CROATIA AIRLINES

A STAR ALLIANCE MEMBER

GROUND OPERATIONS MANUAL

Issue II

OP-ZOU-001

Note:

The original of 'Ground Operations Manual' OP-ZOU-001 is kept with Operations Engineering – Documentation.

Controlled copy of this procedure is published on the Quality System Intranet Web Page

All hard copies of this manual obtained by printing the file from the Intranet web page are considered non-controlled copies.

The original of this procedure is written in English language. There is no Croatian language version.

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0. INTRODUCTION

0.0. OVERVIEW

Contents	This chapter contains the following sections: 0.1. Distribution List (OP-ZOU-001) 0.2. List of Revision (OP-ZOU-001) 0.3. List of Effective Chapters 0.4. Safety Policy 0.5. General Information 0.6. Responsibilities – Ground Operations 0.7. Terms and Definitions 0.8. TBA 0.9. Phonetic Alphabet (ICAO) 0.10. Abbreviations List

0.1. DISTRIBUTION LIST (OP-ZOU-001)

DISTRIBUTION LIST			
Controlled Copy	**Department**	**Department Code**	**Number of Copies**
0	Operations Engineering - Documentation	PSU	ORIGINAL
1	Quality System intranet web page	QMS	EC
2[2]	internet eCrew portal	PSU	EC
3[3]	intranet Crew portal	PSU	EC
4[1]	Handling Agents	OUT	EC
5[4]	EFB	PSU	EC

[1] Electronic copy shall be available to Handling Agent on the Internet web page (http://www.croatiaairlines.com/Additional-services/Login).

[2] Electronic copy for Croatian Civil Aviation Agency and Croatia Airlines flight crewmembers shall be available through eCrew portal (https://crew.croatiaairlines.hr/login/index.php).

[3] Additionally, Croatia Airlines flight crewmembers may synchronize dedicated USB memory stick via intranet Crew portal (Crew portal)

[4] CTN fleet

0.2. LIST OF REVISIONS (OP-ZOU-001)

Revision Number	Revision Date	Author of the Current Revision	Description of revision
0	01.03.2019.	Robert Kruljac Marija Crnjaković Anja Sinanović Martina Petrak Turkalj	Issue II – Initial revision
1	13.03.2019.	Robert Kruljac	ToC Updated Table of Contents Ch. 0 Updated references (page 3) Updated List of revisions Updated List of effective pages Ch. 2 Updated references (page 23, 27, 69) Ch. 4 Updated references (page 10, 90) Updated Cabin load stowing (page 26) Updated DAA and Gate baggage procedure (page 35, 36) Ch. 6 Editorial changes (page 14) Ch. 7 Revised whole chapter (new titles, paragraphs, text rearranged, new text added to cargo chapter, Information to passengers and cargo warehouse updated)
2	15.07.2019.	Robert Kruljac Martina Petrak Turkalj	Ch. 0 Updated Distribution list in line with new organization structure Updated List of revisions/eff. pages Updated Ground Ops. Responsibilities in line with new organization structure; Ground Ops. Mngr deleted (p 9-10) Ch. 2 Added DG Occurrence Report to list of available documentation to h/a (p 25) Updated name of OC&HUB Center (p 26, 29, 30, 182, 183, 192, 196, 198) Updated references (page 85, 140) Updated SLOT Obedience Policy (p 196-197) CFMU changed to NMOC (p 196) Ch. 3 Updated W&B mandatory documentation (p 13) Ch. 5 CFMU changed to NMOC (p 7) Ch. 7 Added IATA Temperature Control Regulations Manual, ‘Time and Temperature Sensitive’ Label (p 106-107)

Revision Number	Revision Date	Author of the Current Revision	Description of revision
3	21.10.2019.	Robert Kruljac Martina Petrak Turkalj	Ch. 0 Updated Purpose and scope (processes are as minimum equivalent to the procedures contained in the IGOM) Updated List of revisions/eff. pages Updated Ground Ops. Responsibilities in line with new organization structure Ch. 2 Updated ToC (Ch. 2.1.8 renamed to Emergency Response procedures) Updated Securing of GSE, Basic Operating Requirements for GSE, Aircraft Loading Equipment, Cooling/Heating Units/Pre-Conditioned Air (PCA) New subchapter 2.1.8.1 Emergency Response Actions Updated Aircraft Pushback, De-icing procedure, Adverse Weather Oversight Procedures Ch. 3 Updated Load control, Staff Qualification Requirements, Load Control duties New Load Control Process Flow Scheme/Legend Updated W&B, LMC, Load planning, LIR, NOTOC Ch. 4 Updated Supervision of Aircraft Loading, Loading procedures, Securing of Load, Pallet Loading, Safety Requirements Specific to Aircraft Loading Operations Ch. 7 Updated ToC New subchapter 7.7 Cargo and Mail Handover
4	18.09.2020.	Robert Kruljac	Ch. 0 Deleted: responsible for distribution Updated: validity of contents; manual users; references; nominated postholders, glossary of terms Ch. 1 Updated: basic information on aircraft operated by CTN (9A-CTN added) Ch. 3 Updated: reference documents Ch. 4 Updated: A319 and A320 compartments loading guide (whole subchapters 4.5.4 and 4.5.5 reorganized) Ch. 5 Updated: examples of LDM Ch. 7 Updated: diplomatic shipments

Revision Number	Revision Date	Author of the Current Revision	Description of revision
5	15.01.2021.	Željko Velić	Ch. 0 Explanation of Ground Operations Bulletin (OB-ZOU-052) added; Abbreviation list updated (GOB added) Ch. 7 Updated: General part (exception for Aircraft Spares shipping in specially designed containers deleted, exception for transport of COVID-19 vaccine added, COMAT classified as DG added); Terminology and Abbreviations updated (COMAT added, explanation for Fissile Material revised); GHS Pictograms updated; COVID-19 added to DG acceptance at approved airports; Editorial changes (wording, references, alignment with latest revision of OM-A)
6	01.06.2021.	Željko Velić	Ch. 7 Exempts for acceptance of Dangerous goods as cargo to/from airports listed on the "List of Approved Airports for transport of dangerous goods" revised; Note for DGR forbidden on 9A-CTG and 9A-CTH added; General Handling and Stowing Instructions - Compatibility Table revised; Dry Ice maximums in Cargo Holds per aircraft type revised; Note for loading Dry Ice and Live Animals revised, Table 9: Lithium batteries loading limitations for Croatia Airlines aircraft types updated
7	07.07.2021.	Robert Kruljac	Ch. 2 Whole chapter revised (text, sections, editorial changes) in accordance to respective CTN Operations Manuals and IGOM 10, transmission of LMCs to the Flight Crew deleted and included in Last Minute Changes, examples per aircraft type for weight and balance calculation added. Ch. 3 General Qualification Requirements revised and updated, Documentation Requirements updated, section and text revised and updated in accordance with IGOM 10, purpose of Load Control updated, Load Control Duties: Post-departure messages added Ch. 4 Chapter re-arranged and updated in accordance with IGOM 10, deleted Spills in Cargo Holds, Live Animals & service animals in Pets in cabin (PETC), sub-section numbering reordered, cargo hold inspection removed, references updated Ch. 6 Sections revised and updated in accordance with IGOM 10, AHM and CTN Training Program, editorial changes (indents, grammar, etc.)

Revision Number	Revision Date	Author of the Current Revision	Description of revision
7 (cont.)			Ch. 7 Whole chapter revised (text, sections, indents, editorial changes) Ch. 8 New chapter Croatia Airlines Safety Management - (most of the text moved from Ch. 2, Just Culture added, reporting process revised to include Q-Pulse reporting system, Ground Safety Report (GSR)/Ground Damage Report (GDR) submission revised, h/a credential for Q-Pulse App added)
8	05.01.2022.	Željko Velić	Ch. 7 Table 9: Lithium batteries loading limitations for Croatia Airlines aircraft types updated; Note for mobility aid fitted with two batteries removed; Lithium Battery Mark Label changed; Provisions for Lithium ion or lithium metal batteries updated; List of Approved Airports for Transport of Dangerous Goods updated
9	14.04.2022.	Robert Kruljac	Ch.1.1 Basic Information on Aircraft Operated by CTN – CTJ deleted. Ch.3.5. Weight and Balance – CTJ deleted. Ch.3.8. – Load and Trim Sheet specimen exchanged, manual load sheet table updated and revised, EDP load sheet specimen exchanged, table revised and updated (fleet A32F and Dash 8 Q400). Ch.3.9. Load Planning – LIR revised, CTJ deleted. Ch.4.5.5. A320 Compartments Loading Guide – CTJ deleted. Ch.7.6. Live Animals – Editorial changes, the whole chapter rearranged, and new sub-chapter added, AVIH sticker revised, Loading Possibilities and Limitations revised and updated
10	28.10.2022.	Robert Kruljac	Ch.0.8 Terms and Definitions – table revised and merged with table in 0.9. Glossary of Terms Commonly Used in Air Traffic Ch.0.9. Table deleted, left empty (TBA) Ch.1.1 Basic Information on Aircraft Operated by CTN – CTO added. Ch.2.2.12 De-icing / Anti-icing – Responsibilities and Authorities - Station Manager (and/or Authorized Staff) responsibilities revised in accordance with OM-A. Ch.2.4.1 Handling Agreements and Provision of Resources – new version of IATA AHM 810 January 2018 added. Ch.2.4.6. Loading and Storage of Aircraft Handling Documents – Cargo handling e-mail address correction. Ch.3.5 Weight and Balance – 9A-CTO Load&Trim sheet and AHM560 added, Loading instructions OB-ZOU-009 renamed (A320 iso CTK). Ch.3.8 – Load and Trim Sheet 9A-CTK and 9A-CTO (Specimen) added. Ch.3.9 – Manual Loading Instruction / Report A320, added new form (revised version of form). Ch.4.1.1. – General Loading Regulations - Cargo handling e-mail address correction. Ch.4.1.3. Loading Priorities – Cargo handling e-mail address correction.

Revision Number	Revision Date	Author of the Current Revision	Description of revision
10	28.10.2022.	Robert Kruljac	Ch.4.5.1. Aircraft Structure Limitations – Cargo handling e-mail address correction. Ch.4.5.3. Supporting of Load – Cargo handling e-mail address correction. Ch.4.5.5. A320 Compartments Loading Guide – 9A-CTO added in Classification and Features Ch.7.1.1. Transportation of Cargo – Cargo handling e-mail address correction. Ch.7.2.1. Transportation of Mail – Cargo handling e-mail address correction. Ch.7.2.2. – Irregularities – Cargo handling e-mail address correction. Ch.7.4. Special Loads – General – Cargo handling e-mail address correction Ch.7.5.14. Heavy and Outsized Items (BIG / HEA) – Cargo handling e-mail address correction. Ch.7.6.4. Stowing and Loading of Live Animals – Cargo handling e-mail address correction.
11	24.01.2023.	Robert Kruljac Željko Velić	Ch.0 – List of temporary revisions deleted, sub-chapters rearranged and renumbered accordingly. Ch.7.3.7. –Updated as per IATA DGR ed.2023. Ch.7.3.8. – Lithium Battery Mark Label – updated Ch.7.3.15. – Dangerous Goods Training and Training Records updated in line with IATA DGR ed.2023 and assessment added

0.3. LIST OF EFFECTIVE CHAPTERS

Use this table to check the effective data for respective pages:

Chapter	Page	Rev. No.	Date	Chapter	Page	Rev. No.	Date
	1-2	Issue II, rev.11	24.01.2023.	4	1-128	Issue II, rev.10	28.10.2022.
ToC	1-2	Issue II, rev.11	24.01.2023.	5	1-52	Issue II, rev.6	01.06.2021.
0	1-27	Issue II, rev.11	24.01.2023.	6	1-16	Issue II, rev.7	07.07.2021.
1	1-2	Issue II, rev.10	28.10.2022.	7	1-139	Issue II, rev.11	24.01.2023.
2	1-186	Issue II, rev.10	28.10.2022.	8	1-38	Issue II, rev.7	07.07.2021.
3	1-53	Issue II, rev.10	28.10.2022.				

0.4. SAFETY POLICY

CROATIA AIRLINES

Safety Policy

I, along with all levels of management insist that safety is the first priority in all our activities.

We are committed to developing, implementing, maintaining and improving Safety Management System to ensure that all our aviation activities take place under a balanced allocation of organizational resources, aimed at achieving the highest level of safety performance and meet national and international standards.

Our commitment is to:

- Enforce the management of safety as a primary responsibility of management and employees;
- Develop, embed and practice a safety culture across our entire aviation activities that will result in organizational culture that fosters safe practices and encourages effective safety reporting and communication. Every employee is responsible for communicating any information that may affect the integrity of flight safety;
- Establish "JUST CULTURE" across the entire organization as a NON PUNITIVE culture in which front line operators or others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, willful violations and destructive acts are not tolerated;
- Protect the identity, to the extent permissible by the law, of any employee who provides flight safety information through establish hazard reporting system;
- Define clearly for all staff their accountabilities and responsibilities for the development and delivery of safe practices and procedures. Provide staff with adequate and appropriate aviation safety information and training to enable them to implement safety strategy and policy. Ensure that they are allocated only with tasks commensurate with their skills;
- Ensure that sufficient skilled and trained staff who are fully competent in aviation safety matters are available to implement safety strategies and processes;
- Comply with and, whenever possible, exceed legislative, regulatory and corporate requirements and standards;
- Establish hazard identification and risk management processes, including a hazard reporting system. In order to eliminate or mitigate the safety risk of the consequences of hazards to a level which is As Low As Reasonable Practicable (ALARP);
- Ensure externally supplied systems and services that affect the safety of all our operations meet appropriate regulatory and safety standards;
- Establish and measure our safety performance against realistic safety performance indicators and safety performance targets;
- Continually improve our safety performance through management processes that ensure that relevant safety action is taken and is effective;
- Regularly conduct safety and management reviews leading to improved processes;

All levels of management and all employees are accountable for the delivery of the highest level of safety performance. Each individual will always act with safety in mind. We all have responsibility to work in safe manner. The application of effective Safety Management System is integral to all our aviation activities.

Our objective is to achieve the highest levels of aviation safety standards and performance.

Zagreb, November 4th, 2017

Jasmin Bajić
President and Chief Executive Officer

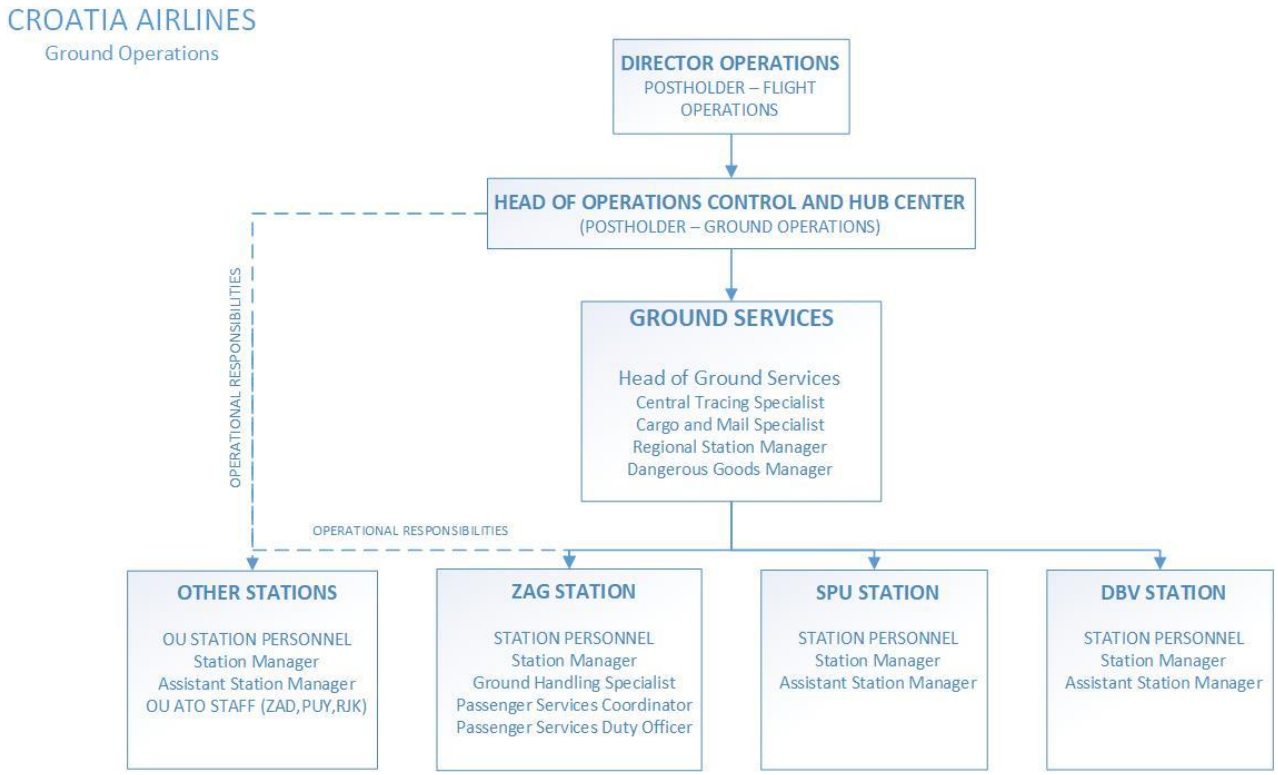
0.5. GENERAL INFORMATION

Purpose and scope	The Croatia Airlines Ground Operations Manual (GOM) defines and regulates ground and cargo handling processes and procedures of aircraft operating under Croatia Airlines' (OU) AOC. The manual contains all information, rules, regulations, guidelines, and data for CTN fleet, ground servicing operations, load control, aircraft loading, communication and messages, training and cargo/mail handling. The contents are based on Croatia Airlines internal policies as well as on regulations and requirements issued by aviation authorities, international aviation organizations and aircraft manufacturers. It is the proof document for all related procedures and requirements towards authorities, at court and audit purposes. This manual also includes the relevant information on dangerous goods derived from the IATA DGR (Dangerous Goods Regulations) and ICAO Technical Instructions, which are binding for the acceptance of passengers and their baggage and cargo. Any processes and procedures described in the GOM are as minimum equivalent to the procedures contained in the IATA Ground Operations Manual (IGOM). Under routine conditions, strict compliance is required with all policies, rules, regulations, limitations, and procedures laid down in the Operations Manual instructions. Additionally, operational personnel shall always comply with the laws, regulations, and procedures of those states in which operations are conducted. No regulation can be a substitute for awareness. Nothing in the Operations Manual, however carefully outlined and precisely adhered to, can replace the exercise of good judgment and the application of conservative operating practices if conditions so dictate. The information contained in this publication is subject to constant review in the light of changes to international, governmental and internal requirements and regulations.
Applicability	The Ground Operations Manual is applicable to all personnel and organizations working directly or indirectly for or on behalf of Croatia Airlines ground and cargo operations.
Responsible editor	CROATIA AIRLINES, Ground Operations Robert Kruljac, Head of Ground Services Zagreb Airport Tel: +385 1 61 64 560 SITA: ZAGKKOU e-mail: robert.kruljac@croatiaairlines.hr

0.5. GENERAL INFORMATION (cont.)

Validity of contents	The Ground Operations Manual (GOM) is revised by chapters and contains a "List of effective chapters". All chapters that are effective at this moment are listed in the table with a revision number and date of effectiveness.
Manual's users	Suggestions and contributions toward the improvement of the Manual are welcomed. Any discrepancies found should be reported immediately to the responsible editor. Each user of this manual must be well familiar with its contents and must make a continual effort to remain up to date. Where the user is in doubt whether he understands part or all of an instruction fully, he must ask his superior at once for clarification.
References	Operations Manual Part A Operations Manual Part B Operations Manual Part D Passenger and Baggage Handling Manual (PBHM) A319-112 9A-CTN AHM 560 Aircraft Data A319-112 AHM 560 Aircraft Data A320-214 AHM 560 Aircraft Data Dash8-Q400 AHM 560 Aircraft Data Dash8-Q400 Cargo Loading Manual Airbus Weight and Balance Manual IATA Ground Operations Manual (IGOM) IATA Airport Handling Manual (AHM) IATA Dangerous Goods Regulations IATA Live Animals Regulations
Ground Operations Bulletin (GOB)	'OB-ZOU-052 Ground Operations Bulletin' is an internal form used as an addendum to this manual to communicate all important notices and reminders to ground personnel and handling partners. All valid GOBs are published on Handling Agent Internet web page (http://www.croatiaairlines.com/Additional-services/Login).
Copyright	No part of this publication may be reproduced, recast, reformatted or transmitted in any form by any means, electronic or mechanical, including photocopying, recording or any other information storage and retrieval system, without prior written permission from the responsible editor. The Ground Operations Manual is internal publication. It may not be given to persons or parties not associated with Croatia Airlines.

0.6. RESPONSIBILITIES – GROUND OPERATIONS



NOTE: *Dashed line – Croatia Airlines Station (Station Manager and Assistant Station Manager) and ATO (Airport Ticketing Office) personnel at other stations are responsible to Director Commercial Division, except for the activities within the scope of ground and cargo operations. For activities within the scope of ground and cargo operations, they are responsible to Nominated Post Holder Ground Operations.*

0.6. RESPONSIBILITIES – GROUND OPERATIONS (cont.)

Nominated Post Holders

Function	Name	Croatia Airlines designation
Accountable Manager	Jasmin Bajić	President and CEO
Post Holder – Flight Operations Deputy	Davor Mišić Nikolina Sakač	Director Operations Crew Scheduling Manager
Post Holder – Ground Operations Deputy	Željko Velić Robert Kruljac	Head of OC & HUB Centre Head of Ground Services

Post Holder Ground Operations

Head of Operations Control and HUB Center is appointed by and reports to the Director Operations and Accountable Manager in terms of duties and responsibilities of the post holder ground operations. He ensures the safe, punctual and economic operations of all Croatia Airlines flights by coordinating and supervising services provided by subcontracted ground handling agents.

His functions, duties and responsibilities are:

- ✓ to coordinate and supervise ground and cargo handling activities on all stations operated by Croatia Airlines;
- ✓ to coordinate and supervise ground and cargo operations' safety and security on all stations operated by Croatia Airlines
- ✓ to coordinate and supervise ground and cargo handling activities with all subcontracted handling agents;
- ✓ to take all required measures for the security of aeroplanes, passengers, baggage and cargo, in cooperation with the national Authority and authorities responsible for the security of foreign aerodromes;
- ✓ to react to irregularities and incidents related to security, in close cooperation with the Commander, operational departments, other Croatia Airlines' departments and the appropriate Authority(ies);
- ✓ to ensure, by regulator checks, that ground is properly instructed and aware of their responsibilities and the relationship of their duties to the operation as a whole;
- ✓ to approve ground and cargo handling staff training programs;
- ✓ to closely cooperate with the Operations management in the publication of the ground and cargo personnel and handling related directives in the Operations Manual and other instruction;
- ✓ to ensure that all legal requirements and the provisions of the AOC relating to ground and cargo operations are strictly observed;
- ✓ to act as the Croatia Airlines' representative to all authorities, as far as ground operations are concerned.

Post Holder Ground Operations is a member of Croatia Airlines Crisis Management Team (CMT).

Post Holder Ground Operations has the right (respecting veto right of the Accountable Manager and Director Operations) to select or to suspend members of his team from their functions, duties and rights.

0.7. TERMS AND DEFINITIONS

EXPLANATION AND DEFINITIONS OF TERMS AND WORDS The following terms are used throughout the Ground Operations Manual and therefore explained here.	
Accessories, Commodity	In respect to specific commodity rates, means additional objects which are not essential to the normal use of a commodity or are not an integral part thereof, but are intended for use with commodity.
Accountable Manager	The person acceptable to the Authorities, who has overall responsibility for entire Croatia Airlines Quality System. Accountable manager has corporate authority for ensuring that all operations and maintenance activities can be financed and carried out to the standard required by the Authority and any additional requirements defined by the Croatia Airlines.
Actual Landing Weight (LAW)	Calculated by subtracting the weight of the trip fuel from the actual take-off weight.
Actual Take-off Weight (TOW)	The gross weight of the aircraft at the start of the take-off run, i.e., actual zero fuel weight plus take-off fuel.
Actual Zero Fuel Weight (ZFW)	The dry operating weight plus the total traffic load.
Aerodrome (Airport)	A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
Airborne	In the air.
Aircraft	Used in this GOM in lieu of the correct technical term "aeroplane", in order to conform to standard industry terminology.
Aircraft identification	A group of letters, figures, or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communications.
Aircraft pallet	Platform with a flat under surface, manufactured to standard aircraft requirements on which goods are assembled and secured by nets/igloos and subsequently locked into the aircraft. It permits rapid loading/unloading on compatible aircraft conveying and restraint system.
(Aircraft) Pallet net	Network of webbing fixed to a pallet to restrain the load.
Airport authority	The body of people who control an airport.
Air-Waybill	Document entitled "Air Waybill" made out by or on behalf of the shipper which evidences the contract between the shipper and carrier(s) for carriage of goods over routes of the carrier(s).
Air Operator Certificate (AOC)	A certificate authorizing an operator to carry out specified commercial air transport operations.
Air traffic	All aircraft in flight or operation on the manoeuvring area of an airport.
Air traffic service	A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or airport control service).
All-cargo Aircraft (Cargo Aircraft)	An aircraft which carries air freight exclusively
Allowed traffic load	The weight remaining after the subtraction of the operating weight from the allowed weight for take-off, which can be based either on the zero fuel, take-off, or landing weight.

Continued on next page

0.7. TERMS AND DEFINITIONS, *continued*

EXPLANATION AND DEFINITIONS OF TERMS AND WORDS The following terms are used throughout the Ground Operations Manual and therefore explained here.	
Alternate airport	An airport to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the airport of intended landing. Alternate airports include the following: - take-off alternate: an alternate airport at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the airport of departure. - en-route alternate: an airport at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route. - destination alternate: an alternate airport to which an aircraft may proceed should it become impossible or inadvisable to land at the airport of intended landing. The airport from which a flight departs may also be an en-route or a destination alternate airport for that flight.
Altitude	The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.
Anti-collision light (Beacon lights)	A flashing light that draws attention to the position of an aircraft in order to reduce the danger of collision with another aircraft.
Apron	A defined area, on a land airport, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.
Arm (moment arm)	The horizontal distance in inches or centimetres from the reference datum line to the centre of gravity of the item. The algebraic sign is: - plus (+) if measured aft of the datum - minus (-) if measured forward of the datum
Assembly, Cargo	The separate reception of parcels or packages and the holding of them for later dispatch as one consignment.
Authorised (authorized) staff	The term "authorised staff" implies that this staff is competent and properly trained.
Authority	The competent body responsible for the safety of civil aviation.
Auxiliary Power Unit-APU	The aircraft's self-starter, and provider of power for other purposes while on the ground.
Baggage, unaccompanied	Baggage which a passenger has presented to check-in as accompanied check baggage, but which exceeds the passenger's checked baggage allowance specified by the operator and which is consequently consigned as cargo in order to be sent to the same destination as the passenger. ***Note:*** *This is commonly referred to as "unaccompanied baggage" or "baggage consigned as cargo".*
Barrier net (Safety barrier)	Webbing installed across the fuselage of an aircraft to prevent a cargo load from encroaching upon the flight deck in an emergency.
Basic index	The moment of the aircraft equipped according to the definition for the basic weight.
Basic weight	The basic weight of an aircraft consists of aircraft structure, engines, systems, equipment that have fixed locations and are permanently installed in the aircraft, unusable liquids (fuel, oil, hydraulic fluid) and standard loose equipment.
Belly hold (Lower Cargo Hold / Lower Deck) / Bulk Cargo Hold)	The space of an aircraft confined by ceiling, floor, walls, and bulkhead, used for carrying cargo, mail and baggage. Main deck is also considered as a cargo hold in the all-cargo aircraft. Note: also called "Lower Cargo Hold", "Lower Deck" or Bulk cargo Hold.
Boarding card (Boarding pass)	A document entitling a passenger to embark on an aircraft.

Continued on next page

0.7. TERMS AND DEFINITIONS, *continued*

Block fuel	The weight of the total amount of fuel on board before starting engines.
Bulk load	Bulk loads are defined as loose items, baggage, or freight that can be loaded within a net section.
Bulk cargo	A loose Cargo which is not loaded on a pallet or in container (ULD).
Burn-off fuel	Taxi fuel plus trip fuel.
Cabin crew member (Cabin attendant)	A crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the commander of the aircraft, but who shall not act as a flight crew member.
Cargo (Freight)	Which is equivalent to the term "goods", means any property carried or to be carried in an aircraft, other than mail or other property carried under the terms of an international postal convention, baggage or property of the carrier; provided that baggage moving under an Air Waybill is cargo.
Cargo Loading System (CLS)	The CLS is the equipment installed on the floor of the cargo hold: - to load Unit Load Devices (ULD) and non-unitized loads to restrain ULDs and non-utilized loads against the load factors induced by aircraft accelerations.
Cargo manifest	Detailed list of all cargo carried on a specified aircraft.
Carriage	Which is equivalent to the term "transportation", means carriage of passenger and cargo by air, gratuitously or for hire.
Carrier	Includes the air carrier issuing the passenger ticket or Air Waybill and all air carriers that carry or undertake to carry the passenger and cargo thereunder or to perform any other services related to such air carriage.
Centre of Gravity (CG)	The point about which an aircraft would balance if it were possible to suspend it at that point. It is the mass centre of the aircraft, or the theoretical point at which the entire weight of the aircraft is assumed to be concentrated It may be expressed as a moment index or in percent MAC (Mean Aerodynamic Chord).
Centre of gravity limits	The specified forward and aft points beyond which the centre of gravity must not be located during take-off, flight and landing. These limits are specified in the weight and balance records of the aircraft and meet the requirements of regulations and/or local national requirements.
Centre of gravity range	The distance between the forward and aft centre of gravity limits.
Certification	A declaration by the state that an aircraft, ULD etc. meets its requirements for airworthiness.
Charge	Amount to be paid for carriage of passenger and cargo, based on the applicable rate for such carriage, or an amount to be paid for special or incidental service in connection with such carriage.
Check-in time (deadline)	The last time by which a passenger must present himself at the check-in desk at the airport.
Check list	A printed list indicating actions and the precise order in which they must be carried out by various members of the flight deck crew.
Chocks	Small blocks placed at the wheels of stationary aircraft to prevent movement.
Chocks away (removed)	The removal of chocks from the wheels of an aircraft. Figuratively - the departure of an aircraft.
Closing	A flight is "closing" during the short while immediately before the time at which no more passengers will be accepted for it.
Commander	The pilot designated by the operator responsible for the operation and safety of the aircraft during flight time. He may delegate the conduct of the fight to another suitably qualified pilot.

Continued on next page

0.7. TERMS AND DEFINITIONS, *continued*

Container, Lower deck	An ULD shaped to fit into the lower deck of an aircraft. These units come in half and full sizes, related to the width of the aircraft.
Container transport	Means that the goods are forwarded in approved containers or ULDs.
Control Centre (ATC)	Building in which are housed the Air Traffic Controllers.
Co-pilot	Pilot serving in any piloting capacity other than as pilot in command or commander but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction for a license or rating.
Crewmember	Flight crew member, cabin crew member or person travelling in cockpit, nominated by the operator to instruct or supervise instruction experience and skill and to do periodical checks as required by regulations (instructors and examiners). ***Note:*** *Other staff, like flying mechanics or engineers escorting aircraft, observers, trainees, etc., listed on the flight order are considered as extra crew members except in terms of insurance liability. Regarding insurance, they are considered as passengers and as such are „covered „by insurance policy although they do not have a flying ticket.*
Damage	Harm done to goods during transportation that impairs their value or usefulness.
Danger areas	Areas containing some manmade hazard, or military aircraft on exercises
Dangerous Goods	Articles or substances which are capable of posing a hazard to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions, or which are classified according to those Instructions.
Dangerous Goods Accident	An occurrence associated with and related to the transport of dangerous goods by air, which results in fatal or serious injury to a person or persons, or major property damage.
Dangerous Goods Incident	An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods, not necessarily occurring on board an aircraft, which results in injury to a person or persons, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardizes the aircraft or its occupants is also deemed to constitute a dangerous goods incident.
Datum (reference datum)	An imaginary vertical plane or line from which all measurements of arm are taken. The datum is established by the manufacturer. Once the datum has been selected, all moment arms and the locations of permissible centre of gravity range must be taken with reference to that point.
Dead Head Crew (DHC)	Crew positioning to/from duty not directly involved in the operation of the flight, who occupy passenger seats and have passenger status thus General Conditions of Carriage apply. When deadheading, crew members accept all relevant provisions of the applicable laws regarding the limitations of Croatia Airlines liability as a carrier, in particular Montreal Convention and the Law on Obligations and Proprietary Rights in Aviation, that governs and may limit the liability of carrier for death or bodily injury of the passengers, for loss of or damage to baggage and for delay. Croatia Airlines General Conditions of Carriage are available on company official web site (www.croatiaairlines.com/Legal-information).

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0.7. TERMS AND DEFINITIONS, *continued*

Declared value for carriage	The value of goods declared to the carrier by the shipper for the purposes of determining charges or of establishing the limit of the carrier's liability for loss, damage, or delay.
Density	The quantity of something per unit volume, unit area or unit length.
Deadload Index (DLI)	Basic index plus moment of load in compartments.
Destination	Ultimate stopping place according to the contract of carriage.
Dimensions (Measurements)	Length, width, and height measured in centimeters (or inches) used to assess applicable rates.
Diversion and hold	The eventuality of an aircraft having to divert to another airport and also to spend time circling in a holding area waiting to land.
Dolly (dollies)	Platform type vehicle equipped with rollers used to accept, discharge and handle ULDs on the ground.
Dry Operating Index (DOI)	Moment of the aircraft equipped according to definition for the dry operating weight.
Dry Operating Weight (DOW)	Basic weight plus operational items such as crew, crew luggage and catering supplies.
Electronic Flight Bag	A laptop used by Flight Crew with purpose to display Electronic Flight Manuals, Electronic Flight Data (OFP, METEO, SIGWX etc.) and for Take-Off Performance Calculation.
Elevation	The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.
Embargo	The refusal by an airline for a limited period, to accept of passengers and cargo for transportation over any route or segment thereof, and to or from any area, or point of connecting airline, any commodity, type, or class.
ETD	Estimated Time of Departure
Excess baggage charge	A charge that airlines make for carriage an amount of baggage beyond the free allowance
Fissile material	Uranium-233, uranium-235, plutonium-238, plutonium-239, plutonium-241 or any combination of these. Unirradiated natural and depleted uranium and natural uranium or depleted uranium which has been irradiated in thermal reactors only, are not included under this definition.
Flight crewmember	Means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.
Flight number	The number allocated to a flight for identification purposes.
Flight plan	Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.
Flight time	The duration of the flight from the time of take-off to the time of landing.
Floor bearing	Maximum loading by weight per area that the aircraft floor is capable of withstanding.
Free of charge (FOC)	As stated, freight for which no charge is made.
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.
Ground power	Electric power supplied to the aircraft from the ground.
Ground Support Equipment (GSE)	Vehicles or conveying systems which handle cargo on the ramp from the airport door of the terminal to the aircraft.

Continued on next page

0.7. TERMS AND DEFINITIONS, *continued*

Ground Time (GT)	Time necessary to perform all the activities and processes in the handling of an aircraft. Standard ground times are the turnaround times our flight planning department will use for aeroplane rotation planning. The minimum ground time is the time granted to the handling agent for turnarounds.
Ground visibility	The visibility at an aerodrome, as reported by an accredited observer.
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”.
Hand baggage (unchecked baggage / carry-on baggage)	Small items of baggage that can easily be carried by hand and stowed in passenger cabin.
Handling Agent	A Company that deals at an airport with passengers and/or freight on behalf of the Carrier.
Heading	The direction, in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).
Height	The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.
High density load (cargo)	Goods which weigh more than 164 kg per 6000 cm3.
Highloader	Vehicle with loading platform able to load/unload ULDs to/from the aircraft.
Hold	Space confined by ceiling, floor, walls, and bulkhead, used for carrying load.
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization.
Igloo	ULD shaped like a dome.
Igloo, non-structural	Bottomless rigid shell made of fiberglass, metal or other material. This shell is used in combination with an aircraft pallet, to which it is secured during flight with a net assembly.
Igloo, structural	Fully enclosed rigid shell which, in combination with an aircraft pallet, is used to retain cargo without the use of nets. Such a pallet attached to the shell forms a single structural unit.
ILS	Instrumental Landing system
Insurance	Act, system, or business of insuring property against loss, harm or damage arising in specified contingencies.
Just Culture	A culture in which front-line operators or other persons are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, willful violations and destructive acts are not tolerated.
Knots	A measure of speed. 1 knot = 1 nautical mile per hour.
Landing gear	The wheels and legs on which a landplane alights.
Load or loading	Goods put into an aircraft for carriage.
Loaded Index TOW (LITOW)	Loaded index ZFW plus moment of fuel.
Loaded Index ZFW (LIZFW)	Deadload index plus moment of passengers.
Loading platform	Vehicle used to load and unload ULDs to/from aircraft.
Load plan	Plan on how and where to load cargo on board an aircraft.

Continued on next page

0.7. TERMS AND DEFINITIONS, *continued*

Load sheet	Document showing the weight of the aircraft, the weight of the load, the description and distribution of the load and giving the balance of the aircraft.
Low density cargo	Cargo which weighs less than 1 kg per 6000 cm3.
Lower Cargo Hold	Cargo holds forward and aft. in the belly of an aircraft below the passenger deck, used for carrying cargo, baggage, and mail. Lower Cargo Hold contains one or more cargo compartments which are usually divided by compartment nets. Sometimes the individual cargo compartment as considered as a separate hold (compartment 5 of the A-320).
Lower deck	Cargo holds below the main deck, normally used with reference to high-capacity aircraft.
Main deck	Primarily the passenger carrying level, also referred to as "upper deck". In cargo carrying aircraft the compartment or cabin throughout the fuselage.
Mass	Technical term replaced by the term "weight" in this GOM and on related documents used in the weight and balance environment.
Maximum gross weight permissible	The sum of the tare weight of an ULD and the maximum net weight permitted.
Maximum net weight permissible	The maximum weight of contents which the manufacture of the ULD states the device is capable of carrying.
Maximum Landing Weight (MLW)	The maximum weight at which the aircraft may normally be landed. The weight may be limited to a lesser weight when runway length or atmospheric conditions are adverse. The maximum landing weight may be exceeded only by the weight of the burn-off fuel.
Maximum Take-off Weight (MTOW)	The maximum allowable weight at the start of the take-off run. The take-off weight for a particular flight may be limited to a lesser weight when runway length, atmospheric conditions or other variables are adverse. The maximum take-off weight may be exceeded only by the weight of taxi fuel.
Maximum Taxi Weight (Ramp Weight) (MTW)	The maximum gross weight for ground manoeuvre.
Maximum Zero Fuel Weight (MZFW)	The maximum weight authorized for the aircraft not including fuel load.
Mean Aerodynamic Chord (MAC)	The average distance from the leading edge to the trailing edge of the wing. The MAC is specified for the aircraft by determining the average chord of an imaginary wing which has the same aerodynamic characteristics as the actual wing. The position of the centre of gravity of the loaded aircraft is often given in %MAC.
Miscellaneous Charges Order (MCO)	Document issued by a carrier or its agents requesting issue of an appropriate Passenger Ticket and Baggage Check or revision of services to the person named in such document.
Moment	The product of the weight of an item multiplied by its arm. The total moment is the weight of the aircraft multiplied by the distance between the datum and the centre of gravity.
Moment Index or Index	A moment divided by a constant. The purpose of using a moment index is to simplify weight and balance calculations as otherwise heavy weights and long arms result in large, unmanageable numbers.

Continued on next page

0.7. TERMS AND DEFINITIONS (cont.)

Movement message (MVT)	Sent by the handling agents (airport) to airline to advise of take off times, estimated time of arrivals, arrivals, departures, delays, aircraft reg, pax on board and other supplementary information of aircraft. Start (block-off) and the end (block-on) of Block time are determined by the movement (MVT) message.
Nautical Mile	6 080 feet or 1 853 meters
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 net and a wall.
Net Weight	Weight of the goods excluding all packing.
NOTAM	A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations. Class I distribution: distribution by means of telecommunication Class II distribution: distribution by means other than telecommunication
Notification to Captain (NOTOC)	Document issued by the loading station to inform the captain of an aircraft of all special cargo to be loaded.
NVD	Abbreviation for “No Value Declared” - used where a shipper has not started the value of his consignment.
Operating Manual	A reference book containing instructions on how to carry out certain tasks.
Operating Weight	Dry operating weight plus take-off fuel.
Operator	A person, organization or enterprise engaged in or or offering to engage in an aircraft operation.
Overpack	An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage. Dangerous goods packages contained in the overpack must be properly packed, marked, labelled, and in proper condition as required by the DGR.
Packing Groups	An indication of the relative degree of danger presented by various articles and substances within a class or division. Roman numerals I, II, III are used to represent "high danger", "medium danger" and "minor danger". The following substances have been assigned Packing Groups: Classes 3, 4, 8, 9 and divisions 5.1 (except for liquid oxidisers) and 6.1.
Payload	The payload is the total of the weights of passengers, cargo, and baggage. The payload may produce revenue or not.
Pilot-in-command	Pilot responsible of the operations and safety.
Precision approach	This is an instrument approach with lateral and vertical guidance from final approach point (FAF) to the runway touchdown zone, with system accuracy, integrity, and obstacle clearance (including go-around) guaranteed until the descent limit (decision altitude or decision height) is reached. For the purpose of this document, instrument landing system (ILS), microwave landing system (MLS) and precision approach radar (PAR) are considered precision approaches.
Quality assurance	All planned and systematic actions necessary to provide adequate confidence that operational and maintenance practices satisfy given requirements. With regard to the Croatia Airlines and the text in this Operations Manual and/or Quality Manual, the term Quality Assurance is also intended to mean the particular department or only one employee who is full-time or part-time responsible for the management of Quality System in particular organizational unit or area of activities.

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0.7. TERMS AND DEFINITIONS (cont.)

Quality audit	Systematic independent and documented process of comparison the way certain actions are conducted with how regulations and published procedures / instructions say they should be done.
Quality inspection	An inspection is the act of observing a particular event or action to ensure that correct procedures and requirements are followed during the accomplishment of that event.
Quality Manager	The manager, acceptable to the Authority, responsible for the management of the entire integrated Croatia Airlines Quality System, coordination of the Operations and Maintenance Quality Systems, monitoring function and for requesting remedial actions in whole company.
Quality Manager Operations	The manager, acceptable to the Authority, responsible for the management of the Operations Quality System, monitoring function and for requesting remedial actions in operational departments.
Ramp	Parking place for aircraft usually.
Rate	Amount charged by the carrier(s) for the carriage of passenger or a unit of goods.
Rerouting	Route to be followed as altered from that originally specified in the Passenger ticket or Air Waybill.
Reservation (Booking)	An allotment in advance of space for passenger or space or weight capacity for goods.
Reservations system	Procedures for booking seats and allocation space on aircraft.
Reserve fuel	Difference between take-off fuel and trip fuel, consisting of route reserve fuel, diversion and holding fuel, additional fuel.
Responsible Manager	An individual who has the authority to resolve issues and take action.
Routing	Path taken by aircraft.
Runway	A defined rectangular area on a land airport prepared for the landing and take-off of aircraft.
Seat belt	A device for ensuring that a passenger or pilot is not jerked out of his seat by an abrupt movement of the aircraft.
Seating configuration	The way seats are arranged in the passenger cabin.
Service weight adjustment	Term used for the adjustment of the dry operating weight in departure control systems (DCS). The influence of service weight adjustments on the centre of gravity of the aircraft is automatically absorbed in the dry operating index.
Shipper's COD (Cash on Delivery)	The amount of cash that the shipper requires the carrier to collect from the consignee when delivering the goods.
Shipper's Declared Value	The amount of money that a shipper states his consignment is worth.
Short haul	Journeys up to 1 000 miles (1 610 km).
Stand	The place where an aircraft rests on the apron.
Standby aircraft	Aircraft that are held in reserve to replace any that go unserviceable while in service.
Static electricity	Frictional as opposed to voltaic electricity.

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0.7. TERMS AND DEFINITIONS (cont.)

