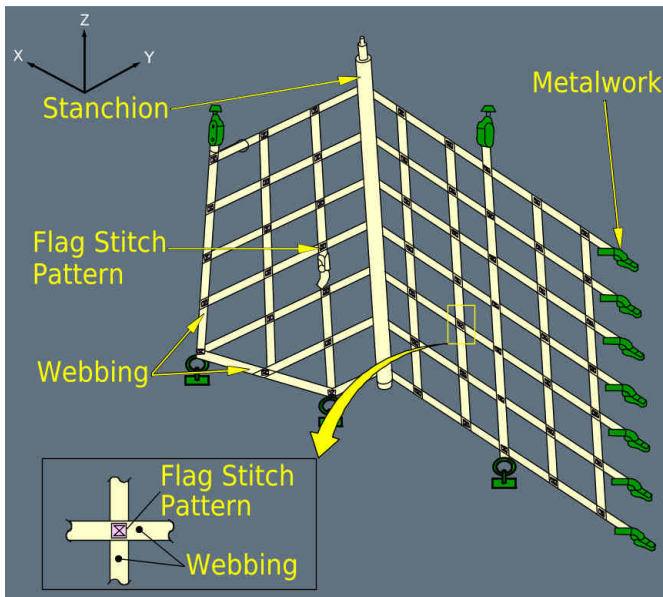
DIVIDER NET TYPE A1 AND A2



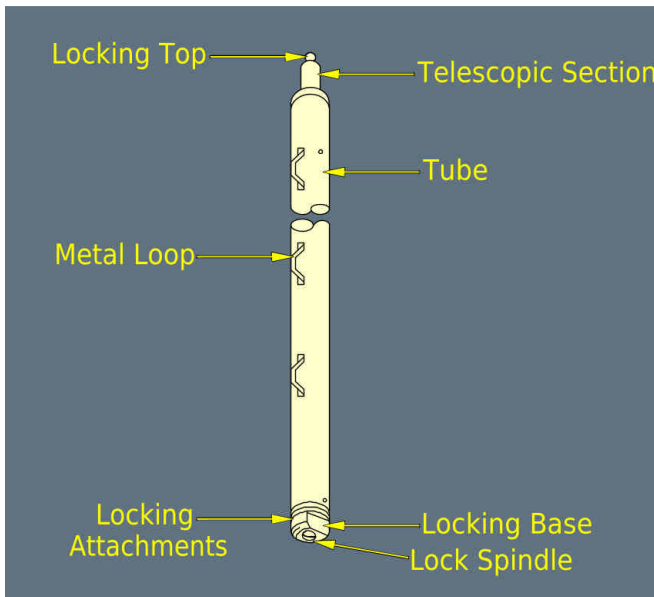
DOOR NET TYPE B



DOOR NET TYPE A



STANCHION



LIST OF POSSIBLE MALFUNCTIONS

The malfunction descriptions and the corresponding restrictions are valid for all net types.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

NETS:

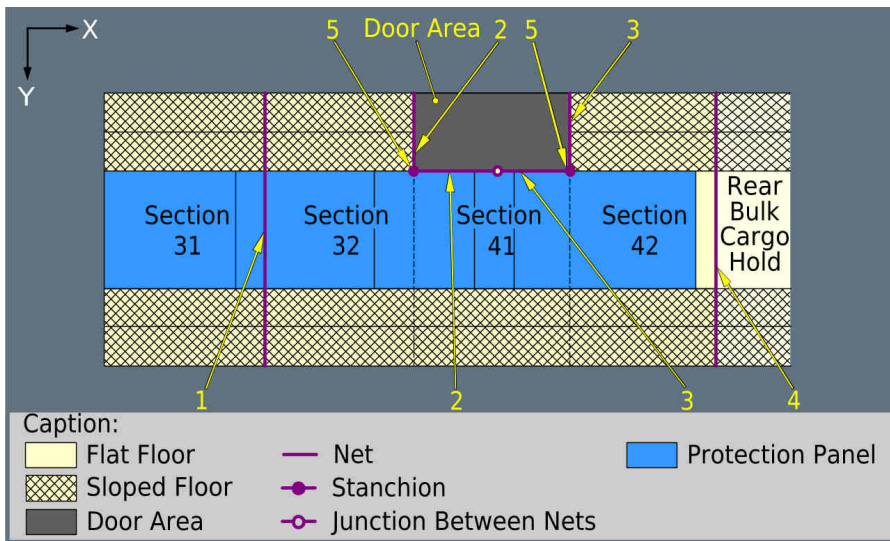
Malfunction Description		Restrictions
Parts Affected	Failure	
Webbing	- Slightly abraded but webbing not broken - Broken flag stitch pattern at web intersections. No more than two flag stitch patterns affected per net	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Metalwork	- Minor surface corrosion or damage that does not affect the function of the metalwork	
Nets with damage that: - Exceeds the quantity of affected webbing and metalwork above-mentioned - Affects the function of a net part - Exceeds the extent of the corrosion, or abrasion above-mentioned. Missing nets Damaged tie-down points used for net attachment		The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points

STANCHIONS:

Malfunction Description		Restrictions
Parts Affected	Failure	
Tube	- Minor surface corrosion - Small dents of a maximum depth of 2 mm (0.08 in)	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Locking mechanisms and telescopic section	- Minor damage that does not affect the function of the stanchion	
Metal loop	- Detached or missing. No more than one per stanchion	The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points.
Locking base and top	- Weak or broken locking mechanism - Broken lock spindle	
Stanchions with damage that: - Exceeds the quantity of affected metal loop above-mentioned - Affects the function of a stanchion part - Exceeds the extent of the corrosion, or dents above-mentioned. Missing stanchions		

CORRESPONDENCE TABLE:

The following illustration indicates the net arrangement in the cargo hold.



The following table provides:

- The correspondence between the missing or damaged equipment, and the sections affected
- The maximum gross weight per net section that the operator must apply, in the case of a required weight reduction.

Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider net type A2	31	976	2 152
		32 + 41 + 42	2 426	5 348
2	Door net type B	32 + 41 + 42	2 426	5 348
3	Door net type A	32 + 41 + 42	2 426	5 348
4	Divider net type A1	32 + 41 + 42	2 426	5 348
5	Stanchion	32 + 41 + 42	2 426	5 348

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Transport of ULDs

Cargo Hold Loading

CARGO HOLD CAPACITY FOR ULDS

Ident.: CTL-LIM-AFT-ULD-CHL-00019647.0017001 / 03 JUN 25

APPROVED

Criteria: 21103, 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The operator must use the CLS to restrain the ULDs. The operator must ensure that the CLS is not damaged.

The capacity of the cargo hold is 4 536 kg (10 000 lb).

The operator must load the cargo hold with ULDs that comply with both of the following:

- The ULD Transport Requirements (*Refer to CTL-LIM-AFT-ULD-UTR ULD Transport Requirements*)
- The ULD baseplate dimensions and maximum gross weights that the table below provides.

For additional information on the ULD arrangement, *Refer to CTL-CGO-AFT-ULD-CHA ULD Position Arrangement*.

ULD Baseplate Dimensions (Length x Width) (in)	ULD Baseplate Code	Capacity	MAX Gross Weight per ULD		ULD Position
			(kg)	(lb)	
60.4 x 61.5	K	4	1 134	2 500	31, 32, 41, 42

The gross weight of a container is the sum of both of the following:

- The tare weight of the container
- The weight of the load.

The gross weight of a pallet is the sum of all the following:

- The tare weight of the pallet
- The weight of the load
- The weight of the pallet equipment (nets, igloo, etc.).

The loading is subject to restrictions in the case of a malfunction of the CLS (*Refer to CTL-LIM-AFT-ULD-CMF Introduction*).

Any ULD position may remain unoccupied, but all the latches of the cargo hold must be raised to limit inadvertent ULD movement, in the case of latch malfunctions.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

ULD CENTER OF GRAVITY

Ident.: CTL-LIM-AFT-ULD-CHL-00019646.0007001 / 03 JUN 25

APPROVED

Criteria: 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The CG of a loaded container is defined as the barycenter of the load and the empty container.
 The CG of a loaded pallet is defined as the barycenter of the load, the empty pallet, and the pallet equipment (nets, igloo, etc.).
 The CG of a loaded ULD must be within the limits defined in the tables below.
 The maximum CG height is measured from the bottom of the ULD baseplate.
 The lateral and longitudinal CG deviations are measured from the geometric center of the ULD baseplate.

CONTAINERS

ULD Baseplate Dimensions (Length x Width) (in)	IATA Contour Code	MAX CG Height		Longitudinal CG Deviation		Lateral CG Deviation	
		(m)	(in)	(m)	(in)	(m)	(in)
60.4 x 61.5	All ⁽¹⁾	0.635	25.00	± 0.153	± 6.04	± 0.156	± 6.15

⁽¹⁾ Any ULD a contour code that complies with the aircraft design (Refer to CTL-LIM-AFT-ULD-UTR ULD Transport Requirements).

PALLETS

ULD Baseplate Dimensions (Length x Width) (in)	IATA Contour Code	MAX CG Height		Longitudinal CG Deviation		Lateral CG Deviation	
		(m)	(in)	(m)	(in)	(m)	(in)
60.4 x 61.5	All ⁽¹⁾	0.635	25.00	± 0.153	± 6.04	± 0.156	± 6.15

⁽¹⁾ Any ULD a contour code that complies with the aircraft design (Refer to CTL-LIM-AFT-ULD-UTR ULD Transport Requirements).

Transport of ULDs**ULD Transport Requirements****ULD TRANSPORT REQUIREMENTS**

Ident.: CTL-LIM-AFT-ULD-UTR-00019645.0007001 / 03 JUN 25

APPROVED

Criteria: 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

ULD CONTOUR**GENERAL**

The dimensions of the containers must remain within the limits of the Standard Contour H defined by the IATA.

When transporting a pallet, the operator must ensure a clearance of 2.00 in (0.051 m) between the contour of the loaded pallets (pallet, pallet equipment and load items) and:

- The cargo door
- The adjacent ULD
- The cargo hold sidewalls and ceiling.

The 2.00 in (0.051 m) clearance requirement does not apply to the distance between ULD baseplates.

Note: *The most recent revision of the IATA ULD Regulation defines all the following:*

- *The permitted ULD contours, that are described in section 50/0 of the regulation*
- *The maximum deflection limits for containers, that are described in section 50/4, attachment B, of the regulation*
- *The general envelope of pallets and the pallet equipment (nets, igloo, etc.), that are described in section 50/2 of the regulation.*

ULD CERTIFICATION**GENERAL**

Each ULD should comply with TSO-C90.

A ULD may not comply with the above-mentioned requirements. In this case, the operator must ensure that the manner in which the ULD is constructed and loaded prevents damage to the aircraft in all flight phases.

The ULD must comply with the most recent revision of section 50/0 of the IATA ULD Regulation.

HEAVY OR HAZARDOUS INDIVIDUAL ITEMS

For the loading of individual items in ULDs, a restraint is required in the following cases:

- When an individual item may be hazardous due to its nature, form, or density
- When an individual item has a weight of more than 150 kg (330 lb).

On a pallet, the restraint of the above-mentioned items is achieved if:

- The operator uses nets and straps fastened on the net attachment fittings of the pallet, or
- The operator covers the items with crushable cargo.

In a container, the restraint of the above-mentioned items is achieved if:

- The operator individually fastens the items to the attachment fittings of the container baseplate, or
- The operator fills the container with crushable cargo to at least three quarters of its height.

The operator must take into account the load factors of the aircraft when the operator restrains any heavy or hazardous individual item (*Refer to CTL-LIM-AFT-LDF Load Factors*).

To be considered as “crushable cargo”, the cargo must comply with all of the following criteria:

- The cargo does not contain large rigid items
- The cargo contains only deformable items
- If destruction or deformation of the cargo occurs, the cargo does not break into sharp debris
- The small items of the cargo are either fastened together or fastened to larger items
- The cargo density is between 80 kg/m³ (5 lb/ft³) and 240 kg/m³ (15 lb/ft³).

ITEMS IN DAMAGED CONTAINERS

The operator can use a damaged container, provided that its baseplate remains intact.

If the container is damaged, the operator must individually fasten the items to the baseplate of the container.

The operator must take into account the load factors of the aircraft when the operator fastens any item in damaged containers (*Refer to CTL-LIM-AFT-LDF Load Factors*).

ULD CONFIGURATION

The ULD must be lockable in the CLS. The dimensions of the ULD baseplate that include the edge profiles must comply with NAS3610/AS36100 requirements.

In addition, the ULD must comply with the following requirements:

- The baseplate dimensions tolerances must be 0 to -0.00635 m (0 to -0.25 in)
- The baseplate edge profile must comply with the most recent revision of section 50/1, attachment A, of the IATA ULD Regulation
- The ULD CG limits must comply with:
 - NAS3610/AS36100 requirements
 - The ULD center of gravity limits (*Refer to CTL-LIM-AFT-ULD-CHL ULD Center of Gravity*).

ULD GROSS WEIGHT

The gross weight of a ULD must not exceed the lowest of the following values:

- The maximum gross weight per position (*Refer to CTL-LIM-AFT-ULD-CHL Cargo Hold Capacity for ULDs*)
- The maximum ULD gross weight defined by:
 - NAS3610/AS36100 requirements, to which the load factors of the aircraft are applied, or
 - Design specifications associated to the ULD, to which the load factors of the aircraft are applied.

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

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Transport of ULDs**CLS Malfunctions****INTRODUCTION**

Ident.: CTL-LIM-AFT-ULD-CMF-00022009.0002001 / 03 JUN 25

APPROVED

Criteria: 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The loading is subject to restrictions in the case of malfunctions of the Cargo Loading System (CLS).
A "malfunction" refers to equipment that is either damaged or missing.

GENERAL RULE FOR MALFUNCTIONS

The Operator should repair or change missing and damaged equipment as soon as possible.
This general rule applies to all CLS equipment, even if the applicable malfunctions are not described in the following section.

TRANSPORT ROLLER MALFUNCTIONS

The transport rollers are metal rollers that serve for the transport of Unit Load Devices (ULDs).
Transport rollers are part of the roller tracks.

If there are two or more damaged or missing rollers in a ULD position, apply one of the following:

- The position can be loaded with an empty ULD, or
- The affected ULD position must remain unoccupied.

ENTRANCE GUIDE MALFUNCTIONS

The entrance guides provide guidance on the ball mat area during the loading and unloading of ULDs. The entrance guides prevent impact to the door frame.

If entrance guides are damaged or missing, the Operator must check the end stops on the Aircraft Datum (AD) of the affected positions for damage. The Operator must perform this check after every loading operation.

TIE-DOWN POINT MALFUNCTIONS

If the latch that is associated with a tie-down point is damaged, the Operator must not use the tie-down point.

LATCH MALFUNCTIONS

The following part contains both of the following:

- A correspondence table between the latch symbols and the latch types
- The ULD weight restrictions that the Operator must apply, in the case of a latch malfunction.

LATCH SYMBOLS AND TYPES

Symbol	Type	
	XZ-Latch (End Stop)	Fixed
	XZ-Single Latch	Retractable
	YZ-Latch	Fixed
	YZ-Latch (Door Sill)	Retractable

ULD WEIGHT RESTRICTIONS

A latch failure may have one of the following effects on the loading capacity of the affected ULD positions:

- No weight reduction
- A weight reduction
- No possibility to load.

In the latch malfunction tables:

- No combination of latch failures per affected ULD position is permitted.
In the case of a combination of failures of different latch types, the affected ULD position must remain unoccupied.
- A ULD weight reduction to "0" means that either:
 - The position can be loaded with an empty ULD, or
 - The affected ULD position must remain unoccupied.

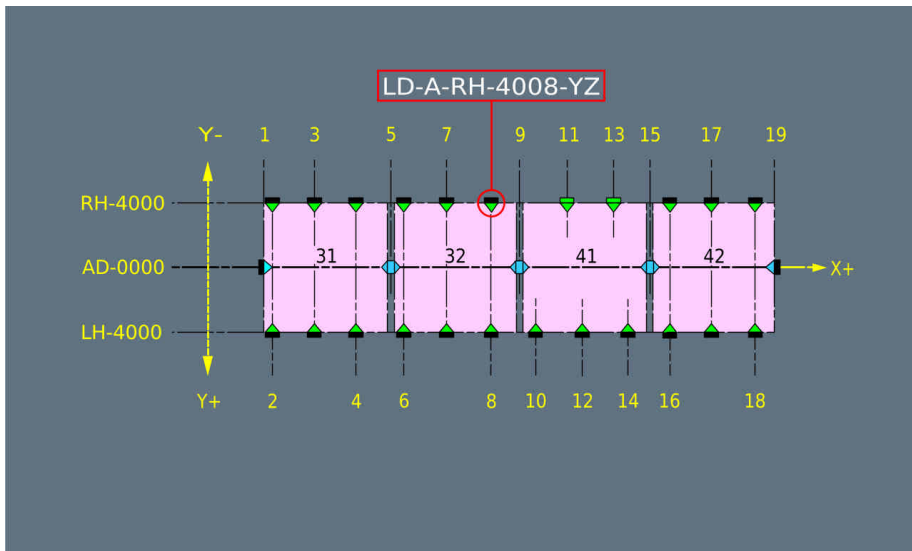
CLS MALFUNCTIONS

Ident.: CTL-LIM-AFT-ULD-CMF-00021315.0005001 / 03 JUN 25

APPROVED

Criteria: 21103, 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746


 For a description of the latch codes, *Refer to CTL-CGO-AFT-ULD-CHA Latch Location.*

Latch Type	Applicable Position	Latch Code	Failed Latch(es) per Position	Required Conditions	Weight Reduced to	
					(kg)	(lb)
XZ-Single Latch	31, 32	LD-A-AD-0005-XZ	1 latch	ULDs removed	0	0
	32, 41	LD-A-AD-0009-XZ	1 latch	ULDs removed	0	0
	41, 42	LD-A-AD-0015-XZ	1 latch	ULDs removed	0	0

Continued on the following page

WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Continued from the previous page

Latch Type	Applicable Position	Latch Code	Failed Latch(es) per Position	Required Conditions	Weight Reduced to	
					(kg)	(lb)
YZ-Latch	31	LD-A-RH-4002-YZ	1 latch		0	0
		LD-A-LH-4002-YZ				
	31	LD-A-RH-4003-YZ	2 or more latches	ULD removed	0	0
		LD-A-LH-4003-YZ				
		LD-A-RH-4004-YZ				
		LD-A-LH-4004-YZ				
	32	LD-A-RH-4006-YZ	1 latch		0	0
		LD-A-LH-4006-YZ				
		LD-A-RH-4007-YZ	2 or more latches	ULD removed	0	0
		LD-A-LH-4007-YZ				
	41	LD-A-RH-4008-YZ	2 or more latches	ULD removed	0	0
		LD-A-LH-4008-YZ				
	42	LD-A-LH-4010-YZ	1 latch		0	0
		LD-A-LH-4012-YZ	2 or more latches	ULD removed	0	0
		LD-A-LH-4014-YZ				
		LD-A-RH-4016-YZ	1 latch		0	0
	42	LD-A-LH-4016-YZ	2 or more latches	ULD removed	0	0
		LD-A-RH-4017-YZ				
		LD-A-LH-4017-YZ				
		LD-A-RH-4018-YZ				
		LD-A-LH-4018-YZ				
YZ-Latch (Door Sill)	41	LD-A-RH-4011-YZ	1 or more latches	ULD removed	0	0
		LD-A-RH-4013-YZ				
XZ-Latch	31	LD-A-AD-0001-XZ	1 latch	ULD removed	0	0
(End Stop)	42	LD-A-AD-0019-XZ	1 latch	ULD removed	0	0
For one applicable position, the failed latches are of different types.				ULD removed	0	0

WEIGHT AND BALANCE CONTROL**Limitations**

Aft Cargo Hold

Transport of ULDs**Non-Unitized Loads****INTRODUCTION**

Ident.: CTL-LIM-AFT-ULD-NLOD-00019643.0007001 / 03 JUN 25

APPROVED

Criteria: 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

A non-unitized load is an item that cannot be netted or containerized into ULDs.

The operator may carry non-unitized loads on one of the following types of pallet:

- Latched pallets: standardized pallets, latched within the CLS
- Floating pallets: standardized pallets, fastened to the tie-down points on the fixed YZ-latches of the CLS, and on the cargo hold floor.

To load on the flat floor of the aircraft, the operator must use pallets:

- To achieve an even floor
- To avoid damage to the floor panels and the components of the CLS.

The pallet load may overhang the pallet dimensions. The overhang is only permitted if there is no adverse effect on the cargo door, compartment linings, equipment, or on cargo on the adjacent positions.

The operator must ensure that there is at least 2.00 in (0.051 m) between the pallet load and, the load on adjacent pallets and the above-mentioned cargo components.

The limitations due to CLS malfunctions also apply to the loading of non-unitized loads (*Refer to CTL-LIM-AFT-ULD-CMF CLS Malfunctions*).

TYPES OF NON-UNITIZED LOADS

Ident.: CTL-LIM-AFT-ULD-NLOD-00019642.0007001 / 03 JUN 25

APPROVED

Criteria: 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

LATCHED PALLETS

The operator must use one of the following types of pallet:

- Any pallet specified in part Cargo Hold Capacity for ULDs (*Refer to CTL-LIM-AFT-ULD-CHL Cargo Hold Capacity for ULDs*), or
- Any pallet with similar dimensions and design, that complies with NAS3610 or AS36100 requirements.

Pallets must comply with the ULD transport requirements (*Refer to CTL-LIM-AFT-ULD-UTR ULD Transport Requirements*).

The CG of the loaded pallet (pallet, pallet equipment and load items) must remain within the pallet CG limits (*Refer to CTL-LIM-AFT-ULD-CHL ULD Center of Gravity*).

The operator must latch the pallet, and fasten the load items to the pallet baseplate.

FLOATING PALLETS

If the operator cannot latch the pallet, due to the weight or geometry of an individual item, the operator must use one or more floating pallets.

The operator can use any pallet with a design that complies with NAS3610/AS36100 requirements and that fits in the cargo hold.

The operator must ensure that:

- The CG height for the loaded pallet (pallet, pallet equipment and load items) is less than 0.635 m (25.00 in) from the bottom of the pallet baseplate
- The lateral CG deviation from the geometric center of the pallet does not exceed $\pm 10\%$ of the width of the pallet
- The longitudinal CG deviation from the geometric center of the pallet does not exceed $\pm 10\%$ of the length of the pallet.

The operator must put each pallet in the CLS area. The center roller track and the transport rollers integrated in the YZ-latches must sustain the pallet baseplate.

The operator must not put floating pallets in the door area, because the door area has no fixed YZ-latches.

The operator must fasten the floating pallet to the aircraft. The load items must be fastened either:

- Individually, to the baseplate of the floating pallet, or
- All together with the floating pallet, to the aircraft.

RESTRAINT CONDITIONS

Ident.: CTL-LIM-AFT-ULD-NLOD-00019641.0007001 / 03 JUN 25

APPROVED

Criteria: 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The operator must ensure that the manner in which the load is fastened satisfies the following criteria:

- The load does not cause damage to the aircraft in all flight phases
- The load is evenly distributed on the pallet rims, CLS, and aircraft structure, taking into account the extension of straps and nets.

RESTRAINT OF LOAD ITEMS TO THE BASEPLATES OF THE LATCHED AND FLOATING PALLETS

The operator must use nets and/or straps to fasten all individual items to the net attachment fittings of the pallet baseplate.

The net attachment fittings of the baseplate must be designed to sustain a load of at least 906 kg (2 000 lb) in any direction.

RESTRAINT OF THE LATCHED PALLETS TO THE AIRCRAFT

The operator must latch the pallets within the CLS. The operator must use all the latches of the ULD position.

RESTRAINT OF THE FLOATING PALLETS TO THE AIRCRAFT

Provided that the load items are fastened to the pallet baseplate, the operator must fasten to the aircraft either:

- The floating pallets, or
- The loaded pallet (floating pallet, pallet equipment and load items).

The operator must use straps and/or nets to fasten the load to the tie-down points.

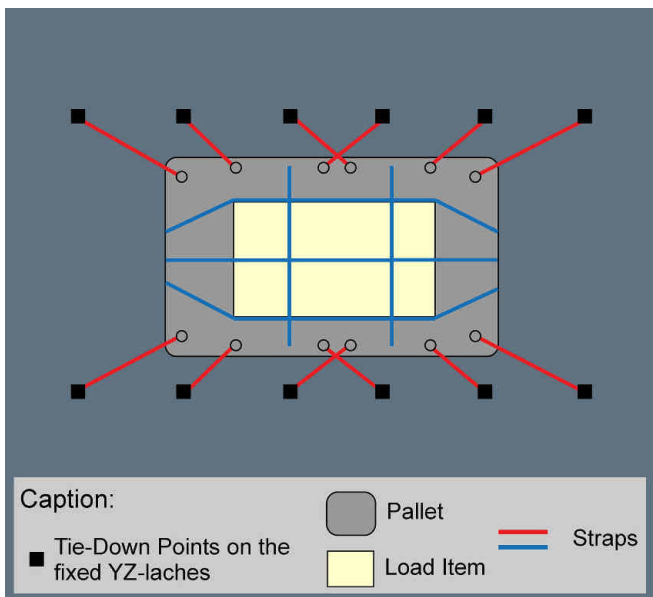
The operator must not restrain a floating pallet with latches.

The tie-down points are on the fixed YZ-latches of the CLS, and on the cargo hold floor.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The following illustrations provide examples of typical restraint systems:

Floating Pallet with Load Item Fastened to the Tie-Down Points of the Baseplate

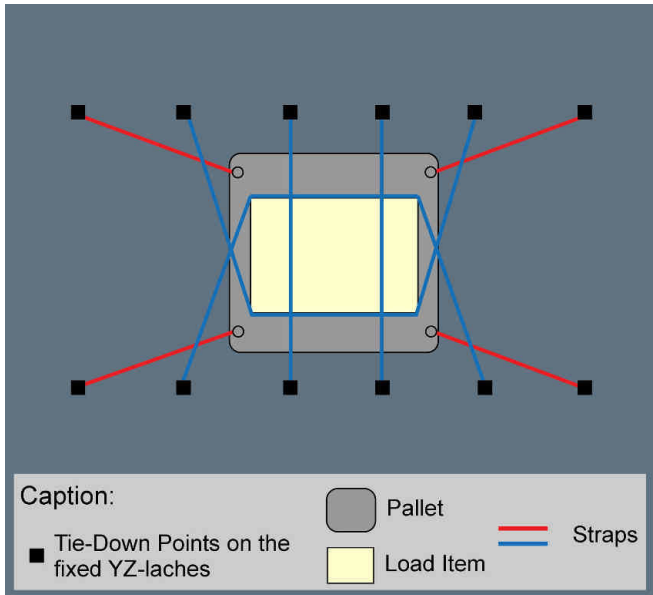


WEIGHT AND BALANCE CONTROL

Limitations

Aft Cargo Hold

Floating Pallet with Load Item Fastened to the Tie-Down Points of the Aircraft



Introduction

INTRODUCTION

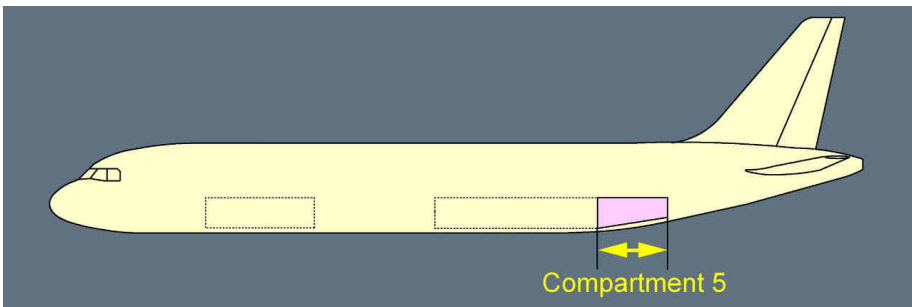
Ident.: CTL-LIM-REAR-INT-00019615.0002001 / 03 JUN 25

Criteria: ST1

Applicable to: ALL

APPROVED

The rear bulk cargo hold has one compartment (compartment 5).



The cargo hold is equipped with a net restraint system for the transport of bulk loads.

The net restraint system is an arrangement of nets that is certified to restrain the bulk loads against the load factors induced by aircraft accelerations.

Note: Bulk loads are defined as loose items, baggage, or freight that can be loaded in a net section. A net section is a section defined by two successive nets, or by a net and a wall.

WEIGHT AND BALANCE CONTROL

Limitations

Rear Bulk Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Rear Bulk Cargo Hold

Floor Loading Limits

FLOOR LOADING LIMITS

Ident.: CTL-LIM-REAR-FLL-00019614.0001001 / 03 JUN 25

APPROVED

Criteria: ST1

Applicable to: ALL

The operator must check all the limits, provided in this section, without taking into account the load factors.

STRUCTURE

The floor structure can sustain the following load on the flat and sloped floor:

	Distributed Load	
	(kg/m ²)	(lb/ft ²)
Via floor panels	732	150

The distributed load limit is the maximum weight acceptable on the area delimited by the external contour of the contact points between the load and the floor.

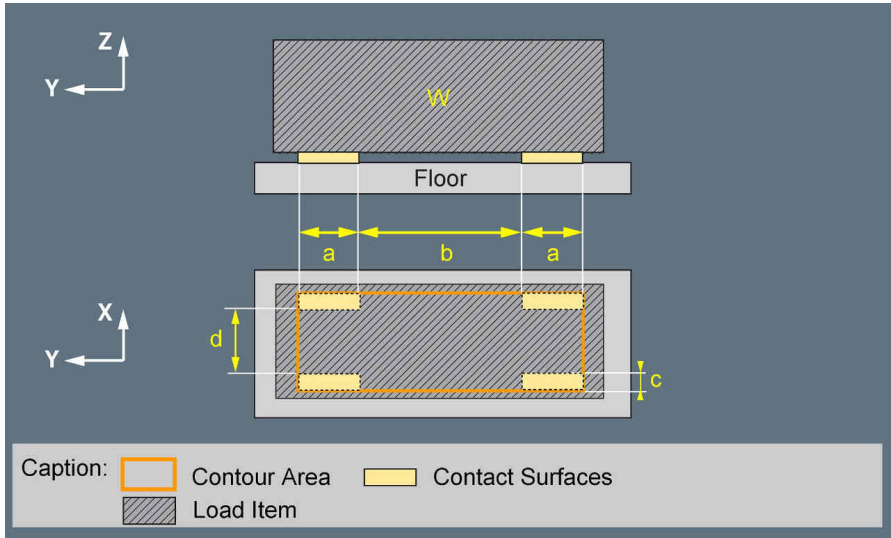
PANELS

Each floor panel can sustain the following loads:

	Local Load		Point Load	
	(kg/0.093m ²)	(lb/1ft ²)	(kg/cm ²)	(lb/in ²)
On the flat floor	906	2 000	6.6	94
On the sloped floor	906	2 000	6.6	94

The local load limit is the maximum weight acceptable on any floor panel area of 0.093 m² (1.00 ft²) that will not lead to permanent deformations.

The point load limit is the maximum weight acceptable on any unit of surface of the floor panel that will not lead to puncture of the panel.

FLOOR LOADING EXAMPLE


Symbol	Definition	Unit	
		Metric	US
W	Weight of the load item	kg	lb
a	Length of the contact surface	m	in
b	Longitudinal distance between two contact surfaces		
c	Width of the contact surface		
d	Lateral distance between two contact surfaces		

METRIC UNITS

$$\text{DistributedLoad (kg/m}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = \frac{W}{(2a + b) \times (2c + d)}$$

US UNITS

$$\text{DistributedLoad (lb/ft}^2\text{)} = \frac{\text{Weight of the load item}}{\text{Contour Area}} = 144 \times \frac{W}{(2a + b) \times (2c + d)}$$

WEIGHT AND BALANCE CONTROL

Limitations

Rear Bulk Cargo Hold

Load Factors

LOAD FACTORS

Ident.: CTL-LIM-REAR-LDF-00019613.0001001 / 03 JUN 25

APPROVED

Criteria: ST1

Applicable to: ALL

When a restraint system is required to fasten an item, the operator must ensure that the restraint system resists the maximum apparent weight of the item in each direction.

In order to calculate the apparent weight of an item in each direction, the operator must use the load factors provided in the following table.

Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
5	1.69	1.12	2.15	4.26

EXAMPLE:

ASSUMPTIONS:

The operator loads an item with a weight of 200 kg (441 lb). In accordance with the "Load Factors" table, the item is subject to a load factor of 1.69 in the forward direction.

OUTPUTS:

The apparent weight of the item in the forward direction is 338 kg (200 kg x 1.69) or 745 lb (441 lb x 1.69). This apparent weight is identical to the weight of an item with a weight of 338 kg (745 lb) not subject to a load factor.

WEIGHT AND BALANCE CONTROL

Limitations

Rear Bulk Cargo Hold

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WEIGHT AND BALANCE CONTROL

Limitations

Rear Bulk Cargo Hold

Transport of Bulk Loads

Cargo Hold Loading

CARGO HOLD CAPACITY

Ident.: CTL-LIM-REAR-BULK-CHL-00019612.0016001 / 03 JUN 25

APPROVED

Criteria: 20029, ST1

Applicable to: ALL

The capacity of the cargo hold is 1 497 kg (3 300 lb).

The cargo hold is divided into sections to help the control of the loading.

The following table provides the maximum gross weight per section.

Section	MAX Gross Weight	
	(kg)	(lb)
51	374	825
52	353	777
53	770	1 698

The loading of the cargo hold is subject to additional restraint requirements or weight restrictions in the case of a malfunction of the installed nets or stanchions (*Refer to CTL-LIM-REAR-BULK-NMF Net Malfunctions*).

RESTRAINT CONDITIONS

Ident.: CTL-LIM-REAR-BULK-CHL-00019611.0007001 / 03 JUN 25

APPROVED

Criteria: 20029, 23172, ST1

Applicable to: ALL

Mandatory door nets and stanchions ensure that the door area is not blocked, to be able to correctly open the cargo door.

A mandatory divider net separates the rear bulk cargo hold from the aft cargo hold to ensure the restraint of the load.

For additional information on the net section arrangement, *Refer to CTL-CGO-REAR-BULK-CHA Section Arrangement*.

For bulk loading, if the mandatory nets are installed, no additional restraints are required, except in either of the following cases:

- When a load item may be hazardous due to its nature, form, or density
- When a load item has a weight of more than 150 kg (330 lb).

The additional restraint of the above-mentioned items is achieved if:

- The operator fills the applicable net section to at least three quarters of its height, or
- The operator individually fastens the load items to the tie-down points of the aircraft.

WEIGHT AND BALANCE CONTROL**Limitations**

Rear Bulk Cargo Hold

A bulk item may be too large to fit in a net section. In this case, the operator is authorized to remove the mandatory divider net, in order to create a larger net section. This new net section is defined by two successive mandatory divider nets, or by a mandatory divider net and a wall.

The operator must individually fasten all the bulk items which are located in this new net section.

The operator must ensure that there is a minimum clearance of 2.00 in (0.051 m) between the top of the load and the cargo hold ceiling.

FASTENING LOAD REQUIREMENTS

Ident.: CTL-LIM-REAR-BULK-CHL-00019610.0001001 / 03 JUN 25

APPROVED

Criteria: ST1

Applicable to: ALL

The operator must use nets and straps to fasten the load to the tie-down points of the cargo hold floor.

The operator must ensure that the load applied to a tie-down point does not exceed 906 kg (2 000 lb) in any direction.

The operator must arrange and fasten the load to the cargo hold floor in a way to ensure an even distribution of the load.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points (*Refer to CTL-CGO-REAR-BULK-CHA Tie-Down Point Location*) that are not already used to attach the nets.

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Limitations Rear Bulk Cargo Hold
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Transport of Bulk Loads

Net Malfunctions

NET MALFUNCTIONS

Ident.: CTL-LIM-REAR-BULK-NMF-00021325.0003001 / 03 JUN 25	<u>APPROVED</u>
Criteria: 20029, ST1	
Applicable to: ALL	

The loading is subject to restraint requirements or weight restrictions in the case of malfunctions of the installed nets and stanchions.

A "malfunction" refers to equipment that is either damaged or missing.

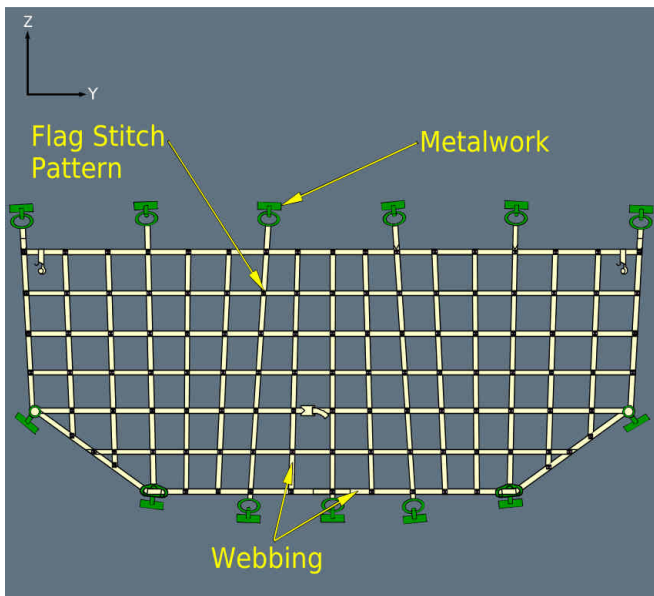
This section contains:

- An illustration of a stanchion and of each net type that can be installed. The mandatory and the optional nets, if any, are indicated.
- A list of possible malfunctions and the associated restrictions
- A correspondence table between the missing or damaged equipment, and the sections affected.

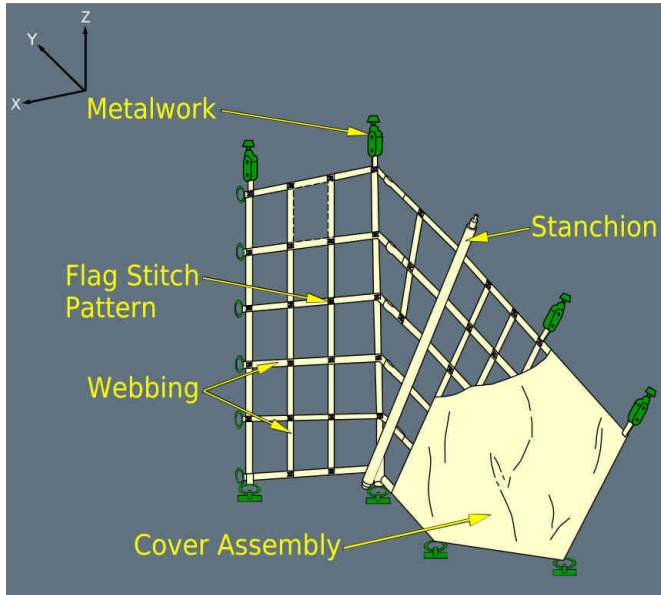
The operator should repair or change missing and damaged equipment as soon as possible.

NET TYPES AND STANCHION

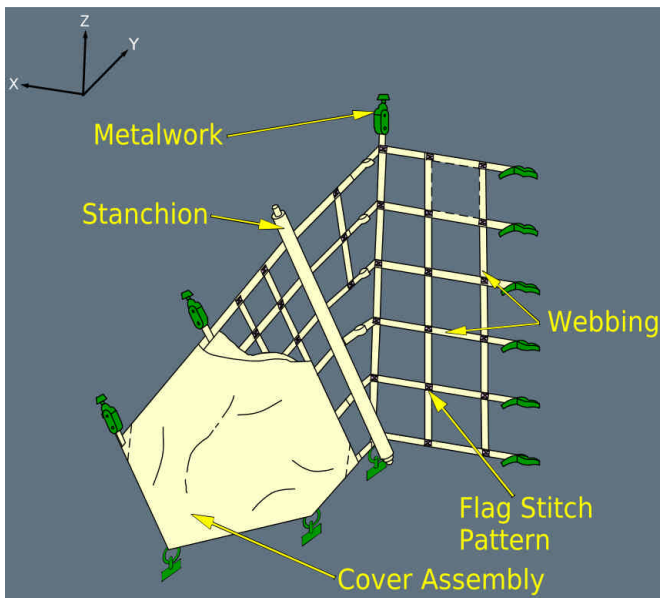
DIVIDER NET TYPE A1



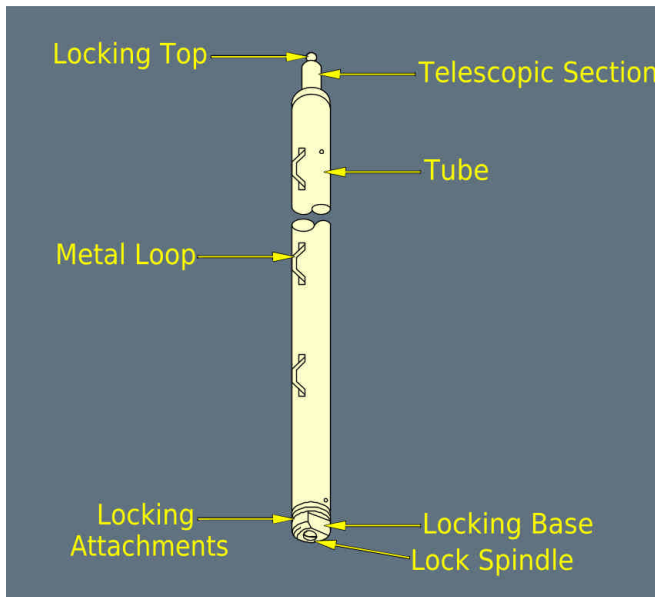
DOOR NET TYPE E



DOOR NET TYPE D



STANCHION



LIST OF POSSIBLE MALFUNCTIONS

The malfunction descriptions and the corresponding restrictions are valid for all net types.

WEIGHT AND BALANCE CONTROL

Limitations

Rear Bulk Cargo Hold

NETS:

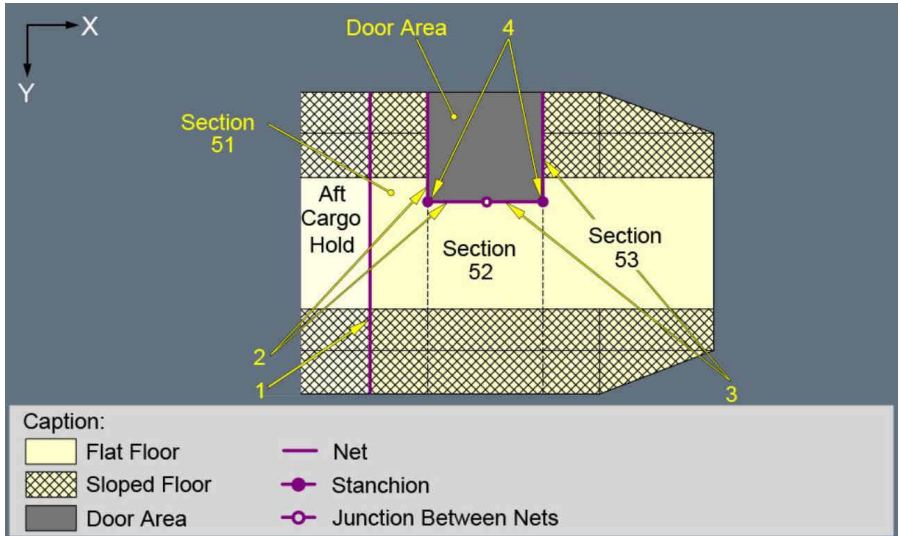
Malfunction Description		Restrictions
Parts Affected	Failure	
Webbing	- Slightly abraded but webbing not broken - Broken flag stitch pattern at web intersections. No more than two flag stitch patterns affected per net	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Metalwork	- Minor surface corrosion or damage that does not affect the function of the metalwork	
Nets with damage that: - Exceeds the quantity of affected webbing and metalwork above-mentioned - Affects the function of a net part - Exceeds the extent of the corrosion, or abrasion above-mentioned. Missing nets Damaged tie-down points used for net attachment		The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points

STANCHIONS:

Malfunction Description		Restrictions
Parts Affected	Failure	
Tube	- Minor surface corrosion - Small dents of a maximum depth of 2 mm (0.08 in)	The operator must either: - Reduce the weight in the applicable sections, or - Fasten the items of load individually to the tie-down points. (Refer to the correspondence table below)
Locking mechanisms and telescopic section	- Minor damage that does not affect the function of the stanchion	
Metal loop	- Detached or missing. No more than one per stanchion	The operator must either: - Keep vacant the sections that the malfunction affects, or - Fasten the load items individually to the tie-down points.
Locking base and top	- Weak or broken locking mechanism - Broken lock spindle	
Stanchions with damage that: - Exceeds the quantity of affected metal loop above-mentioned - Affects the function of a stanchion part - Exceeds the extent of the corrosion, or dents above-mentioned. Missing stanchions		

CORRESPONDENCE TABLE:

The following illustration indicates the net arrangement in the cargo hold.



The following table provides:

- The correspondence between the missing or damaged equipment, and the sections affected
- The maximum gross weight per net section that the operator must apply, in the case of a required weight reduction.

Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider Net Type A1	51 + 52 + 53	1 123	2 476
2	Door Net Type E	51 + 52 + 53	1 123	2 476
3	Door Net Type D	51 + 52 + 53	1 123	2 476
4	Stanchion	51 + 52 + 53	1 123	2 476

WEIGHT AND BALANCE CONTROL

Limitations

Rear Bulk Cargo Hold

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INTRODUCTION

Ident.: CTL-FUEL-INT-00019078.0001001 / 01 FEB 18

Criteria: ST1

Applicable to: ALL

The fuel chapter provides all fuel data required for the operation of the aircraft in terms of weight and balance.

This chapter describes:

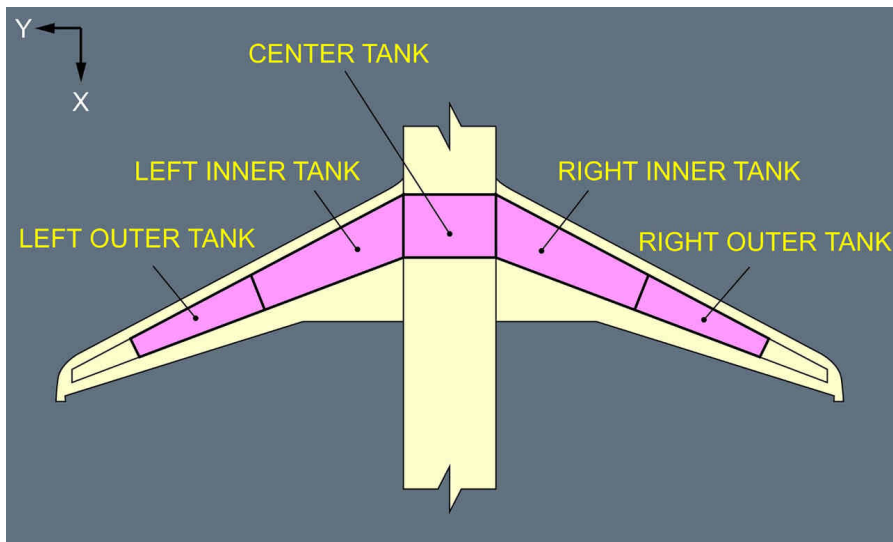
- The quantities and H-ARMs of:
 - The usable fuel in each tank
 - The unusable fuel
 - The undrainable fuel
- How the fuel is managed during:
 - The refueling
 - The flight phases
- How to defuel the aircraft before weighing.

FUEL TANK ARRANGEMENT

The aircraft has 5 following fuel tanks:

- Four tanks in the wings:
 - The left outer tank in the left wing
 - The left inner tank in the left wing
 - The right inner tank in the right wing
 - The right outer tank in the right wing
- One tank in the fuselage:
 - The center tank in the center wing box.

Fuel Tank Arrangement



USABLE FUEL IN OUTER TANKS

Ident.: CTL-FUEL-QTY-00019079.0001001 / 17 DEC 18

Criteria: ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253

The usable fuel is the fuel available for the aircraft propulsion.

The unusable fuel is not part of the usable fuel.

The Center of Gravity (CG) in each tank varies with the fuel quantity in the tank.

The following tables provide the H-ARM and the Y-ARM of the fuel CG in each outer tank.

The Y-ARM values of the fuel in the left outer tank are positive.

The Y-ARM values of the fuel in the right outer tank are negative.

Left and right outer tanks have the same capacity.

LEFT OUTER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US Gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	21.010	827.17	10.502	413.46
400	105.7	21.094	830.47	10.751	423.27
600	158.5	21.174	833.62	10.966	431.73
800	211.3	21.280	837.80	11.238	442.44
880	232.5	21.331	839.80	11.364	447.40

⁽¹⁾ Rounded-off values.

RIGHT OUTER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US Gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	21.010	827.17	-10.502	-413.46
400	105.7	21.094	830.47	-10.751	-423.27
600	158.5	21.174	833.62	-10.966	-431.73
800	211.3	21.280	837.80	-11.238	-442.44
880	232.5	21.331	839.80	-11.364	-447.40

⁽¹⁾ Rounded-off values.

USABLE FUEL IN OUTER TANKS

Ident.: CTL-FUEL-QTY-00019079.0005001 / 01 FEB 18

Criteria: 160001, ST1

Applicable to: MSN 05746, 07784, 07792

The usable fuel is the fuel available for the aircraft propulsion.

The unusable fuel is not part of the usable fuel.

The Center of Gravity (CG) in each tank varies with the fuel quantity in the tank.

WEIGHT AND BALANCE CONTROL

Fuel

Fuel Quantities and H-Arms

The following tables provide the H-ARM and the Y-ARM of the fuel CG in each outer tank.

The Y-ARM values of the fuel in the left outer tank are positive.

The Y-ARM values of the fuel in the right outer tank are negative.

Left and right outer tanks have the same capacity.

LEFT OUTER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US Gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	21.008	827.09	10.486	412.83
400	105.7	21.091	830.35	10.730	422.44
600	158.5	21.172	833.54	10.953	431.22
800	211.3	21.285	837.99	11.238	442.44
867	229.0	21.329	839.72	11.348	446.77

⁽¹⁾ Rounded-off values.

RIGHT OUTER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US Gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	21.008	827.09	-10.486	-412.83
400	105.7	21.091	830.35	-10.730	-422.44
600	158.5	21.172	833.54	-10.953	-431.22
800	211.3	21.285	837.99	-11.238	-442.44
867	229.0	21.329	839.72	-11.348	-446.77

⁽¹⁾ Rounded-off values.

USABLE FUEL IN INNER TANKS

Ident.: CTL-FUEL-QTY-00019080.0004001 / 17 JUN 21

Criteria: 37331, ST1

Applicable to: MSN 04392, 05152, 05162, 05253

The usable fuel is the fuel available for the aircraft propulsion.

The unusable fuel is not part of the usable fuel.

The Center of Gravity (CG) of the fuel in each tank depends on the fuel quantity in the tank.

The following tables provide the H-ARM and Y-ARM of the fuel CG in each inner tank.

The Y-ARM values of the fuel in the left inner tank are positive.

The Y-ARM values of the fuel in the right inner tank are negative.

Left and right inner tanks have the same capacity.

LEFT INNER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.758	699.13	2.174	85.59
400	105.7	17.726	697.87	2.287	90.04
600	158.5	17.713	697.36	2.373	93.43
800	211.3	17.712	697.32	2.449	96.42
1 000	264.2	17.717	697.52	2.518	99.13
1 200	317.0	17.725	697.83	2.581	101.61
1 400	369.8	17.735	698.23	2.641	103.98
1 600	422.7	17.746	698.66	2.697	106.18
1 800	475.5	17.758	699.13	2.751	108.31
2 000	528.3	17.771	699.65	2.803	110.35
2 200	581.2	17.784	700.16	2.852	112.28
2 400	634.0	17.797	700.67	2.900	114.17
2 600	686.8	17.810	701.18	2.947	116.02
2 800	739.7	17.824	701.73	2.993	117.83
3 000	792.5	17.838	702.28	3.037	119.57
3 200	845.4	17.852	702.83	3.081	121.30
3 400	898.2	17.865	703.35	3.124	122.99
3 600	951.0	17.879	703.90	3.166	124.65
3 800	1 003.9	17.892	704.41	3.208	126.30
4 000	1 056.7	17.906	704.96	3.252	128.03
4 200	1 109.5	17.919	705.47	3.296	129.76
4 400	1 162.4	17.932	705.98	3.342	131.57
4 600	1 215.2	17.945	706.50	3.391	133.50
4 800	1 268.0	17.961	707.13	3.445	135.63
5 000	1 320.9	17.983	707.99	3.509	138.15
5 200	1 373.7	18.010	709.06	3.582	141.02
5 400	1 426.5	18.041	710.28	3.664	144.25
5 600	1 479.4	18.075	711.61	3.752	147.72
5 800	1 532.2	18.113	713.11	3.847	151.46
6 000	1 585.0	18.155	714.76	3.948	155.43
6 200	1 637.9	18.199	716.50	4.054	159.61
6 400	1 690.7	18.245	718.31	4.166	164.02
6 600	1 743.5	18.293	720.20	4.280	168.50
6 800	1 796.4	18.341	722.09	4.396	173.07
7 000	1 849.2	18.390	724.02	4.514	177.72
7 100	1 875.6	18.415	725.00	4.575	180.12

⁽¹⁾ Rounded-off values.

WEIGHT AND BALANCE CONTROL
Fuel

Fuel Quantities and H-Arms

RIGHT INNER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.758	699.13	-2.174	-85.59
400	105.7	17.726	697.87	-2.287	-90.04
600	158.5	17.713	697.36	-2.373	-93.43
800	211.3	17.712	697.32	-2.449	-96.42
1 000	264.2	17.717	697.52	-2.518	-99.13
1 200	317.0	17.725	697.83	-2.581	-101.61
1 400	369.8	17.735	698.23	-2.641	-103.98
1 600	422.7	17.746	698.66	-2.697	-106.18
1 800	475.5	17.758	699.13	-2.751	-108.31
2 000	528.3	17.771	699.65	-2.803	-110.35
2 200	581.2	17.784	700.16	-2.852	-112.28
2 400	634.0	17.797	700.67	-2.900	-114.17
2 600	686.8	17.810	701.18	-2.947	-116.02
2 800	739.7	17.824	701.73	-2.993	-117.83
3 000	792.5	17.838	702.28	-3.037	-119.57
3 200	845.4	17.852	702.83	-3.081	-121.30
3 400	898.2	17.865	703.35	-3.124	-122.99
3 600	951.0	17.879	703.90	-3.166	-124.65
3 800	1 003.9	17.892	704.41	-3.208	-126.30
4 000	1 056.7	17.906	704.96	-3.252	-128.03
4 200	1 109.5	17.919	705.47	-3.296	-129.76
4 400	1 162.4	17.932	705.98	-3.342	-131.57
4 600	1 215.2	17.945	706.50	-3.391	-133.50
4 800	1 268.0	17.961	707.13	-3.445	-135.63
5 000	1 320.9	17.983	707.99	-3.509	-138.15
5 200	1 373.7	18.010	709.06	-3.582	-141.02
5 400	1 426.5	18.041	710.28	-3.664	-144.25
5 600	1 479.4	18.075	711.61	-3.752	-147.72
5 800	1 532.2	18.113	713.11	-3.847	-151.46
6 000	1 585.0	18.155	714.76	-3.948	-155.43
6 200	1 637.9	18.199	716.50	-4.054	-159.61
6 400	1 690.7	18.245	718.31	-4.166	-164.02
6 600	1 743.5	18.293	720.20	-4.280	-168.50
6 800	1 796.4	18.341	722.09	-4.396	-173.07
7 000	1 849.2	18.390	724.02	-4.514	-177.72
7 100	1 875.6	18.415	725.00	-4.575	-180.12

⁽¹⁾ Rounded-off values.

USABLE FUEL IN INNER TANKS

Ident.: CTL-FUEL-QTY-00019080.0010001 / 17 JUN 21

Criteria: 160001, 37331, ST1

Applicable to: MSN 05746, 07784, 07792

The usable fuel is the fuel available for the aircraft propulsion.

The unusable fuel is not part of the usable fuel.

The Center of Gravity (CG) of the fuel in each tank depends on the fuel quantity in the tank.

The following tables provide the H-ARM and Y-ARM of the fuel CG in each inner tank.

The Y-ARM values of the fuel in the left inner tank are positive.

The Y-ARM values of the fuel in the right inner tank are negative.

Left and right inner tanks have the same capacity.

LEFT INNER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.753	698.94	2.186	86.06
400	105.7	17.725	697.83	2.298	90.47
600	158.5	17.713	697.36	2.384	93.86
800	211.3	17.712	697.32	2.458	96.77
1 000	264.2	17.716	697.48	2.525	99.41
1 200	317.0	17.724	697.80	2.588	101.89
1 400	369.8	17.733	698.15	2.647	104.21
1 600	422.7	17.744	698.58	2.702	106.38
1 800	475.5	17.756	699.06	2.755	108.46
2 000	528.3	17.769	699.57	2.807	110.51
2 200	581.2	17.782	700.08	2.856	112.44
2 400	634.0	17.795	700.59	2.904	114.33
2 600	686.8	17.809	701.14	2.951	116.18
2 800	739.7	17.822	701.65	2.997	117.99
3 000	792.5	17.836	702.20	3.041	119.72
3 200	845.4	17.851	702.80	3.085	121.46
3 400	898.2	17.865	703.35	3.128	123.15
3 600	951.0	17.879	703.90	3.170	124.80
3 800	1 003.9	17.892	704.41	3.213	126.50
4 000	1 056.7	17.906	704.96	3.257	128.23
4 200	1 109.5	17.919	705.47	3.301	129.96
4 400	1 162.4	17.932	705.98	3.347	131.77
4 600	1 215.2	17.946	706.54	3.395	133.66
4 800	1 268.0	17.962	707.17	3.449	135.79
5 000	1 320.9	17.982	707.95	3.511	138.23
5 200	1 373.7	18.008	708.98	3.582	141.02

Continued on the following page

WEIGHT AND BALANCE CONTROL
Fuel

Fuel Quantities and H-Arms

Continued from the previous page

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
5 400	1 426.5	18.038	710.16	3.663	144.21
5 600	1 479.4	18.072	711.50	3.750	147.64
5 800	1 532.2	18.110	712.99	3.843	151.30
6 000	1 585.0	18.150	714.57	3.943	155.24
6 200	1 637.9	18.193	716.26	4.047	159.33
6 400	1 690.7	18.239	718.07	4.157	163.66
6 600	1 743.5	18.286	719.92	4.270	168.11
6 800	1 796.4	18.334	721.81	4.385	172.64
7 000	1 849.2	18.382	723.70	4.501	177.20
7 092	1 873.5	18.405	724.61	4.555	179.33

⁽¹⁾ Rounded-off values.

RIGHT INNER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.753	698.94	-2.186	-86.06
400	105.7	17.725	697.83	-2.298	-90.47
600	158.5	17.713	697.36	-2.384	-93.86
800	211.3	17.712	697.32	-2.458	-96.77
1 000	264.2	17.716	697.48	-2.525	-99.41
1 200	317.0	17.724	697.80	-2.588	-101.89
1 400	369.8	17.733	698.15	-2.647	-104.21
1 600	422.7	17.744	698.58	-2.702	-106.38
1 800	475.5	17.756	699.06	-2.755	-108.46
2 000	528.3	17.769	699.57	-2.807	-110.51
2 200	581.2	17.782	700.08	-2.856	-112.44
2 400	634.0	17.795	700.59	-2.904	-114.33
2 600	686.8	17.809	701.14	-2.951	-116.18
2 800	739.7	17.822	701.65	-2.997	-117.99
3 000	792.5	17.836	702.20	-3.041	-119.72
3 200	845.4	17.851	702.80	-3.085	-121.46
3 400	898.2	17.865	703.35	-3.128	-123.15
3 600	951.0	17.879	703.90	-3.170	-124.80
3 800	1 003.9	17.892	704.41	-3.213	-126.50
4 000	1 056.7	17.906	704.96	-3.257	-128.23
4 200	1 109.5	17.919	705.47	-3.301	-129.96
4 400	1 162.4	17.932	705.98	-3.347	-131.77
4 600	1 215.2	17.946	706.54	-3.395	-133.66

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Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
4 800	1 268.0	17.962	707.17	-3.449	-135.79
5 000	1 320.9	17.982	707.95	-3.511	-138.23
5 200	1 373.7	18.008	708.98	-3.582	-141.02
5 400	1 426.5	18.038	710.16	-3.663	-144.21
5 600	1 479.4	18.072	711.50	-3.750	-147.64
5 800	1 532.2	18.110	712.99	-3.843	-151.30
6 000	1 585.0	18.150	714.57	-3.943	-155.24
6 200	1 637.9	18.193	716.26	-4.047	-159.33
6 400	1 690.7	18.239	718.07	-4.157	-163.66
6 600	1 743.5	18.286	719.92	-4.270	-168.11
6 800	1 796.4	18.334	721.81	-4.385	-172.64
7 000	1 849.2	18.382	723.70	-4.501	-177.20
7 092	1 873.5	18.405	724.61	-4.555	-179.33

⁽¹⁾ Rounded-off values.