Station	A location in the aircraft which is identified by a number designating its distance in inches or centimetres from the datum. The datum is therefore identified as station zero. The station and arm are usually identical.
Station of Departure	The airport from which an aircraft leaves for a particular flight.
Station Responsible	Refers to the person in charge at an airport, representing the carrier.
Surface transportation	Any transportation other than carriage by air.
Tag	Cardboard, plastic, or metal marker used for identification or classification.
Take-off Fuel (TOF)	Weight of the total fuel on board at the start of the take-off run.
Take-off Weight (TOW)	The TOW is the weight at the start of the take-off run.
Tare weight	Weight of the packing.
Tariff	The published rates, charges and/or related conditions of carriage of a carrier.
Tariff rules	The tariff concerned with the general terms and conditions of carriage.
Taxi Fuel (TF)	Weight of fuel consumption for APU operation, engine starting and taxiing to the take-off point. Standard weights are used which are, with few exceptions, applicable at every airport. The standard amount of taxi fuel may however be increased by the commander if local conditions so dictate. The actual amount of taxi fuel shall therefore be obtained from the commander or flight dispatcher.
Taxi-clearance	The permission given by Air Traffic Control for the pilot to begin taxi-ing.
Taxiing	Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.
Taxiway	A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another.
Template	Outline to confirm an aircraft interior contour when building up pallet loads.
Terminal	The place where passengers begin and end their journey with an airline.
Terminal apron	An area, near to the terminal building, where aircraft are loaded and unloaded.
Ticket	The document entitled "Passenger ticket and baggage check" including all (flight, passenger, and other coupons) issued by or on behalf of the carrier which evidences the contract between the passenger and the carrier(s) for the carriage of the passenger and baggage over the routes indicated.
Total Traffic Load (total payload)	Total weight of passengers, baggage, cargo (revenue and non-revenue), mail and unmanifested items.
Touch down	The movement when the wheels of an aircraft first touch the ground on landing.
Track	The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).
Traffic rights	The rights of a carrier to operate from/to or between stipulated points, also called Freedoms of the Air.
Transfer manifest	The document executed by the transferring carrier upon transfer of interline cargo and endorsed by the receiving carrier as a receipt for the consignment transferred.

Continued on next page

0.7. TERMS AND DEFINITIONS (cont.)

Transfer passengers	Are the passengers arriving by aircraft at given airport and holding a confirmed or requested reservation for connecting flight by the same or another carrier.
Transit passengers	Are the passengers who are arriving at the intermediate station on a multi-leg flight and continue their journey on the same flight. In this case only one flight coupon and on boarding pass are issued.
Trim	Disposition of the load so that the aircraft will maintain a desired attitude in steady flight. Also, a control adjustment.
Trip Fuel (TIF)	Weight of calculated fuel consumption from take-off to touchdown at the net intended point of landing.
Underload	Difference between allowed traffic load and load actually carried.
Unit Load Device (ULD)	Aircraft container or a pallet, and the equipment of the pallet (nets, igloo, etc.) in which goods can be transported and which interfaces directly with aircraft loading and restraint systems. As such it becomes a component part of the aircraft.
UN number	The four-digit number assigned by the United Nations Committee of experts on the transport of dangerous goods to identify a substance or a particular group of substances.
US	Unserviceable
Valuable Cargo	Consignment with an actual value of US$ 1000 or more per kg. For example, gold diamonds, legal banknote, etc.
Visibility	The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.
Volume	Space occupied in cubic units i.e., length x width x height.
Zero Fuel Weight (ZFW)	The ZFW is the total of OEW and payload
Wait listing	Putting a person’s name on a “reserve” list for a fully booked flight in case a seat becomes vacant.
War risk	Insurance term to describe the risk a shipper may run as a consequence of war.
Weight	Used in this GOM in lieu of the correct technical term "mass", in order to conform with standard industry terminology.
Wet Cargo	Cargo which, because of its nature may leak or give off moisture if there is a packing fault.

0.8. TBA

0.9. PHONETIC ALPHABET (ICAO)

Usage

The phonetic alphabet is used for:

- ✓ Communication between Air Traffic Control and aircraft.
- ✓ All verbal transmission for correct spelling of words, e.g. passengers' names, abbreviations etc.

Letter	Spelling
A	Alpha
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliet
K	Kilo
L	Lima
M	Mike

Letter	Spelling
N	November
O	Oscar
P	Papa
Q	Quebec
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-ray
Y	Yankee
Z	Zulu

0.10. ABBREVIATIONS LIST

ACARS	Aircraft Communication, Addressing and Reporting System
AHM	Airport Handling Manual
AOC	Aircraft Operating Certificate
AOM	Aircraft Operating Manual
APU	Auxiliary power unit
ATC	Air Traffic Control
ATD	Actual time of departure
ATS	Air Traffic Service
AWB	Air waybill
CAA	Civil Aviation Authorities
CG	Centre of gravity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COR	Correction
CPM	Container/pallet distribution message
CPT	Compartment
DHC	Deadheading Crew
DGR	IATA Dangerous Goods Regulations
DLI	Deadload index
DOI	Dry operating index
DOW	Dry operating weight
EDP	Electrical data processing
ETA	Estimated time of arrival
ETD	Estimated time of departure
EZFW	Estimated zero fuel weight
FIM	Flight interruption manifest
FOD	Foreign object damage
GOM	Ground Operations Manual
GOB	Ground Operations Bulletin
IATA	International Air Traffic Association
ICAO	International Civil Aviation Organisation
INAD	Inadmissible passenger
LAR	Live Animals regulations
LDM	Loadmessage
LDW	Landing weight
LITOW	Loaded index take-off weight
LIZFW	Loaded index zero fuel weight
LMC	Last minute change
MCO	Miscellaneous charge order
MVT	Movement
NOTOC	Special load notification to captain
OM	Operations Manual
OPS	Operations
SI	Supplementary information
STA	Scheduled time of arrival
STD	Scheduled time of departure
TIF	Trip fuel
TOF	Tako-off fuel
TOW	Take-off weight
TTL	Total
ULD	Unit load device
UM	Unaccompanied minor
UTC	Universal time coordinated
VIP	Very important person
ZFW	Zero fuel weight

1. FLEET

1.0. OVERVIEW

Contents	This chapter contains the following sections: 1.1. Basic Information on Aircraft operated by CTN

1.1. BASIC INFORMATION ON AIRCRAFT OPERATED BY CTN

General	For all details regarding each aircraft type please refer to the respective aircraft manuals (AHM 560).
A320-214 Aircraft	REGISTRATION: • 9A-CTK • 9A-CTO ***NOTE:*** *For more information please refer to Croatia Airlines, Link for Handling Agents (link: https://www.croatiaairlines.com/Additional-services/Login; section "MANUALS").* *Document name:* ***OP-PSU-026 - A320-214 AHM 560 Aircraft Data;*** ***OP-PSU-120 – A320-214 AHM 560 Aircraft Data***
A319-112 Aircraft	REGISTRATION: • 9A-CTG • 9A-CTH • 9A-CTI • 9A-CTL • 9A-CTN ***NOTE:*** *For more information please refer to Croatia Airlines, Link for Handling Agents (link: https://www.croatiaairlines.com/Additional-services/Login; section "MANUALS").* *Document name:* • ***OP-PSU-0024 – A319-112 AHM 560 Aircraft Data*** • ***OP-PSU-015 – A319-112 9A-CTN AHM 560 Aircraft Data***
DASH 8 Q400 Aircraft	REGISTRATION: • 9A-CQA • 9A-CQB • 9A-CQC • 9A-CQD • 9A-CQE • 9A-CQF ***NOTE:*** *For more information please refer to Croatia Airlines, Link for Handling Agents (link. https://www.croatiaairlines.com/Additional-services/Login; section "MANUALS").* *Document name:* **OP-PSU-075 – Dash8-Q400 AHM 560 Aircraft Data**

2. GROUND SERVICING OPERATIONS

2.0. OVERVIEW

Contents	This chapter contains the following sections: **2.1. Ramp Safety in Aircraft Handling** 2.1.0. Overview 2.1.1. General Ramp Safety 2.1.2. Aircraft Danger Areas 2.1.3. Fire Fighting and Protection on the Ramp 2.1.4. Foreign Object Debris (FOD) 2.1.5. Safety Cones 2.1.6. Ground Support Equipment (GSE) 2.1.7. Passenger Deboarding/Boarding 2.1.8. Adverse Weather Condition **2.2. Aircraft Handling** 2.2.0. Overview 2.2.1. Access, Protection and Safeguarding of Aircraft 2.2.2. Aircraft Doors 2.2.3. Ground to Cockpit Communication 2.2.4. Hand Signals 2.2.5. Arrival Activities 2.2.6. Aircraft Chocking 2.2.7. Ground Servicing Points Location 2.2.8. Toilet Servicing 2.2.9. Aircraft Cleaning and Disinfection 2.2.9.1. Aircraft Cleaning and Disinfection During a Pandemic 2.2.9.2. Cleaning and Disinfection During an Event 2.2.10. Potable Water 2.2.11. Air-conditioning of Aircraft 2.2.12. De-icing/Anti-icing 2.2.13. Departure Activities 2.2.14. Pushback and Engine Starting 2.2.15. Aircraft Towing **2.3. Fuelling/defueling Procedures** 2.3.0. Overview 2.3.1. Fuelling/De-fuelling Procedures 2.3.2. Fuelling Procedures with Passengers on Board and/or During Embarkation or Disembarkation

2.0. OVERVIEW (cont.)

Contents	**2.4. Miscellaneous**
	2.4.0. Overview
	2.4.1. Handling Agreements and Provision of Resources
	2.4.2. Handling Agent Tasks and Supervision Activities
	2.4.3. Minimum Ground/Turnaround Times
	2.4.4. On-time Performance
	2.4.5. Operational Irregularities
	2.4.6. Loading and Storage of Aircraft Handling Documents

2.1. Ramp Safety in Aircraft Handling

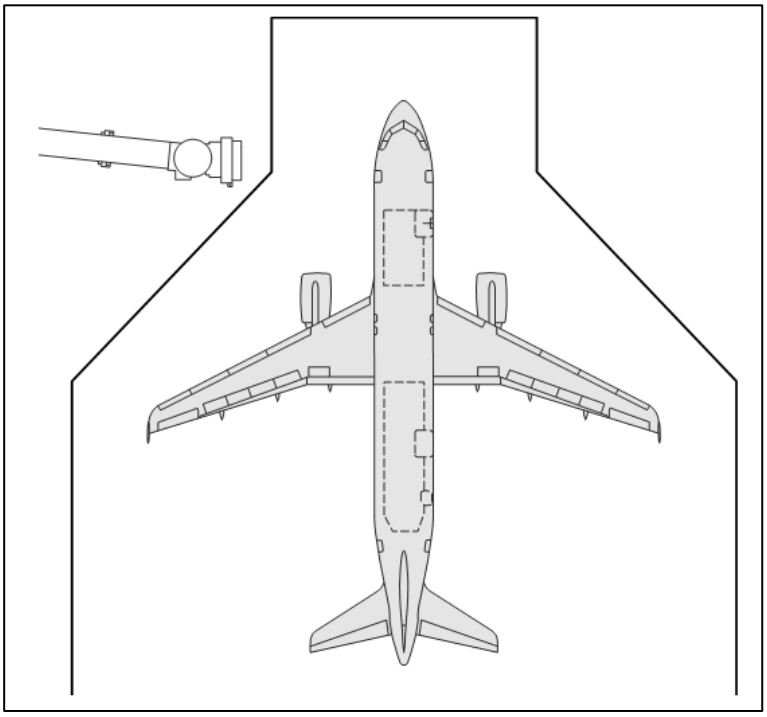
2.1.0. Overview

Contents	This section contains the following: 2.1.1. General Ramp Safety 2.1.2. Aircraft Danger Areas 2.1.3. Fire Fighting and Protection on the Ramp 2.1.4. Foreign Object Debris (FOD) 2.1.5. Safety Cones 2.1.6. Ground Support Equipment 2.1.7. Passenger Deboarding/Boarding 2.1.8. Adverse Weather Condition

2.1.1. General Ramp Safety

Introduction	• Ramp safety rules and procedures promote safe ground handling. Therefore, the minimum safety rules and procedures are defined in this section. All personnel that work on the ramp must always comply with Airline, local Airport and Authority regulations and understand these safety rules and procedures. • Aircraft damage can endanger passengers, employees, and aircraft. Disruptions may also negatively impact safe airline operations. • Even a slight scratch or dent on an aircraft may result in a serious accident. • If you see or cause any aircraft damage: ✓ Report it and obey the reporting policy. ***NOTE:*** *For the reporting policy, see "Handling, Notifying and Reporting of Ramp Incidents, Accidents and other Occurrences" section 8.2.*
Duties of the Station Responsible	• Task of the station responsible: ✓ Make sure that you prevent damage to the aircraft. ✓ Do and move forward actions that are specially made to increase ramp safety. ✓ Make sure that personnel have instructions about hazards on the ramp and the related safety regulations. ✓ Do regular briefings of personnel and awareness on ramp safety. ✓ Make sure that there are correct reports and subsequently inspections of all incidents that have a negative effect on ramp safety.
Unauthorized Access	• No unauthorized person may enter the ramp or an aircraft. • Unauthorized persons are to be reported by informing: ✓ The local authorities directly or ✓ Through your supervisor and refer to local regulations.
Driving on Ramp	• Only adequately trained, qualified and authorized personnel are permitted to operate equipment and vehicles. • When driving on ramp: ✓ Always switch on the vehicle front lights, unless otherwise regulated. ✓ Only use the marked walkways and traffic routings that are specified by the local airport regulations. ✓ Do not operate vehicles or GSE whilst using handheld portable electronic device unless it is a "hands free device".

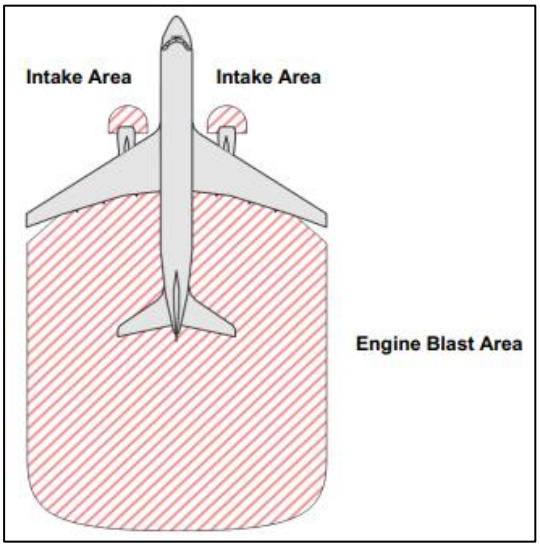
2.1.1. General Ramp Safety (cont.)

Equipment Restraint Area (ERA)	• The Equipment Restraint Area (ERA) is defined as the area of the apron in which an aircraft is parked during ground operations. • It may be indicated by a painted line. If no marking exist, local procedures must establish safe parking areas, etc. • The ERA must be free of obstructions and Foreign Object Debris (FOD) before and during aircraft arrival and departure. • The illustration below provides an example of the markings used at some locations. 
Personnel Protection	• It is recommended that staff handling aircraft on behalf of Croatia Airlines, whose duties require access to the airside, should wear: ✓ Safety shoes or boots. ✓ Hearing protection in noise-intensity area. ✓ Fluorescent safety vests. ✓ Appropriate clothing for the weather conditions. ✓ Gloves for material handling personnel and equipment operators.

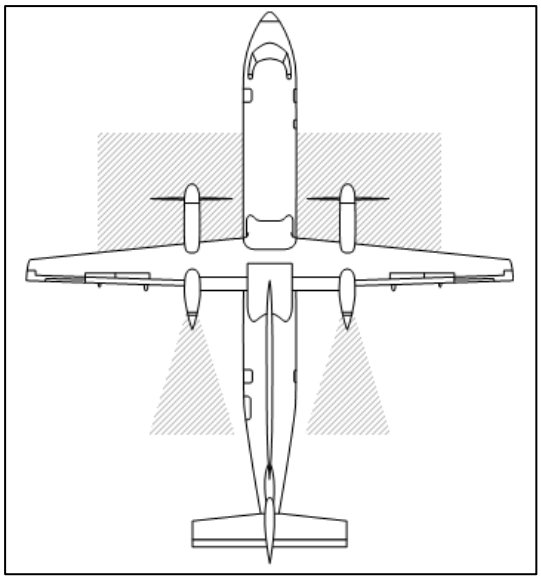
2.1.1. General Ramp Safety (cont.)

Ramp Surface	• To prevent accidents, injuries of persons or damage to aircraft and equipment that are caused by oil, ice, snow or FOD: ✓ Ramp surface shall be checked frequently. ✓ Remove any contamination immediately. ***NOTE:*** *For details refer to" Foreign Object Debris (FOD)" section 2.1.4.*
Check Aircraft on Arrival	• Mandatory tasks: ✓ Make sure that all compartment doors and doorframes show no visual damage during unloading. ✓ Make sure that the compartment floors, walls, ceiling, panels, nets, locks show no visual damage.
No smoking	• Smoking on the ramp and/or in vehicles is prohibited (exceptions are designated areas). • Furthermore, smoking within the cargo compartments and passenger cabins of Croatia Airlines aircrafts is strictly forbidden.
Drugs, Alcohol and Medicines	• Any activity in the vicinity of the aircraft on the ramp is strictly prohibited under the influence of alcohol or drugs (ZERO TOLERANCE). • Medications are only allowed as long as they do not affect the usual life activities and perceptivity.
Passenger Routings	• Route passengers to and from the aircraft in a way that the risk of accidents is kept to a minimum.
Emergency Evacuation During Ground Handling	• All Ground handling personnel including third party involved in aircraft handling (inside the aircraft and/or the general work area) must be made aware of their responsibilities. ✓ In addition to the Crew, the person in charge of the aircraft ground-handling event is responsible to ensure the ad-hoc evacuation measures. ✓ Nevertheless: Any person who discovers an emergency situation must first of all warn all persons around and leave the danger area immediately. Therefore, any involved personnel must be familiar with the escape areas of the specific aircraft type. • In case of an on-board emergency (e.g., fire), the crew - or when no crew present – any other person discovering the emergency situation gives the alert: ✓ Evacuate the aircraft immediately, warn all persons around, adhere to the station and airline procedures and notify Emergency Services / Airport Authority. ✓ If passenger evacuation is directed, assist cabin crew in evacuating passengers to a safe assembly area as appropriate for the type of emergency. ✓ Secure the area and comply with the emergency services directions. ***REFERENCE:*** *Refer to the section 8.4. "Emergency Response Procedures".*

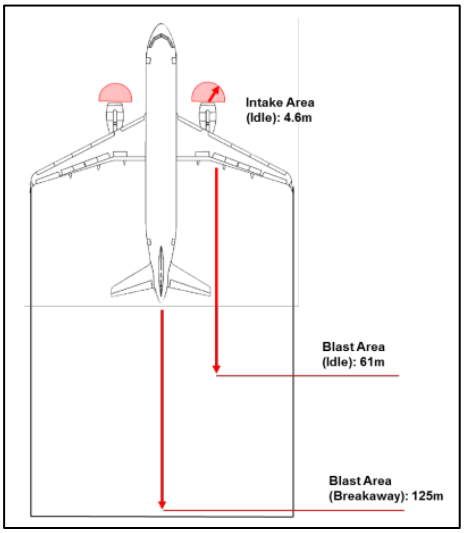
2.1.2. Aircraft Danger Areas

Introduction	• There is a particular risk of injury or damage in areas affected by aircraft engine intakes, exhausts and propellers. The risk is further increased if for any reason an aircraft stops and then applies the additional trust required to "break away" and continue to manoeuvre. Danger **Vehicles and personnel must remain clear of aircraft danger areas when aircraft engines are running and/or the anti-collision lights are on.** • In order to prevent incidents and accidents caused by aircraft engines, you must never position yourself or equipment in the following areas before or during aircraft departure and arrival: ✓ Engine INTAKE area. ✓ Engine BLAST area. ✓ Propeller ROTATION area (where applicable). • Make sure the engine intake / propeller rotation area is clear at all times when engines are running, or the engine start is about to start. • It is forbidden to pass through the blast area while the engines are running. ***DANGER:*** *Ground personnel and/or loose equipment must stay clear of the intake and blast area.*
Locations of Aircraft Danger Areas	• Engine blast areas. • Engine intake areas. • Propeller rotation areas (propellers must come to a complete stop). • Fuelling safety zone (FSZ). ***IMPORTANT:*** *The extent of these areas vary for each type as well as whether the engines are at IDLE, or BREAKAWAY thrust.* ***Example of engine danger areas – JET aircraft:*** 

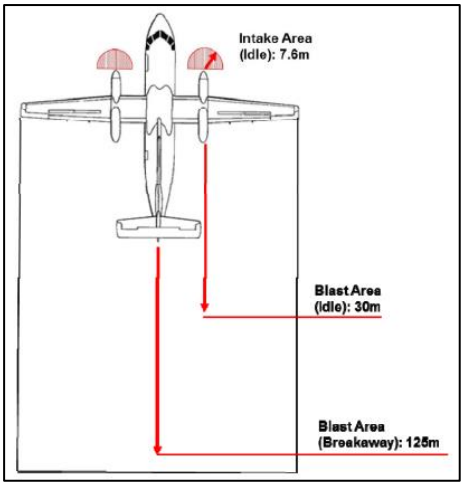
2.1.2. Aircraft Danger Areas (cont.)

Locations of Aircraft Danger Areas (cont.)	***Example of engine danger areas – Propeller aircraft:*** 
Engine Blast Area	• The blast area is the exhaust area at idle and roll-off thrust behind the aircraft engines. This area depends primarily on engine thrust and on wind direction and velocity. Blast area can be considerably extended as a result of the thrust required under unfavourable conditions (bad condition of the tarmac surface, inclination of the tarmac, wind, snow, ice, etc.). ***NOTE:*** *The blast area shown in the picture below are the ones under normal conditions, i.e., normal breakaway thrust setting and no wind. Caution is required if conditions are unfavourable.*
Engine Intake Area	• The intake area is the hazard zone in front and sidewards of the running engines inlet. It extends in front as well as AFT of the inlet. ***NOTE:*** *Caution is required as the suction at the inlet of running jet engines can be strong enough to pull a person or object towards the inlet, and there is no positive visual reference as to the actual extent of the danger area.*
Propeller Rotation Area	• The propeller rotation area is a hazard zone around the engine and rotor. This zone must be secured appropriately, before moving towards the propeller rotation area. • Propeller area is the embarkation / disembarkation area used by passengers. • Depending on the circumstances, passengers shall be led / supervised by the ground staff to / from the aircraft as expeditiously as possible, respectively the passenger's pathways to / from the aircraft shall be safe (free of ice, oil, etc.) and the propeller area guarded by one of the following securing methods: ✓ Reflective safety cones / posts with barrier cords. ✓ Shall be positioned to guard the area around the engine nacelle by a distance of at least one (1) meter. ✓ The cones have to be positioned to enable the passengers to identify the guarded area.

2.1.2. Aircraft Danger Areas (cont.)

<table>
<tr>
<td>Propeller Rotation Area (cont.)</td>
<td>
✓ Hand luggage trolley
Shall be positioned in front of the propeller area and at least one meter from the propeller turning area before passengers are disembarking.
• If none of the above listed securing methods can be accomplished, the propeller danger area must be secured by other suitable means (e.g., by the ground personnel, until the hand luggage trolley is in position).
</td>
</tr>
<tr>
<td>Dimensions of Engine Danger Areas</td>
<td>
AIRBUS FLEET
The figure below is a schematic figure (not to scale).


Engine Intake and Blast Area (at IDLE power):
• Engine Intake Area: 4.6 m
• Blast Area (aft of engine): 61 m
Engine Blast Area at BREAKAWAY power:
• Blast Area (aft of aircraft): 125 m

DASH 8 Q-400
The figure below is a schematic figure (not to scale).


Engine Intake and Blast Area (at IDLE power):
• Engine Intake Area: 7.6 m
• Blast Area (aft of engine): 30 m
Engine Blast Area at BREAKAWAY power:
• Blast Area (aft of aircraft): 125 m
</td>
</tr>
</table>

2.1.2. Aircraft Danger Areas (cont.)

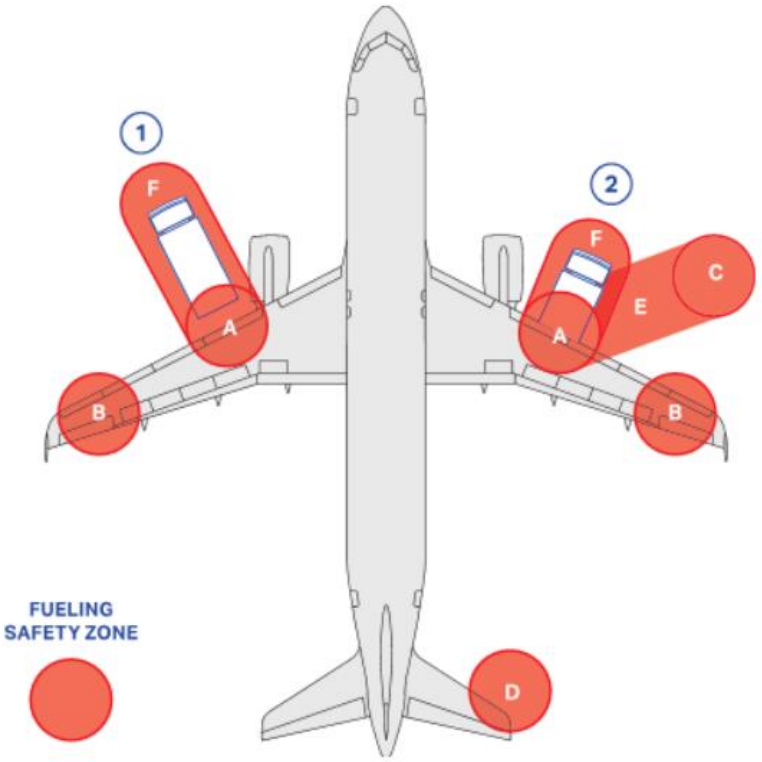
Fuelling Safety Zone (FSZ)	• This zone is defined as a spherical zone around the fuel vents of an aircraft, within which inflammable fuel vapours have to be expected during fuelling. • The extension of this area is at least: ✓ 3 meters in any direction from the centre-point (radius) of all fuel vents, refuelling plugs, aircraft refuelling ports, fuel hydrants, fuel hoses and fuelling vehicles. ***NOTE:*** *This distance may be further increased as required by local airport or civil aviation regulations.* • Within the Fuelling Safety Zone (FSZ), all personnel shall ensure they: ✓ Do NOT smoke. ✓ Do not use any handheld portable electronic devices including cell phones, portable music player, portable game units or earpiece or headset. ✓ Only use Company issued and approved radios, radio telephones, pagers, torches, lamps, and lighting systems. Battery charges must not be operated. ✓ Enter the FSZ only when required by your present job task responsibility. ✓ Assume that fuelling is taking place anytime a fuel vehicle is on the stand during aircraft servicing and fuel hoses connected. ✓ Do not leave vehicle engines running unnecessarily. ✓ Position all GSE and vehicles so they do not obstruct the fuelling vehicle's escape route. ***NOTE:*** *This is not a mandatory requirement for hydrant type fuelling vehicles, but every effort should be made to ensure a clear exit pathway.* ✓ Do not allow any passengers to enter the FSZ. ✓ Avoid the use of motorized GSE within the FSZ. ✓ Do not park any equipment in the FSZ. ✓ Ensure fuel hoses are protected and all ground equipment is kept a minimum of 1 m (3 ft) away from any fuel hose on the stand that is connected between a fuel truck and an aircraft. ***IMPORTANT:*** *Ground Power Unit (GPU) must not be positioned within 3 m of the fuelling equipment and vent points.* ***NOTE:*** *This zone only applies during fuelling or defueling.*

2.1.2. Aircraft Danger Areas (cont.)

Fuelling Safety Zone (FSZ)

(cont.)

Example of Fuelling Safety Zone (FSZ) – Jet Aircraft



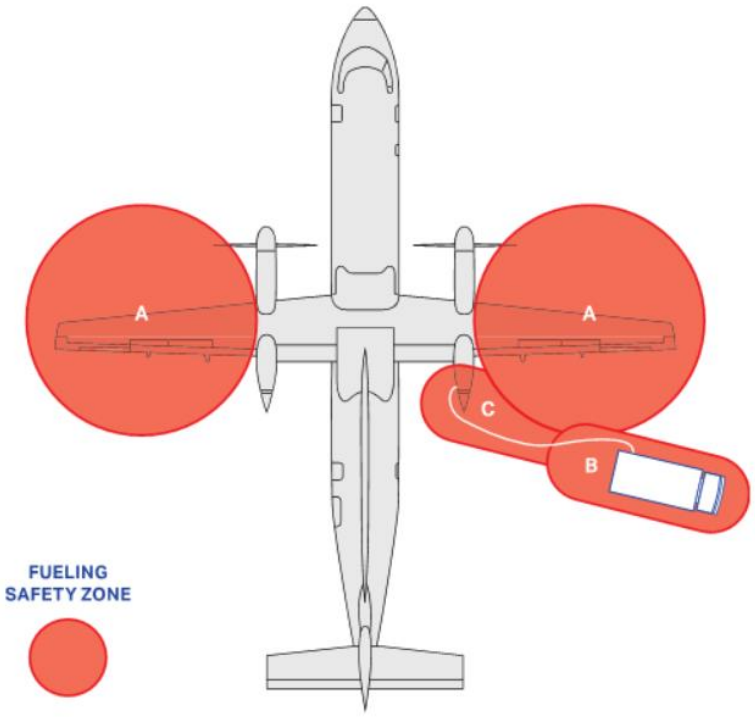
REFERENCE	DESCRIPTION
A	Aircraft refuelling port/plug
B	Fuel vent exit
C	Fuel hydrant pit
D	Fuel vent exit (according to the aircraft type)
E	Hoses
F	Fuel truck or hydrant dispenser
1	Fuel Truck
2	Hydrant Dispenser

2.1.2. Aircraft Danger Areas (cont.)

Fuelling Safety Zone (FSZ)

(cont.)

Example of Fuelling Safety Zone (FSZ) – Propeller Aircraft



REFERENCE	DESCRIPTION
A	Aircraft refuelling port/plug/fuel vent exit
B	Fuel truck or hydrant dispenser
C	Hoses

2.1.3. Fire Fighting, Prevention and Protection on the Ramp

General	• Absolutely **NO SMOKING** or any open fire is allowed on the ramp as means of fire prevention. • An awareness of possibility of fire shall always be present especially when dealing with aircraft abnormalities or emergencies. • In case of fire on or in the vicinity of an aircraft: ✓ The crew or staff on board must be alerted immediately so that a necessary evacuation can start. ✓ The airport fire brigade must always be called at once.
Training of Personnel	• Personnel working in the ramp area must: ✓ Know local fire prevention procedures, emergency evacuation plans and procedures for inspecting and maintaining fire equipment. ✓ Be familiar with the location of the portable fire extinguishers. ✓ Receive appropriate training in the use of fire-fighting equipment, including theoretical instruction in firefighting.
Fire Prevention	• Fire prevention is far more important than fire extinction. • Observe these few points on fire prevention to minimize chances for fire occurrence: ✓ Waste should not be allowed to accumulate but should be regularly disposed of into bins with lids. ✓ Any faults with equipment must be reported and the equipment put out of service. ✓ The way of contacting Airport Fire Service must be known. ✓ When fuel is spilled, fuelling / refuelling will be stopped immediately.
Fire Fighting / Fire Protection	• In case of fire on or in the vicinity of an aircraft (until Airport Fire Brigade arrives): ✓ Attempt to extinguish the fire with the portable fire extinguisher • **During firefighting be aware of the following:** ✓ <u>Hydraulic fluid leakage:</u> ▪ Under high pressure – may result in serious injury and contamination. ▪ The use of protective clothes and protective breathing equipment is recommended. ✓ <u>Landing gear:</u> ▪ Should be approached from forward or aft when fighting wheel fire, never abeam the wheel as wheels and tires may explode. ▪ The use of protective clothes and protective breathing equipment is recommended.

2.1.3. Fire Fighting, Prevention and Protection on the Ramp (cont.)

Fire Fighting / Fire Protection (cont.)	✓ <u>Cargo compartment fire:</u> ▪ **Cargo door closed** – in case of cargo compartment smoke warning, the ground crew should be informed not to open the door of the affected compartment unless passengers have disembarked, and fire services are present. ▪ **Cargo door opened** – if the smoke warning is indicated on ground, the aircraft extinguishing agent should not be discharged. Ground crew should be requested to investigate and to fight the smoke source. ✓ <u>Aircraft engine fire:</u> ▪ May not be fought by means of fire extinguishers used by ground staff. ▪ Are fought by flight crew with the engine fire extinguishing system. ▪ However, alert the flight crew immediately via headset if flames are noticed from the engine or engine pylon. ✓ <u>GSE fire:</u> ▪ Alert the crew or personnel on board and around the aircraft for an immediate evacuation. ▪ Immediately call the Airport Fire Brigade. ▪ Remove GSE away from the aircraft to a safe distance (if possible).
Fire Extinguishers	• Portable fire extinguishers must be available for immediate use. • They must be used for fighting fires of spilled liquids and other combustible materials and for landing gear brake fires. • Portable fire extinguishers must meet the applicable local standards and must be periodically checked according to local regulations. • Fire extinguishers must be available in/on ramp vehicles and at least one extinguisher with the capacity specified hereunder must be available within a radius of 50 meters from the aircraft parking position. • Capacity: ✓ 12 kg powder, or ✓ 12 kg halon gas, or ✓ 30 kg carbon dioxide (CO_2).

2.1.4. Foreign Object Debris (FOD)

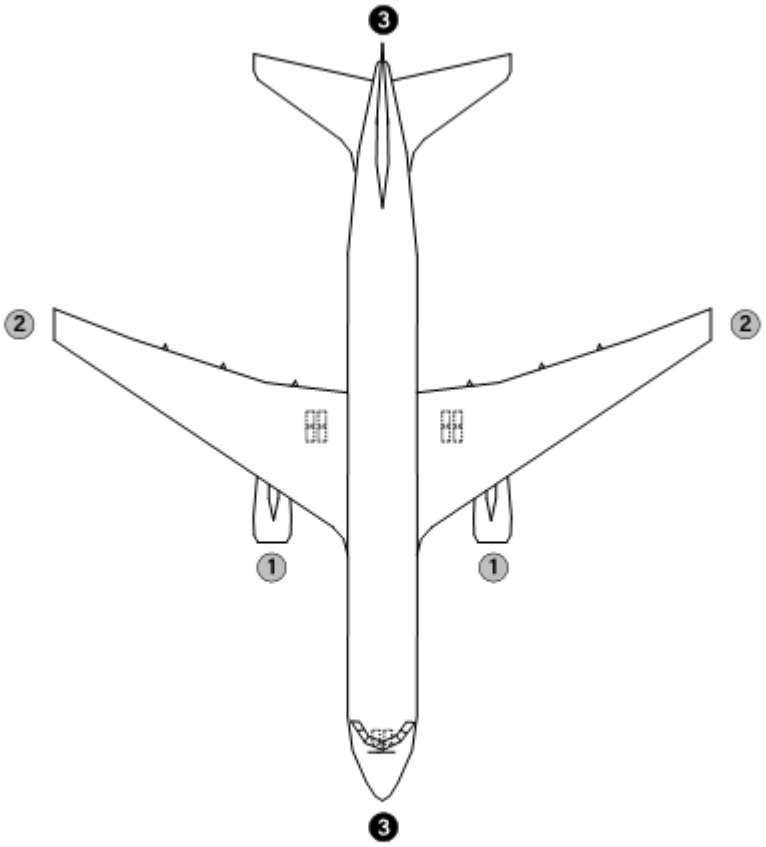
Introduction	• Foreign Object Debris (FOD) is a general term, which applies to all loose objects, which are a danger to the safety, and integrity of an aircraft and which, therefore, must not be left in any area where they would constitute a hazard. • Every individual has a responsibility to ensure that the risk of damage to aircraft from FOD is minimized: ✓ Remove or initiate the removal of any FOD (e.g., via airport authority) immediately and dispose of them correctly. ✓ Keep the risk that FOD falls down from vehicles to a minimum. • All waste material shall be properly disposed of such that it does not become FOD and all FOD shall be removed and properly disposed of as soon as it is discovered. • Often the presence of FOD is due to the carelessness of personnel working airside and their lack of understanding of its consequences, or to the movement of FOD into airside locations during high winds.
Results of FOD	Foreign Object Debris may be sucked into aircraft engines causing damage leading to engine failure. This is especially critical if it occurs in flight, particularly during the take-off phase. In addition, FOD can damage tires, the undercarriage, control systems and other parts of the airframe, which can lead to in-flight failures.
Examples of FOD	• Plastic and paper, bags / sheets, towels, rags. • Metal: nuts, and bolts, empty oil and hydraulic fluid cans, tools and equipment. • Natural objects: rocks, pebbles, and wood. • Other debris: burst ballast bags, luggage handles and luggage wheels, etc.
FOD Checks	• The following checks must be conducted prior to any aircraft movement and after servicing operations: ✓ Check ground equipment staging and parking areas in proximity to the area of operation. ✓ Do routine checks of ground equipment (incl. floors of enclosed cabins) to ensure that everything is secure and operational and not about to fall off and become FOD. ✓ In ramp areas ensure that anything carried in or on a vehicle is secured. ✓ Before aircraft arrival, conduct a FOD walk-around of the aircraft parking stand, removing all FOD found. ✓ Pick-up and dispose of all FOD in designated garbage bins, where provided.
Reporting	• Secure any damage or injury-related evidence. • Reporting any damage or injuries caused by FOD. ***NOTE:*** *For reporting see "Handling, Notifying and Reporting of Ramp Incidents, Accidents and Other Occurrences, section 8.2.*

2.1.5. Safety Cones

Introduction	• Safety cones are a caution sign for drivers to maintain required safety clearances. • Cones protect parts of the aircraft against collision by GSE.
Safety Cones Placement and Removal	• Prior to arrival of the aircraft, make sure there are sufficient serviceable safety cones to protect aircraft type to be handled. • Do not approach the aircraft to position cones unless all of the following criteria are met: ✓ Aircraft has come to a complete stop. ✓ Engines have been shut down and are spooling down (spooling down can be identified as reduced engine noise, visible fan or propeller speed reduction, lack of exhaust heat / thrust plume). ✓ Anti-collision lights are switched off. ✓ Aircraft has been chocked. • Place safety cones on the ground in accordance with the following diagrams, within a maximum of 1 m (3 ft) outward from the pint of the aircraft being protected. ***IMPORTANT:*** *Cones MUST NOT be placed in high wind conditions (as locally regulated).* • Additional safety cones may be needed as per operational requirements or local regulations. • GSE shall not approach the aircraft until all safety cones have been placed (not applicable for the PBB or GPU, if required). • All required safety cones shall remain in place until GSE and vehicle activities around the aircraft have ceased prior to departure of the aircraft. ***NOTE:*** *In some situations, it may be necessary to re-position cones to allow GSE to be positioned. Cones shall not be placed under engines. Re-position the cones when the GSE is removed.* • Prior to aircraft departure: ✓ Ensure all vehicles has been removed from the ERA. ✓ Remove the safety cones from around the aircraft. ✓ When not in use, place the safety cones in the designated storage area.

2.1.5. Safety Cones (cont.)

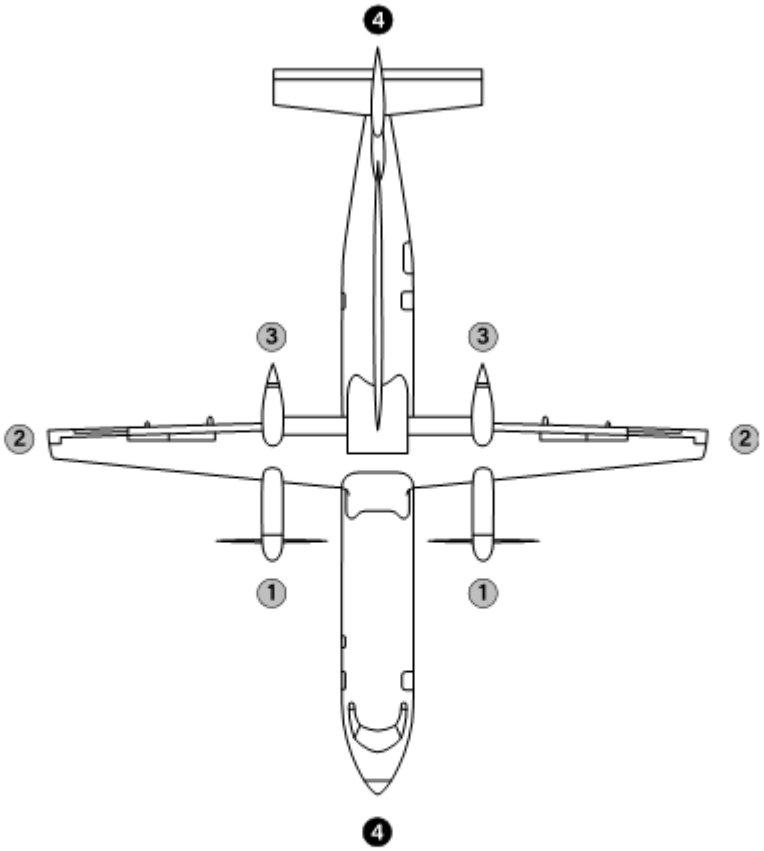
Cone Placement for Wing-Mounted Twin Engine Jet Aircraft (A32F Fleet)



CONE NUMBER	DESCRIPTION
1	Cones max. 1 m in front of engine
2	Cones max. 1 m from wingtip
3	Additional cones to be placed at the applicable end(s) of the aircraft where immediately adjacent to a service road.

2.1.5. Safety Cones (cont.)

Cone Placement for Wing-Mounted Twin Propeller Aircraft (Dash 8 Q400 Fleet)



CONE NUMBER	DESCRIPTION
1	Cones max. 1 m in front of engine
2	Cones max. 1 m from wingtip
3	Cones max. 1 m behind engine
4	Additional cones to be placed at the applicable end(s) of the aircraft where immediately adjacent to a service road, and always on aircraft with low ground clearance (e.g. ATR 42/72, DHC-8, Q300/400).

2.1.6. Ground Support Equipment (GSE)

General	• Ground Support Equipment (GSE) is used to service the aircraft. This includes: 1. Powered equipment: a) refuellers, b) tugs & tractors, c) Ground Power Units (GPU), d) passenger buses, e) transporters, f) catering trucks, g) cleaning highloader, h) water servicing trucks, i) conveyor belts, j) passengers' staircases, k) ULD loader. 2. Non-powered type equipment: a) dollies, b) baggage carts, c) wheel chocks, d) safety cones, etc. • Handling Agent shall assure that the operated GSE meets the technical specifications issued by regulatory bodies (if applicable). Further functional specifications are laid down in IATA AHM. • An adequate maintenance program must be in place, which assures that all equipment remains serviceable and in good mechanical condition. Maintenance records must be available for each individual GSE. • Identify and remove unserviceable and defective equipment from operations. Immediately inform your supervisor or respective department. • Handling Agent shall ensure that practices and procedures are in place for the operation of GSE and that it its operated in a manner that prevents personnel injury and damage to the aircraft. • Handling Agent shall ensure that only authorized and qualified personnel my operate GSE. ***REFERENCE:*** *Training requirements for ramp handling personnel can be found in section 6.4. "Ground Handling Qualifications".*

2.1.6. Ground Support Equipment (GSE) *cont.*

General Safety Instructions	• These procedures must always be applied whenever operating GSE: ✓ Only drive or operate GSE if you are trained and authorized for that specific equipment type. ✓ Always drive or operate GSE at walking speed when close to the aircraft. ✓ GSE shall not be moved or driven across the path of: ▪ Taxing aircraft, ▪ Embarking and disembarking passengers on the ramp. ✓ The exhaust system must be free from defects that may result in the emission of sparks or flames. ✓ Make sure the GSE is free of FOD and any contamination, e.g., snow, ice, oil, etc. to avoid injuries to person or damage to aircraft. **IMPORTANT** Do not approach the aircraft with GSE (except for positioning nose landing gear chocks and connecting Ground Power Unit (GPU)) until: ✓ The engines have been shut down and anti-collision lights have been turned-off. ✓ The parking brake is set and/or the chocks and safety cones are positioned. ✓ The safety cones are positioned (not applicable for the passenger boarding bridge (PBB)). **CAUTION** When operating any GSE: ✓ Check the aircraft for possible damage in the equipment contact zone before bringing the GSE up to the aircraft. ✓ Immediately report any damage found. ✓ Do not continue to approach the aircraft with any GSE in the area where damage has been found. ✓ Use all safety devices fitted on GSE (e.g., proximity sensors, bumpers, handrails, stabilizers) during aircraft handling and servicing. ✓ Ensure protective rubber bumpers are not compressed against the aircraft fuselage. Danger **RISK OF SERIOUS INJURY OR EVEN DEATH PREVAILS BY UNSECURED EQUIPMENT!** ✓ During aircraft handling activities, the required GSE positioned at the aircraft must always be adequately secured from any movements susceptible to cause injury to ground handling staff and damage to the aircraft. ✓ For GSE that are not equipped with hydraulically actuated securing system, **chocks must be placed under the wheels of the GSE in order to prevent any inadvertent movement of the GSE** that could cause injury to the ground staff or damage the aircraft. ✓ When parked and/or when not connected to motorized vehicles, all non-motorized GSE must have brakes set or chocks in place.

2.1.6. Ground Support Equipment (GSE) *cont.*

Basic Operating Requirements for GSE	• GSE shall only be used for its intended purpose. • Handling Agent staff (Operators) shall check the GSE assigned to them prior to initial use, in particular the parking brakes, rubber protective bumpers, and safety systems. • Do not carry extra personnel during GSE movement without an approved seat (i.e., apply the “no seat–no ride” principle). • Do not operate GSE while using hand-held Portable Electronic Devices (PEDs). • GSE shall never move across the path of a taxiing aircraft, aircraft under tow/pushback or embarking and disembarking passengers. • Do not drive or tow GSE with lifting devices in the raised position, except for final positioning onto the aircraft. • Do not operate GSE platform while in motion. • Do not allow any GSE (e.g., tractors, pallet transporters, baggage/cargo carts and dollies) to move or be positioned under the aircraft fuselage. ***NOTE:*** *This does not apply to vehicles needed for aircraft servicing (e.g., fuel truck / fuel dispenser, water, and toilet servicing truck).* • Make sure to move carefully, exactly and in walking speed within the ERA. • Use a guide person when positioning equipment and driver / operator vision is restricted. Stop immediately if visual contact with the guide person is lost. ***NOTE:*** *A guide person is not required if the equipment is fitted with systems (e.g., sensors, cameras, mirrors) that enable the operator to accurately judge clearance and properly position GSE to and from the aircraft. For large GSE (e.g., PRM, Catering Truck, Cleaning Truck, Passenger stairs) which are equipped only with mirrors, a guide person is needed.* • Once motorized GSE is in its servicing position at or near the aircraft: ✓ Apply the parking brake with the gear selector in park or neutral. ✓ Turn off the engine, unless required when in operating/servicing mode. ✓ Install GSE wheel chocks, where equipped. ✓ If equipped with stabilizers, ensure they are deployed before the GSE is used for servicing. Deploy other safety devices, if fitted. ✓ When motorized GSE is in operating/servicing mode, remain in a position whereby the emergency controls can be promptly accessed. This includes the immediate vicinity of the controls or an immediately adjacent and accessible location, e.g., the cargo holds in the case of a ULD loader, where required to operate the aircraft cargo loading system, restraints and/or nets. ✓ If motorized GSE is not fitted with external emergency controls, the operator shall remain in the operating position and in control of the equipment when in operating/servicing mode. • When unattended motorized GSE/vehicle is positioned in or adjacent to the ERA (other than as described before): ✓ Do not leave the engine running. In extreme cold weather conditions where local procedures permit engines running unattended, the motorized GSE/vehicle shall be chocked. ✓ Apply the parking brake with the gear selector in park or neutral and, where equipped, install wheel chocks.

2.1.6. Ground Support Equipment (GSE) *cont.*

Basic Operating Requirements for GSE (cont.)	✓ The Ground Power Unit (GPU) and Pre-Conditioned Air (PCA) may be left running unattended when connected to the aircraft, provided the serviceability and fuel levels are checked periodically. ✓ A "No Touch" policy (i.e., the GSE shall not touch the aircraft), shall be employed for all GSE types except passenger loading devices. ✓ When positioning GSE ensure that a clearance is maintained between all GSE and the aircraft to allow vertical movement of the fuselage during the entire ground handling process. ✓ All safety rails shall be fully retracted/lowered during positioning and removal where possible. ✓ After positioning equipment on the aircraft, raise or extend all safety rail/s on conveyor belts, loaders, and other elevated devices, except where restricted by aircraft type. ✓ GSE shall be parked in the designated airside equipment parking areas when not in use. ✓ Do not obstruct access to firefighting equipment or to the fuel hydrant emergency stop switch. ✓ Securely stow GSE cables and hoses, where fitted, prior to transportation and when not in use.
Non-Motorized Ground Support Equipment	• The following precautions shall be taken when operating non-motorized GSE: ✓ When parked and/or when not connected to motorized vehicles, all non-motorized GSE shall have brakes set or chocks in place, with the exception of aircraft tow bars. ✓ Unit Load Devices (ULDs) shall be secured on dollies (or trailers/trucks) using the appropriate restraints. ✓ Pallet and container dollies may only be towed with the turntables in the locked position ("straight ahead") and rotated only when at the loader platform. ✓ The number of carts and dollies allowed is usually limited by the local airport authority or ground handling service provider, however, in critical conditions (e.g., slippery surface conditions, congested facilities, low visibility) this number should be re-evaluated and might be reduced to ensure safe operations on the ramp. ✓ During transportation with carts and dollies, the load shall be properly secured by using appropriate locks, stops, rails, curtains, and straps. ✓ The overall height of loads shall permit safe lifting of each piece of the load during loading and offloading of carts by personnel standing on the ground. ✓ Light packages shall not be wedged between heavier items. ✓ When using tarpaulins, all straps shall be securely fastened to the baggage cart. ✓ If equipped with stabilizers, ensure they are deployed before the GSE is used for servicing. Deploy other safety devices, if fitted.

2.1.6. Ground Support Equipment (GSE) *cont.*

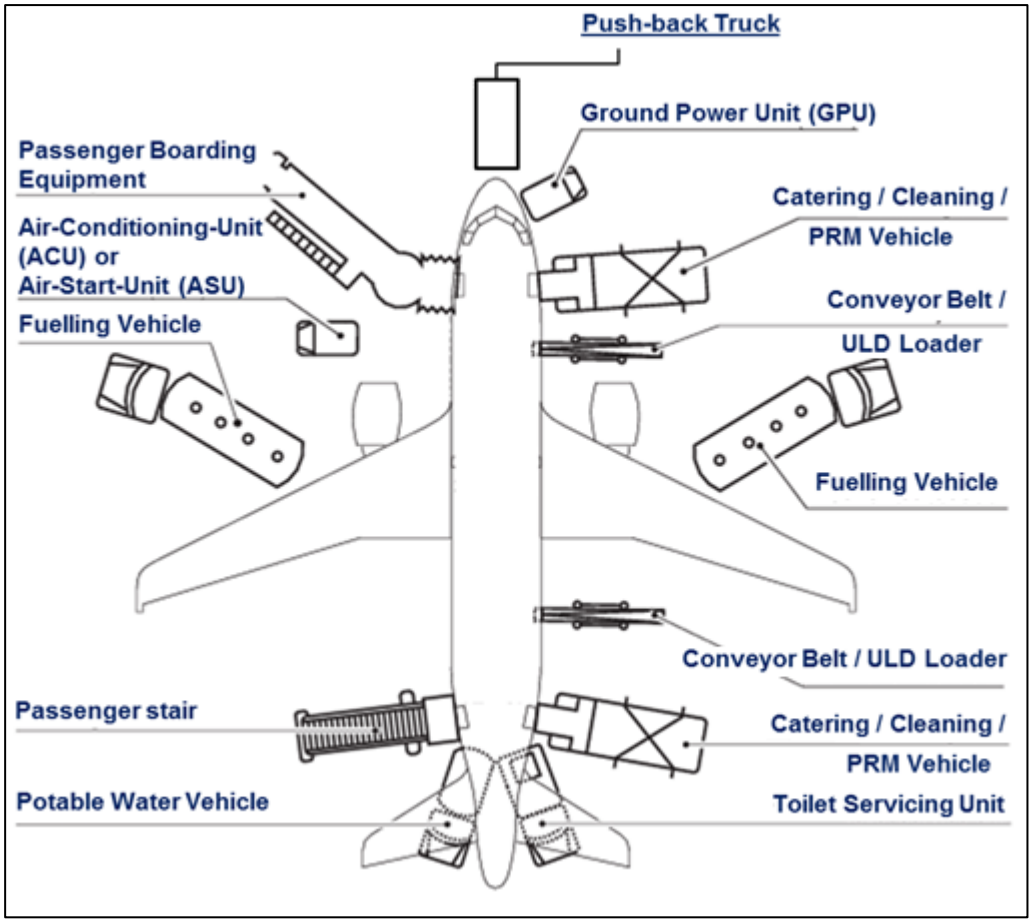
<table>
<tr>
<td>Non-Motorized Ground Support Equipment (cont.)</td>
<td>
✓ When not in use, the braking system shall be engaged on all strings of baggage carts.
✓ If using access steps to open and close cargo hold doors, position, and remove the steps in a straight line.
✓ Do not move or re-position the steps while a staff member is on the steps.
✓ Towable Air Start Units (ASU), PCA, and GPU shall not be connected to the tow vehicle and aircraft at the same time, if possible. Before towing the unit away, the operator shall make sure the unit is disconnected from the aircraft.

DANGER
While the movement of carts and dollies by hand is very simple, it can result in injuries. Therefore, additional care shall be taken.
</td>
</tr>
<tr>
<td>Safety Driving and Positioning of GSE Inside ERA</td>
<td>
• GSE must be positioned behind the Equipment Restraint Area (ERA) line prior to the arrival of the aircraft at the parking position.
• The aircraft MAY NOT be approached by GSE until it has come to a complete stop at the assigned parking position and the anti-collision light has been switched off (for exceptions see below).
• GSE must be positioned at the aircraft in the following sequence:
<table>
<tr><th>Seq.</th><th>Equipment</th></tr>
<tr><td>1.</td><td>Temporary wheel chocks at nose landing gear only (NLG).
IMPORTANT:
The temporary NLG chocks are only to be positioned when the aircraft has come to a complete stop.</td></tr>
<tr><td>2.</td><td>GPU, if required.</td></tr>
<tr><td>3.</td><td>Wheel chocks at the main landing gear (MLG) wheels. Once MLG chocks are positioned, remove temporary NLG chocks.
IMPORTANT:
MLG chocks are to be positioned only after the engines have been shut down and the anti-collision light has been switched off.</td></tr>
<tr><td>4.</td><td>Safety (marker) cones.
NOTE:
See GOM 2.1.5. Safety Cones</td></tr>
<tr><td>5.</td><td>Passenger steps or loading bridges, loading, and servicing equipment.</td></tr>
<tr><td>6.</td><td>Fuel truck.</td></tr>
</table>
</td>
</tr>
</table>

2.1.6. Ground Support Equipment (GSE) *cont.*

Safety Driving and Positioning of GSE Inside ERA **(*cont.*)**	• In order to verify serviceability of GSE and to test the apron surfaces, apply the following precautions when driving or parking GSE within the Equipment Restraint Area (ERA): ✓ Make of one complete stop with all motorized vehicles/equipment prior to entering the ERA or at 5 meters from the aircraft. This action must be carried out even if there is no Equipment Restraint Line marked on the apron. ✓ In order to prevent personnel injury and/or aircraft damage, make sure to manoeuvre GSE carefully, exactly and in walking speed within the Equipment Restraint Area (ERA). ✓ Avoid performing any sharp turns near the aircraft, particularly when towing equipment. ✓ When GSE is being moved in close proximity to the aircraft, and when the vision of the GSE operator is or might be restricted, the operator shall be: ▪ guided by a guide person using standard IATA signals. **If visual contact with the guide person(s) is lost, the GSE operator shall stop movement of the GSE immediately**, either/or ▪ assisted by means of a appropriate proximity sensing and warning systems and/or visual aids, such as cameras and mirrors. • Vehicles / GSE that are not directly involved in the handling or servicing of the aircraft shall not be driven through or parked within the ERA. **IMPORTANT!** **When parking GSE within the ERA, do not:** ▪ cross fuel or other hoses or connecting cables with GSE or other vehicles. ▪ obstruct the evacuation of persons from the aircraft in an emergency. ▪ prevent or obstruct the movement of a fuelling vehicle away from the aircraft. ▪ unnecessarily impede other aircraft handling operations.

2.1.6. Ground Support Equipment (GSE) *cont.*

Positioning of GSE	• The following layout shows the standard, local deviations may apply. 

2.1.6. Ground Support Equipment (GSE) *cont.*

Passenger Boarding Equipment	**1. PASSENGER BOARDING BRIDGE (PBB)** • The operator shall be trained and authorized to operate the PBB and shall: ✓ Check that the PBB is serviceable before use. ✓ Report any malfunction of the PBB to the appropriate person / authority. ✓ Check that the walking surfaces are free of FOD, obstacles and safe for use. ✓ Only personnel required for the PBB operation shall be in the PBB while it is moving. ✓ The PBB shall be fully retracted or parked in its safe designated parking position prior to arrival and departure. ✓ The safety barrier shall be in place whenever the PBB is not at the aircraft. ✓ Make sure the movement path is clear before moving the PBB. ✓ When positioning the PBB at doors and driver / operator vision is restricted, use a guide person. ✓ Make sure the guide person can accurately judge clearances and communicate signals to the driver / operator. Stop immediately if visual contact with the guide person is lost. ***NOTE:*** *A guide person is not required if the PBB is fitted with systems (e.g., sensors) that enable the operator to accurately judge clearances and properly position it to and from the aircraft.* ✓ Move the PBB slowly towards the aircraft avoiding any aircraft sensors or protrusions, until either the protective bumpers just touch the aircraft or the PBB's proximity sensors stop the movement. ✓ Make sure any sliding rails and canopies on the boarding bridge are fully retracted during positioning and fully extended only once the equipment is in position. ✓ Maintain adequate clearance between boarding bridge and the bottom of the door, or as directed by the cabin door markings. This reduces the possibility that the aircraft door will rest on the boarding device in the event that the aircraft settles during loading and unloading. ✓ Engage any safety systems and auto-leveler features if applicable. If the PBB is not equipped with an auto-leveler the boarding bridge must be attended by an operator whenever it is positioned at an aircraft. ✓ Do not leave gaps between the PBB and the aircraft that would allow a person or large piece of equipment to fall through. ✓ Give clearance to Cabin Crew before any person's board or de-board. ✓ Before removing the PBB, the cabin door must be closed. A safety strap is not an appropriate fall prevention device. ✓ Before removing the PBB from a closed door and if the crew or any other personnel is still on board: ▪ inform them about the removal of the boarding device. ✓ Where integrated within the boarding bridge, ensure ground power cables and PCA hoses are disconnected from the aircraft prior to moving the bridge unless required for operational purposes.

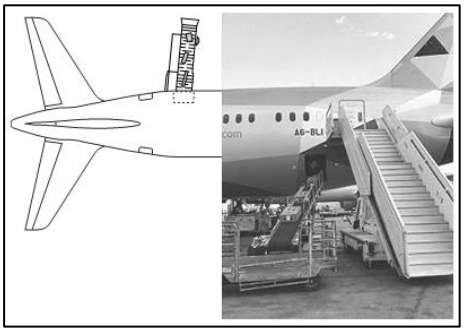
2.1.6. Ground Support Equipment (GSE) *cont.*

Passenger Boarding Equipment (cont.)	✓ When positioning is complete, the bridge controls must be isolated as applicable. *REFERENCE: For cabin access door operations refer to the section 2.2.1.2." Aircraft Doors".* **2. PASSENGER STAIRS** • The following precautions shall be taken when operating passenger stairs: ✓ Check that the passenger stairs are serviceable before use. ✓ Check that the walking surfaces are free of contamination and safe for use. ✓ Passenger stairs shall be outside the ERA, before aircraft arrival and departure. ✓ Make sure the movement path is clear before moving the passenger stairs. ✓ Move the passenger stairs slowly towards the aircraft avoiding any aircraft sensors or protrusions, until either the protective bumpers just touch the aircraft, or the equipment proximity sensors stop the movement. ✓ When positioning passenger stairs at the aircraft doors and driver / operator vision is restricted, use a guide person. ✓ Make sure the guide person can accurately judge clearances and communicate signals to the driver / operator. Stop immediately if visual contact with the guide person is lost. ***NOTE:*** *A guide person is not required if the passenger stairs are fitted with systems that enable the operator to accurately judge clearances and properly position the equipment to and from the aircraft (e.g., sensors) or systems that automatically dock and undock the stairs at the aircraft.* ✓ If passenger stairs are towed, disconnect them from the tractor and then manually position at the aircraft. ✓ Maintain adequate clearance between the passenger stairs and the underside of the cabin door, or as directed by the cabin door markings to prevent damage. ✓ Engage any safety systems and auto-leveler features if applicable. If the passenger stairs are not equipped with an auto-leveler the level of the passenger stairs must be monitored and adjusted as required. ✓ Deploy stabilizers if fitted. Do not allow anyone (except the operator) to use the stairs until the stabilizers are deployed. ✓ Make sure any sliding rails and canopies on the passenger step platform are fully retracted during positioning. ✓ Extend side rails after the cabin door has been opened. ✓ Make sure passenger stairs are positioned so that the cabin door can be used as an unobstructed escape route in the event of an emergency / evacuation. ✓ Close the cabin door before removing the passenger stairs. ✓ After the cabin door has been closed, confirm there is no staff on the stairs prior to retracting stabilizers.

2.1.6. Ground Support Equipment (GSE) *cont.*

Passenger Boarding Equipment (cont.)	✓ If the stairs are not positioned on the aircraft, they shall be pulled back sufficiently to allow the deployment of slides in case of emergency. ✓ If passenger stairs are towed when removed from the tractor, manually position them clear of the aircraft to a suitable position before connecting them to the tractor. **DANGER:** Cabin doors shall only be in open position if there is any GSE or boarding device positioned at the door. Cabin doors may never be opened without any equipment positioned at the aircraft. There is a risk of falling while operating cabin doors. Slide deployments can be fatal If an armed door begins to open, do not attempt to hold the door, as you risk being seriously injured or killed by doing so.
Aircraft Loading Equipment	**BELT LOADER** • The following precautions must be taken when operating a belt loader: ✓ Do not sit or stand on a conveyor belt while it is in operation (up or down). ✓ The boom of the belt loader **shall never be positioned inside the cargo hold** of any aircraft. **EXCEPTION:** Use specially designed loading equipment which must be positioned inside the cargo hold (e.g., Ramp Snake and Powerstow) only with permission of the airline operator. Use forklifts for loading or unloading only in exceptional cases (for heavy bulk load only) and under supervision of qualified personnel. ✓ Position and remove a belt loader in a straight line. ✓ Position the boom at an angle to the cargo hold doorsill and adjust the back of the conveyor belt correctly that will: ▪ allow tractors / trailers to access the belt loader without impeding slide deployment areas and passenger evacuation routes. ▪ prevent items and personnel from falling between the boom and doorsill. ✓ Ensure the boom is clear of the aircraft or other obstacles before making a turn. ✓ The rubber bumpers on the belt loader shall never contact the aircraft. Maintain clearance between the belt loader and the aircraft at all times. ✓ Always raise side handrails as soon as belt loader is positioned. Make sure it does not touch the aircraft fuselage. ✓ The handrail shall also be deployed when a belt loader is used to gain access to aircraft cargo holds; however, caution shall be exercised where there is restricted clearance with the aircraft fuselage and engines. ✓ Handrails may be lowered to accommodate large items during loading and offloading. ✓ Ensure proper separation between articles on the conveyor belt to avoid jamming.

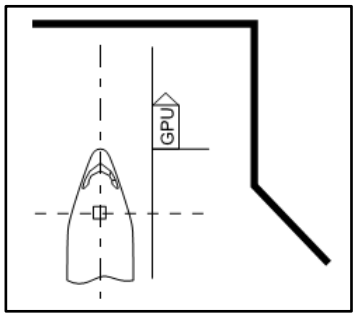
2.1.6. Ground Support Equipment (GSE) *cont.*

Aircraft Loading Equipment (cont.)	✓ Adjust the back of the conveyor belt correctly to avoid dropping goods from the belt. ✓ Do not stand or walk on the conveyor belt when the handrail is lowered. *Picture: Positioning of Belt Loader:* 
Tractor/Electric Baggage Tug	• The following precautions shall be taken when operating a tractor or an electric baggage tug (EBT): ✓ Drive tractors within speed limits according to local airport regulations, and take care to avoid sharp turns, jerks, and sudden stops. ✓ Limit the number of carts and dollies in a train to the maximum specified by local airport regulations. ✓ Do not attempt sharp turns close to the aircraft. ✓ Keep at least 1 m (3 ft) away from the fuselage.
Elevating Equipment	• The following precautions shall be taken when operating elevating equipment: ✓ The final position of the elevating equipment shall allow for a safe working area while in the raised position at the aircraft door to prevent personnel and objects from falling. ✓ Raise the body of the elevating equipment to the correct height for servicing. ✓ Check the security of seals, as required. ✓ Check security documentation, as required. ✓ Any elevating equipment doors not being used for servicing at the aircraft shall be closed and latched. ✓ Carefully place the portable ramp/bridge on the doorsill from the platform side, as necessary. ✓ Equipment (e.g., catering cart) and passengers in wheelchairs shall be pushed on and off the aircraft. ✓ Always ensure a hand-to-hand exchange. No elevating equipment is to be staged on the platform, and no loose items are to be transported on top of carts (e.g., catering equipment). ✓ Continually observe and be aware of the clearance between the aircraft door and the elevating equipment platform.

2.1.6. Ground Support Equipment (GSE) *cont.*

Elevating Equipment (cont.)	✓ When the servicing is finished, carefully remove the portable ramp/bridge from the platform side and stow securely and close the aircraft door as per instructions given in chapter 2.2.1.2.“Aircraft Doors”. ✓ The passengers and/or the load shall be secured properly inside the elevating equipment. Passengers shall be seated and wearing seat belts. Passengers seated in wheelchairs shall have the wheelchair secured during elevating equipment movement. ✓ Visually check for any obstructions over both sides of the elevating equipment before lowering. ✓ Lower the truck body into the fully lowered position. ✓ Close and secure all the doors of the elevating equipment when the servicing is finished. ✓ Perform a walk-around to check for FOD and clearance around elevating equipment stabilizers. ✓ Use a guide person when vision is restricted. The guide person shall be able to accurately judge clearances and communicate signals to the driver/operator. Stop immediately if visual contact with the guide person is lost. ✓ All elevating equipment shall cease operating when the wind speed reaches 40 knots (gusting). **DANGER:** Do not enter or place any part of the body inside the “scissor” area beneath the elevating equipment.
Ground Power Unit (GPU) and Fixed Power Unit (FPU)	• **Only connect GPU(s)/FPU(s) if required/requested by the airline.** • The following precautions shall be taken when operating GPU/FPU: ✓ It is permitted to pre-position a GPU inside the ERA provided there is a marked GPU parking position. ✓ Position the GPU on the appropriate side of the aircraft nose with sufficient clearance to the aircraft (as shown on picture below). ✓ Secure the GPU against movement. Set parking brake/chock for the GPU. ✓ **The GPU must not be positioned within *3 meters* of the fuelling equipment.** ✓ Fixed Power Units (FPU) and leads shall be fully stowed/retracted during aircraft arrival as per the system design. ✓ Before connecting to the aircraft, check the aircraft receptacles, lead(s) and plug(s) are clean and undamaged with no sign of excessive wear or electrical burning to the contacts. ✓ Do not energise the GPU/FPU power output until the unit is connected to the aircraft. ✓ Connect the external power sources according to the operating airline manual, including number of supplies, required output, sockets to be used, etc. **Advise the flight crew of any discrepancies.**

2.1.6. Ground Support Equipment (GSE) *cont.*

Ground Power Unit (GPU) and Fixed Power Unit (FPU) **(cont.)**	✓ Attach the power lead lanyards to the aircraft attachment point (where fitted). ✓ When disconnecting, check that external power is no longer in use by the aircraft. Turn off the GPU/FPU power output before disconnecting the cable(s). ✓ Always disconnect and stow the GPU power cables BEFORE connecting a tow tractor to the GPU. **IMPORTANT:** While oxygen bottles are filled or changed, **DO NOT** have a GPU being connected to or disconnected from the aircraft and **DO NOT** switch it on or off. Example of GPU positioning: 
Air-Starter Unit (ASU)	• If the APU is not in use, an ASU is needed for engine start. • For safety measures and ASU operation refer to “Pushback and Engine Starting”, section 2.2.14. • For technical specifications refer to IATA AHM (chapter 9, “Airport Handling Ground Support Equipment Specifications”).
Cooling/Heating Units/Pre-Conditioned Air (PCA)	• As a part of the fuel conservation program, pre-conditioned air is required at all airports that provide on-stand pre-conditioned air. • Refer to the “Ground Servicing Points Location”, section 2.2.7., for the location of the PCA access panel on the aircraft. ***NOTE:*** *Make sure there is no blockage of the hose.* • To connect PCA: ✓ Open the access panel. ✓ Connect ground PCA until to the aircraft. ✓ Start-up ground PCA unit. ✓ On the ground PCA unit, select the desired cooling or heating settings (air temperature and flow rate) or position the selector in the appropriate position. • To disconnect PCA: ✓ Shut-down ground PCA unit. ✓ Disconnect ground PCA unit from aircraft. ✓ Close the access panel. ✓ Retract the PCA hose to the fully stowed and secured position.

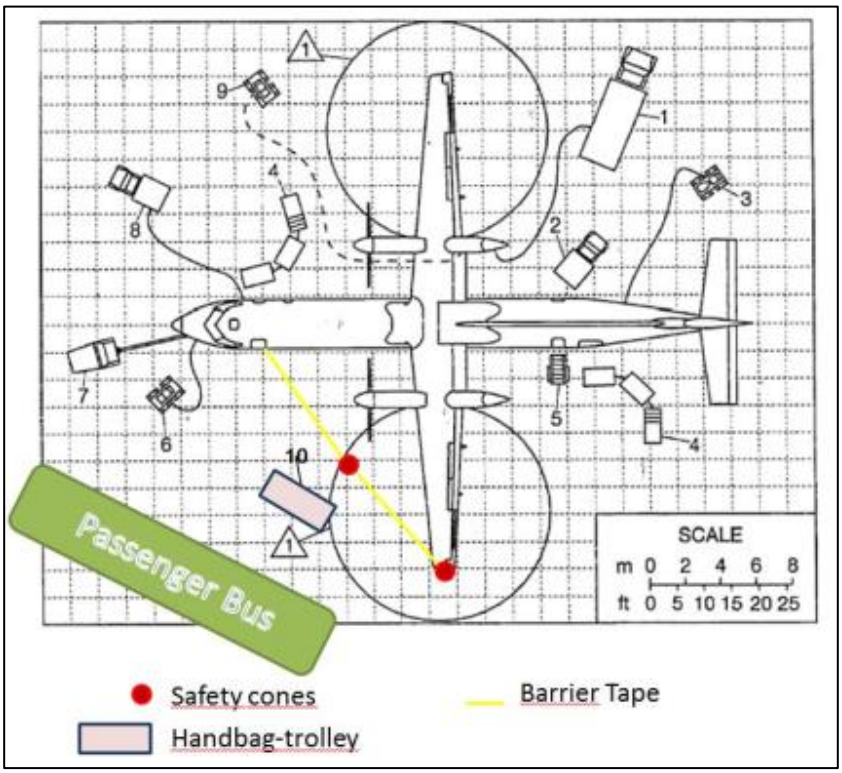
2.1.6. Ground Support Equipment (GSE) *cont.*

Cooling/Heating Units/Pre-Conditioned Air (PCA) **(cont.)**	***IMPORTANT:*** *Make sure that a motorized ground air supply is not near the aircraft. The engine exhaust pipe of the unit must point away from the aircraft. Heat from the unit's exhaust can cause damage to the aircraft structure.*
Standing and Walking on Equipment	• If standing or walking on ground support equipment, for example on an ULD highloader, a baggage conveyor belt or stairs: ✓ Clearly agree about this verbally or by hand signals with the operator of the equipment before mounting it. ✓ Make sure to find a safe place to step. ✓ Look for a fixed part to grip (most types of equipment have handrails). ✓ Do not walk on moving GSE. ✓ Never step into holes or narrow spaces between parts of the equipment. ✓ Never step on power drive units (PDU) or rollers of an ULD highloader. ***NOTE:*** *On most highloaders, safe positions for standing are marked with footsteps.*
Driving Under the Fuselage or Wings	• Do not allow any GSE (such as tractor, pallet transporter, baggage / cargo carts and dollies to move or be positioned under the aircraft fuselage or under the wings. • This does not apply to vehicles needed for aircraft servicing (e.g., fuel truck / fuel dispenser, water servicing truck, toilet servicing truck). Exceptions must be requested from groundservices@croatiaairlines.hr and groundsafety@croatiaairlines.hr.

2.1.7. Passenger Deboarding / Boarding

General	• For security and safety purposes, local procedures must include regulations for a controlled deboarding / boarding process of passengers. • Different procedures apply for deboarding / boarding via: ✓ Passenger jetways. ✓ Passenger stairs and buses.
Responsibility	• The authorized staff is responsible for a safe disembarkation / embarkation of the passengers. ✓ Passenger route from aircraft to designated location and vice versa is observed and secured. ✓ A standard signal (“thumb up”) to the cabin crew that disembarkation may start and the passenger way is secured must be given.
Safety Requirements	• Ensure that the passenger route is observed throughout the complete deboarding / boarding process. • Deboarding / boarding via bus or on foot: ✓ The passenger movement on the apron between the aircraft and terminal (and vice versa) must be closely supervised. ✓ All danger areas (engine, propeller, FSZ) have to be secured. ✓ Passenger must be kept clear of the danger areas around the aircraft, propellers, GSE and fuelling zones. ✓ The surface condition must be kept clean, and the designated passenger route is kept free of any equipment. • A safe operation of passenger jetways must be ensured by authorized and appropriately trained staff. • Minimum cabin crew plus one flight deck crew member must be on board at time of boarding. “Ready for boarding” is subject to coordination between the Crew and authorized ground staff. Observe regulations if locally agreed in the SGHA. • Special procedures for boarding / deboarding while fuelling / defuelling have to be observed. • In case of severe weather or strong wind operation, the deboarding / boarding process has to follow the announced local severe weather operations plan.

2.1.7. Passenger Deboarding / Boarding (cont.)

Deboarding / Boarding **DH 8 – Q400**	• Deboarding and boarding on DH8-Q400 should only be performed via the forward (FWD) passenger door. • The safety barrier strap has to tie to the handrail of the forward stairs, to the safety cone under the left wing-tip. • After positioning of the passenger bus in the forward area and tying of the safety barrier strap, disembarkation can be started. • The DAA (“delivery at aircraft”) trolley has to be placed in front of the passenger bus. • The following picture shows the correct procedure: 

2.1.8. Adverse Weather Conditions

General	• Airside operational staff should follow these procedures during adverse or poor weather conditions which may have a negative impact on aircraft handling activities and ground safety. • The announcement and implementation of limitations and restrictions applicable to handling activities on the ramp area lies within the responsibility of the respective airport authority and shall be coordinated with the station responsible and crew in advance. • Airside operational staff shall be aware that local or specific airport regulations may apply. • Should GSE manufacturers limitations be more restrictive than the instructions given in this section, then the manufacturers limitations apply.
Wintery or Slippery Apron Conditions	• Winter weather brings extra hazards, which require awareness and more care on the part of personnel working on the apron to prevent accidents. • The following precautions to reduce accident risk shall be taken: ✓ Plan additional time for all ramp activities and take extra care when walking across apron surfaces, which can be slippery. ✓ Take extra care when driving, especially when approaching the aircraft. Remember that GSE require greater distances to stop safely on slippery surfaces. ✓ Operators of potable water tankers and toilet servicing units shall be vigilant that there is no spillage or leakage that can lead to subsequent freezing. Care shall be taken to keep spillage and overflow to a minimum. ✓ If apron conditions are hazardous, contact the competent authority to mitigate the hazard. In the event the hazard cannot be mitigated, suspend the affected operations. ✓ Close all entrance and cargo hold doors as soon as possible and keep them closed to avoid precipitation entry into the aircraft. **CAUTION:** Reduce speeds in slippery apron conditions. Adjust all activities and operations on the ramp to suit the conditions at the time.
Storms – Lightning	• On receipt of an ALERT airside operational staff shall: ✓ Prepare for the STOP phase. 1. Suspend non-essential activities in open areas and ensure any staff using or about to use headsets are informed of the alert. 2. Fuelling operations can continue, however the proximity of the thunderstorm/lightning should be continually monitored. 3. Avoid using highly conductive equipment. • On receipt of STOP airside operational staff shall: 1. Stop fuelling. Fuelling hoses cannot be left attached to the aircraft during any thunderstorm/lightning event. 2. Discontinue aircraft communication by headsets.

2.1.8. Adverse Weather Conditions (cont.)

Storms – Lightning

(cont.)

3. Stop all ramp activity and clear ramp.
4. Personnel should seek shelter inside buildings or inside metal bodied vehicles. No one should seek shelter under any part of the aircraft, loading bridge, near light poles, fences, under trees.
5. In accordance with local procedures, the aircraft may come on stand, but the aircraft doors should remain closed and ground servicing suspended.

DANGER:

Failure to follow procedures could result in a fatal accident.

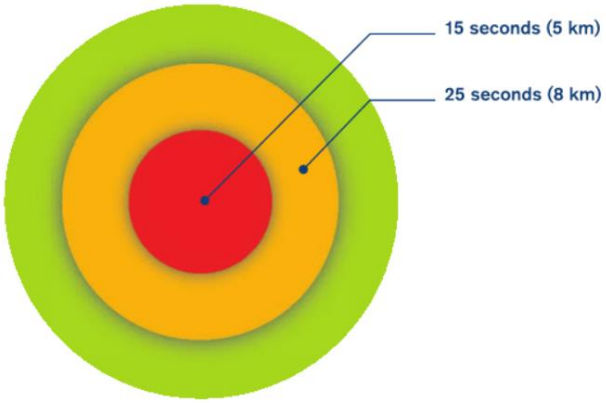
LEVELS	ACTION
Amber – ALERT Lightning activity is detected at a distance in excess of 8 km (5 miles) from your operation.	Disseminate lightning warning to airside operating staff so they can prepare and plan their activities to be ready in case of a Red Alert in accordance with local regulatory requirements.
Red – STOP/SUSPEND Lightning activity is detected within 5 km (3 miles) of your operation.	Disseminate the order to stop all airside activities and seek shelter to all airside operating staff.
Green – ALL CLEAR Lightning activity has moved beyond 5 km (3 miles) and is heading away from your operation.	Disseminate the order to resume normal activities to all airside operating staff.

Note: *The distances referred to above may vary depending on local climatic parameter.*

<u>Lightning Alert Callout</u>

- In the absence of an integrated airport notification system, all airside operating staff shall be aware of the following procedures:
  - ✓ Use the counting method to detect/predict lightning activity. Determine the corresponding level based on the counting method chart, see below.
  - ✓ The responsible person notifies all airside operating staff of the lightning alert level. If the person responsible is not available, the counting method should be used by all airside operating staff for self-protection.
  - ✓ In case of a Red Alert, proceed to a designated shelter.
- Counting Method Chart:
  - ✓ The counting method is used when an integrated airport notification system is absent. It is used to estimate the level of lightning activity.

2.1.8. Adverse Weather Conditions (cont.)

Storms – Lightning **(cont.)**	Counting Method Chart:  ***Note 1:*** *The time indicated is the time between the lightning and the sound of thunder.* ***Note 2:*** *If the counted time is less than 15 seconds, the lightning activity is less than 5 km from the airport.* ***Note 3:*** *If the counted time is between 15 seconds and 25 seconds, the lightning activity is between 5 and 8 km from the airport.*
High Wind Conditions	• High winds pose a great risk of damage, and the following minimum precautions should be taken: ✓ Ensure the safety of the aircraft by installing additional chocks and removing all equipment from around the aircraft. ✓ Take extreme care when opening or closing any aircraft doors. ✓ Make sure parking brakes are set on all parked GSE. ✓ Set parking brakes and secure by additional means, if necessary, all non-motorized ramp equipment (i.e., baggage carts and ULD dollies).

2.1.8. Adverse Weather Conditions (cont.)

High Wind Conditions

High Winds Activity Table

- The following actions shall be taken when sustained winds and/or gusts of wind 25 knots or greater are predicted however it is the actual wind speed at the aircraft parking position, which constitutes the risk for injuries and damages.

Staff Actions	25 to 39 kt 46 to 72 km/h	40 to 59 kt 73 to 110 km/h	Above 60 kt (111 km/h)
Chock aircraft landing gear as per Aircraft Out of Service/Night-Stop/High Wind (see 2.2.1.6.)	√	√	√
Remove safety cones	√	√	√
Secure PCA hoses	√	√	√
Remove FOD	√	√	√
Secure ULDs	√	√	√
Secure rolling stock	√	√	√
Strap all propellers on propeller aircraft	√	√	√
Secure PBB and position to minimize surface exposed to the direct force of the wind		√	√
Close cargo hold, pax doors and access panels		√	√
Do not initiate the elevation of high-lift equipment and stairs		√	√
Park GSE closely together, and adjacent to a building, if possible			√
Retract PBB			√

DANGER:
High winds pose a great risk of damage and injury.

Sandstorms and Low Visibility

- Low visibility procedures (LVP) are designed to protect runways, precision approach aids and aircraft movements by limiting vehicle movements to the minimum necessary and stopping all engineering works on the manoeuvring area.
- The decision to declare low visibility operation is taken by the airport operations center. Visibility limits may vary from airport to airport.
- Vehicles should be operated with dipped headlights and where fitted, fog lights, illuminated and drivers should proceed with extreme caution.
- Vehicle obstruction lights should be switched on.
- Only essential journeys on the apron should be undertaken.
- All staff should be alert to the sudden appearance of an aircraft entering a stand to be prepared to give way accordingly.
- The following minimum precautions should be taken:
  - ✓ Issue appropriate Personal Protective Equipment (PPE) such as goggles, masks, covered clothing.
  - ✓ Ensure the provision of shelter, as required.

2.1.8. Adverse Weather Conditions (cont.)

Intense Heat	• The following minimum precautions should be taken: ✓ Issue appropriate PPE (i.e., covered clothing). ✓ Ensure the provision of rehydration for staff. ✓ Ensure the provision of a temperature-controlled environment during rest breaks.
Adverse Weather Oversight Procedures	• Oversight for an aircraft arrival/departure during adverse weather includes but is not limited to the activities listed below. Some examples of adverse weather include snowstorms, thunderstorms/lightning, sandstorms, high winds, hurricanes/typhoons, tornadoes, and intense heat. • Activities: ✓ Aircraft, vehicles and GSE operations and parking. ✓ Arrival. ✓ Baggage handling. ✓ Cabin equipment. ✓ Catering ramp handling. ✓ Departure. ✓ Exterior cleaning. ✓ Interior cleaning. ✓ Load control document accuracy: ▪ LIR. ▪ Loadsheet. ▪ NOTOC. ▪ Other documents as applicable. ✓ Load control and flight operations. ✓ Marshalling. ✓ Moving of aircraft. ✓ Passenger services. ✓ PRM. ✓ Ramp fuelling/de-fuelling operations. ✓ Ramp regulations. ✓ Ramp services. ✓ Ramp to flight-deck communications. ✓ Staff conduct, behaviour and operational practice, PPE. ✓ Toilet services. ✓ Towing cargo and baggage. ✓ ULD and bulk loading and unloading of baggage and cargo.

2.1.8. Adverse Weather Conditions (cont.)

Adverse Weather Oversight Procedures (cont.)	✓ Water services. • Process: ✓ Receive notification of adverse weather. ✓ Acknowledge notification of adverse weather. ✓ Identify the threat. ✓ Act according to established procedures. ✓ Communicate to all affected parties. ✓ Ensure compliance with local regulations.

2.2. Aircraft Handling

2.2.0. Overview

Contents	This section contains the following: 2.2.1. Access, Protection and Safeguarding of Aircraft 2.2.2. Aircraft Doors 2.2.3. Ground to Cockpit Communication 2.2.4. Hand Signals 2.2.5. Arrival Activities 2.2.6. Aircraft Chocking 2.2.7. Ground Servicing Points Location 2.2.8. Toilet Servicing 2.2.9. Aircraft Cleaning and Disinfection 2.2.9.1. Aircraft Cleaning and Disinfection During a Pandemic 2.2.9.2. Cleaning and Disinfection During an Event 2.2.10. Potable Water 2.2.11. Air-conditioning of Aircraft 2.2.12. De-icing/Anti-icing 2.2.13. Departure Activities 2.2.14. Pushback and Engine Starting 2.2.15. Aircraft Towing

2.2.1. Access, Protection and Safeguarding of Aircrafts

Basic Principle	• Access to an aircraft being prepared for flight is permitted only for: ✓ Staff on duty involved with the ground handling of the aircraft. ✓ Officials on duty (Police, Customs, Immigration & Health Authorities). **EXCEPTIONS:** • Only the station responsible, in coordination with the flight crew, may allow exceptions for: ✓ Other airline staff. ✓ Guided tours for small groups of guests. • In such cases, the station responsible must: ✓ Obtain permission from the Airport Authorities, if required. ✓ Provide competent supervision of the visitors.
General Procedures for Access Control	• Croatia Airlines staff should intercept anyone who has no need to be on board or near the aircraft. • In specific circumstances where increased security is required, it is desirable for a specific Croatia Airlines staff member, or contracted Agent, to be in charge of aircraft security and to challenge person in the area. • Furthermore, Croatia Airlines (and/or contracted Handling Agent and Supervision) is responsible for prevention of unauthorized access as well as the introduction of unauthorized weapons, explosives or other Dangerous Goods or prohibited devices or items on board Croatia Airlines aircraft. ***IMPORTANT:*** *Croatia Airlines aircraft that is in operational service must not be left unattended.* • Croatia Airlines aircraft that is in maintenance status, in general, should not be left unattended, however a period of time may be tolerated in specific situations where maintenance personnel are obliged to acquire parts or tools that are not in their immediate vicinity, and delivery by third person is unavailable (Note: these requirements are detailed within the procedure “Sealing & Securing Croatia Airlines Aircraft”, PO-SCU-003). • Unauthorized access to aircraft that are not in service and are parked and unattended, must be prevented. In such situations, following actions shall be taken: ✓ All external doors should be locked. ✓ All stairs and loading bridges removed. ✓ Any steps left near the aircraft should be immobilized. ***REFERENCE:*** *More details can be found in Croatia Airlines Security Programme (OP-SCU-001, “Security Programme”), available on the Intranet.*

2.2.1. Access, Protection and Safeguarding of Aircrafts (cont.)

Aircraft Security Checks and Protection	• With reference to the Croatia Airlines Security Programme (chapter 8), the following ramp safety and security requirements need to be adhered to: ✓ A security check shall cover the following accessible areas of the exterior of the aircraft: ▪ The aircraft hold(s) for originating flight(s) shall be examined to ensure that it does not contain items that do not belong there. ▪ The aircraft hold(s) for transiting flight(s) shall be protected from unauthorized access to ensure the integrity of the reconciled hold baggage, cargo, and mail and to ensure that no unauthorized items are introduced.
Hold Inspection	• For security and safety purposes, ramp staff is required to perform a visual hold inspection prior to loading as well after loading the lower compartments. This check must consist of: ✓ **<u>Prior loading at departure:</u>** ▪ Before loading commences, carry out visual inspection of lower compartments and restraint system. Report any defects to supervisor, the flight crew and/or a Company representative as required by operating airline. ▪ Damage or malfunctioning floor locks and/or lashing points. ▪ Spills in the holds that may have occurred. ▪ Baggage, cargo, or mail that may have been left on board the aircraft. ▪ Any other items that should not be present in the hold. ▪ If cargo doors have been sealed, it is essential that cockpit crew break the affected seals in order to permit loading staff to perform the hold inspection. ▪ Ramp supervisor confirms having performed the hold inspection by signing the Loading Instruction / Report (LIR). ✓ **<u>After offloading at arrival:</u>** ▪ After offload upon arrival, carry out visual inspection of lower compartments and restraint system. Any damages and/or defects are to be reported to the supervisor, the flight crew and/or Company representative. ▪ Spills in the holds that may have occurred. ▪ Baggage, cargo, or mail that could have been left on board the aircraft. ▪ Any other items that should not be present in the hold. ▪ A check must be conducted, even if on arrival the hold was reported as empty.