USABLE FUEL IN INNER TANKS

Ident.: CTL-FUEL-QTY-00019080.0001001 / 17 DEC 18

Criteria: ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060

The usable fuel is the fuel available for the aircraft propulsion.

The unusable fuel is not part of the usable fuel.

The Center of Gravity (CG) of the fuel in each tank depends on the fuel quantity in the tank.

The following tables provide the H-ARM and Y-ARM of the fuel CG in each inner tank.

The Y-ARM values of the fuel in the left inner tank are positive.

The Y-ARM values of the fuel in the right inner tank are negative.

Left and right inner tanks have the same capacity.

LEFT INNER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.788	700.31	2.183	85.94
400	105.7	17.752	698.90	2.299	90.51
600	158.5	17.736	698.27	2.388	94.02
800	211.3	17.732	698.11	2.465	97.05
1 000	264.2	17.735	698.23	2.536	99.84
1 200	317.0	17.743	698.54	2.601	102.40
1 400	369.8	17.752	698.90	2.662	104.80

Continued on the following page

WEIGHT AND BALANCE CONTROL
Fuel

Fuel Quantities and H-Arms

Continued from the previous page

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
1 600	422.7	17.763	699.33	2.720	107.09
1 800	475.5	17.774	699.76	2.775	109.25
2 000	528.3	17.787	700.28	2.827	111.30
2 200	581.2	17.799	700.75	2.878	113.31
2 400	634.0	17.812	701.26	2.926	115.20
2 600	686.8	17.824	701.73	2.973	117.05
2 800	739.7	17.837	702.24	3.019	118.86
3 000	792.5	17.850	702.76	3.063	120.59
3 200	845.4	17.864	703.31	3.108	122.36
3 400	898.2	17.877	703.82	3.151	124.06
3 600	951.0	17.891	704.37	3.194	125.75
3 800	1 003.9	17.904	704.88	3.238	127.48
4 000	1 056.7	17.917	705.39	3.282	129.21
4 200	1 109.5	17.931	705.94	3.328	131.02
4 400	1 162.4	17.944	706.46	3.375	132.87
4 600	1 215.2	17.959	707.05	3.425	134.84
4 800	1 268.0	17.978	707.80	3.484	137.17
5 000	1 320.9	18.002	708.74	3.552	139.84
5 200	1 373.7	18.030	709.84	3.629	142.87
5 400	1 426.5	18.063	711.14	3.713	146.18
5 600	1 479.4	18.099	712.56	3.804	149.76
5 800	1 532.2	18.138	714.09	3.902	153.62
6 000	1 585.0	18.180	715.75	4.005	157.68
6 200	1 637.9	18.225	717.52	4.114	161.97
6 400	1 690.7	18.273	719.41	4.228	166.46
6 600	1 743.5	18.321	721.30	4.344	171.02
6 800	1 796.4	18.369	723.19	4.461	175.63
6 925	1 829.4	18.400	724.41	4.535	178.54

⁽¹⁾ Rounded-off values.

RIGHT INNER TANK

Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.788	700.31	-2.183	-85.94
400	105.7	17.752	698.90	-2.299	-90.51
600	158.5	17.736	698.27	-2.388	-94.02
800	211.3	17.732	698.11	-2.465	-97.05
1 000	264.2	17.735	698.23	-2.536	-99.84

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Fuel Quantity		H-ARM		Y-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾	(m)	(in) ⁽¹⁾
1 200	317.0	17.743	698.54	-2.601	-102.40
1 400	369.8	17.752	698.90	-2.662	-104.80
1 600	422.7	17.763	699.33	-2.720	-107.09
1 800	475.5	17.774	699.76	-2.775	-109.25
2 000	528.3	17.787	700.28	-2.827	-111.30
2 200	581.2	17.799	700.75	-2.878	-113.31
2 400	634.0	17.812	701.26	-2.926	-115.20
2 600	686.8	17.824	701.73	-2.973	-117.05
2 800	739.7	17.837	702.24	-3.019	-118.86
3 000	792.5	17.850	702.76	-3.063	-120.59
3 200	845.4	17.864	703.31	-3.108	-122.36
3 400	898.2	17.877	703.82	-3.151	-124.06
3 600	951.0	17.891	704.37	-3.194	-125.75
3 800	1 003.9	17.904	704.88	-3.238	-127.48
4 000	1 056.7	17.917	705.39	-3.282	-129.21
4 200	1 109.5	17.931	705.94	-3.328	-131.02
4 400	1 162.4	17.944	706.46	-3.375	-132.87
4 600	1 215.2	17.959	707.05	-3.425	-134.84
4 800	1 268.0	17.978	707.80	-3.484	-137.17
5 000	1 320.9	18.002	708.74	-3.552	-139.84
5 200	1 373.7	18.030	709.84	-3.629	-142.87
5 400	1 426.5	18.063	711.14	-3.713	-146.18
5 600	1 479.4	18.099	712.56	-3.804	-149.76
5 800	1 532.2	18.138	714.09	-3.902	-153.62
6 000	1 585.0	18.180	715.75	-4.005	-157.68
6 200	1 637.9	18.225	717.52	-4.114	-161.97
6 400	1 690.7	18.273	719.41	-4.228	-166.46
6 600	1 743.5	18.321	721.30	-4.344	-171.02
6 800	1 796.4	18.369	723.19	-4.461	-175.63
6 925	1 829.4	18.400	724.41	-4.535	-178.54

⁽¹⁾ Rounded-off values.

USABLE FUEL IN CENTER TANK

Ident.: CTL-FUEL-QTY-00019081.0014001 / 20 APR 26

Criteria: ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253

The usable fuel is the fuel available for the aircraft propulsion.

The unusable fuel is not part of the usable fuel.

WEIGHT AND BALANCE CONTROL
Fuel

Fuel Quantities and H-Arms

The Center of Gravity (CG) of the fuel in the center tank depends on the fuel quantity in the tank.

The following table provides the H-ARM of the fuel CG in the center tank.

The Y-ARM value of the fuel in the center tank is equal to 0 m (0 in).

Fuel Quantity		H-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.858	703.07
400	105.7	17.818	701.50
600	158.5	17.781	700.04
800	211.3	17.748	698.74
1 000	264.2	17.718	697.56
1 200	317.0	17.689	696.42
1 400	369.8	17.661	695.31
1 600	422.7	17.634	694.25
1 800	475.5	17.608	693.23
2 000	528.3	17.583	692.24
2 200	581.2	17.559	691.30
2 400	634.0	17.537	690.43
2 600	686.8	17.519	689.72
2 800	739.7	17.503	689.09
3 000	792.5	17.489	688.54
3 200	845.4	17.477	688.07
3 400	898.2	17.465	687.60
3 600	951.0	17.457	687.28
3 800	1 003.9	17.448	686.93
4 000	1 056.7	17.441	686.65
4 200	1 109.5	17.434	686.38
4 400	1 162.4	17.428	686.14
4 600	1 215.2	17.422	685.91
4 800	1 268.0	17.417	685.71
5 000	1 320.9	17.412	685.51
5 200	1 373.7	17.408	685.35
5 400	1 426.5	17.403	685.16
5 600	1 479.4	17.400	685.04
5 800	1 532.2	17.396	684.88
6 000	1 585.0	17.393	684.76
6 200	1 637.9	17.390	684.65
6 400	1 690.7	17.387	684.53
6 600	1 743.5	17.384	684.41
6 800	1 796.4	17.382	684.33
7 000	1 849.2	17.379	684.21
7 200	1 902.0	17.377	684.13

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Fuel Quantity		H-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾
7 400	1 954.9	17.375	684.06
7 600	2 007.7	17.373	683.98
7 800	2 060.5	17.370	683.86
8 000	2 113.4	17.365	683.66
8 200	2 166.2	17.354	683.23
8 250	2 179.4	17.356	683.31

⁽¹⁾ Rounded-off values.

USABLE FUEL IN CENTER TANK

Ident.: CTL-FUEL-QTY-00019081.0005001 / 20 APR 26

Criteria: 160001, ST1

Applicable to: MSN 05746, 07784, 07792

The usable fuel is the fuel available for the aircraft propulsion.

The unusable fuel is not part of the usable fuel.

The Center of Gravity (CG) of the fuel in the center tank depends on the fuel quantity in the tank.

The following table provides the H-ARM of the fuel CG in the center tank.

The Y-ARM value of the fuel in the center tank is equal to 0 m (0 in).

Fuel Quantity		H-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾
200	52.8	17.801	700.83
400	105.7	17.776	699.84
600	158.5	17.741	698.46
800	211.3	17.705	697.05
1 000	264.2	17.672	695.75
1 200	317.0	17.641	694.53
1 400	369.8	17.613	693.43
1 600	422.7	17.587	692.40
1 800	475.5	17.562	691.42
2 000	528.3	17.540	690.55
2 200	581.2	17.519	689.72
2 400	634.0	17.500	688.98
2 600	686.8	17.483	688.31
2 800	739.7	17.469	687.76
3 000	792.5	17.457	687.28
3 200	845.4	17.447	686.89
3 400	898.2	17.437	686.50
3 600	951.0	17.429	686.18

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WEIGHT AND BALANCE CONTROL
Fuel
Fuel Quantities and H-Arms
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Fuel Quantity		H-ARM	
(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾
3 800	1 003.9	17.422	685.91
4 000	1 056.7	17.415	685.63
4 200	1 109.5	17.409	685.39
4 400	1 162.4	17.403	685.16
4 600	1 215.2	17.399	685.00
4 800	1 268.0	17.394	684.80
5 000	1 320.9	17.390	684.65
5 200	1 373.7	17.386	684.49
5 400	1 426.5	17.382	684.33
5 600	1 479.4	17.379	684.21
5 800	1 532.2	17.376	684.09
6 000	1 585.0	17.373	683.98
6 200	1 637.9	17.370	683.86
6 400	1 690.7	17.368	683.78
6 600	1 743.5	17.365	683.66
6 800	1 796.4	17.363	683.58
7 000	1 849.2	17.361	683.50
7 200	1 902.0	17.359	683.43
7 400	1 954.9	17.357	683.35
7 600	2 007.7	17.354	683.23
7 800	2 060.5	17.349	683.03
8 000	2 113.4	17.341	682.72
8 200	2 166.2	17.331	682.32
8 248	2 178.9	17.328	682.20

⁽¹⁾ Rounded-off values.

UNUSABLE FUEL

Ident.: CTL-FUEL-QTY-00019082.0001001 / 25 AUG 20

Criteria: ST1

Applicable to: ALL

The unusable fuel is the fuel in the tanks and in the systems that the engines cannot use for the aircraft propulsion.

The following table provides the unusable fuel quantity and the H-ARM of the fuel Center of Gravity (CG).

WEIGHT AND BALANCE CONTROL
Fuel
Fuel Quantities and H-Arms

Fuel Tank		Quantity		H-ARM	
		(l)	(US Gal) ⁽¹⁾	(m)	(in) ⁽¹⁾
Outer tank	LH	2	0.6	20.985	826.18
Inner tank	LH	14	3.7	17.867	703.43
Center tank	CTR	23	6.1	17.834	702.13
Inner tank	RH	14	3.7	17.867	703.43
Outer tank	RH	2	0.6	20.985	826.18
Systems	CTR	26	7.0	18.703	736.34

⁽¹⁾ Rounded-off values.

UNDRAINABLE FUEL

Ident.: CTL-FUEL-QTY-00019083.0001001 / 17 MAR 25

Criteria: ST1

Applicable to: ALL

The undrainable fuel is the fuel that remains in the tanks and in the systems after the drainage of the tanks.

The following table provides the undrainable fuel quantity and the H-ARM of the fuel Center of Gravity (CG).

Fuel Tank		Quantity		H-ARM	
		(l)	(US gal) ⁽¹⁾	(m)	(in) ⁽¹⁾
Left surge tank	LH	0.3	0.1	22.350	879.92
Left outer tank	LH	0.4	0.1	21.004	826.93
Left inner tank	LH	0.5	0.1	17.766	699.45
Centre tank	CTR	8.0	2.1	17.801	700.83
Right inner tank	RH	0.5	0.1	17.766	699.45
Right outer tank	RH	0.4	0.1	21.004	826.93
Right surge tank	RH	0.3	0.1	22.350	879.92
Systems	-	40.3	10.6	18.006	708.90

⁽¹⁾ Rounded-off values.

UNPUMPABLE FUEL

Ident.: CTL-FUEL-QTY-00026881.0001001 / 17 MAR 25

Criteria: ST1

Applicable to: ALL

The following table provides the unpumpable fuel quantity and the H-ARM of the fuel Center of Gravity (CG).

Fuel Tank		Quantity		H-ARM	
		(l)	(US Gal) ⁽¹⁾	(m)	(in) ⁽¹⁾

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WEIGHT AND BALANCE CONTROL

Fuel

Fuel Quantities and H-Arms

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Left surge tank	LH	0.3	0.1	22.350	879.92
Left outer tank	LH	0.4	0.1	21.004	826.93
Left inner tank	LH	52.3	13.8	17.801	700.83
Center tank	CTR	67.0	17.7	17.805	700.98
Right inner tank	RH	52.3	13.8	17.801	700.83
Right outer tank	RH	0.4	0.1	21.004	826.93
Right surge tank	RH	0.3	0.1	22.350	879.92
Systems	-	40.3	10.6	18.006	708.90

⁽¹⁾ *Rounded-off values*

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REFUELING LOGIC

Ident.: CTL-FUEL-MGT-00019084.0020001 / 29 JAN 20

Criteria: 160001, 37331, ST1

Applicable to: MSN 05746, 07784, 07792

AUTOMATIC REFUELING

During the automatic refueling, the Fuel Quantity Indication System (FQIS) computes the target fuel distribution as a function of the Preselected Fuel Quantity (PFQ).

The FQIS controls the simultaneous refueling of all fuel tanks in order to reach the target fuel distribution.

The maximum fuel weight in each tank depends on the fuel density "d".

After engine start, fuel transfers may occur (*Refer to CTL-FUEL-MGT All Flight Phases* for a detailed description).

The following table describes the 3 cases of fuel distribution after engine start, based on the PFQ.

METRIC UNITS

Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To			
	(kg)	(kg)		(kg)	
Case A	0	1 500 + 1 734 x d	Outer tank LH	0	- The fuel is equally distributed in both inner tanks
			Inner tank LH	PFQ x 0.5	
			Center tank	0	
			Inner tank RH	PFQ x 0.5	
			Outer tank RH	0	
Case B	1 500 + 1 734 x d	15 918 x d	Outer tank LH	867 x d	- Both outer tanks full - The remaining quantity is equally distributed in both inner tanks.
			Inner tank LH	(PFQ - 1 734 x d) x 0.5	
			Center tank	0	
			Inner tank RH	(PFQ - 1 734 x d) x 0.5	
			Outer tank RH	867 x d	
Case C	15 918 x d	High level shut-off	Outer tank LH	867 x d	- Both outer tanks full - Both inner tanks full - The remaining quantity is distributed in the center tank.
			Inner tank LH	7 092 x d	
			Center tank	PFQ - 15 918 x d	
			Inner tank RH	7 092 x d	
			Outer tank RH	867 x d	

⁽¹⁾ "d" is the fuel density expressed in kg/l.

WEIGHT AND BALANCE CONTROL
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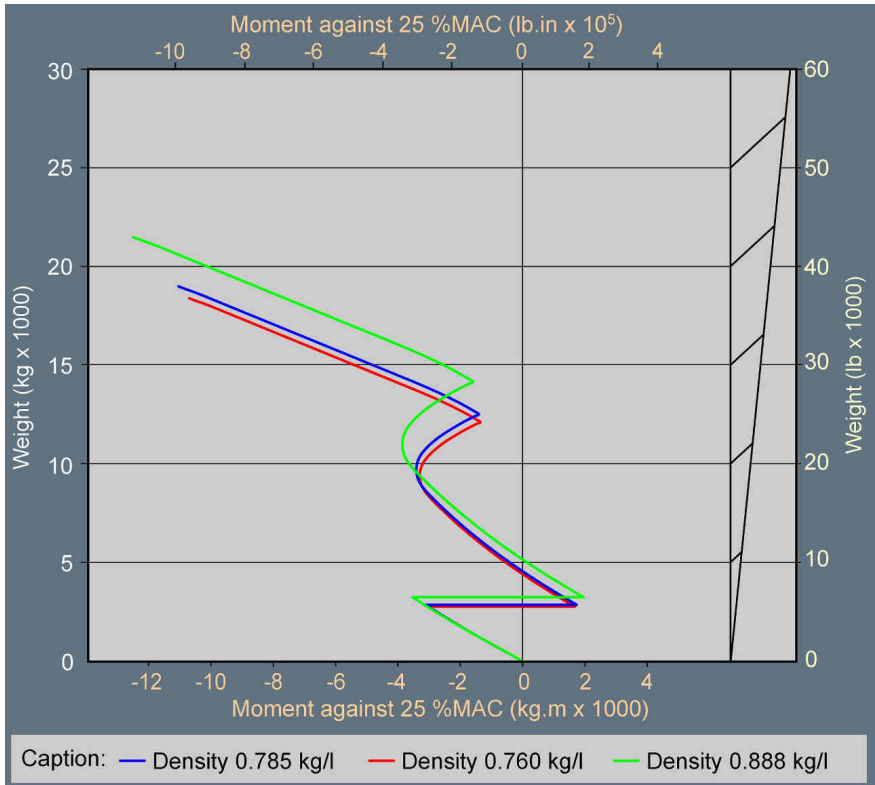
US UNITS

Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To		(lb)	
	(lb)	(lb)			
Case A	0	3 307 + 458.1 x d	Outer tank LH	0	- The fuel is equally distributed in both inner tanks
			Inner tank LH	PFQ x 0.5	
			Center tank	0	
			Inner tank RH	PFQ x 0.5	
			Outer tank RH	0	
Case B	3 307 + 458.1 x d	4 205.1 x d	Outer tank LH	229.0 x d	- Both outer tanks full - The remaining quantity is equally distributed in both inner tanks.
			Inner tank LH	(PFQ - 458.1 x d) x 0.5	
			Center tank	0	
			Inner tank RH	(PFQ - 458.1 x d) x 0.5	
			Outer tank RH	229.0 x d	
Case C	4 205.1 x d	High level shut-off	Outer tank LH	229.0 x d	- Both outer tanks full - Both inner tanks full - The remaining quantity is distributed in the center tank.
			Inner tank LH	1 873.5 x d	
			Center tank	PFQ - 4 205.1 x d	
			Inner tank RH	1 873.5 x d	
			Outer tank RH	229.0 x d	

⁽¹⁾ "d" is the fuel density expressed in lb/US Gal.

FUEL DISTRIBUTION VECTOR

The following graph illustrates the effect of the fuel distribution on the aircraft balance, after engine start, for different fuel densities.



MANUAL REFUELING

Manual refueling is possible from the refueling control panel.

In the case of a manual refueling, the operator must target the target fuel distribution of the automatic refueling.

REFUELING LOGIC

Ident.: CTL-FUEL-MGT-00019084.0007001 / 29 JAN 20

Criteria: 37331, ST1

Applicable to: MSN 04392, 05152, 05162, 05253

AUTOMATIC REFUELING

During the automatic refueling, the Fuel Quantity Indication System (FQIS) computes the target fuel distribution as a function of the Preselected Fuel Quantity (PFQ).

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The FQIS controls the simultaneous refueling of all fuel tanks in order to reach the target fuel distribution.

The maximum fuel weight in each tank depends on the fuel density "d".

After engine start, fuel transfers may occur (*Refer to CTL-FUEL-MGT All Flight Phases* for a detailed description).

The following table describes the 3 cases of fuel distribution after engine start, based on the PFQ.

METRIC UNITS

Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To		(kg)	
	(kg)	(kg)			
Case A	0	1 500 + 1 760 x d	Outer tank LH	0	- The fuel is equally distributed in both inner tanks
			Inner tank LH	PFQ x 0.5	
			Center tank	0	
			Inner tank RH	PFQ x 0.5	
			Outer tank RH	0	
Case B	1 500 + 1 760 x d	15 960 x d	Outer tank LH	880 x d	- Both outer tanks full - The remaining quantity is equally distributed in both inner tanks.
			Inner tank LH	(PFQ - 1 760 x d) x 0.5	
			Center tank	0	
			Inner tank RH	(PFQ - 1 760 x d) x 0.5	
			Outer tank RH	880 x d	
Case C	15 960 x d	High level shut-off	Outer tank LH	880 x d	- Both outer tanks full - Both inner tanks full - The remaining quantity is distributed in the center tank.
			Inner tank LH	7 100 x d	
			Center tank	PFQ - 15 960 x d	
			Inner tank RH	7 100 x d	
			Outer tank RH	880 x d	

⁽¹⁾ "d" is the fuel density expressed in kg/l.

US UNITS

Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To		(lb)	
	(lb)	(lb)			
Case A	0	3 307 + 465.0 x d	Outer tank LH	0	- The fuel is equally distributed in both inner tanks
			Inner tank LH	PFQ x 0.5	
			Center tank	0	
			Inner tank RH	PFQ x 0.5	
			Outer tank RH	0	

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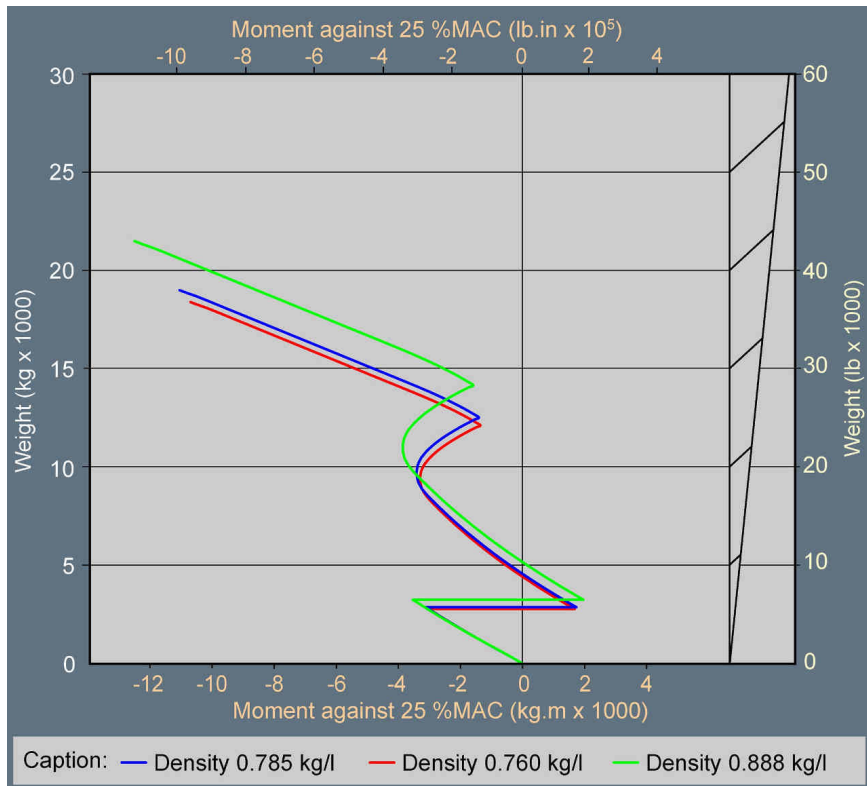
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Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To		(lb)	
	(lb)	(lb)			
Case B	3 307 + 465.0 x d	4 216.2 x d	Outer tank LH	232.5 x d	- Both outer tanks full - The remaining quantity is equally distributed in both inner tanks.
			Inner tank LH	(PFQ - 465.0 x d) x 0.5	
			Center tank	0	
			Inner tank RH	(PFQ - 465.0 x d) x 0.5	
			Outer tank RH	232.5 x d	
Case C	4 216.2 x d	High level shut-off	Outer tank LH	232.5 x d	- Both outer tanks full - Both inner tanks full - The remaining quantity is distributed in the center tank.
			Inner tank LH	1 875.6 x d	
			Center tank	PFQ - 4 216.2 x d	
			Inner tank RH	1 875.6 x d	
			Outer tank RH	232.5 x d	

⁽¹⁾ "d" is the fuel density expressed in lb/US Gal.

FUEL DISTRIBUTION VECTOR

The following graph illustrates the effect of the fuel distribution on the aircraft balance, after engine start, for different fuel densities.



MANUAL REFUELING

Manual refueling is possible from the refueling control panel.

In the case of a manual refueling, the operator must target the target fuel distribution of the automatic refueling.

REFUELING LOGIC

Ident.: CTL-FUEL-MGT-00019084.0001001 / 29 JAN 20

Criteria: ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060

AUTOMATIC REFUELING

During the automatic refueling, the Fuel Quantity Indication System (FQIS) computes the target fuel distribution as a function of the Preselected Fuel Quantity (PFQ).

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Fuel Fuel Management
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The FQIS controls the simultaneous refueling of all fuel tanks in order to reach the target fuel distribution.

The maximum fuel weight in each tank depends on the fuel density "d".

After engine start, fuel transfers may occur (*Refer to CTL-FUEL-MGT All Flight Phases* for a detailed description).

The following table describes the 3 cases of fuel distribution after engine start, based on the PFQ.

METRIC UNITS

Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To			
	(kg)	(kg)		(kg)	
Case A	0	1 500 + 1 760 x d	Outer tank LH	0	- The fuel is equally distributed in both inner tanks
			Inner tank LH	PFQ x 0.5	
			Center tank	0	
			Inner tank RH	PFQ x 0.5	
			Outer tank RH	0	
Case B	1 500 + 1 760 x d	15 610 x d	Outer tank LH	880 x d	- Both outer tanks full - The remaining quantity is equally distributed in both inner tanks.
			Inner tank LH	(PFQ - 1 760 x d) x 0.5	
			Center tank	0	
			Inner tank RH	(PFQ - 1 760 x d) x 0.5	
			Outer tank RH	880 x d	
Case C	15 610 x d	High level shut-off	Outer tank LH	880 x d	- Both outer tanks full - Both inner tanks full - The remaining quantity is distributed in the center tank.
			Inner tank LH	6 925 x d	
			Center tank	PFQ - 15 610 x d	
			Inner tank RH	6 925 x d	
			Outer tank RH	880 x d	

⁽¹⁾ "d" is the fuel density expressed in kg/l.

US UNITS

Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To			
	(lb)	(lb)		(lb)	
Case A	0	3 307 + 465.0 x d	Outer tank LH	0	- The fuel is equally distributed in both inner tanks
			Inner tank LH	PFQ x 0.5	
			Center tank	0	
			Inner tank RH	PFQ x 0.5	
			Outer tank RH	0	

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WEIGHT AND BALANCE CONTROL

Fuel

Fuel Management

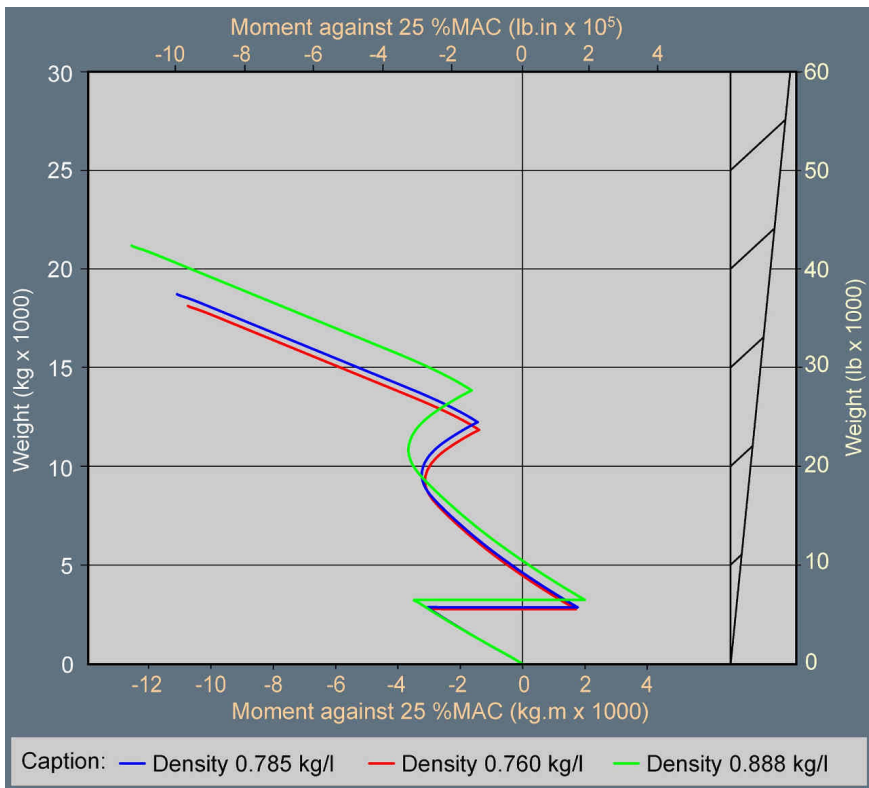
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Case	PFQ ⁽¹⁾		Tank Name	Target Fuel Distribution ⁽¹⁾	Fuel Distribution Logic
	From	To		(lb)	
	(lb)	(lb)			
Case B	3 307 + 465.0 x d	4 123.7 x d	Outer tank LH	232.5 x d	- Both outer tanks full - The remaining quantity is distributed in both inner tanks.
			Inner tank LH	(PFQ - 465.0 x d) x 0.5	
			Center tank	0	
			Inner tank RH	(PFQ - 465.0 x d) x 0.5	
			Outer tank RH	232.5 x d	
Case C	4 123.7 x d	High level shut-off	Outer tank LH	232.5 x d	- Both outer tanks full - Both inner tanks full - The remaining quantity is distributed in the center tank.
			Inner tank LH	1 829.4 x d	
			Center tank	PFQ - 4 123.7 x d	
			Inner tank RH	1 829.4 x d	
			Outer tank RH	232.5 x d	

⁽¹⁾ "d" is the fuel density expressed in lb/US Gal.

FUEL DISTRIBUTION VECTOR

The following graph illustrates the effect of the fuel distribution on the aircraft balance, after engine start, for different fuel densities.



MANUAL REFUELING

Manual refueling is possible from the refueling control panel.

In the case of a manual refueling, the operator must target the target fuel distribution of the automatic refueling.

ALL FLIGHT PHASES

Ident.: CTL-FUEL-MGT-00019085.0017001 / 16 MAR 26

Criteria: 154327, ST1

Applicable to: MSN 07784, 07792

This part describes the effect of the fuel consumption on the position of the aircraft CG during all of the following flight phases:

- Taxi
- Takeoff

- Climb, cruise, and descent
- Landing.

DURING TAXI

Taxi includes both of the following flight phases:

- Between engine start and takeoff
- Between the end of landing and engine stop.

The aircraft burns fuel from the inner tanks.

Fuel from the other tanks is used as follows:

- The aircraft is equipped with jet pumps. Whenever the fuel level in one of the inner tanks goes below the underfull level (High-level minus approximately 500 kg (1 102 lb)), the jet pumps transfer fuel from the center tank until the fuel level of the inner tanks reaches the high-level
- When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

DURING TAKEOFF

Takeoff is the flight phase that begins with the takeoff run, and ends with the retraction of the slats, flaps, and landing gears.

The aircraft burns fuel from the inner tanks.

Fuel from the other tanks is used as follows:

- The aircraft is equipped with jet pumps. Whenever the fuel level in one of the inner tanks goes below the underfull level (High-level minus approximately 500 kg (1 102 lb)), the jet pumps transfer fuel from the center tank until the fuel level of the inner tanks reaches the high-level
- When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

DURING CLIMB, CRUISE, AND DESCENT

The aircraft burns fuel from the inner tanks.

Fuel from the other tanks is used as follows:

- The aircraft is equipped with jet pumps. Whenever the fuel level in one of the inner tanks goes below the underfull level (High-level minus approximately 500 kg (1 102 lb)), the jet pumps transfer fuel from the center tank until the fuel level of the inner tanks reaches the high-level
- When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

DURING LANDING

Landing is the flight phase that begins with the extension of the aircraft landing gears, and ends when the aircraft comes to a stop, on the runway.

The aircraft burns fuel from the inner tanks.

Fuel from the other tanks is used as follows:

- The aircraft is equipped with jet pumps. Whenever the fuel level in one of the inner tanks goes below the underfull level (High-level minus approximately 500 kg (1 102 lb)), the jet pumps transfer fuel from the center tank until the fuel level of the inner tanks reaches the high-level
- When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

ALL FLIGHT PHASES

Ident.: CTL-FUEL-MGT-00019085.0001001 / 16 MAR 26

Criteria: ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253, 05746

This part describes the effect of the fuel consumption on the position of the aircraft CG during all of the following flight phases:

- Taxi
- Takeoff
- Climb, cruise, and descent
- Landing.

DURING TAXI

Taxi includes both of the following flight phases:

- Between engine start and takeoff
- Between the end of landing and engine stop.

The aircraft burns fuel from the inner tanks.

When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

Note: No automatic fuel transfer occurs from the center tank.

DURING TAKEOFF

Takeoff is the flight phase that begins with the takeoff run, and ends with the retraction of the slats, flaps, and landing gears.

The aircraft burns fuel from the inner tanks.

When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

Note: No automatic fuel transfer occurs from the center tank.

DURING CLIMB, CRUISE, AND DESCENT

While the center tank contains fuel, the center tank directly feeds both engines.

Once the center tank is empty: the inner tanks feed both engines.

When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

DURING LANDING

Landing is the flight phase that begins with the extension of the aircraft landing gears, and ends when the aircraft comes to a stop, on the runway.

The aircraft burns fuel from the inner tanks.

When the fuel level of one inner tank goes below approximately 750 kg (1 653 lb), the fuel from both outer tanks is transferred to the inner tanks.

Note: *No automatic fuel transfer occurs from the center tank.*

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Fuel Defueling Procedure before Aircraft Weighing
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DEFUELING PROCEDURE BEFORE AIRCRAFT WEIGHING

Ident.: CTL-FUEL-DFL-00019086.0001001 / 27 JUL 23
Criteria: ST1
Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253, 05746

INTRODUCTION

Before the weighing of the aircraft, the operator must defuel all the aircraft fuel tanks to the undrainable fuel levels (*Refer to CTL-FUEL-QTY Undrainable Fuel*).

This part provides the procedure that the operator must apply to defuel all the aircraft fuel tanks to the undrainable fuel levels.

Aircraft defueling occurs through the refuel coupling of the right wing, via one hose. For aircraft that have an additional refuel coupling on the left wing, defueling is also possible through the refuel coupling of the left wing, via one hose.

The defueling procedure requires that the operator performs actions on all of the following:

- The Overhead Panel (OHP) in the cockpit
- The center pedestal in the cockpit
- The FUEL page of the Electronic Centralized Aircraft Monitoring (ECAM) in the cockpit
- The refueling control panel on the RH side of the fuselage or on the RH wing.

To identify the applicable controls and indicators, the operator can refer to all of the following illustrations provided in the Flight Crew Operating Manual (FCOM):

- The Overhead Panel (OHP) (*Refer to FCOM/DSC-28-20 Overhead Panel*)
- The center pedestal (*Refer to FCOM/DSC-27-20-30 Pedestal and Refer to FCOM/DSC-70-90-20 ENG MODE Selector and ENG MASTER Levers*)
- The ECAM FUEL page (*Refer to FCOM/DSC-28-20 ECAM Fuel Page*)
- The refueling control panel (*Refer to FCOM/DSC-28-20 External Refuel Panel*).

PROCEDURE

Perform the defueling procedure, in the following order:

A. Ensure all of the following:

- All the aircraft fuel tanks contain a minimum fuel quantity that is indicated in the following table:

Fuel Tank		Minimum Fuel Quantity	
		(kg)	(lb)
Left outer tank	LH	2 000	4 410
Left inner tank	LH		
Center tank	CTR	1 000	2 205
Right inner tank	RH	2 000	4 410
Right outer tank	RH		

- The aircraft is supported by its landing gears. Particularly the wings of the aircraft are not supported by any jacks
 - Either the engines or an identical weight is attached to the wings
 - The wing flaps and slats are in the retracted position.
- B. Put the aircraft at an attitude of 0 ° (+/-10 °) pitch and 0 ° (+/-10 °) roll
- C. Connect the defuel vehicle to the refuel coupling of the RH or LH wing, via one hose. Check that the tank capacity of the defuel vehicle is sufficient to defuel the aircraft
- D. On the OHP, press the CTR TK MODE SEL pushbutton-switch to MAN in order to turn on the pumps of the center tank. The fuel from the center tank is transferred to the inner tanks
- E. On the refueling control panel, set all the REFUEL VALVES switches to SHUT
- F. On the refueling control panel, set the MODE SELECT switch to DEFUEL XFR
- G. On the OHP, press the X FEED pushbutton-switch to ON and both CTR TK PUMP 1+2 pushbutton-switches to On
- H. Open the defuel valve on the defuel vehicle
- I. On the OHP, when the FAULT light of both CTR TK PUMP 1+2 pushbutton-switches come on, wait the light is continuous for 5 min. Press both CTR TK PUMP 1+2 pushbutton-switches to OFF
- J. On the OHP, press both L TK PUMPS 1+2 pushbutton-switches and both R TK PUMPS 1+2 pushbutton-switches to On
- K. On the center pedestal, while the wing tank pumps are running, set both ENG MASTER 1+2 switches for approximately 10 s to ON. It ensures that the engine feed pipes are fully flown into the engine inlet
- L. Bleed the APU fuel line
- M. Let the wing pumps running until the last wing pump indication on the ECAM FUEL page is LO. Immediately proceed to step N
- N. On the OHP, press both L TK PUMPS 1+2 pushbutton-switches and both R TK PUMPS 1+2 pushbutton-switches to OFF
- O. On the OHP, press the X FEED pushbutton-switch to Off
- P. On the ECAM FUEL page, check that the transfer valve indication is Open
- Q. Close the defuel valve on the defuel vehicle
- R. On the refueling control panel, set the MOD SELECT switch to OFF
- S. On the OHP, press the CTR TK MODE SEL pushbutton-switch to Auto
- T. Disconnect the hose from the refuel coupling of the wing
- U. Connect a suction pump to each water drain valve (that includes the water drain valve of the surge tank), one after the other. The suction pumps must work until the fuel flow stops.

The aircraft is in the undrainable fuel condition (*Refer to CTL-FUEL-QTY Undrainable Fuel*) after the drainage of all the aircraft fuel tanks is completed.

DEFUELING PROCEDURE BEFORE AIRCRAFT WEIGHING

Ident.: CTL-FUEL-DFL-00019086.0036001 / 17 MAR 25

Criteria: 154327, ST1

Applicable to: MSN 07784, 07792

INTRODUCTION

Before the weighing of the aircraft, the operator must defuel all the aircraft fuel tanks to the undrainable fuel levels (*Refer to CTL-FUEL-QTY Undrainable Fuel*) or the unpumpable fuel levels (*Refer to CTL-FUEL-QTY Unpumpable Fuel*).

This part provides the procedure that the operator must apply to defuel all the aircraft fuel tanks. Aircraft defueling occurs through the refuel coupling of the right wing, via one hose. For aircraft that have an additional refuel coupling on the left wing, defueling is also possible through the refuel coupling of the left wing, via one hose.

The defueling procedure requires that the operator performs actions on all of the following:

- The Overhead Panel (OHP) in the cockpit
- The center pedestal in the cockpit
- The FUEL page of the Electronic Centralized Aircraft Monitoring (ECAM) in the cockpit
- The refueling control panel on the RH side of the fuselage or on the RH wing.

To identify the applicable controls and indicators, the operator can refer to all of the following illustrations provided in the Flight Crew Operating Manual (FCOM):

- The Overhead Panel (OHP) (*Refer to FCOM/DSC-28-20 Overhead Panel*)
- The center pedestal (*Refer to FCOM/DSC-25-10-50 Pedestal and Refer to FCOM/DSC-70-90-20 ENG MODE Selector and ENG MASTER Levers*)
- The ECAM FUEL page (*Refer to FCOM/DSC-28-20 ECAM Fuel Page*)
- The refueling control panel (*Refer to FCOM/DSC-28-20 External Refuel Panel*).

PROCEDURE

Perform the defueling procedure, in the following order:

1. Ensure all of the following:
 - All the aircraft fuel tanks contain a minimum fuel quantity that is indicated in the following table:

Fuel Tank		Minimum Fuel Quantity	
		(kg)	(lb)
Left outer tank	LH	250	551
Right outer tank	RH		
Center tank	CTR	500	1 102
Left inner tank	LH	250	551
Right inner tank	RH		

- The aircraft is supported by its landing gears. Particularly the wings of the aircraft are not supported by any jacks
 - Either the engines or an identical weight is attached to the wings
 - The wing flaps and slats are in the retracted position.
2. Put the aircraft at an attitude of 0 ° (+/-10 ') pitch and 0 ° (+/-10 ') roll
 3. Connect the defuel vehicle to the refuel coupling of the RH or LH wing, via one hose. Check that the tank capacity of the defuel vehicle is sufficient to defuel the aircraft
 4. On the refueling control panel, set all the REFUEL VALVES selectors to SHUT
 5. On the refueling control panel, set the MODE SELECT switch to DEFUEL XFR
 6. Open the defuel valve on the defuel vehicle
 7. On the OHP, press the X FEED pushbutton-switch to OPEN
 8. On the OHP, press both L TK PUMPS 1+2 pushbutton-switches and both R TK PUMPS 1+2 pushbutton-switches to On
 9. On the OHP, press both CTR TK L XFR pushbutton-switch and CTR TK R XFR pushbutton-switch to On
 10. Make sure that OFF goes off in the pushbutton-switches
 11. Make sure that the center tank is transferred to the wing tanks before the wing tanks are empty. If not, at approximately 1 000 kg (2 200 lb) in the wing tanks, close the defuel valve and wait until the center tank is fully drained into the wing tanks.
 12. On the ECAM FUEL page, make sure that the CTR TK is empty and that the valves CTR TK L XFR and CTR TK R XFR are close after about 5 min of continuous LOW LEVEL.
 13. Permit the pumps to run continuously until the last wing pump FAULT caption to illuminate has been lit continuously for 5 min

***Note:** The FAULT light of the wing pumps must not be continuous for more than 15 min.*

14. On the OHP, press both L TK PUMPS 1+2 pushbutton-switches and both R TK PUMPS 1+2 pushbutton-switches to OFF
15. On the OHP, press both CTR TK L XFR pushbutton-switch and CTR TK R XFR pushbutton-switch to OFF
16. On the OHP, press the X FEED pushbutton-switch to SHUT
17. Close the defuel valve on the defuel vehicle
18. On the refueling control panel, set the MODE SELECT switch to OFF
19. Disconnect the hose from the defuel coupling of the wing
 The aircraft is in the unpumpable fuel condition
 To defuel the aircraft to the undrainable fuel condition, apply the following additional step.
20. Connect a suction pump to each water drain valve of the wing tanks and the centre tank (that includes the water drain valve of the surge tank), one after the other. The suction pumps must work until the fuel flow stops.

The aircraft is in the undrainable fuel condition.

WEIGHT AND BALANCE CONTROL

Fuel

Defueling Procedure before Aircraft Weighing

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WEIGHT AND BALANCE CONTROL

Fluids

INTRODUCTION

Ident.: CTL-FLD-00018752.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

The Fluids chapter contains information on all the following:

- The oil used in the engines, the engine-driven generators, and the Auxiliary Power Unit (APU)
- The hydraulic fluids of the engines and systems
- The potable water
- The chemical fluids of the waste tank.

Note: Hydraulic fluids are included in the Manufacturer's Empty Weight (MEW).

Engine oil, engine-driven generator oil, APU oil, potable water, and chemical fluids are part of the operator's items.

OIL

Ident.: CTL-FLD-00018753.0015001 / 30 JAN 18

Criteria: CFMI, ST1

Applicable to: ALL

OIL TANKS OF THE ENGINES

Location	Quantity ⁽¹⁾		Weight ^{(1)/(2)}		H-ARM	
	(l)	(US Gal)	(kg)	(lb)	(m)	(in)
Engine 1	20	5.3	20	44	15.437	607.76
Engine 2	20	5.3	20	44	15.437	607.76

⁽¹⁾ Rounded-off values

⁽²⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

OIL TANKS OF THE ENGINE-DRIVEN GENERATORS

Location	Quantity ⁽¹⁾		Weight ^{(1)/(2)}		H-ARM	
	(l)	(US Gal)	(kg)	(lb)	(m)	(in)
Engine 1	5	1.3	5	11	14.910	587.01
Engine 2	5	1.3	5	11	14.910	587.01

⁽¹⁾ Rounded-off values

⁽²⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

WEIGHT AND BALANCE CONTROL

Fluids

OIL TANK OF THE AUXILIARY POWER UNIT

Quantity ⁽¹⁾		Weight ⁽¹⁾⁽²⁾		H-ARM	
(l)	(US gal)	(kg)	(lb)	(m)	(in)
5	1.3	5	11	37.675	1 483.27

⁽¹⁾ Rounded-off values

⁽²⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

HYDRAULIC FLUIDS

Ident.: CTL-FLD-00018754.0007001 / 30 JAN 18

Criteria: CFMI, ST1

Applicable to: ALL

ENGINES

Location	Quantity ⁽¹⁾		Weight ⁽¹⁾⁽²⁾		H-ARM	
	(l)	(US Gal)	(kg)	(lb)	(m)	(in)
Engine 1	5	1.3	5	11	14.932	587.87
Engine 2	5	1.3	5	11	14.932	587.87

⁽¹⁾ Rounded-off values

⁽²⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

TANKS AND SYSTEMS

Location	Quantity ⁽¹⁾		Weight ⁽¹⁾⁽²⁾		H-ARM	
	(l)	(US Gal)	(kg)	(lb)	(m)	(in)
Green tank	14	3.7	14	31	18.982	747.32
Yellow tank	12	3.2	12	27	18.332	721.73
Blue tank	6	1.6	6	13	22.682	892.99
Systems	152	40.2	152	336	20.168	794.02

⁽¹⁾ Rounded-off values

⁽²⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

WEIGHT AND BALANCE CONTROL

Fluids

POTABLE WATER TANK

Ident.: CTL-FLD-00018755.0010001 / 02 JUN 20

Criteria: 21003, ST1

Applicable to: ALL

Tank Name	Capacity		Weight ⁽¹⁾		H-ARM	
	(l)	(US Gal)	(kg)	(lb)	(m)	(in)
Potable water tank	200	52.8	200	441	15.546	612.05

⁽¹⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

WASTE TANK

Ident.: CTL-FLD-00018756.0006001 / 27 JUL 23

Criteria: 20109, ST1

Applicable to: ALL

The waste water from the washstands in the lavatories and the galleys is discharged outside the aircraft.

The remaining waste water is transferred to the waste tank.

Tank Name	Capacity		Weight ⁽¹⁾		H-ARM	
	(l)	(US Gal)	(kg)	(lb)	(m)	(in)
Waste tank	200	52.8	200	441	32.050	1 261.81

⁽¹⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

The waste tank may be prefilled with the following quantities of chemical fluids. The prefill with the chemical fluids is not mandatory.

Tank Name	Capacity		Weight ⁽¹⁾		H-ARM	
	(l)	(US Gal)	(kg)	(lb)	(m)	(in)
Waste tank	10	2.6	10	22	32.050	1 261.81

⁽¹⁾ In all weight calculations, the density is considered to be 1.0 kg/l (8.35 lb/US Gal).

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INTRODUCTION

Ident.: CTL-PERS-00017200.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

This chapter provides a description of the cockpit and cabin layouts.

The cabin layout described in the following part is either of the following:

- The cabin layout at the time of the aircraft delivery, or
- The last cabin layout embodied via an Airbus Service Bulletin (SB).

Note: *The data associated with the cabin layout may not be available in either of the following cases:*

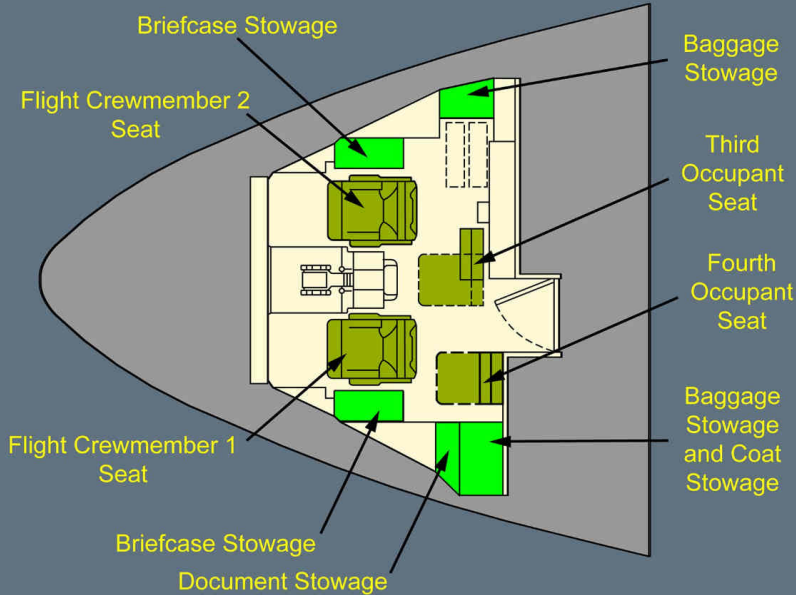
- *The aircraft is not yet delivered and the data is not ready at the time of production of this Weight and Balance Manual (WBM), or*
- *Airbus is not responsible for the cabin layout.*

COCKPIT LAYOUT

Ident.: CTL-PERS-00017201.0008001 / 02 JUN 20

Criteria: 20047, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 04392, 05152, 05162, 05253, 05746, 07784, 07792



Caption:

Stowage Unit

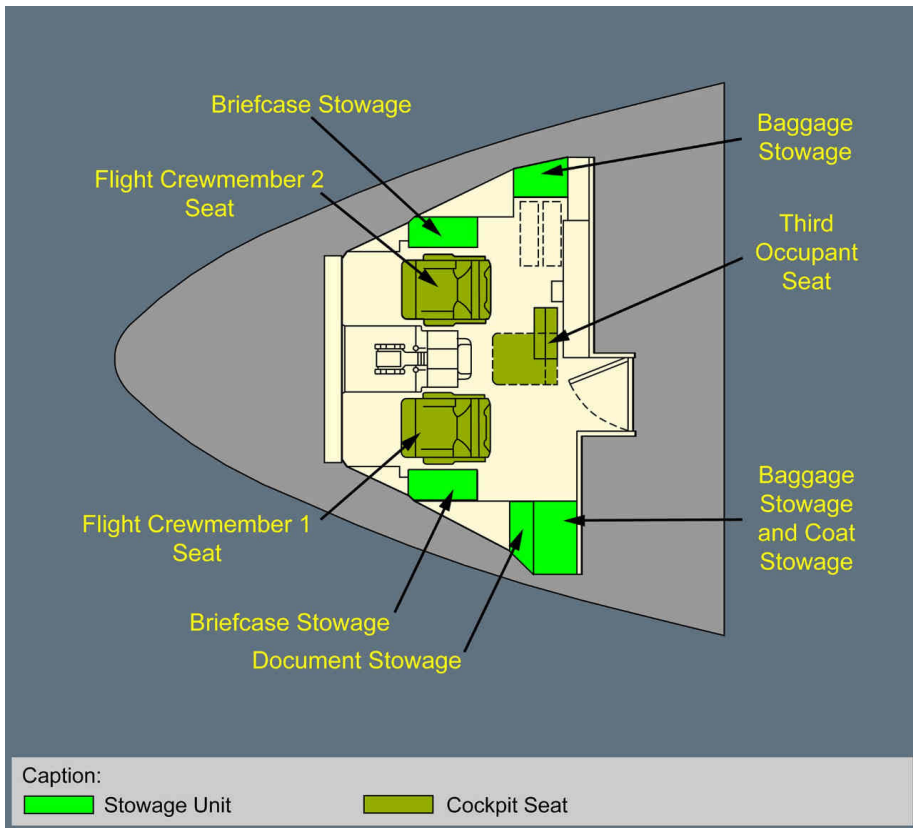
Cockpit Seat

COCKPIT LAYOUT

Ident.: CTL-PERS-00017201.0002001 / 02 JUN 20

Criteria: ST1

Applicable to: MSN 02926, 02944



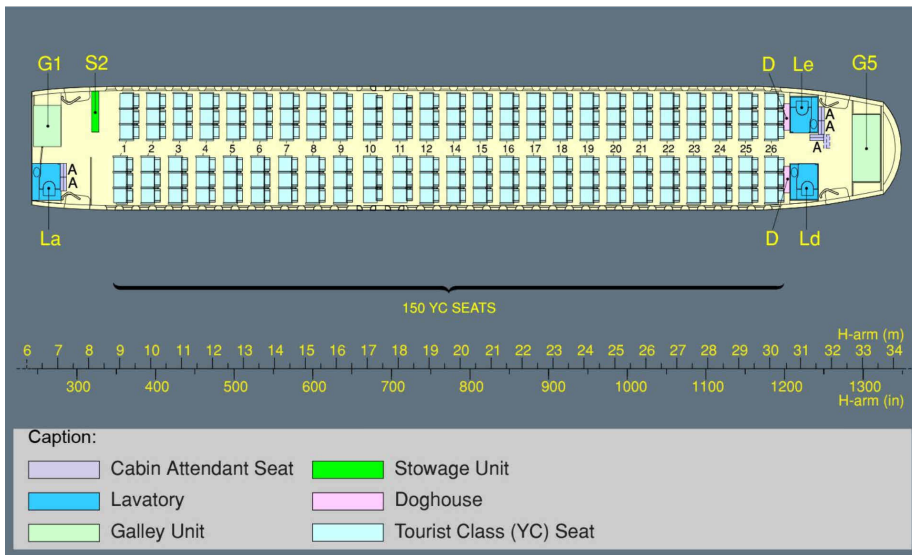
CABIN LAYOUT

Ident.: CTL-PERS-00019959.0799001 / 01 FEB 18

Criteria: 160386, ST1

Applicable to: MSN 07784, 07792

Main Deck Cabin



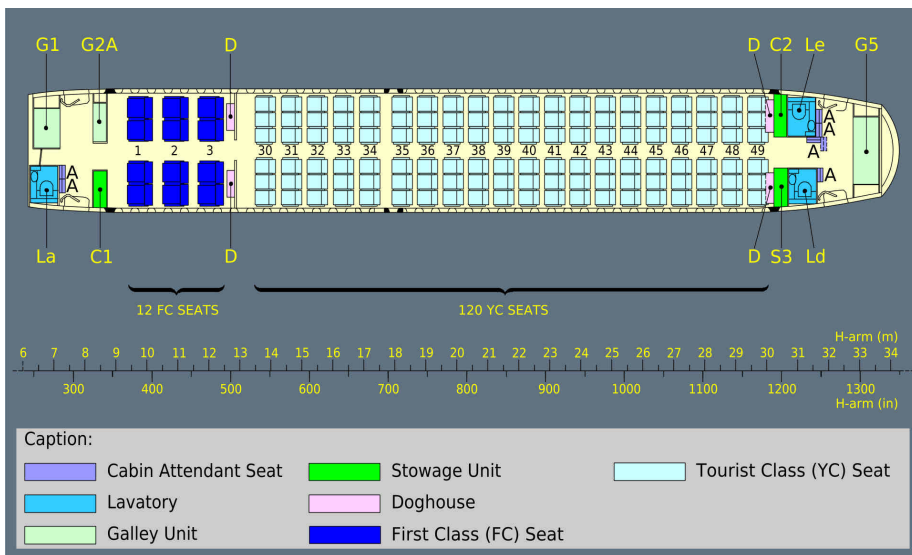
CABIN LAYOUT

Ident.: CTL-PERS-00019959.0471001 / 30 JAN 18

Criteria: 150016, 150375, 39728, ST1

Applicable to: MSN 04392

Main Deck Cabin



WEIGHT AND BALANCE CONTROL

Personnel

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

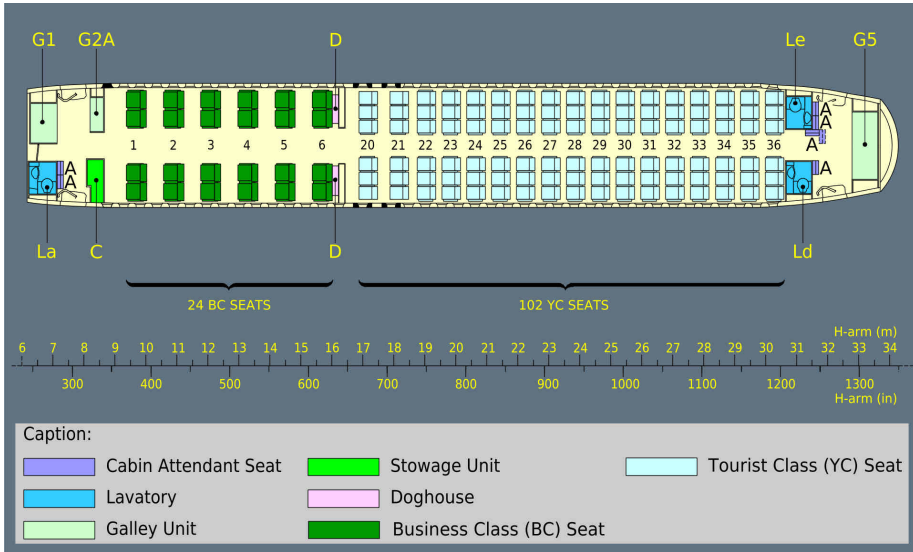
CABIN LAYOUT

Ident.: CTL-PERS-00019959.0165001 / 30 JAN 18

Criteria: 39106, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

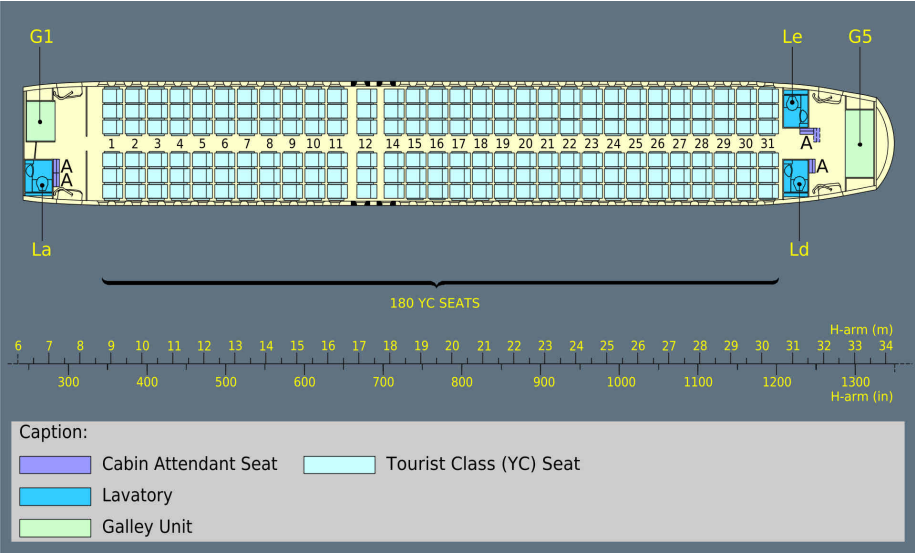
Main Deck Cabin



CABIN LAYOUT

Ident.: CTL-PERS-00019959.0137001 / 30 JAN 18
Criteria: 35662, ST1
Applicable to: MSN 02926, 02944

Main Deck Cabin



CABIN LAYOUT

Ident.: CTL-PERS-00019959.0002001 / 30 JAN 18
Criteria: 32428, 35911, WBM004, ST1
Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060

MAIN DECK CABIN

The content of the cabin is not available.

FLIGHT AND CABIN CREWMEMBERS

Ident.: CTL-PERS-00020628.0963001 / 25 AUG 20
Criteria: 160386, 20047, ST1
Applicable to: MSN 07784, 07792

FLIGHT CREWMEMBERS

The following table provides the H-ARM of the crewmembers.

WEIGHT AND BALANCE CONTROL

Personnel

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

All the cockpit seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Quantity	Location		Flight Crewmember H-ARM	
			(m)	(in)
1	Flight crewmember 1	LH	5.085	200.20
1	Flight crewmember 2	RH	5.085	200.20
1	Third occupant	CTR	5.722	225.28
1	Fourth occupant	LH	5.867	230.98

CABIN CREWMEMBERS

The following table provides the H-ARM of the crewmembers, when seated.

The following seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Cabin Class	Quantity	Location		Cabin Crewmember H-ARM	
				(m)	(in)
YC	2	Aft of La	LH	7.330	288.58
	1	Side wall of Le	CTR	31.678	1 247.16
	2	Aft of Le	RH	31.854	1 254.09

FLIGHT AND CABIN CREWMEMBERS

Ident.: CTL-PERS-00020628.0205001 / 25 AUG 20

Criteria: 20047, 39106, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

FLIGHT CREWMEMBERS

The following table provides the H-ARM of the crewmembers.

All the cockpit seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Quantity	Location		Flight Crewmember H-ARM	
			(m)	(in)
1	Flight crewmember 1	LH	5.085	200.20
1	Flight crewmember 2	RH	5.085	200.20
1	Third occupant	CTR	5.722	225.28
1	Fourth occupant	LH	5.867	230.98

CABIN CREWMEMBERS

The following table provides the H-ARM of the crewmembers, when seated.

The following seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

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Cabin Class	Quantity	Location		Cabin Crewmember H-ARM	
				(m)	(in)
BC	2	Rear wall of lavatory La	LH	7.327	288.46
YC	1	Side wall of lavatory Le	CTR	31.678	1 247.17
	2	Rear wall of lavatory Le	RH	31.852	1 254.02
	1	Rear wall of lavatory Ld	LH	31.935	1 257.28

FLIGHT AND CABIN CREWMEMBERS

Ident.: CTL-PERS-00020628.0202001 / 25 AUG 20
Criteria: 150375, 20047, 39728, ST1
Applicable to: MSN 04392

FLIGHT CREWMEMBERS

The following table provides the H-ARM of the crewmembers.
All the cockpit seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Quantity	Location		Flight Crewmember H-ARM	
			(m)	(in)
1	Flight crewmember 1	LH	5.085	200.20
1	Flight crewmember 2	RH	5.085	200.20
1	Third occupant	CTR	5.722	225.28
1	Fourth occupant	LH	5.867	230.98

CABIN CREWMEMBERS

The following table provides the H-ARM of the crewmembers, when seated.
The following seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Cabin Class	Quantity	Location		Cabin Crewmember H-ARM	
				(m)	(in)
FC	2	Rear wall of lavatory La	LH	7.327	288.46
YC	1	Side wall of lavatory Le	CTR	31.678	1 247.17
	2	Rear wall of lavatory Le	RH	31.852	1 254.02
	1	Rear wall of lavatory Ld	LH	31.926	1 256.93

FLIGHT AND CABIN CREWMEMBERS

Ident.: CTL-PERS-00020628.0162001 / 25 AUG 20
Criteria: 20047, 35911, ST1
Applicable to: MSN 02719, 02758, 02789, 03031, 03060

FLIGHT CREWMEMBERS

The following table provides the H-ARM of the crewmembers.
All the cockpit seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

WEIGHT AND BALANCE CONTROL

Personnel

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

Quantity	Location		Flight Crewmember H-ARM	
			(m)	(in)
1	Flight crewmember 1	LH	5.085	200.20
1	Flight crewmember 2	RH	5.085	200.20
1	Third occupant	CTR	5.722	225.28
1	Fourth occupant	LH	5.867	230.98

CABIN CREWMEMBERS

The following table provides the H-ARM of the crewmembers, when seated.

The following seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Cabin Class	Quantity	Location		Cabin Crewmember H-ARM	
				(m)	(in)
BC	2	Rear wall of lavatory La	LH	7.327	288.46
YC	1	Side wall of lavatory Le	CTR	31.678	1 247.17
	1	Rear wall of lavatory Le	RH	31.838	1 253.46
	1	Rear wall of lavatory Ld	LH	31.935	1 257.28

FLIGHT AND CABIN CREWMEMBERS

Ident.: CTL-PERS-00020628.0142001 / 25 AUG 20

Criteria: 20047, 32428, ST1

Applicable to: MSN 02155, 02212

FLIGHT CREWMEMBERS

The following table provides the H-ARM of the crewmembers.

All the cockpit seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Quantity	Location		Flight Crewmember H-ARM	
			(m)	(in)
1	Flight crewmember 1	LH	5.085	200.20
1	Flight crewmember 2	RH	5.085	200.20
1	Third occupant	CTR	5.722	225.28
1	Fourth occupant	LH	5.867	230.98

CABIN CREWMEMBERS

The following table provides the H-ARM of the crewmembers, when seated.

The following seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

WEIGHT AND BALANCE CONTROL

Personnel

Cabin Class	Quantity	Location		Cabin Crewmember H-ARM	
				(m)	(in)
BC	2	Rear wall of lavatory La	LH	7.378	290.47
YC	1	Side wall of lavatory Le	CTR	31.678	1 247.17
	2	Rear wall of lavatory Le	RH	31.857	1 254.21
	1	Rear wall of lavatory Ld	LH	31.936	1 257.32

FLIGHT AND CABIN CREWMEMBERS

Ident.: CTL-PERS-00020628.0014001 / 30 JAN 18

Criteria: 35662, ST1

Applicable to: MSN 02926, 02944

FLIGHT CREWMEMBERS

The following table provides the H-ARM of the crewmembers.

All the cockpit seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Quantity	Location		Flight Crewmember H-ARM	
			(m)	(in)
1	Flight crewmember 1	LH	5.085	200.20
1	Flight crewmember 2	RH	5.085	200.20
1	Third occupant	CTR	5.722	225.28

CABIN CREWMEMBERS

The following table provides the H-ARM of the crewmembers, when seated.

The following seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Cabin Class	Quantity	Location		Cabin Crewmember H-ARM	
				(m)	(in)
YC	2	Rear wall of lavatory La	LH	7.327	288.46
	1	Side wall of lavatory Le	CTR	31.678	1 247.17
	1	Rear wall of lavatory Ld	LH	31.935	1 257.28

PASSENGERS

Ident.: CTL-PERS-00017204.0759001 / 01 FEB 18

Criteria: 160386, ST1

Applicable to: MSN 07784, 07792

MAIN DECK CABIN

The H-ARM provides the position of each passenger, when seated upright.

The seat numbering corresponds to the numbering on the cabin placards.

All the seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

WEIGHT AND BALANCE CONTROL

Personnel

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

Cabin Class	Seat Numbering	PAX H-ARM				Number of PAX	
		(m)		(in)		LH	RH
		LH	RH	LH	RH		
YC	1	9.084	9.288	357.64	365.67	3	3
	2	9.978	10.156	392.83	399.84	3	3
	3	10.867	11.020	427.83	433.86	3	3
	4	11.756	11.883	462.83	467.83	3	3
	5	12.645	12.747	497.83	501.85	3	3
	6	13.534	13.611	532.83	535.87	3	3
	7	14.423	14.474	567.83	569.84	3	3
	8	15.312	15.338	602.83	603.86	3	3
	9	16.201	16.201	637.83	637.83	3	3
	10	17.173	17.173	676.10	676.10	3	3
	11	18.127	18.127	713.66	713.66	3	3
	12	18.995	18.995	747.83	747.83	3	3
	14	19.859	19.859	781.85	781.85	3	3
	15	20.723	20.723	815.87	815.87	3	3
	16	21.586	21.586	849.84	849.84	3	3
	17	22.450	22.450	883.86	883.86	3	3
	18	23.313	23.313	917.83	917.83	3	3
	19	24.177	24.177	951.85	951.85	3	3
	20	25.041	25.041	985.87	985.87	3	3
	21	25.904	25.904	1 019.84	1 019.84	3	3
	22	26.768	26.768	1 053.86	1 053.86	3	3
	23	27.631	27.631	1 087.83	1 087.83	3	3
	24	28.470	28.470	1 120.87	1 120.87	3	3
	25	29.308	29.308	1 153.86	1 153.86	3	3
	26	30.146	30.146	1 186.85	1 186.85	3	3

PASSENGERS

Ident.: CTL-PERS-00017204.0438001 / 30 JAN 18

Criteria: 150375, 39728, ST1

Applicable to: MSN 04392

MAIN DECK CABIN

The H-ARM provides the position of each passenger, when seated upright.

The seat numbering corresponds to the numbering on the cabin placards.

All the seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

WEIGHT AND BALANCE CONTROL
Personnel

Cabin Class	Seat Numbering	PAX H-ARM				Number of PAX	
		(m)		(in)		LH	RH
		LH	RH	LH	RH		
FC	1	9.694	9.694	381.65	381.65	2	2
	2	10.837	10.837	426.65	426.65	2	2
	3	11.980	11.980	471.65	471.65	2	2
YC	30	13.739	13.739	540.91	540.91	3	3
	31	14.577	14.577	573.90	573.90	3	3
	32	15.415	15.415	606.89	606.89	3	3
	33	16.253	16.253	639.88	639.88	3	3
	34	17.092	17.092	672.91	672.91	3	3
	35	18.158	18.158	714.88	714.88	3	3
	36	18.997	18.997	747.91	747.91	3	3
	37	19.835	19.835	780.91	780.91	3	3
	38	20.673	20.673	813.90	813.90	3	3
	39	21.511	21.511	846.89	846.89	3	3
	40	22.349	22.349	879.88	879.88	3	3
	41	23.162	23.162	911.89	911.89	3	3
	42	23.975	23.975	943.90	943.90	3	3
	43	24.788	24.788	975.91	975.91	3	3
	44	25.601	25.601	1 007.91	1 007.91	3	3
	45	26.413	26.413	1 039.88	1 039.88	3	3
	46	27.226	27.226	1 071.89	1 071.89	3	3
	47	28.039	28.039	1 103.90	1 103.90	3	3
	48	28.852	28.852	1 135.91	1 135.91	3	3
	49	29.665	29.665	1 167.91	1 167.91	3	3

PASSENGERS

Ident.: CTL-PERS-00017204.0268001 / 02 JUN 20

Criteria: 32428, WBM003, ST1

Applicable to: MSN 02155, 02212

MAIN DECK CABIN

The H-ARM provides the position of each passenger, when seated upright.

The seat numbering corresponds to the numbering on the cabin placards.

Cabin Class	Seat Numbering	PAX H-ARM				Number of PAX	
		(m)		(in)		LH	RH
		LH	RH	LH	RH		
N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾

⁽¹⁾ N/A = Not available

PASSENGERS

Ident.: CTL-PERS-00017204.0261001 / 30 JAN 18

Criteria: 39106, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

MAIN DECK CABIN

The H-ARM provides the position of each passenger, when seated upright.

The seat numbering corresponds to the numbering on the cabin placards.

All the seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

Cabin Class	Seat Numbering	PAX H-ARM				Number of PAX	
		(m)		(in)		LH	RH
		LH	RH	LH	RH		
BC	1	9.588	9.588	377.48	377.48	2	2
	2	10.808	10.808	425.51	425.51	2	2
	3	12.027	12.027	473.50	473.50	2	2
	4	13.246	13.246	521.50	521.50	2	2
	5	14.465	14.465	569.49	569.49	2	2
	6	15.685	15.685	617.52	617.52	2	2
YC	20	17.183	17.183	676.50	676.50	3	3
	21	18.097	18.097	712.48	712.48	3	3
	22	18.906	18.906	744.33	744.33	3	3
	23	19.719	19.719	776.34	776.34	3	3
	24	20.532	20.532	808.35	808.35	3	3
	25	21.345	21.345	840.35	840.35	3	3
	26	22.157	22.157	872.32	872.32	3	3
	27	22.970	22.970	904.33	904.33	3	3
	28	23.783	23.783	936.34	936.34	3	3
	29	24.596	24.596	968.35	968.35	3	3
	30	25.409	25.409	1 000.35	1 000.35	3	3
	31	26.221	26.221	1 032.32	1 032.32	3	3
	32	27.034	27.034	1 064.33	1 064.33	3	3
	33	27.847	27.847	1 096.34	1 096.34	3	3
	34	28.660	28.660	1 128.35	1 128.35	3	3
	35	29.473	29.473	1 160.35	1 160.35	3	3
	36	30.285	30.285	1 192.32	1 192.32	3	3

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PASSENGERS

Ident.: CTL-PERS-00017204.0122001 / 30 JAN 18
Criteria: 35662, ST1
Applicable to: MSN 02926, 02944

MAIN DECK CABIN

The H-ARM provides the position of each passenger, when seated upright.
The seat numbering corresponds to the numbering on the cabin placards.
All the seats are available for use during flight, Taxi, Takeoff, and Landing (TTOL).

WEIGHT AND BALANCE CONTROL

Personnel

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

Cabin Class	Seat Numbering	PAX H-ARM				Number of PAX	
		(m)		(in)		LH	RH
		LH	RH	LH	RH		
YC	1	8.970	8.970	353.15	353.15	3	3
	2	9.707	9.707	382.17	382.17	3	3
	3	10.443	10.443	411.14	411.14	3	3
	4	11.180	11.180	440.16	440.16	3	3
	5	11.916	11.916	469.13	469.13	3	3
	6	12.653	12.653	498.15	498.15	3	3
	7	13.390	13.390	527.17	527.17	3	3
	8	14.126	14.126	556.14	556.14	3	3
	9	14.863	14.863	585.16	585.16	3	3
	10	15.599	15.599	614.13	614.13	3	3
	11	16.336	16.336	643.15	643.15	3	3
	12	17.182	17.182	676.46	676.46	3	3
	14	18.021	18.021	709.49	709.49	3	3
	15	18.749	18.749	738.15	738.15	3	3
	16	19.486	19.486	767.17	767.17	3	3
	17	20.222	20.222	796.14	796.14	3	3
	18	20.959	20.959	825.16	825.16	3	3
	19	21.695	21.695	854.13	854.13	3	3
	20	22.432	22.432	883.15	883.15	3	3
	21	23.169	23.169	912.17	912.17	3	3
	22	23.880	23.880	940.16	940.16	3	3
	23	24.591	24.591	968.15	968.15	3	3
	24	25.302	25.302	996.14	996.14	3	3
	25	26.013	26.013	1 024.13	1 024.13	3	3
	26	26.725	26.725	1 052.17	1 052.17	3	3
	27	27.436	27.436	1 080.16	1 080.16	3	3
	28	28.147	28.147	1 108.15	1 108.15	3	3
	29	28.858	28.858	1 136.14	1 136.14	3	3
	30	29.569	29.569	1 164.13	1 164.13	3	3
	31	30.281	30.281	1 192.17	1 192.17	3	3

PASSENGERS

Ident.: CTL-PERS-00017204.0002001 / 02 JUN 20

Criteria: 35911, WBM003, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

MAIN DECK CABIN

The H-ARM provides the position of each passenger, when seated upright.
 The seat numbering corresponds to the numbering on the cabin placards.

 PAKISTAN International Airlines Great People to Fly With A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Personnel
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Cabin Class	Seat Numbering	PAX H-ARM				Number of PAX	
		(m)		(in)		LH	RH
		LH	RH	LH	RH		
N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾

⁽¹⁾ N/A = Not available

WEIGHT AND BALANCE CONTROL

Personnel

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

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WEIGHT AND BALANCE CONTROL

Interior Arrangement

CREWMEMBER STOWAGE UNITS

Ident.: CTL-INTA-00017205.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

The following table provides the data of the crewmember stowage units that are in the cockpit.

Type	Location		H-ARM		Capacity ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
Briefcase	Flight crewmember 1	LH	5.000	196.85	12	26
	Flight crewmember 2	RH	5.000	196.85	12	26
Document	LH		5.700	224.41	12	26
Baggage	LH		5.950	234.25	24	53
	RH		5.800	228.35	24	53
Coat	LH		6.052	238.27	2	4

⁽¹⁾ Rounded-off values

OVERHEAD STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019732.0151001 / 01 FEB 18

Criteria: 39106, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

Location	H-ARM				Capacity ⁽¹⁾	
	From		To			
	(m)	(in)	(m)	(in)	(kg)	(lb)
LH	8.151	320.91	30.647	1 206.57	793	1 748
RH	8.603	338.70	30.647	1 206.57	774	1 706

⁽¹⁾ Rounded-off values

The Overhead Stowage Compartments (OHSC) are divided into several boxes.
 The capacity of each box is provided on the corresponding placard in the aircraft.

OVERHEAD STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019732.0088001 / 01 FEB 18

Criteria: 35911, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

Location	H-ARM				Capacity ⁽¹⁾	
	From		To			
	(m)	(in)	(m)	(in)	(kg)	(lb)
LH	8.151	320.91	30.647	1 206.57	811	1 788
RH	8.577	337.68	30.647	1 206.57	792	1 746

⁽¹⁾ Rounded-off values

WEIGHT AND BALANCE CONTROL

Interior Arrangement

The Overhead Stowage Compartments (OHSC) are divided into several boxes.
 The capacity of each box is provided on the corresponding placard in the aircraft.

OVERHEAD STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019732.0018001 / 01 FEB 18

Criteria: 39728, ST1

Applicable to: MSN 04392

Location	H-ARM				Capacity ⁽¹⁾	
	From		To			
	(m)	(in)	(m)	(in)	(kg)	(lb)
LH	8.151	320.91	30.647	1 206.57	811	1 788
RH	8.600	338.58	30.647	1 206.57	792	1 746

⁽¹⁾ *Rounded-off values*

The Overhead Stowage Compartments (OHSC) are divided into several boxes.
 The capacity of each box is provided on the corresponding placard in the aircraft.

OVERHEAD STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019732.0004001 / 01 FEB 18

Criteria: 160386, 32428, 35662, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 07784, 07792

Location	H-ARM				Capacity ⁽¹⁾	
	From		To			
	(m)	(in)	(m)	(in)	(kg)	(lb)
LH	8.151	320.91	30.647	1 206.57	811	1 788
RH	8.151	320.91	30.647	1 206.57	811	1 788

⁽¹⁾ *Rounded-off values*

The Overhead Stowage Compartments (OHSC) are divided into several boxes.
 The capacity of each box is provided on the corresponding placard in the aircraft.

GALLEY UNITS

Ident.: CTL-INTA-00019209.0570001 / 30 JAN 18

Criteria: 35662, ST1

Applicable to: MSN 02926, 02944

The gross weight of a galley unit is the total of:

- The weight of the galley unit structure
- The weight of the galley unit contents.

WEIGHT AND BALANCE CONTROL

Interior Arrangement

The maximum gross weight provided in the table below corresponds to the maximum load that the aircraft floor can sustain.

The real weight permitted in the galley unit may be limited by:

- The maximum gross weight of the galley unit
- The capacity of each galley unit compartment.

The maximum gross weight of the galley unit and the capacity of each compartment in the galley unit are provided on the corresponding placards.

The operator is responsible to ensure that the real weight in the galley unit does not exceed the real weight permitted.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
YC	G1	RH	6.683	263.11	700	1 543
	G5	CTR	33.129	1 304.29	1 300	2 866

⁽¹⁾ Rounded-off values

GALLEY UNITS

Ident.: CTL-INTA-00019209.0504001 / 30 JAN 18

Criteria: 160386, ST1

Applicable to: MSN 07784, 07792

The gross weight of a galley unit is the total of:

- The weight of the galley unit structure
- The weight of the galley unit contents.

The maximum gross weight provided in the table below corresponds to the maximum load that the aircraft floor can sustain.

The real weight permitted in the galley unit may be limited by:

- The maximum gross weight of the galley unit
- The capacity of each galley unit compartment.

The maximum gross weight of the galley unit and the capacity of each compartment in the galley unit are provided on the corresponding placards.

The operator is responsible to ensure that the real weight in the galley unit does not exceed the real weight permitted.

WEIGHT AND BALANCE CONTROL

Interior Arrangement

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
YC	G1	RH	6.690	263.39	700	1 543
	G5	CTR	33.116	1 303.78	1 300	2 866

⁽¹⁾ Rounded-off values

GALLEY UNITS

Ident.: CTL-INTA-00019209.0340001 / 30 JAN 18

Criteria: 150016, 150375, 39728, ST1

Applicable to: MSN 04392

The gross weight of a galley unit is the total of:

- The weight of the galley unit structure
- The weight of the galley unit contents.

The maximum gross weight provided in the table below corresponds to the maximum load that the aircraft floor can sustain.

The real weight permitted in the galley unit may be limited by:

- The maximum gross weight of the galley unit
- The capacity of each galley unit compartment.

The maximum gross weight of the galley unit and the capacity of each compartment in the galley unit are provided on the corresponding placards.

The operator is responsible to ensure that the real weight in the galley unit does not exceed the real weight permitted.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
FC	G1	RH	6.678	262.91	682	1 504
	G2A	RH	8.357	329.02	550	1 213
YC	G5	CTR	33.129	1 304.29	1 300	2 866

⁽¹⁾ Rounded-off values

GALLEY UNITS

Ident.: CTL-INTA-00019209.0195001 / 30 JAN 18

Criteria: 39106, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

The gross weight of a galley unit is the total of:

- The weight of the galley unit structure
- The weight of the galley unit contents.

WEIGHT AND BALANCE CONTROL

Interior Arrangement

The maximum gross weight provided in the table below corresponds to the maximum load that the aircraft floor can sustain.

The real weight permitted in the galley unit may be limited by:

- The maximum gross weight of the galley unit
- The capacity of each galley unit compartment.

The maximum gross weight of the galley unit and the capacity of each compartment in the galley unit are provided on the corresponding placards.

The operator is responsible to ensure that the real weight in the galley unit does not exceed the real weight permitted.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
BC	G1	RH	6.678	262.91	690	1 521
	G2A	RH	8.357	329.02	486	1 071
YC	G5	CTR	33.129	1 304.29	1 292	2 848

⁽¹⁾ *Rounded-off values*

GALLEY UNITS

Ident.: CTL-INTA-00019209.0012001 / 30 JAN 18

Criteria: 32428, ST1

Applicable to: MSN 02155, 02212

The gross weight of a galley unit is the total of:

- The weight of the galley unit structure
- The weight of the galley unit contents.

The maximum gross weight provided in the table below corresponds to the maximum load that the aircraft floor can sustain.

The real weight permitted in the galley unit may be limited by:

- The maximum gross weight of the galley unit
- The capacity of each galley unit compartment.

The maximum gross weight of the galley unit and the capacity of each compartment in the galley unit are provided on the corresponding placards.

The operator is responsible to ensure that the real weight in the galley unit does not exceed the real weight permitted.

WEIGHT AND BALANCE CONTROL

Interior Arrangement

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
BC	G1	RH	6.670	262.60	700	1 543
YC	G5	CTR	33.124	1 304.09	1 300	2 866

⁽¹⁾ Rounded-off values

GALLEY UNITS

Ident.: CTL-INTA-00019209.0001001 / 30 JAN 18

Criteria: 35911, WBM001, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The gross weight of a galley unit is the total of:

- The weight of the galley unit structure
- The weight of the galley unit contents.

The maximum gross weight provided in the table below corresponds to the maximum load that the aircraft floor can sustain.

The real weight permitted in the galley unit may be limited by:

- The maximum gross weight of the galley unit
- The capacity of each galley unit compartment.

The maximum gross weight of the galley unit and the capacity of each compartment in the galley unit are provided on the corresponding placards.

The operator is responsible to ensure that the real weight in the galley unit does not exceed the real weight permitted.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight	
			(m)	(in)	(kg)	(lb)
N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾

⁽¹⁾ N/A = Not available

LAVATORIES

Ident.: CTL-INTA-00019203.0092001 / 30 JAN 18

Criteria: 150016, 150375, 39728, ST1

Applicable to: MSN 04392

Cabin Class	Name	Location	H-ARM	
			(m)	(in)
FC	La	LH	6.611	260.28
YC	Ld	LH	31.122	1 225.28
	Le	RH	31.122	1 225.28

WEIGHT AND BALANCE CONTROL

Interior Arrangement

LAVATORIES

Ident.: CTL-INTA-00019203.0042001 / 30 JAN 18

Criteria: 160386, ST1

Applicable to: MSN 07784, 07792

Cabin Class	Name	Location	H-ARM	
			(m)	(in)
YC	La	LH	6.611	260.28
	Ld	LH	31.122	1 225.28
	Le	RH	31.122	1 225.28

LAVATORIES

Ident.: CTL-INTA-00019203.0021001 / 27 JUL 23

Criteria: 32428, 35911, 39106, ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

Cabin Class	Name	Location	H-ARM	
			(m)	(in)
BC	La	LH	6.611	260.28
YC	Ld	LH	31.122	1 225.28
	Le	RH	31.122	1 225.28

LAVATORIES

Ident.: CTL-INTA-00019203.0004001 / 30 JAN 18

Criteria: 35662, ST1

Applicable to: MSN 02926, 02944

Cabin Class	Name	Location	H-ARM	
			(m)	(in)
YC	La	LH	6.611	260.28
	Ld	LH	31.122	1 225.28
	Le	RH	31.122	1 225.28

ADDITIONAL CABIN STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019183.0638001 / 30 JAN 18

Criteria: 160386, ST1

Applicable to: MSN 07784, 07792

STOWAGE UNITS

The gross weight of a stowage unit is the total of:

- The weight of the stowage unit structure
- The weight of the stowage unit contents.

WEIGHT AND BALANCE CONTROL
Interior Arrangement

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
YC	S2	RH	8.280	325.98	83	182

⁽¹⁾ Rounded-off values

DOGHOUSES AND BUSTLES

The capacity of a doghouse is the maximum weight of the doghouse contents.

Cabin Class	Name	Location	H-ARM		Capacity ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
YC	FWD of lavatory Ld	LH	30.556	1 202.99	12	26
	FWD of lavatory Le	RH	30.556	1 202.99	12	26

⁽¹⁾ Rounded-off values

There is no bustles.

ADDITIONAL CABIN STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019183.0144001 / 30 JAN 18

Criteria: 39728, ST1

Applicable to: MSN 04392

STOWAGE UNITS

The gross weight of a stowage unit is the total of:

- The weight of the stowage unit structure
- The weight of the stowage unit contents.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
FC	C1	LH	8.357	329.02	83	182
YC	S3	LH	30.419	1 197.60	156	343
	C2	RH	30.419	1 197.60	91	200

⁽¹⁾ Rounded-off values

DOGHOUSES AND BUSTLES

The capacity of a doghouse is the maximum weight of the doghouse contents.

Cabin Class	Name	Location	H-ARM		Capacity ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
FC	Aft of FC	LH	15.940	627.56	15	33
	Aft of FC	RH	15.940	627.56	15	33

Continued on the following page

WEIGHT AND BALANCE CONTROL

Interior Arrangement

Continued from the previous page

Cabin Class	Name	Location	H-ARM		Capacity ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
YC	FWD S3	LH	30.053	1 183.19	15	33
	FWD of C2	RH	30.053	1 183.19	15	33

⁽¹⁾ *Rounded-off values*

There is no bustles.

ADDITIONAL CABIN STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019183.0131001 / 30 JAN 18

Criteria: 39106, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

STOWAGE UNITS

The gross weight of a stowage unit is the total of:

- The weight of the stowage unit structure
- The weight of the stowage unit contents.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
BC	C	LH	8.306	327.01	126	277

⁽¹⁾ *Rounded-off values*

DOGHOUSES AND BUSTLES

The capacity of a doghouse is the maximum weight of the doghouse contents.

Cabin Class	Name	Location	H-ARM		Capacity ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
BC	Aft of BC	LH	16.123	634.76	10	22
	Aft of BC	RH	16.123	634.76	10	22

⁽¹⁾ *Rounded-off values*

There is no bustles.

WEIGHT AND BALANCE CONTROL

Interior Arrangement

ADDITIONAL CABIN STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019183.0003001 / 30 JAN 18

Criteria: 32428, ST1

Applicable to: MSN 02155, 02212

STOWAGE UNITS

The gross weight of a stowage unit is the total of:

- The weight of the stowage unit structure
- The weight of the stowage unit contents.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
BC	C1	LH	8.255	325.00	43	94
	C2	RH	8.255	325.00	43	94

⁽¹⁾ Rounded-off values

DOGHOUSES AND BUSTLES

The capacity of a doghouse is the maximum weight of the doghouse contents.

Cabin Class	Name	Location	H-ARM		Capacity ⁽¹⁾	
			(m)	(in)	(kg)	(lb)
BC	Aft of BC	LH	10.609	417.68	15	33
	Aft of BC	RH	10.609	417.68	15	33

⁽¹⁾ Rounded-off values

There is no bustles.

ADDITIONAL CABIN STOWAGE COMPARTMENTS

Ident.: CTL-INTA-00019183.0002001 / 30 JAN 18

Criteria: 35911, WBM001, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

STOWAGE UNITS

The gross weight of a stowage unit is the total of:

- The weight of the stowage unit structure
- The weight of the stowage unit contents.

Cabin Class	Name	Location	H-ARM		MAX Gross Weight	
			(m)	(in)	(kg)	(lb)
N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾

⁽¹⁾ N/A = Not available

WEIGHT AND BALANCE CONTROL

Interior Arrangement

DOGHOUSES AND BUSTLES

The capacity of a doghouse is the maximum weight of the doghouse contents.

Cabin Class	Name	Location	H-ARM		Capacity	
			(m)	(in)	(kg)	(lb)
N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾

⁽¹⁾ N/A = Not available

The capacity of a bustle is the maximum weight of the bustle contents.

Cabin Class	Name	Location	H-ARM		Capacity	
			(m)	(in)	(kg)	(lb)
N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾	N/A ⁽¹⁾

⁽¹⁾ N/A = Not available

WEIGHT AND BALANCE CONTROL

Interior Arrangement

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INTRODUCTION

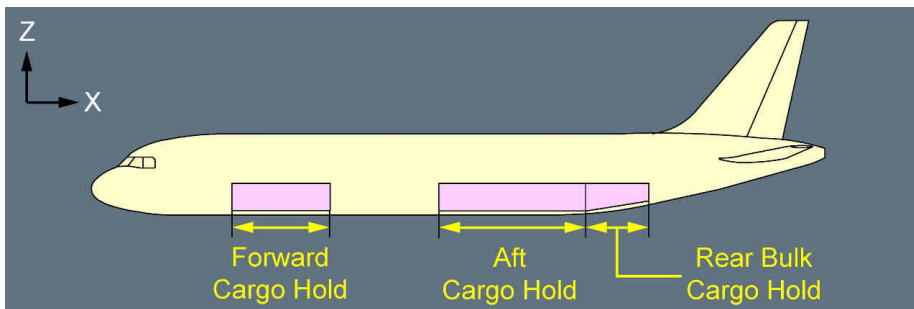
Ident.: CTL-CGO-INT-00019551.0008001 / 30 JAN 18

Criteria: 20071, 21103, ST1

Applicable to: ALL

The operator can load cargo in the lower deck cargo holds. The lower deck includes the forward, aft, and rear bulk cargo holds.

A divider net and a tarpaulin separate the aft and rear bulk cargo holds.



	H-ARMS			
	From		To	
	(m)	(in)	(m)	(in)
Forward cargo hold (Compartment 1)	9.858	388.11	14.708	579.06
Aft cargo hold (Compartments 3 and 4)	21.208	834.96	27.762	1 092.99
Rear bulk cargo hold (Compartment 5)	27.762	1 092.99	31.003	1 220.59

The fire protection system of the three cargo holds complies with Category C Standards defined by FAR, Part 25.857.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Introduction

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Transport of Bulk Loads
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-FWD-BULK-CHD-00019412.0006001 / 27 JUL 23

Criteria: 23172, 26213, ST1

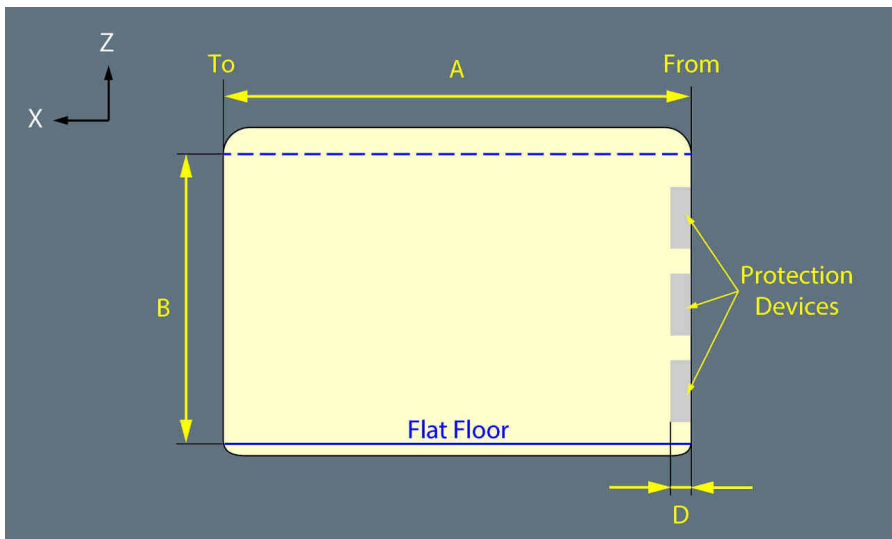
Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The forward cargo hold is equipped with a door on the right side of the fuselage.

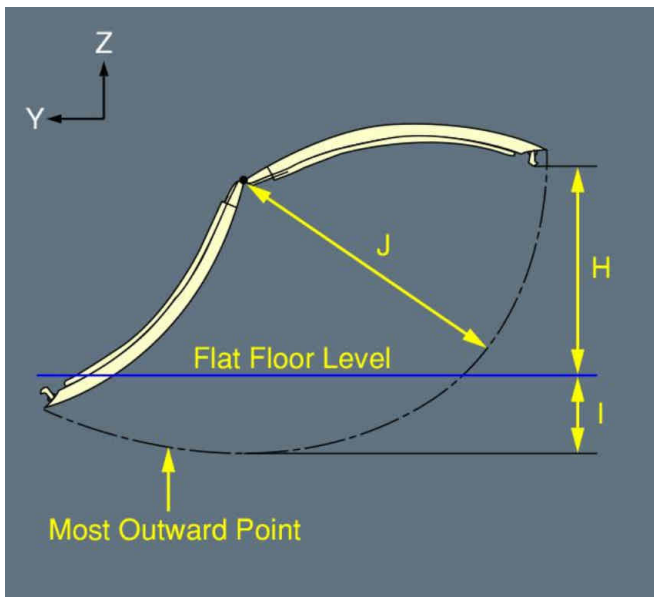
The door opens outward.

The operator must use the forward door to load and unload the forward cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
9.791	385.47	11.608	457.01

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.233	48.54
D	Protection device thickness	0.067	2.64

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the flat floor level and the hooks (when the door is in fully opened position)	1.420	55.90
I	Clearance below the flat floor level when the door is operated	0.652	25.67
J	Door opening radius	2.024	79.68

Transport of Bulk Loads

Cross Section

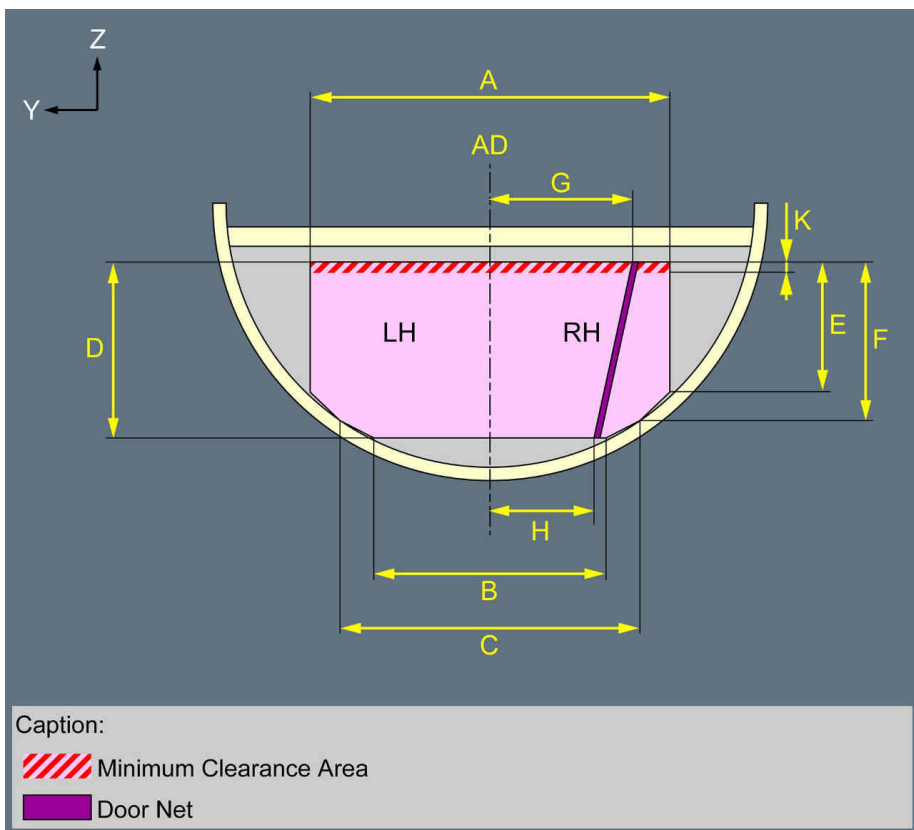
CROSS SECTION

Ident.: CTL-CGO-FWD-BULK-XSC-00019413.0006001 / 31 JAN 18

Criteria: 23172, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The tables below provide the cross sections of the cargo hold.



WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)								
	A	B	C	D	E	F	G	H	K
9.858	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	0.051
11.633	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	0.051
14.708	2.630	1.430	2.098	1.242	0.797	1.065	-	-	0.051

US UNITS

H-ARM (in)	Dimensions (in)								
	A	B	C	D	E	F	G	H	K
388.11	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	2.00
457.99	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	2.00
579.06	103.54	56.30	82.60	48.90	31.38	41.93	-	-	2.00

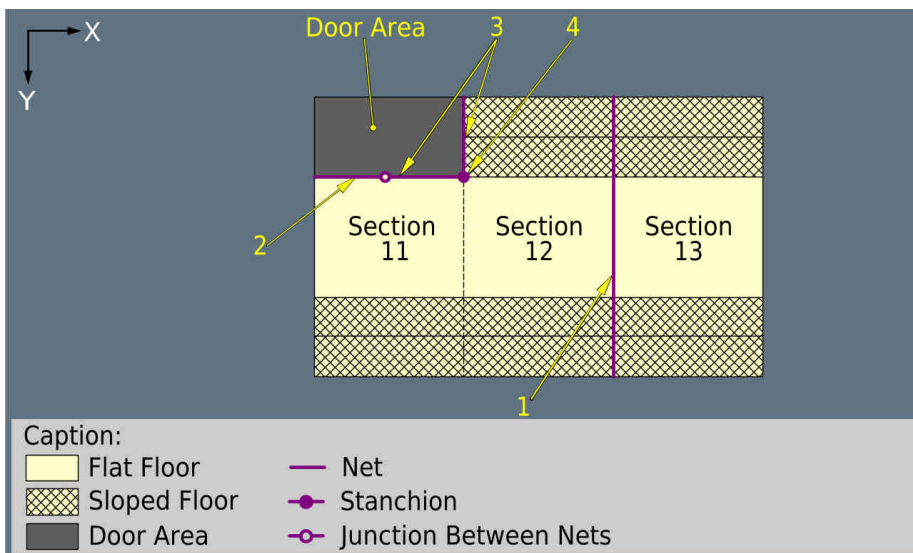
Transport of Bulk Loads
Cargo Hold Arrangement
SECTION ARRANGEMENT

Ident.: CTL-CGO-FWD-BULK-CHA-00019411.0001001 / 01 FEB 18

Criteria: ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The forward cargo hold is divided into sections and net sections as indicated in the illustration below.



Legend	Related Net Type	Installation Requirement
1	Divider net type A2	Mandatory
2	Door net type C	Mandatory
3	Door net type A	Mandatory
4	Stanchion	Mandatory

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m³)	(ft³)
11	9.858	388.03	11.633	457.99	10.746	422.99	4.140	144.44
12	11.633	457.99	13.233	520.98	12.433	489.49	4.770	168.45
13	13.233	520.98	14.708	579.13	13.971	550.04	4.390	156.09

The maximum usable volume of the cargo hold is based on:

- The maximum theoretical volume
- The volume reduction due to the door area
- The volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling
- The volume reduction due to the protection devices for the decompression devices on the cargo hold wall.

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-FWD-BULK-CHA-00021283.0001001 / 02 JUN 20

Criteria: ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

This part provides the location of all the tie-down points installed in the forward cargo hold.

The forward cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

To attach the nets, the operator uses the tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points

(See Location Table of the Tie-down Points) that are not already used to attach the nets.

For additional information about the requirements for the loading of bulk items *Refer to CTL-LIM-FWD-BULK-CHL Restraint Conditions* and *Refer to CTL-LIM-FWD-BULK-CHL Fastening Load Requirements*.

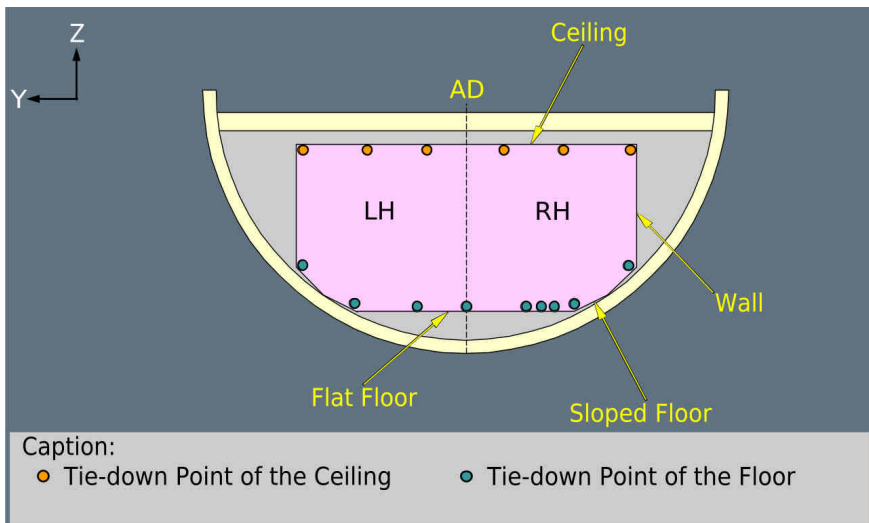
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

This part contains:

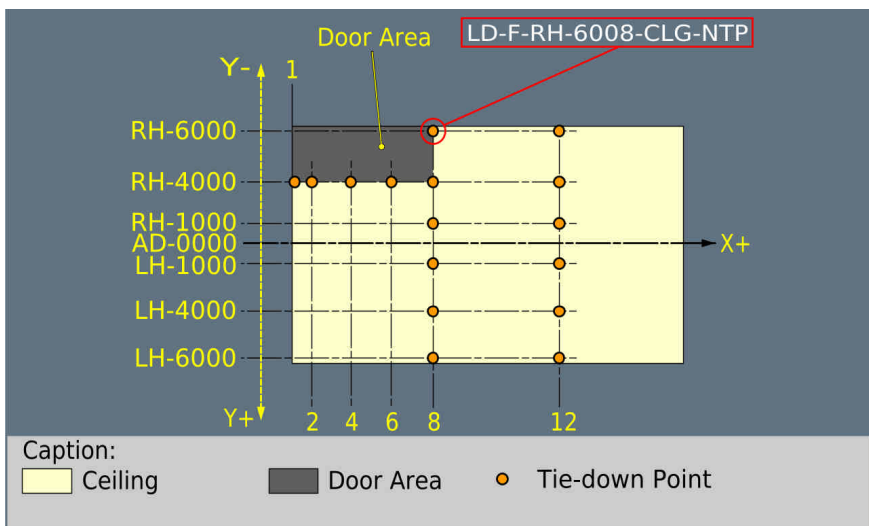
- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the ceiling of the cargo hold with all the installed tie-down points
- An illustration of the sloped and flat floors of the cargo hold with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

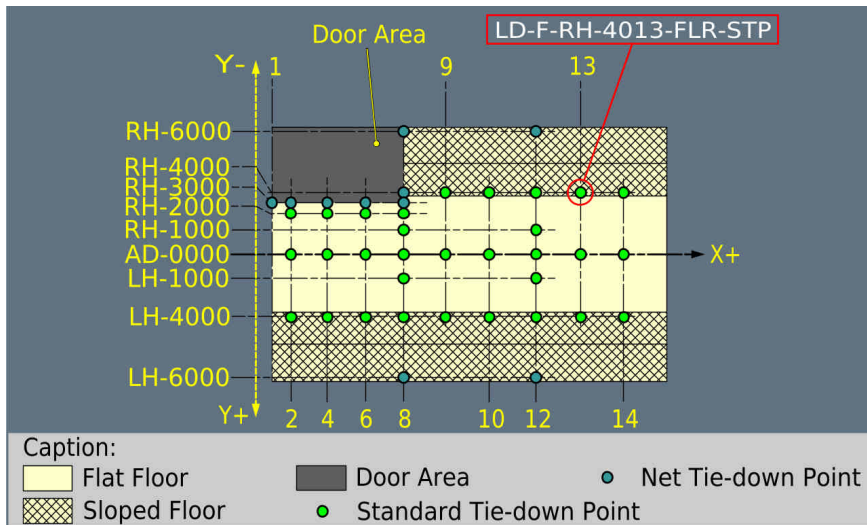
TIE-DOWN POINTS OF THE FORWARD CARGO HOLD

POSSIBLE LOCATION OF THE TIE-DOWN POINTS



TIE-DOWN POINTS OF THE CEILING



TIE-DOWN POINTS OF THE FLAT AND SLOPED FLOORS

DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-F-RH-4013-FLR-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the forward cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 013th position from 1 on the X axis
- On the floor of the cargo hold
- A standard tie-down point.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-RH-4001-CLG-NTP	Net restraint	9.761	384.29	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3001-FLR-NTP	Net restraint	9.761	384.29	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-4002-CLG-NTP	Net restraint	10.009	394.07	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3002-FLR-NTP	Net restraint	10.046	395.50	-0.577	-22.72	Door net type C	Door area, 11
LD-F-RH-2002-FLR-STP	Bulk restraint	10.046	395.50	-0.526	-20.72	-	11
LD-F-AD-0002-FLR-STP	Bulk restraint	10.019	394.44	0.000	0.00	-	11
LD-F-LH-4002-FLR-STP	Bulk restraint	10.037	395.16	0.776	30.56	-	11
LD-F-RH-4004-CLG-NTP	Net restraint	10.542	415.06	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3004-FLR-NTP	Net restraint	10.579	416.49	-0.577	-22.72	Door net type C	Door area, 11
LD-F-RH-2004-FLR-STP	Bulk restraint	10.579	416.49	-0.526	-20.72	-	11
LD-F-AD-0004-FLR-STP	Bulk restraint	10.552	415.42	0.000	0.00	-	11
LD-F-LH-4004-FLR-STP	Bulk restraint	10.570	416.15	0.776	30.56	-	11
LD-F-RH-4006-CLG-NTP	Net restraint	11.076	436.08	-0.765	-30.12	Door net type A	Door area, 11
LD-F-RH-3006-FLR-NTP	Net restraint	11.113	437.51	-0.577	-22.72	Door net type A	Door area, 11
LD-F-RH-2006-FLR-STP	Bulk restraint	11.113	437.51	-0.526	-20.72	-	11
LD-F-AD-0006-FLR-STP	Bulk restraint	11.086	436.44	0.000	0.00	-	11
LD-F-LH-4006-FLR-STP	Bulk restraint	11.104	437.17	0.776	30.56	-	11
LD-F-RH-6008-CLG-NTP	Net restraint	11.609	457.06	-1.292	-50.87	Door net type A	Door area, 12
LD-F-RH-6008-FLR-NTP	Net restraint	11.663	459.17	-1.284	-50.55	Door net type A	Door area, 12

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-RH-4008-CLG-NTP	Net restraint	11.609	457.06	-0.765	-30.12	Stanchion, Door net type A	Door area, 12
LD-F-RH-4008-FLR-NTP	Net restraint	11.663	459.17	-0.776	-30.56	Door net type A	Door area, 12
LD-F-RH-3008-FLR-NTP	Net restraint	11.648	458.58	-0.577	-22.72	Stanchion, Door net type A	Door area, 11, 12
LD-F-RH-2008-FLR-STP	Bulk restraint	11.648	458.58	-0.526	-20.72	-	11, 12
LD-F-RH-1008-CLG-NTP	Net restraint	11.609	457.06	-0.254	-10.00	-	11, 12
LD-F-RH-1008-FLR-STP	Bulk restraint	11.620	457.50	-0.310	-12.20	-	11, 12
LD-F-AD-0008-FLR-STP	Bulk restraint	11.619	457.43	0.000	0.00	-	11, 12
LD-F-LH-1008-CLG-NTP	Net restraint	11.609	457.06	0.254	10.00	-	11, 12
LD-F-LH-1008-FLR-STP	Bulk restraint	11.619	457.43	0.347	13.66	-	11, 12
LD-F-LH-4008-CLG-NTP	Net restraint	11.609	457.06	0.765	30.12	-	11, 12
LD-F-LH-4008-FLR-STP	Bulk restraint	11.637	458.15	0.776	30.56	-	11, 12
LD-F-LH-6008-CLG-NTP	Net restraint	11.609	457.06	1.292	50.87	-	11, 12
LD-F-LH-6008-FLR-NTP	Net restraint	11.650	458.65	1.284	50.55	-	11, 12
LD-F-RH-4009-FLR-STP	Bulk restraint	12.171	479.18	-0.776	-30.56	-	12
LD-F-AD-0009-FLR-STP	Bulk restraint	12.153	478.45	0.000	0.00	-	12
LD-F-LH-4009-FLR-STP	Bulk restraint	12.171	479.18	0.776	30.56	-	12
LD-F-RH-4010-FLR-STP	Bulk restraint	12.704	500.16	-0.776	-30.56	-	12
LD-F-AD-0010-FLR-STP	Bulk restraint	12.686	499.44	0.000	0.00	-	12

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-LH-4010-FLR-STP	Bulk restraint	12.704	500.16	0.776	30.56	-	12
LD-F-RH-6012-CLG-NTP	Net restraint	13.209	520.06	-1.292	-50.87	Divider net type A2	12, 13
LD-F-RH-6012-FLR-NTP	Net restraint	13.250	521.65	-1.2839	-50.55	Divider net type A2	12, 13
LD-F-RH-4012-CLG-NTP	Net restraint	13.209	520.06	-0.765	-30.12	Divider net type A2	12, 13
LD-F-RH-4012-FLR-STP	Bulk restraint	13.237	521.15	-0.776	-30.56	Divider net type A2	12, 13
LD-F-RH-1012-CLG-NTP	Net restraint	13.209	520.06	-0.254	-10.00	Divider net type A2	12, 13
LD-F-RH-1012-FLR-STP	Bulk restraint	13.219	520.42	-0.347	-13.66	Divider net type A2	12, 13
LD-F-AD-0012-FLR-STP	Bulk restraint	13.219	520.42	0.000	0.00	Divider net type A2	12, 13
LD-F-LH-1012-CLG-NTP	Net restraint	13.209	520.06	0.254	10.00	Divider net type A2	12, 13
LD-F-LH-1012-FLR-STP	Bulk restraint	13.219	520.42	0.347	13.66	Divider net type A2	12, 13
LD-F-LH-4012-CLG-NTP	Net restraint	13.209	520.06	0.765	30.12	Divider net type A2	12, 13
LD-F-LH-4012-FLR-STP	Bulk restraint	13.237	521.15	0.776	30.56	Divider net type A2	12, 13
LD-F-LH-6012-CLG-NTP	Net restraint	13.209	520.06	1.292	50.87	Divider net type A2	12, 13
LD-F-LH-6012-FLR-NTP	Net restraint	13.250	521.65	1.284	50.55	Divider net type A2	12, 13
LD-F-RH-4013-FLR-STP	Bulk restraint	13.771	542.17	-0.776	-30.56	-	13
LD-F-AD-0013-FLR-STP	Bulk restraint	13.753	541.44	0.000	0.00	-	13
LD-F-LH-4013-FLR-STP	Bulk restraint	13.771	542.17	0.776	30.56	-	13
LD-F-RH-4014-FLR-STP	Bulk restraint	14.304	563.15	-0.776	-30.56	-	13

Continued on the following page

 PAKISTAN International Airlines Great People to Fly With A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Cargo Arrangement Forward Cargo Hold
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Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-AD-0014-FLR-STP	Bulk restraint	14.286	562.43	0.000	0.00	-	13
LD-F-LH-4014-FLR-STP	Bulk restraint	14.304	563.15	0.776	30.56	-	13

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

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Transport of Bulk Loads
Loading Recommendations
LOADING RECOMMENDATIONS

Ident.: CTL-CGO-FWD-BULK-RECO-00019414.0002001 / 31 JAN 18

Criteria: ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

To load an item in the forward cargo hold, the operator must consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the forward cargo hold, if required by the type of loaded item.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the forward cargo door
- The cross sections of the forward cargo hold
- The restraint system of the forward cargo hold
- The dimensions of the net sections of the forward cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NET INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 11/12) with the mandatory divider net installed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	3.760	3.622	3.482
0.100	3.675	3.546	3.421
0.200	3.593	3.475	3.365
0.300	3.514	3.408	3.316
0.400	3.439	3.346	3.189
0.500	3.369	3.291	2.986
0.600	3.303	3.243	2.783

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.700	3.244	3.123	2.579
0.800	3.193	2.923	2.374
0.900	3.142	2.723	2.167
1.000	2.942	2.523	1.957
1.100	2.741	2.322	1.740
1.200	2.540	2.122	-
1.300	2.338	1.921	-
1.400	2.136	1.720	-
1.500	1.933	1.648	-
1.600	1.850	-	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (m)		
0.00	148.00	142.50	137.10
4.00	144.60	139.50	134.60
8.00	141.30	136.70	132.40
12.00	138.20	134.00	130.50
16.00	135.20	131.60	124.90
20.00	132.40	129.40	116.80
24.00	129.80	127.50	108.70
28.00	127.40	121.90	100.50
32.00	125.40	113.90	92.30
36.00	122.40	105.90	84.00
40.00	114.40	97.90	75.60
44.00	106.30	89.90	66.80
48.00	98.30	81.80	-
52.00	90.20	73.80	-
56.00	82.10	65.80	-
60.00	74.00	64.90	-
64.00	72.80	-	-

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NET REMOVED

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider net removed.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.332	5.150	4.201
0.100	5.252	5.080	4.000
0.200	5.174	5.013	3.799
0.300	5.099	4.545	3.599
0.400	5.026	4.344	3.398
0.500	4.717	4.144	3.197
0.600	4.514	3.943	2.996
0.700	4.310	3.742	2.794
0.800	4.106	3.541	2.592
0.900	3.901	3.339	2.390
1.000	3.696	3.138	2.186
1.100	3.489	2.936	1.981
1.200	3.280	2.733	1.773
1.300	3.069	2.530	1.648
1.400	2.855	2.325	-
1.500	2.634	2.117	-
1.600	2.427	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	209.90	202.70	165.20
4.00	206.70	199.90	157.20
8.00	203.50	186.40	149.10
12.00	200.50	178.40	141.10
16.00	197.60	170.30	133.10
20.00	184.90	162.30	125.00
24.00	176.70	154.30	117.00
28.00	168.60	146.20	108.90
32.00	160.40	138.20	100.80
36.00	152.20	130.10	92.70
40.00	144.00	122.10	84.60
44.00	135.70	114.00	76.40
48.00	127.40	105.90	68.00
52.00	118.90	97.70	64.90
56.00	110.30	89.50	-

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
60.00	101.30	81.20	-
64.00	95.60	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The forward cargo hold is not equipped with ventilation and temperature control systems. Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

Transport of Bulk Loads on CLS
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-FWD-BCLS-CHD-00021506.0053001 / 27 JUL 23

Criteria: 23172, 26213, 27375, 28330, 28440, 28618, ST1

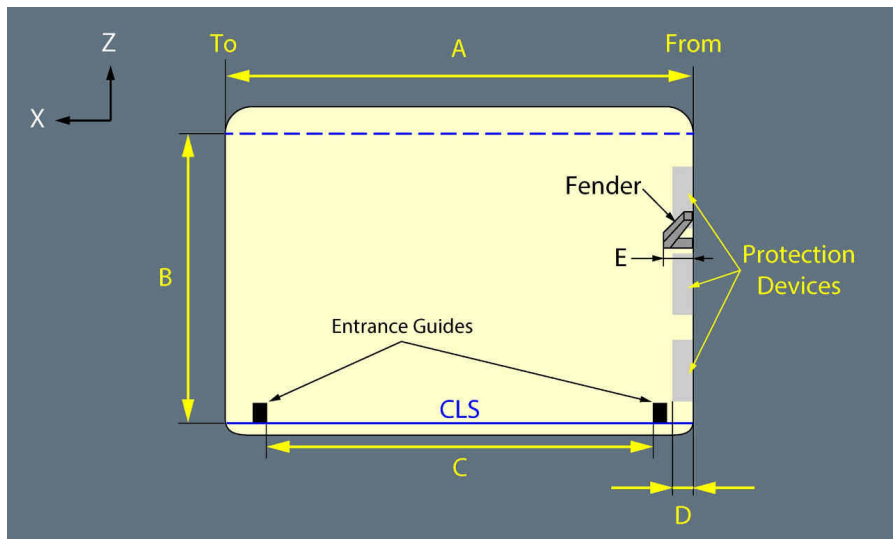
Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The forward cargo hold is equipped with a door on the right side of the fuselage.

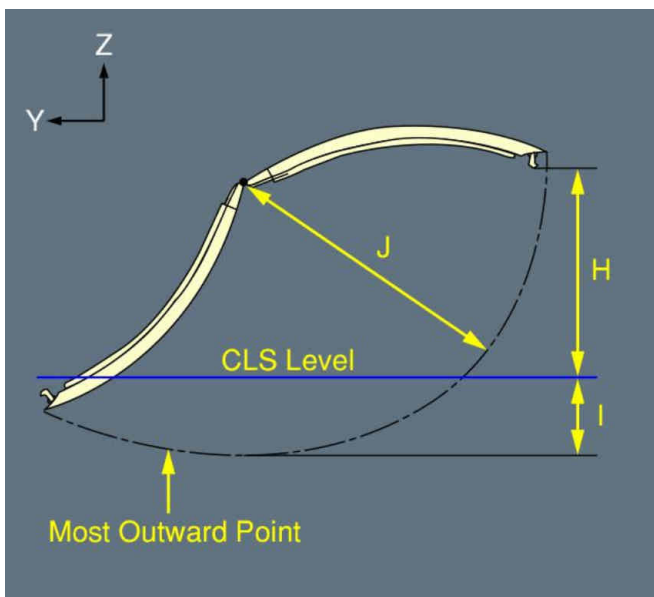
The door opens outward.