2.2.1. Access, Protection and Safeguarding of Aircrafts (cont.)

Aircraft Sealing	• All Croatia Airlines aircrafts shall be sealed and locked (if option possible) for a period longer than **45 minutes**, at airports that do not provide aircraft access security control services: ✓ After the last flight of the day, on all **DOMESTIC** airports. ✓ After the last flight of the day, on all **FOREIGN** airports. ✓ If left without direct supervision by: ▪ Croatia Airlines flight crew, and/or, ▪ Croatia Airlines maintenance staff, and/or, ▪ Croatia Airlines security staff.
Opening of Aircraft After Night Stop or Extended Ground Stop	• Normally, the cabin doors are opened prior to the flight by the Commander or his/her Crew. Alternatively, the station engineer (OU maintenance staff) may do it (in order to perform pre-flight duties, etc.). • Once doors uninterrupted access control to the aircraft must be ensured at all times by the station engineer (OU maintenance staff). He/she takes over the responsibility for access to the aircraft until the crew has arrived. ***IMPORTANT:*** *Under no circumstance is the contracted Handling Agent and/or Supervision allowed to open a sealed aircraft door.* • External doors which are not sealed might be opened by the Handling Agent in order to perform pre-flight duties (e.g., loading, catering, etc.). ***REFERENCE:*** *For further details see chapter 2.2.2. "Aircraft Doors".*
Reporting	• Any incident related to the safety or security of the aircraft must be handled by the Station responsible (or contracted Handling Agent and/or Supervision). ***NOTE:*** *More details can be found in section 8.2. "Handling, Notifying and Reporting of Ramp Incidents, Accidents and other Occurrences".*

2.2.2. Aircraft Doors

General Safety Requirements	• Do not operate ANY aircraft doors unless you have been trained and authorized to do so. • Seek assistance from maintenance personnel if any difficulty is experienced during normal door operation. **Do NOT operate or leave doors open in winds exceeding those indicated in the manufacturer's limitations (e.g., wind speed above 40 knots).** **DANGER:** Cabin access doors shall only be in the open position if there is an appropriate boarding device or appropriate equipment positioned at the door. There is a risk of failing while operating cabin doors.
Cabin Access Doors	• Cabin doors are: ✓ Passenger entrance doors. ✓ Service doors. • Cabin doors shall be opened from the: ✓ Inside by cabin crew and/or authorized staff. ✓ Outside by authorized staff if no cabin crew is present; in that case and whenever possible, one must make sure that the evacuation slide is disarmed before opening the door. Only non-sealed cabin doors are allowed to be opened by handling agents. Slide deployments can be fatal. If an armed door begins to open, **DO NOT** attempt to hold the door, as you risk being seriously injured or killed. • Cabin doors may ONLY be opened: ✓ After the engines have been shut down. ✓ The anti-collision light has been switched off. ✓ The aircraft has been secured by wheel chocks. ✓ The door and door frame show no visible damage. ✓ Passenger staircase or the loading bridge has been placed at the respective door. • The standard signals must be used to indicate to the cabin crew that: ✓ GSE is correctly positioned (staircase, loading bridge, etc.). ✓ The area required for deployment of integrated stairs is free of obstruction. • These standards signals are: ✓ Knocking on the door window. ✓ Thumbs up. • Cabin doors may be closed from inside or outside, but ONLY by authorized staff.

2.2.2. Aircraft Doors (cont.)

Cabin Access Doors (cont.)	It must be ensured, that the equipment remains in place until the respective door has been either closed or an appropriate prevention device is placed across the open door. • Any access aid servicing equipment shall be removed from the door has been closed. • Cabin access doors must be closed immediately after servicing is completed. • If a cabin access door is found open without a boarding device positioned at the door: ✓ Immediately notify a supervisor or the airline representative. ✓ **DO NOT** attempt to close the cabin access door unless trained and qualified. ✓ Guard the cabin access door until a qualified person is present to close it. ✓ **DO NOT** remove the boarding device from the aircraft until the door is fully closed and locked.
Cabin Doors Specific Rules	• Due to the potential for inadvertent evacuation slide deployment, and subsequent potential for serious injury and aircraft damage, the following rules must be strictly obesrved when opening cabin doors: ✓ **<u>Opening Cabin Access Doors from Inside by Trained Crew:</u>** ▪ All cabin doors must be imperatively disarmed prior to opening. ▪ When on board, the cabin crew is sole responsible for disarming the passenger entrances as well as all cabin service doors. ▪ Should the cabin crew or the cockpit crew not be available to open the doors from the inside; staff having received the adequate training are authorised to open the doors ▪ In all cases, only personnel having received the adequate training are authorised to open doors from the inside. **No exceptions are allowed.** ***Ground staff should:*** ▪ Knock twice on the door from outside to indicate that a boarding device is properly positioned outside a door to be opened and that the door swing is free of obstructions. ▪ Stand clear of the door and wait for the cabin crew to open. ▪ Assist cabin crew with moving the door to the fully opened position and engaging the gust lock, as applicable and necessary. ✓ **<u>Opening of Cabin Access Doors from Inside by Authorized and Trained Ground Staff:</u>** ▪ Only properly trained personnel may open doors; ***Ground staff should:*** ▪ Check that the door is disarmed. ▪ Check that all indicators show that is safe to open the door. ▪ Check visually that a boarding device is positioned at the door.

2.2.2. Aircraft Doors (cont.)

Cabin Doors Specific Rules (cont.)	***NOTE:*** *Should there be a need to partially open a door solely for the purpose of galley trash bin servicing, an external boarding device need to be in position. Do not move the door more than is required for the removal and refit of the bin.* ▪ Open the door slowly and carefully in accordance with the instructions and markings labelled on the door, and the respective aircraft type specific instructions, and/or training. ✓ **<u>Opening Cabin Access Doors from Outside with Crew/ Ground Staff on Board</u>** ▪ Look for indications that the door is disarmed. ▪ Check that all indicators show that it is safe to open the door. ▪ If there is no indication from the cabin crew that the door is disarmed, knock twice on the door and repeat the previous step. ▪ If there is still no indication from the cabin crew that the door is disarmed, contact the Pilot-in-Command via an open cockpit window or the aircraft interphone system. ▪ If there is no cabin crew on board and the red/orange streamer is visible across the interior of the door window, then do not open the door. Instead, seek assistance from airline personnel. ▪ DO NOT OPEN THE DOOR if you cannot confirm that the door is disarmed. ▪ Once you confirm that the door is disarmed, open the door slowly and carefully in accordance with the instructions and markings labelled on the door, and the respective airline and/or aircraft type specific instructions. ▪ If integral airstairs (other than those permanently affixed to a boarding door) are to be used, slightly open the door until the airstairs are fully extended. ▪ If using integral airstairs permanently affixed to a boarding door, stand clear of the door, and slightly open the door until the airstairs are fully extended. ▪ Move the door to the fully opened position and engage the gust lock. ✓ **<u>Opening Cabin Access Doors from Outside with no Crew/ Ground Staff on Board</u>** ▪ Look for indications that the door is disarmed. ▪ Check that all indicators show that it is safe to open the door. ▪ DO NOT OPEN THE DOOR if you cannot confirm that the door is disarmed. ▪ Once you confirm that the door is disarmed, then open the door slowly and carefully in accordance with the instructions and markings labelled on the door, and the respective airline and/or aircraft type specific instructions. ▪ If integral airstairs (other than those permanently affixed to a boarding door) are to be used, then slightly open the door (ajar) until the airstairs are fully extended. ▪ If integral airstairs permanently affixed to a boarding door, stand clear of the door, and slightly open the door until the airstairs are fully extended. ▪ Move the door to the fully opened position and engage the gust lock

2.2.2. Aircraft Doors (cont.)

Embarkation/ Disembarkation Through Cabin Access Doors	• Before allowing passengers and crew embarkation or disembarkation via a cabin access door, ensure that: ✓ The boarding device is properly positioned at the door. ✓ If stairs or integral airstairs are to be used, that both guard rails (if applicable) are extended.
Closing Cabin Access Doors	• Make sure service doors are closed immediately after servicing is completed. • Receive confirmation from the crew that the cabin access door(s) may be closed for departure. • Before removing the last boarding device from an aircraft, inform any ground staff onboard the aircraft that the last cabin access door is being closed and the last boarding device is being removed from the aircraft. • Look for any possible obstructions around the door area and remove them. • Make sure the door gust lock is released and assist the person closing the door by moving it to the ajar position. ***CAUTION**: If the cabin access door cannot be closed with the boarding device connected, then the operation must be performed from inside the aircraft with extra vigilance and without assistance of ground staff outside the aircraft.* • The intention to remove the boarding device shall be communicated to cabin crew or any other operational personnel on board. Do not remove the boarding device from the aircraft until the door is fully closed and locked. • If stairs were used at a cabin access door, then retract the stair handrails if necessary to close the door. Remain at the top of the stair platform until the door is fully closed, and then descend the stairs before they are moved. • Close the door slowly and carefully in accordance with the instructions and markings labelled on the door, and the respective airline and/or aircraft type specific instructions. • Before leaving the vicinity of the door, confirm that the door is properly seated flush with the surrounding airframe and that the exterior door handle is flush with the surface of the door. • Seek assistance from aircraft maintenance personnel any time a door malfunction occurs. • Do not retract equipment stabilizers in advance of the cabin door being fully closed. • Before retracting equipment from the door, check to ensure the manoeuvring area is clear of all obstructions and personnel. • If a passenger boarding stairs unit is used, then retract the passenger stairs canopy. Move the equipment to its approved parking position and engage any applicable restraints (such as closing the door on the passenger boarding stairs opening). • Visually inspect the cabin access door and the surrounding fuselage for signs of damage, particularly in any areas where the boarding device was in contact with the aircraft. If damage is discovered then immediately report it to aircraft maintenance personnel, and if available, the Pilot-in-Command.

2.2.2. Aircraft Doors (cont.)

Re-Opening Cabin Access Doors	• If a cabin access door is not closed properly then it must be re-opened and re-closed. • Except previously mentioned, other situations when cabin access doors may need to be re-opened include the following operational situations: ✓ Subsequent delivery of catering and/or supplies, after the passenger boarding devices have been removed. ✓ Re-connecting of passenger boarding devices after the initial removal. If there is no crew on-board the aircraft, follow the applicable instructions given in Cabin Doors Specific Rules. • Once the cabin access door has been closed in preparation for departure: ✓ Do not attempt to re-open any aircraft door without the authorization of the flight crew. ✓ The flight crew must be notified through the open cockpit window or use the flight interphone system. ✓ If the crew requires a door to be re-opened, ground staff shall be notified. • Regardless of which party (flight crew or ground staff) requested that the door be re-opened, once the flight crew gives clearance for the door to be re-opened: ✓ Follow the actions / steps given in Cabin Doors Specific Rules. ***IMPORTANT:*** *If authorization to re-open the door is not granted, do not attempt to re-open the door unless clearance given by the flight crew.*
Minimum Training Requirement	• Passenger and cabin service door opening procedures must be an integral part of any basic and refresher training for all staff including subcontracted service providers whose daily activities require the opening of such doors. By staff it must be here understood that this applies to all personnel including seasonal and part time staff whose duties require opening of the cabin service doors. • All staff involved in opening the passenger and service doors must be familiar with the door opening procedures given in this chapter with special focus on the following point: ✓ Staff must be aware of all potential dangers related to accidental slide deployments. ✓ Staff must be able to visually distinguish between an “armed” or “disarmed” door. ✓ Staff must be made aware never to open an “armed door”. ✓ Staff must be made aware that they are not allowed to “disarm” a door under any circumstances. ✓ Staff must have a practical introduction to the door opening procedures ✓ Staff must have a practical introduction to the door opening procedures of the different CROATIA AIRLINES aircraft types.

2.2.2. Aircraft Doors (cont.)

Opening Cargo Hold Doors	• Do not operate cargo doors unless trained and authorized. • Manual operation of an electrically or hydraulically operated cargo door may only be performed by maintenance personnel or flight crew. • Do not open the cargo doors until the aircraft engines have been shut down, the anti-collision lights have been switched off, the aircraft has been secured by wheel chocks and the door and door frame show no visible damage. • Before positioning loading equipment or any other GSE at cargo doors and opening cargo doors, perform a visual check for any signs of damage to the doors or surrounding areas. If any irregularities are discovered during this visual check, report them to aircraft maintenance personnel if available, and the Pilot-in-Command. • Cargo doors shall be opened using technical steps or belt loaders equipped with raised safety rails to reach the cargo doors. Unit Load Device (ULD) loaders must not be used. (Not applicable to main deck cargo doors). • Open the cargo doors in accordance with the specific instructions for the aircraft type. • Allow adequate space for door clearance to avoid equipment obstructing the free passage of the door: ✓ Most aircraft lower compartment cargo doors hinge upwards. Be aware that when opening or closing cargo doors, the lower edge of the door will swing down before going upward. ✓ For main deck cargo compartment doors, remove the safety barrier once the main deck loader is in position. • If the cargo door will not open, do not use excessive force, tools or GSE to push or pull on the door to open it. Contact aircraft maintenance personnel for assistance.

2.2.2. Aircraft Doors (cont.)

Closing Cargo Doors	• Do not operate cargo doors unless you have been trained and authorized. • Manual operation of an electrically or hydraulically operated cargo door may only be performed by maintenance personnel or flight crew. Before closing the cargo door, ensure that: ✓ Load restraint and door protection nets are properly fitted. ✓ Cargo compartment lights have been switched off unless required for carriage of Animal Vivant in hold (AVIH). ✓ Door area, including the door sill and frame, are free of gravel, water, ice and other foreign substances or obstructions. ✓ Door and door frame show no visible signs of damage. ✓ Any damage discovered during the inspection of the cargo doors and surrounding areas/frames is immediately reported to aircraft maintenance personnel and the Pilot-in-Command (PIC). • All cargo doors shall be closed using technical steps or belt loaders equipped with raised safety rails to reach the cargo doors. ULD loaders must not be used. ***NOTE:*** *Not applicable to main deck cargo doors* • Check that door lock indicators are engaged/properly, set as applicable, and that the door is properly locked, handles are stowed flush and panels are properly closed. • If a cargo compartment door is not closed properly, it shall be re-opened and re-closed. ***CAUTION:*** *If a cargo door must be re-opened prior to aircraft movement, approval from the flight crew via the ground staff responsible for the departure must be obtained.*
Re-Opening of Cargo Hold Doors	• If a cargo compartment door is not closed properly, it shall be re-opened and re-closed. • Once the pre-departure walkaround has taken place, do not attempt to re-open any aircraft cargo door without the authorization of the flight crew. • If a door shall be re-opened, the agent in charge of departure shall notify the flight crew or use the flight interphone system. • If the flight or cabin crew requires a door to be re-opened, they will notify ground staff. • Regardless of which party requested that the door be re-opened, if the flight crew gives clearance for the door to be re-opened, follow the applicable actions/steps in this section. • If authorization to re-open the door is not granted by the flight crew, do not attempt to re-open the door. • If authorization to re-open the door is granted by the flight crew, repeat the pre-departure walk-around checks for this door area.

2.2.3. Ground to Cockpit Communication

Responsibility	• The following persons are responsible for communication with flight crew by means of the interphone system (headsets) or signals (ICAO): ✓ The OU (Croatia Airlines) Maintenance staff (e.g., ground engineer) or, ✓ The maintenance staff (ground engineer) of the organization contracted by OU or, ✓ The OU authorized ramp staff, or, ✓ The authorized ramp staff of the handling company. • In principle, the communication between ground personnel and flight crew must be performed in English. In exceptional cases in Croatian after approval from the flight operation department. • Firm knowledge of the standard phrases and signals is required. • Signals must be executed in a clear and precise manner that precludes confusion between signals.
Establishing Communication	• After the aircraft has come to a complete stop at the parking position, the staff assigned to this duty should connect the headset (if available, respectively if required by the local airport authority) to the aircraft and call the flight crew. The use of headset is the standard operating procedure. • If interphone communication is unsatisfactory, use hand signal instead: ▪ Extend both arms at 90 degrees from body and move your hands to cup both ears or, ▪ Wave with the headset. After dark, use a flashlight in order to improve the visibility of the hand signals or, ▪ Use the cockpit call button. ✓ The cockpit crew will flash an external white light as confirmation. • Procedure when initiated by the cockpit crew: ✓ The cockpit crew can extend both arms at 90 degrees from body and move their hands to cup both ears, flash an external white light or use the ground call horn to communicate the re-establishment of interphone communication. ▪ Establish visual contact with the cockpit crew. ▪ Wave the headset or after dark with a flashlight to acknowledge. ▪ Make sure that Pilot in Command can see you. ▪ When you approach the aircraft, keep sufficient safety distance to running engines.

2.2.3. Ground to Cockpit Communication (cont.)

Re-establishing Interphone Communication	• **Conditions:** ✓ To be used in case ground staff or flight crew wishes to re-establish interphone communication, after it has been disconnected. ✓ To be used only if the matter cannot be resolved via radio communication. • **Safety regulations:** ✓ The procedure must be strictly followed by both parties. ✓ Only the person establishing the interphone communication shall approach the aircraft, after he has made sure that he has been seen and his intention is understood by the flight crew. ✓ When approaching the aircraft, a sufficient safety distance to running engines must be observed. ✓ The aircraft must be approached from a direction ensuring that visual contact with the flight crew can be maintained as long as possible. • **Procedure, when flight deck initiated:** ✓ Continuous flashing of the landing lights and/or use of ground horn (if available) signals that the flight crew wishes to re-establish interphone communication. ✓ Upon this signal the ground staff responsible for engine starting and/or pushback establishes visual contact with the flight crew. ✓ By waving the headsets (at night illuminated by a torch light, if necessary), the person in charge acknowledges that the signal is understood. ✓ Only when the landing lights stop flashing (or ground horn stops blowing), the aircraft shall be approached, and communication established through the interphone system. ✓ When the matter has been clarified, the “all clear” signal must again be shown to the flight crew. • **Procedure, when ground staff initiated:** ✓ By waving the headset (at night illuminated by a torch, if necessary), the person in charge indicates that he/she wishes to re-establish interphone communication. ✓ Upon this request the flight crew will flash the landing lights (or blow the ground horn), indicating that the aircraft can be safely approached. ✓ The person establishing the interphone communication shall then follow the same procedure as if it were flight deck initiated (see above).
Use of Interphone During Thunderstorm	• For safety reasons, the interphone system may not be used for communication with the flight crew during a thunderstorm over the airport (risk of electrical discharges between the aircraft and the interphone system). • In such a case, the manual signals must be used.

2.2.3. Ground to Cockpit Communication (cont.)

<table>
<tr><td>Position for the “All Clear” Signal</td><td>

In general, the person responsible for the “all clear” signal shall be positioned on the left-hand side of the aircraft.
If not possible (due to safety reasons, obstructed visual contact with the flight deck, etc.), the “all clear” signal may also be given from the right-hand side of the aircraft, provided this has been agreed with the Pilot in command beforehand.

</td></tr>
<tr><td>Hand Signals</td><td>See section 2.2.4.” Hand Signals.”</td></tr>
<tr><td>Items to be Communicated between Ground Staff and Flight Crew</td><td>
<table>
<tr><th>Phase</th><th>Ground Staff</th><th>Flight Crew</th></tr>
<tr><td>Arrival Communication</td><td>External electric connected
Chocks inserted</td><td>• Obtain confirmation by the cockpit crew</td></tr>
<tr><td rowspan="4">Departure Preparation</td><td>GPU removal</td><td>• When instructed by flight crew, remove GPU</td></tr>
<tr><td>Towbar/Towbarless Tractor connection</td><td>• Get confirmation that the aircraft’s parking brake is set.
• Get confirmation that the nose wheel steering is depressurized or advise flight crew that the bypass pin is inserted (if applicable).
• Connect the towbar.
• Connect the Towbarless tractor.</td></tr>
<tr><td>Chock removal</td><td>• Get confirmation from flight crew that aircraft parking brakes are set.
• Remove chocks.</td></tr>
<tr><td>Pre-departure check</td><td>• Advise the flight crew that the pre-departure check has been completed or communicate any discrepancies.</td></tr>
<tr><td rowspan="2">Engine Start</td><td>Starting engines</td><td>• When requested by the flight crew, advise when the engines may be started and the start sequence.</td></tr>
<tr><td>ASU</td><td>• When requested by the flight crew, signal to ASU operator to supply the required pressure.</td></tr>
<tr><td rowspan="4">Pushback (and engine start)</td><td>Brakes</td><td>• Get confirmation that aircraft’s parking brakes have been released.</td></tr>
<tr><td>Movement of the aircraft (pushback / pull out)</td><td>• Get permission from flight crew to commence pushback.</td></tr>
<tr><td>Direction of push / nose</td><td>• If applicable, ask in which direction the aircraft has to pushed / in which direction the nose should point after pushback.</td></tr>
<tr><td>Engine start</td><td>• When requested by the flight crew, advise when the engines may be started.</td></tr>
</table>
</td></tr>
</table>

2.2.3. Ground to Cockpit Communication (cont.)

Items to be Communicated between Ground Staff and Flight Crew (cont.)

Phase	Ground Staff	Flight Crew
Pushback completed & Engine start completed	**Towbar/Towbarless/Tractor disconnect**	• Get confirmation that the aircraft's parking brake is set. • Disconnect. • Remove the steering bypass pin (where applicable).
	Headset removal	• Get permission from flight crew to disconnect the headset. • Advise flight crew to hold position and wait for visual signal at left/right of the aircraft.
Departure	**"All Clear" signal**	• Ensure verification of pin removal has been completed (if applicable). • Give the "All Clear" signal when the path of the aircraft is clear of all obstacles. • Get acknowledge from the Flight crew of the "All Clear" signal.

Standard Phrases

- This table shows phrases for common standard situations without reference to a specific aircraft type.
- If necessary, adjust/expand /add phrases according to local regulations, type specific needs or common practice.

FLIGHT DECK		GROUND
DEPARTURE		
Ground, Cockpit	>	Go ahead or stand by
Parking brake released	<	Release parking brake
Ready for pushback	>	Starting pushback
Parking brake set	<	Set parking brake
(left/right) engine (1-2) clear?	>	(left/right) engine (1-2) clear
Starting (left/right) engine (1-2)		
Remove ground equipment and chocks	>	All equipment and chocks removed
	<	Aircraft ready for taxi Standby for "all-clear" signal
ARRIVAL		
Go ahead or standby	<	Cockpit, Ground
Parking brakes released	<	Chocks on

2.2.3. Ground to Cockpit Communication (cont.)

Departure Communication Dialogue (Engine Start With and/or Without Pushback)

Reference: IATA IGOM

- In the case of an aircraft taxi-out, "Pushback" and "Pushback completed" phases are not applicable. The dialogue is a sample communication to be used for a departure:

DIALOGUE BETWEEN GROUND STAFF MEMBER AND FLIGHT CREW				
Phase	**Ground Staff**		**Flight Crew**	
Preparation	**Call**	Inform the Flight Crew about the use of a towbar or TWL tractor **(if applicable)**	**Reply**	**PARKING BRAKE SET**
	Call	**CONFIRM PARKING BRAKE SET**	**Call**	CONFIRM STEERING BYPASS PIN INSERTED/NOSE WHEEL STEERING DEACTIVATED **(if applicable)**
	Reply	STEERING BYPASS PIN INSTALLED/NOSE WHEEL STEERING DEACTIVATED **(if applicable)**	**Call**	CONFIRM CLEAR TO PRESURIZE? **(If applicable)**
	Reply	CLEAR TO PRESURIZE **(if require)**		
After completion of the pre-departure servicing checks	**Call**	**PRE-DEPARTURE CHECKS COMPLETED**		
	Call	ELEVATING AIRCRAFT[2]		
	Call	READY FOR PUSHBACK[1]		
Pushback			**Reply**	STANDBY
			Call	PUSHBACK APPROVED (MENTION AIRCRAFT NOSE DIRECTION, START-UP POINT, PULL FORWARD, ETC.)
	Call	CONFIRM PARKING BRAKE RELEASED		
			Reply	PARKING BRAKE RELEASED
	Call	COMMENCING PUSHBACK (MENTION AIRCRAFT NOSE DIRECTION, START-UP POINT, PULL FORWARD, ETC.)		
Engine Start	**Call**	**CLEAR TO START ENGINES**	**Reply**	**STARTING ENGINES (MENTION ENGINE START-UP SEQUENCE)**
Pushback completed	**Call**	PUSHBACK COMPLETED, SET PARKING BRAKE		
			Reply	PARKING BRAKE SET
Disconnecting	**Reply**	**DISCONNECTING, HOLD POSITION AND WAIT FOR HAND SIGNAL, ON YOUR LEFT/FRONT/RIGHT (DISPLAY THE STEERING BYPASS PIN (IF APPLICABLE TO THE AIRCRAFT TYPE) TO THE FLIGHT CREW**	**Call** **Reply**	**CLEAR TO DISCONNECT** **HOLDING POSITION AND STANDING BY FOR HAND SIGNAL ON THE LEFT/FRONT/RIGHT**

[1] Applicable to departures with towbar and towbarless tractor.

[2] Applicable to towbarless tractors.

2.2.3. Ground to Cockpit Communication (cont.)

Departure Communication Dialogue (Engine Start With and/or Without Pushback) **Reference: IATA-IGOM** **(cont.)**	• During the engine start, communicate with the flight crew only if you observe circumstances that require immediate notification and action by the flight crew. • When starting up with an ASU, supply the pressure at the request of the flight crew. • Departure communication outlined above together with specific requirements is a basic standard for both pushback and open ramp (taxi out) departures. • This specific dialogue does not forbid the exchange of additional important information between flight crew and ground staff using non-standard phraseology (e.g., request authorization to disconnect ground support units etc.). ***NOTE 1:*** *From the flight crew seat facing forward, the engine on his/her left is referenced as engine number one.* ***NOTE 2:*** *If the pushback needs to be stopped, the following call shall be made: "Stop Pushback".* ***NOTE 3:*** *Where applicable use "PULL OUT" instead of "PUSHBACK".* ***NOTE 4:*** *Only engage the TWL tractor and lift the aircraft once the passenger boarding device has been removed from the aircraft and the flight crew has requested pushback.*

2.2.3. Ground to Cockpit Communication (cont.)

Departure Dialogue when Using a Power Push Unit (PPU)

Reference: IATA-IGOM

- Example of Departure Dialogue:

DIALOGUE BETWEEN THE GROUND STAFF AND THE FLIGHT CREW (PPU)		
Phase	**Ground Staff**	**Flight Crew**
Preparation (Before positioning of PPU)	**Call:** CONFIRM PARKING BRAKE SET. Check that the steering bypass pin is not installed. Position the PPU.	**Reply:** PARKING BRAKE SET
After completion of the pre-departure servicing checks	**Call:** PRE-DEPARTURE SERVICING CHECKS COMPLETED.	**Reply:** ROGER.
Engine No.2 start	**Call:** CLEAR TO START ENGINE NO.2. Remove the aft chock of the nose gear.	**Reply:** STANDBY **Call:** STARTING ENGINE NO.2
Pushback	Remove the forward chock of the nose gear. **Reply:** COMMENCING PUSHBACK (+ACKNOWLEDGEMENT OF ANY SPECIFIC PUSHBACK REQUIREMENT) Activates the PUSH function of the PPU and gives the cockpit crew the guidance instructions: • steering on left or on right • a little bit more or less • straight on	**Call:** PARKING BRAKE RELEASED. CLEARED TO PUSH (+ANY SPECIFIC REQUIREMENT). The flight crew steers the aircraft according to the guidance instructions provided by the agent in charge of the departure operation.
Pushback completed	**Call:** PUSHBACK COMPLETED, SET PARKING BRAKE. The PPU is moved back below the tail (beyond the rear cabin door).	**Reply:** PARKING BRAKE SET.
Engine No. 1 start	**Call:** AIRCRAFT CLEAR, CLEAR TO START ENGINE NO.1	**Reply:** STARTING ENGINE NO.1
Disconnecting	**Reply:** DISCONNECTING, HOLD POSITION AND WAIT FOR VISUAL SIGNAL ON YOUR LEFT/FRONT/RIGHT.	**Call:** CLEAR TO DISCONNECT. **Reply:** HOLDING POSITION AND STANDING BY FOR VISUAL SIGNAL ON THE LEFT/FRONT/RIGHT.

Interphone Communication Failure

- Aircraft pushback requires a communication interphone. In the event the interphone becomes unserviceable, or communications is lost, the following procedure must be followed:
  - ✓ in case of a single person operation and if no other means of communication are available, stop the movement (depending on local situations and regulations) and immediately request assistance to continue the movement.
  - ✓ In case of multiple person operation then communication with the flight crew will be established using hand signals. The tractor driver must be able to receive the visual signals as relayed from the flight crew. Once hand signal communication has been established the pushback can resume
  - ✓ Notify ATC (if radio available) and continue the movement in co-operation with ATC, depending on local regulations.

2.2.3. Ground to Cockpit Communication (cont.)

<table>
<tr>
<td>Departure Communication without Interphone</td>
<td>

An aircraft departure must always be conducted using interphone communications.
In the event that the interphone becomes unserviceable or under extreme circumstances (e.g., weather, etc.) where the interphone is not available and/or allowed, conventional hand signals (refer to GOM, section. 2.2.4.) must be used for the departure (not applicable to main gear pushback unit departures).
Prior to departure a briefing must be held between the flight deck and the ground agent responsible for the departure, including:

✓ review of departure specifics, e.g., direction of movement, final positioning, and taxi out direction.
✓ the hand signals to be used, including emergency signals.

CAUTION: Read back all given instructions or acknowledge them in a manner clearly indicating that they have been understood after it has been disconnected.
</td>
</tr>
<tr>
<td>De-icing / Anti-Icing Operation Dialogue</td>
<td>

Before starting the De-Icing / Anti-Icing process, the whole process shall be coordinated between Commander and the ground personnel respectively the Company performing the treatment. This coordination must include:

✓ The fluid types.
✓ Mixture rate.
✓ The surfaces and parts of the aircraft which have to be treated.
✓ Other special or non-standard procedures.

<table>
<tr><th>COMMANDER</th><th>GROUND</th></tr>
<tr><td></td><td>Cockpit from Ground</td></tr>
<tr><td>Go Ahead</td><td>Prepare Aircraft for De-icing Process</td></tr>
<tr><td>Aircraft prepared
Start De-icing</td><td>De-icing Process will be started</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">After de-icing equipment is cleared from aircraft and
all checks including the post de-icing/anti-icing check are made:</td></tr>
<tr><td></td><td>Cockpit from Ground</td></tr>
<tr><td>Go Ahead</td><td>Aircraft De-iced/ Anti-iced:
Anti-Icing Type II */ made by manufacturer XX, brand YY***/ 75% **/12:00 local time
Post de-icing/anti-icing check completed</td></tr>
<tr><td>Aircraft Anti-iced.
Anti-Icing Type II / 75% / 12:00 local time.</td><td></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">* Used fluid type: Type I, II, III or IV
** Type I fluid without mixture rate
*** Not required for Type I fluid</td></tr>
<tr><td colspan="2">Continue with Pushback / Roll-off Communication.</td></tr>
</table>
</td>
</tr>
</table>

2.2.4. Hand Signals

Introduction	• The standard procedure is to communicate by interphone whenever possible. • In order to standardize "ground staff-to-ground staff" communication and/or "ground staff-to-flight crew" and/or flight crew-to-ground staff communication, the following hand signals are defined: ✓ **Guide Person Hand Signals**): to be used by a specific guide person in direct liaison with the equipment operator to facilitate movements of any type of GSE. ✓ **Marshalling Hand Signals**: to be used by ground staff, to assist the flight crew during manoeuvring of the aircraft and engine starting. ✓ **Technical/Servicing Hand Signals**: to be used by ground staff to communicate technical/servicing information to flight crew, and by flight crew to communicate technical/servicing information to ground staff. ✓ **Aircraft Movement Hand Signals**: to be used during the tractor/towbar, towbarless connection / disconnection process, as well at the start and end of the aircraft ground movement operation. ***NOTE 1:*** *Only use hand signals when verbal communication is not possible.* ***NOTE 2:*** *Make sure acknowledgement of all signals is received from the flight crew.*
Conditions for using Hand Signals	• The person giving the hand signals must: ✓ Use only approved hand signals. ✓ Wear a high visibility vest. ✓ Maintain the same role throughout the procedure. ✓ Keep in constant, visual contact with the other ground staff and flight crew throughout the manoeuvre. If visual contact is lost, the operation must stop and not re-commence until visual contact is re-established. ✓ Remain clear of the intended pathway of the vehicle/aircraft where possible.
Specific Requirements for Using Marshalling Hand Signals	• Marshaller must not: ✓ Perform aircraft marshalling unless it is permitted by the local airport authority and have been trained and authorized. • Marshaller must: ✓ give hand signals from a position forward of the aircraft while facing and within view of the pilot. ✓ Wear a high-visibility vest. ✓ Use illuminated flashlights/wands to improve the visibility of the hand signals in the following situations: ▪ Insufficient apron lighting. ▪ Poor visibility. ▪ Night conditions. ▪ When required by local airport authorities or regulations.

2.2.4. Hand Signals *(cont.)*

Specific Requirements for Using Marshalling Hand Signals **(cont.)**	***CAUTION:*** *To avoid possible confusion by the flight crew, marshaller must not use guide person hand signals for equipment until all aircraft marshalling has been completed.* ***NOTE 1:*** *The hand signals given below are illustrated with the use of wands. The meaning of the signals remains the same when bats, gloves or illuminated flashlights are used.* ***NOTE 2:*** *It is not possible to give signals for engaging/releasing parking brakes with use of bats or illuminated flashlights*.
Guide Person Hand Signals for Ground Support Equipment (GSE)	**TO ATTRACT THE OPERATOR'S ATTENTION AND TAKE COMMAND** Arms held above head in vertical position with palms, facing forward. Meaning: I am in charge of this maneuever. You will take orders only from me. **FORWARD MOVEMENT** Arms a little aside and repeatedly moving upwards and backwards, beckoning onwards. Meaning: Move towards the guide person. **BACKWARD MOVEMENT** Arms by sides, palms facing forward, swept forward and upwards repeatedly. Meaning: Move directly away from the guide person.

2.2.4. Hand Signals *(cont.)*

Guide Person Hand Signals for Ground Support Equipment (GSE) **(cont.)**	**TURN RIGHT (from the driver's point of view)** Left arm pointed downward, hand extended; right arm repeatedly moved upwards towards the guide person's left. Speed of arm movement indicates rate of turn. **TURN LEFT (from the driver's point of view)** Right arm pointed downward, hand extended; right arm repeatedly moved upwards towards the guide person's left. Speed of arm movement indicates rate of turn. **LIFT** Stretch both arms toward load or equipment, palms up; hand movement in upward direction.

2.2.4. Hand Signals *(cont.)*

Guide Person Hand Signals for Ground Support Equipment (GSE) **(cont.)**	**LOWER** Stretch both arms toward load or equipment, palms down; hand movement in downward direction. **ACCOMPANIED MOVEMENT** Come with load or equipment. Maintain eye-to-eye contact with operator or driver. Swing down opposite arm. **INDICATE DISTANCE** Raise arms above head, palms facing inward. Distance shown between hands shall correspond exactly with actual margin.

2.2.4. Hand Signals *(cont.)*

Guide Person Hand Signals for Ground Support Equipment (GSE) **(cont.)**	**STOP** Arms raised and crossed over head. **Immediate stop:** Hands cross over head with clenched fists. **OK** Lift right arm above head, hand closed, thumb raised. **Meaning:** All is clear or continue on your own or drive away. **CHOCKS INSERTED; STABILIZERS ON** Arms down, hands closed, palms facing inward, thumbs extended; move arms in towards sides.

2.2.4. Hand Signals *(cont.)*

Guide Person Hand Signals for Ground Support Equipment (GSE) **(cont.)**	**CHOCKS REMOVED; STABILIZERS OFF** Arms down, hands closed, palms facing outward, thumbs extended; move arms out away from sides. **TO INTERRUPT POWER SOURCE (electricity, fuel, air)** Right arm and hand level with shoulder, palm downward; swing extended arm horizontally toward throat by bending elbow. **STOP ENGINE** Right arm and hand level with shoulder, palm downwards, hand on throat making horizontal move to the right, passing hand across throat.

2.2.4. Hand Signals *(cont.)*

<table>
<tr>
<td>Guide Person Hand Signals for Ground Support Equipment (GSE)

(cont.)</td>
<td>
TO CONNECT OR DISCONNECT

Raise left arm and hand in front of body, fingers extended horizontally, palm down.
Connect: Right hand with clenched fist moving upward to contact left palm
Disconnect: Right hand with clenched fist leaving left palm downward.

BRAKES ON/OFF

Right arm and hand raised horizontally in front of body.
Release brakes: With fist clenched, extend fingers, palm inward.
Engage brakes: With extended fingers, clench fist, palm inward.
</td>
</tr>
<tr>
<td>Aircraft Movement Hand Signals- Headset Operator to Tug Driver</td>
<td>
VEHICLE BRAKES OFF

Raise right hand just above shoulder height with closed fist and ensuring eye contact with tug driver open palm.
</td>
</tr>
</table>

2.2.4. Hand Signals *(cont.)*

Aircraft Movement Hand Signals- Headset Operator to Tug Driver **(cont.)**	**CLEAR TO PUSH** Hold arm straight out at a 90° angle from shoulder and display hand with thumb up. **Meaning:** Indicates to tug driver that all equipment is clear of aircraft, chocks have been removed, the aircraft brakes are off and flight crew has given clearance to commence pushback. **NEGATIVE/HOLD** Hold arm straight out at 90° angle from shoulder and display hand with thumb down. **Meaning:** Indicates to tug driver that aircraft is not ready for pushback and to hold position. **VEHICLE BRAKES ON/STOP** Raise hand just above shoulder height with open palm and ensuring eye contact with tug driver, close into a fist. At the end of the pushback, also indicates to tug driver that aircraft brakes have been set. Tug driver should return signal to the headset operator to confirm vehicle brakes set.

2.2.4. Hand Signals *(cont.)*

Aircraft Movement Hand Signals- Headset Operator to Tug Driver **(cont.)**	**SLOW DOWN** With hand at a 45° angle downward to the side, make a “patting” motion. **CHANGE OF PUSHBACK DIRECTION** Touch nose with finger with arm at a 90° angle to the shoulder, extend arm to point in the direction that aircraft needs to be turned to.
Aircraft Movement Hand Signals- Wingwalker to Headset Operator/Tug Driver, Marshaller, Flight Crew (as applicable)	**CLEAR TO MOVE AIRCRAFT** Raise right arm fully extended above head with wand held straight and left arm and wand at a 45° angle downward to the side.

2.2.4. Hand Signals *(cont.)*

Aircraft Movement Hand Signals- Wingwalker to Headset Operator/Tug Driver, Marshaller, Flight Crew (as applicable) **(cont.)**	**STOP MOVEMENT OF AIRCRAFT** Fully extend arms and wands horizontally 90° at shoulder level; raise arms and wands to cross above head. **HOLD MOVEMENT OF AIRCRAFT** Fully extend arms and wands downwards at a 45° angle to the sides. Hold this position until it is clear for the aircraft to move.
Marshalling Hand Signals for Aircraft	**IDENTIFY GATE/STAND** Raise fully extended arms forward at shoulder level; raise straight above head with wands pointing up, move hands fore and aft to keep from blending into background.

2.2.4. Hand Signals *(cont.)*

Marshalling Hand Signals for Aircraft **(cont.)**	**CONTINUE TO TAXI STRAIGHT AHEAD** Holding arms extended to the side; bend arms at elbows; move arms and wands up and down from waist to head. **SLOW DOWN** Held at sides and slightly bent at elbows, move arms downwards in a “patting gesture”, moving wands up and down from waist to knees. **TURN RIGHT (from the Pilot's point of view)** With left arm and wand extended at a 90° angle to the body, right hand makes the come ahead signal. The rate of signal motion indicates to the pilot the rate of aircraft movement desired.

2.2.4. Hand Signals *(cont.)*

Marshalling Hand Signals for Aircraft **(cont.)**	**TURN LEFT (from the Pilot's point of view)** With right arm and wand extended at a 90° angle to the body, left hand makes the come ahead signal. The rate of signal motion indicates to the pilot the rate of aircraft movement desired. **STOP** Fully extend arms and wands horizontally 90° at shoulder level; raise arms and wands to cross above head. **HOLD POSITION/STAND-BY** Fully extend arms and wands downwards at a 45° angle to the sides. Hold the position until the aircraft is clear for the next maneuver.

2.2.4. Hand Signals *(cont.)*

Marshalling Hand Signals for Aircraft **(cont.)**	**PROCEED TO NEXT MARSHALLER OR AS DIRECTED BY TOWER/GROUND CONTROL** Point both arms upward, move and extend arms outward to side of body and point with wands to direction of next marshaler or taxi area. **DISPATCH AIRCRAFT** Perform a standard military salute with right hand and/or wand to dispatch the aircraft. Maintain eye contact with the flight crew until the aircraft has begun to taxi. **FIRE** Holding right arm straight, move right hand in an exaggerated figure eight (8), or a fanning-type motion, from the shoulder to the knee, while at the same time pointing with the left-hand wand to the area of the fire. At night use same process with wands.

2.2.4. Hand Signals *(cont.)*

Marshalling Hand Signals for Aircraft **(cont.)**	**SET BRAKES** Raise right hand just above shoulder height with open palm. Ensuring eye contact with flight crew, close hand into a fist. DO NOT move until receipt of thumbs up acknowledgment from flight crew. **RELEASE BRAKES** Raise hand just above shoulder height with hand closed in a fist. Ensuring eye contact with flight crew, open palm**. DO NOT** move until receipt of thumbs up acknowledgment from flight crew. **CHOCKS INSERTED** With arms and wands fully extended above head, move wands inward in a “jabbing” motion until wands touch. Ensure acknowledgement is received from flight crew.

2.2.4. Hand Signals *(cont.)*

Marshalling Hand Signals for Aircraft **(cont.)**	**CHOCKS REMOVED** With arms and wands fully extended above head, move wands outward in a “jabbing” motion. **DO NOT** remove chocks until authorized to do so by flight crew. **START ENGINES** Raise right arm to head level with wand pointing up and start a circular motion with hand; at the same time, with the left arm raised above head level, point to engine to be started. **EMERGENCY ENGINE SHUT DOWN/CUT ENGINES** Extend right arm with wand forward of body at shoulder level, move hand and wand to top of left shoulder and draw wand to top of right shoulder in a slicing motion across throat. Hold left arm above head with closed fist.

2.2.4. Hand Signals *(cont.)*

Technical/Servicing Hand Signals-Ground Staff to Flight Crew	**CONNECT TOWBAR** Bring arms above the head and grasp forearm with opposite hand. **AIR UP** Wave arms up and down from thigh to waist with palms up. **Meaning:** Supply pressurised air for engine start. **CONNECT/DISCONNECT GROUND POWER** **To connect ground power:** Hold arms fully extended above head; open left hand horizontally and move finger tips of right hand up to touch the open palm of left hand (forming a “T”). At night, illuminated wands can also be used to form the “T” above the head.

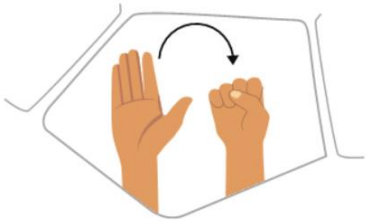
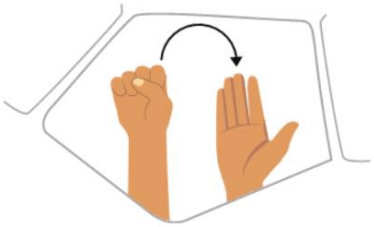
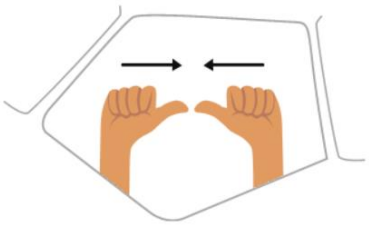
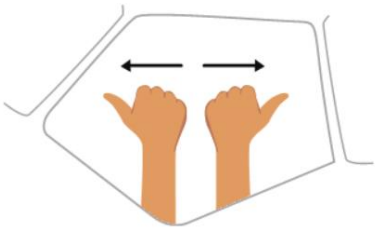
2.2.4. Hand Signals *(cont.)*

Technical/ Servicing Hand Signals-Ground Staff to Flight Crew **(cont.)**	**CONNECT/DISCONNECT GROUND POWER (cont.)** **To disconnect ground power:** Hold arms fully extended above head with finger tips of right hand touching the open horizontal palm of the left hand (forming a “T”); lower right hand away from the left. DO NOT disconnect power until authorized by the flight crew. At night, illuminated wands can also be used to open the “T” above the head. **AFFIRMATIVE/ALL CLEAR** Raise right arm to head level with wand pointing up or display right hand with thumbs up; left arm remains at side by knee. **NEGATIVE** Hold right arm straight out at 90° from shoulder and point wand down to ground or display right hand with thumbs down; left hand remains at side by knee.

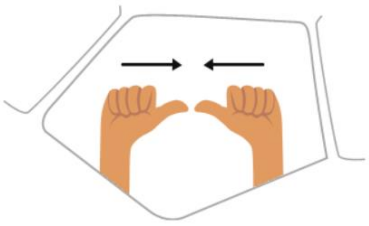
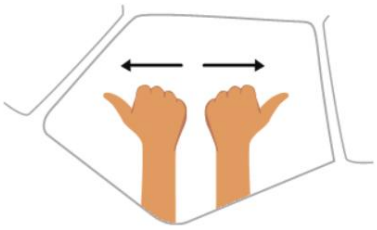
2.2.4. Hand Signals *(cont.)*

Technical/ Servicing Hand Signals-Ground Staff to Flight Crew **(cont.)**	**INTERPHONE** Extend both arms at 90° from body and move hands to cup both ears. **DO NOT TOUCH CONTROL** Raise right hand above head level and close fist or hold wand in horizontal position; left arm remains at side by knee. **OPEN/CLOSE STAIRS** With right arm at side and left arm raised above head at a 45° angle, move right arm in sweeping motion towards top of left shoulder. ***Note:*** *This signal is intended mainly for aircraft with a set of integral stairs at the front.*

2.2.4. Hand Signals *(cont.)*

Technical/ Servicing Hand Signals-Flight Crew to Ground Staff	**BRAKES ENGAGED**  Raised arm and hand, with fingers extended, horizontally in front of face; close hand into a fist. **BRAKES RELEASED**  Raised arm, with fist clenched, horizontally in front of face; extend fingers to open palm. **INSERT WHEEL CHOCKS**  Hand held in front of face, palms outwards with fingers closed and thumbs extended; move hand inwards. **REMOVE WHEEL CHOCKS**  Hands held in front of face, palms inwards with fingers closed and thumbs extended; move hands outwards.