The operator must use the forward door to load and unload the forward cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
9.791	385.47	11.608	457.01

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.198	47.16
C	Door width at CLS level	1.541	60.67
D	Protection device thickness	0.067	2.64
E	Fender thickness	0.096	3.78

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the CLS level and the hooks (when the door is in fully opened position)	1.385	54.53
I	Clearance below the CLS level when the door is operated	0.687	27.05
J	Door opening radius	2.024	79.68

Transport of Bulk Loads on CLS

Cross Section

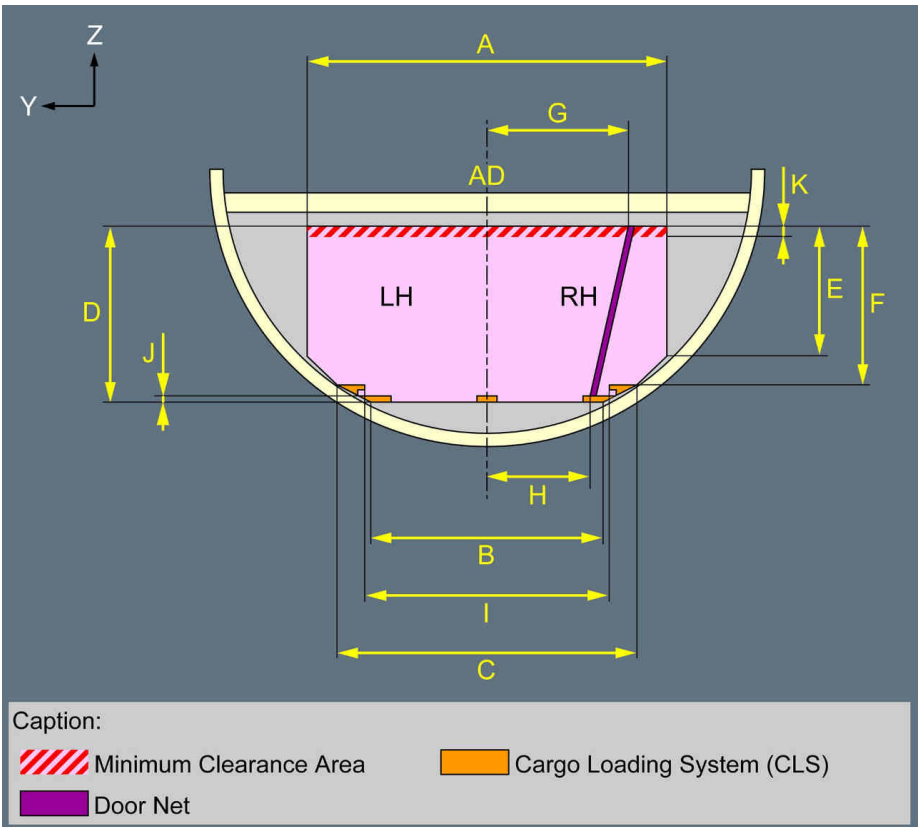
CROSS SECTION

Ident.: CTL-CGO-FWD-BCLS-XSC-00019423.0027001 / 31 JAN 18

Criteria: 23172, 27375, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The tables below provide the cross sections of the cargo hold.



WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

METRIC UNITS

H-ARM (m)	Dimensions (m)										
	A	B	C	D	E	F	G	H	I	J	K
9.858	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	1.520	0.035	0.051
11.633	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	1.520	0.035	0.051
14.708	2.630	1.430	2.098	1.242	0.797	1.065	-	-	1.520	0.035	0.051

US UNITS

H-ARM (in)	Dimensions (in)										
	A	B	C	D	E	F	G	H	I	J	K
388.11	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	59.84	1.38	2.00
457.99	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	59.84	1.38	2.00
579.06	103.54	56.30	82.60	48.90	31.38	41.93	-	-	59.84	1.38	2.00

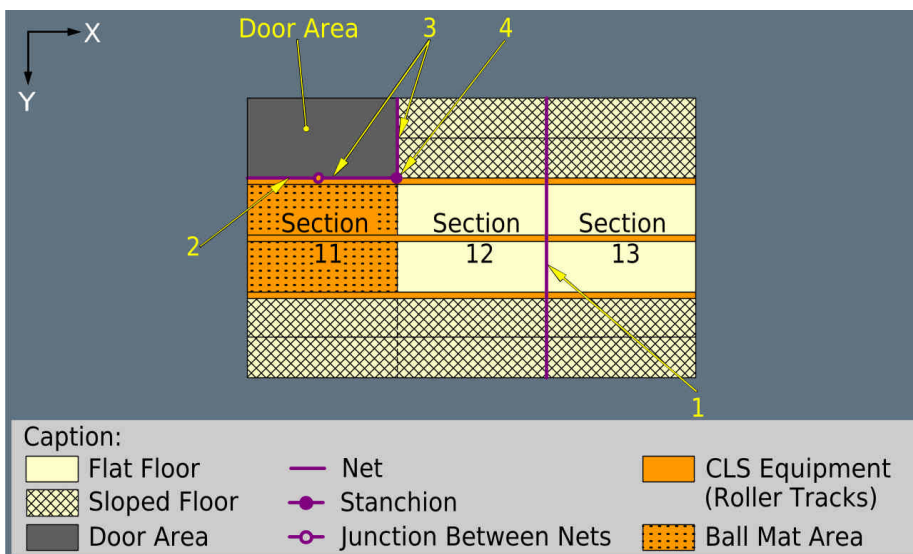
Transport of Bulk Loads on CLS
Cargo Hold Arrangement
SECTION ARRANGEMENT

Ident.: CTL-CGO-FWD-BCLS-CHA-00019425.0035001 / 01 FEB 18

Criteria: 27375, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The forward cargo hold is divided into sections and net sections as indicated in the illustration below.



Legend	Related Net Type	Installation Requirement
1	Divider net type A2	Mandatory
2	Door net type C	Mandatory
3	Door net type A	Mandatory
4	Stanchion	Mandatory

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m³)	(ft³)
11	9.858	388.03	11.633	457.99	10.746	422.99	3.990	139.85
12	11.633	457.99	13.233	520.98	12.433	489.49	4.770	168.10
13	13.233	520.98	14.708	579.13	13.971	550.04	4.390	155.03

The maximum usable volume of the cargo hold is based on:

- The maximum theoretical volume
- The volume reduction due to the door area
- The volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling
- The volume reduction due to the protection devices for the decompression devices on the cargo hold wall.

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-FWD-BCLS-CHA-00021277.0005001 / 02 JUN 20

Criteria: 27375, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

This part provides the location of all the tie-down points installed in the forward cargo hold.

The forward cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

To attach the nets, the operator uses the tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points

(See Location Table of the Tie-down Points) that are not already used to attach the nets.

For additional information about the requirements for the loading of bulk items *Refer to CTL-LIM-FWD-BCLS-CHL Restraint Conditions* and *Refer to CTL-LIM-FWD-BCLS-CHL Fastening Load Requirements*.

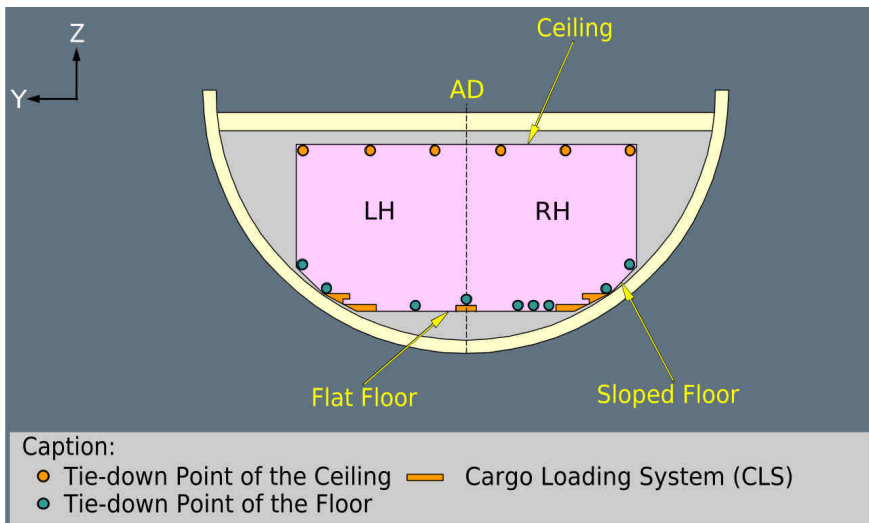
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

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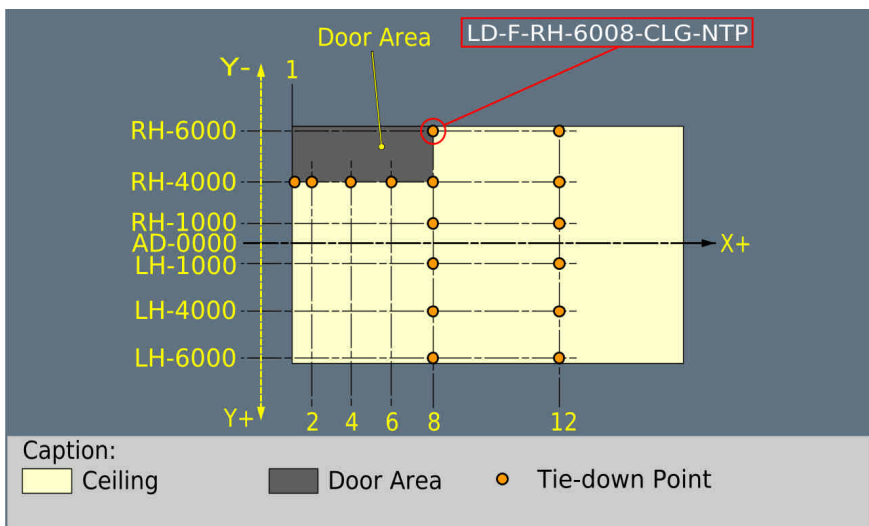
- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the ceiling of the cargo hold with all the installed tie-down points
- An illustration of the sloped and flat floors of the cargo hold with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

TIE-DOWN POINTS OF THE FORWARD CARGO HOLD

POSSIBLE LOCATION OF THE TIE-DOWN POINTS



TIE-DOWN POINTS OF THE CEILING



WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-F-RH-4013-LTC-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the forward cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 013th position from 1 on the X axis
- On a fixed YZ-Latch
- A standard tie-down point.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-RH-4001-CLG-NTP	Net restraint	9.761	384.29	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3001-FLR-NTP	Net restraint	9.761	384.29	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-4002-CLG-NTP	Net restraint	10.009	394.07	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3002-FLR-NTP	Net restraint	10.046	395.50	-0.577	-22.72	Door net type C	Door area, 11
LD-F-RH-2002-FLR-STP	Bulk restraint	10.046	395.50	-0.526	-20.72	-	11
LD-F-LH-4002-LTC-STP	Bulk restraint	10.037	395.16	0.841	33.10	-	11
LD-F-RH-4004-CLG-NTP	Net restraint	10.542	415.06	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3004-FLR-NTP	Net restraint	10.579	416.49	-0.577	-22.72	Door net type C	Door area, 11
LD-F-RH-2004-FLR-STP	Bulk restraint	10.579	416.49	-0.526	-20.72	-	11
LD-F-LH-4004-LTC-STP	Bulk restraint	10.570	416.15	0.841	33.10	-	11
LD-F-RH-4006-CLG-NTP	Net restraint	11.076	436.08	-0.765	-30.12	Door net type A	Door area, 11
LD-F-RH-3006-FLR-NTP	Net restraint	11.113	437.51	-0.577	-22.72	Door net type A	Door area, 11
LD-F-RH-2006-FLR-STP	Bulk restraint	11.113	437.51	-0.526	-20.72	-	11
LD-F-LH-4006-LTC-STP	Bulk restraint	11.104	437.17	0.841	33.10	-	11
LD-F-RH-6008-CLG-NTP	Net restraint	11.609	457.06	-1.292	-50.87	Door net type A	Door area, 12
LD-F-RH-6008-FLR-NTP	Net restraint	11.663	459.17	-1.284	-50.55	Door net type A	Door area, 12
LD-F-RH-4008-CLG-NTP	Net restraint	11.609	457.06	-0.765	-30.12	Stanchion, Door net type A	Door area, 12
LD-F-RH-4008-FLR-NTP	Net restraint	11.663	459.17	-0.841	-33.10	Door net type A	Door area, 12

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-RH-3008-FLR-NTP	Net restraint	11.648	458.58	-0.577	-22.72	Stanchion, Door net type A	Door area, 11, 12
LD-F-RH-2008-FLR-STP	Bulk restraint	11.648	458.58	-0.526	-20.72	-	11, 12
LD-F-RH-1008-CLG-NTP	Net restraint	11.609	457.06	-0.254	-10.00	-	11, 12
LD-F-RH-1008-FLR-STP	Bulk restraint	11.620	457.50	-0.310	-12.20	-	11, 12
LD-F-AD-0008-FLR-STP	Bulk restraint	11.619	457.43	0.000	0.00	-	11, 12
LD-F-LH-1008-CLG-NTP	Net restraint	11.609	457.06	0.254	10.00	-	11, 12
LD-F-LH-1008-FLR-STP	Bulk restraint	11.619	457.43	0.347	13.66	-	11, 12
LD-F-LH-4008-CLG-NTP	Net restraint	11.609	457.06	0.765	30.12	-	11, 12
LD-F-LH-4008-FLR-STP	Bulk restraint	11.637	458.15	0.841	33.10	-	11, 12
LD-F-LH-6008-CLG-NTP	Net restraint	11.609	457.06	1.292	50.87	-	11, 12
LD-F-LH-6008-FLR-NTP	Net restraint	11.650	458.65	1.284	50.55	-	11, 12
LD-F-RH-4009-LTC-STP	Bulk restraint	12.171	479.18	-0.841	-33.10	-	12
LD-F-LH-4009-LTC-STP	Bulk restraint	12.171	479.18	0.841	33.11	-	12
LD-F-RH-4010-LTC-STP	Bulk restraint	12.704	500.16	-0.841	-33.10	-	12
LD-F-LH-4010-LTC-STP	Bulk restraint	12.704	500.16	0.841	33.10	-	12
LD-F-RH-6012-CLG-NTP	Net restraint	13.209	520.06	-1.292	-50.87	Divider net type A2	12, 13
LD-F-RH-6012-FLR-NTP	Net restraint	13.250	521.65	-1.2839	-50.55	Divider net type A2	12, 13
LD-F-RH-4012-CLG-NTP	Net restraint	13.209	520.06	-0.765	-30.12	Divider net type A2	12, 13
LD-F-RH-4012-LTC-STP	Bulk restraint	13.237	521.15	-0.841	-33.10	Divider net type A2	12, 13

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-RH-1012-CLG-NTP	Net restraint	13.209	520.06	-0.254	-10.00	Divider net type A2	12, 13
LD-F-RH-1012-FLR-STP	Bulk restraint	13.219	520.42	-0.347	-13.66	Divider net type A2	12, 13
LD-F-AD-0012-FLR-STP	Bulk restraint	13.219	520.42	0.000	0.00	Divider net type A2	12, 13
LD-F-LH-1012-CLG-NTP	Net restraint	13.209	520.06	0.254	10.00	Divider net type A2	12, 13
LD-F-LH-1012-FLR-STP	Bulk restraint	13.219	520.42	0.347	13.66	Divider net type A2	12, 13
LD-F-LH-4012-CLG-NTP	Net restraint	13.209	520.06	0.765	30.12	Divider net type A2	12, 13
LD-F-LH-4012-LTC-STP	Bulk restraint	13.237	521.15	0.841	33.10	Divider net type A2	12, 13
LD-F-LH-6012-CLG-NTP	Net restraint	13.209	520.06	1.292	50.87	Divider net type A2	12, 13
LD-F-LH-6012-FLR-NTP	Net restraint	13.250	521.65	1.284	50.55	Divider net type A2	12, 13
LD-F-RH-4013-LTC-STP	Bulk restraint	13.771	542.17	-0.841	-33.10	-	13
LD-F-LH-4013-LTC-STP	Bulk restraint	13.771	542.17	0.841	33.11	-	13
LD-F-RH-4014-LTC-STP	Bulk restraint	14.304	563.15	-0.841	-33.10	-	13
LD-F-LH-4014-LTC-STP	Bulk restraint	14.304	563.15	0.841	33.10	-	13

Transport of Bulk Loads on CLS
Loading Recommendations
LOADING RECOMMENDATIONS

Ident.: CTL-CGO-FWD-BCLS-RECO-00019426.0034001 / 31 JAN 18

Criteria: 27375, 28330, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

To load an item in the forward cargo hold, the operator must consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the forward cargo hold, if required by the type of loaded item.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the forward cargo door
- The cross sections of the forward cargo hold
- The restraint system of the forward cargo hold
- The dimensions of the net sections of the forward cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NET INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 11/12) with the mandatory divider net installed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	3.838	3.581	3.169
0.100	3.740	3.489	3.096
0.200	3.642	3.398	3.026
0.300	3.545	3.310	2.963
0.400	3.449	3.224	2.907
0.500	3.353	3.140	2.859
0.600	3.259	3.061	2.711

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.700	3.166	2.986	2.511
0.800	3.074	2.917	2.310
0.900	2.985	2.855	2.110
1.000	2.899	2.803	1.909
1.100	2.818	2.762	1.708
1.200	2.743	2.689	1.507
1.300	2.677	2.484	1.438
1.400	2.622	2.278	-
1.500	2.566	2.068	-
1.600	2.427	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	151.50	141.40	124.70
4.00	147.60	137.70	121.80
8.00	143.70	134.10	119.00
12.00	139.80	130.60	116.50
16.00	136.00	127.20	114.30
20.00	132.10	123.90	112.40
24.00	128.40	120.70	105.80
28.00	124.70	117.80	97.80
32.00	121.00	115.10	89.80
36.00	117.50	112.70	81.80
40.00	114.10	110.70	73.70
44.00	111.00	109.10	65.70
48.00	108.10	104.10	57.60
52.00	105.50	95.90	56.70
56.00	103.40	87.70	-
60.00	99.10	79.20	-

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NET REMOVED

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider net removed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.332	5.150	3.912
0.100	5.252	5.080	3.712
0.200	5.174	4.703	3.511
0.300	5.099	4.503	3.311
0.400	5.026	4.302	3.111
0.500	4.672	4.101	2.911
0.600	4.469	3.900	2.711
0.700	4.265	3.699	2.511
0.800	4.061	3.498	2.310
0.900	3.855	3.296	2.110
1.000	3.649	3.094	1.909
1.100	3.441	2.892	1.708
1.200	3.232	2.689	1.507
1.300	3.019	2.484	1.438
1.400	2.802	2.278	-
1.500	2.578	2.068	-
1.600	2.427	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	209.90	202.70	153.80
4.00	206.70	199.90	145.80
8.00	203.50	184.70	137.80
12.00	200.50	176.70	129.80
16.00	197.60	168.70	121.80
20.00	183.10	160.70	113.80
24.00	175.00	152.60	105.80
28.00	166.80	144.60	97.80
32.00	158.70	136.50	89.80
36.00	150.40	128.50	81.80
40.00	142.20	120.40	73.70
44.00	133.90	112.30	65.70
48.00	125.50	104.10	57.60
52.00	116.90	95.90	56.70
56.00	108.20	87.70	-
60.00	99.10	79.20	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The forward cargo hold is not equipped with ventilation and temperature control systems. Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

Transport of Bulk Loads on CLS with Protection Panels
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-FWD-BCPP-CHD-00019427.0019001 / 27 JUL 23

Criteria: 23172, 26213, 27686, 28618, ST1

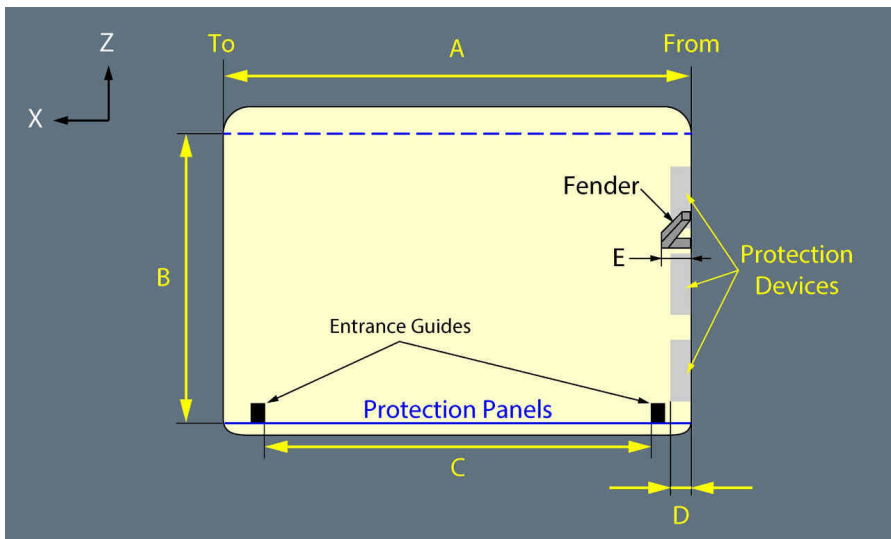
Applicable to: MSN 02719, 02758, 02789, 03031

The forward cargo hold is equipped with a door on the right side of the fuselage.

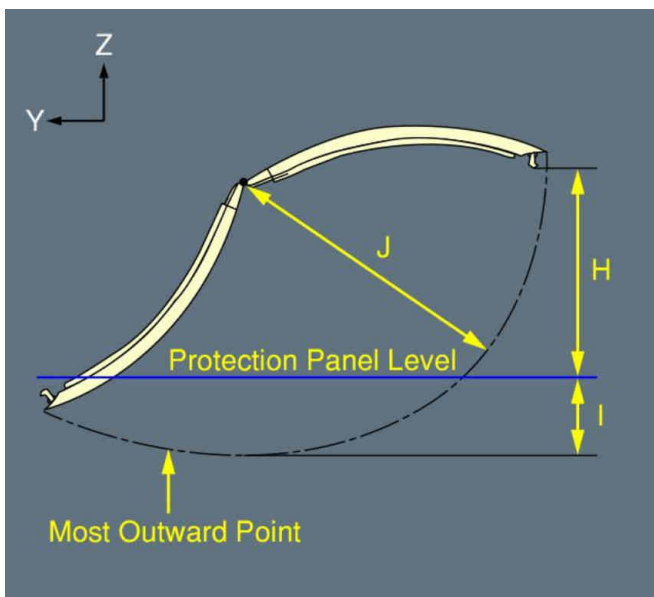
The door opens outward.

The operator must use the forward door to load and unload the forward cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
9.791	385.47	11.608	457.01

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.161	45.71
C	Door width at protection panels level	1.541	60.67
D	Protection device thickness	0.067	2.64
E	Fender thickness	0.096	3.78

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the protection panels level and the hooks (when the door is in fully opened position)	1.348	53.07
I	Clearance below the protection panels level when the door is operated	0.724	28.50
J	Door opening radius	2.024	79.68

Transport of Bulk Loads on CLS with Protection Panels

Cross Section

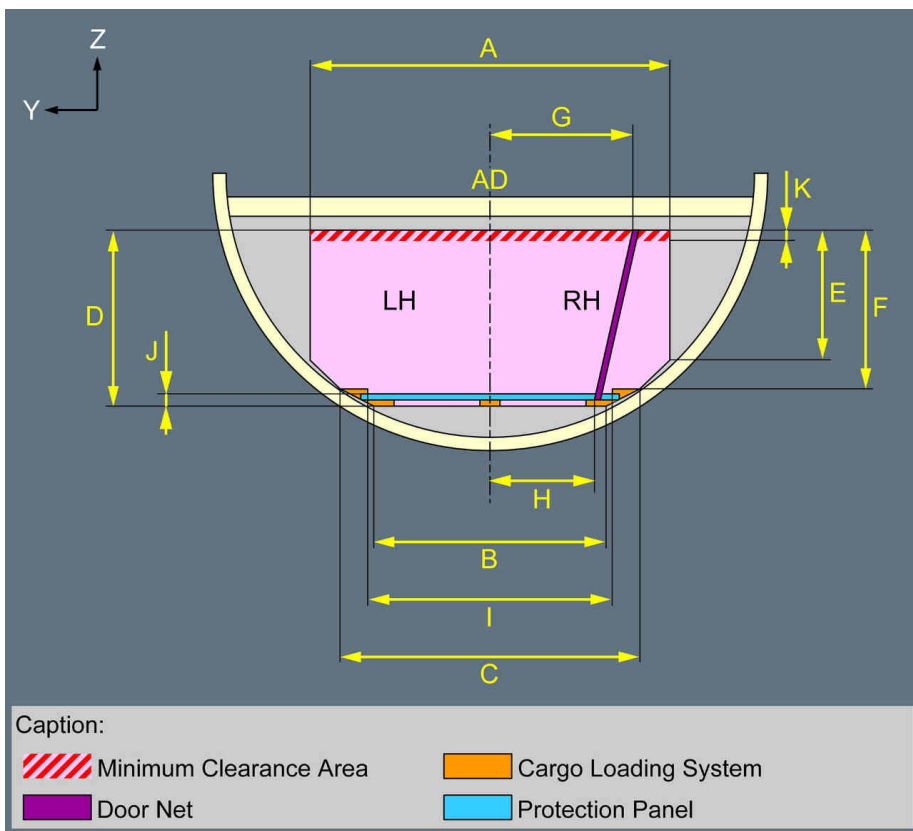
CROSS SECTION

Ident.: CTL-CGO-FWD-BCPP-XSC-00019428.0011001 / 31 JAN 18

Criteria: 23172, 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The tables below provide the cross sections of the cargo hold.



WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)										
	A	B	C	D	E	F	G	H	I	J	K
9.858	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.688	1.520	0.051	0.051
11.633	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.688	1.520	0.051	0.051
17.908	2.630	1.430	2.098	1.242	0.797	1.065	-	-	1.520	0.051	0.051

US UNITS

H-ARM (in)	Dimensions (in)										
	A	B	C	D	E	F	G	H	I	J	K
388.11	103.54	56.30	82.60	48.90	31.38	41.93	30.12	27.09	59.84	2.00	2.00
457.99	103.54	56.30	82.60	48.90	31.38	41.93	30.12	27.09	59.84	2.00	2.00
705.04	103.54	56.30	82.60	48.90	31.38	41.93	-	-	59.84	2.00	2.00

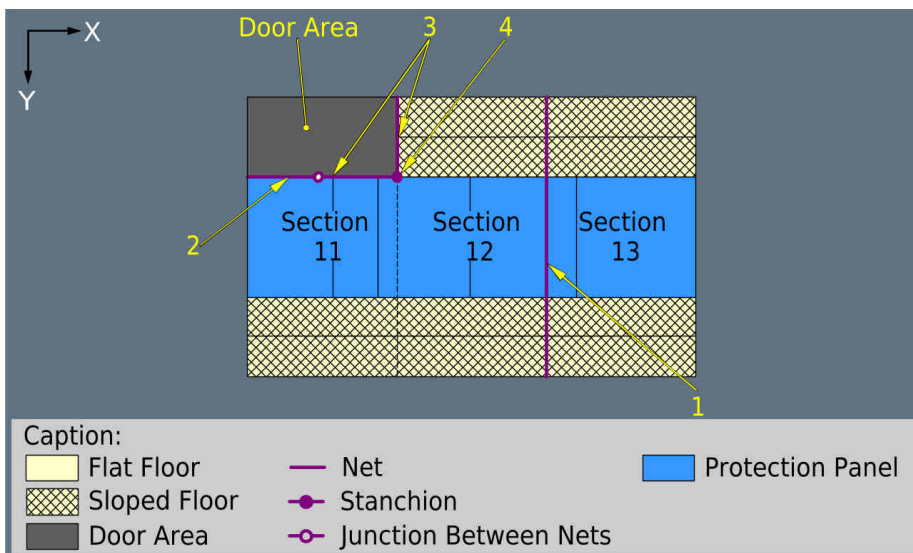
Transport of Bulk Loads on CLS with Protection Panels
Cargo Hold Arrangement
SECTION ARRANGEMENT

Ident.: CTL-CGO-FWD-BCPP-CHA-00019430.0007001 / 01 FEB 18

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The forward cargo hold is divided into sections and net sections as indicated in the illustration below.



Legend	Related Net Type	Installation Requirement
1	Divider net type A2	Mandatory
2	Door net type C	Mandatory
3	Door net type A	Mandatory
4	Stanchion	Mandatory

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

Section	H-ARMS						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m³)	(ft³)
11	9.858	388.03	11.633	457.99	10.746	422.99	3.910	138.08
12	11.633	457.99	13.233	520.98	12.433	489.49	4.660	164.57
13	13.233	520.98	14.708	579.13	13.971	550.04	4.290	151.50

The maximum usable volume of the cargo hold is based on:

- The maximum theoretical volume
- The volume reduction due to the door area
- The volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling
- The volume reduction due to the protection devices for the decompression devices on the cargo hold wall
- The volume reduction due to the installation of protection panels.

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-FWD-BCPP-CHA-00021275.0002001 / 02 JUN 20

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

This part provides the location of all the tie-down points installed in the forward cargo hold.

The forward cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

To attach the nets, the operator uses the tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points

(See Location Table of the Tie-down Points) that are not already used to attach the nets.

For additional information about the requirements for the loading of bulk items *Refer to CTL-LIM-FWD-BCPP-CHL Restraint Conditions* and *Refer to CTL-LIM-FWD-BCPP-CHL Fastening Load Requirements*.

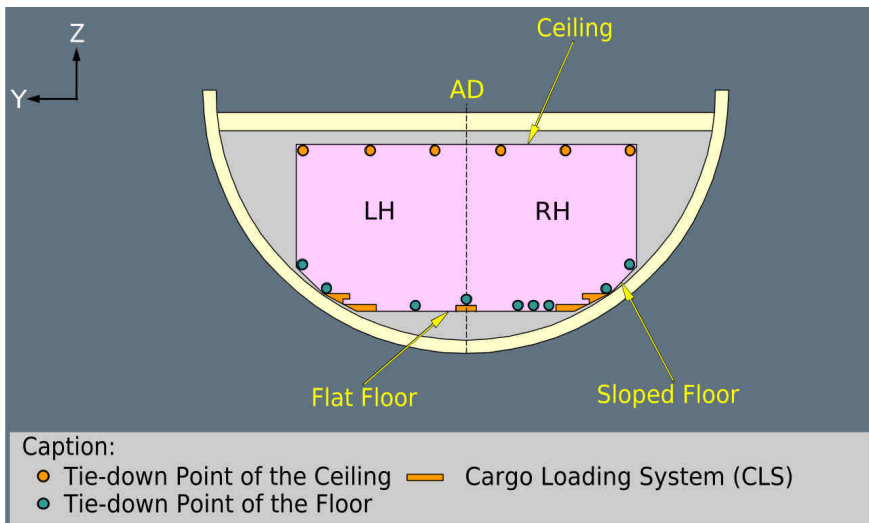
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

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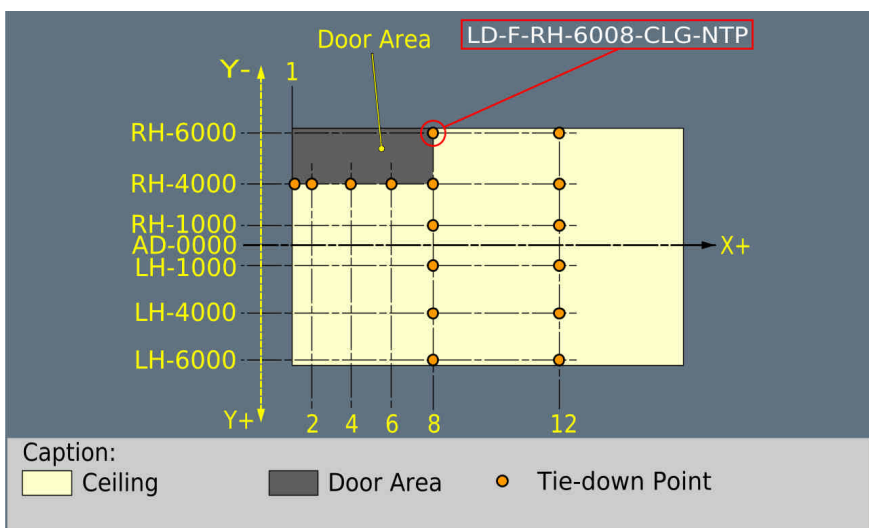
- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the ceiling of the cargo hold with all the installed tie-down points
- An illustration of the sloped and flat floors of the cargo hold with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

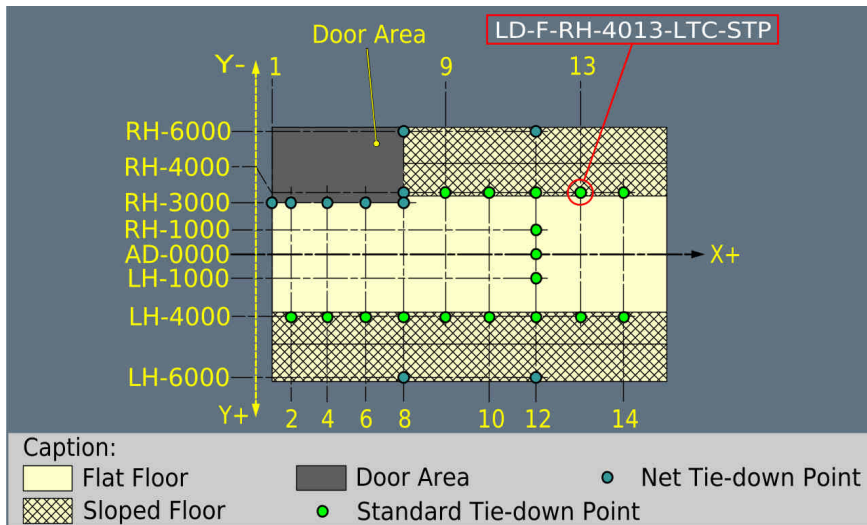
TIE-DOWN POINTS OF THE FORWARD CARGO HOLD

POSSIBLE LOCATION OF THE TIE-DOWN POINTS



TIE-DOWN POINTS OF THE CEILING



TIE-DOWN POINTS OF THE FLAT AND SLOPED FLOORS

DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-F-RH-4013-LTC-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the forward cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 013th position from 1 on the X axis
- On a fixed YZ-Latch
- A standard tie-down point.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-RH-4001-CLG-NTP	Net restraint	9.761	384.29	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3001-FLR-NTP	Net restraint	9.761	384.29	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-4002-CLG-NTP	Net restraint	10.009	394.07	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3002-FLR-NTP	Net restraint	10.046	395.50	-0.577	-22.72	Door net type C	Door area, 11
LD-F-LH-4002-LTC-STP	Bulk restraint	10.037	395.16	0.841	33.10	-	11
LD-F-RH-4004-CLG-NTP	Net restraint	10.542	415.06	-0.765	-30.12	Door net type C	Door area, 11
LD-F-RH-3004-FLR-NTP	Net restraint	10.579	416.49	-0.577	-22.72	Door net type C	Door area, 11
LD-F-LH-4004-LTC-STP	Bulk restraint	10.570	416.15	0.841	33.10	-	11
LD-F-RH-4006-CLG-NTP	Net restraint	11.076	436.08	-0.765	-30.12	Door net type A	Door area, 11
LD-F-RH-3006-FLR-NTP	Net restraint	11.113	437.51	-0.577	-22.72	Door net type A	Door area, 11
LD-F-LH-4006-LTC-STP	Bulk restraint	11.104	437.17	0.841	33.10	-	11
LD-F-RH-6008-CLG-NTP	Net restraint	11.609	457.06	-1.292	-50.87	Door net type A	Door area, 12
LD-F-RH-6008-FLR-NTP	Net restraint	11.663	459.17	-1.284	-50.55	Door net type A	Door area, 12
LD-F-RH-4008-CLG-NTP	Net restraint	11.609	457.06	-0.765	-30.12	Stanchion	Door area, 12
LD-F-RH-4008-FLR-NTP	Net restraint	11.663	459.17	-0.841	-33.10	Door net type A	Door area, 12
LD-F-RH-3008-FLR-NTP	Net restraint	11.648	458.58	-0.577	-22.72	Stanchion	Door area, 11, 12
LD-F-RH-1008-CLG-NTP	Net restraint	11.609	457.06	-0.254	-10.00	-	11, 12
LD-F-LH-1008-CLG-NTP	Net restraint	11.609	457.06	0.254	10.00	-	11, 12
LD-F-LH-4008-CLG-NTP	Net restraint	11.609	457.06	0.765	30.12	-	11, 12

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-LH-4008-LTC-STP	Bulk restraint	11.637	458.15	0.841	33.10	-	11, 12
LD-F-LH-6008-CLG-NTP	Net restraint	11.609	457.06	1.292	50.87	-	11, 12
LD-F-LH-6008-FLR-NTP	Net restraint	11.650	458.65	1.284	50.55	-	11, 12
LD-F-RH-4009-LTC-STP	Bulk restraint	12.171	479.18	-0.841	-33.10	-	12
LD-F-LH-4009-LTC-STP	Bulk restraint	12.171	479.18	0.841	33.11	-	12
LD-F-RH-4010-LTC-STP	Bulk restraint	12.704	500.16	-0.841	-33.10	-	12
LD-F-LH-4010-LTC-STP	Bulk restraint	12.704	500.16	0.841	33.10	-	12
LD-F-RH-6012-CLG-NTP	Net restraint	13.209	520.06	-1.292	-50.87	Divider net type A2	12, 21
LD-F-RH-6012-FLR-NTP	Net restraint	13.250	521.65	-1.2839	-50.55	Divider net type A2	12, 21
LD-F-RH-4012-CLG-NTP	Net restraint	13.209	520.06	-0.765	-30.12	Divider net type A2	12, 21
LD-F-RH-4012-LTC-STP	Bulk restraint	13.237	521.15	-0.841	-33.10	Divider net type A2	12, 21
LD-F-RH-1012-CLG-NTP	Net restraint	13.209	520.06	-0.254	-10.00	Divider net type A2	12, 21
LD-F-RH-1012-FLR-STP	Bulk restraint	13.219	520.42	-0.347	-13.66	Divider net type A2	12, 21
LD-F-AD-0012-FLR-STP	Bulk restraint	13.219	520.42	0.000	0.00	Divider net type A2	12, 21
LD-F-LH-1012-CLG-NTP	Net restraint	13.209	520.06	0.254	10.00	Divider net type A2	12, 21
LD-F-LH-1012-FLR-STP	Bulk restraint	13.219	520.42	0.347	13.66	Divider net type A2	12, 21
LD-F-LH-4012-CLG-NTP	Net restraint	13.209	520.06	0.765	30.12	Divider net type A2	12, 21
LD-F-LH-4012-LTC-STP	Bulk restraint	13.237	521.15	0.841	33.10	Divider net type A2	12, 21
LD-F-LH-6012-CLG-NTP	Net restraint	13.209	520.06	1.292	50.87	Divider net type A2	12, 21

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-F-LH-6012-FLR-NTP	Net restraint	13.250	521.65	1.284	50.55	Divider net type A2	12, 21
LD-F-RH-4013-LTC-STP	Bulk restraint	13.771	542.17	-0.841	-33.10	-	21
LD-F-LH-4013-LTC-STP	Bulk restraint	13.771	542.17	0.841	33.11	-	21
LD-F-RH-4014-LTC-STP	Bulk restraint	14.304	563.15	-0.841	-33.10	-	21
LD-F-LH-4014-LTC-STP	Bulk restraint	14.304	563.15	0.841	33.10	-	21

Transport of Bulk Loads on CLS with Protection Panels
Loading Recommendations
LOADING RECOMMENDATIONS

Ident.: CTL-CGO-FWD-BCPP-RECO-00019431.0007001 / 31 JAN 18

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

To load an item in the forward cargo hold, the operator must consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the forward cargo hold, if required by the type of loaded item.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the forward cargo door
- The cross sections of the forward cargo hold
- The restraint system of the forward cargo hold
- The dimensions of the net sections of the forward cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NET INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 11/12) with the mandatory divider net installed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
Maximum Package Length (m)			
0.000	3.838	3.581	3.169
0.100	3.740	3.489	3.096
0.200	3.642	3.398	3.026
0.300	3.545	3.310	2.963
0.400	3.449	3.224	2.907
0.500	3.353	3.140	2.859
0.600	3.259	3.061	2.711

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

Continued from the previous page

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.700	3.166	2.986	2.511
0.800	3.074	2.917	2.310
0.900	2.985	2.855	2.110
1.000	2.899	2.803	1.909
1.100	2.818	2.762	1.708
1.200	2.743	2.689	1.507
1.300	2.677	2.484	1.438
1.400	2.622	2.278	-
1.500	2.566	2.068	-
1.600	2.427	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	151.50	141.40	124.70
4.00	147.60	137.70	121.80
8.00	143.70	134.10	119.00
12.00	139.80	130.60	116.50
16.00	136.00	127.20	114.30
20.00	132.10	123.90	112.40
24.00	128.40	120.70	105.80
28.00	124.70	117.80	97.80
32.00	121.00	115.10	89.80
36.00	117.50	112.70	81.80
40.00	114.10	110.70	73.70
44.00	111.00	109.10	65.70
48.00	108.10	104.10	57.60
52.00	105.50	95.90	56.70
56.00	103.40	87.70	-
60.00	99.10	79.20	-

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NET REMOVED

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider net removed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.332	5.150	3.912
0.100	5.252	5.080	3.712
0.200	5.174	4.703	3.511
0.300	5.099	4.503	3.311
0.400	5.026	4.302	3.111
0.500	4.672	4.101	2.911
0.600	4.469	3.900	2.711
0.700	4.265	3.699	2.511
0.800	4.061	3.498	2.310
0.900	3.855	3.296	2.110
1.000	3.649	3.094	1.909
1.100	3.441	2.892	1.708
1.200	3.232	2.689	1.507
1.300	3.019	2.484	1.438
1.400	2.802	2.278	-
1.500	2.578	2.068	-
1.600	2.427	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	209.90	202.70	153.80
4.00	206.70	199.90	145.80
8.00	203.50	184.70	137.80
12.00	200.50	176.70	129.80
16.00	197.60	168.70	121.80
20.00	183.10	160.70	113.80
24.00	175.00	152.60	105.80
28.00	166.80	144.60	97.80
32.00	158.70	136.50	89.80
36.00	150.40	128.50	81.80
40.00	142.20	120.40	73.70
44.00	133.90	112.30	65.70
48.00	125.50	104.10	57.60
52.00	116.90	95.90	56.70
56.00	108.20	87.70	-
60.00	99.10	79.20	-

WEIGHT AND BALANCE CONTROL**Cargo Arrangement**

Forward Cargo Hold

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The forward cargo hold is not equipped with ventilation and temperature control systems.
Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

Transport of ULDs
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-FWD-ULD-CHD-00019442.0053001 / 27 JUL 23

Criteria: 23172, 26213, 27375, 28330, 28440, 28618, ST1

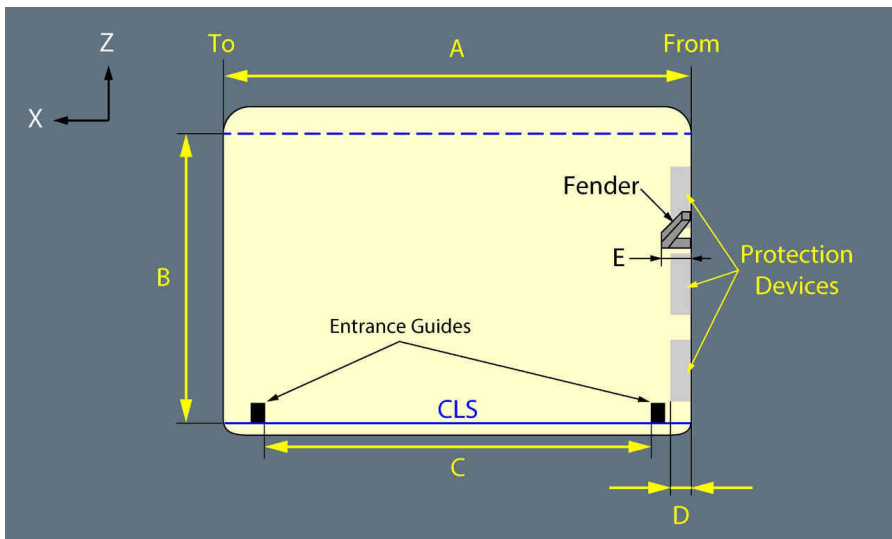
Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The forward cargo hold is equipped with a door on the right side of the fuselage.

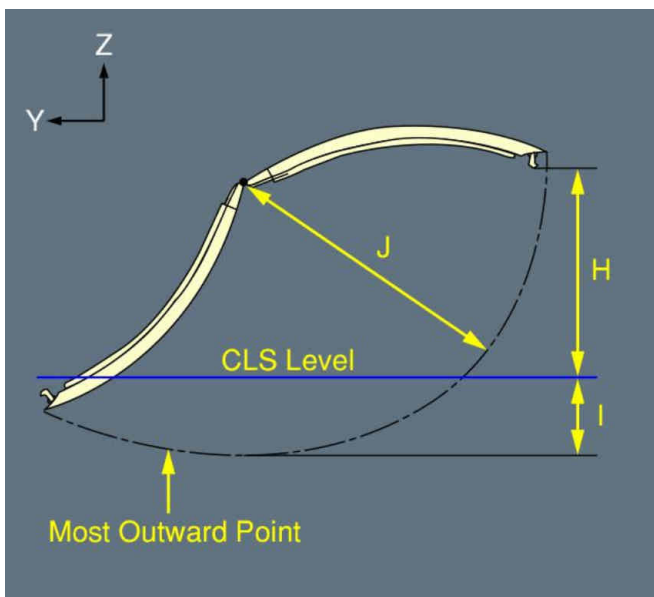
The door opens outward.

The operator must use the forward door to load and unload the forward cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
9.791	385.47	11.608	457.01

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.198	47.16
C	Door width at CLS level	1.541	60.67
D	Protection device thickness	0.067	2.64
E	Fender thickness	0.096	3.78

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the CLS level and the hooks (when the door is in fully opened position)	1.385	54.53
I	Clearance below the CLS level when the door is operated	0.687	27.05
J	Door opening radius	2.024	79.68

CARGO HOLD DOOR

Ident.: CTL-CGO-FWD-ULD-CHD-00019442.0012001 / 27 JUL 23

Criteria: 23172, 26213, 28330, ST1

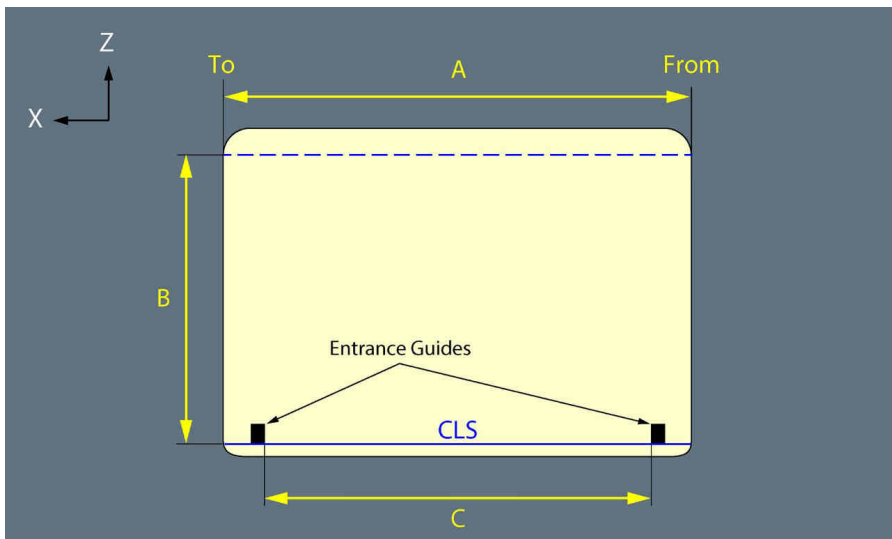
Applicable to: MSN 05152, 05162, 05253, 05746

The forward cargo hold is equipped with a door on the right side of the fuselage.

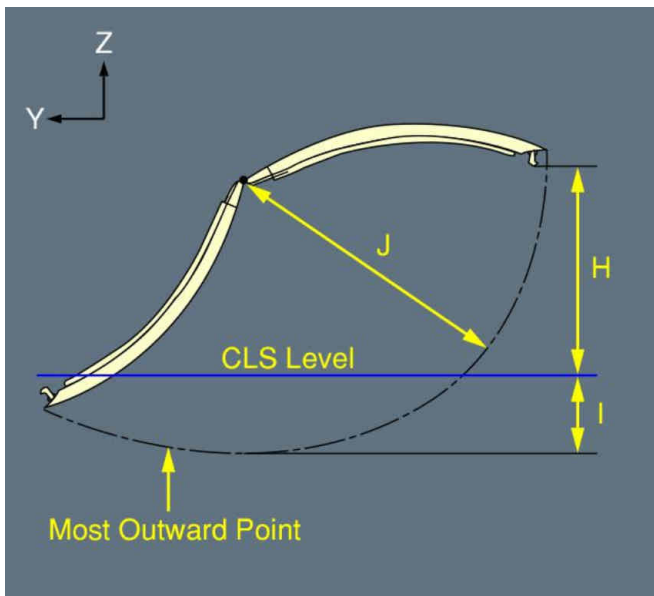
The door opens outward.

The operator must use the forward door to load and unload the forward cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
9.791	385.47	11.608	457.01

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.198	47.16
C	Door width at CLS level	1.541	60.67

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the CLS level and the hooks (when the door is in fully opened position)	1.385	54.53
I	Clearance below the CLS level when the door is operated	0.687	27.05
J	Door opening radius	2.024	79.68

Transport of ULDs

Cross Section

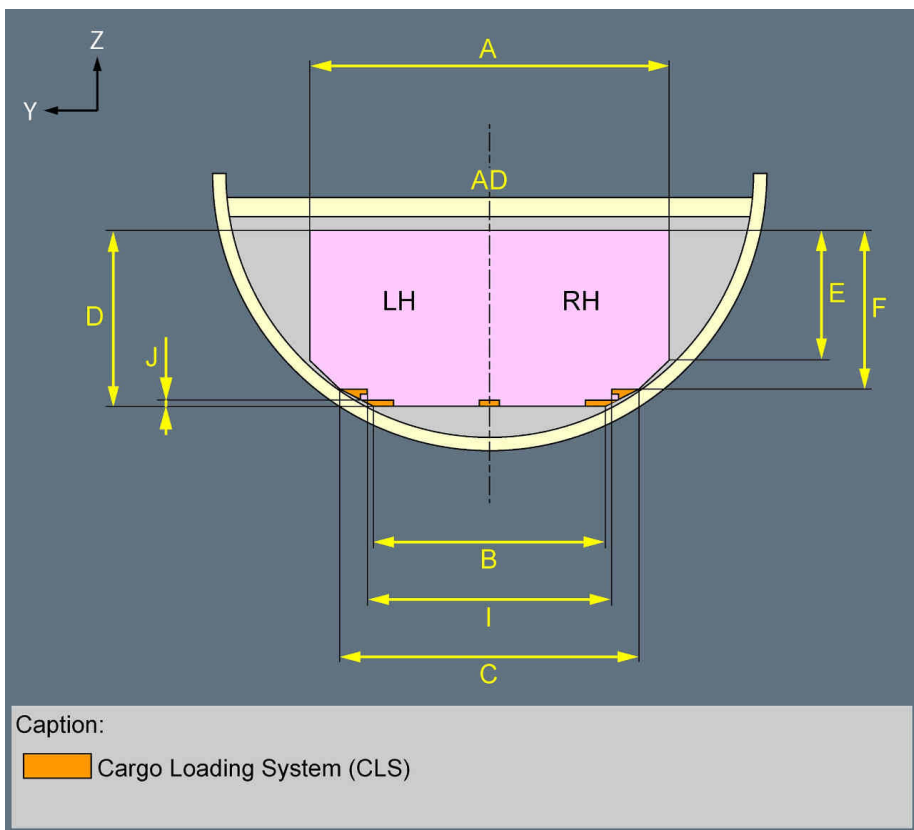
CROSS SECTION

Ident.: CTL-CGO-FWD-ULD-XSC-00019443.0007001 / 31 JAN 18

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The table below provides the cross section of the cargo hold.



WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)							
	A	B	C	D	E	F	I	J
9.858	2.630	1.430	2.098	1.242	0.797	1.065	1.520	0.035
14.708	2.630	1.430	2.098	1.242	0.797	1.065	1.520	0.035

US UNITS

H-ARM (in)	Dimensions (in)							
	A	B	C	D	E	F	I	J
388.11	103.54	56.30	82.60	48.90	31.38	41.93	59.84	1.38
579.06	103.54	56.30	82.60	48.90	31.38	41.93	59.84	1.38

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

Transport of ULDs

Cargo Hold Arrangement

ULD POSITION ARRANGEMENT

Ident.: CTL-CGO-FWD-ULD-CHA-00019446.0008001 / 25 AUG 20

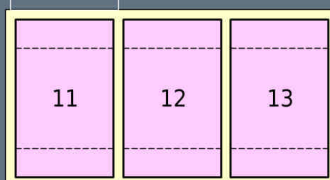
Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

This part provides the H-ARM table of the ULDs with baseplate 60.4 x 61.5 in (ULD Baseplate Code K) for each ULD position.

ULD Position	H-ARM					
	From		To		Average	
	(m)	(in)	(m)	(in)	(m)	(in)
11	9.930	390.94	11.470	451.57	10.700	421.26
12	11.502	452.83	13.042	513.46	12.272	483.15
13	13.074	514.72	14.614	575.35	13.844	545.04

60.4 X 61.5 in



For the Airbus recommendations about the loading of ULDs, *Refer to CTL-CGO-FWD-ULD-RECO Loading Recommendations.*

LATCH LOCATION

Ident.: CTL-CGO-FWD-ULD-CHA-00019445.0007001 / 25 AUG 20

Criteria: 28330, ST1

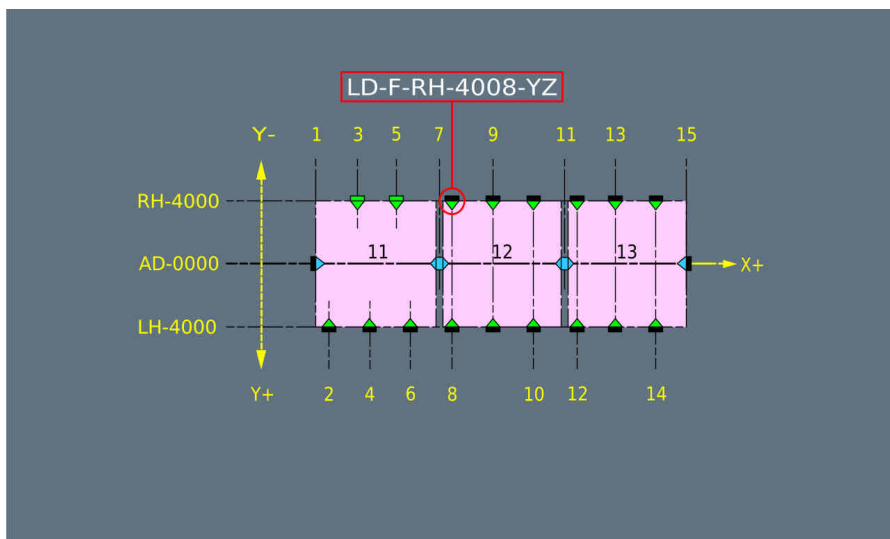
Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

This part of the manual provides the location of all the latches of the cargo hold. To ease the localization of the latches, a numbering system is used. The numbering system provides a specific code for each latch.

This part contains:

- An illustration of the cargo hold floor with all the installed latches
- A description of the numbering system
- A latch location table that provides for each latch code, the latch position and the related cargo hold positions or sections.

LATCHES OF THE FORWARD CARGO HOLD



DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the cargo hold latches. The latch code provides each latch unit with an individual identification.

The DD-H-SS-RNNN-TT latch code has the following essential elements to describe each latch:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- TT: latch restraint type.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Latch position on the Y axis
NNN	Latch position on the X axis

TT- LATCH RESTRAINT TYPE

Code	Latch Restraint Type
XX	Restraint in X direction
XZ	Restraint in X and Z directions
YY	Restraint in Y direction
YZ	Restraint in Y and Z directions

EXAMPLE OF LATCH CODE:

The LD-F-RH-4008-YZ latch code identifies the latch that is:

- In the lower deck
- In the forward cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 008th position from 1 on the X axis
- Able to restrain the ULDs in the Y and Z directions

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

LATCH LOCATION TABLE

Latch Code	Latch Type	Latch Positions				Related Positions or Sections
		H-ARM		Y-ARM		
		(m)	(in)	(m)	(in)	
LD-F-AD-0001-XZ	XZ-Latch (End Stop)	9.930	390.94	0.000	0.00	11
LD-F-LH-4002-YZ	YZ-Latch	10.033	395.00	0.784	30.87	11
LD-F-RH-4003-YZ	YZ-Latch (Door Sill)	10.300	405.51	-0.784	-30.87	11
LD-F-LH-4004-YZ	YZ-Latch	10.566	415.98	0.784	30.87	11
LD-F-RH-4005-YZ	YZ-Latch (Door Sill)	10.833	426.50	-0.784	-30.87	11
LD-F-LH-4006-YZ	YZ-Latch	11.100	437.01	0.784	30.87	11
LD-F-AD-0007-XZ	XZ-Single Latch	11.486	452.20	0.000	0.00	11, 12
LD-F-RH-4008-YZ	YZ-Latch	11.631	457.91	-0.784	-30.87	12
LD-F-LH-4008-YZ	YZ-Latch	11.631	457.91	0.784	30.87	12
LD-F-RH-4009-YZ	YZ-Latch	12.165	478.94	-0.784	-30.87	12
LD-F-LH-4009-YZ	YZ-Latch	12.165	478.94	0.784	30.87	12
LD-F-RH-4010-YZ	YZ-Latch	12.699	499.96	-0.784	-30.87	12
LD-F-LH-4010-YZ	YZ-Latch	12.699	499.96	0.784	30.87	12
LD-F-AD-0011-XZ	XZ-Single Latch	13.058	514.09	0.000	0.00	12, 13
LD-F-RH-4012-YZ	YZ-Latch	13.233	520.98	-0.784	-30.87	13
LD-F-LH-4012-YZ	YZ-Latch	13.233	520.98	0.784	30.87	13
LD-F-RH-4013-YZ	YZ-Latch	13.767	542.01	-0.784	-30.87	13
LD-F-LH-4013-YZ	YZ-Latch	13.767	542.01	0.784	30.87	13
LD-F-RH-4014-YZ	YZ-Latch	14.300	562.99	-0.784	-30.87	13
LD-F-LH-4014-YZ	YZ-Latch	14.300	562.99	0.784	30.87	13
LD-F-AD-0015-XZ	XZ-Latch (End Stop)	14.614	575.35	0.000	0.00	13

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-FWD-ULD-CHA-00021266.0002001 / 25 AUG 20

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

This part provides the location of all the tie-down points in the forward cargo hold.

The cargo hold is equipped with tie-down points on the fixed YZ-Latches of the CLS for the restraint of floating pallets.

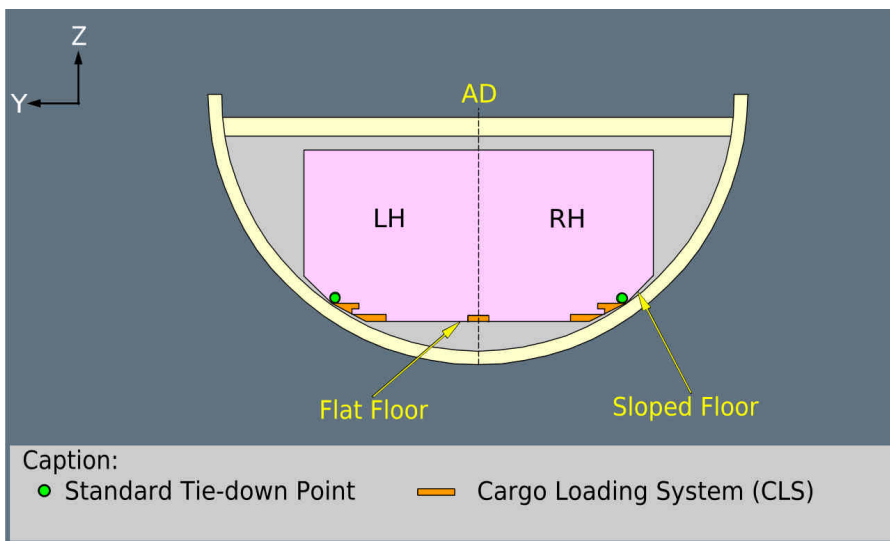
For additional information about the requirements for the loading of floating pallets , *Refer to CTL-LIM-FWD-ULD-NLOD Introduction.*

To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

This part contains:

- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the cargo hold floor with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

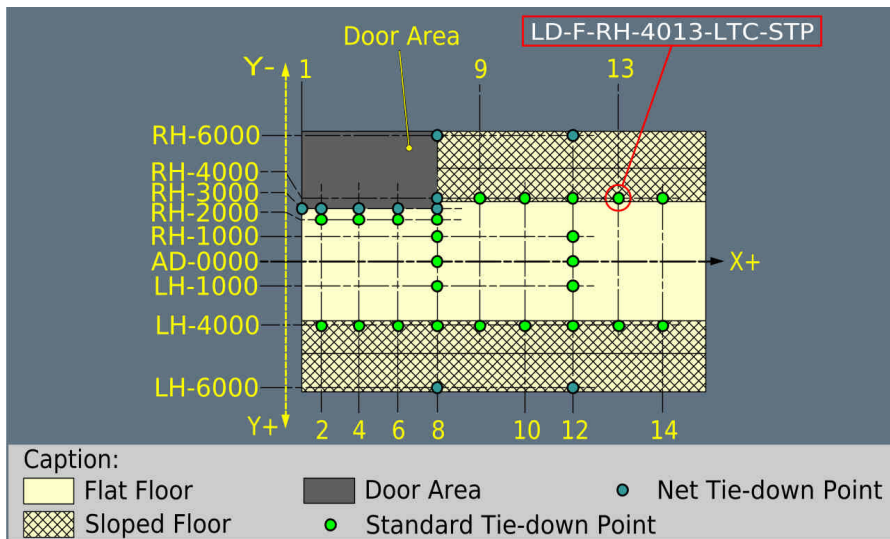
TIE-DOWN POINTS OF THE FORWARD CARGO HOLD



WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold



DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point with an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following essential elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-F-RH-4013-LTC-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the forward cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 013th position on the X axis
- On a fixed YZ-Latch
- A standard tie-down point

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections or positions
		(m)	(in)	(m)	(in)		
LD-F-RH-3001-FLR-NTP	Net	9.930	390.94	-0.765	-30.12	-	-
LD-F-RH-3002-FLR-NTP	Net	10.033	395.00	-0.577	-22.72	-	-
LD-F-RH-2002-FLR-STP	Standard	10.033	395.00	-0.526	-20.72	-	-
LD-F-LH-4002-LTC-STP	Standard	10.033	395.00	0.841	33.10	-	-
LD-F-RH-3004-FLR-NTP	Net	10.566	415.98	-0.577	-22.72	-	-
LD-F-RH-2004-FLR-STP	Standard	10.566	415.98	-0.526	-20.72	-	-
LD-F-LH-4004-LTC-STP	Standard	10.566	415.98	0.841	33.10	-	-
LD-F-RH-3006-FLR-NTP	Net	11.100	437.01	-0.577	-22.72	-	-
LD-F-RH-2006-FLR-STP	Standard	11.100	437.01	-0.526	-20.72	-	-
LD-F-LH-4006-LTC-STP	Standard	11.100	437.01	0.841	33.10	-	-
LD-F-RH-6008-FLR-NTP	Net	11.631	457.91	-1.284	-50.55	-	-
LD-F-RH-4008-FLR-NTP	Net	11.631	457.91	-0.841	-33.10	-	-
LD-F-RH-3008-FLR-NTP	Net	11.631	457.91	-0.577	-22.72	-	-
LD-F-RH-2008-FLR-STP	Standard	11.631	457.91	-0.526	-20.72	-	-
LD-F-RH-1008-FLR-STP	Standard	11.631	457.91	-0.310	-12.20	-	-
LD-F-AD-0008-FLR-STP	Standard	11.631	457.91	0.000	0.00	-	-
LD-F-LH-1008-FLR-STP	Standard	11.631	457.91	0.347	13.66	-	-
LD-F-LH-4008-LTC-STP	Standard	11.631	457.91	0.841	33.10	-	-
LD-F-LH-6008-FLR-NTP	Net	11.631	457.91	1.284	50.55	-	-
LD-F-RH-4009-LTC-STP	Standard	12.165	478.94	-0.841	-33.10	-	-
LD-F-LH-4009-LTC-STP	Standard	12.165	478.94	0.841	33.10	-	-
LD-F-RH-4010-LTC-STP	Standard	12.699	499.96	-0.841	-33.11	-	-
LD-F-LH-4010-LTC-STP	Standard	12.699	499.96	0.841	33.10	-	-
LD-F-RH-6012-FLR-NTP	Net	13.233	520.98	-1.284	-50.55	-	-
LD-F-RH-4012-LTC-NTP	Standard	13.233	520.98	-0.841	-33.10	-	-
LD-F-RH-1012-FLR-STP	Standard	13.233	520.98	-0.310	-12.20	-	-
LD-F-AD-0012-FLR-STP	Standard	13.233	520.98	0.000	0.00	-	-
LD-F-LH-1012-FLR-STP	Standard	13.233	520.98	0.347	13.66	-	-
LD-F-LH-4012-LTC-STP	Standard	13.233	520.98	0.841	33.10	-	-
LD-F-LH-6012-FLR-NTP	Net	13.233	520.98	1.284	50.55	-	-
LD-F-RH-4013-LTC-STP	Standard	13.767	542.01	-0.841	-33.10	-	-
LD-F-LH-4013-LTC-STP	Standard	13.767	542.01	0.841	33.10	-	-
LD-F-RH-4014-LTC-STP	Standard	14.300	562.99	-0.841	-33.10	-	-
LD-F-LH-4014-LTC-STP	Standard	14.300	562.99	0.841	33.10	-	-

Transport of ULDs**Loading Recommendations****LOADING RECOMMENDATIONS**

Ident.: CTL-CGO-FWD-ULD-RECO-00019447.0037001 / 31 JAN 18

Criteria: 20057, 20082, 28330, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

The operator can load the cargo hold with:

- A maximum of 3 ULDs with 60.4 x 61.5 in baseplate dimensions (*Refer to CTL-LIM-FWD-ULD-CHL Cargo Hold Capacity for ULDs*)
- Non-unitized loads (*Refer to CTL-LIM-FWD-ULD-NLOD Introduction*).

To load a ULD or a non-unitized load in the cargo hold, the operator should consider all of the following:

- The dimensions of the permitted ULD baseplate
- The maximum permitted dimensions of the container contour
- The clearances required around the loaded pallets
- The dimensions of the package
- The installation of the ventilation and temperature control systems in the cargo hold, if required by the type of loaded item.

The operator can:

- Load a combination of ULDs and non-unitized loads. The operator should consider the interference that may occur between ULDs and non-unitized loads
- Keep one or more ULD positions vacant.

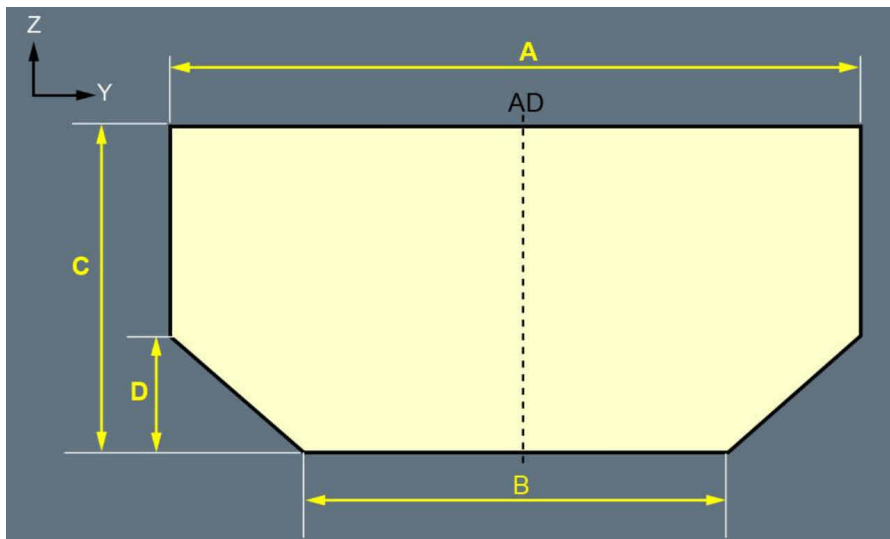
ULD BASEPLATE

If the ULD baseplate is deteriorated, the baseplate may interfere with the function of the CLS. To ensure smooth loading and restraint of the ULD in the CLS, the operator should inspect all of the following:

- The baseplate deflection
- The baseplate outer dimensions
- The baseplate edge profile.

CONTAINER AND PALLET CONTOUR

The dimensions of the containers must remain within the limits of the Standard Contour H defined by the IATA.



Legend	Dimensions	
	(m)	(in)
A	2.451	96.50
B	1.562	61.50
C	1.143	45.00
D	0.498	19.60

When transporting a pallet, the operator must ensure a clearance of 2.00 in (0.051 m) between the contour of the loaded pallet (pallet, pallet equipment and load items) and:

- The cargo door
- The adjacent ULD
- The cargo hold sidewalls and ceiling.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the cargo door
- The cross section of the cargo hold
- The length of the cargo hold
- The restraint system of the cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

The operator is responsible for the calculation or the loading tests to ensure that it is possible to load the packages with defined form, dimensions and weight.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Forward Cargo Hold

METRIC UNITS

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.332	5.150	3.912
0.100	5.252	5.080	3.712
0.200	5.174	4.703	3.511
0.300	5.099	4.503	3.311
0.400	5.026	4.302	3.111
0.500	4.672	4.101	2.911
0.600	4.469	3.900	2.711
0.700	4.265	3.699	2.511
0.800	4.061	3.498	2.310
0.900	3.855	3.296	2.110
1.000	3.649	3.094	1.909
1.100	3.441	2.892	1.708
1.200	3.232	2.689	1.507
1.300	3.019	2.484	1.438
1.400	2.802	2.278	-
1.500	2.578	2.068	-
1.600	2.427	1.996	-

US UNITS

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	209.90	202.70	153.80
4.00	206.70	199.90	145.80
8.00	203.50	184.70	137.80
12.00	200.50	176.70	129.80
16.00	197.60	168.70	121.80
20.00	183.10	160.70	113.80
24.00	175.00	152.60	105.80
28.00	166.80	144.60	97.80
32.00	158.70	136.50	89.80
36.00	150.40	128.50	81.80
40.00	142.20	120.40	73.70
44.00	133.90	112.30	65.70
48.00	125.50	104.10	57.60
52.00	116.90	95.90	56.70
56.00	108.20	87.70	-
60.00	99.10	79.20	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The forward cargo hold is equipped with ventilation and temperature control systems. Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

LOADING RECOMMENDATIONS

Ident.: CTL-CGO-FWD-ULD-RECO-00019447.0013001 / 31 JAN 18

Criteria: 28330, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The operator can load the cargo hold with:

- A maximum of 3 ULDs with 60.4 x 61.5 in baseplate dimensions (*Refer to CTL-LIM-FWD-ULD-CHL Cargo Hold Capacity for ULDs*)
- Non-unitized loads (*Refer to CTL-LIM-FWD-ULD-NLOD Introduction*).

To load a ULD or a non-unitized load in the cargo hold, the operator should consider all of the following:

- The dimensions of the permitted ULD baseplate
- The maximum permitted dimensions of the container contour
- The clearances required around the loaded pallets
- The dimensions of the package
- The installation of the ventilation and temperature control systems in the cargo hold, if required by the type of loaded item.

The operator can:

- Load a combination of ULDs and non-unitized loads. The operator should consider the interference that may occur between ULDs and non-unitized loads
- Keep one or more ULD positions vacant.

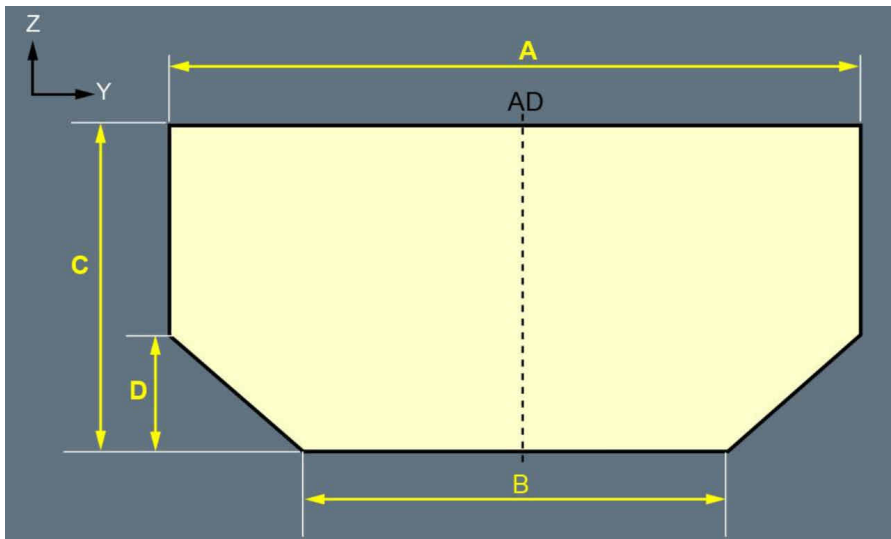
ULD BASEPLATE

If the ULD baseplate is deteriorated, the baseplate may interfere with the function of the CLS. To ensure smooth loading and restraint of the ULD in the CLS, the operator should inspect all of the following:

- The baseplate deflection
- The baseplate outer dimensions
- The baseplate edge profile.

CONTAINER AND PALLET CONTOUR

The dimensions of the containers must remain within the limits of the Standard Contour H defined by the IATA.



Legend	Dimensions	
	(m)	(in)
A	2.451	96.50
B	1.562	61.50
C	1.143	45.00
D	0.498	19.60

When transporting a pallet, the operator must ensure a clearance of 2.00 in (0.051 m) between the contour of the loaded pallet (pallet, pallet equipment and load items) and:

- The cargo door
- The adjacent ULD
- The cargo hold sidewalls and ceiling.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the cargo door
- The cross section of the cargo hold

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

- The length of the cargo hold
- The restraint system of the cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.
 The operator is responsible for the calculation or the loading tests to ensure that it is possible to load the packages with defined form, dimensions and weight.

METRIC UNITS

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.332	5.150	3.912
0.100	5.252	5.080	3.712
0.200	5.174	4.703	3.511
0.300	5.099	4.503	3.311
0.400	5.026	4.302	3.111
0.500	4.672	4.101	2.911
0.600	4.469	3.900	2.711
0.700	4.265	3.699	2.511
0.800	4.061	3.498	2.310
0.900	3.855	3.296	2.110
1.000	3.649	3.094	1.909
1.100	3.441	2.892	1.708
1.200	3.232	2.689	1.507
1.300	3.019	2.484	1.438
1.400	2.802	2.278	-
1.500	2.578	2.068	-
1.600	2.427	1.996	-

US UNITS

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	209.90	202.70	153.80
4.00	206.70	199.90	145.80
8.00	203.50	184.70	137.80
12.00	200.50	176.70	129.80
16.00	197.60	168.70	121.80
20.00	183.10	160.70	113.80
24.00	175.00	152.60	105.80
28.00	166.80	144.60	97.80
32.00	158.70	136.50	89.80

Continued on the following page

 PAKISTAN International Airlines <i>Great People to Fly With</i> A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Cargo Arrangement Forward Cargo Hold
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Continued from the previous page

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
36.00	150.40	128.50	81.80
40.00	142.20	120.40	73.70
44.00	133.90	112.30	65.70
48.00	125.50	104.10	57.60
52.00	116.90	95.90	56.70
56.00	108.20	87.70	-
60.00	99.10	79.20	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The forward cargo hold is not equipped with ventilation and temperature control systems. Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Forward Cargo Hold

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Transport of Bulk Loads
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-AFT-BULK-CHD-00019448.0025001 / 27 JUL 23

Criteria: 23172, 26213, ST1

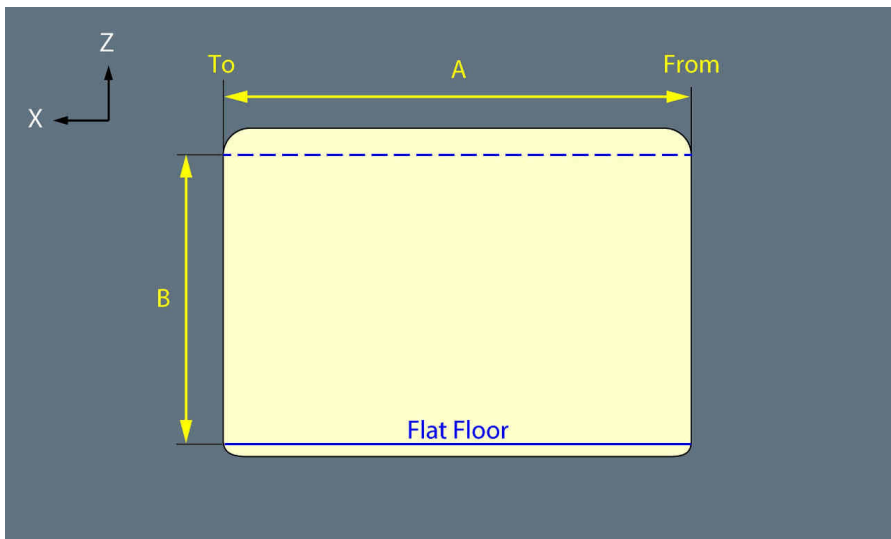
Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The aft cargo hold is equipped with a door on the right side of the fuselage.

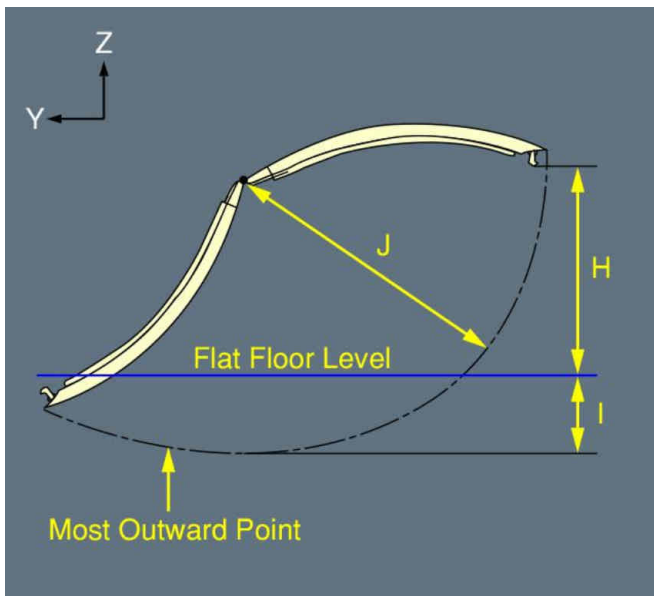
The door opens outward.

The operator must use the aft door to load and unload the aft cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
24.320	957.48	26.137	1 029.02

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.233	48.54

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the flat floor level and the hooks (when the door is in fully opened position)	1.420	55.90
I	Clearance below the flat floor level when the door is operated	0.652	25.67
J	Door opening radius	2.024	79.68

Transport of Bulk Loads

Cross Section

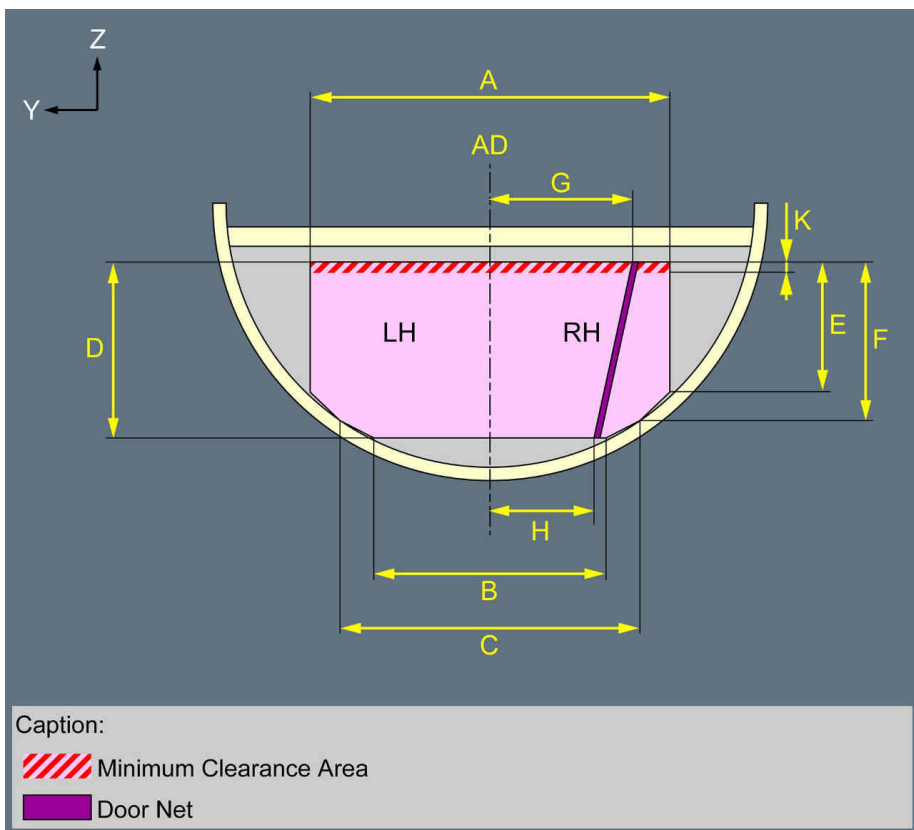
CROSS SECTION

Ident.: CTL-CGO-AFT-BULK-XSC-00019461.0015001 / 31 JAN 18

Criteria: 23172, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The tables below provide the cross sections of the cargo hold.



WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)								
	A	B	C	D	E	F	G	H	K
21.208	2.630	1.430	2.098	1.242	0.797	1.065	-	-	0.051
24.295	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	0.051
26.162	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	0.051
27.229	2.630	1.430	2.098	1.242	0.797	1.065	-	-	0.051
27.762	2.630	1.408	2.098	1.208	0.756	1.024	-	-	0.051

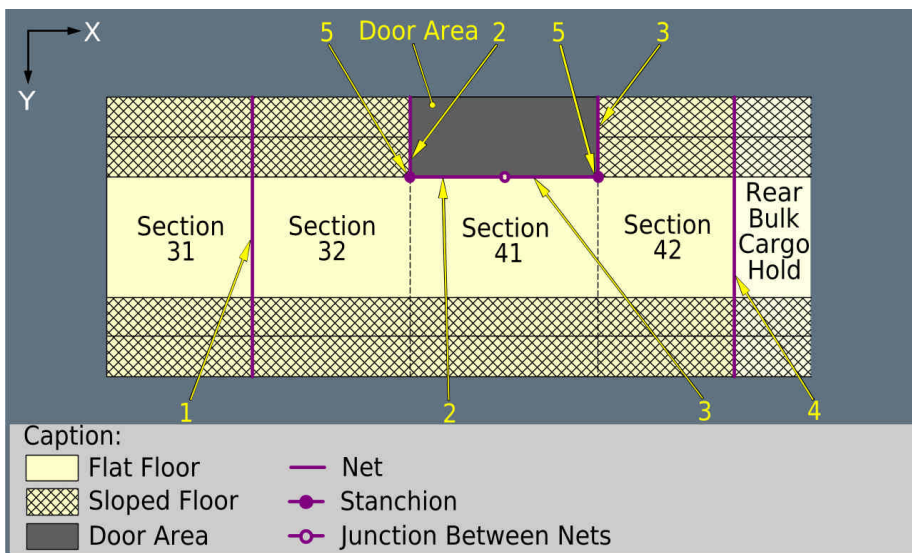
US UNITS

H-ARM (in)	Dimensions (in)								
	A	B	C	D	E	F	G	H	K
834.96	103.54	56.30	82.60	48.90	31.38	41.93	-	-	2.00
956.50	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	2.00
1 030.00	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	2.00
1 072.01	103.54	56.30	82.60	48.90	31.38	41.93	-	-	2.00
1 092.99	103.54	55.43	82.60	47.56	29.76	40.31	-	-	2.00

SECTION ARRANGEMENT

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

The aft cargo hold is divided into sections and net sections as indicated in the illustration below.



Legend	Related Net Type	Installation Requirement
1	Divider net type A2	Mandatory
2	Door net type B	Mandatory
3	Door net type A	Mandatory
4	Divider net type A1	Mandatory
5	Stanchion	Mandatory

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m³)	(ft³)
31	21.208	834.96	22.962	904.02	22.085	869.49	5.230	184.70
32	22.962	904.02	24.562	967.01	23.762	935.51	4.530	159.98
41	24.562	967.01	26.162	1 030.00	25.362	998.50	3.790	133.84
42	26.162	1 030.00	27.762	1 092.99	26.962	1 061.50	4.750	167.74

The maximum usable volume of the cargo hold is based on:

- The maximum theoretical volume
- The volume reduction due to the door area
- The volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling.

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-AFT-BULK-CHA-00021285.0009001 / 17 JUN 21

Criteria: 21103, ST1

Applicable to: MSN 02155, 02212, 02926, 02944, 04392, 07784, 07792

This part provides the location of all the tie-down points installed in the aft cargo hold.

The aft cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

To attach the nets, the operator uses the tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points

(See Location Table of the Tie-down Points) that are not already used to attach the nets.

For additional information about the requirements for the loading of bulk items *Refer to CTL-LIM-AFT-BULK-CHL Restraint Conditions and Refer to CTL-LIM-AFT-BULK-CHL Fastening Load Requirements.*

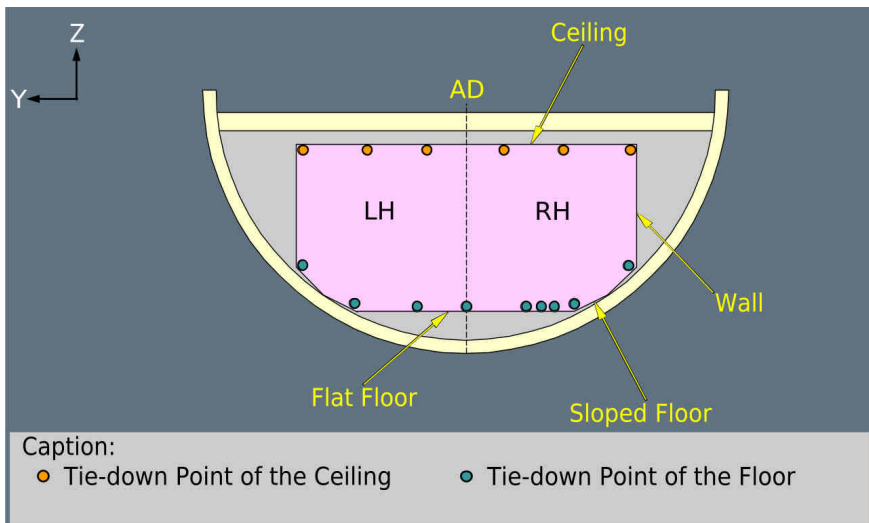
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

This part contains:

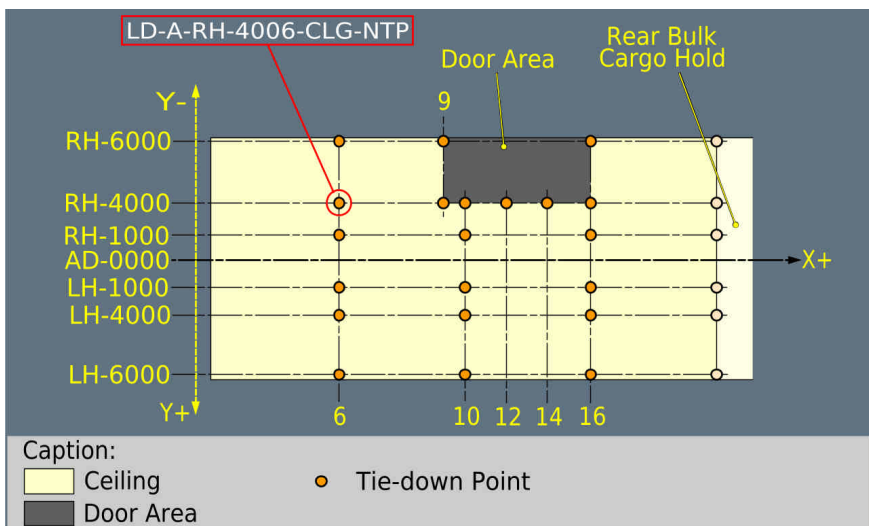
- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the ceiling of the cargo hold with all the installed tie-down points
- An illustration of the sloped and flat floors of the cargo hold with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

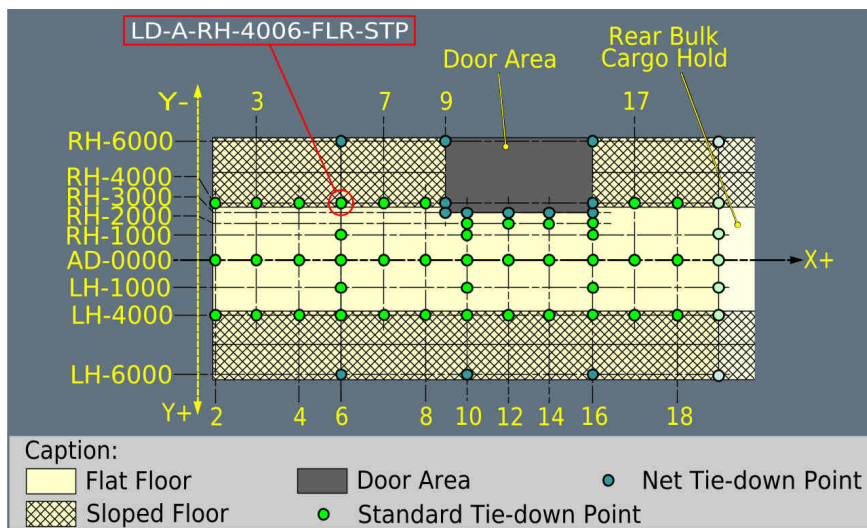
TIE-DOWN POINTS OF THE AFT CARGO HOLD

POSSIBLE LOCATION OF THE TIE-DOWN POINTS



TIE-DOWN POINTS OF THE CEILING



TIE-DOWN POINTS OF THE FLAT AND SLOPED FLOORS

DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-A-RH-4006-FLR-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the aft cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 006th position from 1 on the X axis
- On the floor of the cargo hold
- A standard tie-down point.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-RH-4002-FLR-STP	Bulk restraint	21.363	841.05	-0.776	-30.56	-	31
LD-A-AD-0002-FLR-STP	Bulk restraint	21.347	840.42	0.000	0.00	-	31
LD-A-LH-4002-FLR-STP	Bulk restraint	21.363	841.05	0.776	30.56	-	31
LD-A-RH-4003-FLR-STP	Bulk restraint	21.897	862.07	-0.776	-30.56	-	31
LD-A-AD-0003-FLR-STP	Bulk restraint	21.881	861.44	0.000	0.00	-	31
LD-A-LH-4003-FLR-STP	Bulk restraint	21.897	862.07	0.776	30.56	-	31
LD-A-RH-4004-FLR-STP	Bulk restraint	22.430	883.06	-0.776	-30.56	-	31
LD-A-AD-0004-FLR-STP	Bulk restraint	22.414	882.43	0.000	0.00	-	31
LD-A-LH-4004-FLR-STP	Bulk restraint	22.430	883.06	0.776	30.56	-	31
LD-A-RH-6006-CLG-NTP	Net restraint	22.938	903.09	-1.292	-50.87	Divider net type A2	31, 32
LD-A-RH-6006-FLR-NTP	Net restraint	22.987	905.00	-1.284	-50.55	Divider net type A2	31, 32
LD-A-RH-4006-CLG-NTP	Net restraint	22.938	903.09	-0.765	-30.12	Divider net type A2	31, 32
LD-A-RH-4006-FLR-STP	Bulk restraint	22.964	904.08	-0.776	-30.56	Divider net type A2	31, 32
LD-A-RH-1006-CLG-NTP	Net restraint	22.938	903.09	-0.254	-10.00	Divider net type A2	31, 32
LD-A-RH-1006-FLR-STP	Bulk restraint	22.948	903.45	-0.353	-13.89	Divider net type A2	31, 32
LD-A-AD-0006-FLR-STP	Bulk restraint	22.948	903.45	0.000	0.00	Divider net type A2	31, 32
LD-A-LH-1006-CLG-NTP	Net restraint	22.938	903.09	0.254	10.00	Divider net type A2	31, 32
LD-A-LH-1006-FLR-STP	Bulk restraint	22.948	903.45	0.353	13.89	Divider net type A2	31, 32
LD-A-LH-4006-CLG-NTP	Net restraint	22.938	903.09	0.765	30.12	Divider net type A2	31, 32

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-LH-4006-FLR-STP	Bulk restraint	22.964	904.08	0.776	30.56	Divider net type A2	31, 32
LD-A-LH-6006-CLG-NTP	Net restraint	22.938	903.09	1.292	50.87	Divider net type A2	31, 32
LD-A-LH-6006-FLR-NTP	Net restraint	22.987	905.00	1.284	50.55	Divider net type A2	31, 32
LD-A-RH-4007-FLR-STP	Bulk restraint	23.497	925.07	-0.776	-30.56	-	32
LD-A-AD-0007-FLR-STP	Bulk restraint	23.481	924.44	0.000	0.00	-	32
LD-A-LH-4007-FLR-STP	Bulk restraint	23.497	925.07	0.776	30.56	-	32
LD-A-RH-4008-FLR-STP	Bulk restraint	24.030	946.05	-0.776	-30.56	-	32
LD-A-AD-0008-FLR-STP	Bulk restraint	24.014	945.42	0.000	0.00	-	32
LD-A-LH-4008-FLR-STP	Bulk restraint	24.030	946.05	0.776	30.56	-	32
LD-A-RH-6009-CLG-NTP	Net restraint	24.271	955.57	-1.292	-50.87	Door net type B	32, Door area
LD-A-RH-6009-FLR-NTP	Net restraint	24.280	955.91	-1.284	-50.55	Door net type B	32, Door area
LD-A-RH-4009-CLG-NTP	Net restraint	24.271	955.57	-0.765	-30.12	Door net type B, Stanchion	32, Door area
LD-A-RH-4009-FLR-NTP	Net restraint	24.280	955.91	-0.776	-30.56	Door net type B	32, Door area
LD-A-RH-3009-FLR-NTP	Net restraint	24.280	955.91	-0.635	-25.00	Door net type B, Stanchion	32, Door area
LD-A-RH-4010-CLG-NTP	Net restraint	24.538	966.08	-0.765	-30.12	Door net type B	32, 41, Door area
LD-A-RH-3010-FLR-NTP	Net restraint	24.577	967.60	-0.577	-22.72	Door net type B	32, 41, Door area
LD-A-RH-2010-FLR-STP	Bulk restraint	24.577	967.60	-0.526	-20.72	-	32, 41
LD-A-RH-1010-CLG-NTP	Net restraint	24.538	966.08	-0.254	-10.00	-	32, 41
LD-A-RH-1010-FLR-STP	Bulk restraint	24.575	967.51	-0.310	-12.20	-	32, 41

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WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

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Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-AD-0010-FLR-STP	Bulk restraint	24.548	966.44	0.000	0.00	-	32, 41
LD-A-LH-1010-CLG-NTP	Net restraint	24.538	966.08	0.254	10.00	-	32, 41
LD-A-LH-1010-FLR-STP	Bulk restraint	24.548	966.44	0.353	13.89	-	32, 41
LD-A-LH-4010-CLG-NTP	Net restraint	24.538	966.08	0.765	30.12	-	32, 41
LD-A-LH-4010-FLR-STP	Bulk restraint	24.564	967.07	0.776	30.56	-	32, 41
LD-A-LH-6010-CLG-NTP	Net restraint	24.538	966.08	1.292	50.87	-	32, 41
LD-A-LH-6010-FLR-NTP	Net restraint	24.587	967.99	1.284	50.55	-	32, 41
LD-A-RH-4012-CLG-NTP	Net restraint	25.071	987.06	-0.765	-30.12	Door net type B	41, Door area
LD-A-RH-3012-FLR-NTP	Net restraint	25.108	988.50	-0.577	-22.72	Door net type B	41, Door area
LD-A-RH-2012-FLR-STP	Bulk restraint	25.108	988.50	-0.526	-20.72	-	41
LD-A-AD-0012-FLR-STP	Bulk restraint	25.081	987.43	0.000	0.00	-	41
LD-A-LH-4012-FLR-STP	Bulk restraint	25.097	988.06	0.776	30.56	-	41
LD-A-RH-4014-CLG-NTP	Net restraint	25.605	1 008.09	-0.765	-30.12	Door net type A, Door net type B	41, Door area
LD-A-RH-3014-FLR-NTP	Net restraint	25.642	1 009.52	-0.577	-22.72	Door net type A, Door net type B	41, Door area
LD-A-RH-2014-FLR-STP	Bulk restraint	25.642	1 009.52	-0.526	-20.72	-	41
LD-A-AD-0014-FLR-STP	Bulk restraint	25.615	1 008.45	0.000	0.00	-	41
LD-A-LH-4014-FLR-STP	Bulk restraint	25.631	1 009.08	0.776	30.56	-	41
LD-A-RH-6016-CLG-NTP	Net restraint	26.138	1 029.07	-1.292	-50.87	Door net type A	41, 42, Door area

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WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

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Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-RH-6016-FLR-NTP	Net restraint	26.177	1 030.59	-1.284	-50.55	Door net type A	41, 42, Door area
LD-A-RH-4016-CLG-NTP	Net restraint	26.138	1 029.07	-0.765	-30.12	Door net type A, Stanchion	41, 42, Door area
LD-A-RH-4016-FLR-NTP	Net restraint	26.192	1 031.18	-0.776	-30.56	Door net type A	41, 42, Door area
LD-A-RH-3016-FLR-STP	Bulk restraint	26.177	1 030.59	-0.552	-21.75	-	41, 42
LD-A-RH-3016-FLR-NTP	Net restraint	26.177	1 030.59	-0.603	-23.75	Door net type A, Stanchion	41, 42, Door area
LD-A-RH-1016-CLG-NTP	Net restraint	26.138	1 029.07	-0.254	-10.00	-	41, 42
LD-A-RH-1016-FLR-STP	Bulk restraint	26.177	1 030.59	-0.310	-12.20	-	41, 42
LD-A-AD-0016-FLR-STP	Bulk restraint	26.148	1 029.44	0.000	0.00	-	41, 42
LD-A-LH-1016-CLG-NTP	Net restraint	26.138	1 029.07	0.254	10.00	-	41, 42
LD-A-LH-1016-FLR-STP	Bulk restraint	26.148	1 029.44	0.353	13.89	-	41, 42
LD-A-LH-4016-CLG-NTP	Net restraint	26.138	1 029.07	0.765	30.12	-	41, 42
LD-A-LH-4016-FLR-STP	Bulk restraint	26.164	1 030.07	0.776	30.56	-	41, 42
LD-A-LH-6016-CLG-NTP	Net restraint	26.138	1 029.07	1.292	50.87	-	41, 42
LD-A-LH-6016-FLR-NTP	Net restraint	26.187	1 030.98	1.284	50.54	-	41, 42
LD-A-RH-4017-FLR-STP	Bulk restraint	26.697	1 051.05	-0.776	-30.56	-	42
LD-A-AD-0017-FLR-STP	Bulk restraint	26.681	1 050.42	0.000	0.00	-	42
LD-A-LH-4017-FLR-STP	Bulk restraint	26.697	1 051.05	0.776	30.56	-	42
LD-A-RH-4018-FLR-STP	Bulk restraint	27.231	1 072.07	-0.776	-30.56	-	42

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WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

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Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-AD-0018-FLR-STP	Bulk restraint	27.215	1 071.44	0.000	0.00	-	42
LD-A-LH-4018-FLR-STP	Bulk restraint	27.231	1 072.07	0.776	30.56	-	42

Transport of Bulk Loads
Loading Recommendations
LOADING RECOMMENDATIONS

Ident.: CTL-CGO-AFT-BULK-RECO-00019504.0082001 / 31 JAN 18

Criteria: 20059, 21103, ST1

Applicable to: MSN 07784, 07792

To load an item in the aft cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the aft cargo hold, if required by the type of loaded items.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the aft cargo door
- The cross sections of the aft cargo hold
- The restraint system of the aft cargo hold
- The dimensions of the net sections of the aft cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 32/41/42) with the mandatory divider nets installed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	4.189	3.891	3.594
0.100	4.093	3.804	3.528
0.200	3.998	3.719	3.467
0.300	3.903	3.636	3.412
0.400	3.810	3.557	3.363
0.500	3.717	3.381	3.287
0.600	3.626	3.410	3.085

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WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

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Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.700	3.537	3.344	2.883
0.800	3.451	3.284	2.680
0.900	3.367	3.232	2.477
1.000	3.287	3.189	2.272
1.100	3.212	3.037	2.066
1.200	3.143	2.836	1.855
1.300	3.083	2.634	1.715
1.400	3.033	2.431	1.715
1.500	2.880	2.227	-
1.600	2.655	2.021	-
1.700	2.528	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	164.90	153.20	141.50
4.00	161.10	149.70	138.90
8.00	157.30	146.30	136.40
12.00	153.50	143.00	134.20
16.00	149.80	139.90	132.30
20.00	146.10	136.80	128.80
24.00	142.40	134.00	120.70
28.00	138.90	131.40	112.60
32.00	135.40	129.00	104.50
36.00	132.10	127.00	96.40
40.00	128.90	125.30	88.20
44.00	126.00	118.20	79.90
48.00	123.30	110.10	71.40
52.00	120.90	102.10	67.50
56.00	119.00	93.90	67.50
60.00	111.30	85.80	-
64.00	102.20	78.60	-

**MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS NOT
INSTALLED**

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider nets removed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.965	5.224	4.292
0.100	5.763	5.154	4.091
0.200	5.561	4.843	3.890
0.300	5.359	4.643	3.689
0.400	5.156	4.443	3.488
0.500	4.954	4.242	3.287
0.600	4.751	4.042	3.085
0.700	4.547	3.841	2.883
0.800	4.343	3.640	2.680
0.900	4.139	3.440	2.477
1.000	3.933	3.239	2.272
1.100	3.727	3.037	2.066
1.200	3.519	2.836	1.855
1.300	3.310	2.634	1.715
1.400	3.097	2.431	1.715
1.500	2.880	2.227	-
1.600	2.655	2.021	-
1.700	2.528	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	234.80	206.50	169.00
4.00	226.80	198.50	161.00
8.00	218.70	190.50	152.90
12.00	210.60	182.40	144.90
16.00	202.50	174.40	136.80
20.00	194.40	166.40	128.80
24.00	186.30	158.40	120.70
28.00	178.10	150.40	112.60
32.00	170.00	142.30	104.50
36.00	161.80	134.30	96.40
40.00	153.60	126.30	88.20
44.00	145.30	118.20	79.90
48.00	137.00	110.10	71.40
52.00	128.60	102.10	67.50
56.00	120.10	93.90	67.50

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WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

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Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
60.00	111.30	85.80	-
64.00	102.20	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The aft cargo hold is equipped with ventilation control system.

The aft cargo hold is not equipped with temperature control system.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

LOADING RECOMMENDATIONS

Ident.: CTL-CGO-AFT-BULK-RECO-00019504.0080001 / 31 JAN 18

Criteria: 21103, ST1

Applicable to: MSN 02926, 02944

To load an item in the aft cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the aft cargo hold, if required by the type of loaded items.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the aft cargo door
- The cross sections of the aft cargo hold
- The restraint system of the aft cargo hold
- The dimensions of the net sections of the aft cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 32/41/42) with the mandatory divider nets installed.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	4.189	3.891	3.594
0.100	4.093	3.804	3.528
0.200	3.998	3.719	3.467
0.300	3.903	3.636	3.412
0.400	3.810	3.557	3.363
0.500	3.717	3.381	3.287
0.600	3.626	3.410	3.085
0.700	3.537	3.344	2.883
0.800	3.451	3.284	2.680
0.900	3.367	3.232	2.477
1.000	3.287	3.189	2.272
1.100	3.212	3.037	2.066
1.200	3.143	2.836	1.855
1.300	3.083	2.634	1.715
1.400	3.033	2.431	1.715
1.500	2.880	2.227	-
1.600	2.655	2.021	-
1.700	2.528	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	164.90	153.20	141.50
4.00	161.10	149.70	138.90
8.00	157.30	146.30	136.40
12.00	153.50	143.00	134.20
16.00	149.80	139.90	132.30
20.00	146.10	136.80	128.80
24.00	142.40	134.00	120.70
28.00	138.90	131.40	112.60
32.00	135.40	129.00	104.50
36.00	132.10	127.00	96.40
40.00	128.90	125.30	88.20
44.00	126.00	118.20	79.90
48.00	123.30	110.10	71.40
52.00	120.90	102.10	67.50
56.00	119.00	93.90	67.50

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WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

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Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
60.00	111.30	85.80	-
64.00	102.20	78.60	-

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS NOT INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider nets removed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.965	5.224	4.292
0.100	5.763	5.154	4.091
0.200	5.561	4.843	3.890
0.300	5.359	4.643	3.689
0.400	5.156	4.443	3.488
0.500	4.954	4.242	3.287
0.600	4.751	4.042	3.085
0.700	4.547	3.841	2.883
0.800	4.343	3.640	2.680
0.900	4.139	3.440	2.477
1.000	3.933	3.239	2.272
1.100	3.727	3.037	2.066
1.200	3.519	2.836	1.855
1.300	3.310	2.634	1.715
1.400	3.097	2.431	1.715
1.500	2.880	2.227	-
1.600	2.655	2.021	-
1.700	2.528	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	234.80	206.50	169.00
4.00	226.80	198.50	161.00
8.00	218.70	190.50	152.90

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Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
12.00	210.60	182.40	144.90
16.00	202.50	174.40	136.80
20.00	194.40	166.40	128.80
24.00	186.30	158.40	120.70
28.00	178.10	150.40	112.60
32.00	170.00	142.30	104.50
36.00	161.80	134.30	96.40
40.00	153.60	126.30	88.20
44.00	145.30	118.20	79.90
48.00	137.00	110.10	71.40
52.00	128.60	102.10	67.50
56.00	120.10	93.90	67.50
60.00	111.30	85.80	-
64.00	102.20	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The aft cargo hold is not equipped with ventilation and temperature control systems.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

LOADING RECOMMENDATIONS

Ident.: CTL-CGO-AFT-BULK-RECO-00019504.0041001 / 31 JAN 18

Criteria: 20059, 20084, 21103, ST1

Applicable to: MSN 02155, 02212, 04392

To load an item in the aft cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the aft cargo hold, if required by the type of loaded items.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the aft cargo door
- The cross sections of the aft cargo hold

WEIGHT AND BALANCE CONTROL
Cargo Arrangement
Aft Cargo Hold

- The restraint system of the aft cargo hold
- The dimensions of the net sections of the aft cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes. Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 32/41/42) with the mandatory divider nets installed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	4.189	3.891	3.594
0.100	4.093	3.804	3.528
0.200	3.998	3.719	3.467
0.300	3.903	3.636	3.412
0.400	3.810	3.557	3.363
0.500	3.717	3.381	3.287
0.600	3.626	3.410	3.085
0.700	3.537	3.344	2.883
0.800	3.451	3.284	2.680
0.900	3.367	3.232	2.477
1.000	3.287	3.189	2.272
1.100	3.212	3.037	2.066
1.200	3.143	2.836	1.855
1.300	3.083	2.634	1.715
1.400	3.033	2.431	1.715
1.500	2.880	2.227	-
1.600	2.655	2.021	-
1.700	2.528	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	164.90	153.20	141.50
4.00	161.10	149.70	138.90
8.00	157.30	146.30	136.40

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WEIGHT AND BALANCE CONTROL
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Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
12.00	153.50	143.00	134.20
16.00	149.80	139.90	132.30
20.00	146.10	136.80	128.80
24.00	142.40	134.00	120.70
28.00	138.90	131.40	112.60
32.00	135.40	129.00	104.50
36.00	132.10	127.00	96.40
40.00	128.90	125.30	88.20
44.00	126.00	118.20	79.90
48.00	123.30	110.10	71.40
52.00	120.90	102.10	67.50
56.00	119.00	93.90	67.50
60.00	111.30	85.80	-
64.00	102.20	78.60	-

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS NOT INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider nets removed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.965	5.224	4.292
0.100	5.763	5.154	4.091
0.200	5.561	4.843	3.890
0.300	5.359	4.643	3.689
0.400	5.156	4.443	3.488
0.500	4.954	4.242	3.287
0.600	4.751	4.042	3.085
0.700	4.547	3.841	2.883
0.800	4.343	3.640	2.680
0.900	4.139	3.440	2.477
1.000	3.933	3.239	2.272
1.100	3.727	3.037	2.066
1.200	3.519	2.836	1.855
1.300	3.310	2.634	1.715

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
1.400	3.097	2.431	1.715
1.500	2.880	2.227	-
1.600	2.655	2.021	-
1.700	2.528	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	234.80	206.50	169.00
4.00	226.80	198.50	161.00
8.00	218.70	190.50	152.90
12.00	210.60	182.40	144.90
16.00	202.50	174.40	136.80
20.00	194.40	166.40	128.80
24.00	186.30	158.40	120.70
28.00	178.10	150.40	112.60
32.00	170.00	142.30	104.50
36.00	161.80	134.30	96.40
40.00	153.60	126.30	88.20
44.00	145.30	118.20	79.90
48.00	137.00	110.10	71.40
52.00	128.60	102.10	67.50
56.00	120.10	93.90	67.50
60.00	111.30	85.80	-
64.00	102.20	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The aft cargo hold is equipped with ventilation and temperature control systems.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

Transport of Bulk Loads on CLS
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-AFT-BCLS-CHD-00019450.0067001 / 27 JUL 23

Criteria: 23172, 26213, 28327, 28335, 28440, ST1

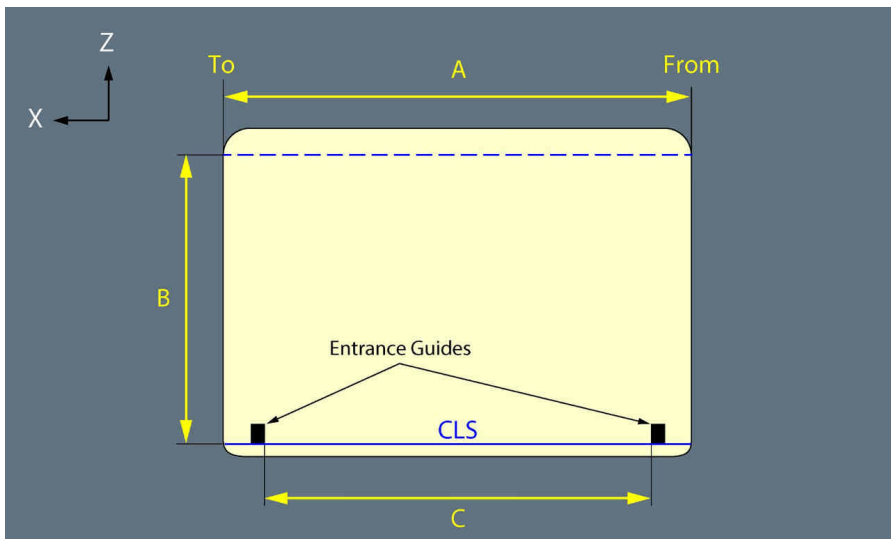
Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The aft cargo hold is equipped with a door on the right side of the fuselage.

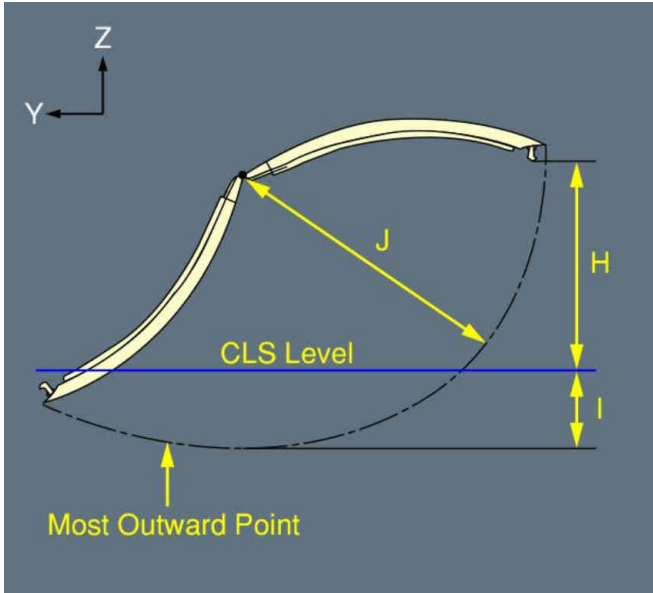
The door opens outward.

The operator must use the aft door to load and unload the aft cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
24.320	957.48	26.137	1 029.02

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.198	47.16
C	Door width at CLS level	1.541	60.67

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the CLS level and the hooks (when the door is in fully opened position)	1.385	54.53
I	Clearance below the CLS level when the door is operated	0.687	27.05
J	Door opening radius	2.024	79.68

Transport of Bulk Loads on CLS

Cross Section

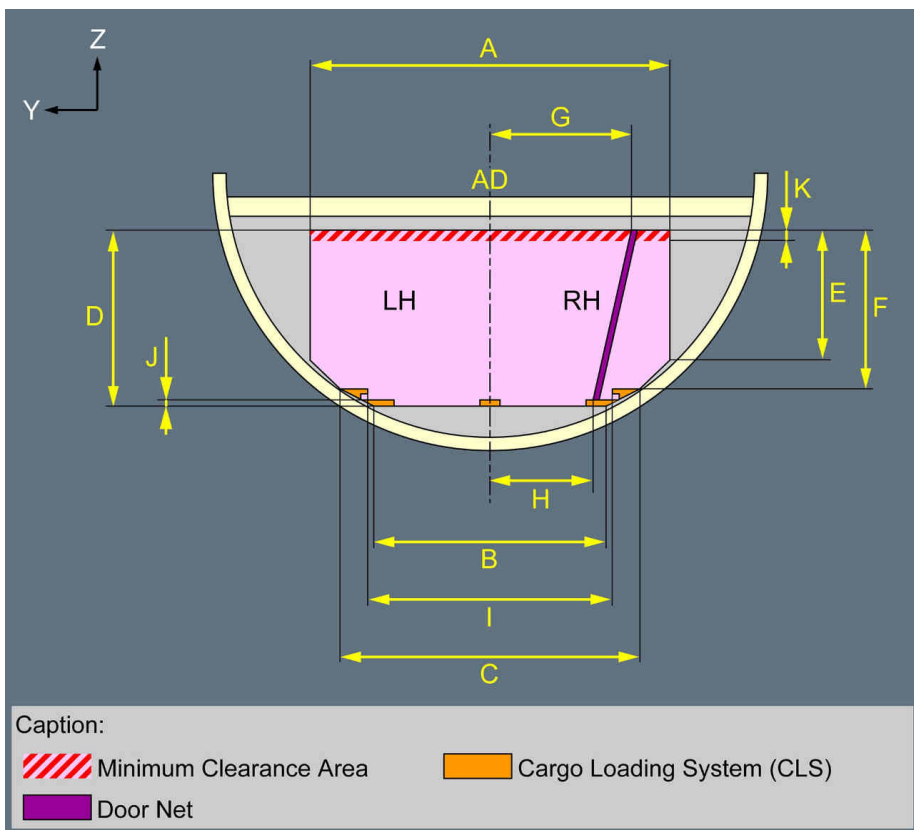
CROSS SECTION

Ident.: CTL-CGO-AFT-BCLS-XSC-00019463.0052001 / 31 JAN 18

Criteria: 23172, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The tables below provide the cross sections of the cargo hold.



WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)										
	A	B	C	D	E	F	G	H	I	J	K
21.208	2.630	1.430	2.098	1.242	0.797	1.065	-	-	1.520	0.035	0.051
24.295	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	1.520	0.035	0.051
26.162	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	1.520	0.035	0.051
27.229	2.630	1.430	2.098	1.242	0.797	1.065	-	-	1.520	0.035	0.051
27.762	2.630	1.408	2.098	1.208	0.756	1.024	-	-	1.520	-	0.051

US UNITS

H-ARM (in)	Dimensions (in)										
	A	B	C	D	E	F	G	H	I	J	K
834.96	103.54	56.30	82.60	48.90	31.38	41.93	-	-	59.84	1.38	2.00
956.50	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	59.84	1.38	2.00
1 030.00	103.54	56.30	82.60	48.90	31.38	41.93	30.12	22.72	59.84	1.38	2.00
1 072.01	103.54	56.30	82.60	48.90	31.38	41.93	-	-	59.84	1.38	2.00
1 092.99	103.54	55.43	82.60	47.56	29.76	40.31	-	-	59.84	-	2.00

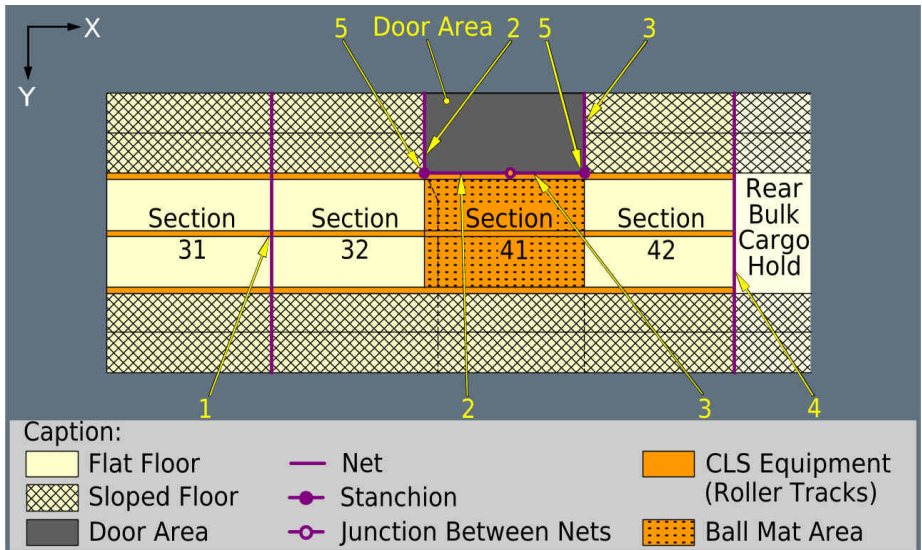
Transport of Bulk Loads on CLS
Cargo Hold Arrangement
SECTION ARRANGEMENT

Ident.: CTL-CGO-AFT-BCLS-CHA-00019477.0053001 / 01 FEB 18

Criteria: 21103, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The aft cargo hold is divided into sections and net sections as indicated in the illustration below.



Legend	Related Net Type	Installation Requirement
1	Divider net type A2	Mandatory
2	Door net type B	Mandatory
3	Door net type A	Mandatory
4	Divider net type A1	Mandatory
5	Stanchion	Mandatory

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m³)	(ft³)
31	21.208	834.96	22.962	904.02	22.085	869.49	5.230	184.70
32	22.962	904.02	24.562	967.01	23.762	935.51	4.510	159.27
41	24.562	967.01	26.162	1 030.00	25.362	998.50	3.660	129.25
42	26.162	1 030.00	27.762	1 092.99	26.962	1 061.50	4.750	167.74

The maximum usable volume of the cargo hold is based on:

- The maximum theoretical volume
- The volume reduction due to the door area
- The volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling.