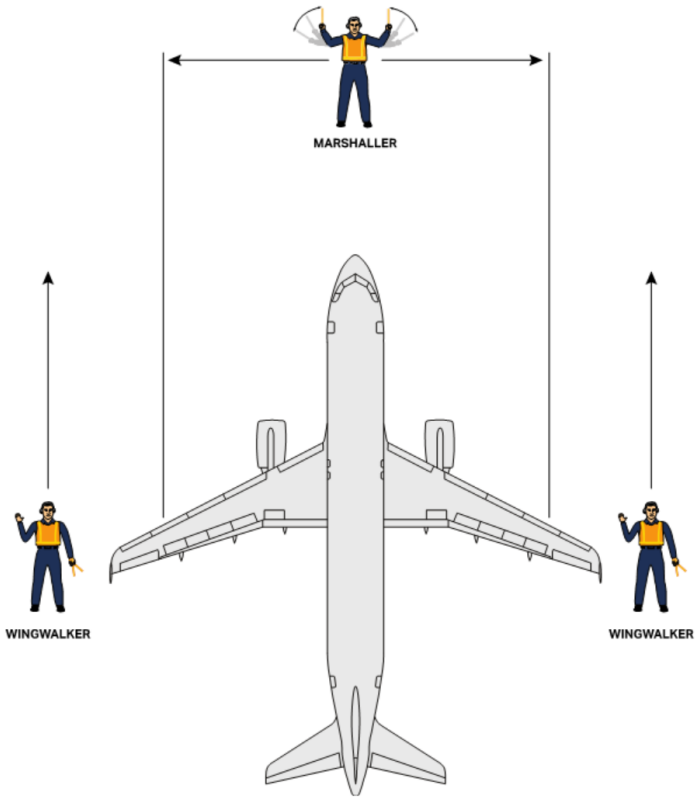
2.2.4. Hand Signals *(cont.)*

Technical/ Servicing Hand Signals-Flight Crew to Ground Staff **(cont.)**	**READY TO START ENGINE(s)** One hand raised with the appropriate number of fingers outstretched to indicatate the number of the engine to be started. **ALL CLEAR** One hand raised with closed fingers and extended. Acknowledgement of all ground actions. **INSERT WHEEL CHOCKS**  Hand held in front of face, palms outwards with fingers closed and thumbs extended; move hand inwards. **REMOVE WHEEL CHOCKS**  Hands held in front of face, palms inwards with fingers closed and thumbs extended; move hands outwards.

2.2.5. Arrival Activities

General	• Prior to arrival of the aircraft, carefully plan the required activities. The person in charge of the arrival operation has to ensure the following procedures and additionally adhere to local regulations. • The Station Representative (OU staff and/or Handling Agent/Supervision Agency) shall meet the arriving aircraft at its position. He / she shall retrieve the Flight Folder and if required the General Declaration (GenDec) or other immigration documents immediately after arrival of the aircraft.
Communication Principles	• Communicate with the Cockpit Crew in English, in exceptional cases in another language if agreed with the Cockpit Crew. • Communicate with the Cockpit Crew via headset, whenever available. • Knowledge of the standard phrases and signals is mandatory for the communication with the Cockpit Crew. ***NOTE**: For details, refer to the GOM, section 2.2.4 "Hand Signals".* • If hand signals are used, be clear and accurate to prevent misunderstandings.
Actions prior to arrival	• Airside staff is responsible to: ✓ Conduct FOD check on entire stand removing all debris just prior to arrival. ✓ Make sure the stand surface condition is sufficiently free of ice, snow, etc. to ensure safe aircraft movement. ✓ Make sure that all required Ground Support Equipment (GSE) is available and serviceable, and is positioned well clear of the aircraft path, outside the Equipment Restraint Area (ERA). ✓ Make sure that the aircraft path and ramp area is free of objects and obstacles, which the aircraft may strike or endanger others due to jet blast effect. ✓ Make sure that aircraft docking guidance system is operating, or marshalling staff is present. ✓ Make sure that additional ground personnel (such as wing walkers) are present (if required).
IMPORTANT **DANGER**	• All persons not responsible for the aircraft arrival operation shall stay well clear of the arriving aircraft and shall not approach the aircraft until: ✓ The engines have been switched-off and are spooling down ✓ The anti-collision lights have been switched-off. ✓ The main gear wheel chocks are positioned. ✓ Clearance to approach the aircraft has been given by the agent responsible for the arrival operation, if applicable.
Types of Parking Position	• Gate Position (with or without automated docking guidance system). • Open Ramp (Remote) Position.

2.2.5. Arrival Activities (cont.)

Wing Walker	The presence of such personnel may also be controlled or restricted by civil aviation authorities or local airport authorities. Wing Walker Positioning for Aircraft Arrival (picture)  ***NOTE:*** *For more information regarding responsibilities and tasks refer to section 2.2.14.*

2.2.5. Arrival Activities (cont.)

Standard Arrival Procedure

- **Aircraft Arrival at a Gate or Open Ramp**

For a standard arrival at a stand without an automated guide-in system or at an open ramp:

Step	Action
1.	• As the aircraft approaches the stand area: ✓ The Marshaller points to the guide-in line on the ramp to be followed by the aircraft by standing at the top of the guide-in line and giving the "IDENTIFY STAND" signal (refer to section 2.2.4.). • If Wing walkers are required: ✓ Will be positioned approximately 1m (3ft) outside the path of the wingtips. ***Important:*** *Wing walkers shall maintain visual contact with the Marshaller until the aircraft has come to a complete stop.*
2.	• While the aircraft taxies along the guide-in line: ✓ The Marshaller gives the "Continue to Taxi ahead" signal with marshalling wands (refer to section 2.2.4.).
3.	• The nose wheel should follow the guide-in line all the way to the appropriate stop point: ✓ Use the "Turn Left" or "Turn Right" signals to correct the track of the aircraft as required (refer to section 2.2.4.).
4.	• If at any time during aircraft movement the Marshaller is unsure or identifies an imminent danger: ✓ STOP the aircraft.
5.	• If at any time during aircraft movement the Wing walkers are unsure or identifies an imminent danger: ✓ Signal the Marshaller with the "STOP" signal.
6.	• As the aircraft approaches the stop position: ✓ Use the "Slow Down" signal, if required. • As the nose wheel reaches the stop point: ✓ Slowly cross the wands in the "Stop" signal.
7.	• Once the chocks have been positioned: ✓ Notify the Cockpit Crew using the signal "Chocks Inserted".
8.	• After the aircraft has come to a complete stop at the parking position: ✓ Connect the headset (if available, respectively if required by the local airport authority and call the flight crew. The use of headset is the standard operating procedure. ✓ Make visual contact with the flight deck if interphone communication has proven unsatisfactory or the headset is not used.

2.2.5. Arrival Activities (cont.)

Standard Arrival Procedure (cont.)

- **Aircraft arrival at a stand <u>with</u> an automated docking guidance system**

For a standard arrival at a stand with an automated guide-in system:

Step	Action
1.	• The agent responsible for the arrival, "Marshaller" shall verify that the correct aircraft has been selected for the arrival and the equipment is operational.
2.	• The agent responsible for manning the emergency stop button shall be positioned: ✓ With an unobstructed view of the arriving aircraft and, ✓ Within reach of the system to stop the aircraft in the event, it is needed. ***Note:*** *It is essential to maintain a continuous unobstructed view between the agent responsible for manning the emergency stop button and the ground personnel ensuring clearance (e.g., wing walker).*
3.	• In the event that the emergency stop is activated, and only after a check by the ground staff operating guidance system that the risk is no longer here: ✓ The aircraft docking guidance system can be reactivated • If not, standard aircraft arrival procedures shall be used.
4.	• If Wing walkers are required: ✓ Shall be positioned approximately 1m (3ft) outside the path of the wingtips. ✓ Shall maintain visual contact with the Marshaller until the aircraft has come to a complete stop.
5.	• After the aircraft has come to a complete stop at the parking position: ✓ Connect the headset (if available, respectively if required by the local airport authority and ✓ Call the flight crew. The use of headset is the standard operating procedure. ✓ Make visual contact with the flight deck if interphone communication has proven unsatisfactory or the headset is not used.

Actions After Arrival

- **Upon aircraft stopping**

Step	Action
1.	• Position wheel chocks at nose landing gear wheels as per section 2.2.6. "Aircraft Chocking".
2.	• Position and connect the Ground Power Unit (GPU), or Fixed Power Unit (FPU) if required, before engine shut down.
NOTICE	• If several persons are available: ✓ Do both tasks at the same time (place the wheel chocks at the nose landing gear and connect the GPU).

2.2.5. Arrival Activities (cont.)

Actions after Arrival

(cont.)

- **Upon aircraft stopping (cont.)**

Step	Action
	CAUTION If an aircraft arrives with an unserviceable anti-collision light **DO NOT** approach the aircraft until headset communication/hand signals has been established with the Cockpit Crew.

- **After engines have been shut down, are spooling down and anti-collision lights have been switched off:**

Step	Action
1.	• Position remaining wheel chocks at the main landing gear wheels and verbal/visual confirm to the Cockpit Crew.
	DANGER! **If notified of a brake overheat do not approach the main gear!**
2.	• Confirm there is no damage on the cabin door area prior to positioning the passenger boarding device(s).
3.	• Position the safety cones.
4.	• Conduct an arrival walk-around to inspect for damage on the following parts of the aircraft, without use of tools, stairs, or other equipment: ✓ All cargo doors. ✓ All access panels and servicing points. ✓ Aircraft fuselage. ✓ Aircraft engine cowlings/propellers. ✓ All cabin doors. ✓ Sensors (e.g., stall warning devices, pitot tubes) in the direct vicinity of the doors. ***IMPORTANT***: *If any damage is found, report it immediately to supervisor and do not approach the aircraft with any GSE in the area where the damage has been found.*
5.	• Give clearance and check positioning of GSE/Jetways.
5.	• Secure a safe deboarding of passengers.
7.	• For unloading of the aircraft and compartment check, refer to section 4.6.1. “Unloading Procedures”.
NOTE	*“Spooling down” of an engine can be identified as follows: reduced engine noise, visible fan or propeller speed reduction, lack of exhaust heat/thrust plume.*

2.2.6. Aircraft Chocking

Introduction

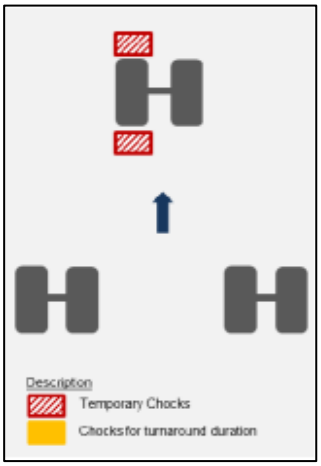
- Make sure the required number of serviceable chocks are available taking account of the aircraft type and/or weather conditions.
- Chocks must be kept clear of the lead-in line and kept in a safe area away from arriving aircraft and engine danger areas.
- One designated ground staff member (Handling Agent) must immediately place chocks forward and aft of the **nose gear** if aircraft type allows and according to instructions given below. This is the first action to take place around the aircraft and shall be completed before any other activities takes place.
- Before approaching the **main gear**, staff must wait until:
  - ✓ Engines have been shut down and are spooling down.
  - ✓ Anti-collision lights are switched off.
- Make sure that there is a small distance between the wheels and the chocks.

***IMPORTANT**: As aircraft wheels are constructed in such a way, that in case of burst tires always burst in axial direction, staff placing the wheel chocks:*

- Only approach and leave the landing gear from the front or the rear. Thus, you prevent the danger of serious injury.

Placing of Chocks

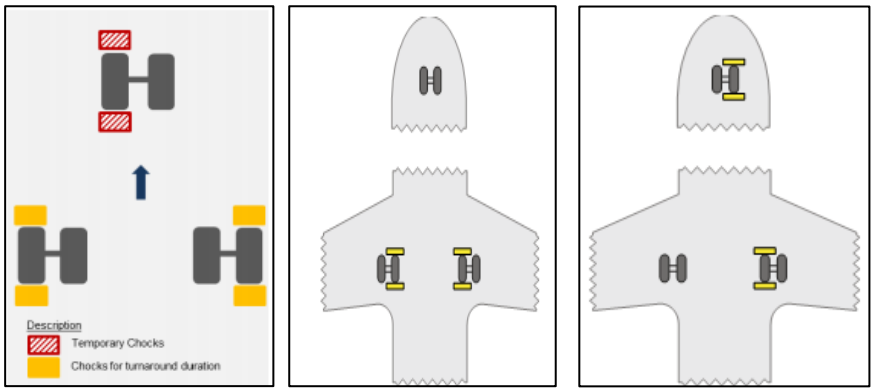
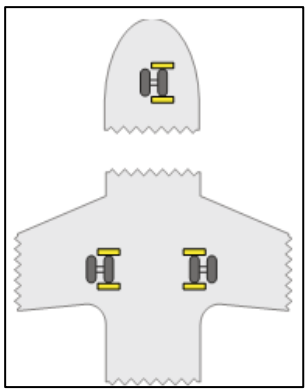
Steps and actions:

Steps	Action
1	After the aircraft reached the final parking position: • Approach the aircraft from the front. **For all aircraft types:** • Walk towards the main gear in a path parallel to the fuselage, avoiding engine intake areas. • Place the wheel chocks temporarily forward and aft of the left or right nose landing gear wheel (NLG). 

2.2.6. Aircraft Chocking (cont.)

Placing of Chocks (cont.)

Steps and actions (cont.):

Steps	Action
2	• Position and connect the GPU, if applicable. ***NOTE**: If several persons are available*: ✓ Do both tasks at the same time (place the wheel chocks temporarily at the nose landing gear and connect the GPU).
3	After the engines are shut down, spooling down and anti-collision lights are switched off: **For all aircraft types:** • Walk towards the main gear in a path parallel to the fuselage, avoiding engine intake areas. • Place the chocks forward and aft of the left and right outer main landing gear wheels. **NORMAL OPERATIONS**  ***NOTE:** Inside or outside main gear chocks are acceptable.* **PARKING AIRCRAFT OUT OF SERVICE/ NIGHT STOP/ HIGH WINDS**  ***NOTE:** Inside or outside main gear chocks are acceptable.*

2.2.6. Aircraft Chocking (cont.)

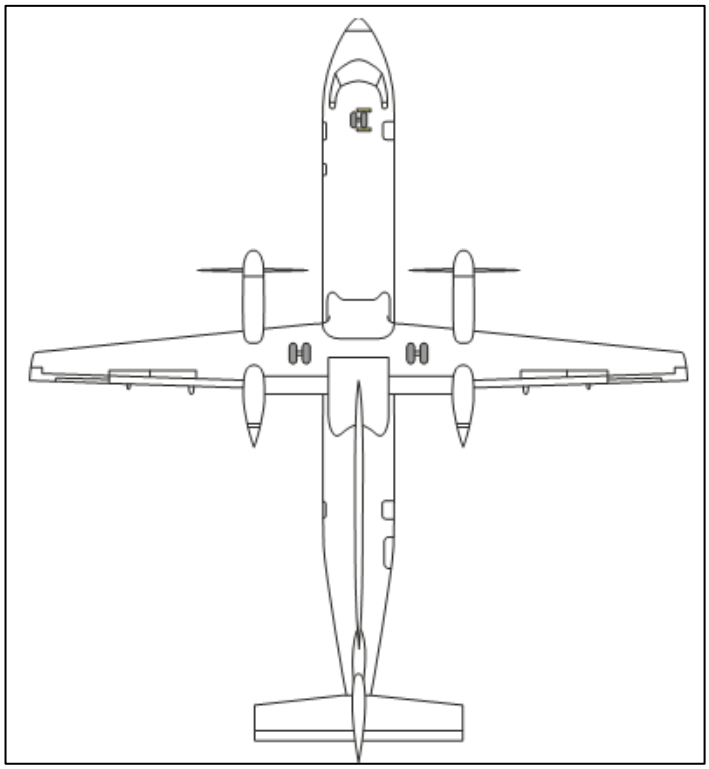
Placing of Chocks (cont.)

Steps and actions (cont.):

Steps	Action
4	Remove the temporarily placed wheel chocks from the nose landing gear.
5	Inform the Cockpit Crew that the chocks are inserted, either via interphone (whenever available) or via the hand signal “Chocks Inserted).

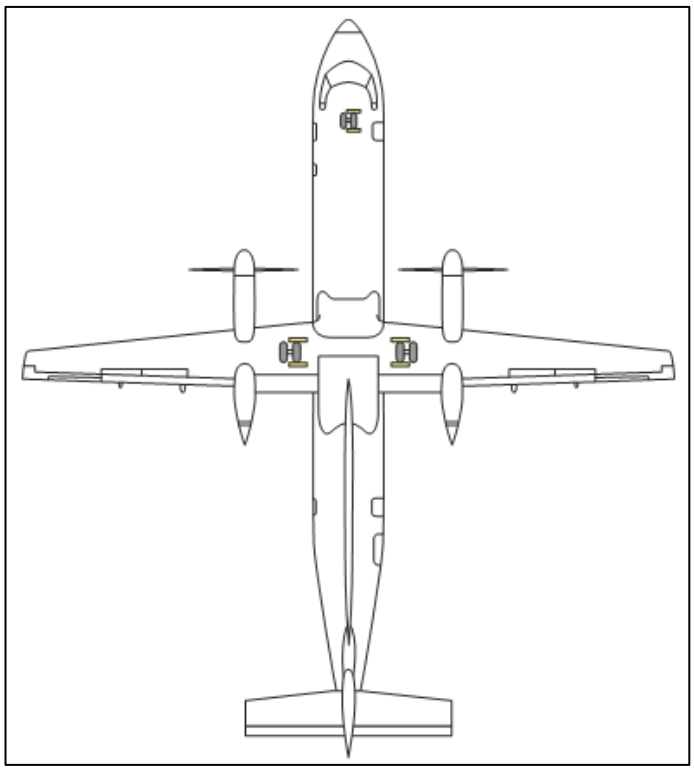
DASH 8 Q400 Chocking

NORMAL TURNAROUND



Place chocks forward and aft nose gear, then secure propellers using appropriate tie-down straps.

2.2.6. Aircraft Chocking (cont.)

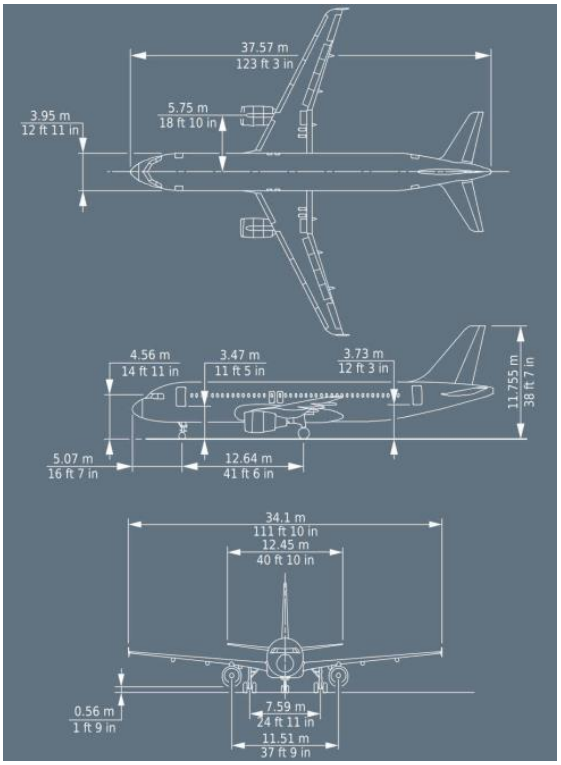
<table>
<tr>
<td>DASH 8 Q400 Chocking (cont.)</td>
<td>PARKING AIRCRAFT OUT OF SERVICE/ NIGHT STOP/ HIGH WINDS
 
Place chocks forward and aft nose gear, then secure propellers using appropriate tie-down straps</td>
</tr>
<tr>
<td>Specific Conditions (night stops, slope, icy conditions)</td>
<td>• When the aircraft parks for a longer time (without ongoing activities, 6 hours or more) and / or during night stops:
✓ Additionally, place chocks forward and aft of both nose landing gear wheels approximately 5 cm from the tires.
• When the parking position has a slope of more than 1.5%:
✓ Additionally, place chocks forward and aft of both nose landing gear wheels.
✓ Ensure that the chocks downside touch the wheels and upside maintain a gap of approximately 5 cm.
• During icy conditions:
✓ Additionally, place chocks forward and aft of both nose landing gear wheels approximately 5 cm from the tires.</td>
</tr>
<tr>
<td>Strong Winds</td>
<td>• At wind speeds between 25 knots and 40 knots:
✓ Additionally, place chocks forward and aft of both nose landing gear wheels approximately 5 cm from the tires.</td>
</tr>
</table>

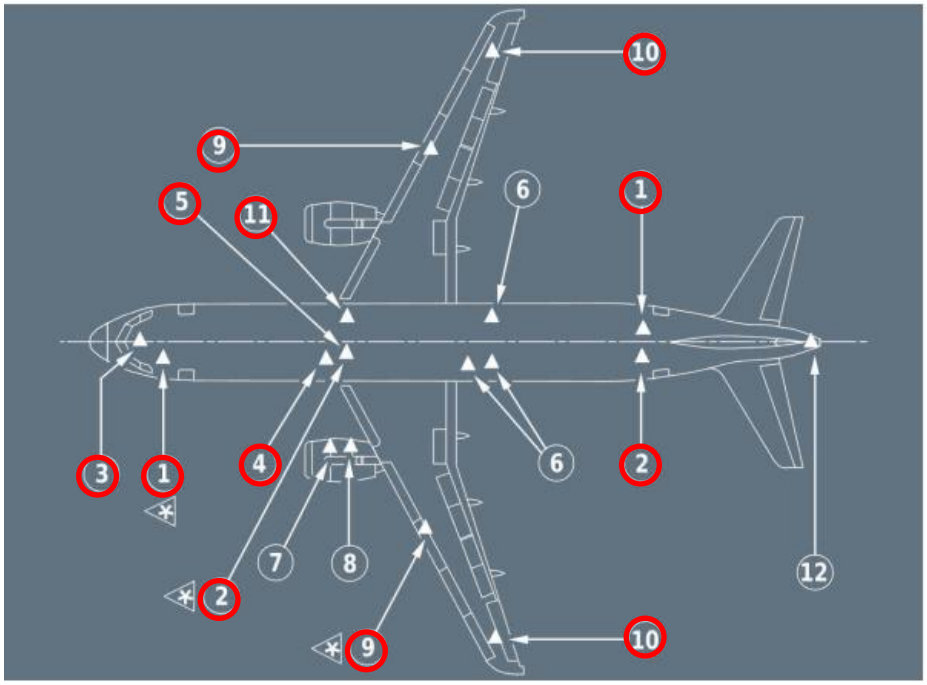
2.2.6. Aircraft Chocking (cont.)

Strong Winds (cont.)	• At wind speed above 40 knots (all aircraft types): ✓ Additionally, place chocks forward and aft of both nose landing gear wheels approximately 5 cm from the tires. ✓ Link the chocks to each other, if possible. ✓ Arrange setting of parking brake.
Removal of Chocks	• Open Stands (taxi-out): ✓ Slightly prior to aircraft start up procedures, ensure that the parking brake is set and position chocks forward and aft of the nose landing gear (NLG). ✓ Request approval from the cockpit crew and remove MLG chocks. ✓ Once start-up procedures are completed and approval for NLG chock removal has been received from the cockpit crew, remove NLG chocks, and stow them in the designated area. • Stands requiring push back: ✓ Ensure that the parking brake is set and that the tow bar / tow truck combination (tow bar pushback) or tow truck (tow bar less) is hooked up to the aircraft. ✓ Request approval from the cockpit crew and remove MLG chocks. ✓ If applicable, remove NLG chocks shortly prior to hooking up the tow bar / tow truck combination (tow bar pushback) or tow truck (towbarless).

2.2.7. Ground Servicing Points Location

A320



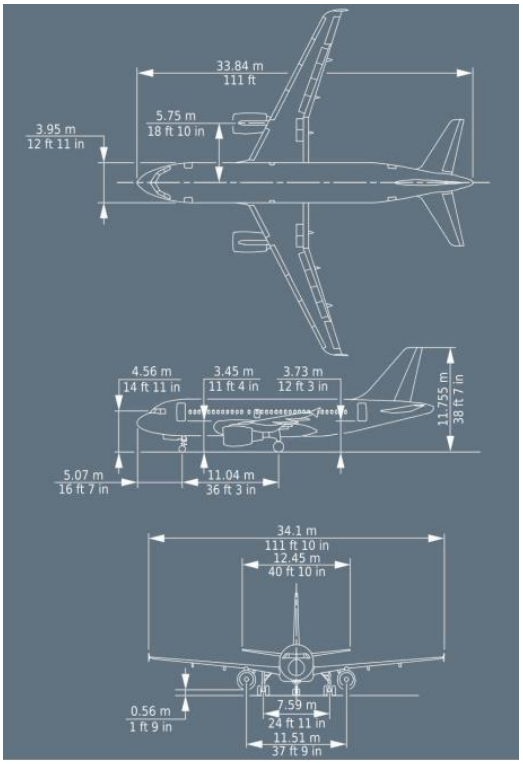


2.2.7. Ground Servicing Points Location (cont.)

A320 (cont.)

1.	**Toilet Servicing**
2.	**Water Filling and/or Draining**
3.	**Electrical Ground Power Receptacle**
4.	**LP Ground Air Supply Connector**
5.	**HP Ground Air Supply Connector**
6.	Hydraulic
7.	IDG Oil Filling
8.	Engine Oil Filling
9.	**Refuelling / Defuelling**
10.	**Gravity Filling Panels**
11.	**Refuelling / Defuelling Panel**
12.	APU Oil Filling

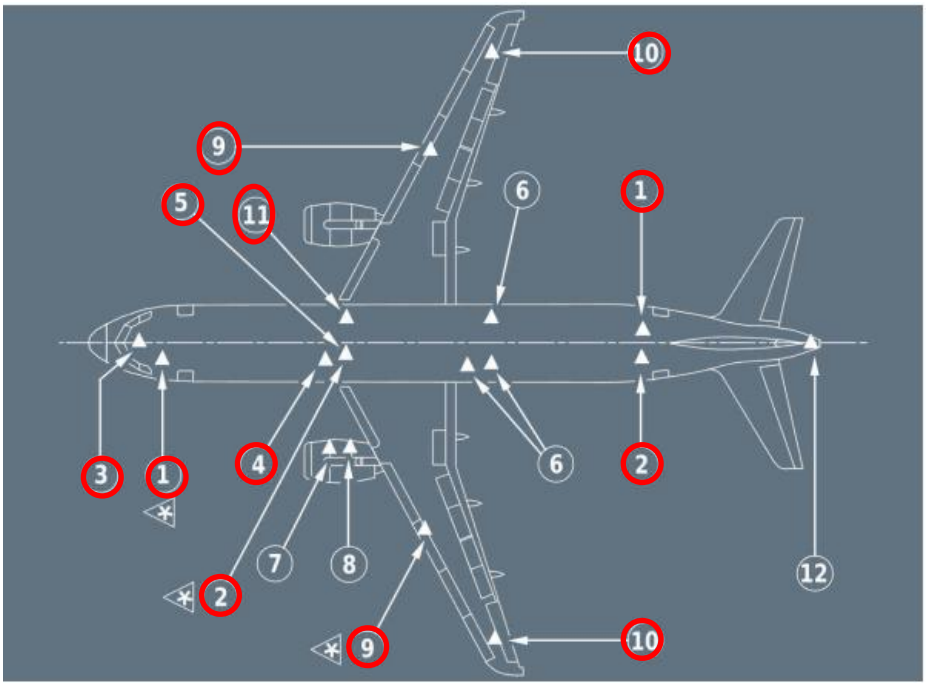
A319



2.2.7. Ground Servicing Points Location (cont.)

A319

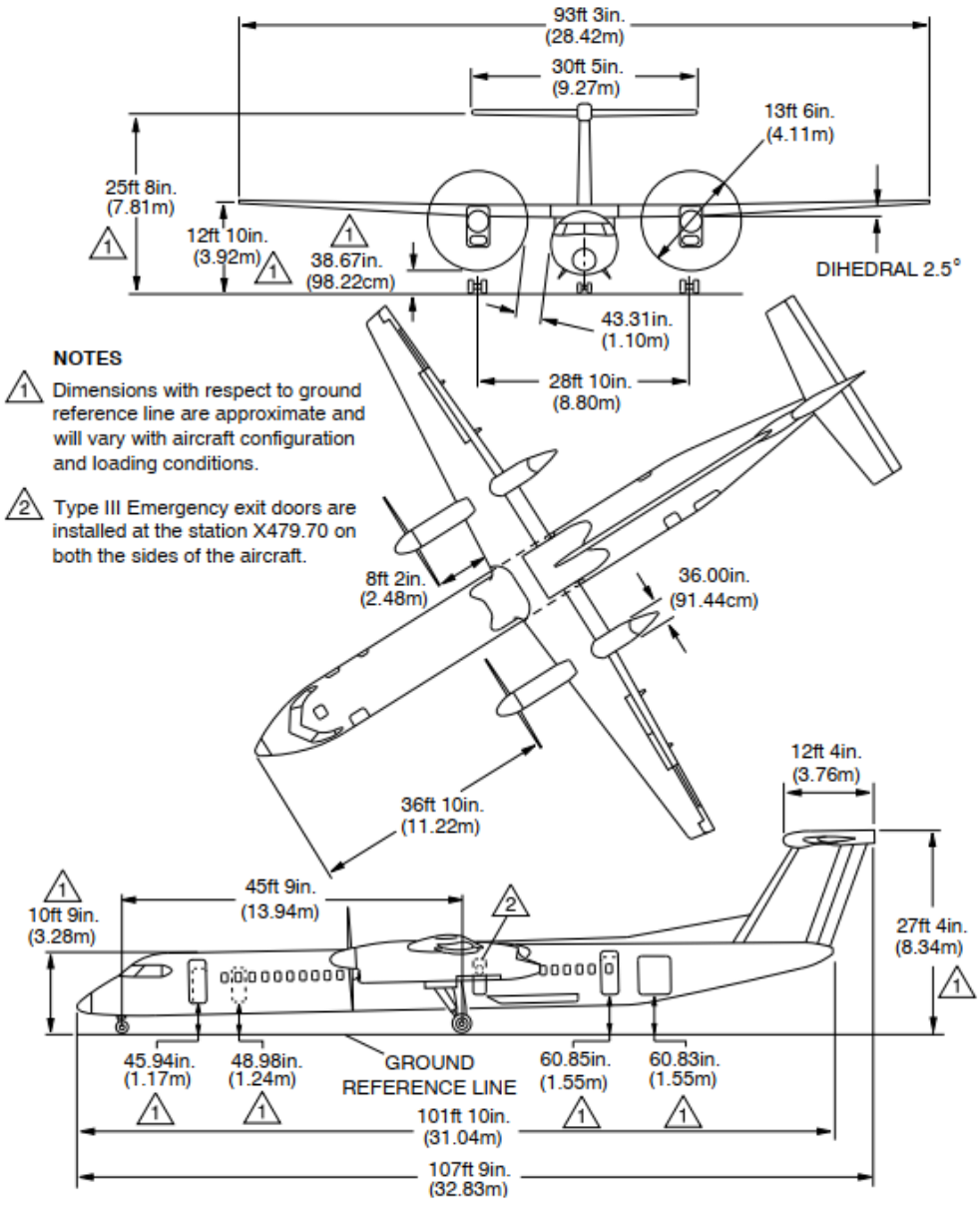
(cont.)



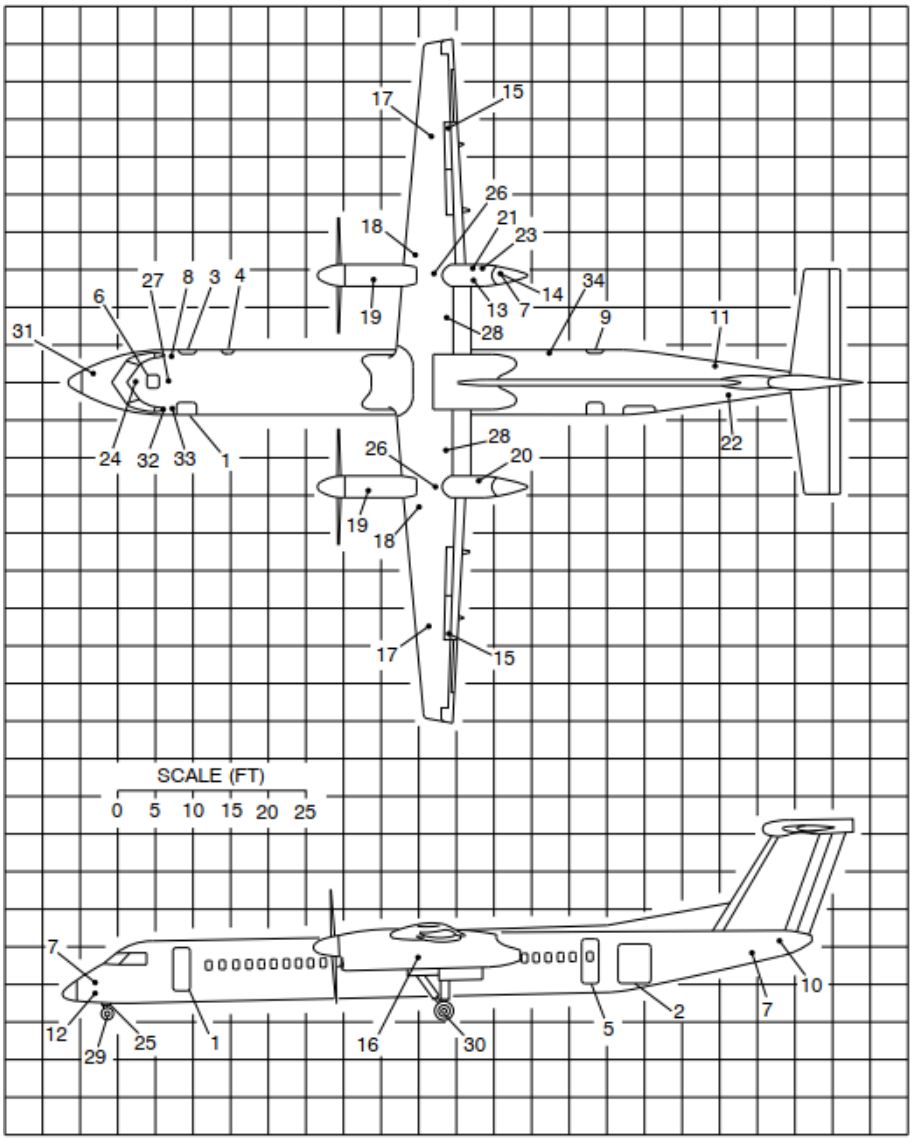
1.	**Toilet Servicing**
2.	**Water Filling and/or Draining**
3.	**Electrical Ground Power Receptacle**
4.	**LP Ground Air Supply Connector**
5.	**HP Ground Air Supply Connector**
6.	Hydraulic
7.	IDG Oil Filling
8.	Engine Oil Filling
9.	**Refuelling / Defuelling**
10.	**Gravity Filling Panels**
11.	**Refuelling / Defuelling Panel**
12.	APU Oil Filling

2.2.7. Ground Servicing Points Location (cont.)

DASH 8 Q400



2.2.7. Ground Servicing Points Location (cont.)

DASH 8 Q400 (cont.)	

2.2.7. Ground Servicing Points Location (cont.)

DASH 8 Q400 (cont.)

1.	Forward Passenger Door
2.	Aft Baggage Door
3.	Forward Baggage Door
4.	Type II/III Emergency Exit
5.	Aft Passenger Door
6.	Flight Compartment Emergency Exit
7.	Interphone Connectors (3)
8.	Lavatory Service / Optional Wash Water Service
9.	Galley Service Door / Type I Emergency Exit
10.	Optional Auxiliary Power Unit (APU)
11.	Optional Conditioned Air Connection
12.	Electrical DC Power Receptacle
13.	Electrical AC Power Receptacle (optional installation on right nose fuselage)
14.	Pressure refuelling Panel and Ground Point
15.	Ground Point (overwing – both sides)
16.	Aircraft Ground Point (on undercarriage – both sides)
17.	Gravity Fuel Filler (overwing – both sides)
18.	Magnastick (fuel quantity – underwing – both sides)
19.	Engine Oil Filler Panel
20.	No.1 Hydraulic System
21.	No.2 Hydraulic System
22.	No.3 Hydraulic System
23.	Brake Accumulator and Hydraulic Hand Pump
24.	Emergency landing Gear Hydraulic Reservoir and Hand Pump
25.	Nose Landing Gear Shock Strut Charging Point
26.	Main Landing Gear shock Strut Charging Point (under nacelle – both sides)
27.	Nose Jacking Point
28.	Wing Jacking Point (underwing – both sides)
29.	Nose Landing Gear Jacking Point
30.	Main Landing Gear Jacking Point (both sides)
31.	Crew Oxygen Supply
32.	Avionics Bay
33.	Wardrobe
34.	Optional Galley Water Service

2.2.8. Toilet Servicing

Introduction	• The complete procedure for servicing the aircraft toilet waste tank consists of the following 3 steps: ✓ Draining of the waste tank(s). ✓ Flushing of the waste tank(s) ✓ Adding an amount of pre-charge and/or a concentrated deodorant recharge product–as applicable. ***CAUTION*:** *Toilet fluids are corrosive.* *Prior to servicing, inspect the toilet-servicing panel on the aircraft for signs of leakage.* *If any horizontal blue streaks are observed, the blue streak must be cleaned prior to servicing.* *After cleaning, look again for signs of leakage.* *Blue ice build-up in higher altitudes may influence airworthiness. In case of a possible leak, immediately inform the airline representative, ground engineer, or advise the flight crew.*
Hygiene Precautions	• Following protective equipment must be used when performing toilet service: ✓ Heavy rubber gloves. ✓ Full face protection. ✓ Protective clothing against harmful wastes. • Do not park the toilet service unit in the same area as the water service unit nor at the water filling point. ***CAUTION*:** *Once an agent has performed toilet servicing on an aircraft, the same agent cannot perform water servicing during the same shift.*
Toilet Servicing Procedure	• The aircraft waste tank must be serviced after each scheduled flight. • Instructions below must be arranged and followed by Handling Agent: ✓ Prior to opening a toilet service panel, check for stains around the panel. ✓ While opening the service panel, stay clear and watch for signs of leakage. ✓ Stay clear of the drain fitting cap while opening and watch for signs of leakage. ✓ Make sure the drain hose Y-fitting coupling is connected correctly, before a drain valve handle is pulled. ✓ Empty the waste tank(s). ✓ Flush the waste tank(s) twice and empty them again. ✓ Pre-charge the tank(s) with the correct quantity of water and disinfectant–as applicable. ✓ Fill the waste tank(s) with the correct amount of water and concentrated deodorant pre charge packets or pre-mixed fluid as applicable. ✓ After servicing ensure that there are no leaks at the drain fitting cap and the end of the drain hose Y-fitting coupling.

2.2.8. Toilet Servicing (cont.)

Toilet Servicing Procedure (cont.)	✓ Close the nozzle tightly in order to prevent the accumulation of ice during flight and wipe off residual water and disinfectant. ✓ Check for possible leakage. ✓ After servicing close and latch, the fitting caps and service panel door. ***IMPORTANT**: Inform Maintenance staff or flight crew, if:* ✓ Fluid leakage is observed. ✓ The drain valve will not open, or the waste tank cannot be drained. ***NOTE:** Report any spillage of waste to your supervisor.*
Draining	• Drain the aircraft waste system into the waste tank of a Toilet Service Unit. • Observe the waste drain hose during draining to confirm that the waste tank is completely emptied. The hose will also vibrate for a few seconds as the contents of the waste tank pass into the waste tank of a Toilet Service Unit. ***NOTE:** Drain the waste tanks one at a time for optimal results.*
Winter Operations (Servicing During Freezing Conditions)	• Take the following measures to prevent freezing of the fluid in the aircraft toilet tanks and lines during freezing conditions: ✓ Drain the waste tanks if the aircraft is parked in the open for several hours without electrical power supply and the temperature is, or is expected to be, below the freezing point. ✓ Service the toilets only after electrical power supply has been restored, and as shortly as possible before departure of the flight concerned. ✓ Add 20% by volume of anti-freeze to the water used as prime charge or use hot water for prime charge. ✓ Ensure the fill line is fully drained before closing the cap to prevent freezing of fluid in the fill line. ***CAUTION:** Do not attempt to remove the frozen substance in the fill lines or connections or on the service panels. Contact maintenance staff immediately.*
Inoperative Toilet Systems	• If defects of the toilet system prevent regular servicing, ask OU maintenance staff–if available–for assistance (e.g., removal of panels, etc.). • If no OU maintenance staff is available, inform the Flight Crew or an OU representative.

2.2.9. Aircraft Cleaning and Disinfection

Definitions	• **Aircraft Cleaning** is removal of visible dirt or particles through mechanical action, normally undertaken on a routine and frequent basis. Cleaning and disinfection can be combined into one process if disinfectants are used during the cleaning. • **Disinfection/Sanitization/Sanitation:** The procedure whereby measures are taken to control or kill infectious agents on a human or animal body, on a surface, on goods or in/on baggage, cargo, containers, and/or conveyances by direct exposure to chemical or physical agents. • **Event:** An occurrence of suspected or confirmed communicable disease on board an aircraft; or aircraft contaminated with body fluids, or other non-standard (uncommon) situation necessitating additional cleaning and disinfection.
Cleaning and Disinfection Products	• All products must be certified for Aircraft Cleaning and Disinfection, airline approved, based on the aircraft Original Equipment Manufacturer (OEM) and always used with care according to product specifications. This includes following local health organization recommendations and using proper Personal Protective Equipment (PPE). • Informed selection and correct use of products is vital in ensuring effective cleaning and disinfection of an aircraft without damaging the aircraft interior, systems and/or equipment while minimizing the likelihood of transmission of any communicable diseases. • Cleaning and disinfection products should comply with and be certified according to OEM standards and/or industry test standards, such as SAE International standards: ✓ AMS1452C, Disinfectant, Aircraft, General Purpose (concentrated liquid). ✓ AMS1453A Disinfectant Cleaner for Aircraft Interior General Purpose Liquid (diluted). ✓ AMS1525D Cleaner for Aircraft Exterior Metallic Surfaces, Wipe Solvent, Cold Operations. ✓ AMS1526C Cleaner for Aircraft Exterior Surfaces, Water-Miscible, Pressure-Spraying Type. ***NOTE 1:*** *These standards might need to be approved by the local authorities, if applicable.* ***NOTE 2:*** *Refer to local authorities for recommendations on products effective against a contagious disease outbreak or pandemic.* ***REFERENCE:*** *IATA "Aircraft Cleaning and Disinfection and Disinfection during and Post Pandemic" (current edition Ed.2 – 22 January 2021).*
Product Use	• The following recommendations are based on OEM guidelines: ✓ It is important that the cleaning and disinfection liquids are used exclusively according to the product specifications and manufacturer Safety Data Sheet (SDS). ✓ Premixed cleaning and disinfection liquids must be used where possible to avoid mixing ratio errors. ✓ Special attention must be paid to the application instructions and mixing ratios (e.g., wipe on, wipe off, water rinsing, drying after cleaning).

2.2.9. Aircraft Cleaning and Disinfection (cont.)

Product Use (cont.)	✓ Only the allowed bottle sizes must be used on board to minimize the risk of spilling the cleaning and disinfection solutions. ✓ Do not spray cleaning and disinfection liquids in the cargo compartment. Instead, apply as per the product and/or airline application instructions (e.g., wet wipe on/off). ✓ Do not allow cleaning and disinfection liquids to contact critical equipment (e.g., smoke detector, electronic door operation equipment and fire extinguishing discharge nozzle). ✓ Disinfectants are flammable. Precautions must be taken around potential sources of ignition, especially hidden sources such as electronic boxes mounted in the cargo compartment. ✓ Periodically inspection performed by the OU Technical Department of the aircraft interior and cargo holds should be conducted to ensure there are no long-term effects or damage over time due to frequent use of cleaning and disinfection products. OEM (Manufacturer) must be contacted if damage is observed. ***CAUTION:*** 1. *Use of non-certified cleaning and disinfection liquids can lead to severe damage to material in the aircraft's interior.* 2. *Use of cleaning and disinfection liquids in the wrong mixing ratio or using the wrong application method can lead to severe damage to material in the aircraft's interior.* 3. *Cleaning and disinfectant solutions tend to be oxidizers. The interior of an aircraft contains many materials susceptible to damage from oxidization. Care must be exercised when using cleaning products and disinfectants.* 4. *Metals used in aircraft construction may corrode upon exposure and aircraft furnishings may have their fire-resistant properties reduced.* 5. *Safety-critical cables and wires may deteriorate upon exposure and aircraft furnishings may have their fire-resistant properties reduced.* 6. *Some cleaning and disinfection products, such as IPA (Isopropyl Alcohol), are flammable. Care must be exercised in the aircraft in the aircraft interior, especially near various electric installations and boxes as these are sources of ignition.*
Aircraft Cleaning – General	• Cleaning personnel starts and ends cleaning in due time according to contract between OU and Handling Agent. • Aircraft Cleaning must be finished, and cleaning personnel must leave the aircraft before passengers are boarding. • If passengers remain on board during short transit times, cabin cleaning must be performed in such a way that passengers are not disturbed. • The Handling Agent (and Supervision Agent, if applicable) shall be responsible for the coordination and initiation of all actions necessary on behalf of Croatia Airlines to ensure the performance of a cleaning procedures and methods given in this section. • The flight deck must be cleaned on special request and under supervision of authorized OU employees (technical or ground staff only).