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-AFT-BCLS-CHA-00021294.0007001 / 02 JUN 20

Criteria: 21103, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

This part provides the location of all the tie-down points installed in the aft cargo hold.

The aft cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

To attach the nets, the operator uses the tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points

(See Location Table of the Tie-down Points) that are not already used to attach the nets.

For additional information about the requirements for the loading of bulk items *Refer to CTL-LIM-REAR-BULK-CHL Restraint Conditions* and *Refer to CTL-LIM-REAR-BULK-CHL Fastening Load Requirements*.

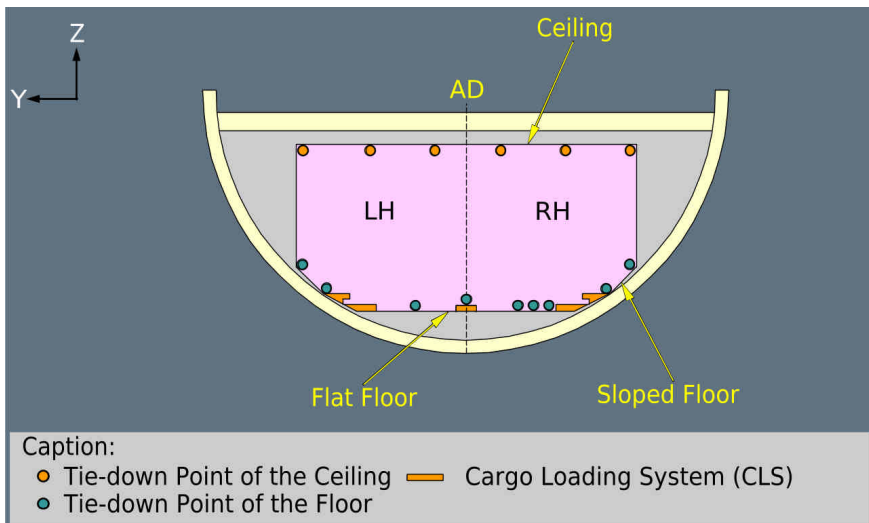
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

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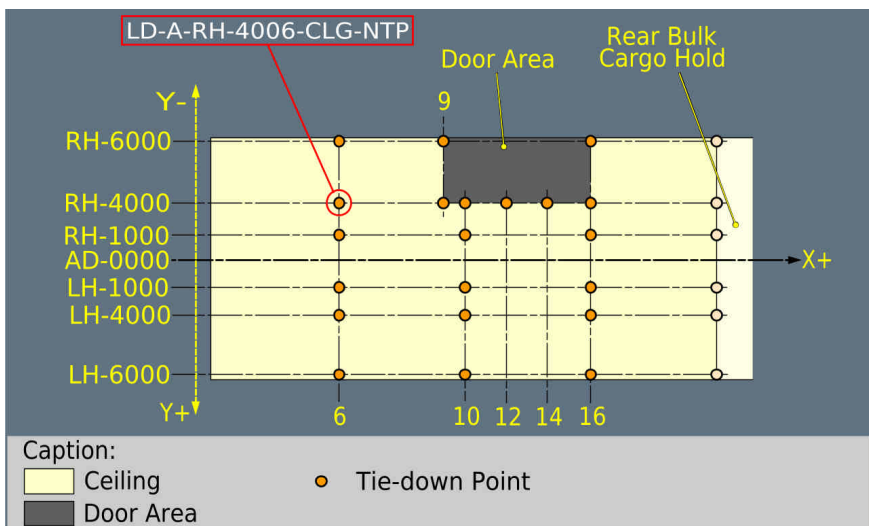
- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the ceiling of the cargo hold with all the installed tie-down points
- An illustration of the sloped and flat floors of the cargo hold with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

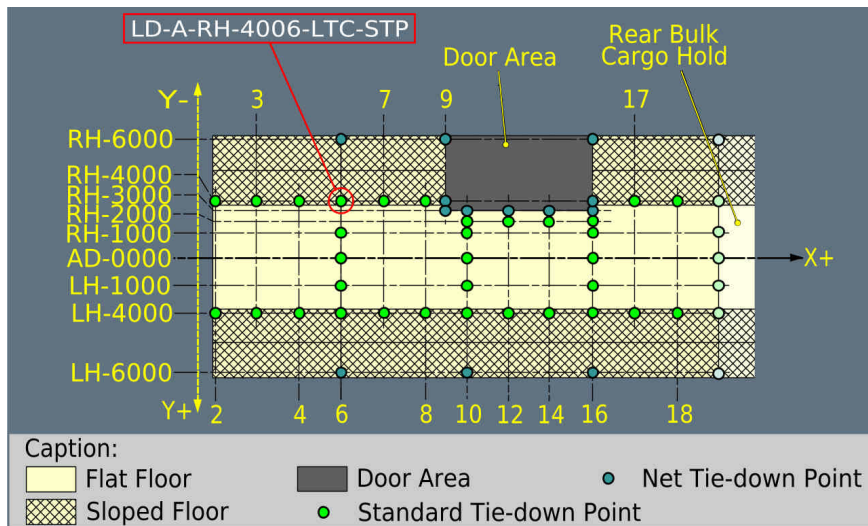
TIE-DOWN POINTS OF THE AFT CARGO HOLD

POSSIBLE LOCATION OF THE TIE-DOWN POINTS



TIE-DOWN POINTS OF THE CEILING



TIE-DOWN POINTS OF THE FLAT AND SLOPED FLOORS

DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-A-RH-4006-FLR-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the aft cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 006th position from 1 on the X axis
- On the floor of the cargo hold
- A standard tie-down point.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-RH-4002-LTC-STP	Bulk restraint	21.363	841.05	-0.841	-33.10	-	31
LD-A-LH-4002-LTC-STP	Bulk restraint	21.363	841.05	0.841	33.10	-	31
LD-A-RH-4003-LTC-STP	Bulk restraint	21.897	862.07	-0.841	-33.10	-	31
LD-A-LH-4003-LTC-STP	Bulk restraint	21.897	862.07	0.841	33.10	-	31
LD-A-RH-4004-LTC-STP	Bulk restraint	22.430	883.06	-0.841	-33.10	-	31
LD-A-LH-4004-LTC-STP	Bulk restraint	22.430	883.06	0.841	33.10	-	31
LD-A-RH-6006-CLG-NTP	Net restraint	22.938	903.09	-1.292	-50.87	Divider net type A5	31, 32
LD-A-RH-6006-FLR-NTP	Net restraint	22.987	905.00	-1.284	-50.55	Divider net type A5	31, 32
LD-A-RH-4006-CLG-NTP	Net restraint	22.938	903.09	-0.765	-30.12	Divider net type A5	31, 32
LD-A-RH-4006-LTC-STP	Bulk restraint	22.964	904.08	-0.841	-33.10	Divider net type A5	31, 32
LD-A-RH-1006-CLG-NTP	Net restraint	22.938	903.09	-0.254	-10.00	Divider net type A5	31, 32
LD-A-RH-1006-FLR-STP	Bulk restraint	22.948	903.45	-0.353	-13.89	Divider net type A5	31, 32
LD-A-AD-0006-LTC-STP	Bulk restraint	23.057	907.76	0.000	0.00	Divider net type A5	31, 32
LD-A-LH-1006-CLG-NTP	Net restraint	22.938	903.09	0.254	10.00	Divider net type A5	31, 32
LD-A-LH-1006-FLR-STP	Bulk restraint	22.948	903.45	0.353	13.89	Divider net type A5	31, 32
LD-A-LH-4006-CLG-NTP	Net restraint	22.938	903.09	0.765	30.12	Divider net type A5	31, 32
LD-A-LH-4006-LTC-STP	Bulk restraint	22.964	904.08	0.841	33.10	Divider net type A5	31, 32
LD-A-LH-6006-CLG-NTP	Net restraint	22.938	903.09	1.292	50.87	Divider net type A5	31, 32
LD-A-LH-6006-FLR-NTP	Net restraint	22.987	905.00	1.284	50.55	Divider net type A5	31, 32

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-RH-4007-LTC-STP	Bulk restraint	23.497	925.07	-0.841	-33.10	-	32
LD-A-LH-4007-LTC-STP	Bulk restraint	23.497	925.07	0.841	33.10	-	32
LD-A-RH-4008-LTC-STP	Bulk restraint	24.030	946.05	-0.841	-33.10	-	32
LD-A-LH-4008-LTC-STP	Bulk restraint	24.030	946.05	0.841	33.10	-	32
LD-A-RH-6009-CLG-NTP	Net restraint	24.271	955.57	-1.292	-50.87	Door net type B	32, Door area
LD-A-RH-6009-FLR-NTP	Net restraint	24.280	955.91	-1.284	-50.55	Door net type B	32, Door area
LD-A-RH-4009-CLG-NTP	Net restraint	24.271	955.57	-0.765	-30.12	Door net type B, Stanchion	32, Door area
LD-A-RH-4009-FLR-NTP	Net restraint	24.280	955.91	-0.776	-30.56	Door net type B	32, Door area
LD-A-RH-3009-FLR-NTP	Net restraint	24.280	955.91	-0.635	-25.00	Door net type B, Stanchion	32, Door area
LD-A-RH-4010-CLG-NTP	Net restraint	24.538	966.08	-0.765	-30.12	Door net type B	32, 41, Door area
LD-A-RH-3010-FLR-NTP	Net restraint	24.575	967.51	-0.574	-22.60	Door net type B	32, 41, Door area
LD-A-RH-2010-FLR-STP	Bulk restraint	24.575	967.51	-0.523	-20.60	-	32, 41
LD-A-RH-1010-CLG-NTP	Net restraint	24.538	966.08	-0.254	-10.00	-	32, 41
LD-A-RH-1010-FLR-STP	Bulk restraint	24.575	967.51	-0.310	-12.20	-	32, 41
LD-A-AD-0010-FLR-STP	Bulk restraint	24.622	969.37	0.000	0.00	-	32, 41
LD-A-LH-1010-CLG-NTP	Net restraint	24.538	966.08	0.254	10.00	-	32, 41
LD-A-LH-1010-FLR-STP	Bulk restraint	24.548	966.44	0.353	13.89	-	32, 41
LD-A-LH-4010-CLG-NTP	Net restraint	24.538	966.08	0.765	30.12	-	32, 41
LD-A-LH-4010-LTC-STP	Bulk restraint	24.564	967.07	0.841	33.10	-	32, 41

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-LH-6010-CLG-NTP	Net restraint	24.538	966.08	1.292	50.87	-	32, 41
LD-A-LH-6010-FLR-NTP	Net restraint	24.587	967.99	1.284	50.55	-	32, 41
LD-A-RH-4012-CLG-NTP	Net restraint	25.071	987.06	-0.765	-30.12	Door net type B	41, Door area
LD-A-RH-3012-FLR-NTP	Net restraint	25.108	988.50	-0.574	-22.60	-	41
LD-A-RH-2012-FLR-STP	Bulk restraint	25.108	988.50	-0.523	-20.60	-	41
LD-A-LH-4012-LTC-STP	Bulk restraint	25.097	988.06	0.841	33.10	-	41
LD-A-RH-4014-CLG-NTP	Net restraint	25.605	1 008.09	-0.765	-30.12	Door net type A, Door net type B	41, Door area
LD-A-RH-3014-FLR-NTP	Net restraint	25.642	1 009.52	-0.574	-22.60	-	41
LD-A-RH-2014-FLR-STP	Bulk restraint	25.642	1 009.52	-0.523	-20.60	-	41
LD-A-LH-4014-LTC-STP	Bulk restraint	25.631	1 009.08	0.841	33.10	-	41
LD-A-RH-6016-CLG-NTP	Net restraint	26.138	1 029.07	-1.292	-50.87	Door net type A	41, 42, Door area
LD-A-RH-6016-FLR-NTP	Net restraint	26.177	1 030.59	-1.284	-50.55	-	42, Door area
LD-A-RH-4016-CLG-NTP	Net restraint	26.138	1 029.07	-0.765	-30.12	Door net type A, Stanchion	41, 42, Door area
LD-A-RH-4016-LTC-NTP	Net restraint	26.192	1 031.18	-0.841	-33.10	-	42, Door area
LD-A-RH-3016-FLR-STP	Bulk restraint	26.177	1 030.59	-0.552	-21.75	-	41, 42
LD-A-RH-3016-FLR-NTP	Net restraint	26.177	1 030.59	-0.603	-23.75	Door net type A, Stanchion	41, 42, Door area
LD-A-RH-1016-CLG-NTP	Net restraint	26.138	1 029.07	-0.254	-10.00	-	41, 42
LD-A-RH-1016-FLR-STP	Bulk restraint	26.177	1 030.59	-0.310	-12.20	-	41, 42
LD-A-AD-0016-FLR-STP	Bulk restraint	26.148	1 029.44	0.000	0.00	-	41, 42

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-LH-1016-CLG-NTP	Net restraint	26.138	1 029.07	0.254	10.00	-	41, 42
LD-A-LH-1016-FLR-STP	Bulk restraint	26.148	1 029.44	0.353	13.89	-	41, 42
LD-A-LH-4016-CLG-NTP	Net restraint	26.138	1 029.07	0.765	30.12	-	41, 42
LD-A-LH-4016-LTC-STP	Bulk restraint	26.164	1 030.07	0.841	33.10	-	41, 42
LD-A-LH-6016-CLG-NTP	Net restraint	26.138	1 029.07	1.292	50.87	-	41, 42
LD-A-LH-6016-FLR-NTP	Net restraint	26.187	1 030.98	1.284	50.54	-	41, 42
LD-A-RH-4017-LTC-STP	Bulk restraint	26.697	1 051.05	-0.841	-33.10	-	42
LD-A-LH-4017-LTC-STP	Bulk restraint	26.697	1 051.05	0.841	33.10	-	42
LD-A-RH-4018-LTC-STP	Bulk restraint	27.231	1 072.07	-0.841	-33.10	-	42
LD-A-LH-4018-LTC-STP	Bulk restraint	27.231	1 072.07	0.841	33.10	-	42

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

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Transport of Bulk Loads on CLS
Loading Recommendations
LOADING RECOMMENDATIONS

Ident.: CTL-CGO-AFT-BCLS-RECO-00019506.0123001 / 31 JAN 18

Criteria: 20059, 20084, 21103, 28327, 28335, 28440, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

To load an item in the aft cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the aft cargo hold, if required by the type of loaded items.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the aft cargo door
- The cross sections of the aft cargo hold
- The restraint system of the aft cargo hold
- The dimensions of the net sections of the aft cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 32/41/42) with the mandatory divider nets installed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	4.020	3.776	3.293
0.100	3.924	3.687	3.222
0.200	3.829	3.600	3.155
0.300	3.734	3.515	3.094
0.400	3.641	3.433	3.041
0.500	3.549	3.355	2.911
0.600	3.458	3.280	2.711

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.700	3.370	3.211	2.511
0.800	3.284	3.148	2.310
0.900	3.201	3.093	2.110
1.000	3.123	3.047	1.909
1.100	3.051	3.010	1.708
1.200	2.986	2.836	1.507
1.300	2.930	2.634	1.438
1.400	2.883	2.431	-
1.500	2.759	2.227	-
1.600	2.537	2.021	-
1.700	2.427	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	158.20	148.60	129.60
4.00	154.40	145.00	126.70
8.00	150.50	141.50	124.10
12.00	146.80	138.20	121.70
16.00	143.00	134.90	119.60
20.00	139.40	131.80	113.80
24.00	135.70	128.80	105.80
28.00	132.20	126.10	97.80
32.00	128.80	123.60	89.80
36.00	125.50	121.50	81.80
40.00	122.40	119.70	73.70
44.00	119.60	118.00	65.70
48.00	117.10	109.90	57.60
52.00	114.90	101.90	56.70
56.00	113.00	93.70	-
60.00	106.40	85.60	-
64.00	97.40	78.60	-

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS NOT INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider nets removed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.425	5.247	3.912
0.100	5.346	5.178	3.172
0.200	5.269	4.843	3.511
0.300	5.195	4.643	3.311
0.400	5.124	4.443	3.111
0.500	4.820	4.242	2.911
0.600	4.618	4.042	2.711
0.700	4.415	3.841	2.511
0.800	4.212	3.640	2.310
0.900	4.008	3.440	2.110
1.000	3.804	3.239	1.909
1.100	3.598	3.037	1.708
1.200	3.392	2.836	1.507
1.300	3.184	2.634	1.438
1.400	2.973	2.431	-
1.500	2.759	2.227	-
1.600	2.537	2.021	-
1.700	2.437	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	213.50	206.50	153.80
4.00	210.40	203.80	145.80
8.00	207.30	190.30	137.80
12.00	204.30	182.20	129.80
16.00	201.50	174.20	121.80
20.00	188.90	166.20	113.80
24.00	180.80	158.20	105.80
28.00	172.70	150.20	97.80
32.00	164.60	142.10	89.80
36.00	156.50	134.10	81.80
40.00	148.30	126.10	73.70
44.00	140.10	118.00	65.70
48.00	131.80	109.90	57.60
52.00	123.40	101.90	56.70
56.00	115.00	93.70	-

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
60.00	106.40	85.60	-
64.00	97.40	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The aft cargo hold is equipped with ventilation and temperature control systems.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

Transport of Bulk Loads on CLS with Protection Panels

Cargo Hold Door

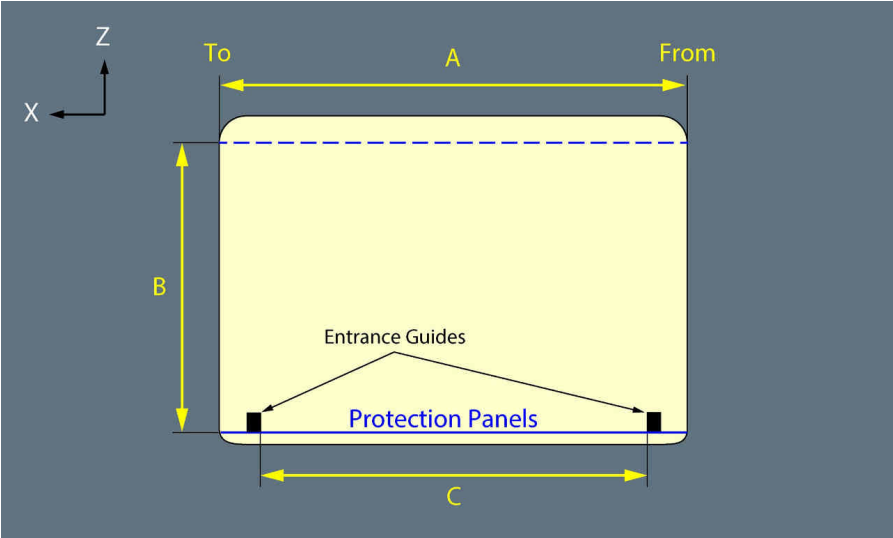
CARGO HOLD DOOR

Ident.: CTL-CGO-AFT-BCPP-CHD-00019451.0013001 / 27 JUL 23
 Criteria: 23172, 26213, 27686, ST1
 Applicable to: MSN 02719, 02758, 02789, 03031

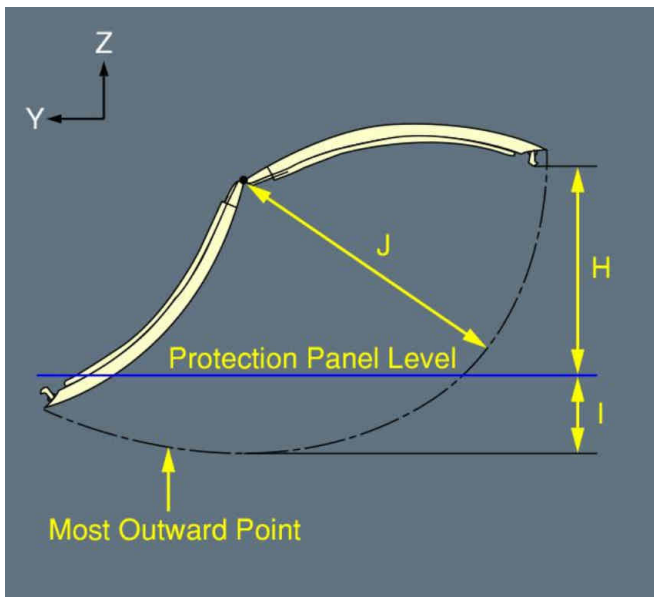
The aft cargo hold is equipped with a door on the right side of the fuselage.
 The door opens outward.
 The operator must use the aft door to load and unload the aft cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
24.320	957.48	26.137	1 029.02

FRONT VIEW OF THE DOOR



Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.161	45.71
C	Door width at protection panel level	1.541	60.67

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the protection panel level and the hooks (when the door is in fully opened position)	1.348	53.07
I	Clearance below the protection panel level when the door is operated	0.724	28.50
J	Door opening radius	2.024	79.68

Transport of Bulk Loads on CLS with Protection Panels

Cross Section

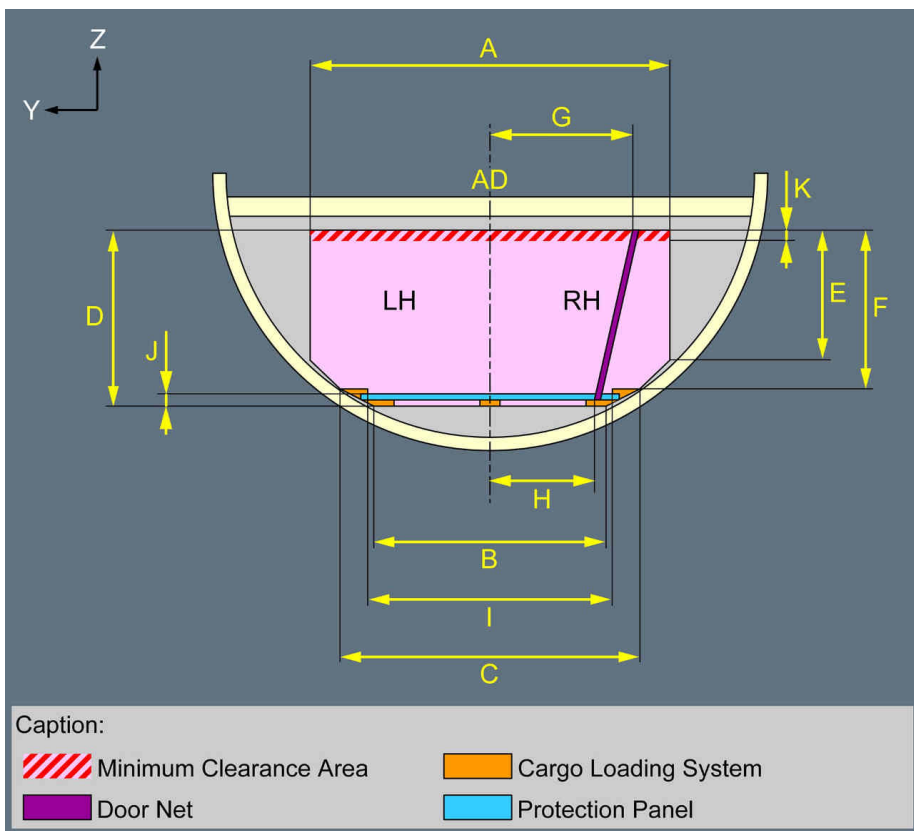
CROSS SECTION

Ident.: CTL-CGO-AFT-BCPP-XSC-00019464.0010001 / 31 JAN 18

Criteria: 23172, 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The tables below provide the cross sections of the cargo hold.



WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)										
	A	B	C	D	E	F	G	H	I	J	K
21.208	2.630	1.430	2.098	1.242	0.797	1.065	-	-	1.520	0.051	0.051
24.495	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.688	1.520	0.051	0.051
26.162	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.688	1.520	0.051	0.051
27.229	2.630	1.430	2.098	1.242	0.797	1.065	-	-	1.520	0.051	0.051
27.762	2.630	1.408	2.098	1.208	0.756	1.024	-	-	1.520	0.016	0.051

US UNITS

H-ARM (in)	Dimensions (in)										
	A	B	C	D	E	F	G	H	I	J	K
834.96	103.54	56.30	82.60	48.90	31.38	41.93	-	-	59.84	2.00	2.00
964.37	103.54	56.30	82.60	48.90	31.38	41.93	30.12	27.09	59.84	2.00	2.00
1 030.00	103.54	56.30	82.60	48.90	31.38	41.93	30.12	27.09	59.84	2.00	2.00
1 072.01	103.54	56.30	82.60	48.90	31.38	41.93	-	-	59.84	2.00	2.00
1 092.99	103.54	55.43	82.60	47.56	29.76	40.31	-	-	59.84	0.63	2.00

Transport of Bulk Loads on CLS with Protection Panels

Cargo Hold Arrangement

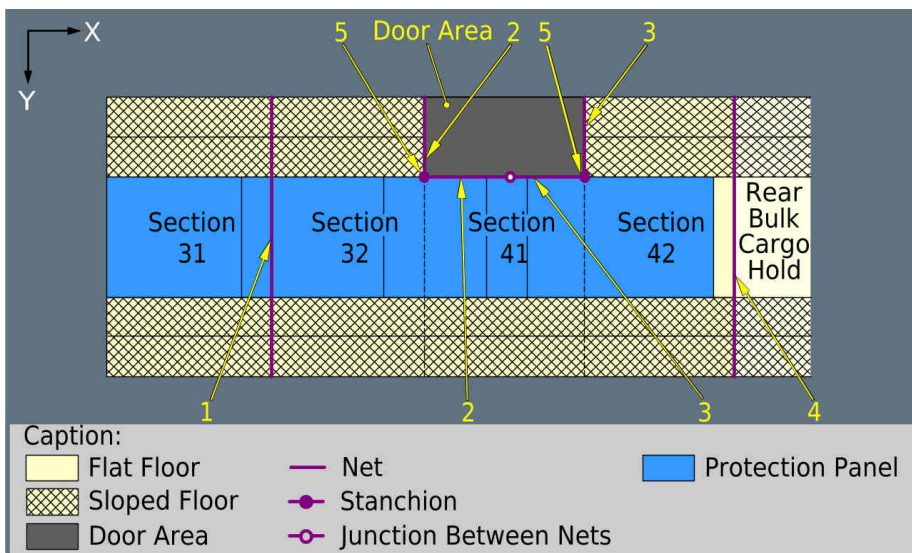
SECTION ARRANGEMENT

Ident.: CTL-CGO-AFT-BCPP-CHA-00019478.0007001 / 01 FEB 18

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

The aft cargo hold is divided into sections and net sections as indicated in the illustration below.



Legend	Related Net Type	Installation Requirement
1	Divider net type A2	Mandatory
2	Door net type B	Mandatory
3	Door net type A	Mandatory
4	Divider net type A1	Mandatory
5	Stanchion	Mandatory

The following table provides the usable volume and H-ARMS for each section available for the loading of bulk items.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m³)	(ft³)
31	21.208	834.96	22.962	904.02	22.085	869.49	5.100	180.10
32	22.962	904.02	24.562	967.01	23.762	935.51	4.410	155.74
41	24.562	967.01	26.162	1 030.00	25.362	998.50	3.580	126.43
42	26.162	1 030.00	27.762	1 092.99	26.962	1 061.50	4.650	164.21

The maximum usable volume of the cargo hold is based on:

- The maximum theoretical volume
- The volume reduction due to the door area
- The volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling
- The volume reduction due to the installation of the protection panels.

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-AFT-BCPP-CHA-00021296.0002001 / 02 JUN 20

Criteria: 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

This part provides the location of all the tie-down points installed in the aft cargo hold.

The aft cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

To attach the nets, the operator uses the tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points

(See Location Table of the Tie-down Points) that are not already used to attach the nets.

For additional information about the requirements for the loading of bulk items *Refer to CTL-LIM-REAR-BULK-CHL Restraint Conditions* and *Refer to CTL-LIM-REAR-BULK-CHL Fastening Load Requirements*.

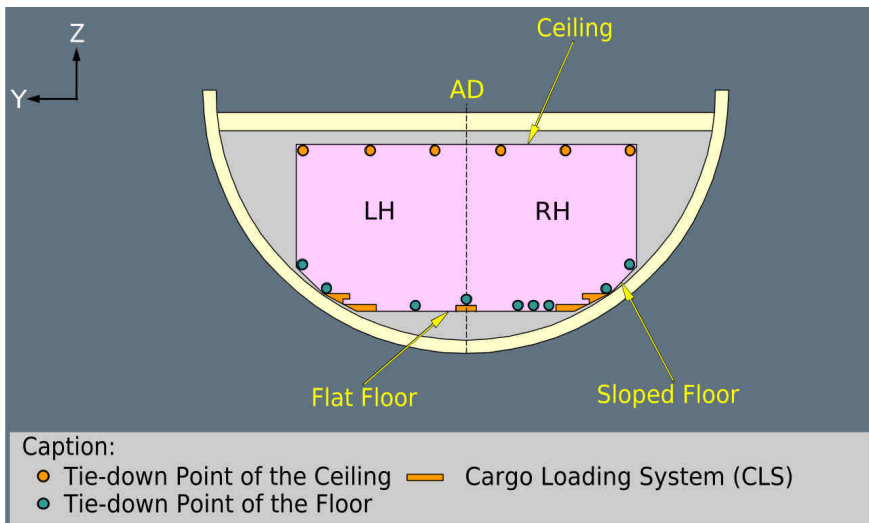
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

This part contains:

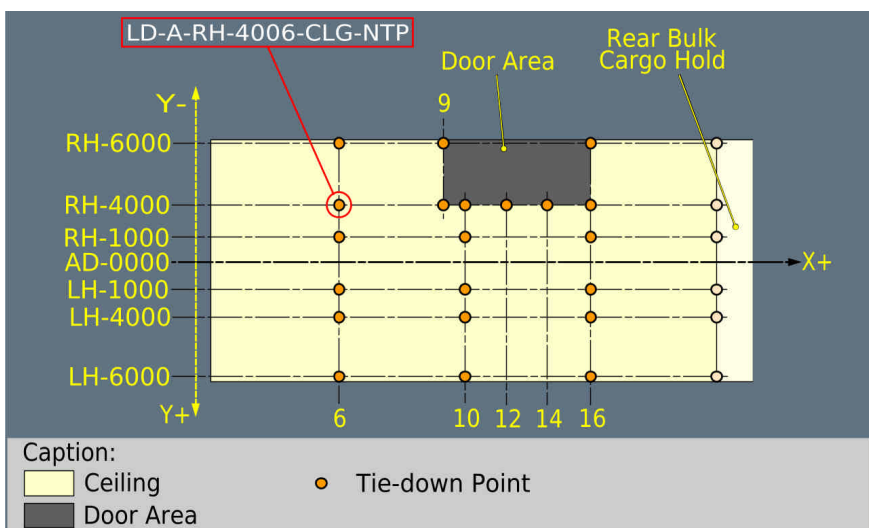
- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the ceiling of the cargo hold with all the installed tie-down points
- An illustration of the sloped and flat floors of the cargo hold with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

TIE-DOWN POINTS OF THE AFT CARGO HOLD

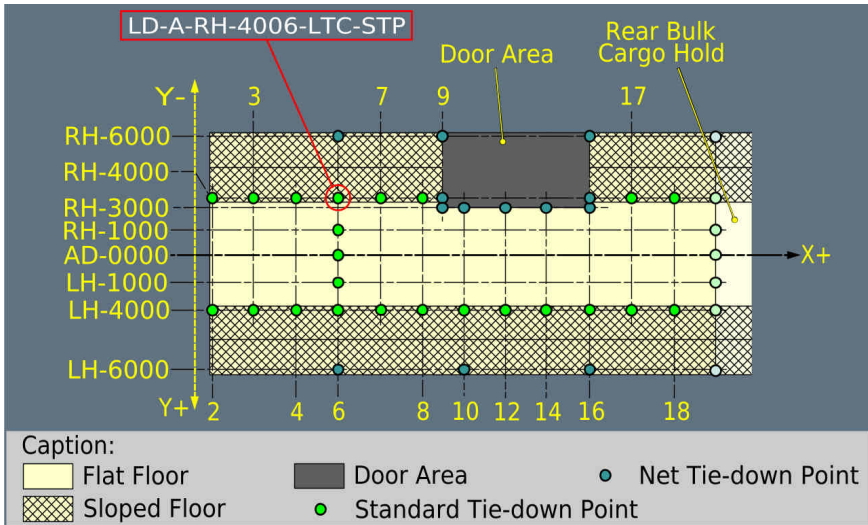
POSSIBLE LOCATION OF THE TIE-DOWN POINTS



TIE-DOWN POINTS OF THE CEILING



TIE-DOWN POINTS OF THE FLAT AND SLOPED FLOORS



DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-A-RH-4006-LTC-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the aft cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 006th position from 1 on the X axis
- On a fixed YZ-Latch
- A standard tie-down point.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-RH-4002-LTC-STP	Bulk restraint	21.363	841.05	-0.841	-33.10	-	31
LD-A-LH-4002-LTC-STP	Bulk restraint	21.363	841.05	0.841	33.10	-	31
LD-A-RH-4003-LTC-STP	Bulk restraint	21.897	862.07	-0.841	-33.10	-	31
LD-A-LH-4003-LTC-STP	Bulk restraint	21.897	862.07	0.841	33.10	-	31
LD-A-RH-4004-LTC-STP	Bulk restraint	22.430	883.06	-0.841	-33.10	-	31
LD-A-LH-4004-LTC-STP	Bulk restraint	22.430	883.06	0.841	33.10	-	31
LD-A-LH-1006-CLG-NTP	Net restraint	22.938	903.09	0.254	10.00	Divider net type A5	31, 32
LD-A-RH-1006-CLG-NTP	Net restraint	22.938	903.09	-0.254	-10.00	Divider net type A5	31, 32
LD-A-LH-4006-CLG-NTP	Net restraint	22.938	903.09	0.765	30.12	Divider net type A5	31, 32
LD-A-RH-4006-CLG-NTP	Net restraint	22.938	903.09	-0.765	-30.12	Divider net type A5	31, 32
LD-A-LH-6006-CLG-NTP	Net restraint	22.938	903.09	1.292	50.87	Divider net type A5	31, 32
LD-A-RH-6006-CLG-NTP	Net restraint	22.938	903.09	-1.292	-50.87	Divider net type A5	31, 32
LD-A-LH-6006-FLR-NTP	Net restraint	22.987	905.00	1.284	50.55	Divider net type A5	31, 32
LD-A-RH-6006-FLR-NTP	Net restraint	22.987	905.00	-1.284	-50.55	Divider net type A5	31, 32
LD-A-LH-4006-LTC-STP	Bulk restraint	22.964	904.08	0.841	33.10	Divider net type A5	31, 32
LD-A-RH-4006-LTC-STP	Bulk restraint	22.964	904.08	-0.841	-33.10	Divider net type A5	31, 32
LD-A-LH-1006-FLR-STP	Bulk restraint	22.948	903.45	0.353	13.89	Divider net type A5	31, 32
LD-A-RH-1006-FLR-STP	Bulk restraint	22.948	903.45	-0.353	-13.89	Divider net type A5	31, 32
LD-A-AD-0006-FLR-STP	Bulk restraint	23.057	907.76	0.000	0.00	Divider net type A5	31, 32

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-RH-4007-LTC-STP	Bulk restraint	23.497	925.07	-0.841	-33.10	-	32
LD-A-LH-4007-LTC-STP	Bulk restraint	23.497	925.07	0.841	33.10	-	32
LD-A-RH-4008-LTC-STP	Bulk restraint	24.030	946.05	-0.841	-33.10	-	32
LD-A-LH-4008-LTC-STP	Bulk restraint	24.030	946.05	0.841	33.10	-	32
LD-A-RH-6009-CLG-NTP	Net restraint	24.271	955.57	-1.292	-50.87	Door net type B	32, Door area
LD-A-RH-6009-FLR-NTP	Net restraint	24.280	955.91	-1.284	-50.55	Door net type B	32, Door area
LD-A-RH-4009-CLG-NTP	Net restraint	24.271	955.57	-0.765	-30.12	Door net type B, Divider net type C, Stanchion	32, Door area
LD-A-RH-4009-FLR-NTP	Net restraint	24.280	955.91	-0.776	-30.56	Door net type B	32, Door area
LD-A-RH-4010-CLG-NTP	Net restraint	24.538	966.08	-0.765	-30.12	Door net type B	32, 41, Door area
LD-A-RH-3010-FLR-NTP	Net restraint	24.575	967.51	-0.574	-22.60	Door net type B	32, 41, Door area
LD-A-RH-1010-CLG-NTP	Net restraint	24.538	966.08	-0.254	-10.00	Divider net type C	32, 41
LD-A-LH-1010-CLG-NTP	Net restraint	24.538	966.08	0.254	10.00	Divider net type C	32, 41
LD-A-LH-4010-CLG-NTP	Net restraint	24.538	966.08	0.765	30.12	Divider net type C	32, 41
LD-A-LH-4010-LTC-STP	Bulk restraint	24.564	967.07	0.841	33.10	Divider net type C	32, 41
LD-A-LH-6010-CLG-NTP	Net restraint	24.538	966.08	1.292	50.87	Divider net type C	32, 41
LD-A-LH-6010-FLR-NTP	Net restraint	24.587	967.99	1.284	50.55	Divider net type C	32, 41
LD-A-RH-4012-CLG-NTP	Net restraint	25.071	987.06	-0.765	-30.12	Door net type B	41, Door area
LD-A-RH-3012-FLR-NTP	Net restraint	25.108	988.50	-0.574	-22.60	-	41

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-LH-4012-FLR-STP	Bulk restraint	25.097	988.06	0.841	33.10	-	41
LD-A-RH-4014-CLG-NTP	Net restraint	25.605	1 008.09	-0.765	-30.12	Door net type A, Door net type B	41, Door area
LD-A-RH-3014-FLR-NTP	Net restraint	25.642	1 009.52	-0.574	-22.60	-	41
LD-A-LH-4014-LTC-STP	Bulk restraint	25.631	1 009.08	0.841	33.10	-	41
LD-A-RH-6016-CLG-NTP	Net restraint	26.138	1 029.07	-1.292	-50.87	Door net type A	41, 42, Door area
LD-A-RH-6016-FLR-NTP	Net restraint	26.177	1 030.59	-1.284	-50.55	Divider net type C	42, Door area
LD-A-RH-4016-CLG-NTP	Net restraint	26.138	1 029.07	-0.765	-30.12	Door net type A, Divider net type C, Stanchion	41, 42, Door area
LD-A-RH-4016-LTC-NTP	Net restraint	26.192	1 031.18	-0.841	-33.10	Divider net type C	42, Door area
LD-A-RH-3016-FLR-NTP	Net restraint	26.177	1 030.59	-0.603	-23.75	Door net type A, Stanchion	41, 42, Door area
LD-A-RH-1016-CLG-NTP	Net restraint	26.138	1 029.07	-0.254	-10.00	Divider net type C	41, 42
LD-A-LH-1016-CLG-NTP	Net restraint	26.138	1 029.07	0.254	10.00	Divider net type C	41, 42
LD-A-LH-4016-CLG-NTP	Net restraint	26.138	1 029.07	0.765	30.12	Divider net type C	41, 42
LD-A-LH-4016-LTC-STP	Bulk restraint	26.164	1 030.07	0.841	33.10	Divider net type C	41, 42
LD-A-LH-6016-CLG-NTP	Net restraint	26.138	1 029.07	1.292	50.87	Divider net type C	41, 42
LD-A-LH-6016-FLR-NTP	Net restraint	26.187	1 030.98	1.284	50.54	Divider net type C	41, 42
LD-A-RH-4017-LTC-STP	Bulk restraint	26.697	1 051.05	-0.841	-33.10	-	42
LD-A-LH-4017-LTC-STP	Bulk restraint	26.697	1 051.05	0.841	33.10	-	42

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 PAKISTAN International Airlines Great People to Fly With A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Cargo Arrangement Aft Cargo Hold
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Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-A-RH-4018-LTC-STP	Bulk restraint	27.231	1 072.07	-0.841	-33.10	-	42
LD-A-LH-4018-LTC-STP	Bulk restraint	27.231	1 072.07	0.841	33.10	-	42

WEIGHT AND BALANCE CONTROL**Cargo Arrangement**

Aft Cargo Hold

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Transport of Bulk Loads on CLS with Protection Panels
Loading Recommendations
LOADING RECOMMENDATIONS

Ident.: CTL-CGO-AFT-BCPP-RECO-00019507.0023001 / 31 JAN 18

Criteria: 20059, 20084, 27686, ST1

Applicable to: MSN 02719, 02758, 02789, 03031

To load an item in the aft cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the aft cargo hold, if required by the type of loaded items.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the aft cargo door
- The cross sections of the aft cargo hold
- The restraint system of the aft cargo hold
- The dimensions of the net sections of the aft cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded in the largest net section (net section 32/41/42) with the mandatory divider nets installed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	4.020	3.776	3.293
0.100	3.924	3.687	3.222
0.200	3.829	3.600	3.155
0.300	3.734	3.515	3.094
0.400	3.641	3.433	3.041
0.500	3.549	3.355	2.911
0.600	3.458	3.280	2.711

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.700	3.370	3.211	2.511
0.800	3.284	3.148	2.310
0.900	3.201	3.093	2.110
1.000	3.123	3.047	1.909
1.100	3.051	3.010	1.708
1.200	2.986	2.836	1.507
1.300	2.930	2.634	1.438
1.400	2.883	2.431	-
1.500	2.759	2.227	-
1.600	2.537	2.021	-
1.700	2.427	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	158.20	148.60	129.60
4.00	154.40	145.00	126.70
8.00	150.50	141.50	124.10
12.00	146.80	138.20	121.70
16.00	143.00	134.90	119.60
20.00	139.40	131.80	113.80
24.00	135.70	128.80	105.80
28.00	132.20	126.10	97.80
32.00	128.80	123.60	89.80
36.00	125.50	121.50	81.80
40.00	122.40	119.70	73.70
44.00	119.60	118.00	65.70
48.00	117.10	109.90	57.60
52.00	114.90	101.90	56.70
56.00	113.00	93.70	-
60.00	106.40	85.60	-
64.00	97.40	78.60	-

MAXIMUM PACKAGE DIMENSIONS WITH THE MANDATORY DIVIDER NETS NOT INSTALLED

The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider nets removed.

Metric Units

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.425	5.247	3.912
0.100	5.346	5.178	3.172
0.200	5.269	4.843	3.511
0.300	5.195	4.643	3.311
0.400	5.124	4.443	3.111
0.500	4.820	4.242	2.911
0.600	4.618	4.042	2.711
0.700	4.415	3.841	2.511
0.800	4.212	3.640	2.310
0.900	4.008	3.440	2.110
1.000	3.804	3.239	1.909
1.100	3.598	3.037	1.708
1.200	3.392	2.836	1.507
1.300	3.184	2.634	1.438
1.400	2.973	2.431	-
1.500	2.759	2.227	-
1.600	2.537	2.021	-
1.700	2.437	1.996	-

US Units

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	213.50	206.50	153.80
4.00	210.40	203.80	145.80
8.00	207.30	190.30	137.80
12.00	204.30	182.20	129.80
16.00	201.50	174.20	121.80
20.00	188.90	166.20	113.80
24.00	180.80	158.20	105.80
28.00	172.70	150.20	97.80
32.00	164.60	142.10	89.80
36.00	156.50	134.10	81.80
40.00	148.30	126.10	73.70
44.00	140.10	118.00	65.70
48.00	131.80	109.90	57.60
52.00	123.40	101.90	56.70
56.00	115.00	93.70	-

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
60.00	106.40	85.60	-
64.00	97.40	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The aft cargo hold is equipped with ventilation and temperature control systems.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

Transport of ULDs
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-AFT-ULD-CHD-00019458.0020001 / 27 JUL 23

Criteria: 23172, 26213, 28335, ST1

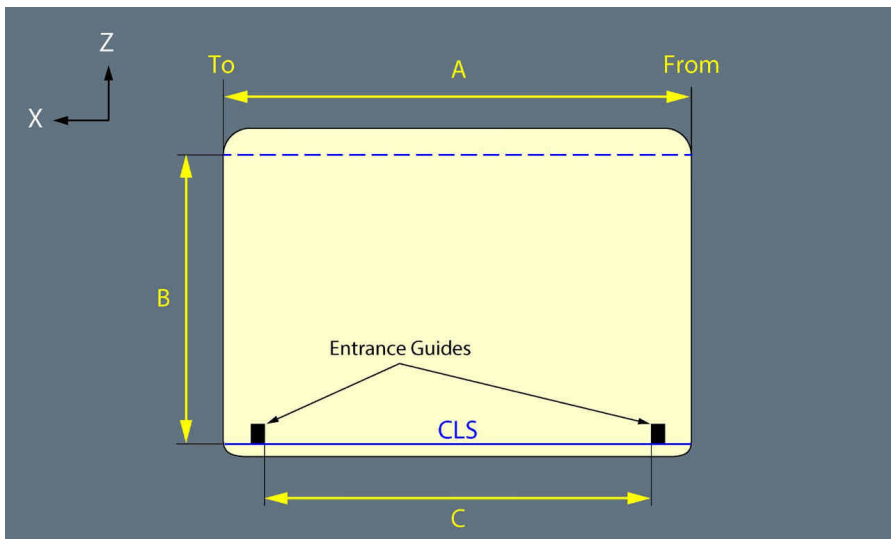
Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The aft cargo hold is equipped with a door on the right side of the fuselage.

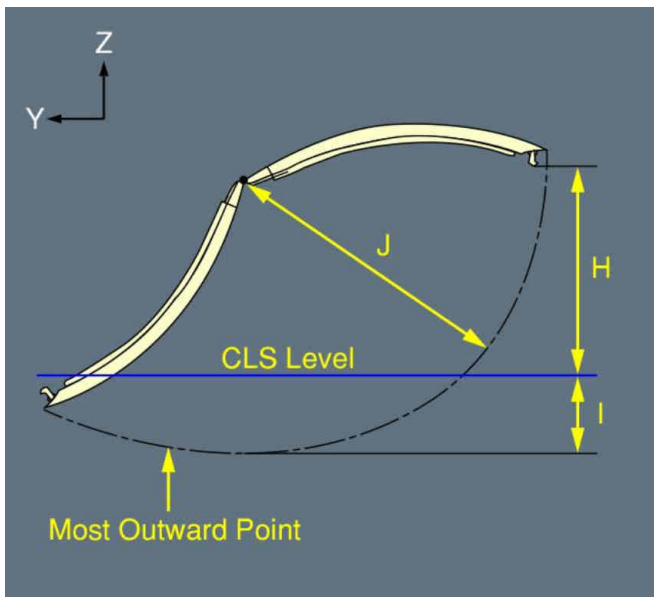
The door opens outward.

The operator must use the aft door to load and unload the aft cargo hold.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
24.320	957.48	26.137	1 029.02

FRONT VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
A	Clear opening width	1.817	71.54
B	Clear opening height	1.198	47.16
C	Door width at CLS level	1.541	60.67

SIDE VIEW OF THE DOOR


Legend		Dimensions	
		(m)	(in)
H	Clearance between the CLS level and the hooks (when the door is in fully opened position)	1.385	54.53
I	Clearance below the CLS level when the door is operated	0.687	27.05
J	Door opening radius	2.024	79.68

Transport of ULDs

Cross Section

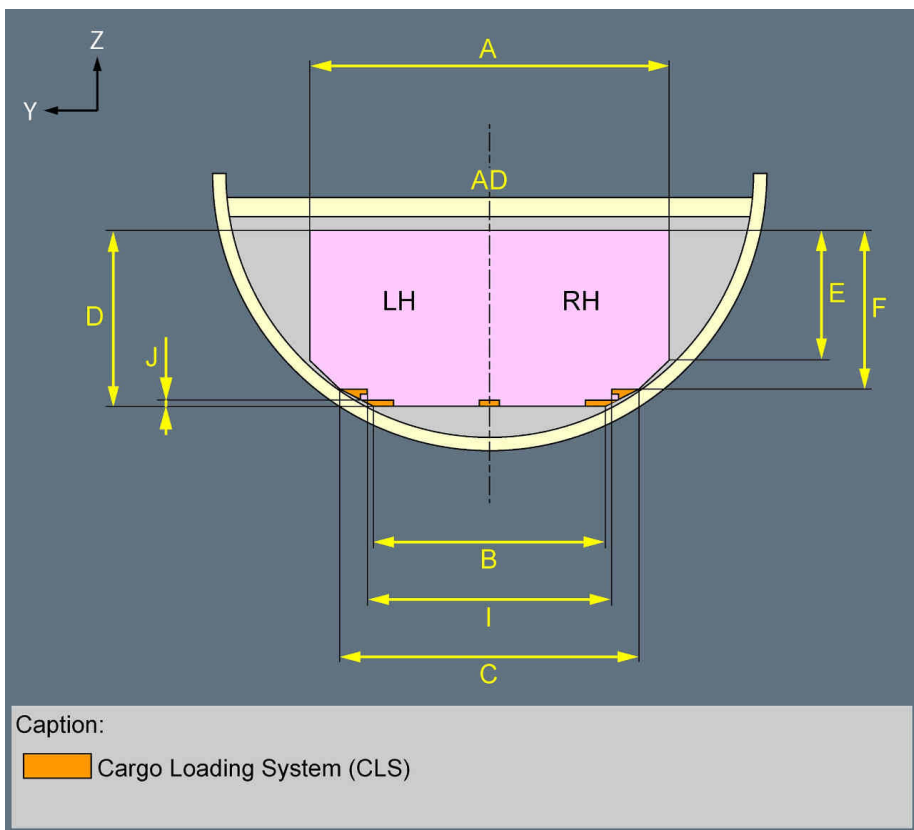
CROSS SECTION

Ident.: CTL-CGO-AFT-ULD-XSC-00019471.0007001 / 31 JAN 18

Criteria: 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

The table below provides the cross section of the cargo hold.



WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)							
	A	B	C	D	E	F	I	J
21.208	2.630	1.430	2.098	1.242	0.797	1.065	1.520	0.035
27.229	2.630	1.430	2.098	1.242	0.797	1.065	1.520	0.035
27.762	2.630	1.408	2.098	1.208	0.756	1.024	1.520	-

US UNITS

H-ARM (in)	Dimensions (in)							
	A	B	C	D	E	F	I	J
834.96	103.54	56.30	82.60	48.90	31.38	41.93	59.84	1.38
1 072.01	103.54	56.30	82.60	48.90	31.38	41.93	59.84	1.38
1 092.99	103.54	55.43	82.60	47.56	29.76	40.31	59.84	-

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Transport of ULDs

Cargo Hold Arrangement

ULD POSITION ARRANGEMENT

Ident.: CTL-CGO-AFT-ULD-CHA-00019485.0014001 / 25 AUG 20

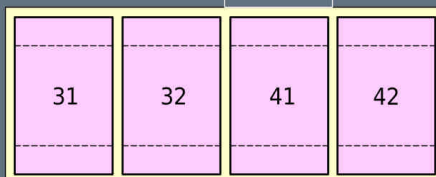
Criteria: 21103, 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

This part provides the H-ARM table of the ULDs with baseplate 60.4 x 61.5 in (ULD Baseplate Code K) for each ULD position.

ULD Position	H-ARM					
	From		To		Average	
	(m)	(in)	(m)	(in)	(m)	(in)
31	21.314	839.13	22.854	899.76	22.084	869.45
32	22.886	901.02	24.426	961.65	23.656	931.34
41	24.459	962.95	25.999	1 023.58	25.229	993.27
42	26.031	1 024.84	27.571	1 085.47	26.801	1 055.16

60.4 X 61.5 in



For the Airbus recommendations about the loading of ULDs, *Refer to CTL-CGO-AFT-ULD-RECO Loading Recommendations.*

LATCH LOCATION

Ident.: CTL-CGO-AFT-ULD-CHA-00019501.0014001 / 01 FEB 18

Criteria: 21103, 28335, ST1

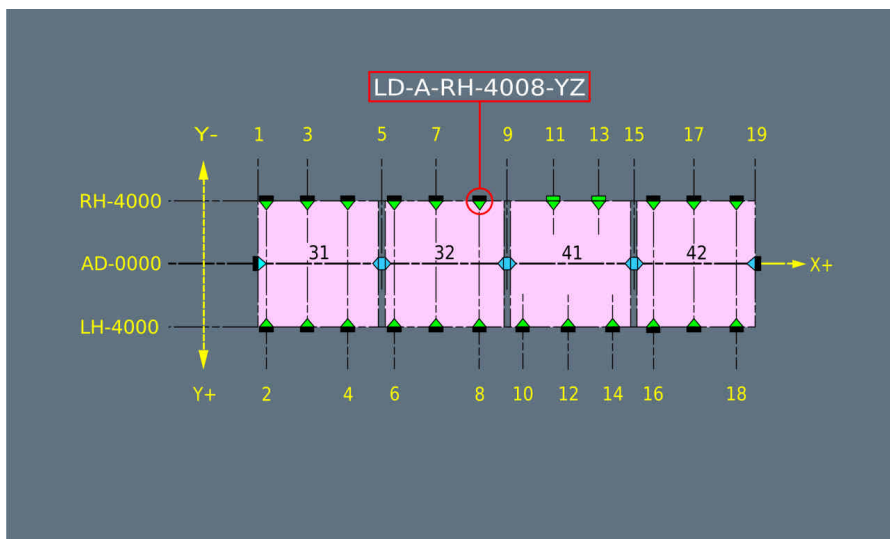
Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

This part of the manual provides the location of all the latches of the cargo hold. To ease the localization of the latches, a numbering system is used. The numbering system provides a specific code for each latch.

This part contains:

- An illustration of the cargo hold floor with all the installed latches
- A description of the numbering system
- A latch location table that provides for each latch code, the latch position and the related cargo hold positions or sections.

LATCHES OF THE AFT CARGO HOLD



DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the cargo hold latches. The latch code provides each latch unit with an individual identification.

The DD-H-SS-RNNN-TT latch code has the following essential elements to describe each latch:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- TT: latch restraint type.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Latch position on the Y axis
NNN	Latch position on the X axis

TT- LATCH RESTRAINT TYPE

Code	Latch Restraint Type
XX	Restraint in X direction
XZ	Restraint in X and Z directions
YY	Restraint in Y direction
YZ	Restraint in Y and Z directions

EXAMPLE OF LATCH CODE:

The LD-A-RH-4008-YZ latch code identifies the latch that is:

- In the lower deck
- In the aft cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 008th position from 1 on the X axis
- Able to restrain the ULDs in the Y and Z directions

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

LATCH LOCATION TABLE

Latch Code	Latch Type	Latch Positions				Related Positions or Sections
		H-ARM		Y-ARM		
		(m)	(in)	(m)	(in)	
LD-A-AD-0001-XZ	XZ-Latch (End Stop)	21.313	839.09	0.000	0.00	31
LD-A-RH-4002-YZ	YZ-Latch	21.361	840.98	-0.784	-30.87	31
LD-A-LH-4002-YZ	YZ-Latch	21.361	840.98	0.784	30.87	31
LD-A-RH-4003-YZ	YZ-Latch	21.895	862.01	-0.784	-30.87	31
LD-A-LH-4003-YZ	YZ-Latch	21.895	862.01	0.784	30.87	31
LD-A-RH-4004-YZ	YZ-Latch	22.428	882.99	-0.784	-30.87	31
LD-A-LH-4004-YZ	YZ-Latch	22.428	882.99	0.784	30.87	31
LD-A-AD-0005-XZ	XZ-Single Latch	22.870	900.39	0.000	0.00	31, 32
LD-A-RH-4006-YZ	YZ-Latch	22.962	904.02	-0.784	-30.87	32
LD-A-LH-4006-YZ	YZ-Latch	22.962	904.02	0.784	30.87	32
LD-A-RH-4007-YZ	YZ-Latch	23.495	925.00	-0.784	-30.87	32
LD-A-LH-4007-YZ	YZ-Latch	23.495	925.00	0.784	30.87	32
LD-A-RH-4008-YZ	YZ-Latch	24.028	945.98	-0.784	-30.87	32
LD-A-LH-4008-YZ	YZ-Latch	24.028	945.98	0.784	30.87	32
LD-A-AD-0009-XZ	XZ-Single Latch	24.442	962.28	0.000	0.00	32, 41
LD-A-LH-4010-YZ	YZ-Latch	24.562	967.01	0.784	30.87	41
LD-A-RH-4011-YZ	YZ-Latch (Door Sill)	24.829	977.52	-0.784	-30.87	41
LD-A-LH-4012-YZ	YZ-Latch	25.095	987.99	0.784	30.87	41
LD-A-RH-4013-YZ	YZ-Latch (Door Sill)	25.362	998.50	-0.784	-30.87	41
LD-A-LH-4014-YZ	YZ-Latch	25.629	1 009.02	0.784	30.87	41
LD-A-AD-0015-XZ	XZ-Single Latch	26.014	1 024.17	0.000	0.00	41, 42
LD-A-RH-4016-YZ	YZ-Latch	26.162	1 030.00	-0.784	-30.87	42
LD-A-LH-4016-YZ	YZ-Latch	26.162	1 030.00	0.784	30.87	42
LD-A-RH-4017-YZ	YZ-Latch	26.695	1 050.98	-0.784	-30.87	42
LD-A-LH-4017-YZ	YZ-Latch	26.695	1 050.98	0.784	30.87	42
LD-A-RH-4018-YZ	YZ-Latch	27.229	1 072.01	-0.784	-30.87	42
LD-A-LH-4018-YZ	YZ-Latch	27.229	1 072.01	0.784	30.87	42
LD-A-AD-0019-XZ	XZ-Latch (End Stop)	27.571	1 085.47	0.000	0.00	42

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-AFT-ULD-CHA-00021314.0005001 / 25 AUG 20

Criteria: 21103, 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 05152, 05162, 05253, 05746

This part provides the location of all the tie-down points in the aft cargo hold.

The cargo hold is equipped with tie-down points on the fixed YZ-Latches of the CLS for the restraint of floating pallets.