2.2.9. Aircraft Cleaning and Disinfection (cont.)

Aircraft Disinfection - General	• Disinfection is performed on previously cleaned surface. • Croatia Airlines implemented procedures and processes for disinfection of aircraft based on the company risk assessment, taking in consideration risk levels of routes, destinations, transit stops, aircraft types of configurations, methods and products used, duration of the disinfecting effects of the method, cleaning intervals and other factors. • Croatia Airlines Technical Department, and/or Handling Agent (and Supervision Agent, if applicable) shall be responsible for the coordination and initiation of all actions necessary on behalf of Croatia Airlines to ensure the performance of a disinfection procedures and methods given in this section. • Each disinfection must be recorded in TLB (Technical Log Book) and if applicable Aircraft cleaning and disinfection sheet provided by ICAO (CART).
Aircraft Cleaning Intervals	• Cleaning requirements may vary according to turnaround timetable available. There are four categories of Aircraft Cleaning intervals: ✓ **Turnaround Cleaning:** Performed on aircraft while on the ground prior to departure within a defined ground time. ✓ **Transit Cleaning:** Type of turnaround cleaning that may be performed with transit passengers on board. ✓ **Layover/Night-Stop Cleaning:** Performed when the aircraft is on a longer predefined ground time. The cleaning does not involve removal of cabin panels and/or gallery inserts. ✓ **Inflight Cleaning:** Performed by cabin crew while the aircraft is airborne. ✓ **Deep Cleaning:** Performed when the aircraft is on a longer predefined ground time. The cleaning may include the removal of cabin panels and/or galley inserts. Includes cleaning performed during maintenance.
Disinfection Procedures and Methods	• **Routine disinfection** is considered as a standard process routinely performed in addition to the cleaning process. • **Event based disinfection** (also known as post-event) is performed during or after a specific event (e.g., after the transport of suspected or confirmed cases of communicable diseases onboard, spill of body fluids in the aircraft). This disinfection is not a standard practice and the requirements, methods, procedures as well as training for personnel will most likely differ. ***NOTE:*** *The regulatory recommendation and requirements are described in the World Health Organization (WHO) Guide to Hygiene and Sanitation in Aviation, and ICAO Annex 9.* • There are currently two disinfection methods: ✓ Chemical disinfection is primarily the most common method used, where elimination of pathogens is done via use of chemicals disinfectants; Techniques of application may include: ▪ Wiping procedures – wipe on/wipe out. ▪ Electrostatic Spraying. ▪ Fogging.

2.2.9. Aircraft Cleaning and Disinfection (cont.)

Disinfection Procedures and Methods **(cont.)**	✓ Non-chemical disinfection is also being used or developed to eliminate or neutralize targeted pathogens via different techniques of application such as: ▪ Aircraft Environmental Control System (ECS) - HEPA Filters. ▪ Ultraviolet light. ▪ Ionization. ▪ Thermal treatments. ▪ Other technologies as they may be identified. ***NOTE:*** *Most non-chemical techniques are presently in the testing and approval process for the application in the aircraft, hence must not be used on Croatia Airlines aircrafts.*
Cleaning Equipment	• All equipment and materials used to clean aircraft shall be in accordance with the Croatia Airlines requirements and approved standards. ✓ Vacuum Cleaners: Aircraft-powered or battery-powered vacuum cleaners can be used for carpets, air vents, seat arm storage, seat rails, behind-the-seat storage, etc. Manual (non-electric) carpet sweepers are not an adequate substitute but may be necessary when time is limited, or a large number of passengers remain on board. ***CAUTION:*** *Do not unplug a vacuum cleaner by pulling on the cord. Pull from the plug.* ✓ Hand Brushes: For use in areas inaccessible to vacuum cleaners. ✓ Chewing Gum Remover: To remove chewing gum. ✓ Mops and Brooms: **For cleaning floors and other hard surfaces. Must be clearly identified or color-coded for toilet cleaning and general cleaning** to avoid cross-contamination (e.g., red/blue for lavatories, yellow for galleys, green for cabin). They shall be separated at all times, including during cleaning activities. ✓ Towels/Cloths: There are different types according to airline requirements for general purpose cleaning and polishing. **Must be clearly identified or color-coded for toilet cleaning and general cleaning (top-down approach).** They shall be separated at all times, including during cleaning activities. ✓ Absorbent Wipes: For mopping up spillages. ✓ Hand Sprayers: For dispensing detergents and disinfectants. ✓ Runners: For floor and/or carpet protection. ✓ Soft Rolls/Wipes: For wiping up spillages. ✓ Buckets: Buckets need to be checked to ensure the cleaning liquid is being replaced regularly.
Cleaning and Disinfection Tasks	• The cleaning and disinfection tasks serve as a guideline on how to provide a safe and sanitary operating environment for passengers, crew, and cleaning personnel. • The tasks, as defined in the following tables, provide a Croatia Airlines framework for Handling Agents and Providers responsible for cleaning and disinfection process.

2.2.9. Aircraft Cleaning and Disinfection (cont.)

Cleaning and Disinfection Tasks (cont.)	• Clean, disinfect and prepare these areas as per the Croatia Airlines standards. The six areas are: ✓ Flight Deck. ✓ Galleys. ✓ Cabin Crew Seats and Service/Entry Door Lining Panels. ✓ Lavatories. ✓ Passenger Seating Area. ✓ Cargo Hold(s).

FLIGHT DECK

IMPORTANT: *Do not enter the flight deck unless the flight crew or airline technician is present to avoid operating any switches during cleaning and disinfection.*

Tasks	Turn around	Layover
Clean and disinfect the pilot and co-pilot seats, including armrests, table, and seat controls.		
Clean and disinfect seatbelt buckles.		
Clean and disinfect flight controls (e.g., control column). *		
Clean and disinfect the sidewall lining and associated controls (e.g., nose wheel steering tiller, display controls, electronic flight bag). *		
Clean and disinfect the instrument panel and associated controls (e.g., gear lever). *		
Clean and disinfect the glareshield and associated controls (e.g., autopilot, warning/caution buttons). *		
Clean and disinfect the sun visors and surrounding area. *		
Clean and disinfect the overhead panel, including grips and handles. *		
Clean and disinfect the central console, including engine controls, flaps, communication units, etc. *		
Clean and disinfect the pilot and co-pilot headsets. *		
Clean the inside of the windshield with the designated product. *		
Clean and disinfect the cabin access door (both sides), handle and lock.		
Extend, clean and disinfect the folding seats/jump seats and any associated equipment.		
Clean down pedals. *		
Clean floor, vacuum carpet, empty waste boxes, wipe shelves.		

CAUTION:
(a) Frequency of cleaning of the flight deck should account for both separation of the flight deck from the passenger compartment and frequency of crew transitions.
(b) Adhere to airline-specific procedures regarding cleaning the flight deck (e.g., the cleaning crew may only be permitted to enter the flight deck when flight crew or maintenance personnel is present).
(c) Cleaning and disinfection fluids for the flight deck can be different from fluids used in the cabin.
(d) Do not spray disinfectant directly onto panels and screens; it should be applied with cloth.
(e) Ensure liquid does not seep into controls.
(f) Any accidental adjustment of important instruments during the cleaning process must be reported to the flight crew or maintenance personnel.
(g) Buckets shall not be brought into the cockpit.

Note: Cleaning and disinfecting of areas designated with an asterisk (*) above shall be done by personnel specifically trained for flight deck cleaning.

2.2.9. Aircraft Cleaning and Disinfection (cont.)

GALLEYS

Tasks	Turn around	Layover
Clean and disinfect worktops, countertops, and service table.		
Clean ovens.		
Clean coffeemakers.		
Clean water boilers.		
Clean and disinfect panels and doors.		
Clean and disinfect switcher panels and handles.		
Empty and clean waste compactors; add waste sac/box, if needed.		
Clean and disinfect lockers/drawers.		
Clean and disinfect trolley containers and storage.		
Clean and disinfect collapsible trolleys.		
Drain and disinfect sinks, including taps and drain plug.		
Remove trash from bin compartments and clean/disinfect bin area, including flap.		
Sweep, mop and disinfect floor.		

CAUTION:
Clean ovens and aluminium surfaces with detergents as per recommended standards.

CABIN CREW SEATS AND SERVICE/ENTRY DOOR LINING PANELS

Tasks	Turn around	Layover
Clean and disinfect each attendant seat, seatbelt and surrounding location.		
Clean and disinfect cabin crew intercom.		
Empty and clean seat pockets.		
Inspect emergency leaflets for damage and clean, disinfect or replace.		
Arrange or remove and replace literature and amenities.		
Clean and disinfect seat upholstery and remove any evident stains.		
Clean and disinfect door frames, including door panels, sills, exit doors and emergency □ □ slide covers.		

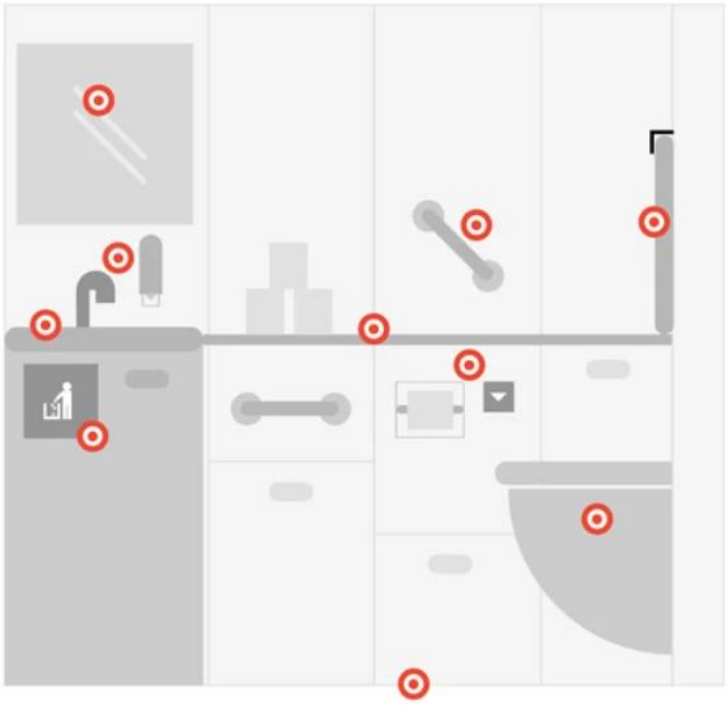
2.2.9. Aircraft Cleaning and Disinfection (cont.)

LAVATORIES

Tasks	Turn around	Layover
Clean mirrors and windows, if applicable, using authorized glass cleaners.		
Ensure all soap dispensers are functional and refilled with liquid soap.		
Clean and disinfect soap dispensers.		
Clean and disinfect hand basin, handles and steel fittings.		
Clean and disinfect sidewall panels and ceiling.		
Clean and disinfect shelves.		
Clean and disinfect diaper changing table, if available.		
Clean and disinfect toilet bowl, shroud, seat and flushing mechanism (lever or button).		
Empty waste bin(s) and replace waste sac, if applicable. Clean and disinfect compartment, including flap, before reinstalling bin(s).		
Clean and disinfect floor.		
Ensure toilet compartment is dressed and stocked with amenities required for flight.		
Clean and disinfect lavatory door (both sides), including the door lock, knob/lever, grip, door grilles and coat hook(s), if applicable.		

CAUTION:
(a) Immediately wipe off any cleaning/disinfectant liquid spills on the surfaces to prevent damage or deterioration.
(b) Toilet cleaning shall be performed from top to bottom for hygienic reasons.
(c) Use only towels identified specifically for toilet cleaning.
(d) Do not reuse mops and towels used for toilet cleaning outside of lavatories.

IATA recommendations (see picture below):



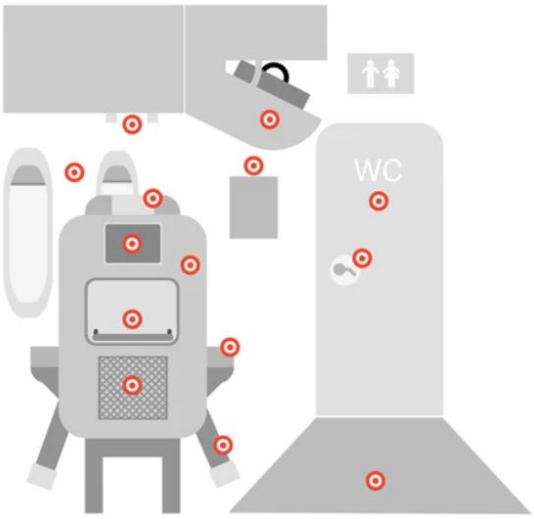
2.2.9. Aircraft Cleaning and Disinfection (cont.)

PASSENGER SEATING AREA

Tasks	Turn around	Layover
Use vacuum cleaner to remove loose particles from seats, floors, carpets and curtains after cleaning and disinfecting.		
Remove headcovers and pillow covers from seats, if applicable.		
Clean and disinfect cabin windows, window shades, dimmable window controls, if applicable, sidewall lining and ceiling, including air nozzles.		
Clean and disinfect magazine racks.		
Clean and disinfect interior and exterior of overhead bins, including handles.		
Remove all waste from seat pockets, arm rests, back rest pockets, shoe bins and seat lockers, then clean and disinfect.		
Remove and replace literature and amenities as needed and arrange according to airline standards.		
Clean and disinfect or replace emergency leaflets.		
Clean, disinfect and dry both sides of tray tables (including cocktail table, if applicable), including the locking mechanism.		
For fabric seat covers, use vacuum cleaner to remove loose particles. For leather seat covers, wipe and ensure seats are dry.		
Remove any visible stains on seats or request change of fabric.		
Clean and disinfect seat belts and buckles.		
Clean and disinfect arm rests, In-Flight Entertainment (IFE) screens and passenger control units (e.g., reading lights, air nozzles, IFE remote control, seat controls).		
Clean and disinfect infant bassinets, extra seat belts and other amenities, if applicable.		
Dress the passenger seat to signify clean as per airline standards.		
Clean ventilation grids/grilles.		

CAUTION:
(a) Be careful while handling disposable bags to avoid sharp objects that may have been disposed of by passengers.
(b) If there is a chewing gum stain on the floor or seats, use gum remover to remove the stain rather than sharp objects.
(c) For some parts of the aircraft (e.g., closets, doghouse), assistance from may be requested to remove emergency equipment to enable cleaning and disinfection.

IATA recommendations (see picture below)



2.2.9. Aircraft Cleaning and Disinfection (cont.)

CARGO HOLD(S)

Tasks	Turn around	Layover
Clean and disinfect cargo door surroundings and door handles for all lower deck cargo holds (FWD, AFT and Bulk), in addition to main deck cargo door for cargo aircraft.		
Clean and disinfect cargo loading control (CLS) panels, including cargo joystick in ceiling and latches, if applicable.		
Clean and disinfect all access panels and service access points, including cargo door control panels.		
Clean and disinfect door net stanchions, net attachment fittings and tie-down points, if applicable, in bulk compartment.		
Clean and disinfect light switches.		
	CAUTION: (a) When cleaning and disinfecting the complete cargo hold, CTN Technical Department must be contacted for further clarification of appropriate techniques to be used. (b) Any aircraft where personnel have to work inside the compartment to manually load/unload, cleaning of floor areas should be considered (e.g., bulk loaded cargo holds).	

Lost or Found / Damage / Any Suspicious Items	• Do not check/open any items found as the nature of the contents inside is unknown and has the potential of being harmful/dangerous. • Any lost property found must be handed in according to Croatia Airlines procedure (and local, if applicable). • Any seat or cabin interior/area found damaged must be reported to the cabin crew and/or maintenance staff, as appropriate. • Any suspicious item found must be immediately reported to the cabin crew (as per Croatia Airlines procedure).
Garbage Disposal	• All aircraft garbage must be transported to the designated disposal area. • Do not obstruct jetties or steps with garbage bags. • Do no throw garbage bags onto the ramp from the aircraft or from steps.
Health and Safety Instructions	• Wear the required personal protective equipment. • Exercise caution while checking the contents inside the seat covers to prevent cuts and injuries by any sharp items placed there. • Ensure suitable disposal containers are available and used for the removal of soiled articles, waste, and sharps. • Disposal of waste must be done in accordance with local airport authority regulations. • Use the correct and approved cleaning materials. • Be familiar with the Material Safety Data Sheets (MSDS) to understand the hazards of the chemicals used in cleaning. • Take care while using passenger boarding bridge, stairs.
Training	• In order to ensure the fulfillment of the contract, the handling agent provides competent employees, who have been trained for the respective operational function and tasks “aircraft cleaning” according to industry standards IATA AHM 1110.

2.2.9.1. Aircraft Cleaning and Disinfection During a Pandemic

General	• During a pandemic, all existing cleaning best practices are, in principle, still applicable. • In accordance with the regulatory requirements and recommendations (health, national, etc.) Croatia Airlines revised and amended all procedures to include new measures addressing the threat.
Actions Prior to Cleaning	• To minimize person-generated contaminant concentrations during ground and flight operations, it is recommended to maximize total cabin airflow; therefore, care should be taken to avoid blocking air vents (particularly along the floor). • The following are general recommendations for cabin air considerations and there may be exceptions for specific aircraft models: ✓ The aircraft Auxiliary Power Unit (APU) should be permitted to be used at the gate/stand to enable the aircraft's air conditioning system to be operated if equivalent filtration from the external Pre-Conditioned Air (PCA) is not available. ✓ If the aircraft has an air recirculation system but does not have High-Efficiency Particulate Air (HEPA) filters installed, refer to OEM documents or contact the OEM to determine the recirculation system setting. ✓ It is recommended that fresh air and recirculation systems be operated to exchange the volume of cabin air before cleaning crew enter the aircraft for cleaning purposes. ▪ For those aircraft with air conditioning, run the air conditioning packs (with bleed air provided by the APU or engines) or supply air via an external PCA source for at least 10 minutes prior to the boarding process, throughout boarding and during disembarkation. ▪ For aircraft with HEPA filters, run the recirculation system to maximize flow through the filters. ▪ For those aircraft without or an inoperative air conditioning system, keep the aircraft doors open during the turnaround to facilitate cabin air exchange (passenger doors, service door and cargo door) as much as practical. ***CAUTION:*** *Ensure access doors are only in the open position if there is an appropriate boarding device or other equipment positioned at the door.* ***NOTE:*** *It must be ensured that cleaning equipment and tools (e.g., vacuum cleaners, brushes, brooms) are clean and hygienic prior entering the aircraft cabin and between use.*
Actions During Cleaning and Disinfection	• Once on board, ventilation systems should be kept running while cleaning takes place. ***NOTE:*** *In some cases, depending on the technique used for disinfection, regulators may recommend that the air conditioner be turned off during the disinfection operation and the passenger cabin fully ventilated after disinfection.*

2.2.9.1. Aircraft Cleaning and Disinfection During a Pandemic (cont.)

Actions During Cleaning and Disinfection (cont.)	• To avoid contamination on board, cleaning crew shall: ✓ Be assigned specific tasks, as much as possible. ✓ Use different cleaning materials in each task area (e.g., cloths, buckets, brushes, mops), potentially using color-coded items. ✓ Carry their own cleaning items on board to avoid unnecessary exchange of cleaning items between different teams/persons. ✓ Use new disposable gloves in each area. Disposable gloves shall not be reused in other sections of the cabin. ✓ Follow the correct sequence of cleaning; for example, from top to bottom or front to back, as relevant (e.g., toilets, galleys, floors). • Cleaning crew shall use disinfection product(s) as per the recommendation in section 2.2.9. • Cleaning Crew shall clean and disinfect all defined areas as specified in section 2.2.9. by using approved disinfection products as defined in section 2.2.9. and appropriate cleaning materials/tools such as mopping, wiping, or any other approved methods.
Actions After Cleaning and Disinfection	• After cleaning and disinfection, cleaning crew shall disembark with all items for cleaning, including all garbage, and that the following provisions are followed: ✓ Disposal of waste must be done in accordance with local airport authority regulations. ✓ Cleaning staff disembarking the aircraft with waste materials shall wear gloves to protect themselves and dispose of gloves after the disposal process. ✓ Do not obstruct the passenger boarding bridge or steps with waste bags. ✓ Do not throw waste bags onto the ramp from the aircraft or steps. ✓ If any amenities are to be loaded prior to departure, ensure this is done and indicated in the handover documentation.
Handover Procedures	• For disinfection reporting protocol and handling of lost, found, damaged or suspicious items, refer to section 2.2.9. ***CAUTION:*** *Limit the number of personnel moving into/out of a cleaned aircraft to maintain the sterile environment prior to boarding.*

2.2.9.2. Cleaning and Disinfection During an Event

Suspected or Confirmed Case of Communicable Disease on Board	• The following are guidelines for cleaning crew who have to clean an arriving aircraft with a suspected case of communicable disease. During an outbreak of a specific communicable disease, the World Health Organization (WHO) or the national health authorities may modify or add further procedures to these guidelines. ✓ Wear PPE as recommended by the national public health authority. ***NOTE:*** *PPE requires appropriate training before use.* ✓ Remove and discard gloves after cleaning or if they become soiled or damaged. ✓ Use only cleaning agents and disinfectants at recommended concentrations and contact times that have been approved by Croatia Airlines. ✓ Begin cleaning at the top (light and air controls) and proceed downward progressively working from clean to dirty areas. • Surfaces to be cleaned include: ✓ Affected seat. ✓ Adjacent seats in the same row. ✓ Back of seats in the row in front. ✓ Light and air controls. ✓ Adjacent walls and windows. ✓ Seatbacks (the plastic and/or metal part). ✓ IFE video monitor. ✓ Tray tables. ✓ Armrests. ✓ Remove seat pocket contents and replace (safety briefing card can be cleaned with approved disinfectant). • Clean lavatory(ies) used by the sick passenger, including: ✓ Door handle. ✓ Locking device. ✓ Faucet. ✓ Wash basin. ✓ Adjacent walls. ✓ Counter. ✓ Toilet seat. ***NOTE:*** *In exceptional circumstances, public health authorities may require additional cleaning.* • Disinfection of upholstery, carpets, or storage compartments is only indicated when they have been soiled by body fluids. In such cases, use an absorption agent first, if required, clean any visible soil, and disinfect before vacuuming to eliminate the risk of re-aerosolization.

2.2.9.2. Cleaning and Disinfection During an Event (cont.)

Suspected or Confirmed Case of Communicable Disease on Board **(cont.)**	• Wash hands with soap and water immediately after PPE is removed. An alcohol-based hand sanitizer may be used as an alternative if the hands are not visibly soiled. • Dispose of soiled material and PPE in a biohazard bag if one is available. If not, place in an intact plastic bag, seal it, and label it as biohazard. • Do not use compressed air. It might re-aerosolize infectious material.
Aircraft Contaminated with Body Fluids	• When contaminated with blood, respiratory secretions, vomit, excretions, and other bodily liquid (contaminants), the aircraft cabin should be disinfected by ground cleaning crew or specially qualified personnel after disembarkation. • Air Conditioning Unit (ACU) should be adjusted to ensure full ventilation is completed and then turned off. • Once the air ventilation is finished: ✓ Wear disposable gloves and other PPE according to local instructions. ✓ Absorb the contaminant(s) into a towel or apply absorbent powder and disinfectant to the contaminants evenly. ***Note:*** *Absorbent and disinfectant used must have been tested and approved for the interior material being cleaned.* ✓ Place the used towel and gloves in a biohazard or other waste bag. When using absorbent powder, remove the coagulated contaminants with portable pickup shovels and place into biohazard waste bags. ✓ Clean and disinfect the contaminated area wearing new gloves. It is important to follow the application method and effective contact time as per the OEM SDS. ✓ Remove gloves and clean/disinfect hands before removing other PPE in the following order: ▪ Take off protective suits (aprons) and gloves. ▪ For visibly soiled hands, wash with soap and water thoroughly. ▪ Take off goggles and facial mask/shield. ▪ Apply skin disinfection/hand sanitizer to clean hands and other parts of the body that may have been exposed to contaminants. ▪ Place all used PPE and contaminated items in a biohazard waste bag and seal the bag. ▪ Dispose of the biohazard as per local regulations. ***Note:*** *When cleaning and disinfection was initially performed by cabin crew during flight, they should inform ground departments at destination to prepare for additional cleaning and/or disinfection, if need be, and disposal of biohazard.*

2.2.10. Potable Water

General	• The water used for uplift shall fully meet the hygiene and testing requirements detailed in AHM 440 7.5; 8.11.1 and 9.1 and those detailed below in Potable Water Hygiene Requirements. • Equipment used shall fully comply with the specifications detailed in AHM 970 for water servicing vehicles, or AHM 981 for towed service carts. • All equipment shall be serviced according to the manufacturer's recommendations. Records shall be kept of all servicing, cleaning, disinfection, and maintenance tasks performed. • All equipment and facilities used shall be maintained to the highest possible hygienic standard. • Only uplift water to aircraft if authorized or requested by Croatia Airlines. • Replenish the aircraft tank according to the operating airline instructions. Any deviation shall be reported to the supervisor or airline representative. • Croatia Airlines shall be informed of any issue that may affect (or may have affected) the standard of water uplifted to their aircraft, including contamination incidents, maintenance findings and test failures.
Potable Water Servicing Procedures	• Filling Aircraft Water Tanks: ✓ Before connecting the aircraft filling hose to the aircraft, flush the hose. ***NOTE:*** *The hose needs to be flushed in a basket or waste container before connecting the hose to the aircraft filling port. (Not required on consecutive servicing).* ✓ Do not place hose ends on the ground. ✓ On immediate turnaround sequence, water service shall always be performed before toilet service. ✓ Aircraft filling port shall be cleaned/wiped dry with antiseptic wipes before the hose is connected to the aircraft adaptor. ***NOTE:*** *Cleaning may be carried out either by wiping with a towelette or equivalent soaked with a disinfecting solution or wiping with a disinfectant pre-soaked "towelettes". The spray-and-wipe procedure is accepted if sprayed directly on the towelette. However, they should not spray directly into the aircraft coupling.* ✓ Fill the water tank(s) to the required level. ✓ Each aircraft type has specific requirements for filling and draining. For detailed instructions please contact Croatia Airlines (representative or Technical Department). ✓ When not in use, hose-ends shall be: ▪ Kept capped or ▪ Attached to a dummy connector or ▪ Kept in a container filled with disinfectant solution or ▪ Treated with disinfectant before use.

2.2.10. Potable Water (cont.)

Water Servicing During Freezing Conditions	• The following actions shall be followed to prevent freezing of the water in the aircraft water tanks and lines during freezing conditions: ✓ Drain the aircraft water tanks if instructed by the operating airline, as per the operating airline procedures. Dispose of water in accordance with airport operator requirements. ✓ Ensure the fill line is fully drained before closing the cap to prevent freezing of fluid inside. ***CAUTION:*** *1. Keep aircraft cargo doors closed to prevent water lines from freezing when the cargo compartments are not being loaded or unloaded.* *2. Do not attempt to remove the frozen substance in the fill lines or connections or on the service panels. Contact maintenance immediately.*
Potable Water Hygiene Requirements	• Fill Points and Water Cabinets ✓ Daily, weekly, and monthly tasks shall be conducted and recorded as per AHM 440 7.5 and 9.1. ✓ Hoses, connectors, and water quality shall meet AHM 440 specifications and hygiene requirements. ✓ The water shall only be used as potable water for aircraft. ✓ The area around the fill point/water cabinet shall be kept clean and free from rubbish. ✓ When not in use, all fill point hoses shall be secured and locked in a metal pestproof enclosure. Fill points without attached hoses shall be capped. ✓ When not in use, hose-ends shall be: ▪ Kept capped or ▪ Attached to a dummy connector or ▪ Kept in a container filled with disinfectant solution or ▪ Treated with disinfectant before use. ✓ Do not place hose ends on the ground.
Water Service Vehicles & Towed Service Carts	• The water service vehicles and towed service carts shall: ✓ Daily, weekly, and monthly tasks shall be conducted and recorded as per AHM 440 8.11.1. ✓ Only be filled at a designated potable water fill point using approved hoses and couplings. ✓ Only be used to fill aircraft potable water tanks. ✓ Be parked in a clean and secure area, away from toilet servicing vehicles. ✓ Not be positioned close to toilet servicing units at any time, particularly when toilet servicing or toilet waste disposal is taking place.

2.2.10. Potable Water (cont.)

Water Service Vehicles & Towed Service Carts **(cont.)**	***Note 1:*** *The water service vehicles and towed service carts should be parked in a shaded area during hot sunny weather, particularly if filled.* ***Note 2:*** *The tank shall be drained completely at least once per calendar day.*
Water Servicing Staff	• The water servicing staff shall: ✓ Be dressed in clean working clothes in accordance with the WHO Drinking Water Quality Standard and shall be assigned to the drinking water servicing. ✓ For hygiene reasons, if operators conduct both toilet and water servicing functions during the course of their shift, the operators must service potable water before servicing aircraft toilets. ***CAUTION:*** *Should the operator be reassigned to perform water servicing after he/she has performed toilet servicing, the operator shall shower and change into clean external clothes/overalls and PPE.* ✓ The operator should wear single use or disposable gloves during the drinking water servicing AHM 440 10.8.
Water Treatment Chemicals (Sanitiser)	• Water uplifted to aircraft potable water tanks shall contain a low concentration of disinfectant chemical (sanitiser), of a type suitable for potable water. The most common sanitisers are based on chlorine or hydrogen peroxide. Refer to AHM 440 for details.
Water Service Vehicle Cleaning and Disinfection	• Water service vehicles, towed service cart tanks and hoses shall be checked every day, disinfected at least once per week and ‘deep’ cleaned at least once per month. Refer to AHM 440 for details.
Fill Point and Water Cabinet Cleaning and Disinfection	• Fill points, hose cabinets and their surroundings shall be checked daily for general cleanliness. • Fill points and hoses shall be disinfected at least once a week. Refer to AHM 440 for details.

2.2.11. Air-conditioning of Aircraft

<table>
<tr><td>General</td><td>

Air conditioning is to be provided whenever the:

✓ outside air temperature requires such action (lower than +5ºC, more than +25ºC).
✓ positioning the aircraft after a night stop.
✓ in case of extended ground times during the day.

Always to be coordinated with the flight crew.

</td></tr>
<tr><td>Guidelines</td><td>

The table below shows guidelines for starting of air conditioning:

<table>
<tr><th>Start</th><th>When the outside temperature is…</th></tr>
<tr><td>Heating</td><td>Lower than +5ºC</td></tr>
<tr><td>Cooling</td><td>Higher than +25ºC</td></tr>
</table>

Aircraft condition should be started no later than 60 minutes prior to the STD.
Air-conditioning can either be provided by the APU and the on-board air-conditioning unit, or by an external heating/air conditioning unit – if available locally.
NOTE: The most economical method shall be applied.
Air conditioning should be terminated shortly before embarking of the passengers.
Local regulations to be observed for use of air condition units during fuelling.

</td></tr>
</table>

2.2.12. De-icing / Anti - icing

General	• De-icing / anti-icing comprises: ✓ removal of snow, slush, and ice. ✓ freezing prevention. ***IMPORTANT:*** *If not anticipated or timely planned, de-icing / anti-icing operations might influence punctuality*. ***CAUTION:*** *Any de-icing / anti-icing is FORBIDDEN if CTN (OU) Mechanic, or CTN (OU) Authorized Person is not present.* • De-icing operations must be performed with extreme caution to prevent injury to personnel and damage to aircraft and equipment. • De-icing is NOT permitted during the fuelling process.
Selection and Control of a Handling Agent	• The Company to be contracted to perform de-icing / anti-icing will be selected by Croatia Airlines GHA Department in coordination with De/Anti icing Programme Manager who will judge the professional qualification of the Contracted Service Provider (Handling Agent).
De-Icing Fluids and Equipment	• Level of quality and safety during de-icing / anti-icing operations greatly depends on the respective fluids. • ONLY de/anti icing fluids approved by CTN (OU) may be used. • The respective Handling Agent (and/or Contracted Service Provider) is responsible for the purchase and storage of the de-icing fluids as well as for the provision of appropriate de-icing / anti-icing equipment. • If the Handling agent does not provide a de-icing fluid approved by CTN (OU), or if doubts about the quality of the fluid and/or equipment in use arises, the Station Manager (and/or authorized OU representative) must immediately inform the GHA Department and/or De-Icing / Anti-Icing Programme Manager, so that appropriate measures can be taken. • Types of fluids: ✓ Type I Fluids. ✓ Types II, III, IV
"Clear Aircraft Concept"	• During conditions conductive to aircraft icing during ground operations, take-off shall not be attempted when ice, snow, slush, or frost is present or adhering to the wings, propellers, control surfaces, engine inlets or other critical surfaces. • **A pilot shall not take off in an aircraft that has:** ✓ Snow, slush or ice on the wings or stabilizers or control surfaces or any frost on the upper surfaces of wings or stabilizers or control surfaces. ✓ Frost, snow, slush or ice on any propeller, windshield, or power plant installation or on airspeed, altimeter, rate of climb or flight altitude instrument systems. ✓ The time interval between de–icing / anti–icing the aircraft and take off shall be as short as possible, i.e., whenever possible, de-icing / anti-icing shall be carried out with passengers on board, doors closed and the aircraft ready for departure.

2.2.12. De-icing / Anti - icing (cont.)

Responsibilities and Authorities	• Responsibility for the delegation, regulation and control of the aircraft ground De-Icing /Anti-Icing operations are defined in **De/Anti-Icing Manual (OP-PSU-045)**, available on Company Intranet and Link for Handling Agents. • When aircraft are operating under snow and ice conditions, the following responsibilities apply: **1. Pilot in Command:** ✓ has the authority to decide whether de-icing / anti-icing is required. ✓ is authorized and responsible for making decision and requesting proper fluid concentration and his request supersedes any previous decision made by ground staff. ✓ has responsibility for accepting the performed procedure. ✓ is responsible after receiving and accepting Anti-Icing Code, to ensure that the aircraft will take off with relevant surfaces free of frost, ice, slush and snow. ✓ has to enter the Anti-Icing Code in the Technical Log Book (TLB). ✓ has to make spot-checks of the aircraft condition whenever he has doubts concerning the effectiveness of the de-icing / anti-icing or during prolonged taxiing in heavy precipitation versus holdover time. ✓ shall not commence take-off unless the external surfaces are clear of any deposit which might adversely affect the performance and/or controllability of the aircraft, except as permitted in the Aircraft Flight Manual. **2. Station Manager (and/or Authorized Staff):** ✓ Where applicable, is responsible for the coordination between the Commander and the Contracted Service Provider. ***NOTE:*** *Procedures and methods applied by Handling Agents must be approved by Croatia Airlines.* **3. Handling Agent (Contracted Service Provider):** ✓ The Company responsible for de-icing / anti-icing is responsible for maintaining infrastructure, vehicles, equipment, personnel, fluids, training, and procedures. ***NOTE:*** *It has to be in accordance with the latest edition of the relevant SAE documents (AS6285, AMS1424, AMS1428, ARP1971).* ✓ Post De-Icing / Anti-Icing check (also applicable to CTN SJJ Station Manager): ▪ Is responsible that work is properly carried out in accordance with the Commander's instructions and the regulations laid down in **De-Icing /Anti-Icing Manual (OP-PSU-045)**, AS6285 latest issue and the Aircraft Maintenance Manual of the respective aircraft type. ▪ Make sure that the relevant surfaces are free of frost, slush, ice and snow at time of dispatch.

2.2.12. De-icing / Anti - icing (cont.)

Responsibilities and Authorities (cont.)	▪ Is responsible for the correct reporting of the applicable anti-icing code to the Commander after post de/anti-icing check is completed. This confirms the correct and complete accomplishment of de/anti-icing of the aircraft and transfers the responsibility for the condition of the aircraft before take-off to the Commander.
Communication Requirements	• The person communicating with the flight crew shall have a basic knowledge of the English language in order to communicate properly (Operational level or equivalent according to SAE6286). • Communication between the Commander and the de-icing crew will usually be achieved using combination of printed forms and verbal communication. • For treatments carried out after aircraft doors are closed, use of flight interphone (headset) or VHF radio will usually be required. • Use of hand signals is not recommended except for the final “ALL CLEAR” signal. • If any significant damage on the aircraft is identified during the walk around / contamination check and/or damage identified or caused during the de/anti-icing process, it must immediately be reported to the flight crew for further investigation and decision for aircraft airworthiness. ***REFERENCE:*** *For de/anti-icing dialogue, refer section “De-icing / Anti-icing Operation Dialogue”, 2.2.3.*
Staff Training and Qualification Requirements	• De-icing/anti-icing procedures must be carried out exclusively by personnel trained and qualified on this subject. Companies providing de-icing/anti-icing services should have both a Qualification Program and a Quality Assurance Program to monitor and maintain an acceptable level of competence. • All de/anti-icing trainings will be performed by Croatia Airlines De/Anti-Icing and Fuel Quality Program Manager, qualified as DI-L70, and authorized by company management. He shall be authorized by having necessary qualifications and experience and will retain his qualification as long as the responsibility remains with the same person. Also, he shall keep himself up to date with de-icing industry news and operational matters.
Personnel Safety	• The safety factors given below are designed to ensure that in the performance of de-icing an aircraft, the safety of personnel performing the task is not compromised. ✓ Appropriate PPE should be checked for serviceability and worn by all personnel engaged in de-icing operations. ✓ Cones should be removed as necessary to allow access to the aircraft surfaces. Replace the cones on completion of the de-icing operation if the aircraft is not departing. ✓ To prevent injury, caution must be taken when filling de-icing vehicles with hot fluid. ▪ When handling de-icing fluids, personnel should understand and follow the precautions contained in the fluid manufacturer's Safety Data Sheets. ▪ Before de-icing operations start, de-icing should be coordinated between the de-icing and ground handling personnel.

2.2.12. De-icing / Anti - icing (cont.)

Personnel Safety **(cont.)**	▪ De-icing/anti-icing fluids may be very hot; 60°C/140°F or even warmer. To prevent injuries, ground personnel, passengers and flight crew shall be prevented from walking near an aircraft that is being de-iced. ▪ Slippery conditions can exist on the ground and on the equipment surfaces during and following the de-icing processes. Caution should be exercised, particularly in low humidity or non-precipitating weather conditions, due to increased slipperiness following the use of glycol that is not diluted by the weather element. ▪ When de-icing on a stand, all ramp equipment, including steps, should be clear of the area to be sprayed to avoid contamination by fluid. ▪ Care should be taken to prevent the transfer of fluid by foot onto GSE (e.g., steps, jet bridges), interiors of aircraft and aircraft cargo holds.
Open Basket Operations	• The following minimum precautions should be taken when de-icing from an open basket: ✓ Ensure that the fall restraint device is securely anchored, and the safety harness is always worn when de-icing from an open basket. ✓ Ensure that the basket door or safety chain is securely latched. ✓ Caution should be taken to avoid exposure to a running Auxiliary Power Unit (APU).
Closed Basket Operations	• The following minimum precautions should be taken: ✓ Ensure the seat belt is always worn. ✓ Ensure the windows of the cabin are clean. Check wiper(s) for condition and check window washer fluid level. ✓ Ensure the door of the cabin is securely closed. ✓ Ensure there are no obstructions to the cabin heater/ventilation system.
More Technical Information	• More technical information on de-icing /anti-icing is published in the specialized or technical manuals or can be obtained from the Croatia Airlines “De-Icing /Anti-Icing Manual” (OP-PSU-045). ***REFERENCE:*** *The De-Icing / Anti-Icing Manual is available on Intranet and the link for Handling Agents*.

2.2.13. Departure Activities

Introduction	• A departure is normally conducted with a dialogue between flight crew and ground staff in charge of the departure via an interphone. This procedure ensures the highest level of safety during departures based on a precise exchange of information. • The ground staff member in charge of the departure operation shall maintain continuous contact with the flight crew and is responsible for the ground manoeuvre. • Other staff are also involved in the departure process. The number of other staff and their functions/responsibilities can change depending on the: ✓ Operating airline procedures. ✓ Aircraft type. ✓ Ground Support Equipment (GSE) used for the manoeuvre. ✓ Airport infrastructure. ✓ Stand configuration.
Types of Parking Position	• Gate Position. • Open Ramp (Remote) Position.
Pre-Departure and Departure Communication	• An aircraft departure shall always be conducted using interphone communications. The term “headset” also applied to a wired or wireless interphone system. • If the interphone becomes/is unserviceable, conventional hand signals shall be used. • Prior to departure, a briefing shall be held between the flight crew and the ground staff member responsible for the departure, including: ✓ Review departure specifics (e.g., direction of movement, final positioning, taxi out direction). ✓ Review hand signals to be used, including emergency signals. CAUTION: All given instructions or acknowledge shall be repeated in a manner clearly indicating that they have been understood and will be complied with. ***NOTE:*** *For more details refer to section 2.2.3. “Ground to Cockpit Communication” and 2.2.4. “Hand Signals”.*
Pre-Departure Activities	**<u>Pre-Flight Check Departure</u>** • Before each departure of a flight, a “Pre-Flight Check Departure” must be performed either by: ✓ A qualified maintenance staff (ground engineer or flying mechanic), in accordance with the relevant instructions issued by OU Maintenance Department. ✓ The flight crew in accordance with respective Operating Manual. • Aircraft are normally released for departure by the person who performed the “Pre-Flight Check Departure”. • The check “all doors and covers closed” and the aircraft release for departure may also be performed by the ramp supervisor after the “Pre-Flight Check Departure” has been completed.

2.2.13. Departure Activities (cont.)

Pre-Departure Activities **(cont.)**	• If aircraft doors must be opened again after the check "all doors and covers closed" has been completed, the ramp supervisor or maintenance staff must make sure that they are again properly closed before releasing the aircraft for departure. **<u>Pre-Departure Walkaround Check</u>** • The walk-around should start as soon as possible after all ground servicing activities have been completed. • Walk around the entire aircraft at a normal walking pace. The check shall start as close as possible to departure time. If any part of the aircraft still has GSE engaged at the time of the check, or if GSE re-engages with the aircraft after the check, the applicable area(s) shall be re-inspected. • The pre departure walk around check shall include the following: ✓ The apron is clear of all Foreign Object Debris (FOD) that may cause aircraft damage or pose a risk. ✓ All GSE including passenger boarding devices are detached. ✓ The stand area is clear of obstructions. ✓ GSE and vehicles are positioned clear of the aircraft path. ✓ Adequate clearance exists between the aircraft and facilities or fixed obstacles along the aircraft movement path. ✓ All aircraft servicing panels and/or hatches are closed and secured. ***Exception:*** *external power and headset panels.* ✓ Cabin/cargo doors: ▪ Handles are flush with the fuselage. ▪ There is no visible damage on the aircraft, particularly around cabin and cargo doors. ✓ Any observed abnormalities on the aircraft (e.g., obvious damage, fluid leakage, unremoved pitot covers) are immediately brought to the attention of the flight crew, maintenance personnel and supervisor. ✓ Items such as propeller straps and tail stands are removed. ✓ Landing gear safety pins are removed. ✓ There are no obvious signs of unmarked dents or other skin panel damage. ***NOTE 1:*** *In the event of the aircraft returning to the stand, the pre-departure walk around check shall be repeated.* ***NOTE 2:*** *It is essential to have adequate lighting when doing the walk around check. If the lighting is insufficient, use a flashlight.* **CAUTION:** If any of the above conditions or actions are not met, inform the supervisor, Croatia Airlines maintenance staff (if available) and the flight crew as this may affect the safety of the intended flight. Repeat all given instructions or acknowledge them in a manner clearly indicating that they have been understood and will be complied with.

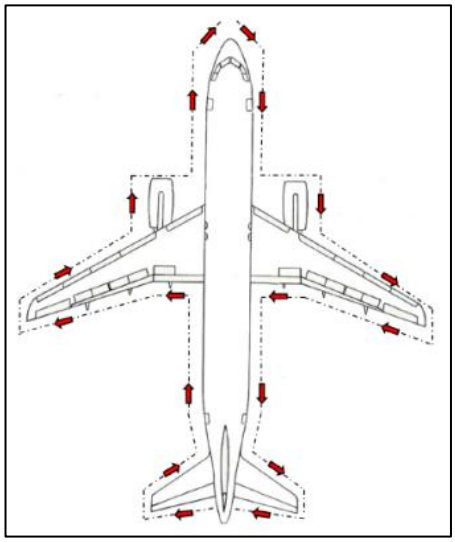
2.2.13. Departure Activities (cont.)