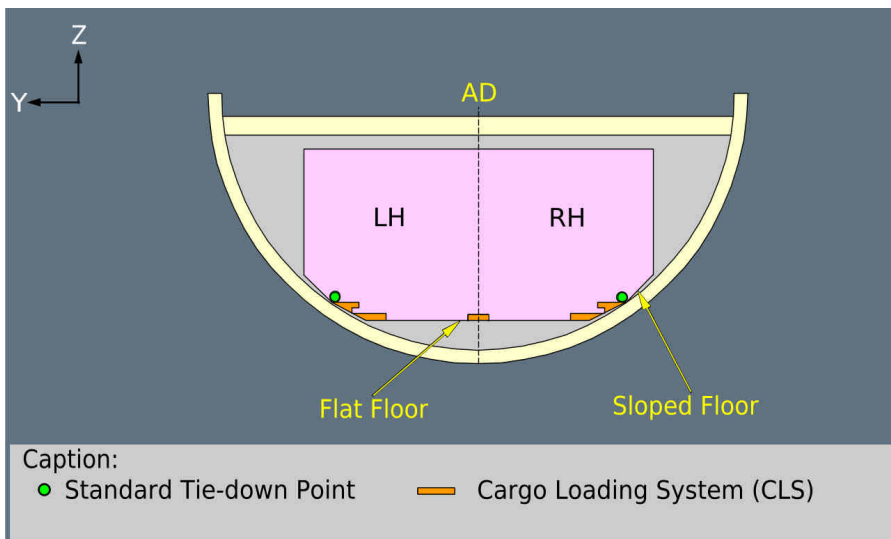
For additional information about the requirements for the loading of floating pallets , *Refer to CTL-LIM-AFT-ULD-NLOD Introduction.*

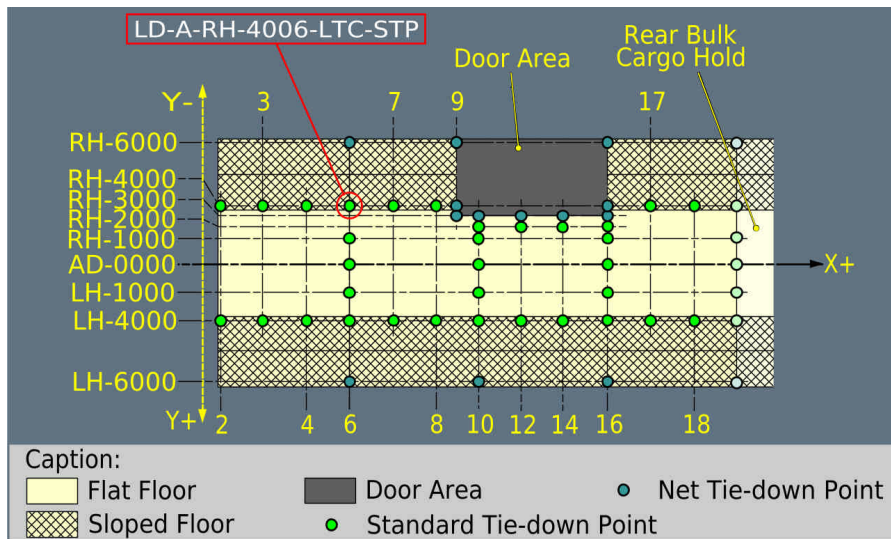
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

This part contains:

- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the cargo hold floor with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

TIE-DOWN POINTS OF THE AFT CARGO HOLD





DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point with an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following essential elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-A-RH-4006-LTC-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the aft cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 006th position on the X axis
- On a fixed YZ-Latch
- A standard tie-down point

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Aft Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections or Positions
		(m)	(in)	(m)	(in)		
LD-A-RH-4002-LTC-STP	Standard	21.361	840.98	-0.841	-33.10	-	-
LD-A-LH-4002-LTC-STP	Standard	21.361	840.98	0.841	33.10	-	-
LD-A-RH-4003-LTC-STP	Standard	21.895	862.01	-0.841	-33.10	-	-
LD-A-LH-4003-LTC-STP	Standard	21.895	862.01	0.841	33.10	-	-
LD-A-RH-4004-LTC-STP	Standard	22.428	882.99	-0.841	-33.10	-	-
LD-A-LH-4004-LTC-STP	Standard	22.428	882.99	0.841	33.10	-	-
LD-A-RH-6006-FLR-NTP	Net	22.962	904.02	-1.284	-50.55	-	-
LD-A-RH-4006-LTC-STP	Standard	22.962	904.02	-0.841	-33.10	-	-
LD-A-RH-1006-FLR-STP	Standard	22.962	904.02	-0.353	-13.89	-	-
LD-A-AD-0006-FLR-STP	Standard	22.962	904.02	0.000	0.00	-	-
LD-A-LH-1006-FLR-STP	Standard	22.962	904.02	0.353	13.89	-	-
LD-A-LH-4006-LTC-STP	Standard	22.962	904.02	0.841	33.10	-	-
LD-A-LH-6006-FLR-NTP	Net	22.962	904.02	1.284	50.55	-	-
LD-A-RH-4007-LTC-STP	Standard	23.495	925.00	-0.841	-33.10	-	-
LD-A-LH-4007-LTC-STP	Standard	23.495	925.00	0.841	33.10	-	-
LD-A-RH-4008-LTC-STP	Standard	24.028	945.98	-0.841	-33.10	-	-
LD-A-LH-4008-LTC-STP	Standard	24.028	945.98	0.841	33.10	-	-
LD-A-RH-6009-FLR-NTP	Net	24.295	956.50	-1.284	-50.55	-	-
LD-A-RH-4009-FLR-NTP	Net	24.295	956.50	-0.776	-30.56	-	-
LD-A-RH-3009-FLR-NTP	Net	24.295	956.50	-0.635	-25.00	-	-
LD-A-RH-3010-FLR-NTP	Net	24.562	967.01	-0.574	-22.60	-	-
LD-A-RH-2010-FLR-STP	Standard	24.562	967.01	-0.523	-20.60	-	-
LD-A-RH-1010-FLR-STP	Standard	24.562	967.01	-0.310	-12.20	-	-
LD-A-AD-0010-FLR-STP	Standard	24.562	967.01	0.000	0.00	-	-
LD-A-LH-1010-FLR-STP	Standard	24.562	967.01	0.353	13.89	-	-
LD-A-LH-4010-FLR-STP	Standard	24.562	967.01	0.841	33.10	-	-
LD-A-LH-6010-FLR-NTP	Net	24.562	967.01	1.284	50.55	-	-
LD-A-RH-3012-FLR-NTP	Net	25.095	987.99	-0.574	-22.60	-	-
LD-A-RH-2012-FLR-STP	Standard	25.095	987.99	-0.523	-20.60	-	-
LD-A-LH-4012-LTC-STP	Standard	25.095	987.99	0.841	33.10	-	-
LD-A-RH-3014-FLR-NTP	Net	25.629	1 009.02	-0.574	-22.60	-	-
LD-A-RH-2014-FLR-STP	Standard	25.629	1 009.02	-0.523	-20.60	-	-
LD-A-LH-4014-LTC-STP	Standard	25.629	1 009.02	0.841	33.10	-	-
LD-A-RH-6016-FLR-NTP	Net	26.162	1 030.00	-1.284	-50.55	-	-
LD-A-RH-4016-FLR-NTP	Net	26.162	1 030.00	-0.841	-33.10	-	-

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections or Positions
		(m)	(in)	(m)	(in)		
LD-A-RH-3016-FLR-NTP	Net	26.162	1 030.00	-0.603	-23.75	-	-
LD-A-RH-2016-FLR-STP	Standard	26.162	1 030.00	-0.552	-21.75	-	-
LD-A-RH-1016-FLR-STP	Standard	26.162	1 030.00	-0.310	-12.20	-	-
LD-A-AD-0016-FLR-STP	Standard	26.162	1 030.00	0.000	0.00	-	-
LD-A-LH-1016-FLR-STP	Standard	26.162	1 030.00	0.353	13.89	-	-
LD-A-LH-4016-LTC-STP	Standard	26.162	1 030.00	0.841	33.10	-	-
LD-A-LH-6016-FLR-NTP	Net	26.162	1 030.00	1.284	50.54	-	-
LD-A-RH-4017-LTC-STP	Standard	26.695	1 050.98	-0.841	-33.10	-	-
LD-A-LH-4017-LTC-STP	Standard	26.695	1 050.98	0.841	33.10	-	-
LD-A-RH-4018-LTC-STP	Standard	27.229	1 072.01	-0.841	-33.10	-	-
LD-A-LH-4018-LTC-STP	Standard	27.229	1 072.01	0.841	33.10	-	-

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

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Transport of ULDs**Loading Recommendations****LOADING RECOMMENDATIONS**

Ident.: CTL-CGO-AFT-ULD-RECO-00019514.0042001 / 31 JAN 18

Criteria: 20059, 20084, 28335, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060

The operator can load the cargo hold with:

- A maximum of 3 ULDs with 60.4 x 61.5 in baseplate dimensions (*Refer to CTL-LIM-AFT-ULD-CHL Cargo Hold Capacity for ULDs*)
- Non-unitized loads (*Refer to CTL-LIM-AFT-ULD-NLOD Introduction*).

To load a ULD or a non-unitized load in the cargo hold, the operator should consider all of the following:

- The dimensions of the permitted ULD baseplate
- The maximum permitted dimensions of the container contour
- The clearances required around the loaded pallets
- The dimensions of the package
- The installation of the ventilation and temperature control systems in the cargo hold, if required by the type of loaded item.

The operator can:

- Load a combination of ULDs and non-unitized loads. The operator should consider the interference that may occur between ULDs and non-unitized loads
- Keep one or more ULD positions vacant.

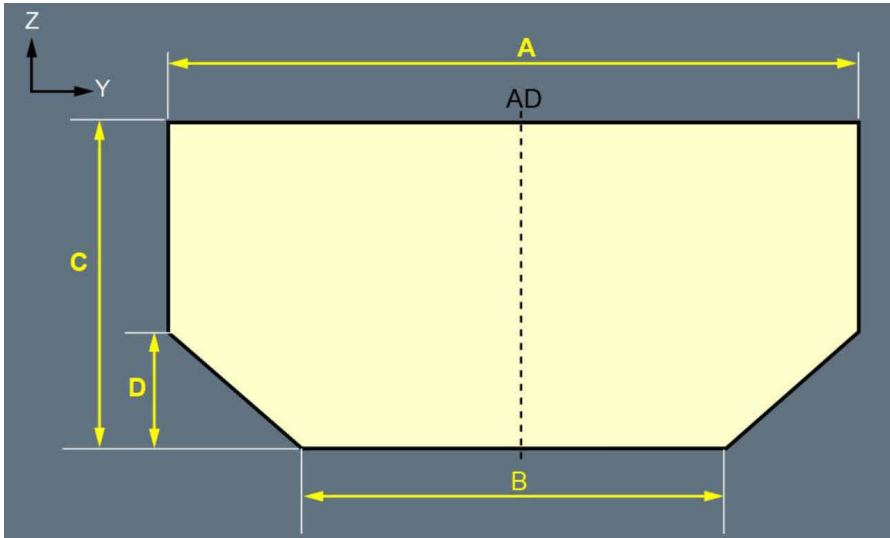
ULD BASEPLATE

If the ULD baseplate is deteriorated, the baseplate may interfere with the function of the CLS. To ensure smooth loading and restraint of the ULD in the CLS, the operator should inspect all of the following:

- The baseplate deflection
- The baseplate outer dimensions
- The baseplate edge profile.

CONTAINER AND PALLET CONTOUR

The dimensions of the containers must remain within the limits of the Standard Contour H defined by the IATA.



Legend	Dimensions	
	(m)	(in)
A	2.451	96.50
B	1.562	61.50
C	1.143	45.00
D	0.498	19.60

When transporting a pallet, the operator must ensure a clearance of 2.00 in (0.051 m) between the contour of the loaded pallet (pallet, pallet equipment and load items) and:

- The cargo door
- The adjacent ULD
- The cargo hold sidewalls and ceiling.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the cargo door
- The cross section of the cargo hold
- The length of the cargo hold
- The restraint system of the cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

The operator is responsible for the calculation or the loading tests to ensure that it is possible to load the packages with defined form, dimensions and weight.

METRIC UNITS

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.425	5.247	3.912
0.100	5.346	5.178	3.712
0.200	5.269	4.843	3.511
0.300	5.195	4.643	3.311
0.400	5.124	4.443	3.111
0.500	4.820	4.242	2.911
0.600	4.618	4.042	2.711
0.700	4.415	3.841	2.511
0.800	4.212	3.640	2.310
0.900	4.008	3.440	2.110
1.000	3.804	3.239	1.909
1.100	3.598	3.037	1.708
1.200	3.392	2.836	1.507
1.300	3.184	2.634	1.438
1.400	2.973	2.431	-
1.500	2.759	2.227	-
1.600	2.537	2.021	-
1.700	2.437	1.996	-

US UNITS

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	213.50	206.50	153.80
4.00	210.40	203.80	145.80
8.00	207.30	190.30	137.80
12.00	204.30	182.20	129.80
16.00	201.50	174.20	121.80
20.00	188.90	166.20	113.80
24.00	180.80	158.20	105.80
28.00	172.70	150.20	97.80
32.00	164.60	142.10	89.80
36.00	156.50	134.10	81.80
40.00	148.30	126.10	73.70
44.00	140.10	118.00	65.70
48.00	131.80	109.90	57.60
52.00	123.40	101.90	56.70
56.00	115.00	93.70	-

Continued on the following page

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

Continued from the previous page

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
60.00	106.40	85.60	-
64.00	97.40	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The aft cargo hold is equipped with ventilation and temperature control systems.
 Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

LOADING RECOMMENDATIONS

Ident.: CTL-CGO-AFT-ULD-RECO-00019514.0012001 / 31 JAN 18

Criteria: 28335, ST1

Applicable to: MSN 05152, 05162, 05253, 05746

The operator can load the cargo hold with:

- A maximum of 3 ULDs with 60.4 x 61.5 in baseplate dimensions (*Refer to CTL-LIM-AFT-ULD-CHL Cargo Hold Capacity for ULDs*)
- Non-unitized loads (*Refer to CTL-LIM-AFT-ULD-NLOD Introduction*).

To load a ULD or a non-unitized load in the cargo hold, the operator should consider all of the following:

- The dimensions of the permitted ULD baseplate
- The maximum permitted dimensions of the container contour
- The clearances required around the loaded pallets
- The dimensions of the package
- The installation of the ventilation and temperature control systems in the cargo hold, if required by the type of loaded item.

The operator can:

- Load a combination of ULDs and non-unitized loads. The operator should consider the interference that may occur between ULDs and non-unitized loads
- Keep one or more ULD positions vacant.

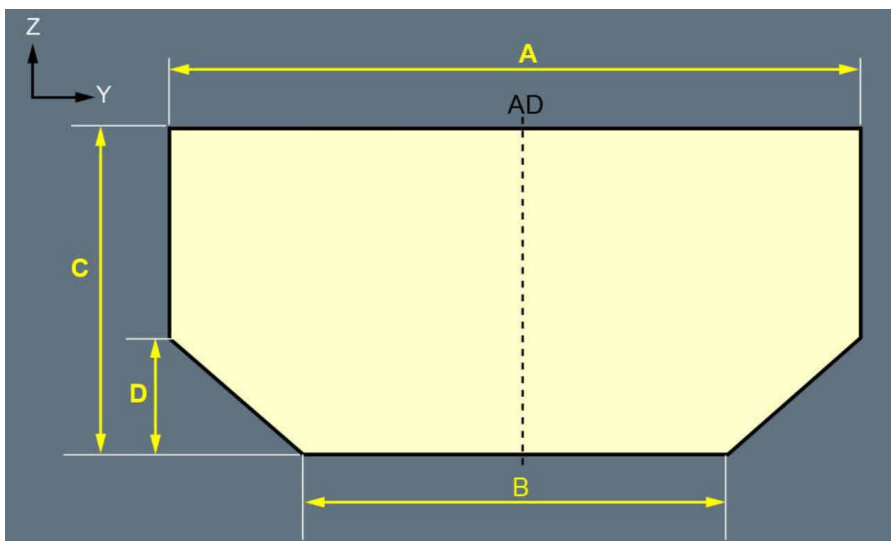
ULD BASEPLATE

If the ULD baseplate is deteriorated, the baseplate may interfere with the function of the CLS. To ensure smooth loading and restraint of the ULD in the CLS, the operator should inspect all of the following:

- The baseplate deflection
- The baseplate outer dimensions
- The baseplate edge profile.

CONTAINER AND PALLET CONTOUR

The dimensions of the containers must remain within the limits of the Standard Contour H defined by the IATA.



Legend	Dimensions	
	(m)	(in)
A	2.451	96.50
B	1.562	61.50
C	1.143	45.00
D	0.498	19.60

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

When transporting a pallet, the operator must ensure a clearance of 2.00 in (0.051 m) between the contour of the loaded pallet (pallet, pallet equipment and load items) and:

- The cargo door
- The adjacent ULD
- The cargo hold sidewalls and ceiling.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the cargo door
- The cross section of the cargo hold
- The length of the cargo hold
- The restraint system of the cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

The operator is responsible for the calculation or the loading tests to ensure that it is possible to load the packages with defined form, dimensions and weight.

METRIC UNITS

Package Width (m)	Package Height (H)		
	H ≤ 0.746 m	0.746 m < H ≤ 1.014 m	H > 1.014 m
	Maximum Package Length (m)		
0.000	5.425	5.247	3.912
0.100	5.346	5.178	3.712
0.200	5.269	4.843	3.511
0.300	5.195	4.643	3.311
0.400	5.124	4.443	3.111
0.500	4.820	4.242	2.911
0.600	4.618	4.042	2.711
0.700	4.415	3.841	2.511
0.800	4.212	3.640	2.310
0.900	4.008	3.440	2.110
1.000	3.804	3.239	1.909
1.100	3.598	3.037	1.708
1.200	3.392	2.836	1.507
1.300	3.184	2.634	1.438
1.400	2.973	2.431	-
1.500	2.759	2.227	-
1.600	2.537	2.021	-
1.700	2.437	1.996	-

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

US UNITS

Package Width (in)	Package Height (H)		
	H ≤ 29.40 in	29.40 in < H ≤ 39.90 in	H > 39.90 in
	Maximum Package Length (in)		
0.00	213.50	206.50	153.80
4.00	210.40	203.80	145.80
8.00	207.30	190.30	137.80
12.00	204.30	182.20	129.80
16.00	201.50	174.20	121.80
20.00	188.90	166.20	113.80
24.00	180.80	158.20	105.80
28.00	172.70	150.20	97.80
32.00	164.60	142.10	89.80
36.00	156.50	134.10	81.80
40.00	148.30	126.10	73.70
44.00	140.10	118.00	65.70
48.00	131.80	109.90	57.60
52.00	123.40	101.90	56.70
56.00	115.00	93.70	-
60.00	106.40	85.60	-
64.00	97.40	78.60	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The aft cargo hold is not equipped with ventilation and temperature control systems.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Aft Cargo Hold

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Transport of Bulk Loads
Cargo Hold Door
CARGO HOLD DOOR

Ident.: CTL-CGO-REAR-BULK-CHD-00019525.0005001 / 27 JUL 23

Criteria: 20029, ST1

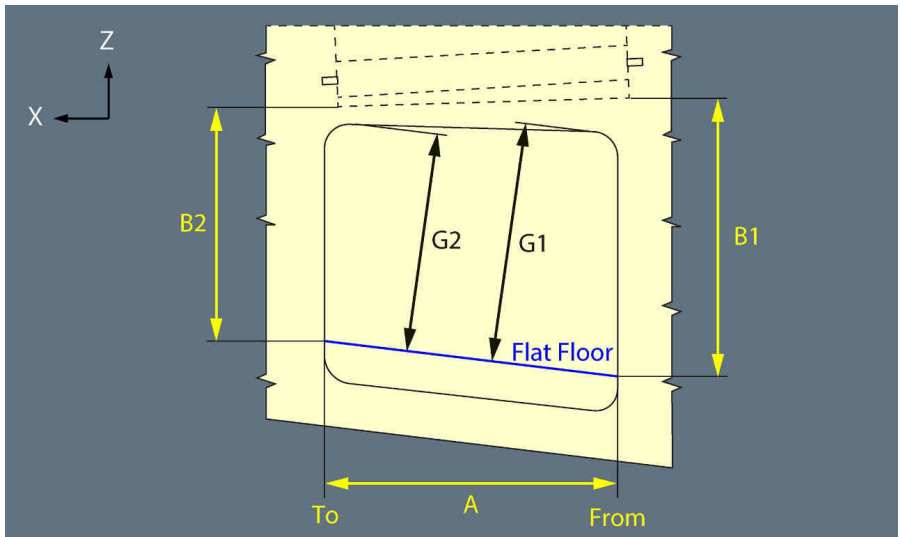
Applicable to: ALL

The rear bulk cargo hold is equipped with a door on the right side of the fuselage.
 The door opens inward.

To load and unload the rear bulk cargo hold, the operator must use:

- The door of the rear bulk cargo hold, or
- The door of the aft cargo hold, after removal of the divider net between the aft and rear bulk cargo holds.

Door H-ARMS			
From		To	
(m)	(in)	(m)	(in)
28.352	1 116.22	29.305	1 153.74

FRONT VIEW OF THE DOOR


WEIGHT AND BALANCE CONTROL

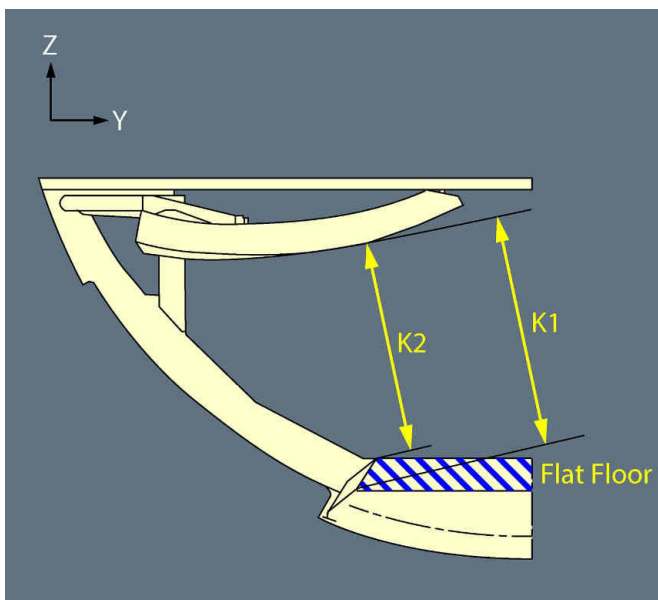
Cargo Arrangement

Rear Bulk Cargo Hold

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

Legend		Dimensions	
		(m)	(in)
A	Clear opening width	0.954	37.56
B1	Clearance opening height at H-ARM 28.352 m (1 116.22 in)	0.880	34.64
B2	Clearance opening height at H-ARM 29.305 m (1 153.74 in)	0.765	30.12
G1	Clear door height at H-ARM 28.352 m (1 116.22 in)	0.773	30.43
G2	Clear door height at H-ARM 29.305 m (1 153.74 in)	0.704	27.72

SIDE VIEW OF THE DOOR



Legend		Dimensions	
		(m)	(in)
K1	Clearance between the flat floor and the door (when the door is in fully open position) at H-ARM 28.352 m (1 116.22 in)	0.900	35.43
K2	Clearance between the flat floor and the door (when the door is in fully open position) at H-ARM 29.305 m (1 153.74 in)	0.810	31.89

Transport of Bulk Loads

Cross Section

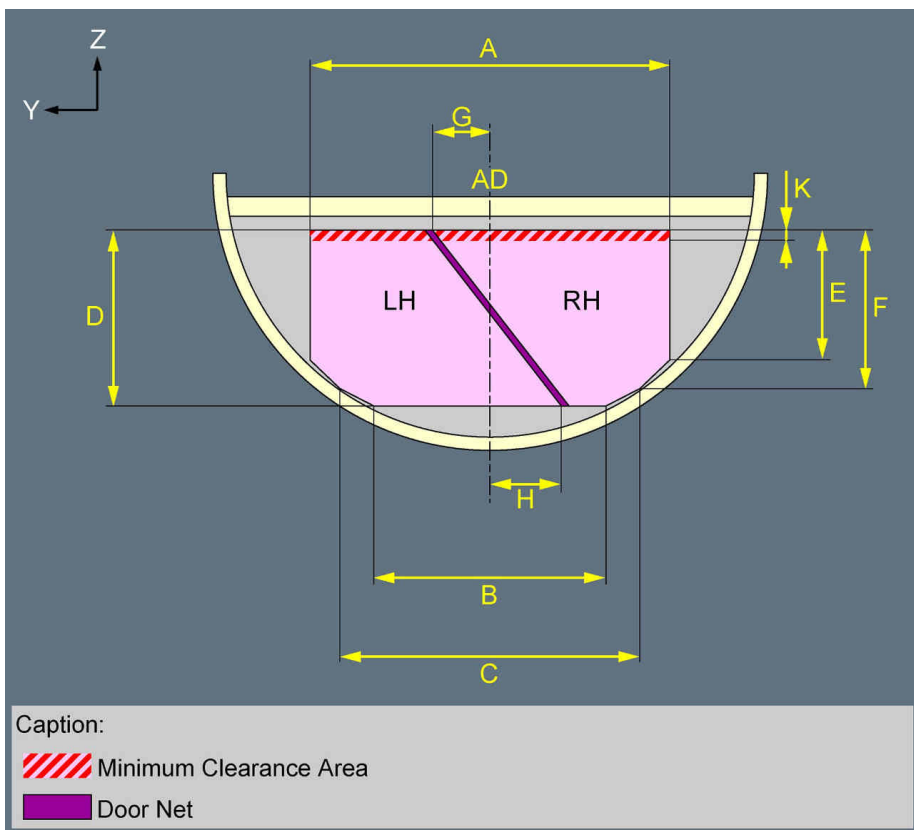
CROSS SECTION

Ident.: CTL-CGO-REAR-BULK-XSC-00019530.0015001 / 31 JAN 18

Criteria: 20029, 23172, ST1

Applicable to: ALL

The tables below provide the cross sections of the cargo hold.



WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Rear Bulk Cargo Hold

METRIC UNITS

H-ARM (m)	Dimensions (m)								
	A	B	C	D	E	F	G	H	K
27.762	2.630	1.408	2.098	1.211	0.756	1.027	-	-	0.051
28.296	2.630	1.368	2.098	1.147	0.682	0.953	0.254	0.421	0.051
28.829	2.630	1.328	2.098	1.084	0.608	0.879	0.254	0.389	0.051
29.362	2.630	1.288	2.098	1.020	0.533	0.805	0.254	0.404	0.051
29.896	2.630	1.248	2.098	0.957	0.459	0.731	-	-	0.051
30.429	2.113	1.113	1.839	0.891	0.558	0.699	-	-	0.051
31.003	1.558	0.968	-	0.820	0.664	-	-	-	0.051

US UNITS

H-ARM (in)	Dimensions (in)								
	A	B	C	D	E	F	G	H	K
1 092.99	103.54	55.43	82.60	47.68	29.76	40.43	-	-	2.00
1 114.02	103.54	53.86	82.60	45.16	26.85	37.52	10.00	16.57	2.00
1 135.00	103.54	52.28	82.60	42.68	23.94	34.61	10.00	15.31	2.00
1 155.98	103.54	50.71	82.60	40.16	20.98	31.69	10.00	15.90	2.00
1 177.01	103.54	49.13	82.60	37.68	18.07	28.78	-	-	2.00
1 197.99	83.19	43.82	72.40	35.08	21.97	27.52	-	-	2.00
1 220.59	61.34	38.11	-	32.28	26.14	-	-	-	2.00

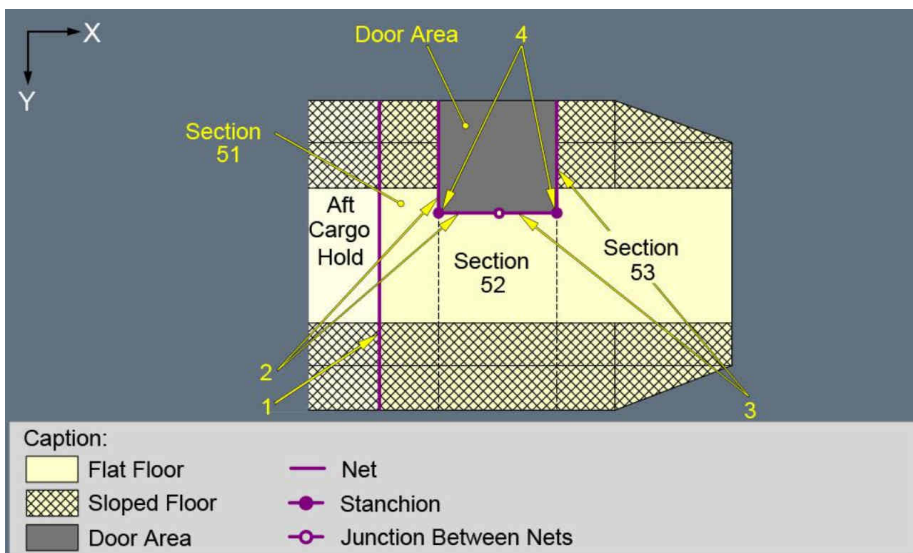
Transport of Bulk Loads
Cargo Hold Arrangement
SECTION ARRANGEMENT

Ident.: CTL-CGO-REAR-BULK-CHA-00019541.0005001 / 12 JUN 18

Criteria: 20029, ST1

Applicable to: ALL

The rear bulk cargo hold is divided into sections and net sections as indicated in the illustration below.



Legend	Related Net Type	Installation Requirement
1	Divider net type A1	Mandatory
2	Door net type E	Mandatory
3	Door net type D	Mandatory
4	Stanchion	Mandatory

The following table provides the usable volume and H-ARMS for each section available for the loading of bulk items.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement
Rear Bulk Cargo Hold

Section	H-ARMS						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m³)	(ft³)
51	27.762	1 092.99	28.296	1 114.02	28.029	1 103.50	1.490	52.62
52	28.296	1 114.02	29.362	1 155.98	28.829	1 135.00	1.390	49.09
53	29.362	1 155.98	31.003	1 220.59	30.182	1 188.27	3.040	107.36

The maximum usable volume of the cargo hold is based on:

- The maximum theoretical volume
- The volume reduction due to the door area
- The volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling.

TIE-DOWN POINT LOCATION

Ident.: CTL-CGO-REAR-BULK-CHA-00021324.0027001 / 28 MAR 25

Criteria: 20029, 21103, ST1

Applicable to: ALL

This part provides the location of all the tie-down points installed in the rear bulk cargo hold.

The rear bulk cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

To attach the nets, the operator uses the tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points

(See Location Table of the Tie-down Points) that are not already used to attach the nets.

For additional information about the requirements for the loading of bulk items *Refer to CTL-LIM-REAR-BULK-CHL Restraint Conditions and Refer to CTL-LIM-REAR-BULK-CHL Fastening Load Requirements.*

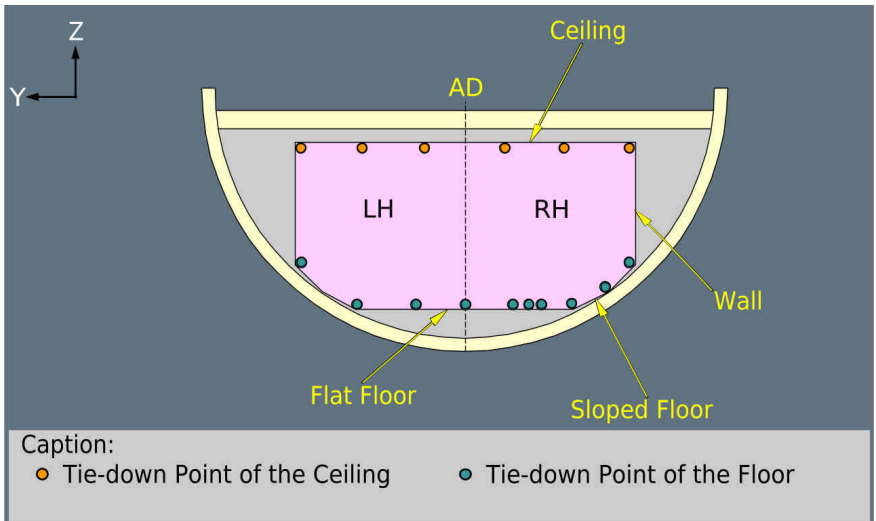
To ease the localization of the tie-down points, a numbering system is used. The numbering system provides a specific code for each tie-down point.

This part contains:

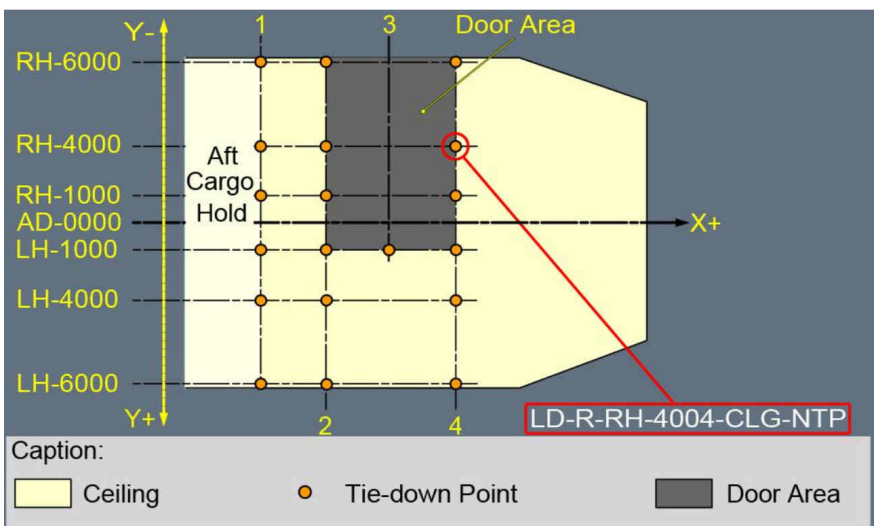
- An illustration of the cargo hold cross section with the possible location of the tie-down points
- An illustration of the ceiling of the cargo hold with all the installed tie-down points
- An illustration of the sloped and flat floors of the cargo hold with all the installed tie-down points
- A description of the numbering system
- A location table that provides for each tie-down point code the tie-down point position.

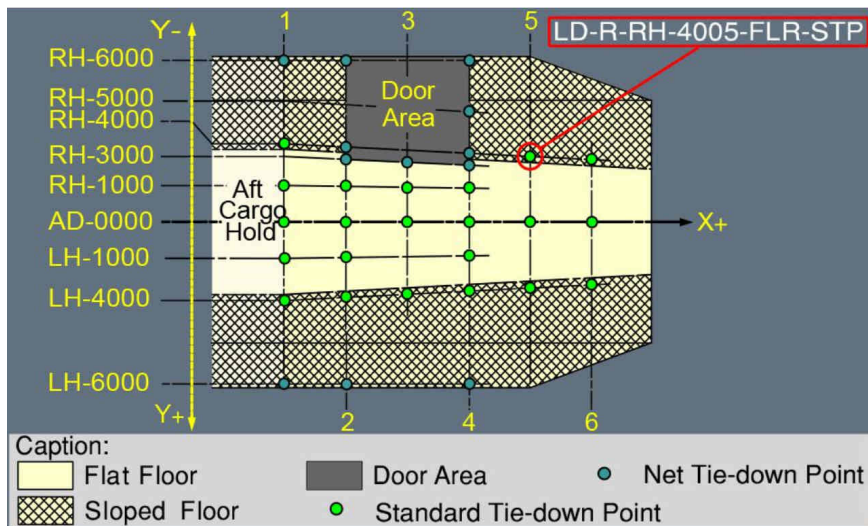
TIE-DOWN POINTS OF THE REAR BULK CARGO HOLD

POSSIBLE LOCATION OF THE TIE-DOWN POINTS



TIE-DOWN POINTS OF THE CEILING



TIE-DOWN POINTS OF THE FLAT AND SLOPED FLOORS

DESCRIPTION OF THE NUMBERING SYSTEM

The following part describes the numbering system associated with the tie-down points of the cargo hold. The tie-down point code provides each tie-down point an individual identification.

The DD-H-SS-RNNN-LLL-TTT tie-down point code has the following elements to describe each tie-down point:

- DD: cargo deck
- H: cargo hold
- SS: cargo hold side
- RNNN: individual identification number
- LLL: cargo hold lining
- TTT: type of tie-down point

DD - CARGO DECK

Code	Cargo Deck
LD	Lower Deck
MD	Main Deck
UD	Upper Deck

H - CARGO HOLD

Code	Cargo Hold
F	Forward cargo hold
A	Aft cargo hold
R	Rear bulk cargo hold

SS - CARGO HOLD SIDE

Code	Cargo Hold Side
RH	Right-Hand side
AD	Aircraft Datum
LH	Left-Hand side

RNNN - INDIVIDUAL IDENTIFICATION NUMBER

The individual identification number has 4 characters based on a grid of each cargo hold.

Character Position	Description
R	Tie-down point position on the Y axis
NNN	Tie-down point position on the X axis

LLL - CARGO HOLD LINING

Code	Cargo Hold Lining
CLG	Ceiling
FLR	Floor
LTC	Latch

TTT - TYPE OF TIE-DOWN POINT

Code	Type of Tie-down Point
STP	Standard Tie-down Point
ATP	Additional Tie-down Point
NTP	Net Tie-down Point

EXAMPLE OF TIE-DOWN POINT CODE:

The LD-R-RH-4005-FLR-STP tie-down point code identifies the tie-down point that is:

- In the lower deck
- In the rear bulk cargo hold
- On the right-hand side of the cargo hold
- In the 4th position from the AD on the Y axis and the 005th position from 1 on the X axis
- On the floor of the cargo hold
- A standard tie-down point.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Rear Bulk Cargo Hold

LOCATION TABLE OF THE TIE-DOWN POINTS

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-R-RH-6001-CLG-NTP	Net restraint	27.738	1 092.06	-1.292	-50.87	Divider net type A1	42, 51
LD-R-RH-6001-FLR-NTP	Net restraint	27.787	1 093.98	-1.268	-49.92	Divider net type A1	42, 51
LD-R-RH-4001-CLG-NTP	Net restraint	27.738	1 092.06	-0.765	-30.12	Divider net type A1	42, 51
LD-R-RH-4001-FLR-STP	Bulk restraint	27.785	1 093.90	-0.796	-31.34	Divider net type A1	42, 51
LD-R-RH-1001-CLG-NTP	Net restraint	27.738	1 092.06	-0.254	-10.00	Divider net type A1	42, 51
LD-R-RH-1001-FLR-STP	Bulk restraint	27.741	1 092.16	-0.352	-13.86	Divider net type A1	42, 51
LD-R-AD-0001-FLR-STP	Bulk restraint	27.741	1 092.16	0.000	0.00	Divider net type A1	42, 51
LD-R-LH-1001-CLG-NTP	Net restraint	27.738	1 092.06	0.254	10.00	Divider net type A1	42, 51
LD-R-LH-1001-FLR-STP	Bulk restraint	27.741	1 092.16	0.352	13.86	Divider net type A1	42, 51
LD-R-LH-4001-CLG-NTP	Net restraint	27.738	1 092.06	0.765	30.12	Divider net type A1	42, 51
LD-R-LH-4001-FLR-STP	Bulk restraint	27.785	1 093.90	0.796	31.34	Divider net type A1	42, 51
LD-R-LH-6001-CLG-NTP	Net restraint	27.738	1 092.06	1.292	50.87	Divider net type A1	42, 51
LD-R-LH-6001-FLR-NTP	Net restraint	27.787	1 093.98	1.268	49.92	Divider net type A1	42, 51
LD-R-RH-6002-CLG-NTP	Net restraint	28.172	1 109.15	-1.292	-50.87	Door net type E	51, door area
LD-R-RH-6002-FLR-NTP	Net restraint	28.281	1 113.43	-1.292	-50.87	Door net type E	51, door area
LD-R-RH-4002-CLG-NTP	Net restraint	28.172	1 109.15	-0.765	-30.12	Door net type E	51, door area
LD-R-RH-4002-FLR-NTP	Net restraint	28.281	1 113.43	-0.772	-30.39	Door net type E	51, door area
LD-R-RH-3002-FLR-NTP	Net restraint	28.282	1 113.45	-0.421	-16.57	Door net type E, stanchion	51, 52, door area
LD-R-RH-1002-CLG-NTP	Net restraint	28.172	1 109.15	-0.254	-10.00	Door net type E, stanchion	51, door area

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Rear Bulk Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-R-RH-1002-FLR-STP	Bulk restraint	28.282	1 113.45	-0.319	-12.56	-	51, 52
LD-R-AD-0002-FLR-STP	Bulk restraint	28.282	1 113.45	0.000	0.00	-	51, 52
LD-R-LH-1002-CLG-NTP	Net restraint	28.272	1 113.09	0.254	10.00	Door net type E	51, 52, door area
LD-R-LH-1002-FLR-STP	Bulk restraint	28.282	1 113.45	0.345	13.58	-	51, 52
LD-R-LH-4002-CLG-NTP	Net restraint	28.272	1 113.09	0.765	30.12	-	51, 52
LD-R-LH-4002-FLR-STP	Bulk restraint	28.319	1 114.92	0.772	30.39	-	51, 52
LD-R-LH-6002-CLG-NTP	Net restraint	28.272	1 113.09	1.292	50.87	-	51, 52
LD-R-LH-6002-FLR-NTP	Net restraint	28.321	1 115.00	1.228	48.35	-	51, 52
LD-R-RH-3003-FLR-NTP	Net restraint	28.815	1 134.44	-0.389	-15.31	Door net type E, door net type D	52, door area
LD-R-RH-1003-FLR-STP	Bulk restraint	28.815	1 134.44	-0.338	-13.31	-	52
LD-R-AD-0003-FLR-STP	Bulk restraint	28.815	1 134.44	0.000	0.00	-	52
LD-R-LH-1003-CLG-NTP	Net restraint	28.805	1 134.07	0.254	10.00	Door net type E, door net type D	52, door area
LD-R-LH-4003-FLR-STP	Bulk restraint	28.852	1 135.91	0.749	29.49	-	52
LD-R-RH-6004-CLG-NTP	Net restraint	29.443	1 159.19	-1.292	-50.87	Door net type D	53, door area
LD-R-RH-6004-FLR-NTP	Net restraint	29.377	1 156.57	-1.251	-49.25	Door net type D	53, door area
LD-R-RH-5004-FLR-NTP	Net restraint	29.418	1 158.18	-1.006	-39.61	Door net type D	53, door area
LD-R-RH-4004-CLG-NTP	Net restraint	29.443	1 159.19	-0.765	-30.12	Door net type D	53, door area
LD-R-RH-4004-FLR-NTP	Net restraint	29.377	1 156.57	-0.713	-28.07	Door net type D	53, door area

Continued on the following page

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Rear Bulk Cargo Hold

Continued from the previous page

Tie-down Point Code	Tie-down Point Type	Tie-down Point Positions				Related Equipment and Sections	
		H-ARM		Y-ARM		Related Equipment	Related Sections
		(m)	(in)	(m)	(in)		
LD-R-RH-3004-FLR-NTP	Net restraint	29.348	1 155.42	-0.404	-15.91	Door net type D, stanchion	52, 53, door area
LD-R-RH-1004-CLG-NTP	Net restraint	29.443	1 159.19	-0.254	-10.00	Door net type D, stanchion	53, door area
LD-R-RH-1004-FLR-STP	Bulk restraint	29.348	1 155.42	-0.302	-11.89	-	52, 53
LD-R-AD-0004-FLR-STP	Bulk restraint	29.348	1 155.42	0.000	0.00	-	52, 53
LD-R-LH-1004-CLG-NTP	Net restraint	29.338	1 155.06	0.254	10.00	Door net type D	52, 53, door area
LD-R-LH-1004-FLR-STP	Bulk restraint	29.348	1 155.42	0.327	12.87	-	52, 53
LD-R-LH-4004-CLG-NTP	Net restraint	29.338	1 155.06	0.765	30.12	-	52, 53
LD-R-LH-4004-FLR-STP	Bulk restraint	29.385	1 156.89	0.726	28.58	-	52, 53
LD-R-LH-6004-CLG-NTP	Net restraint	29.338	1 155.06	1.292	50.87	-	52, 53
LD-R-LH-6004-FLR-NTP	Net restraint	29.387	1 156.97	1.250	49.21	-	52, 53
LD-R-RH-4005-FLR-STP	Bulk restraint	29.919	1 177.91	-0.703	-27.68	-	53
LD-R-AD-0005-FLR-STP	Bulk restraint	29.882	1 176.44	0.000	0.00	-	53
LD-R-LH-4005-FLR-STP	Bulk restraint	29.919	1 177.91	0.703	27.68	-	53
LD-R-RH-4006-FLR-STP	Bulk restraint	30.452	1 198.90	-0.672	-26.46	-	53
LD-R-AD-0006-FLR-STP	Bulk restraint	30.415	1 197.43	0.000	0.00	-	53
LD-R-LH-4006-FLR-STP	Bulk restraint	30.452	1 198.90	0.672	26.46	-	53

Transport of Bulk Loads
Loading Recommendations
LOADING RECOMMENDATIONS

Ident.: CTL-CGO-REAR-BULK-RECO-00019550.0033001 / 31 JAN 18

Criteria: 20029, 20059, 20084, 28195, ST1

Applicable to: MSN 02155, 02212

To load an item in the rear bulk cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the rear bulk cargo hold, if required by the type of loaded item.

PACKAGE DIMENSIONS

The packages that can be loaded depend on all of the following:

- The dimensions of the aft cargo door
- The cross sections of the rear bulk cargo hold
- The restraint system of the rear bulk cargo hold
- The dimensions of the net section of the rear bulk cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

METRIC UNITS

Package Width (m)	Package Height				
	0.400 m	0.600 m	0.750 m	0.900 m	1.000 m
	Maximum Package Length (m)				
0.000	2.664	2.601	2.585	2.050	1.031
0.100	2.618	2.574	2.497	2.031	0.975
0.200	2.580	2.557	2.384	2.017	0.965
0.300	2.552	2.381	2.269	1.715	0.965
0.400	2.533	2.219	2.149	1.715	-
0.500	2.443	1.965	1.907	1.715	-
0.600	2.313	-	-	-	-
0.700	2.177	-	-	-	-
0.800	2.031	-	-	-	-
0.900	1.809	-	-	-	-

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Rear Bulk Cargo Hold

US UNITS

Package Width (in)	Package Height				
	15.80 in	23.60 in	29.50 in	35.40 in	39.40 in
Maximum Package Length (in)					
0.00	104.80	102.40	101.70	80.70	40.50
4.00	103.00	101.30	98.30	79.90	38.30
8.00	101.50	100.60	93.80	79.40	37.90
12.00	100.40	93.70	89.30	67.50	37.90
16.00	99.70	87.30	84.60	67.50	-
20.00	96.10	77.30	75.00	67.50	-
24.00	91.00	-	-	-	-
28.00	85.70	-	-	-	-
32.00	79.90	-	-	-	-
36.00	71.20	-	-	-	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The rear bulk is equipped with ventilation and temperature control systems.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

LOADING RECOMMENDATIONS

Ident.: CTL-CGO-REAR-BULK-RECO-00019550.0025001 / 27 JUN 22

Criteria: 20029, 20059, 20084, ST1

Applicable to: MSN 02719, 02758, 02789, 03031, 03060, 04392

To load an item in the rear bulk cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the rear bulk cargo hold, if required by the type of item loaded.

PACKAGE DIMENSIONS
LOADING THROUGH THE REAR BULK CARGO DOOR

The dimensions of the packages that can be loaded depend on all the following:

- The dimensions of the rear bulk cargo door
- The cross sections of the rear bulk cargo hold
- The restraint system of the rear bulk cargo hold
- The dimensions of the net section of the rear bulk cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Rear Bulk Cargo Hold

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

Metric Units

Package Width (m)	Package Height	
	0.400 m	0.600 m
	Maximum Package Length (m)	
0.000	2.155	1.989
0.100	2.100	1.815
0.200	2.053	1.613
0.300	1.957	1.409
0.400	1.757	1.203
0.500	1.556	0.991
0.600	1.355	-
0.700	1.154	-
0.800	0.959	-

US Units

Package Width (in)	Package Height	
	15.80 in	23.60 in
	Maximum Package Length (in)	
0.00	84.80	78.30
4.00	82.60	71.40
8.00	80.80	63.50
12.00	77.00	55.40
16.00	69.10	47.30
20.00	61.20	39.00
24.00	53.30	-
28.00	45.40	-
32.00	37.70	-

LOADING THROUGH THE AFT CARGO DOOR

The dimensions of the packages that can be loaded depend on all the following:

- The dimensions of the aft cargo door
- The cross sections of both the aft cargo hold and the rear bulk cargo hold
- The restraint system of the rear bulk cargo hold
- The dimensions of the net section of the rear bulk cargo hold.

The dimension in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Rear Bulk Cargo Hold

Metric Units

Package Width (m)	Package Height				
	0.400 m	0.600 m	0.750 m	0.900 m	1.000 m
	Maximum Package Length (m)				
0.000	2.664	2.601	2.585	2.050	1.031
0.100	2.618	2.574	2.497	2.031	0.975
0.200	2.580	2.557	2.384	2.017	0.965
0.300	2.552	2.381	2.269	1.715	0.965
0.400	2.533	2.219	2.149	1.715	-
0.500	2.443	1.965	1.907	1.715	-
0.600	2.313	-	-	-	-
0.700	2.177	-	-	-	-
0.800	2.031	-	-	-	-
0.900	1.809	-	-	-	-

US Units

Package Width (in)	Package Height				
	15.80 in	23.60 in	29.50 in	35.40 in	39.40 in
	Maximum Package Length (in)				
0.00	104.80	102.40	101.70	80.70	40.50
4.00	103.00	101.30	98.30	79.90	38.30
8.00	101.50	100.60	93.80	79.40	37.90
12.00	100.40	93.70	89.30	67.50	37.90
16.00	99.70	87.30	84.60	67.50	-
20.00	96.10	77.30	75.00	67.50	-
24.00	91.00	-	-	-	-
28.00	85.70	-	-	-	-
32.00	79.90	-	-	-	-
36.00	71.20	-	-	-	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The rear bulk is equipped with ventilation and temperature control systems.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

LOADING RECOMMENDATIONS

Ident.: CTL-CGO-REAR-BULK-RECO-00019550.0021001 / 27 JUN 22

Criteria: 20029, 20059, ST1

Applicable to: MSN 07784, 07792

To load an item in the rear bulk cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the rear bulk cargo hold, if required by the type of item loaded.

PACKAGE DIMENSIONS
LOADING THROUGH THE REAR BULK CARGO DOOR

The dimensions of the packages that can be loaded depend on all the following:

- The dimensions of the rear bulk cargo door
- The cross sections of the rear bulk cargo hold
- The restraint system of the rear bulk cargo hold
- The dimensions of the net section of the rear bulk cargo hold.

The dimensions in the tables below are approximate and refer to rectangular package sizes.

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

Metric Units

Package Width (m)	Package Height	
	0.400 m	0.600 m
	Maximum Package Length (m)	
0.000	2.155	1.989
0.100	2.100	1.815
0.200	2.053	1.613
0.300	1.957	1.409
0.400	1.757	1.203
0.500	1.556	0.991
0.600	1.355	-
0.700	1.154	-
0.800	0.959	-

WEIGHT AND BALANCE CONTROL
Cargo Arrangement

Rear Bulk Cargo Hold

US Units

Package Width (in)	Package Height	
	15.80 in	23.60 in
	Maximum Package Length (in)	
0.00	84.80	78.30
4.00	82.60	71.40
8.00	80.80	63.50
12.00	77.00	55.40
16.00	69.10	47.30
20.00	61.20	39.00
24.00	53.30	-
28.00	45.40	-
32.00	37.70	-

LOADING THROUGH THE AFT CARGO DOOR

The dimensions of the packages that can be loaded depend on all the following:

- The dimensions of the aft cargo door
- The cross sections of both the aft cargo hold and the rear bulk cargo hold
- The restraint system of the rear bulk cargo hold
- The dimensions of the net section of the rear bulk cargo hold.

The dimension in the tables below are approximate and refer to rectangular package sizes. Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

Metric Units

Package Width (m)	Package Height				
	0.400 m	0.600 m	0.750 m	0.900 m	1.000 m
	Maximum Package Length (m)				
0.000	2.664	2.601	2.585	2.050	1.031
0.100	2.618	2.574	2.497	2.031	0.975
0.200	2.580	2.557	2.384	2.017	0.965
0.300	2.552	2.381	2.269	1.715	0.965
0.400	2.533	2.219	2.149	1.715	-
0.500	2.443	1.965	1.907	1.715	-
0.600	2.313	-	-	-	-
0.700	2.177	-	-	-	-
0.800	2.031	-	-	-	-
0.900	1.809	-	-	-	-

US Units

Package Width (in)	Package Height				
	15.80 in	23.60 in	29.50 in	35.40 in	39.40 in
	Maximum Package Length (in)				
0.00	104.80	102.40	101.70	80.70	40.50
4.00	103.00	101.30	98.30	79.90	38.30
8.00	101.50	100.60	93.80	79.40	37.90
12.00	100.40	93.70	89.30	67.50	37.90
16.00	99.70	87.30	84.60	67.50	-
20.00	96.10	77.30	75.00	67.50	-
24.00	91.00	-	-	-	-
28.00	85.70	-	-	-	-
32.00	79.90	-	-	-	-
36.00	71.20	-	-	-	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The rear bulk cargo hold is equipped with ventilation control system.

The rear bulk cargo hold is not equipped with temperature control system.

Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

LOADING RECOMMENDATIONS

Ident.: CTL-CGO-REAR-BULK-RECO-00019550.0005001 / 27 JUN 22

Criteria: 20029, ST1

Applicable to: MSN 02926, 02944, 05152, 05162, 05253, 05746

To load an item in the rear bulk cargo hold, the operator should consider both of the following:

- The dimensions of the package
- The installation of the ventilation and temperature control systems in the rear bulk cargo hold, if required by the type of item loaded.

PACKAGE DIMENSIONS

LOADING THROUGH THE REAR BULK CARGO DOOR

The dimensions of the packages that can be loaded depend on all the following:

- The dimensions of the rear bulk cargo door
- The cross sections of the rear bulk cargo hold
- The restraint system of the rear bulk cargo hold
- The dimensions of the net section of the rear bulk cargo hold.

WEIGHT AND BALANCE CONTROL
Cargo Arrangement
Rear Bulk Cargo Hold

The dimensions in the tables below are approximate and refer to rectangular package sizes. Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

Metric Units

Package Width (m)	Package Height	
	0.400 m	0.600 m
	Maximum Package Length (m)	
0.000	2.155	1.989
0.100	2.100	1.815
0.200	2.053	1.613
0.300	1.957	1.409
0.400	1.757	1.203
0.500	1.556	0.991
0.600	1.355	-
0.700	1.154	-
0.800	0.959	-

US Units

Package Width (in)	Package Height	
	15.80 in	23.60 in
	Maximum Package Length (in)	
0.00	84.80	78.30
4.00	82.60	71.40
8.00	80.80	63.50
12.00	77.00	55.40
16.00	69.10	47.30
20.00	61.20	39.00
24.00	53.30	-
28.00	45.40	-
32.00	37.70	-

LOADING THROUGH THE AFT CARGO DOOR

The dimensions of the packages that can be loaded depend on all the following:

- The dimensions of the aft cargo door
- The cross sections of both the aft cargo hold and the rear bulk cargo hold
- The restraint system of the rear bulk cargo hold
- The dimensions of the net section of the rear bulk cargo hold.

The dimension in the tables below are approximate and refer to rectangular package sizes.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Rear Bulk Cargo Hold

Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

Metric Units

Package Width (m)	Package Height				
	0.400 m	0.600 m	0.750 m	0.900 m	1.000 m
	Maximum Package Length (m)				
0.000	2.664	2.601	2.585	2.050	1.031
0.100	2.618	2.574	2.497	2.031	0.975
0.200	2.580	2.557	2.384	2.017	0.965
0.300	2.552	2.381	2.269	1.715	0.965
0.400	2.533	2.219	2.149	1.715	-
0.500	2.443	1.965	1.907	1.715	-
0.600	2.313	-	-	-	-
0.700	2.177	-	-	-	-
0.800	2.031	-	-	-	-
0.900	1.809	-	-	-	-

US Units

Package Width (in)	Package Height				
	15.80 in	23.60 in	29.50 in	35.40 in	39.40 in
	Maximum Package Length (in)				
0.00	104.80	102.40	101.70	80.70	40.50
4.00	103.00	101.30	98.30	79.90	38.30
8.00	101.50	100.60	93.80	79.40	37.90
12.00	100.40	93.70	89.30	67.50	37.90
16.00	99.70	87.30	84.60	67.50	-
20.00	96.10	77.30	75.00	67.50	-
24.00	91.00	-	-	-	-
28.00	85.70	-	-	-	-
32.00	79.90	-	-	-	-
36.00	71.20	-	-	-	-

VENTILATION AND TEMPERATURE CONTROL SYSTEMS

The rear bulk cargo hold is not equipped with ventilation and temperature control systems. Special cargo may require the use of the ventilation and(or) temperature control systems.

To transport special cargo, the operator should consider both of the following:

- The WBM requirements
- The requirements or regulations of any specific documentation applicable to special cargo.

WEIGHT AND BALANCE CONTROL

Cargo Arrangement

Rear Bulk Cargo Hold

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INTRODUCTION

Ident.: CTL-GRD-INT-00015508.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

This chapter contains information related to ground operations:

- Aircraft weighing on jacks and on wheels
- Aircraft weight and Center of Gravity (CG) estimation for maintenance purposes.

WEIGHT AND BALANCE CONTROL

Ground Operation

Introduction

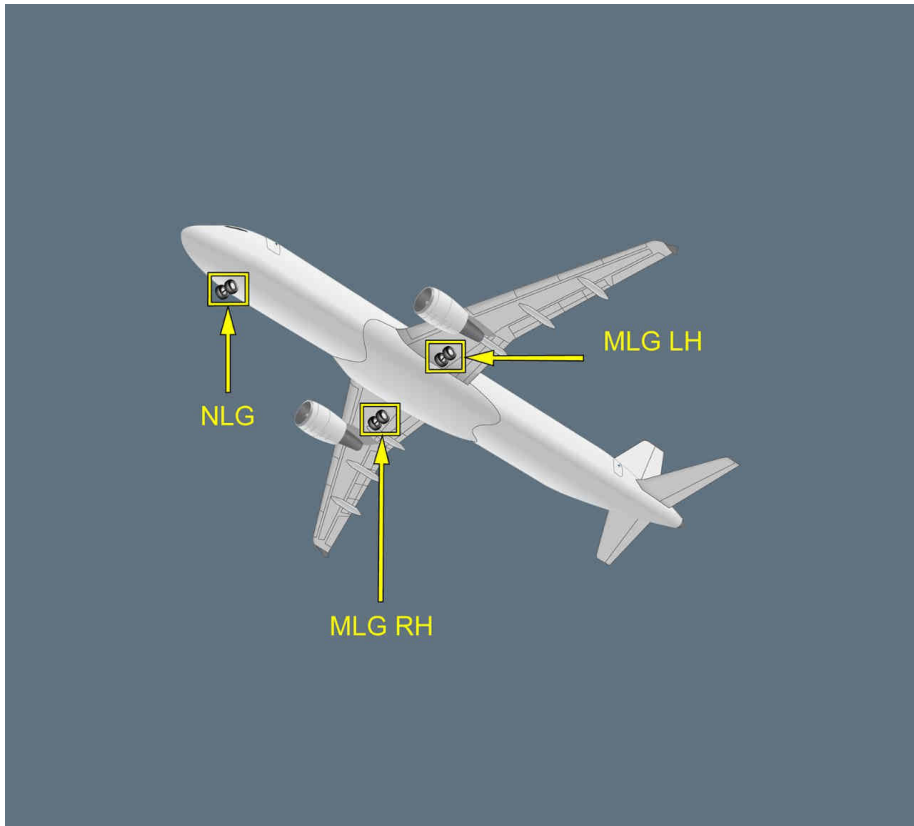
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LOCATION OF THE WHEELS

Ident.: CTL-GRD-WJP-00015510.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL



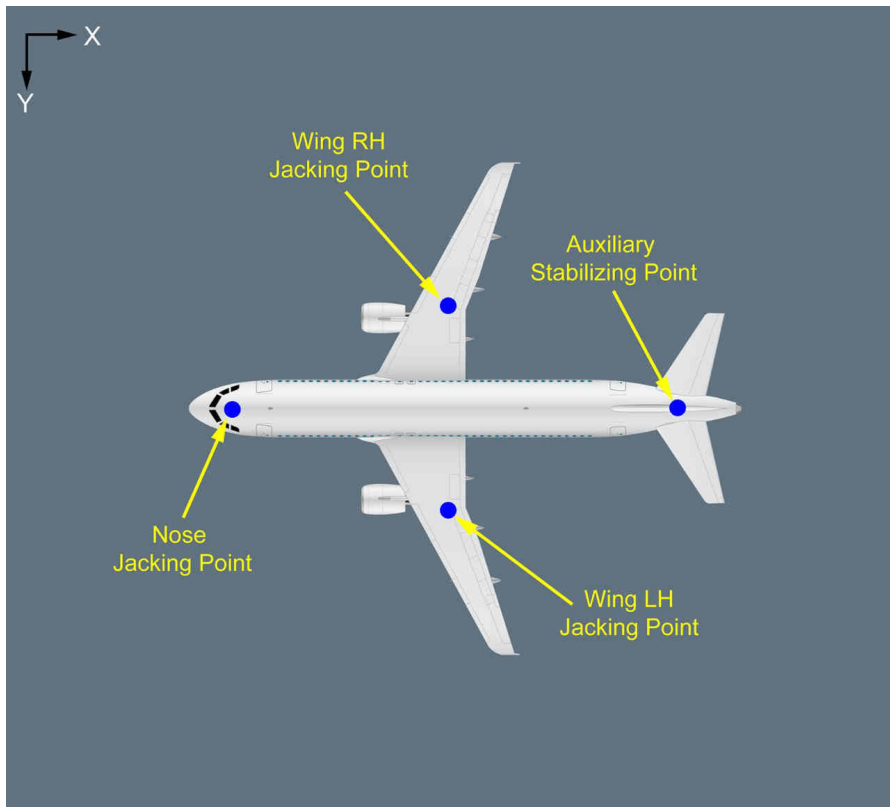
Location of the Wheels		H-ARM		Y-ARM		Wheel Track	
		(m)	(in)	(m)	(in)	(m)	(in)
Nose Landing Gear (NLG)	CTR	7.613	299.72	0.000	0.00	0.500	19.68
Main Landing Gear (MLG)	LH	20.253	797.36	3.795	149.41	0.930	36.61
	RH	20.253	797.36	-3.795	-149.41	0.930	36.61

LOCATION OF THE JACKING POINTS

Ident.: CTL-GRD-WJP-00015509.0001001 / 30 JAN 18

Criteria: ST1

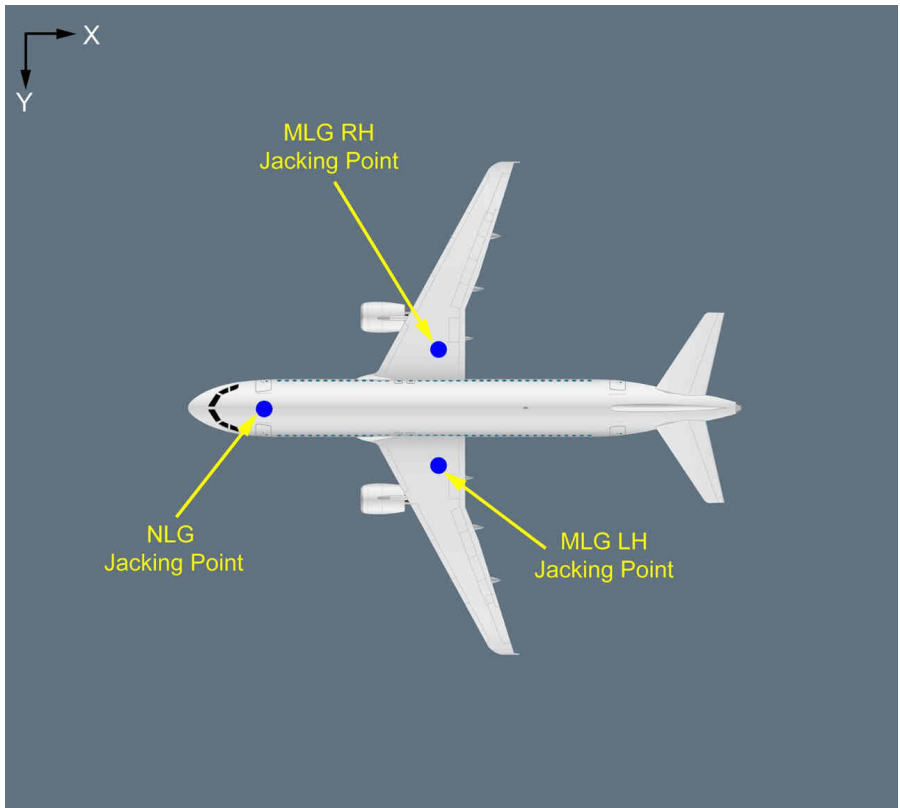
Applicable to: ALL

JACKING POINTS ON THE STRUCTURE

PRIMARY JACKING POINTS

Location		H-ARM		Y-ARM	
		(m)	(in)	(m)	(in)
Fuselage	CTR	5.284	208.03	0.000	0.00
Wing	LH	20.107	791.61	6.497	255.79
	RH	20.107	791.61	-6.497	-255.79

AUXILIARY STABILIZING POINT

Location		H-ARM		Y-ARM	
		(m)	(in)	(m)	(in)
Fuselage	CTR	35.106	1 382.13	0.000	0.00

JACKING POINTS ON THE LANDING GEARS


Location		H-ARM		Y-ARM	
		(m)	(in)	(m)	(in)
NLG	CTR	7.613	299.72	0.000	0.00
MLG	LH	20.252	797.32	3.795	149.41
	RH	20.252	797.32	-3.795	-149.41

WEIGHT AND BALANCE CONTROL**Ground Operation**

Position of the Wheel and Jacking Points

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INTRODUCTION

Ident.: CTL-GRD-AWG-00015511.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

The weighing must take place in a closed hangar on a horizontal floor.

The hangar heating and ventilating systems must be shut down.

The following equipment is required:

- One clinometer
- Weighing scales in accordance with the weighing configuration:
 - One weighing scale per landing gear, or
 - One weighing scale per wheel, or
 - One weighing scale per landing gear jacking points, or
 - One weighing scale per jacking points.

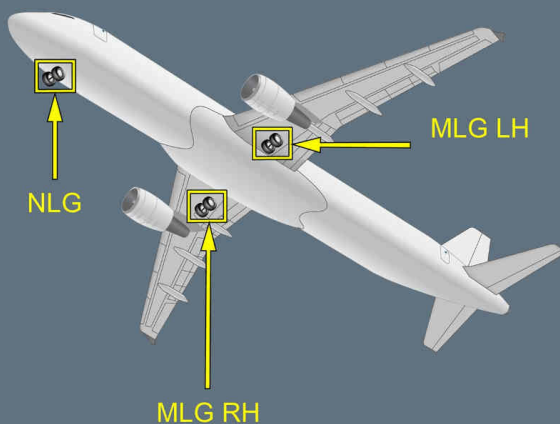
A clinometer measures the pitch attitude, on the cabin seat track in the middle of the wing box.

WEIGHING PER LANDING GEAR

Ident.: CTL-GRD-AWG-00018757.0001001 / 06 JUL 18

Criteria: ST1

Applicable to: ALL



Following the aircraft weighing, the operator can calculate:

- The weight of the aircraft, as follows:

$$W = r + R_1$$

- The CG of the aircraft, as follows:

$$CG (m) = 20.29 - 2.738 \times \sin(\alpha) - 12.690 \times \frac{21 + r(kg)}{W(kg)}$$

$$CG (in) = 798.82 - 107.79 \times \sin(\alpha) - 499.61 \times \frac{46 + r (lb)}{W (lb)}$$

Definition:

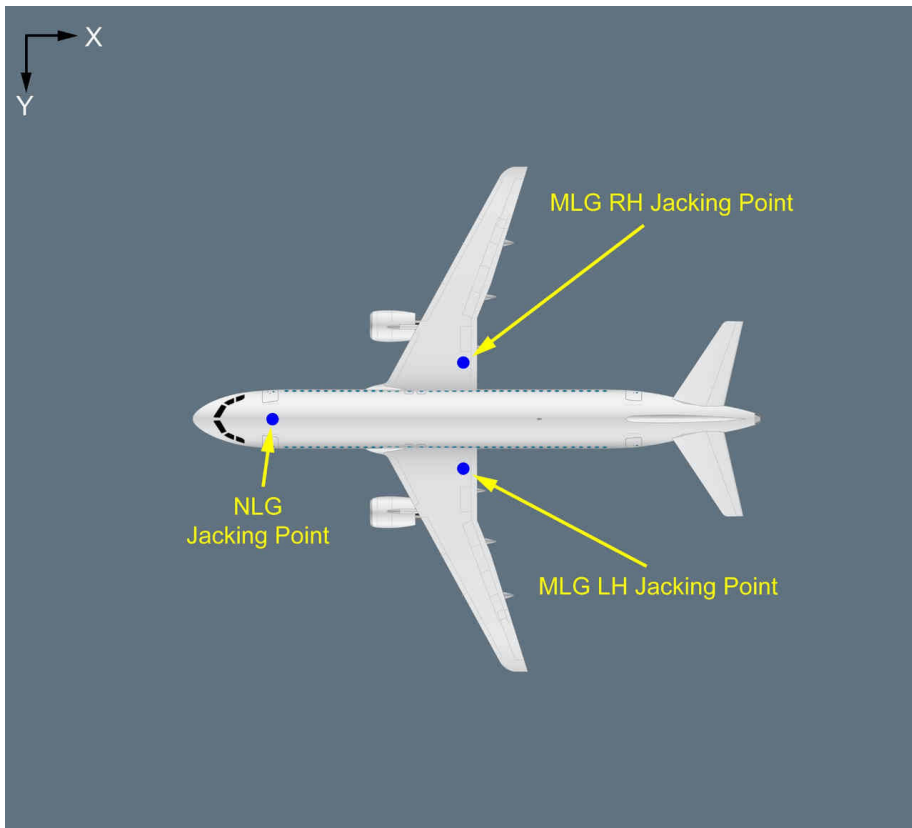
- W : Weight of the aircraft
- r : Weight on the NLG
- R₁ : Weight on the MLG LH and the MLG RH
- α : Aircraft pitch attitude at weighing

WEIGHING PER LANDING GEAR JACKING POINT

Ident.: CTL-GRD-AWG-00018759.0001001 / 06 JUL 18

Criteria: ST1

Applicable to: ALL



Following the aircraft weighing, the operator can calculate:

- The weight of the aircraft, as follows:

$$W = r + R_1$$

- The CG of the aircraft, as follows:

$$CG (m) = 20.302 - 2.738 \times \sin(\alpha) - 12.713 \times \frac{21 + r(kg)}{W(kg)}$$

$$CG (in) = 799.29 - 107.79 \times \sin(\alpha) - 500.51 \times \frac{46 + r(lb)}{W(lb)}$$

Definition:

W : Weight of the aircraft

r : Weight on the NLG jacking point

R₁ : Weight on the jacking point of the MLG LH and the jacking point of the MLG RH

α : Aircraft pitch attitude at weighing

WEIGHING PER AIRCRAFT JACKING POINT

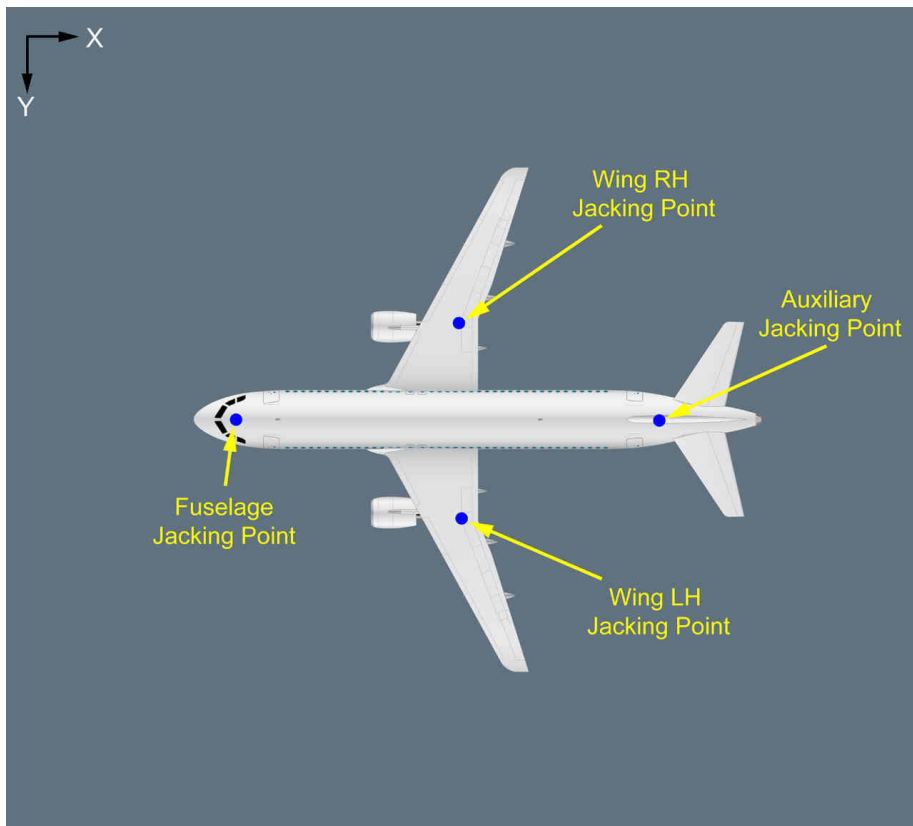
Ident.: CTL-GRD-AWG-00018760.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

To perform the weighing on aircraft jacks, the operator must ensure that the aircraft pitch attitude is at zero degree.

The operator must ensure that the maximum aircraft weight and jacking points loads are not exceeded during weighing operation (*Refer to CTL-LIM-JACK Jacking Points of the Aircraft*).



Following the aircraft weighing, the operator can calculate:

- The weight of the aircraft, as follows:

$$W = r + R_1$$

- The CG of the aircraft, as follows:

$$CG (m) = \frac{5,284 \times r + 20,107 \times R_1}{W}$$

$$CG (in) = \frac{208.03 \times r + 791.61 \times R_1}{W}$$

Definition:

W : Weight of the aircraft

r : Weight on the fuselage jacking point

 PAKISTAN International Airlines Great People to Fly With A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Ground Operation Aircraft Weighing
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R₁ : Weight on the wing LH jacking point and the wing RH jacking point

WEIGHT AND BALANCE CONTROL

Ground Operation

Aircraft Weighing

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INTRODUCTION

Ident.: CTL-GRD-EQP-00018761.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

The section provides the weight and the H-ARM of some equipped components to estimate aircraft weight and CG for maintenance purposes.

The equipped component includes:

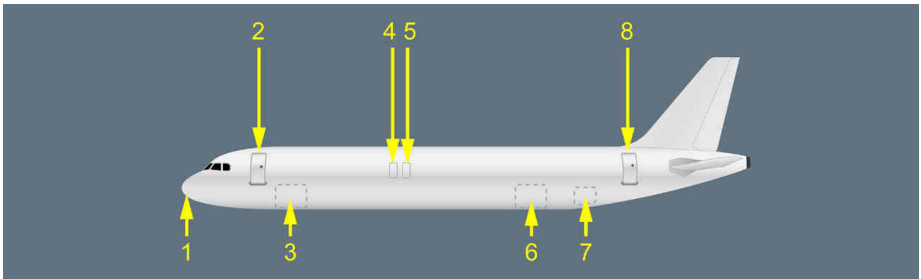
- The structure of the component
- The system attached to the component.

FUSELAGE

Ident.: CTL-GRD-EQP-00018762.0059001 / 30 JAN 18

Criteria: 20029, ST1

Applicable to: ALL



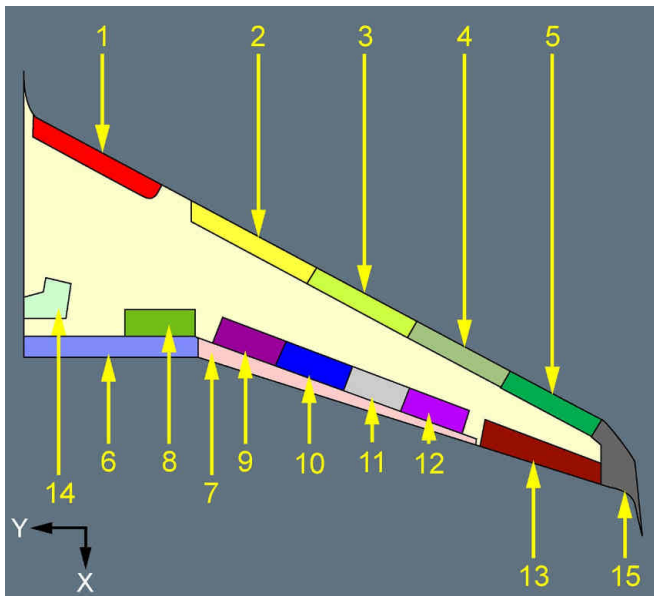
Legend	Equipped Component		Weight		H-ARM	
			(kg)	(lb)	(m)	(in)
1	Radome	CTR	30	66	3.300	129.92
2	FWD cabin door	LH	100	220	7.579	298.38
		RH	100	220	7.579	298.38
3	FWD cargo hold door	RH	120	264	10.700	421.26
4	First emergency exit	LH	15	33	16.971	668.15
		RH	15	33	16.971	668.15
5	Second emergency exit	LH	15	33	17.818	701.50
		RH	15	33	17.818	701.50
6	Aft cargo hold door	RH	120	264	25.229	993.27
7	Rear bulk cargo hold door	RH	40	88	28.859	1 136.18
8	Aft cabin door	LH	100	220	32.085	1 263.19
		RH	100	220	32.085	1 263.19

WING

Ident.: CTL-GRD-EQP-00018763.0021001 / 30 JAN 18

Criteria: 160500, ST1

Applicable to: MSN 05746, 07784, 07792



Legend	Equipped Component		Weight per Unit		H-ARM	
			(kg)	(lb)	(m)	(in)
1	Slats	1	40	88	16.470	648.42
2		2	30	66	18.460	726.77
3		3	30	66	19.790	779.13
4		4	25	55	21.070	829.53
5		5	25	55	22.290	877.56
6	Flaps	Inner	115	254	20.716	815.59
7		Outer	125	276	21.872	861.10
8	Spoilers	1	15	33	20.394	802.91
9		2	15	33	20.824	819.84
10		3	13	29	21.424	843.46
11		4	12	26	21.984	865.51
12		5	15	33	22.519	886.57
13	Aileron		25	55	23.582	928.42

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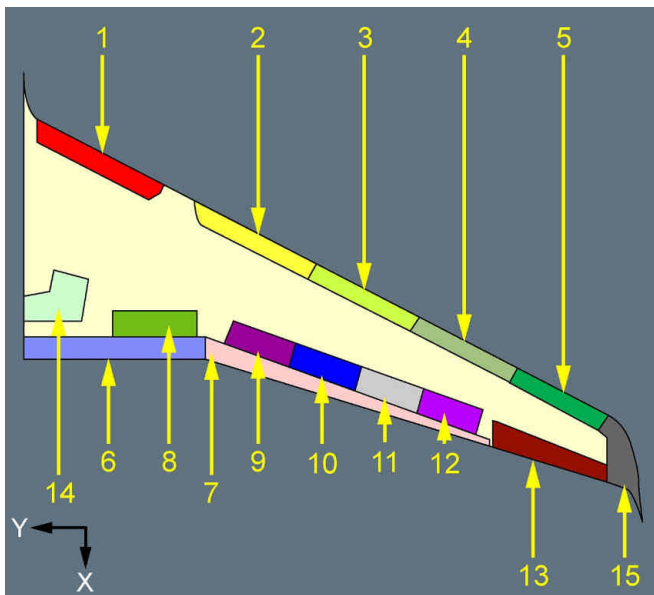
Legend	Equipped Component	Weight per Unit		H-ARM	
		(kg)	(lb)	(m)	(in)
14	L/G leg fairing	15	33	19.675	774.61
15	Sharklet	90	198	24.195	952.56

WING

Ident.: CTL-GRD-EQP-00018763.0017001 / 30 JAN 18

Criteria: ST1

Applicable to: MSN 02155, 02212, 02719, 02758, 02789, 02926, 02944, 03031, 03060, 04392, 05152, 05162, 05253



Legend	Equipped Component		Weight per Unit		H-ARM	
			(kg)	(lb)	(m)	(in)
1	Slats	1	40	88	16.470	648.42
2		2	30	66	18.460	726.77
3		3	30	66	19.790	779.13
4		4	25	55	21.070	829.53
5		5	25	55	22.290	877.56
6	Flaps	Inner	115	254	20.716	815.59
7		Outer	125	276	21.872	861.10

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WEIGHT AND BALANCE CONTROL

Ground Operation

List of Removal Equipment

Continued from the previous page

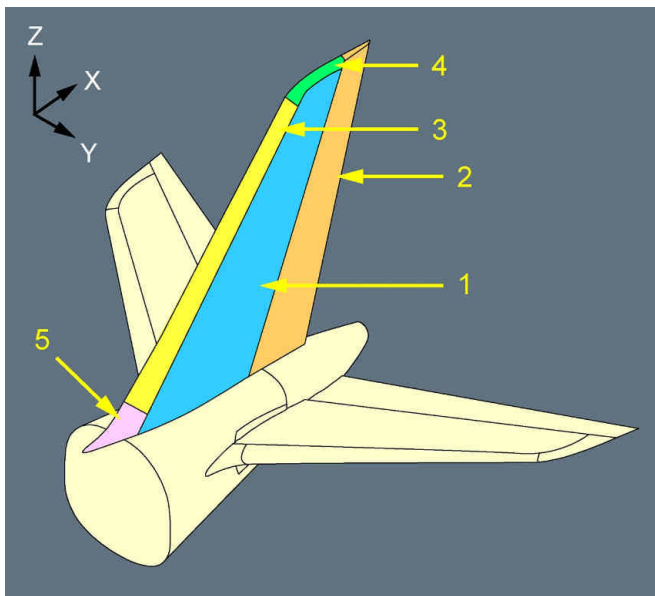
Legend	Equipped Component		Weight per Unit		H-ARM	
			(kg)	(lb)	(m)	(in)
8	Spoilers	1	15	33	20.394	802.91
9		2	15	33	20.824	819.84
10		3	13	29	21.424	843.46
11		4	12	26	21.984	865.51
12		5	15	33	22.519	886.57
13	Aileron		25	55	23.582	928.42
14	L/G leg fairing		15	33	19.675	774.61
15	Wing tip		25	55	23.960	943.31

VERTICAL TAIL PLANE

Ident.: CTL-GRD-EQP-00018765.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL



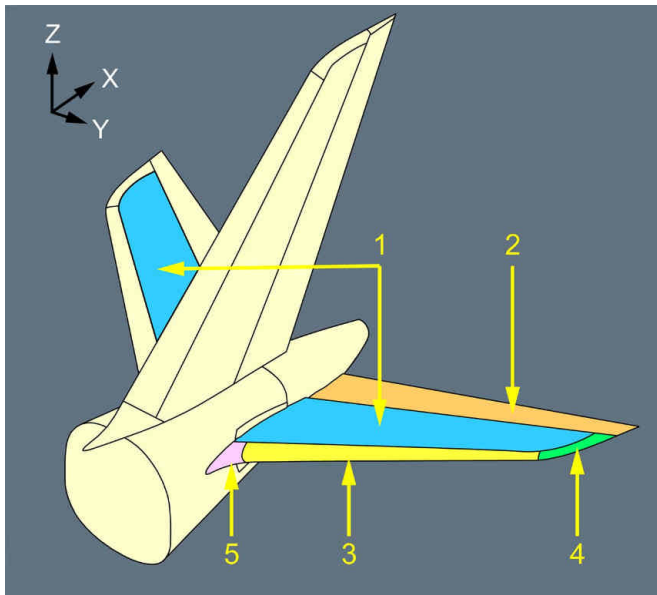
Legend	Equipped Component	Weight		H-ARM	
		(kg)	(lb)	(m)	(in)
1	Box equipped	365	805	36.003	1 417.44
2	Rudder	90	198	37.702	1 484.33
3	Removable leading edge	50	110	35.332	1 391.02
4	Tip	9	20	37.910	1 492.52
5	Fuselage fairing	15	33	35.174	1 384.80

HORIZONTAL TAIL PLANE

Ident.: CTL-GRD-EQP-00018766.0006001 / 02 JUN 20

Criteria: ST1

Applicable to: ALL



Legend	Equipped Component	Weight per Unit		H-ARM	
		(kg)	(lb)	(m)	(in)
1	Box equipped	420	926	36.534	1 438.35
2	Elevator	50 (1)	110 (1)	38.030	1 497.24
3	Removable leading edge	42 (1)	92 (1)	36.340	1 430.71

Continued on the following page

WEIGHT AND BALANCE CONTROL

Ground Operation

List of Removal Equipment

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

Continued from the previous page

Legend	Equipped Component	Weight per Unit		H-ARM	
		(kg)	(lb)	(m)	(in)
4	Tip	3 (1)	6 (1)	38.476	1 514.80
5	Tailplane fuselage fairing	3 (1)	6 (1)	37.256	1 466.77

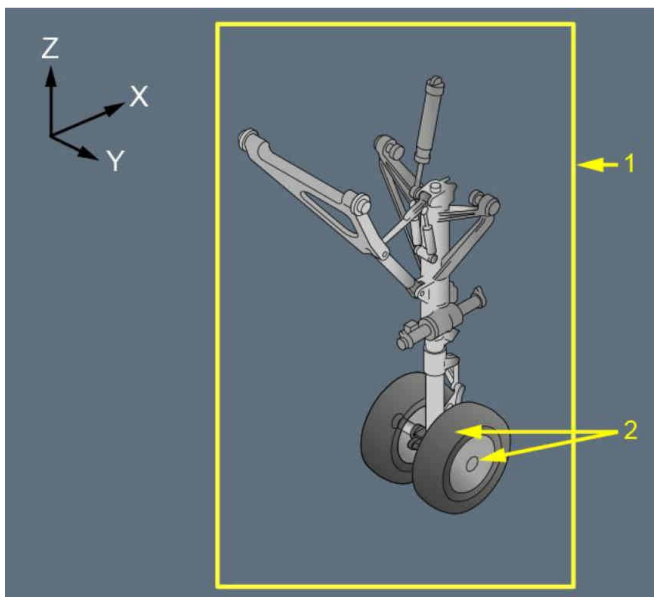
(1) Weight per side

NOSE LANDING GEAR

Ident.: CTL-GRD-EQP-00018767.0001001 / 02 JUN 20

Criteria: ST1

Applicable to: ALL



Reference Number	Equipped Component	Weight per Unit		H-ARM	
		(kg)	(lb)	(m)	(in)
1	Entire nose landing gear (with wheels and tires)	330	728	7.617	299.88
2	Wheel with tire	35	77	7.628	300.31

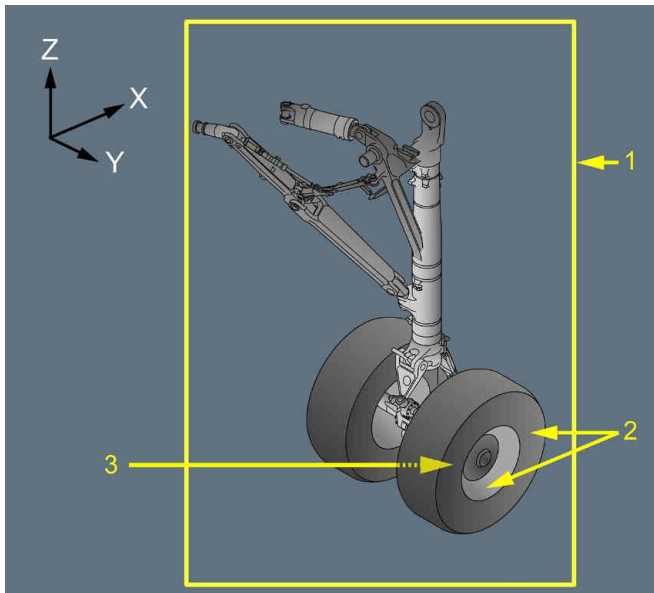
The air of the tires is included in the weight.

MAIN LANDING GEARS

Ident.: CTL-GRD-EQP-00018768.0001001 / 02 JUN 20

Criteria: ST1

Applicable to: ALL



Legend	Equipped Component	Weight per Unit		H-ARM	
		(kg)	(lb)	(m)	(in)
1	Entire main landing gear (with wheels, tires and brakes)	930	2 050	20.067	790.04
2	Wheel with tire	135	298	20.250	797.24
3	Brake	70	154	20.250	797.24

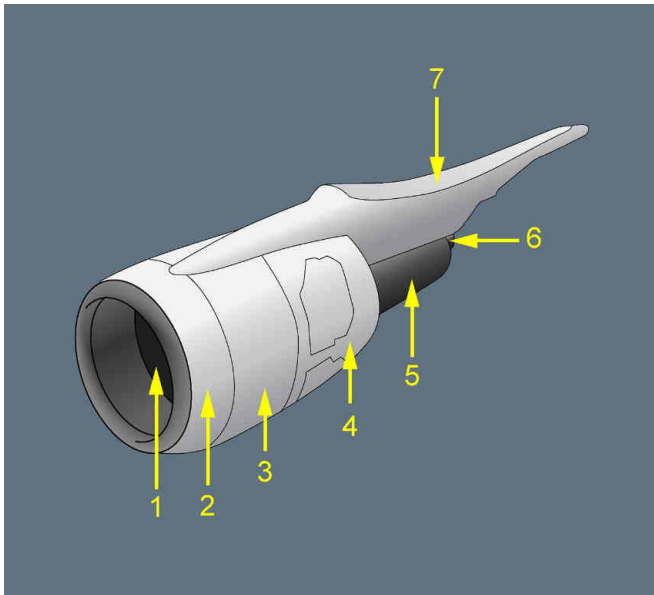
The air of the tires is included in the weight.

POWER PLANT AND PYLON

Ident.: CTL-GRD-EQP-00018770.0001001 / 16 JUL 18

Criteria: 23083, ST1

Applicable to: ALL



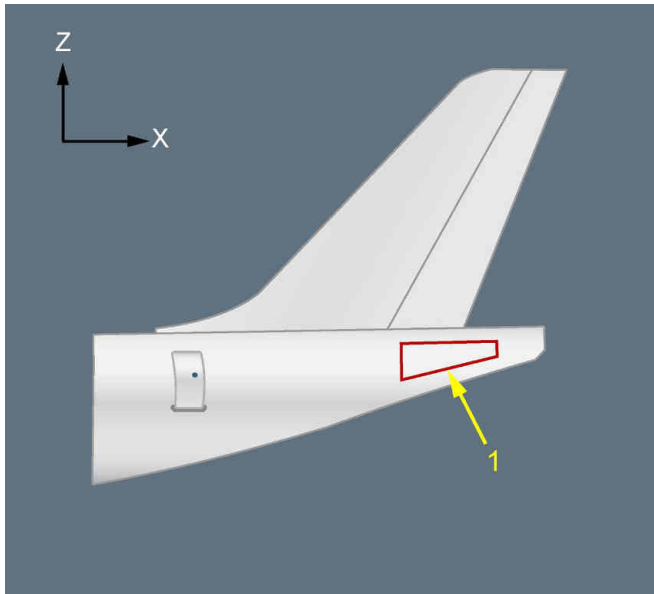
Legend	Equipped Component	Weight per Unit		H-ARM	
		(kg)	(lb)	(m)	(in)
1	Bare engine	2 780	6 129	15.987	629.41
2	Inlet	130	287	14.453	569.02
3	Fan cowl (LH + RH)	70	155	15.296	602.20
4	Thrust reverser (LH + RH)	395	871	16.369	644.45
5	Nozzle	80	177	17.950	706.69
6	Centerbody	25	56	17.701	696.89
7	Pylon	580	1 279	17.496	688.82

AUXILIARY POWER UNIT

Ident.: CTL-GRD-EQP-00018771.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL



Legend	Equipped Component	Weight per Unit		H-ARM	
		(kg)	(lb)	(m)	(in)
1	Auxiliary Power Unit (APU)	140	309	38.155	1 502.16

WEIGHT AND BALANCE CONTROL

Ground Operation

List of Removal Equipment

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INTRODUCTION

Ident.: CTL-EXP-INT-00018811.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

This chapter provides an example, to demonstrate how to use WBM data in operations to ensure that aircraft loading is within WBM limitations.

This chapter contains:

- A description of the characteristics of a generic aircraft, with the associated weight and balance effect
- A description of the loading case that the example uses
- The calculation of an Operational Empty Weight (OEW)
- The calculation of the weights and CG positions of the loaded aircraft
- An illustration of the weights and CG positions, in regards with the certified weights and CG envelopes.

WARNING None of the data in the example must be used for operational purpose.
The aircraft characteristics are generic, and may be different from the data applicable to your aircraft.

Note: All moments are calculated against a reference at 25 %MAC.

WEIGHT AND BALANCE CONTROL

Examples

Introduction

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AIRCRAFT CHARACTERISTICS

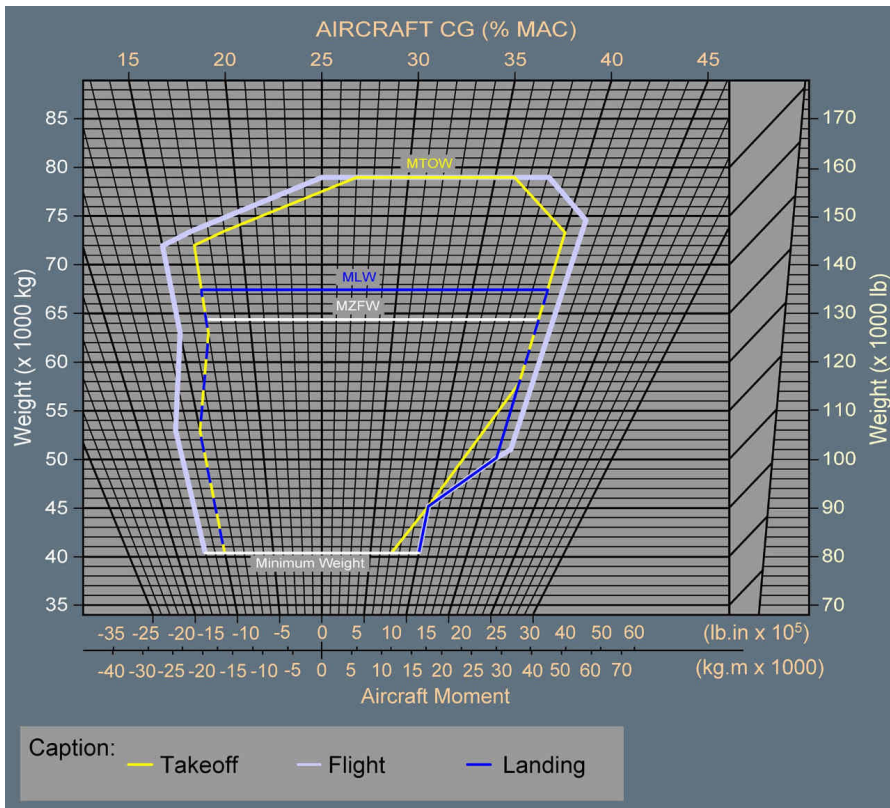
Ident.: CTL-EXP-ASM-00018812.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

DESIGN WEIGHT AND CERTIFIED CG LIMITS

Example of Design Weight and Certified CG Limits



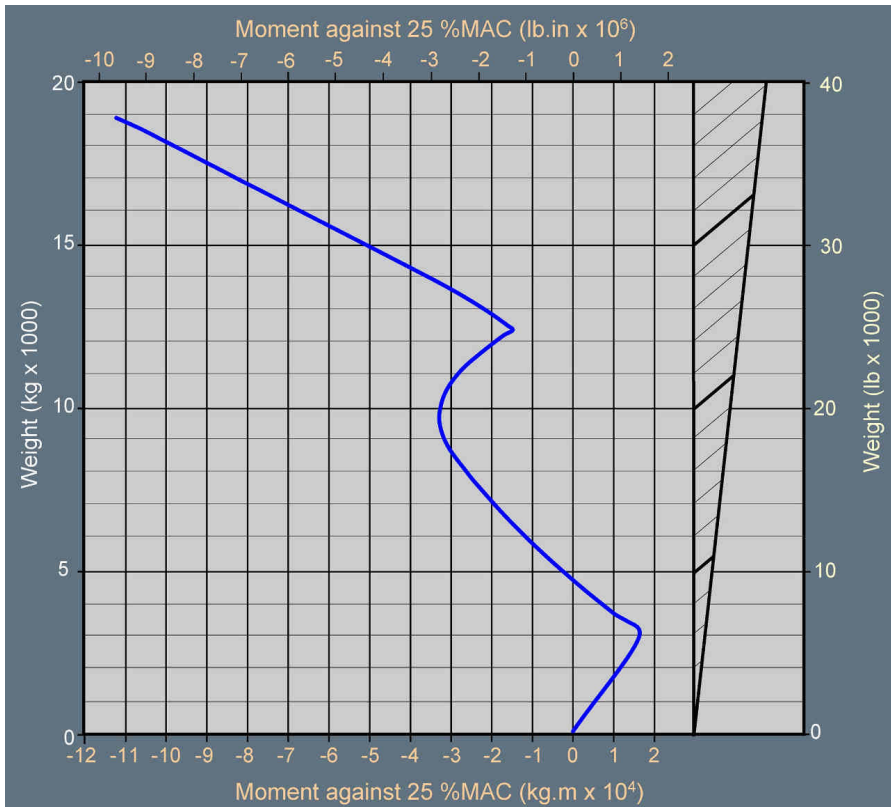
FUEL

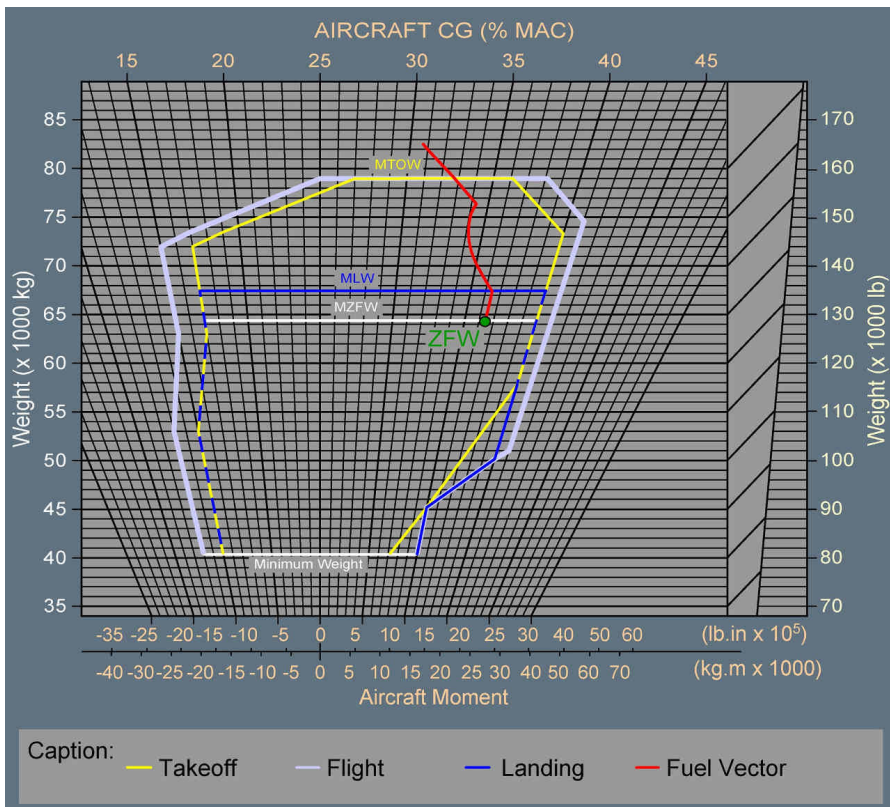
The fuel characteristics are:

- Maximum weight of usable fuel = 18 696 kg (41 217 lb)
- Weight of unusable fuel = 64 kg (141 lb) at 18.300 m (720.47 in).

The following graph illustrates the balance effect resulting from the fuel weight after aircraft refueling:

Refueling Vector



Refueling Vector on the Weight and CG Certified Envelope


Note: For the above weights, the fuel density is considered to be 0.785 kg/l (6.55 lb/US Gal).

FLUIDS
OIL:

Item	Weight		H-ARM	
	(kg)	(lb)	(m)	(in)
Engine Oil	39	86	19.500	767.72
Engine Driven Generator Oil	9	20	14.910	587.01
Auxiliary Power Unit Oil	5	11	37.675	1 483.27
TOTAL	53	117	20.435	804.54

WASTE TANKS:

The waste tank is prefilled with the following quantities of chemical fluids.

Item	Weight		H-ARM	
	(kg)	(lb)	(m)	(in)
Waste tank	10	22	32.050	1 261.81

POTABLE WATER TANKS:

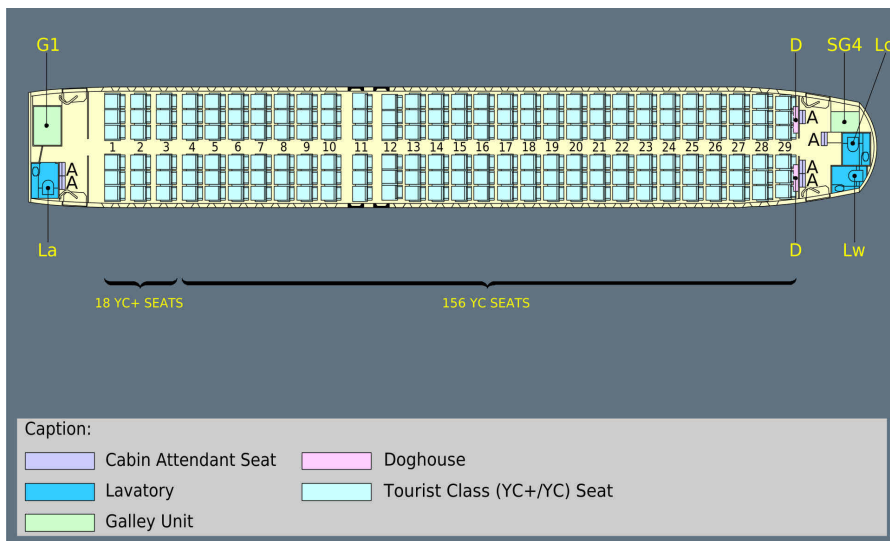
Item	Weight		H-ARM	
	(kg)	(lb)	(m)	(in)
Tank N°1	200	441	15.546	612.05

COCKPIT AND CABIN

The cockpit has a capacity of 4 flight crewmembers.

The cabin has:

- 18 Premium Tourist Class (YC+) seats
- 156 Economy Class (YC) seats
- 6 Cabin Attendant Seats (CAS).

Cabin Layout


 PAKISTAN International Airlines Great People to Fly With A318/A319/A320/A321 WEIGHT AND BALANCE MANUAL	WEIGHT AND BALANCE CONTROL Examples Assumptions
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FLIGHT AND CABIN CREWMEMBERS:

Number of Crewmembers	Location	Crewmember H-ARM	
		(m)	(in)
Flight Crewmembers			
2	Pilot Flying and Pilot Monitoring seats	5.085	200.20
Cabin Crewmembers			
2	Rear wall of toilet La	7.327	288.46
3	FWD of aft door	31.852	1 254.02
1	FWD of Toilet Lc	32.267	1 270.35

PASSENGERS:

Cabin Class	Seat Numbering	Windows Seats			
		PAX H-ARM		Number of PAX	
		(m)	(in)	LH	RH
YC+	1	8.928	351.50	3	3
	2	9.791	385.47	3	3
	3	10.655	419.49	3	3

Continued on the following page

WEIGHT AND BALANCE CONTROL

Examples

Assumptions

Continued from the previous page

Cabin Class	Seat Numbering	Windows Seats			
		PAX H-ARM		Number of PAX	
		(m)	(in)	LH	RH
YC	4	11.519	453.50	3	3
	5	12.281	483.50	3	3
	6	13.043	513.50	3	3
	7	13.805	543.50	3	3
	8	14.567	573.50	3	3
	9	15.329	603.50	3	3
	10	16.091	633.50	3	3
	11	17.191	676.81	3	3
	12	18.156	714.80	3	3
	13	18.910	744.49	3	3
	14	19.672	774.49	3	3
	15	20.434	804.49	3	3
	16	21.196	834.49	3	3
	17	21.958	864.49	3	3
	18	22.720	894.49	3	3
	19	23.482	924.49	3	3
	20	24.244	954.49	3	3
	21	25.006	984.49	3	3
	22	25.768	1 014.49	3	3
	23	26.530	1 044.49	3	3
	24	27.292	1 074.49	3	3
	25	28.054	1 104.49	3	3
	26	28.816	1 134.49	3	3
	27	29.578	1 164.49	3	3
	28	30.342	1 194.57	3	3
	29	31.102	1 224.49	3	3

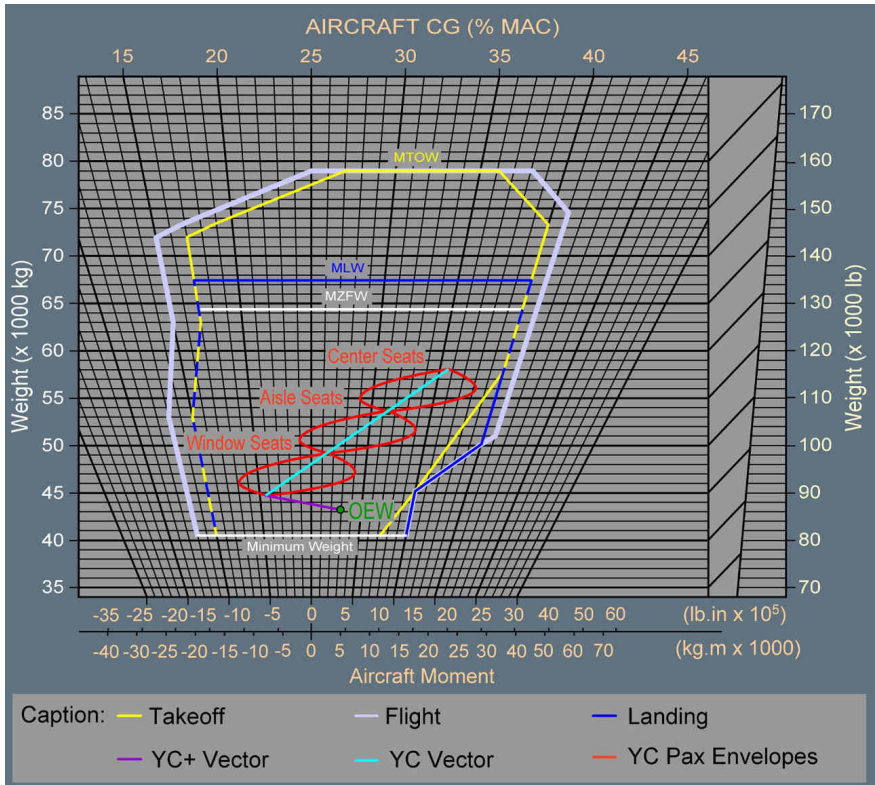
The following graph illustrates the effect of passenger weight on the aircraft CG position. A vector illustrates the balance effect of passengers seated in YC+ cabin area.

Three envelopes illustrates the balance effect of following passenger groups seated in YC cabin:

- Windows seat passengers
- Aisle seat passengers
- Center seat passengers.

The graph includes an average vector for the YC class passengers.

Passengers Vectors and Envelopes



GALLEY AND STOWAGE UNITS

Galley Unit	H-ARM		Max Gross Weight	
	(m)	(in)	(kg)	(lb)
G1	6.690	263.38	700	1 543
SG4	33.120	1 303.94	734	1 618

CARGO

The cargo holds can carry:

- ULD baseplate 60.4 x 61.5 in the FWD cargo hold
- Bulk items in the aft and rear bulk cargo holds.

WEIGHT AND BALANCE CONTROL

Examples

Assumptions

FWD CARGO HOLD

ULD Baseplate	Average H-ARM		MAX Gross Weight	
	(m)	(in)	(kg)	(lb)
11	10.744	422.99	1 134	2 500
12	12.433	489.49	1 134	2 500
13	13.971	550.04	1 134	2 500

AFT CARGO HOLD

Net Section	Average H-ARM		MAX Gross Weight	
	(m)	(in)	(kg)	(lb)
31	22.085	869.49	1 300	2 866
32	23.762	935.51	1 125	2 480
41	25.362	998.50	928	2 046
42	26.962	1 061.50	1 182	2 606

REAR BULK CARGO HOLD

Net Section	Average H-ARM		MAX Gross Weight	
	(m)	(in)	(kg)	(lb)
51	28.029	1 103.50	374	824
52	28.829	1 135.00	353	778
53	30.182	1 188.27	770	1 698

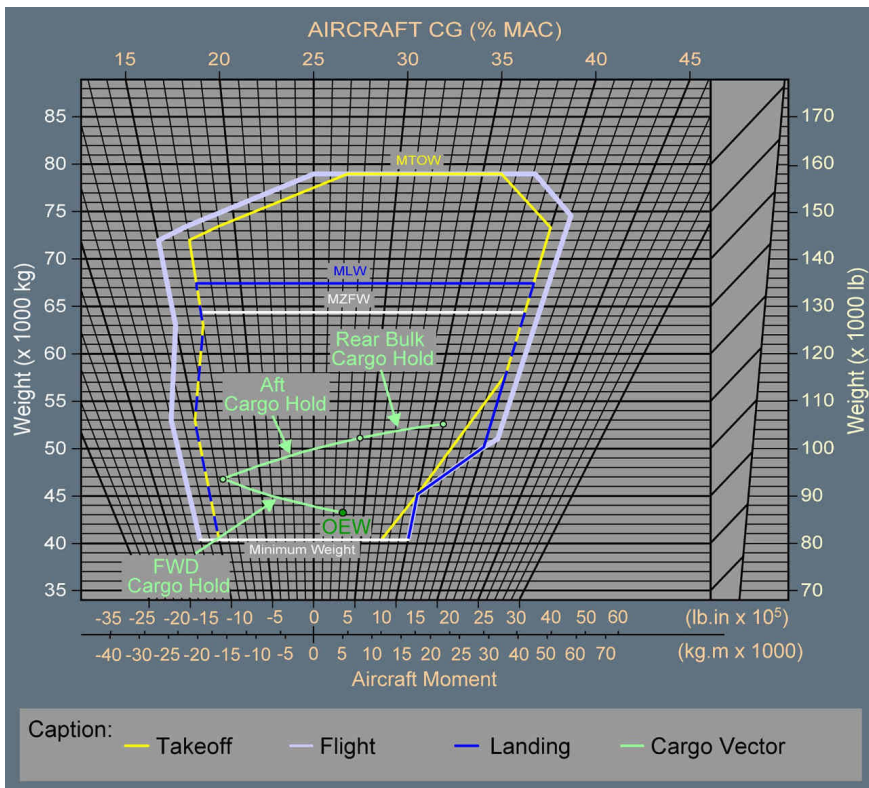
SUMMARY

The following graph illustrates the effect of cargo weight on the aircraft CG position.

For the FWD cargo hold, the vector illustrates the effect of the loading 60.4 x 61.5 in ULDs in each position to their maximum capacities.

For the aft and rear bulk cargo hold, the vectors illustrate the effect of bulk items loaded at the maximum capacity of each net section.

Cargo Vectors



LOADING CASE

Ident.: CTL-EXP-ASM-00018813.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

MANUFACTURER'S EMPTY WEIGHT

MEW	38 500 kg	84 878 lb
CG H-ARM	18.900 m	744.09 in
CG (%MAC)	26.18 %MAC	

WEIGHT AND BALANCE CONTROL

Examples

Assumptions

OPERATOR'S ITEMS

FIXED OPERATOR'S ITEMS:

Fixed Operator's Items	Weight		H-ARM	
	(kg)	(lb)	(m)	(in)
Unusable fuel	64	141	18.300	720.47
Oil for engines, engine driven generators and APU	53	117	20.435	804.53
Chemical fluids in the waste tank	10	22	32.050	1 261.81
Pax seats	2 513	5 540	19.900	783.46
Pax life vests	77	170	20.900	822.83
Galley structure and fixed equipment	389	858	20.225	796.27
Aircraft documents and toolkit	22	48	7.125	280.51
Emergency equipment	254	560	19.748	777.48

VARIABLE OPERATOR'S ITEMS:

Flight and Cabin Crewmembers:

Crewmembers	Number	Weight		H-ARM	
		(kg)	(lb)	(m)	(in)
Flight crewmembers	2	170	375	5.085	200.20
Cabin crewmembers	3	225	496	26.991	1 062.64
TOTAL	5	395	871	17.563	691.46

with:

Crewmembers	Crewmember Weight	
	(kg)	(lb)
Flight crewmembers	85	187
Cabin crewmembers	75	165

Catering:

Catering	Catering Weight		H-ARM	
	(kg)	(lb)	(m)	(in)
Galley Unit				
G1	320	705	6.690	263.38
SG4	390	860	33.120	1 303.94
TOTAL	710	1 565	21.208	834.96

Potable Water:

Potable Water	Weight		H-ARM	
	(kg)	(lb)	(m)	(in)
Tank N°1	200	441	15.546	612.05
TOTAL	200	441	15.546	612.05

WEIGHT AND BALANCE CONTROL

Examples

Assumptions

Summary:

Variable Operator's Items	Weight		H-ARM	
	(kg)	(lb)	(m)	(in)
Flight and cabin crewmembers	395	871	17.563	691.46
Catering	710	1 565	21.208	834.96
Potable water	200	441	15.546	612.05

FUEL

Ramp Fuel	15 000 kg	33 069 lb
Estimated Taxi Fuel	300 kg	661 lb

Note: For the above weights, the fuel density is considered to be 0.785 kg/l (6.55 lb/US Gal).

PASSENGERS

All cabin passenger seats are occupied (18 YC+ and 159 YC).

The weight per passenger with carry-on baggage is 84 kg (185 lb).

CARGO

The cargo holds are loaded as follows:

- 3 containers 60.4 x 61.5 in the FWD cargo hold
- Bulk items in the aft and rear bulk cargo hold.

FWD CARGO HOLD:

ULD Position	Load	
	(kg)	(lb)
11	800	1 764
12	900	1 984
13	900	1 984

AFT CARGO HOLD:

Net Section	Load	
	(kg)	(lb)
31	1 000	2 205
32	900	1 984
41	750	1 653
42	750	1 653

WEIGHT AND BALANCE CONTROL

Examples

Assumptions

REAR BULK CARGO HOLD:

Net Section	Load	
	(kg)	(lb)
51	200	441
52	200	441
53	0	0

WEIGHT AND BALANCE CONTROL

Examples

Aircraft Weight and Balance Calculation

OWE CALCULATION

Ident.: CTL-EXP-WBC-00018814.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

Operator's Items	Weight		H-ARM		Moment against 25 %MAC	
	(kg)	(lb)	(m)	(in)	(kg.m)	(lb.in)
MEW	38 500	84 878	18.900	744.09	1 929	167 417
Fixed Operator's Items						
Unusable fuel	64	141	18.300	720.47	-35	-3 055
Oil for engines, engines driven generators and APU	53	117	20.435	804.53	84	7 293
Chemical fluids in the Waste tank	10	22	32.050	1 261.81	132	11 457
Pax seats	2 513	5 540	19.900	783.46	2 639	229 047
Pax life vests	77	170	20.900	822.83	157	13 623
Galley structure and fixed equipment	389	858	20.225	796.27	535	46 473
Aircraft documents and toolkit	22	48	7.125	280.51	-260	-22 590
Emergency equipment	254	560	19.748	777.48	228	19 800
Variable Operator's Items						
Flight and cabin crewmembers	395	871	17.563	691.46	-508	-44 092
Catering	710	1 565	21.208	834.96	1 674	145 312
Potable Water	200	441	15.546	612.05	-661	-57 353
OWE	43 187	95 211	18.987	747.52	5 914	513 312

LOADING SUMMARY

Ident.: CTL-EXP-WBC-00018815.0001001 / 30 JAN 18

Criteria: ST1

Applicable to: ALL

			Weight		H-ARM		Moment against 25 %MAC		A/C CG (%MAC)
			(kg)	(lb)	(m)	(in)	(kg.m)	(lb.in)	
OWE			43 187	95 211	18.987	747.52	5 914	513 312	28.25
Passengers 174 pax 14 616 kg (32 223 lb)	Zone	QTY							
	YC+	18	1 512	3 333	9.791	385.47	-13 697	-1 188 847	
	YC	156	13 104	28 889	21.426	843.54	33 762	2 930 412	35.71
Position									
FWD Cargo Hold Load 2 600 kg (5 732 lb) Max: 3 402 kg (7 500 lb)	11		800	1 764	10.744	422.99	-6 485	-562 873	
	12		900	1 984	12.433	489.49	-5 575	-483 887	
	13		900	1 984	13.971	550.04	-381 123	-33 080 015	28.67

Continued on the following page

WEIGHT AND BALANCE CONTROL

Examples

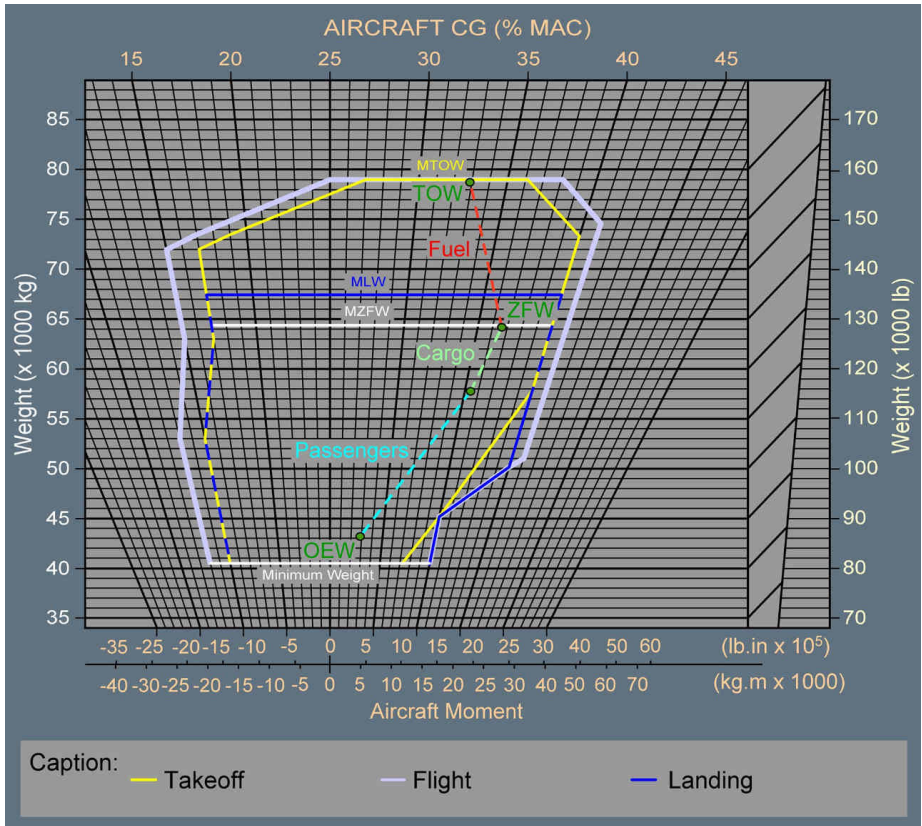
Aircraft Weight and Balance Calculation

A318/A319/A320/A321
WEIGHT AND BALANCE MANUAL

Continued from the previous page

		Weight		H-ARM		Moment against 25 %MAC		A/C CG (%MAC)
		(kg)	(lb)	(m)	(in)	(kg.m)	(lb.in)	
Aft Cargo Hold	31	1 000	2 205	22.085	869.49	3 235	280 786	
Load	32	900	1 984	23.762	935.51	4 421	383 726	
3 400 kg (7 496 lb)	41	750	1 653	25.362	998.50	4 884	423 912	
Max: 4 535 kg (9 998 lb)	42	750	1 653	26.962	1 061.50	6 084	528 068	
Rear Cargo Hold (Bulk)	51	400	882	28.029	1 103.50	3 672	318 716	35.44
Load: 400 kg (882 lb)	52	0	0	28.829	1 135.00	0	0	
Max: 1 497 kg (3 300 lb)	53	0	0	30.182	1 188.27	0	0	
ZFW		64 203	141 543	19.342	761.50	31 624	2 744 842	36.73
RAMP FUEL		15 000	33 069	18.500	728.35	-5 245	-455 244	
TAXI FUEL		300	661	-	-	-		
TAKEOFF FUEL		14 700	32 408	18.500	728.35	-5 140	-446 132	
TOW		78 903	173 951	19.186	755.35	26 484	2 298 710	32.99

Loading Summary Graph



Note: This graph illustrates the certified CG limitations without operational margins taken into account.

WEIGHT AND BALANCE CONTROL**Examples**

Aircraft Weight and Balance Calculation

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