Pre-Departure Activities

(cont.)

- The following pictures are guidelines for pre-departure walk around path. Both walking directions are allowed. Depending on the aircraft type, the doors, service panels, engines, etc. may be located in other places or may be less or more in number than shown.

Example 1:



Example 2:

Left side

Left side

Right side

Right side

2.2.13. Departure Activities (cont.)

Pre-Departure Activities

(cont.)

Pre-Departure Table

Prior to aircraft movement, the responsible Handling Agent ground staff member (headset operator) shall ascertain that the following requirements are met/carried out:

Legend: TWT-towbar tractor TWL-towbarless tractor…PPU-powered push unit

ACTION	APPLICABLE TO					
	PUSHBACK			TOWING		TAXI OUT
	TWL	TWL	PPU	TWT	TWL	
The required Pre-Departure Servicing Check are completed.	√	√	√	√	√	√
Fire protection devices are available and correctly positioned (as per local rules).	√	√	√	√	√	√
The tractor and towbar combination (if applicable) are suitable for the operation, considering the aircraft type and weight, the weather and surface conditions.	√	√		√	√	
The steering bypass pin is installed correctly, or the nose gear steering torque links are disconnected, if applicable, or ensure the nose gear steering mechanism are set as required for pushback (as applicable to aircraft type).	√	√		√	√	
Communication with flight crew/brake operator and ground staff member is established via interphone system.	√	√	√	√	√	√
Aircraft Main Landing Gear (MLG) chocks are installed, and nose gear chocks are removed, if applicable.	√	√		√	√	
Aircraft nose gear chocks are installed and MLG chocks removed, if applicable.			√			
Additional staff, such as wing walkers, are present, if applicable/required.	√	√	√	√	√	
If an Air Start Unit (ASU) is required, check the equipment is correctly positioned and suitable for the operation.	√	√	√			√
If an ASU engine start is undertaken, communicate to confirm ASU positioning and engine start sequence with the flight crew.	√	√	√			√
All persons not involved in the aircraft departure operation are clear of the departing aircraft, outside the ERA and remain clear of the aircraft and pushback equipment throughout the pushback maneuver.	√	√	√	√	√	√
The GSE is parked in designated locations outside the ERA, and the intended path of the aircraft remains clear of equipment and other obstacles throughout the pushback maneuver.	√	√	√	√	√	√
The passenger boarding bridge (PBB) is fully retracted and parked in its designated parking location, if applicable.	√	√	√	√	√	√
The ERA and the path/area that the aircraft will move toward is clear of FOD, and remains so throughout the pushback maneuver, ensuring safe aircraft movement.	√	√	√	√	√	√
The stand surface condition is sufficiently free of ice, snow, etc. to ensure safe aircraft movement.	√	√	√	√	√	√
The ramp area is free of objects/obstacles that may be impacted by the aircraft or may endanger others sue to jet blast effects.	√	√	√	√	√	√

Continued on next page

2.2.13. Departure Activities (cont.)

Pre-Departure Activities (cont.)

Pre-Departure Table *(cont.)*

Prior to aircraft movement, the responsible Handling Agent ground staff member (headset operator) shall ascertain that the following requirements are met/carried out:

Legend: TWT-towbar tractor TWL-towbarless tractor…PPU-powered push unit

ACTION	APPLICABLE TO					
	PUSHBACK			TOWING		TAXI OUT
	TWL	TWL	PPU	TWT	TWL	
The air intake and blast areas of the aircraft engines are clear of persons and obstacles, such as GSE.	√	√	√			√
All persons involved in the aircraft movement stay well clear of the danger areas around the tractor, landing gear and aircraft engines.	√	√	√	√	√	
Flight crew/brake operator confirm that the aircraft parking brake is set.	√	√	√	√	√	
Completion of the pre-departure table is indicated to the flight crew.	√	√	√	√	√	
A qualified brake operator is in the cockpit (where required).				√	√	
Cross-reference with Nose Gear Steering, Connecting Pushback Tractor and Towbar and Connecting Towbarless Tractor.	√	√	√			

NOTE: *Where a remote-control pushback tractor connected to the nose gear is used, TWL pre-departure activities shall apply.*

DANGER
It is critical that the responsible Handling Agent ground staff member (headset operator) establishes verbal communication with the flight crew via the aircraft interphone system, as departure using marshalling hand signals without headset communication shall only be conducted in exceptional cases (e.g., thunderstorms, etc.).

Open Ramp Departure

- An open ramp is a taxi-in and taxi-out operation area. In some locations, the aircraft may be towed from an open ramp to a taxiway, prior to engine start.
- Prior to departure of the aircraft, make sure that:
  - ✓ Complete all pre-departure checks.
  - ✓ Refer to departure communication section and follow required phrases and dialogue.
  - ✓ Ensure all staff and equipment is clear of the aircraft behind the ERA.
  - ✓ Position for marshalling in an area behind the ERA while being in clear view of the flight crew on either side of the aircraft (depending on facility).

2.2.13. Departure Activities (cont.)

Removal of GSE	• The authorized ground staff must make sure that: ✓ GSE which is no longer needed is removed as soon as possible. ✓ GSE is parked in the designated parking areas. ✓ Cabin doors are closed by the flight attendants when embarkation of passengers is completed. ✓ Passenger steps and/or loading bridges are removed only after cabin doors have been closed.

2.2.14. Pushback and Engine Starting

Ground Staff Member Responsibilities	***NOTE:*** *The scope of this part is limited to conventional towbar and towbarless pushback operation.* **<u>Responsible Ground Staff Member for Departure</u>** • Handling Agent responsible ground staff member is defined as the person performing the communications with the flight crew. • A responsible ground staff member shall be in charge of each aircraft pushback. This function can be performed by different agents in different roles and positions. • Handling Agent ground staff member responsible for the departure shall: ✓ Be in charge of the entire pushback, once clearance to begin pushback has been given by the flight crew. ✓ Ensure the pushback tractor and/or towbar/towbarless (TWL) tractor is suitable for the specific aircraft type. ✓ Ensure the nose gear steering bypass pin is installed prior to towbar/TWL connection to the aircraft and/or ensure the nose gear steering mechanisms are set as required for pushback (as applicable to the aircraft type). ✓ Conduct briefings with all persons involved in the aircraft movement to review and confirm how the aircraft will be maneuvered. ✓ Connect the interphone and conduct a communication check to: ▪ Verify the communication system is functional. ▪ Update flight crew on progress of ramp operation. ▪ Request permission to disconnect ground power. ▪ Disconnect ground power after verbal approval is received from flight crew. ✓ Be in continuous communication with flight crew by interphone. ✓ Conduct a pre-departure walkaround. ✓ Have ultimate responsibility to review pushback procedures based on conditions observed and advise flight crew of any anticipated changes to pushback. ✓ If ramp conditions are below standard for a normal pushback (e.g., hazards, obstacles, slippery, icy), the ground personnel in charge of pushback will inform the flight crew that engine start clearances will not be given until either: ▪ The aircraft is moving over an area of the ramp where the conditions are safe for an engine start. ▪ The pushback has been completed, the aircraft has come to a complete stop and the parking brake has been set. ✓ Signal “All Clear” to the pushback tractor driver and wing walkers (if applicable) once advised by the flight crew that the aircraft brakes have been released and approval for pushback is given by the flight crew. ✓ Be positioned as required either inside the tractor or walking on the apron at a safe distance from the nose gear and tractor

2.2.14. Pushback and Engine Starting (cont.)

Ground Staff Member Responsibilities (cont.)	**CAUTION** The headset operator should be positioned outside the tractor during: 1. Low visibility (heavy rain, fog, bad lighting, conditions). 2. Lack of insufficiently visible markings. 3. Obstructions behind the pushback (e.g., GSE, light post, etc.). 4. Any doubt that the pushback procedure cannot be safely performed when positioned in the tractor. ✓ If walking adjacent to the nose gear, maintain visual contact with the tractor driver throughout the pushback. ✓ Monitor the interphone during the pushback and communicate with the flight crew, as required. ✓ Advise the flight crew if, for any reason, it is not safe to start an engine and stop the engine-start procedure. ***NOTE:*** *The flight crew may advise as each engine is being started.* ✓ When the pushback manoeuvre is complete: ▪ Receive the 'Vehicle Brakes On/Stop' signal from the tractor driver/operator to confirm that the tractor parking brake is set. 1. Request flight crew to set the aircraft parking brake 2. When confirmation that the aircraft brakes have been set is received from the flight crew: ➢ Give the "Brakes Set" signal to the tractor driver and wing walkers, if applicable. ➢ Give authority to disconnect pushback equipment. 3. Carry out a pushback disconnection procedure in accordance with instructions given in this section. ***NOTE:*** *Ensure the towbar is disconnected from the tractor before disconnecting from the aircraft (except where the towbar is specifically designed to be disconnected from the aircraft first).* ✓ Remove the nose gear steering bypass pin and/or ensure the nose gear steering mechanisms are set to normal conditions for taxiing (as applicable to aircraft type). ✓ If previously disconnected, reconnect the torque link and inform flight crew. ✓ Complete the headset communication and, after receiving flight crew approval, disconnect the headset and close the access panel (if applicable to aircraft type). ✓ Move clear of the aircraft to a safe position visible to the flight crew and away from its intended path. ✓ Display the steering bypass pin to the flight crew (if applicable to aircraft type). ✓ Give the "All Clear to Taxi" signal once eye contact has been made with the flight crew and they are expecting the signal. In low-light conditions, the flight crew will turn on the interior lights of the flight deck.

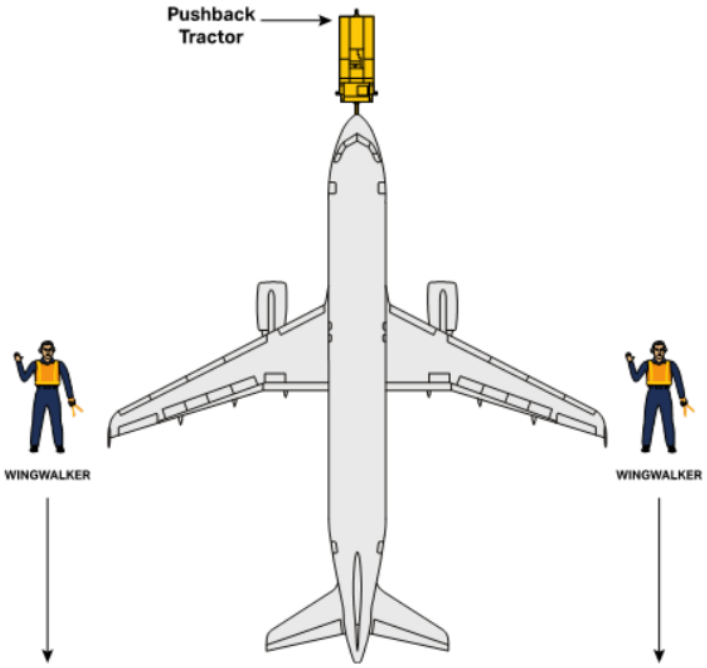
2.2.14. Pushback and Engine Starting (cont.)

Ground Staff Member Responsibilities (cont.)	✓ Remain in position until an acknowledgement from the flight crew is received. **CAUTION:** The flight crew shall be notified immediately in the event any connection between the tractor and the aircraft is lost during aircraft movement. **DANGER:** If the nose wheels are not in the centered position, they can turn quickly to their centered position when the steering bypass pin is removed. Personnel injury or aircraft damage could result. Do not disconnect the interphone communication cable until the towbar or TWL tractor has been disconnected from the nose gear. **<u>Tractor Driver</u>** • The pushback tractor driver shall: ✓ Completely raise the towbar wheels before the start of the aircraft movement, if used. ✓ Stand by for clearance to push communication from the flight crew or responsible ground crew. ✓ Prior to the aircraft movement, make sure the parking brake is released and the anti-collision lights are switched on in accordance with local airport regulations. ✓ Select the appropriate gear on the tractor and slowly begin movement. ✓ Start the pushback operation in a straight line. ✓ Keep the manoeuvring speed to a minimum and apply the vehicle brakes gently. ✓ Scan the apron during pushback; monitor clearances and wing walkers, if applicable, to ensure the aircraft is moving clear of all obstructions. Be prepared to stop. ✓ After flight crew approval, the tractor driver shall always ensure the taxiway is free of other aircraft/equipment/obstacles throughout the pushback maneuver. ✓ Ensure during pushback that the steering turn limits are not exceeded and advise the flight crew if any are exceeded. Damage may occur to the nose gear. Check the specific limits that are marked on the aircraft. ✓ If the responsible ground staff member on the interphone is walking on the ramp, maintain visual contact and ensure a safe distance is maintained from the nose gear during entire pushback. ✓ If the responsible ground staff member is too close to the nose gear, the pushback must be stopped, and a review of the required safety clearance conducted. ✓ Align the tractor or tractor/towbar combination with the centerline of the aircraft gear at the end of the aircraft movement. ✓ Stop the tractor when the pushback maneuver is completed, give the ‘Vehicle Brakes On/Stop’ signal to the responsible ground staff member. ✓ Set the tractor parking brake and confirm to the responsible ground staff member by giving the ‘Vehicle Brakes On/Stop’ signal.

2.2.14. Pushback and Engine Starting (cont.)

Ground Staff Member Responsibilities (cont.)	**Tractor Driver (cont.)** ✓ When confirmation that the aircraft parking brake is set from the responsible ground staff member, by the giving of the 'Aircraft Brake Set' signal, release the tractor parking brake and put the gear selector in neutral in order to release any pressure on the towbar. Carry out a pushback disconnection procedure in accordance with Pushback Disconnection. ✓ Drive the tractor back to the terminal, appropriate holding position or to next task. **DANGER** Whilst maneuvering in the taxiway during tractor disconnection and repositioning, the tractor driver shall drive the pushback tractor at slow speed and shall remain constantly vigilant to the position of other staff in the taxiway. If the nose wheels are not in the centered position, they can turn quickly to their centered position when the steering bypass pin is removed. This can result in personnel injury or aircraft damage. **Wing Walker** • The presence of such personnel may be required due to configuration of parking stand and also controlled or restricted by civil aviation authorities or local airport authorities. • Where applicable, the wing walker or other assist personnel shall: ✓ Be under the direction of the responsible ground staff member at all times. ✓ Use two marshalling wands, either day wands or illuminated wands for low visibility operations. ✓ Be positioned before and during movement of the aircraft as follows, where applicable and/or permitted: ▪ Approximately 1 m (3 ft) outboard of the wingtip. ▪ In line with the rearmost main gear wheel. ***Note:*** *See pictures below for positioning of wing walkers during aircraft arrival on stand and during pushback.* ✓ Able to maintain visual contact with the person responsible for pushback/towing. ✓ Ensure the aircraft movement path is clear of any obstruction (i.e., other aircraft, vehicles). ✓ Provide "Safe to Proceed" clearance signals at all times to the person responsible for pushback by using a distinct "pendulum" arm motion. ✓ Continue to monitor the aircraft path until the aircraft is stopped at the departure point. ✓ If at any time during aircraft movement, the wing walkers are unsure or identify an imminent danger, signal the person responsible for pushback with the "STOP" signal. ✓ Position themselves either at the "11 o'clock" or "1 o'clock" position in clear visibility of the flight crew on the terminal side at a safe distance away from the aircraft.

2.2.14. Pushback and Engine Starting (cont.)

Ground Staff Member Responsibilities (cont.)	**Wing Walker (cont.)** ✓ Give the "Aircraft Hold" signal to the flight crew when the visual "Brakes Set" signal has been received from the person responsible for pushback. ✓ Remain in position until the responsible ground staff member takes over the marshalling clearance of the aircraft. ✓ Return to the terminal once marshalling duty has been transferred. **Wing Walker Positioning for Aircraft Pushback** 

2.2.14. Pushback and Engine Starting (cont.)

Communication	• In principle, the communication between ground personnel and flight crew must be performed in English. In exceptional cases in Croatian after approval from the flight operation department. • The interphone system must be used for communication with the Commander. If not possible, signals must be used for communication between flight deck and ground. ***IMPORTANT: If a thunderstorm can be seen in the direct vicinity of the airport, DO NOT wear headset connected to the aircraft*** ***NOTE:*** *Refer to section 2.2.3." Ground to Cockpit Communication" and 2.2.4. "Hand Signals".*
Pushback – General	• The contracted handling agents involved with pushback and all other aircraft towing activities must make sure that all their towing equipment (trucks / tugs, towbars, steering bypass pins and shearpins) meets the published industry standards (e.g., SAE, ISO) or is approved by the aircraft manufacturer for the respective aircraft type. • The contracted handling agents are responsible for ordering towing/pushback services in time for departure. • Prior to departure a briefing must be held between the cockpit and the ground agent responsible for the departure, including: ✓ Review of departure specifics (e.g., direction of movement, final positioning, and taxi out direction). ✓ The hand signals to be used, including emergency signals. **CAUTION:** Repeat all given instructions or acknowledge them in manner clearly indicating that they have been understood and will be complied with.
Connecting the Pushback Vehicle - General	• Prior to connecting the tractor to the aircraft, the tractor may be parked in front of the aircraft or outside of the ERA, but never behind the wings. • A guide person shall be used to assist in the final approach to the towbar/nose gear when a tractor and towbar is used for the pushback process. When a TWL tractor is used, a guide person shall be used when the vision of the tractor driver is/might be restricted. • The pushback vehicle is connected as follows: ✓ Aircraft main gear chocks installed; nose gear chocks removed–if applicable. ✓ Approach nose gear to centerline of fuselage. ✓ Use a spotter to assist in the final approach to nose gear.
Nose Gear Steering	• Each aircraft type has specific requirements for the bypass of the nose gear steering mechanism. Refer to the respective aircraft operating manual for nose gear steering bypass pin details. **DANGER:** The steering bypass pin shall be: ✓ Labelled with the specific aircraft type(s) for which it can be used. ✓ Identified with a "Remove Before Flight" Streamer. ✓ Checked regularly for proper technical condition, or as per manufacturer instructions.

2.2.14. Pushback and Engine Starting (cont.)

Nose Gear Protection and Steering Angles	• In order to protect the nose gear from damage, visual turning limit markings indicate the aircraft's maximum nose gear steering angles. ***REFERENCE:*** *Refer to the respective aircraft operation manual for details*. **DANGER:** In the event of exceeding the maximum nose gear steering angle, inform the Croatia Airlines maintenance staff (if available) and/or flight crew. The aircraft must return to the parking stand in order to check whether the gear is damaged. When using a towbarless tow tractor equipped with either an over steer warning or over steer protection device, verify the visual turning limit markings at all times to prevent exceeding the maximum nose gear steering angle. When using a towbarless tractor on an aircraft, the “over steering” or “over torque” system of the tractor must be operative.
Connecting Pushback Tractor and Towbar	1. Connect the towbar to the nose gear first. 2. Ensure the towbar connection is secured and a locking pin is in place. 3. Ensure the towbar is aligned with the centerline of the aircraft while connecting. 4. Raise the towbar so its head is at the same height as the tractor connection. 5. Approach the towbar slowly until the connection aligns with the pushback tractor. 6. Ensure the front wheels of the tractor remain straight and the tractor is in line with the centerline of the aircraft. 7. Secure the towbar connection to the pushback tractor. 8. Raise the towbar wheels by releasing pressure on the hydraulic pump. 9. Select the “Neutral” or “Park” gear and set the parking brake of the pushback tractor. **DANGER:** Ground handling personnel must not stand astride/over the towbar during the connection/disconnection procedure.
Connecting Towbarless Tractor	1. Ensure the correct aircraft type is selected on the TWL control panel, where applicable and in accordance with TWL operating procedures. 2. On final approach to the aircraft, the tractor shall be properly aligned and correctly positioned. 3. Ensure the aircraft nose wheels are safely locked into the tractor cradle by the tractor locking mechanism. 4. Position TWL tractor to standby for lifting. 5. Select “Neutral” or “Park” and set the parking brake. **CAUTION:** Do not lift the aircraft while any GSE or PBB are connected to the aircraft.
Connecting Remote-Controlled Tractor to Nose Gear	1. Ensure the remote-control unit’s battery is sufficiently charged. 2. Ensure the remote-controlled tractor is sufficiently charged for the task/pushback manoeuvre. 3. Switch on the remote-control unit and ensure it connects to the tractor.

2.2.14. Pushback and Engine Starting (cont.)

Connecting Remote-Controlled Tractor to Nose Gear **(cont.)**	4. On final approach to the aircraft, ensure the tractor is properly aligned and correctly positioned. 5. Position the remote-controlled tractor to stand-by for lifting and await approval from the flight deck to lift, if applicable.
Connecting Remote-Controlled Tractor to Main Gear	• Prior to connecting the Power Push Unit (PPU): 1. Inform the flight crew that a PPU will be used. 2. Ensure refuelling has been completed. 3. Ensure the remote-controlled tractor is sufficiently charged for the task/pushback operation, if applicable. 4. Switch on the remote-control unit and ensure it connects to the tractor. 5. Ensure the driver's seat is pulled up. 6. Remove the MLG chocks.
Wheel Chock Removal	• Headset operator: ✓ Via the interphone, confirm the aircraft parking brake is set. ✓ Check all GSE have been disconnected from the aircraft, except for Ground Power Unit (GPU) and Air Start Unit (ASU) when air start is required). ✓ Check the passenger boarding devices have been retracted from the aircraft, if applicable. ✓ Check the pushback tractor and towbar are fully secured to the nose gear and the parking brake is set on the tractor. ✓ For TWL tractor operation, check that equipment is fully secured to the applicable landing gear and the parking brake is set on the tractor, ▪ Remove chocks at applicable gear only and leave remaining chocks in place until departure. ▪ Nose gear wheel chocks may be removed without notification, provided the main gear wheel chocks are still positioned (except for main gear TBL tractor). ✓ Give clearance to ground staff member to remove chocks. ✓ PPU nose gear chocks shall not be removed until the PPU is fully secured to the MLG, and its parking brake is set. ✓ For PPU, the aft nose gear chock(s) shall be removed at the engine No. 2 starting announcement and the forward nose gear chock(s) shall be removed just before starting the pushback. ***NOTE 1:*** *If a chock is stuck, the responsible ground staff member removes it by tapping it with a spare chock. If this does not work, the stuck chock can be removed by moving the aircraft after the aircraft brakes have been released, with precautions and in coordination with the responsible ground staff member for the departure.* ***NOTE 2:*** *The responsible ground staff member shall stow chocks in their designated stowage place.*

2.2.14. Pushback and Engine Starting (cont.)

Wheel Chock Removal **(cont.)**	***NOTE 3:*** *Once high wind or icy conditions have passed, any additional chocks that were added to the aircraft may be removed so that chock placement reverts to that for normal conditions.* ***NOTE 4:*** *If hand signals are used (i.e., aircraft interphone system is inoperative), the person performing the hand signal shall:* ▪ Display the "Set Brakes" hand signal. ▪ Receive confirmation from the flight crew when they display the "Set Brakes" hand signal in response. ▪ Remove chocks.
Pushback Maneuever	• **Safety Measures** ✓ **If any indications which may affect a safe pushback operation (e.g., leakages, warning indicators, smoke, etc.) are detected:** ▪ Immediately interrupt pushback operation. ▪ Inform the cockpit crew and the truck driver. ✓ **Action during fire (e.g.pushback vehicle fire, etc.):** ▪ Immediately inform the flight deck (via headset, ground frequency VHF or hand signals). ▪ Request the cockpit crew to set parking brake. ▪ Describe situation clearly (location of fire, extent of fire, location of possible clear areas for evacuation, etc.). ▪ Call the Airport Fire Brigade. ▪ Disconnect the pushback vehicle from the aircraft (if possible). ▪ Remove the pushback vehicle from the aircraft to a safe distance (if possible). • **Anti-Collision Lights** ✓ During a standard departure, once all aircraft doors are closed, the flight crew requests pushback clearance from ATC. Once clearance is obtained, the flight crew will switch on the aircraft's anti-collision lights. **CAUTION:** Anti-collision lights that are switched on are a visual indication to ground staff of imminent engine start-up or aircraft movement. Vehicle traffic shall stop until the aircraft has departed from the area. If the anti-collision lights are switched on unexpectedly (other than in preparation for the departure or towing operation), ground personnel shall move away and remain outside the ERA. The ground staff member shall check with the flight deck before resuming ground handling activities. • **Pushback Requirements** ✓ The pushback maneuver shall be carried out at a pace no greater than walking speed. ✓ After approval from the flight crew, the tractor driver shall ensure the taxiway (including other movement areas in the intended aircraft path) is free of other aircraft/equipment/obstacles. If an obstacle is identified, the pushback shall stop immediately until the obstacle is clear.

2.2.14. Pushback and Engine Starting (cont.)

Pushback Maneuever (cont.)	• **<u>Pushback Requirements (cont.)</u>** ✓ At the end of the maneuver, the aircraft/pushback tractor set shall be correctly aligned with the taxiway centerline. **CAUTION:** When undertaking departures with a PPU, the pull forward maneuver at the end of the pushback shall not be carried out when it has not been possible to complete the pushback maneuver with a straight-line push of at least 5 m (16 ft).
Staff Safety During Pushback Maneuever	• **<u>Towbar/TWL tractor operations:</u>** ✓ Throughout the pushback operation, all staff walking on ramp (including the headset operator when the aircraft is moving) shall remain clear of: ▪ The area on the ground directly underneath any part of the aircraft (including, but not limited to, the fuselage, wings, stabilizer, engines, nose gear). ▪ The aircraft's path. ▪ The tractor's path. ▪ Engine danger areas. ✓ The headset operator shall: ▪ Be in visual contact with the tug driver throughout the pushback. ▪ Avoid walking backwards to reduce the possibility of tripping. ▪ Use a cable long enough to operate safely and be allowed freedom of movement while not posing a trip or tangle hazard (not applicable when a wireless headset is used). • **<u>Remote-controlled pushback operations:</u>** ✓ When pushback operations are undertaken using remote-controlled pushback equipment connected to either the nose or MLG, the ground staff member in charge shall: ▪ Stand forward of the aircraft. ▪ Follow its movements and always be in sight of the flight crew. ▪ Stay outside the engine's intake/suction area and wheel path of the aircraft during the entire pushback maneuver. ▪ Maintain sufficient clearance between the equipment and themselves throughout the pushback maneuver, where the pushback equipment is connected to the nose landing gear. ▪ Be in continuous communication with the flight crew via the interphone system.

2.2.14. Pushback and Engine Starting (cont.)

Pushback and Pull Forward	• When a pull forward maneuver is performed after a pushback maneuver, particular attention must be paid to the end of the pushback maneuver and during the whole pull forward maneuver. To prevent the aircraft from overtaking/pushing the pushback vehicle during the pull forward phase, the following precautions shall be applied: ✓ he aircraft engines shall be at idle thrust during all of the pushback/pull forward maneuver. ✓ The pull forward maneuver shall be performed with the pushback vehicle in the lowest gear available. ✓ Braking shall be performed smoothly and without jerks. ✓ The flight crew shall be alerted immediately to stop the aircraft using gentle braking if aircraft control cannot be ensured/maintained from the pushback vehicle. ***NOTES:*** • The following factors increase the risk that the aircraft will overtake/push the pushback vehicle and shall be, therefore, considered: ✓ The aircraft type and number of engines started/running ✓ The slope of the parking stand and taxiway ✓ The use of a tractor and towbar to undertake the pushback/pull forward maneuver. ✓ Adverse weather conditions • If the requirement to pull forward is known in advance, consider not starting the engines until the pull forward maneuver is completed. **CAUTION:** Care shall be taken to avoid a “jackknife” situation between the aircraft and the pushback vehicle due to asymmetric thrust from the aircraft (one engine running) during the transition from push to pull or vice versa. Do not exceed the manufacturer’s maximum tow angles. **DANGER:** If the aircraft overtakes/pushes the pushback vehicle, the ground staff member shall ensure they stay well clear of the path of the pushback vehicle and the aircraft nose landing gear wheels. **CAUTION:** Flight crew and aircraft maintenance personnel must be informed if the aircraft overtakes/pushes the pushback vehicle, as both the pushback vehicle and the aircraft nose landing gear may be damaged by the incident. • To relieve torsional stresses applied to the landing gear components and tires, move the aircraft in a straight line for a few meters to ensure the nose wheels are in the straight-ahead position when completing the pushback maneuver. DANGER: If the nose wheels are not in the centered position, they can turn quickly to their centered position when the steering bypass pin is removed. This can result in personnel injury and aircraft damage.

2.2.14. Pushback and Engine Starting (cont.)

Maneuvering During Wintery or Slippery Conditions	• During adverse weather conditions (e.g., fog, rain) visibility and traction will be affected. Many elements can contribute to the hazards involved (i.e., strong winds, slippery road surfaces, pavement slopes). • The tractor driver (Handling Agent ground staff) shall reduce and adapt vehicle speed as required by the current conditions. • When maneuvering the aircraft on slippery apron surfaces, extreme caution is required to avoid losing control of the tractor due to skidding, which may also lead to jack-knifing (where the tractor is pushed around by the aircraft in an uncontrolled movement). • Therefore, the following minimum precautions must be observed: ✓ Avoid sudden turns, deceleration, or acceleration. ✓ Except when using an ASU, do not start aircraft engines unless: ▪ The condition of the pavement is such that reasonable traction is ensured. ▪ The aircraft parking brake is set. ▪ The aircraft is disconnected from the tow tractor/TWL tractor.
Maneuvering During Low Visibility Conditions	• Airport operators are responsible for developing low visibility procedures that are relevant for the airport. • Handling Agent ground handling personnel shall be trained/authorized, as appropriate, prior to undertaking low visibility aircraft ground movement operations. • Handling Agent ground handling personnel shall observe the movement limitations and other regulations applicable to the airport's low visibility procedures at all times. • Pushback tractors should be equipped with an airfield map, where this is available. • If there is any doubt as to the exact position of the pushback tractor/aircraft, the tractor driver shall stop the tractor/aircraft and inform ATC immediately.
Engine Start – General	• Depending on Airport local procedures and regulations, engines can be started before, during or after pushback. • The interphone system must be used for communication with the flight deck during standard operations. If the interphone communication is not allowed (due to weather), and/or satisfactory, and/or unserviceable, hand signals shall be used for communication between flight deck and ground. ***REFERENCE:*** *For Hand Signals, see section 2.2.4.* • The authorized staff must make sure no one enters the air intake and blast areas. • The authorized staff will immediately alert the Commander in case of any abnormal occurrence.
Communication During Engine Start	• Coordinate the engine starting sequence with the flight crew by conducting a pre-departure briefing and refer to the specific engine start procedures given in section 2.2.3. "Ground to Cockpit Communication", 2.2.4. "Hand Signals" and 2.2.13. "Departure Activities". ✓ During the engine start, communicate with the flight crew only if you observe circumstances that require immediate notification and action by the flight crew.

2.2.14. Pushback and Engine Starting (cont.)

Communication During the Engine Start (cont.)	✓ When starting up with an ASU, supply the pressure at the request of the flight crew. ***NOTE**: From the flight crew seat facing forward, the engine on his/her left is referenced as engine number one.*
Checks Prior to Engine Start	• **The authorized ground staff must make sure that:** ✓ The interphone system is working, by connecting the headset to the aircraft and calling the flight deck. ***IMPORTANT:** In case of thunderstorm in the vicinity of the airport, hand signal communication must be established.* ✓ All staff not required for engine starting and/or pushback have left the parking position. ✓ The air intake and blast areas are clear of persons, GSE and any other FOD. ✓ The safety cones are removed. ✓ The GSE for engine starting is ready, if required. ✓ When APU is "out of service" and ASU is used, the flight crew must be briefed before pushback and engine starting. ***NOTE:** For requirements, see "Engine Start using Air Start Unit (ASU)".* ✓ A fire extinguisher is available near the aircraft. ✓ When the cockpit crew is ready for engine starting and/or pushback, the anti-collision lights will be switched on. ✓ Final checks if all cabin and compartment doors are closed. ✓ The flight crew must be informed if the aircraft is covered by snow, ice, or slush.
Checks After Engine Starting	• **The authorized ground staff must make sure that:** ✓ The covers of the electrical power receptacle, and ✓ If applicable, the air starter connector panels are properly closed. ✓ Wheel chocks has been removed. ***REFERENCE:** See in this section "Wheel Chock Removal".*

2.2.14. Pushback and Engine Starting (cont.)

Engine Starting Using Air Start Unit (ASU)	• Only personnel and equipment involved in engine starting or aircraft pushback are permitted within the ERA during engine start. • Establish communications with the flight crew and confirm the total number of engines to be started, the engine start sequence to be used and number of air start units being used. • All personnel and equipment must remain clear of engine danger areas. • Advise the engine start sequence to the ASU operator(s) and any other ground personnel. • Where possible, the ASU should be positioned on the opposite side of the aircraft to the engine being started. • If the aircraft is to be pushed back, connect the pushback tractor and set the tractor's parking brake (where this is possible without disconnecting ground electrical power). If a pushback tractor is not connected, position a chock in front of the nose wheel. • If a pushback tractor is not connected, position a chock in front of the nose wheel. • Confirm with flight crew that the aircraft parking brake is set, and then remove main gear chocks. • The ASU operator shall ensure that the unit is ready to supply air pressure. • The headset operator informs flight crew that ground crew are ready for engine start. • Prepare for engine(s) start. • When engine start is complete, the headset operator signals ASU and ground power operator(s) to disconnect the ASU and remove ground power. • Disconnect the ASU hose(s). • Close and latch external air start and electrical panels. **DANGER:** When connecting and disconnecting ASU hose(s), walk directly underneath the fuselage, or close alongside it, keeping clear of engine danger areas.
Engine Start-up When a Power Push Unit (PPU) is Used	• In the standard sequence, start-up of engine #2 takes place at the parking stand. Start-up of engine #1 shall be performed after pushback, with parking brake set, when the agent in charge of the departure operation has moved the PPU to the back of the aircraft stabilizer. **CAUTION:** In some cases (e.g., start-up with an external air supply), start-up of all engines can take place at the parking stand, provided that: ✓ It has been agreed upon beforehand by the flight crew and the ground staff member in charge of the departure operation. ✓ The hazardous areas around the engines are clear. • Engine start using cross-bleed can only be performed once the pushback has been completed, the aircraft brakes have been engaged, and the area around the aircraft is clear. **CAUTION:** With engine(s) above idle thrust, blast and suction effects are greater.

2.2.14. Pushback and Engine Starting (cont.)

Communication During Engine Fire

- **Engine Fire:**
  - ✓ The Flight Crew normally detects an engine or APU fire and will act using the engine fire extinguishing system.
  - ✓ However, alert the flight crew immediately via the headset if flames are noticed from the engine or engine pylon.
  - ✓ If a headset is not available, the appropriate "FIRE" hand signal must be used.
- **Tailpipe / Exhaust Fire:**
  - ✓ If you notice flames from the engine tailpipe during engine starting, alert the flight crew immediately, as such a fire might not be detectable via temperature sensors and/or fire warning systems in the aircraft.

CAUTION:
DO NOT fight engine fires with fire extinguishers on the ground when the flight crew is in the flight deck. The flight crew will take all necessary actions.

Incidents During Pushback

Pushback Tractor/Towbar or Towbarless Tractor

- The list of incidents below outlines the recommended actions to be undertaken immediately by flight crew and/or tractor drivers in the event of an incident during the pushback operation.
- The list of incidents is not exhaustive, and the recommended actions should only be applied if they are deemed the safest course of action given the exact circumstances of the incident. If airport and/or operator procedures differ from the recommended actions below, those shall be followed.

Table (IATA-IGOM).

Flight crew	Tractor Driver
Tractor Failure	
(a) Inform ATC. (b) Apply the aircraft parking brake. (c) Listen to VHF and wait for assistance. (d) Relay information from ATC to headset operator	(a) Stop aircraft/tractor set. (b) Apply tractor parking brake. (c) Inform the flight crew. (d) Contact supervision and equipment maintenance to advise of the situation, as required. (e) Follow instructions received from headset operator, as applicable. (f) If the TWL/towbar connection with the tractor needs to be reset (i.e., removed and reconnected), the aircraft shall be chocked while the tractor is being replaced.
Tractor/Aircraft Separation	
(a) Apply the aircraft brakes. (b) As soon as the aircraft is at a standstill, apply the aircraft parking brake before releasing the pedal. (c) Inform ATC. (d) Relay information received from ATC to headset operator, if applicable.	(a) Do not apply tractor brakes. (b) Inform the flight crew of separation. (c) Follow the aircraft path attentively and stop the tractor according to the aircraft position. (d) Apply the tractor parking brake. (e) Confirm the aircraft parking brake is set then chock the aircraft. (f) Assess the reason for the separation. (g) Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required. (h) Follow instructions and/or complete pushback maneuver, as applicable.

Continued on next page

2.2.14. Pushback and Engine Starting (cont.)

Incidents During Pushback (cont.)

Table (IATA-IGOM), cont.

Flight crew	Tractor Driver
Towbar/Shear Pin Failure (remains attached to the aircraft)	
(a) Apply the aircraft parking brake. (b) Inform ATC. (c) Relay information received from ATC to headset operator, if applicable.	(a) Stop aircraft/tractor set. (b) Apply the tractor parking brake. (c) Inform the flight crew of the towbar/shear pin failure. (d) Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required. (e) Chock the aircraft and replace the towbar. (f) Complete the pushback maneuver.
Pushback Tractor Fire	
(a) Inform ATC and headset operator. (b) Apply the aircraft parking brake. (c) Determine the need for aircraft emergency evacuation and confirm to ATC and headset operator.	(a) Inform the flight crew. (b) Stop aircraft/tractor set immediately. (c) Conduct an assessment of the situation and consider tackling the fire with the onboard tractor firefighting equipment only if it is deemed safe to do so. (d) Consider disconnecting and moving the tractor to a safe distance from the aircraft, if deemed safe and appropriate to do so. (e) Contact supervision, equipment maintenance and emergency services to advise of the situation, as required. (f) If flight crew confirm emergency evacuation, assist in the evacuation as far as is possible/practical by directing passengers/crew toward a safe location.
Aircraft Fire	
(a) Inform ATC and headset operator. (b) Apply the aircraft parking brake. (c) Execute onboard emergency procedures.	(a) Stop aircraft/tractor set immediately. (b) Inform the flight crew. (c) If safe to do so, disconnect and move the tractor to a safe distance from the aircraft, where possible. (d) If safe to do so, headset operator should maintain communication with the flight crew and follow instructions. (e) Contact supervision and emergency services to advise of the situation, as required. (f) If flight crew confirm emergency evacuation, assist in the evacuation as far as is possible/practical by directing passengers/crew toward a safe location.
Accident with Other Aircraft or Vehicle	
(a) Contact ATC stating position and nature of the accident. (b) Listen to VHF and wait for assistance. (c) Relay information received from ATC to headset operator, if applicable.	(a) Stop aircraft/tractor set immediately. (b) Apply tractor parking brake. (c) Inform the flight crew. (d) Contact supervision, aircraft maintenance, equipment maintenance and emergency services to advise of the situation, as required. (e) Follow instructions received from the headset operator and/or wait for assistance. (f) Do not disconnect the tractor unless specifically instructed to do so by the headset operator and/or ATC. (g) If disconnecting the tractor, the aircraft must be chocked.
Interphone Communication Failure	
If during the pushback operation the interphone fails, the aircraft must be immediately stopped and an alternate means of communication established before continuing. If this is not possible, assistance must be requested.	
Visual Contact with the Wing Walkers Is Lost (if used)	
In the event that the tractor driver is unable to establish visual contact with one or both of the wing walkers, when used, the pushback shall be stopped and not recommence until visual contact is re-established.	

2.2.14. Pushback and Engine Starting (cont.)

Incidents During Pushback

(cont.)

Power Push Unit (PPU) Fire

- **Aircraft on the parking stand, interphone connected.**

THE HANDLING AGENT GROUND STAFF MEMBER IN CHARGE OF THE DEPARTURE OPERATION SHALL:	
1.	Warn the flight crew via the ground/aircraft interphone. The flight crew shall inform ATC using VHF.
2.	Control the release of rollers.
3.	If PPU's engine is on: ✓ Remove the PPU by remote control. ✓ Remain in contact with the flight crew. ✓ Stop the PPU's engine by remote control, if not automatically. ✓ Leave the interphone contact after consent from the flight crew to fight the fire and report to the flight crew about the on-going situation.
4.	If PPU's engine is off: ✓ Leave the interphone contact after consent from the flight crew to fight the fire. ✓ Press one of the three emergency stop buttons (the most accessible); ✓ Tow the tractor away from the aircraft and report to the flight crew about the on-going situation.;

- **Pushback in progress:**

THE HANDLING AGENT GROUND STAFF MEMBER IN CHARGE OF THE DEPARTURE OPERATION SHALL:	
1.	Inform the flight crew via ground/aircraft interphone. The flight crew shall inform ATC using VHF.
2.	Stop the pushback.
3.	Request setting of the aircraft parking brake.
4.	Control the release of rollers and remove the PPU by remote control.
5.	Stop the PPU's engine by remote control, if not automatically.
6.	Report to the flight crew about the on-going situation.

2.2.14. Pushback and Engine Starting (cont.)

Incidents During Pushback

(cont.)

Power Push Unit (PPU) Incidents Checklist

Table (IATA-IGOM)

Flight Crew	Ground Staff
Aircraft Unable to Move Alone (PPU removed)	
Asks for aircraft inspection.	• Informs the flight crew that the rollers are open and the PPU is removed. • Leaves the interphone contact after consent from the flight crew.
Aircraft Unable to Move Alone (PPU not removed)	
If the engine on the opposite side of the PPU is running: Shuts down the engine.	Informs the flight crew that the PPU is not removed.
• Forbids the evacuation of passengers via the wing emergency exit on the PPU side. • Asks for aircraft inspection.	• Leaves the interphone contact after consent from the flight crew. • Fights the fire.
Aircraft Able to Move Alone (PPU removed)	
Asks for aircraft inspection.	• Informs the flight crew that the rollers are open and the PPU is removed. • Leaves the interphone contact after consent from the flight crew. • Guides the flight crew to move the aircraft forward.
Aircraft Able to Move Alone (PPU not removed)	
If the engine on the opposite side of the PPU is running: Does not shut down the engine.	Informs the flight crew that the PPU is not removed.
	• Leaves the interphone contact after consent from the flight crew. • Press the most accessible stop button.
• Guided by the ground staff member in charge of the departure operation, moves the aircraft forward with engine thrust overpowering resistance of the rollers/jacks. • Asks for aircraft inspection.	Reestablishes the interphone contact and reports to the flight crew.

Pushback Disconnection

Pushback Tractor and Towbar Disconnection Procedures/Requirements

- The responsible ground staff member shall remove the tow pin securing the towbar to the pushback tractor
- The pushback driver/operator shall check that other staff are clear of the intended travel path and slowly drive the pushback tractor to a position in the aircrafts path and be visible to the flight crew, if possible, ready for the towbar to be reconnected.
- The responsible ground staff member shall disconnect the towbar from the nose landing gear and reconnect to the pushback tractor and move clear of the pushback tractor, in view of the driver/operator.
- The responsible ground staff member shall give an ‘OK’ signal to the pushback driver to confirm that the towbar is reconnected, and it is clear to drive away.
- The pushback driver/operator shall check that other staff are clear of the intended travel path and slowly drive the pushback tractor to a position visible to the flight crew until the responsible ground staff member on the interphone has disconnected and is in view of the flight crew.

NOTE: *Ensure the towbar is disconnected from the tractor before disconnecting from the aircraft (except where the towbar is specifically designed to be disconnected from the aircraft first).*

2.2.14. Pushback and Engine Starting (cont.)

Pushback Disconnection (cont.)	**<u>Towbarless Tractor/Remote Control Tractor Attached to Nosewheel Disconnection Procedures/Requirements</u>** • The pushback driver/operator shall ensure that the tractor wheels are centralized and lower the aircraft nose-wheel and open the tractor cradle. • The pushback driver/operator shall check that other staff are clear of the intended travel path and slowly drive the pushback tractor to a position in the aircrafts path and be visible to the flight crew, ensuring that the wheel cradle is completely clear of the aircraft nose landing gear before commencing a turn. • The pushback driver/operator shall rotate the drivers seat to the 'drive away' direction if applicable. • The pushback driver/operator shall remain in a position visible to the flight crew until the responsible ground staff member on the interphone has disconnected and is in view of the flight crew. **<u>Power Push Unit (PPU) Disconnection</u>** • Once the aircraft parking brake is applied, the ground staff member in charge of the departure operation controls the opening of the rollers with the remote control. • With the remote control, the ground staff member in charge of the departure operation controls the move back of the PPU until at least below the tail (beyond the rear cabin door). • Once the aircraft has taxied and the blast risk has disappeared, the ground staff member in charge of the departure operation withdraws the PPU from the taxiway. **DANGER:** Whilst maneuvering in the taxiway during tractor disconnection and repositioning, the tractor driver shall drive the pushback tractor at slow speed and shall remain constantly vigilant to the position of other staff in the taxi-way.
Pushback Process Completion	• Pushback completion includes repositiong of the pushback tractor, removal of the nose gear steering and displaying bypass pin to the flight crew. **DANGER:** After disconnection of the headset, no attempt shall be made to approach the aircraft unless cleared by the flight crew to do so via hand signals.
Aircraft Powerback Operations	• Aircraft powerback is not a common practice; therefore, it shall only be carried out within the limitations, and with the approval, of the respective local authorities. It shall be conducted in accordance with the specific operating airline procedures at all times, taking into consideration the following recommendations: ✓ ground staff members required for powerback (e.g., marshaller, wing walkers). ✓ Identifying the person in charge of the powerback process. ✓ Wired headset shall not be used for powerback operations. ✓ The ground staff members engaged in powerback operations shall wear, in addition to their normal PPE, protective goggles.

2.2.14. Pushback and Engine Starting (cont.)

Aircraft Powerback Operations **(cont.)**	✓ Powerback operations shall not be conducted if any one of the following conditions exist: ▪ Airport of operations does not authorize powerback operations or the departure gate is not approved for such operations. ▪ If any member of the ground crew is not properly protected. ▪ The entire area of the operation is not adequately illuminated. ▪ Visibility is restricted due to weather conditions. ▪ An accumulation of ice, snow, slush or any other obstruction is on the apron. ▪ Verbal agreement is not reached between the ground staff member in charge of the departure operation and the flight deck.

2.2.15. Aircraft Towing

Introduction	• Aircraft towing may be carried out for three different reasons: ✓ **MAINTENANCE TOWING** – Towing an aircraft without passengers, without cargo, and with minimum fuel on board. ✓ **OPERATIONAL/DISPATCH TOWING** – Towing an aircraft loaded with passengers and/or fuel and/or cargo to/from the terminal gate or parking area to/from a remote location. ✓ **REPOSITIONING TOWING** – Movement of an aircraft to/from a remote parking area with/without cargo or fuel.
Ground Staff Member Responsibilities	• The responsible ground staff member is defined as the person who has overall responsibility for the towing maneuver and is normally the pushback tractor driver, although the function may be performed by different ground staff members in different roles: ✓ Handling Agent ground staff. ✓ Croatia Airlines Technical staff. • The responsible person in charge of each towing maneuver shall check to ensure all requirements for the towing operation are met prior to commencing towing operations. **Tractor Driver** • The pushback tractor driver shall: ✓ Align the tractor or tractor/towbar combination with the centerline of the aircraft before the aircraft movement. ✓ Completely raise the towbar wheels before the start of the aircraft movement, if used. ✓ Prior to the aircraft movement, make sure the parking brake is released and the anti-collision lights are switched on, in accordance with the local airport regulations. ✓ Wait for the authorization of the brake operator before moving the aircraft, where applicable. ✓ Select appropriate gear on tractor and slowly begin movement. ✓ Start the towing operation on a straight line. ✓ Keep the maneuvering speed to a minimum and avoid heavy and/or sudden braking action that could result in damage to the aircraft/equipment. ✓ Scan the apron during towing; monitor clearances and wing walkers, if applicable, to ensure the aircraft is moving clear of all obstructions. Be prepared to stop. ✓ Ensure during the towing manuever the steering turn limits are not exceeded and advise the brake operator and maintenance department if any are exceeded. Damage may occur to the nose gear if steering turn limits are exceeded. Refer to the operating airline's GOM for the specific limits and how they are marked on the aircraft. ✓ Avoid sharp turns that result in excessive tire scrubbing.

2.2.15. Aircraft Towing (cont.)

Ground Staff Member Responsibilities (cont.)	**<u>Tractor Driver (cont.)</u>** ✓ If the headset operator is walking on the ramp, maintain visual contact and ensure a safe distance is maintained from the nose gear/pushback tractor during the entire towing maneuver. ✓ If the headset operator is too close to the nose gear/pushback tractor, the towing maneuver must be stopped and a review of the required safety clearance conducted. ✓ Align the pushback tractor/towbar or the TWL with the centerline of the aircraft nose gear at the end of the pushback phase of the towing maneuver. ✓ Do not exceed the towing speed limit as regulated by the towing equipment, aircraft and/or airport. ✓ Use relevant apron lines as guidance during maneuvering to ensure safe obstacle clearance. Be aware of the size of the towed aircraft. ✓ Keep a minimum safety distance between vehicles to allow sufficient space to stop. ✓ Stop 50m (55 yds) before a taxiway intersection if a stop is required. ✓ Relieve torsional stresses applied to the landing gear components and tires by moving the aircraft in a straight line for a few meters to ensure the nose wheels are in the straight-ahead position when arriving at the allocated/relevant parking position. ✓ Apply the tractor parking brake after making a complete stop. ✓ Drive the tractor back to the terminal or appropriate parking position. ***NOTE:*** *Some of the above procedural points may not be applicable to TWL tractors.* **DANGER:** If the nose wheels are not in the centered position, they can turn quickly to their centered position when the steering bypass pin is removed. This can result in personnel injury or aircraft damage. **<u>Brake Operator</u>** • Where applicable, in accordance with local procedures, the brake operator shall: ✓ Be responsible for communication with ATC. ✓ Complete a flight deck checklist for towing. ✓ Ensure all aircraft doors are closed by authorized personnel. ✓ Apply the ‘Brakes On’ and ‘Brakes Off’ procedures in coordination with the headset operator. ✓ Switch on and switch off the external and anti-collision lights of the aircraft. ✓ Position the seat in such a way that the brakes can be easily applied when required. ✓ Inform the headset operator immediately if potential contact with any object(s) is detected. ✓ Only apply the brakes during the tow when instructed by the headset operator or when it is clear that the aircraft has become separated from the tractor.

2.2.15. Aircraft Towing (cont.)

Ground Staff Member Responsibilities (cont.)	**<u>Wing Walker</u>** ***NOTE:*** *Refer to 2.2.14. "Pushback and Engine Starting".* **<u>Headset Operator</u>** The headset operator is responsible for communications with the brake operator and/or VHF operator. **<u>VHF Operator</u>** The VHF operator is responsible for communications with ATC. ***NOTE:*** *The VHF operator may be positioned in the pushback tractor or on the flight deck depending on the ground staff member functions carrying out the towing maneuver.*
Pre-Towing Activities - General	• The following requirements shall be met to perform an aircraft tow: ✓ Carry out a pre-departure walk around in accordance with section 2.2.13. "Departure Activities". ✓ Carry out the requirements, as identified in the pre-departure table in section 2.2.13. "Departure Activities", that are relevant to the towing maneuver. ✓ Make sure a qualified brake operator and/or VHF operator is in the cockpit, if applicable. ✓ Communication shall be established between the headset operator and the brake/VHF operator, if applicable. ✓ Responsible ground staff member shall conduct a briefing with all persons involved in the aircraft movement to review and confirm how the aircraft will be maneuvered. ✓ Ensure the hydraulic system pressure for aircraft braking and/or the brake accumulator is within the required pressure range ✓ Ensure any required electrical systems for towing are energized. ✓ Ensure all landing gear safety pins are installed. After the tow, ensure all pins are removed and stowed. ✓ Connect the pushback tractor/equipment in accordance with the relevant instructions contained in section 2.2.14. "Pushback and Engine Starting". ✓ Remove the wheel chocks once ready to do so in accordance with section 2.2.14. "Pushback and Engine Starting". **CAUTION:** Inform the brake/VHF operator, headset operator and/or maintenance department for technical inspection if anyone: ✓ Observes any type of excessive fluid leakage. ✓ Notices any signs of unmarked aircraft damage. ✓ Observes any fault, failure, malfunction, or defect that may affect the safe operation of the aircraft for the intended flight.

2.2.15. Aircraft Towing (cont.)

Pre-Towing Preparation

- The following checklist is to be used in preparation for an aircraft tow:

Action	Performed by	
	Brake Operator	Tractor Driver
Apply the flight deck checklist for towing. Refer to the operating airline's GOM for details.	✓	✓
Test the means of communication between the tractor and flight crew.	✓	✓
Insert the steering bypass pin and deactivate steering.	✓	✓
Give permission to connect the towbar and tractor or TWL tractor after applying the aircraft parking brake.	✓	
Install the landing gear safety pins, if required by the airline's procedures.	✓	✓
Connect the towbar; first to the aircraft, then to the tractor and set the parking brake.		✓
Before connecting the TWL tractor, ensure the aircraft MLG are symmetrically chocked.		✓
Connect the TWL tractor and set the parking brake.		✓
Once all GSE has been cleared away from the aircraft, remove or check removal of aircraft chocks.		✓
Ensure the aircraft is clearly visible to other parties according to local regulations, especially after dark (e.g., switch on external and anti- collision lights).	✓	
Contact the ATC for clearance to start moving the aircraft (depending on local regulations).	✓	✓
After receiving clearance, release the aircraft parking brake.	✓	
Give clearance and instruction to the tractor driver to start moving the aircraft.	✓	
Request confirmation from the brake operator that the aircraft parking brake has been released.		✓
Conduct tow.		✓

NOTE: IATA-IGOM Table

Towing Communication

- An aircraft towing maneuver shall always be conducted using interphone communications when the brake/VHF operator is present.
- This standard communication specific dialogue contained herein does not forbid the exchange of additional important information between the brake/VHF operator and ground staff using non-standard phraseology (e.g., request for authorization to disconnect ground support units).
- Additionally, two-way radio communication shall be maintained between aircraft/tractor set and ATC, except when under escort by an airport operations or emergency vehicle. Always follow local airport regulations for communication and aircraft movement operations.

CAUTION:
All given instructions must be read back or acknowledged in a manner clearly indicating that they have been understood and will be complied with.

When interphone communication is not possible, standard hand signals must be used for communication between the tractor driver and brake operator. Such communication may occur only when the aircraft has stopped.

2.2.15. Aircraft Towing (cont.)

Towing Communication (cont.)

DIALOGUE BETWEEN GROUND STAFF MEMBER AND BRAKE/VHF OPERATOR

Phase	Ground Staff		Brake/VHF Operator	
Pre-departure check	**Call**	**CONFIRM PARKING BRAKE SET**	**Reply**	**PARKING BRAKE SET**
			Call	CONFIRM STEERING BYPASS PIN INSERTED/NOSE WHEEL STEERING DEACTIVATED **(if applicable)**
	Reply	STEERING BYPASS PIN INSTALLED/NOSE WHEEL STEERING DEACTIVATED **(if applicable)**		
			Call	CONFIRM CLEAR TO PRESURIZE? **(If applicable)**
	Reply	CLEAR TO PRESURIZE **(if require)**		
	Call	Request permission to connect the towbar and tractor (or TWL tractor		
			Call	CLEAR TO CONNECT (towbar and tractor or TWL tractor)
	Call	CONNECTING		
After completion of the pre-departure check	**Call**	PRE-DEPARTURE CHECKS COMPLETED[1]	**Reply**	ROGER
	Call	ELEVATING AIRCRAFT (TWL tractor)		
	Call	READY FOR TOWING		
Towing		REQUEST TOW (company name, aircraft type) FROM (location) TO (location)[2]		REQUEST TOW (company name, aircraft type) FROM (location) TO (location)
			Call	TOW APPROVED VIA (mention specific routing to be followed)
	Call	CONFIRM PARKING BRAKE RELEASED		
			Reply	PARKING BRAKE RELEASED
	Call	COMMENCING TOWING (mention specific routing to be followed)		
Towing completed	**Call**	TOWING COMPLETED, SET PARKING BRAKE		
			Reply	PARKING BRAKE SET
Disconnecting	**Call**	AIRCRAFT CHOCKED		
			Call	CLEAR TO DISCONNECT
	Reply	DISCONNECTING		
	Call	TOWBAR/TRACTOR DISCONNECTED		

[1] Carry out a check in accordance with specifications in the pre-departure table that are relevant to the following maneuever.

[2] Transmission from ground staff member on local regulations.

2.2.15. Aircraft Towing (cont.)

Towing Maneuver	• **Towing Speeds** ✓ Towing speeds shall be kept to a minimum and shall not exceed the towing speed limit as regulated by the towing equipment, aircraft and airport. ***Important:*** *Aircraft weight, tractor performance and airfield topography can affect the towing speeds.* ✓ If requested by ATC/GMS to 'Expedite' due to a live runway crossing, ATC must be informed if this is not possible. ATC/GMC shall also be informed if towing speeds are restricted when towing on live taxiways, as this can lead to congestion on the airfield. • **Towing Limits** ✓ Fuel and other loads can affect an aircraft's balance. ✓ To avoid "tail tipping" during towing, ensure that the actual center of gravity of the aircraft is forward of the critical center of gravity. If you are unable to determine this, you must request assistance from a qualified weight and balance agent of the operating airline. ***NOTE:*** For information relating to requirements and precautions that shall be taken when aircraft towing maneuvering takes place during adverse conditions, refer to the following sections above, as applicable: ▪ Wintery or Slippery Conditions, refer to section 2.2.14. "Pushback and Engine Starting ("Maneuvering During Wintery or Slippery Conditions"). • Low-Visibility Conditions, refer to refer to section 2.2.14. "Pushback and Engine Starting ("Maneuvering During Wintery or Slippery Conditions"). • **Towing onto Parking Stand** ✓ Immediately prior to the aircraft being towed onto the stand or gate, the responsible ground staff member shall check and confirm that the area is 'ready' (e.g., clear of obstacles, equipment, FOD, wing walkers, if required). • **Movement Into/Out of Hangars** ✓ Only those personnel trained and qualified in the movement of aircraft into/out of hangars shall perform this operation and a person in charge of the operation must be designated. ✓ Sufficient personnel (wing/tail walkers) shall be assigned to the operation to ensure clearances between the aircraft and objects in the hangar are maintained. ✓ The method of communication between the personnel involved in the aircraft movement into/out of the hangar shall be agreed upon before any movement is started by means of a briefing conducted by the person in charge of the operation. ✓ Floor markings and stop signs shall be in accordance with the aircraft type operating into/out of the hangars.

2.2.15. Aircraft Towing (cont.)

Incidents During Towing

(IATA-IGOM table)

Brake/VHF Operator	Tractor Driver
VHF Communication Failure	
(a) Set the aircraft parking brake. (b) Communicate the issue to ATC. (c) Relay appropriate information received from ATC to the headset operator (d) Continue to monitor the ATC frequency and maintain communications with the headset operator/tractor driver. (e) Release the parking brake prior to recommencement of the towing maneuver.	(a) Stop aircraft/tractor set as soon as it is safe to do so. It is not safe to stop on an active runway. (b) Apply tractor parking brake. (c) Communicate the issue to the brake/VHF operator. (d) Attempt to contact ATC via alternative frequency/means. (e) Await assistance (e.g., from "Follow Me" vehicle) before completing the towing maneuver. (f) After completion of the towing maneuver, report VHF failure to equipment maintenance and follow instructions accordingly.
Tractor Failure	
(a) Inform ATC. (b) Set the aircraft parking brake. (c) Listen to VHF and wait for assistance. (d) Relay information from ATC to headset operator/tractor driver.	(a) Stop aircraft/tractor set. (b) Apply tractor parking brake. (c) Inform the brake/VHF operator. (d) Inform ATC (TWL towing with one-person operation). (e) Contact supervision and equipment maintenance to advise of the situation, as required. (f) Follow instructions received from headset/brake operator, as applicable. (g) Listen to VHF (TWL towing with one-person operation). (h) If the TWL/towbar connection with the tractor needs to be reset (i.e., removed and reconnected), the aircraft shall be chocked while the tractor is being replaced.
Tractor/Aircraft Separation	
(a) Apply the aircraft brakes. (b) As soon as the aircraft is at a standstill, apply the aircraft parking brake before releasing the pedal. (c) Inform ATC. (d) Relay information received from ATC to the headset operator/tractor driver, if applicable.	(a) Do not apply tractor brakes. (b) Inform the brake/VHF operator of the separation. (c) Follow the aircraft path attentively and stop the tractor according to the aircraft position. (d) Apply the tractor parking brake. (e) Confirm the aircraft parking brake is set, then chock the aircraft. (f) Assess the reason for the disconnection. (g) Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required (h) Follow instructions to complete the towing maneuver, as applicable.
Towbar/Shear Pins Failure (remains attached to the aircraft)	
(a) Apply the aircraft parking brake. (b) Inform ATC. (c) Relay information received from ATC to the headset operator/tractor driver, if applicable.	(a) Stop the aircraft/tractor set. (b) Apply the tractor parking brake. (c) Inform the brake/VHF operator of the towbar/shear pin failure. (d) Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required. (e) Chock the aircraft and replace the towbar. (f) Follow instructions to complete the towing maneuver.
Pushback Tractor Fire	
(a) Inform ATC and headset operator/tractor driver. (b) Apply the aircraft parking brake. (c) Determine the need for aircraft emergency evacuation and confirm to ATC/headset operator/tractor driver	(a) Inform the brake/VHF operator. (b) Stop the aircraft/tractor set immediately. (c) Conduct an assessment of the situation and consider tackling the fire with the onboard tractor firefighting equipment only if it is deemed safe to do so. (d) Consider disconnecting and moving the tractor a safe distance from the aircraft, if deemed safe and appropriate to do so. (e) Contact supervision, equipment maintenance and emergency services to advise of the situation, as required. (f) If the brake/VHF operator confirms emergency evacuation, assist in the evacuation as far as is possible/required.

2.2.15. Aircraft Towing (cont.)

Incidents During Towing

(IATA-IGOM table)

(cont.)

Brake/VHF Operator	Tractor Driver
Aircraft Fire	
(a) Inform ATC and the headset operator/tractor driver. (b) Apply the aircraft parking brake. (c) Fight the fire with the onboard extinguisher, where possible. (d) Evacuate the aircraft using onboard means, if required.	(a) Stop the aircraft/tractor set immediately. (b) Inform the brake/VHF operator. (c) If safe to do so, disconnect and move the tractor to a safe distance from the aircraft, where possible. (d) If deemed safe to do so, the headset operator/tractor driver should maintain communication with the brake/VHF operator and follow instructions. (e) Contact supervision and emergency services to advise of the situation, as required. (f) If brake/VHF operator confirms emergency evacuation, assist in the evacuation as far as is possible/required.
Accident with Other Aircraft or Vehicle	
(a) Contact ATC stating position and nature of the accident. (b) Listen to VHF and wait for assistance. (c) Relay information received from ATC to headset operator/tractor driver, if applicable.	(a) Stop the aircraft/tractor set immediately. (b) Apply tractor parking brake. (c) Inform the brake/VHF operator. (d) Contact supervision, aircraft maintenance, equipment maintenance and emergency services to advise of the situation, as required. (e) Follow instructions received from the headset/brake operator and/or wait for assistance. (f) Do not disconnect the tractor unless specifically instructed to do so by the operator and/or ATC. (g) If disconnecting the tractor, the aircraft must be chocked.
Interphone Communication Failure	
If during the towing operation the interphone fails, the aircraft must be immediately stopped and an alternate means of communication established before continuing. If this is not possible, assistance must be requested.	
Visual Contact with the Wing Walkers and/or Marshaller Is Lost (if used)	
In the event that the tractor driver is unable to establish visual contact with one or both of the wing walkers or the marshaller, when required, the towing maneuver shall be stopped and not recommence until visual contact is reestablished.	

CAUTION:
A standard communication procedure for abnormal pushback/towing situations (e.g., towbar shear pin failure) cannot consider every possibility that may arise. Therefore, the tractor driver and brake operator shall keep each other informed. Actions should be taken using common sense, considering the circumstances of a particular situation.

Towing Completion

(IATA-IGOM table)

- The following checklist is to be used at the end of an aircraft tow.

Action	Performed by	
	Brake Operator	Tractor Driver
Set tractor parking brake.		✓
Request the brake operator to set the aircraft parking brake.		✓
Inform ATC that towing is completed, and the frequency will be left, depending on local regulations.	✓	✓
Set the aircraft parking brake and check the pressure. Inform the tractor driver: *"Parking Brake Set, Pressure Checked."*	✓	
Chock the aircraft MLG.		✓
Switch off the external and anti-collision lights of the aircraft.	✓	
Inform the brake operator: *"Aircraft chocked"*.		✓
Give permission to disconnect the towbar or TWL tractor. Disconnect the tractor ground power, where applicable.		✓
Disconnect the towbar (disconnecting from the pushback tractor first, then the aircraft) or TWL tractor.		✓
Remove the steering bypass pin and activate steering.		✓
Place additional chocks, where applicable.		✓
Inform the brake operator: "*Towbar/Tractor Disconnected*".	✓	
Release the aircraft parking brake and inform the tractor operator: "*Parking Brake Off*" (where applicable).		✓
After permission from the brake operator, shut down and disconnect the tractor GPU.		✓
Install and connect a GPU.	✓	
If installed, remove and stow gear safety pins in the dedicated location.		✓

2.3. FUELLING / DE-FUELLING PROCEDURES

2.3.0. Overview

Contents	This chapter contains the following sections: 2.3.1. Fuelling / De-fuelling Procedures 2.3.2. Fuelling Procedures with Passengers on Board and/or during Embarkation or Disembarkation

2.3.1. Fuelling / De-fuelling Procedures

Responsibility for Fuel Order	• Fuel is ordered by selecting the Required Block Fuel (FOB after fuelling) on the aircraft fuel selector (fuel panel). • Fuelling of aircraft is fully automated: once the process starts, it will stop automatically when selected block fuel is reached. • Only Cockpit Crew and authorized (trained) ground/technical personnel are allowed to operate fuel panel. Authorized person can be responsible for fuelling only if direct request for refuelling is entered in the "Fuel Order" by cockpit crew (Also applicable for Service level II operation – fuel intoplane company. • Ordering of fuel (Required Block Fuel selecting on the aircraft fuel selector) is responsibility of: ✓ **Cockpit Crew** (in case of Service Level II operation, Fuel Order shall be filled and transmitted to the fuel intoplane company as applicable). ✓ **Maintenance Staff (or authorized person delegated by maintenance staff)** prior to first morning flight or every time when aircraft is under maintenance responsibility (having responsibility transferred from Cockpit Crew to the Maintenance by entry in the TLB). Cockpit Crew will determine Required Block Fuel during pre-flight briefing at Flight Dispatch. Operations Controller / Flight Dispatcher will transfer Required Block Fuel to maintenance staff (or authorized person) by radio or telephone communication. ✓ **Authorized person** can be responsible for fuelling only if direct request for refuelling is entered in the "Fuel Order" by Cockpit Crew (Also applicable for Service level II operation – fuel intoplane company. • Usually, fuel company will approach the aircraft at least 30 minutes before STD. Therefore, Cockpit Crew should determine Required Block Fuel as soon as possible during pre-flight briefing. • In case that re-fuelling is required on alternate station contact CTN Operations Centre for information about contracted fuelling company. If there is no contracted fuelling company, before re-fuelling, CTN Operations&HUB Control Centre must consult Fuelling Programme Manager or CTN Fuel Department. • **In case of taking fuel from no contracted supplier, before re-fuelling, fuel has to be checked for colour, visual clearness, chemical check for water in suspension and density.** **IMPORTANT:** If refuelling will not be required at destination, a statement should be entered at point of departure into the Loadsheet Information Form and LDM message ("FUEL NOT REQUIRED").
Responsibilities of the Fuelling Company	• Before fuelling, the fuelling company must: ✓ Provide fire extinguisher. ✓ Connect bonding connection. ✓ Install and lock refuelling connections, etc ✓ Ensure that the specified aviation fuel is going to be fuelled. ✓ Ensure that the aircraft fuel will not be contaminated during re-fuelling. ***IMPORTANT:*** *If any of above conditions is not fulfilled, fuelling must not be commenced*.

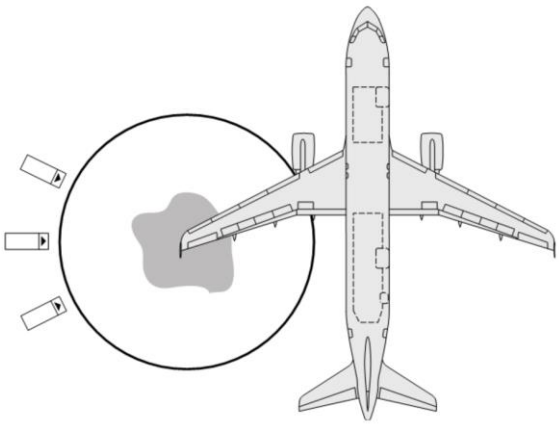
2.3.1. Fuelling / De-fuelling Procedures (cont.)

Responsibilities of the Fuelling Company (cont.)	• After refuelling, the fuelling company must: ✓ Close refuelling shut-off valves. ✓ Disconnect refuelling connections, etc. ✓ Install and lock filer caps, etc. ✓ Disconnect bonding connections. ✓ Safely remove spilled aviation fuel immediately in accordance with all local regulations or completely cover the spilled fuel with sand, sawdust or any other suitable material and dispose it of as soon as possible. ✓ Complete fuel receipt. ***NOTE:*** *The local fuel providers shall operate according to the standards and procedures documented in the Croatia Airlines "Fuel Manual, Issue II" (OP-PSU-050).*
Safety Precautions for Handling of Aviation Fuel	• When handling aviation fuels it is prohibited to: ✓ Smoke. ✓ Use flames which do not have protection. ✓ Operate electrical equipment which is not necessary for the task. ✓ Pull or move electrical objects along the ground. ✓ Use footwear which has metal studs or steel toecaps. ✓ Use hearing aids or battery - operated equipment which will cause sparks. ✓ Have material, which will cause sparks or flames. • All rags or other materials containing aviation fluids must be disposed of properly by placing them in available fire – proof containers.
Fuelling Safety Zone (FSZ)	• Refer to section 2.1.2. "Aircraft Danger Areas" (Fuelling Safety Zone (FSZ)).
Re-fuelling and De-fuelling Procedures	• Fundamental Safety Precautions: ✓ Re-fuelling may only be performed after permission has been given in the presence of: ▪ The responsible Croatia Airlines personnel. ▪ Croatia Airlines authorized representatives. ***NOTE:*** *Except where other arrangements have been made (for example: Service Level II/III).* ✓ Refuelling is to be performed in conformance with the general refuelling regulations of the intoplane Fuelling Company. ✓ The regulations "Fire Protection Rules / Airport Usage Rules" existing at the respective airport shall be adhered to. ✓ The definition of the responsibilities for refuelling has been arranged between Croatia Airlines and the Into Plane Fuel Company, as set forth in the contract.

2.3.1. Fuelling / De-fuelling Procedures (cont.)

Re-fuelling and De-fuelling Procedures **(cont.)**	✓ No re-fuelling or de-fuelling of flammable aviation fuels, nor any other such fluids except for lubricants may be performed in aircraft hangars or other buildings. ✓ Prior to re-fuelling or de-fuelling, the aircraft engines must be shut down, wheel chocks must be placed, and suitable fire extinguishers must be placed nearby. ***NOTE:*** *Refuelling is permitted on A320 family with one engine operating. For DASH-8 refuelling with one engine running is not permitted*. ✓ The hose connection through which the fuel flows may not be left unattended. ✓ When a fuel spill occurs, flight crew and senior representative of the fuel supplier must be notified immediately. Spilled fuels must be safely removed immediately in accordance with the local regulations, or must be firstly completely covered with sand, sawdust or any other suitable material and then removed immediately. ✓ APU PU may be started during refuelling, if the start is an initial start or a restart after normal shutdown. **IMPORTANT:** In the event of fuel spillage, fuelling shall be stopped, and the airline representative and flight crew informed immediately. Depending on the size and extent of the spillage (overflow, hose burst), consideration should be given, by the airline representative as to whether the APU should be shut down due to the proximity and danger from flammable vaporous or fuel spray. The APU should not be restarted until the spillage is removed and there is no further risk from fuel or vapors. ✓ One escape route for the fuel truck must be available at all times. ✓ The refuelling hoses may not be driven over. ✓ Refuelling or de-fuelling is strictly prohibited during thunderstorms in the area (within 5 NM from the airport). ✓ Refuelling or de-fuelling may not take place while oxygen bottles are being filled or changed at the aircraft. ✓ Regulations for handling electrical equipment and units: ▪ The use of electrical power, particularly the actuation of switches, in and on the aircraft shall be restricted to the units necessary to execute the fuelling procedure or to operate the loading / unloading of the aircraft during refuelling or de-fuelling of aviation fluids (except lubricants). ▪ The use of the electric torch “Dynalite 915” is allowed only under conditions described in OM-A, Chapter 08.02.01.A2A). ✓ Additional safety measures for over wing refuelling: ▪ Only the filler port through which refuelling takes place, may be open. ▪ The nozzle must not be left unattended. ▪ The filler port shall be covered during rain, snow, or dust. ▪ Ground and on-board equipment shall be connected and started prior to refuelling and de-fuelling and shall not be switched off or disconnected during the refuelling and de-fuelling procedure. Switch on electrical consumers prior to refuelling, and do not switch them off during refuelling, except those components that are required for performing the refuelling procedure.

2.3.1. Fuelling / De-fuelling Procedures (cont.)

Bonding	• Trucks and containers (except tins or cans of lubricant and lubrication cart), from which the aviation fuels are loaded into the aircraft or into which such fuels are drained from the aircraft must be bonded to the aircraft to conduct away static electricity. • The bonding must be established as follows and disconnected again in the reverse order: 1. Bond fuel truck or container to the aircraft. Connect the bonding cable from the fuel truck or container to the connection point on the aircraft. 2. Connect fuel hose to the aircraft. 3. Connect bonding cable from the fuel hose to aircraft ground (for over wing re-fuelling only).
Fuel Spillage	• All fuel spills, irrespective of size, shall be regarded as a potential fire hazard and shall be reported immediately to the fuelling provider and airline representative and/or Commander (Pilot in Command). • Take the following safety measures whenever a fuel spill occurs: ✓ Fuelling MUST be stopped at once. ✓ Activate the emergency shut-off valve where installed. ✓ Alert the person in charge of fuelling and/or the Pilot in Command of the spillage. ✓ Contact the local fire service, if not already done. ✓ Verify with authorities/supervisor whether to stop all activity around the aircraft. ✓ Secure the area at least 15 meters from the contaminated area. ✓ As far as possible, restrict all activities inside and outside the spill area to prevent access and to reduce the risk of ignition. ✓ Safely remove spilled aviation fuel immediately in accordance with all local regulations or completely cover the spilled fuel with sand, sawdust or any other suitable material and dispose it of as soon as possible. ✓ Refuelling process must not recommence until the cause of the leakage has been eliminated. ***NOTE:*** *Handling of Emergency Requiring the Evacuation of an Aircraft during Ground Handling (GOM, section 8.4. "Emergency Response Procedure").* 

2.3.2. Fuelling Procedures with Passengers on Board and/or During Embarkation or Disembarkation

Fuelling Procedures with Passengers on Board and/or During Embarkation or Disembarkation	• **DEFUELLING** is NOT ALLOWED while passengers are either embarking or disembarking. • **OVERWING** fuelling operation with passengers embarking on board or disembarking is NOT ALLOWED. • **FUELLING** operation with passengers embarking on board or disembarking is allowed only with Jet A or Jet A 1 type fuel and at least, last two refuelling must not be performed with wide-cut fuel (JET B, JP-4). • Fuelling operations whilst passengers are on board / embarking / disembarking requires observing the procedures below: ✓ Ask the Commander for permission for fuelling operation with passengers on board, respectively with passengers embarking or disembarking. ***IMPORTANT:*** *The final decision whether or not to carry out fuelling operations with passengers embarking on board or disembarking rests with the Commander (Pilot in Command).* ✓ Inform and obtain permission from Airport Authorities according to local requirements. ✓ Depending on local regulations (“Fire Protection Rules / Airport Usage Rules”), airport parking stand shall be equipped with fire extinguisher and at least the Airport Fire Brigade shall be informed (either through the Handling Agent or the appropriate ATC frequency), or at least one fire-fighting vehicle with appropriate firefighting crew must be present at the stand when fuelling operations is taking place. ✓ Whenever fuelling operations is to be carried out with passengers embarking on board or disembarking, the Flight Crew, all operating personnel and passengers must be informed. ***NOTE:*** *Passengers will be informed by the ground personnel at the gate about fuelling process and instructed not to fasten seat belts*. ✓ Ensure at least one qualified person (Handling Agent staff or Supervision, OU staff and/or crew member) to supervise fuelling operations (Fuelling Supervisor). ***NOTE:*** *This person (or persons) shall be approved by the Commander (Pilot in Command).* ✓ The person (or persons) supervising fuelling operations (Fuelling Supervisor) shall be qualified (English language, trained and/or instructed in the correct use of headsets). ✓ The Fuelling Supervisor(s) shall oversee the fuelling process on the ground and shall have unobstructed view to monitor the fuelling. ✓ The Fuelling Supervisor(s) shall report any fire or other occurrence that has the potential to cause harm to persons and/or the aircraft, immediately to the flight deck. ✓ The Fuelling Supervisor shall ensure, that all persons (including passengers) and vehicles / equipment apply to the standards and rules laid down in this procedure by either doing so personally or ensuring the requirements with other personnel / equipment (e.g., restricting the access to the FSZ with personnel and/or tensators, etc.).

2.3.2. Fuelling Procedures with Passengers on Board and/or During Embarkation or Disembarkation (cont.)

Fuelling Procedures with Passengers on Board and/or During Embarkation or Disembarkation (cont.)	✓ Adequate "two-way/visual communication" shall be established and shall remain between the person(s) responsible for supervising fuelling process and the flight crew member on the flight deck available by the aircraft intercommunication system. ✓ In case the headsets are not available, other suitable means shall be coordinated and approved with/by the Commander (visual signals, direct person-to-person contact). ✓ The Fuelling Supervisor shall inform the flight deck when the fuelling starts and ends. ✓ The aircraft should be re-fuelled from the RIGHT side while passengers are embarking or disembarking. ✓ Airbus fleet can be re-fuelled from the LEFT side, ONLY when passengers are embarking or disembarking via jet-bridge. ✓ PRM passengers should be embarked last; They may stay on board if it possible to evacuate them rapidly and safety. ✓ At least one passenger-boarding device (jet bridge and/or stairs) shall be positioned at the aircraft. When passenger loading bridge is in use, unobstructed access to the terminal shall be available. ✓ Passengers embarking or disembarking should be under supervision of responsible ground staff, and their route must avoid the fuelling zone (min. 6 meters of fuelling equipment and vent points). ✓ Embarking must be conducted in small groups to avoid congestion in front of aircraft doors. ✓ All ground service activities and work inside the aircraft shall be conducted in such a way that the aisles and emergency exit remain unobstructed. ✓ The ground area beneath the exits intended for emergency evacuation and slide deployment areas must be kept clear of any obstacles. All open doors provided with passenger stairs or jet bridge shall be considered as primary emergency exits. ✓ Tank fullers and hydrant dispensers should have a clear escape route at all times. ✓ The Flight and Cabin Crew shall operate according to the standards and procedures as documented in Croatia Airlines OM-A and CSPM.

2.4. MISCELLANEOUS

2.4.0. Overview

Contents	This chapter contains the following sections: 2.4.1. Handling Agreements and Provision of Resources 2.4.2. Handling Agent Tasks and Supervision Activities 2.4.3. Minimum Ground / Turnaround Times 2.4.4. On-time Performance 2.4.5. Operational Irregularities 2.4.6. Loading and Storage of Aircraft Handling Documents

2.4.1. Handling Agreements and Provision of Resources

IATA Standard Ground Handling Agreement (SGHA)	• The ground handling services provided and rendered to Croatia Airlines are covered by legal contracts with Handling Companies that specify details for applicability of, and compliance with the respective Company operating standards. • By signing the contract, the Handling Company agrees to carry out all services in accordance with Croatia Airlines procedures and instructions published in the respective volumes of operational manuals (GOM, PBHM, AHM560, OM-A, etc.), and as mutually agreed. • Standard Ground Handling Agreement published by the IATA (AHM 810) is legal contract for ground handling services, as described in this Section. The IATA SGHA normally consists of three parts: ✓ Main Agreement. ✓ Annex A. ✓ Annex B. • Different versions of the IATA SGHA exist: ✓ IATA AHM 810 April 1993. ✓ IATA AHM 810 April 1998. ✓ IATA AHM 810 January 2003. ✓ IATA AHM 810 January 2004. ✓ IATA AHM 810 January 2008. ✓ IATA AHM 810 January 2013. ✓ IATA AHM 810 January 2018. ***NOTE 1:*** *Croatia Airlines uses latest published IATA Standard Ground Handling Agreement versions.* ***NOTE 2:*** *New ground handling agreements should be concluded according to the newest version of SGHA, preferably as Annex A, Ground Handling Services.* • There is in use also a so-called Simplified Procedure, that requires only Annex B, but with an additional preamble, that includes the Main Agreement and Annex A in their standard wording without repetition of the full text. • The operations personnel at the station concerned must be informed, at least basically about the agreed scope of services, for example by a local job instruction or a small checklist with the main items This helps to identify arising deficiencies in the performance of the handling companies and may initialize a deeper monitoring of certain services. • A second copy of the SGHA must be filled at Company INTRANET Platform.

2.4.1. Handling Agreements and Provision of Resources (cont.)

Provision of Resources	• Croatia Airlines and its external ground service providers shall ensure existence of the necessary infrastructure, facilities, workspace, equipment, work environment, supporting services, and human resources to satisfy all ground service operations and security requirements. • The infrastructure and other resources that are necessary to deliver safe and secure ground services operations include: ✓ Buildings, workspaces, and associated utilities. ✓ Management and operations office facilities. ✓ Support hardware electronic appliances and software applications. ✓ Support services such as phone and radio communication, transportation services, etc. • A suitable work environment that satisfies human and physical factors and considers: ✓ Safety rules and guidance, including the use of protective equipment. ✓ Workplace location(s) temperature, humidity, light, airflow, cleanliness, noise levels, pollution, etc. • Croatia Airlines and its external ground service providers shall ensure positions within the organization that affect safety and security of operations are filled by personnel based on knowledge, skills, training, and experience appropriate for the position.

2.4.2. Handling Agent Tasks and Supervision Activities

General

- The Handling Agent must assign trained and qualified personnel (including those of subcontractors), to ensure all operational activities, include but not be limited to airside operations in areas near and around the aircraft, are conducted under the direct oversight of supervisory personnel. This either can be:
  - ✓ CTN (OU) staff.
  - ✓ Handling Agent staff.
  - ✓ Contracted Supervision staff (depending on local contract).
- An assigned individual(s) will oversee the aircraft turnaround during ramp / apron activities ensuring the aircraft is handled according to respective operational manuals (GOM, PBHM, etc.).
- All contracted Handling Agents should ensure that Ramp Agent and/or Turnaround Coordinator (TRC) is available during the complete ground time to coordinate and supervise all activities concerning the aircraft, crew, passengers and their baggage, cargo and mail as well as ramp handling. If aircrafts are positioned on nearby parking positions (next to each other) Ramp Agent and/or TRC shall be assigned for not more than 2 flights with priority to be present at the time of arrival and departure.

NOTE: *For training requirements refer to GOM, chapter 6.*

Handling Agent Arrival and Departure Activities

- Oversight for an aircraft arrival / departure includes, but is not limited to the following activities:

Handling Agent Arrival and Departure Activities	
1.	Aircraft, vehicles and GSE operations and parking.
2.	Arrival activities.
3.	Baggage handling.
4.	Cabin equipment.
5.	Catering ramp handling.
6.	De-icing / anti-icing services and snow removal.
7.	Departure activities.
8.	Exterior cleaning.
9.	Interior cleaning.
10.	Load control document accuracy: ✓ LIR. ✓ Loadsheet. ✓ NOTOC. ✓ Other documents as applicable.

Continued on next page

2.4.2. Handling Agent Tasks and Supervision Activities (cont.)

Handling Agent Arrival and Departure Activities (cont.)

Handling Agent Arrival and Departure Activities (cont.)	
11.	Load control and flight operations.
12.	Marshalling.
13.	Moving of aircraft.
14.	Passenger services.
15.	PRM services.
16.	Ramp fuelling / de-fuelling operations.
17.	Ramp regulations.
18.	Ramp services.
19.	Ramp to flight-deck communications.
20.	Staff conduct, behavior and operational practice, PPE (Personal Protection Equipment)
21.	Toilet service.
22.	Towing cargo and baggage.
23.	ULD and bulk loading and unloading of baggage and cargo.
24.	Water service.

Turnaround Coordination / Supervision Requirements

- The table below defines elements that require supervision by personnel assigned to oversee ground-handling operations.

IMPORTANT: *Primary task is to stop all unsafe acts.*

ACTION	
1.	Pre-flight brief conducted regarding flight requirement(s) and services as needed.
2.	Pre-arrival check parking position free of FOD, obstacles and/or spillage.
3.	Personnel wearing personnel protection equipment available and ready.
4.	All GSE and personnel positioned outside the Equipment Restraint Area (ERA).
5.	Ensure guidance system is activated and marshaller(s)/wing walkers correctly positioned as applicable
6.	Personnel must stay clear of the aircraft, until anti-collision lights have been switched off (exception applies if APU is not operational).
7.	Ensure aircraft chocked and coned.
8.	Ensure an arrival external check prior to approach of any ground support equipment is done.
9.	Ensure equipment is properly positioned and operated (e.g., guide rails).
10.	Ensure cargo holds are offloaded and commodities correctly handled as required.
11.	Ensure all cargo holds offloaded according to LIR and inspected for damage.
12.	Passenger Bridge and/or Steps set to correct height before opening cabin access doors and all safety devices are installed.
13.	Aircraft cabin access door operation by authorized and qualified person.
14.	During passenger (dis)-embarkation, passenger movement protected and guided in walkways between the aircraft and bus or terminal.

2.4.2. Handling Agent Tasks and Supervision Activities (cont.)

Turnaround Coordination / Supervision Requirements (cont.)

ACTION (cont.)	
15.	Passenger walkways clean of obstacles and free of undesired contaminated substances.
16.	Fuel bowser/tank is properly positioned, and escape route not obstructed.
17.	Ensure FUEL SAFETY ZONES (FSZ) are respected.
18.	Ensure safety precautions for fuelling with passengers on board or boarding are adhered to as applicable.
19.	Ensure on-load started and the person responsible for loading oversight, such as a Load Master in possession of the Loading Instruction and Report (LIR).
20.	Ensure condition of load inspected prior to loading.
21.	Ensure baggage and cargo loaded and handled in accordance with the LIR.
22.	Ensure Dangerous Goods correctly handled, segregated, secured and stowed.
23.	Ensure holds are checked to verify load and locks/nets configuration.
24.	Ensure Load information is exchanged with all deviations noted.
25.	Ensure final load information provided to Flight crew as required.
26.	Ensure Ground Support Equipment (GSE) removal procedures followed
27.	Ensure final ramp inspection and aircraft walk-around check performed.
28.	Chocks and cones removal procedures followed.
29.	Ensure departure sequence conducted as required.
30.	Ensure post departure activities conducted as required with appropriate document retention.

Handling Agent and Supervision Tasks

ACTION	
1.	Check the passenger booking as well as cargo and mail (Dangerous Goods, special consignments, dimensions, volume, etc.) for inbound and outbound flight. Check “meals on board message for the outbound flight.
2.	Agree the maximum amount of cargo and mail, which may be prepared for loading with the cargo and mail services and coordinate the cargo and mail procedure with the staff handling the aircraft on the ramp.
3.	Obtain information concerning flight limitations.
4.	In the case of Slot Time, flight limitations inform the coordinator of the handling agent's staff (TRC) that it is necessary to handle the passengers and the aircraft very efficiently.
5.	In the case of significant delay in the aircraft's arrival and Slot Time flight limitations occurring at the same time - contact the CTN Operations Control & HUB Centre in order to undertake actions aimed at obtaining a new Slot Time, which can be maintained, considering the current situation of a given flight.
6.	Check PTM message and in case of inbound delay organize smooth transfer (RDS, etc.) for the passengers with short connection flights.
7.	In the case of delayed arrival/departure of aircraft, coordinate with HUB ZAG regarding reservations change for all inbound and outbound transfer passengers.

2.4.2. Handling Agent Tasks and Supervision Activities (cont.)

Handling Agent and Supervision Tasks

(cont.)

ACTION (cont.)	
8.	In case of inbound delay take the following actions for stranded pax: • Upon arrival meet the passengers who have missed their further connections and apologize for the situation. • Direct passengers to the transfer counter where they will get information about new routing and time of estimated arrival to their final destination. • Provide care to the passengers (phone call, meals, refreshments, hotac, etc.).
9.	Provide the appropriate care and assistance to the passengers with special needs (PRM, UMNR, etc.);
10.	Make sure that all flight documents and co-mail envelopes have been received from the flight crew upon arrival and that all necessary documents for the outbound flight have been delivered on-time to the aircraft.
11.	If required, provide necessary documents for the outbound flight: • NOTAM. • METEO information. • Flight Plans.
12.	In the case of significant disruption (heavy delay, cancellation, etc.) coordinate all activities with OC & HUB Centre (ops.control@croatiaairlines.hr; hub.control@croatiaairlines.hr) in order to ensure appropriate care and protection for all stranded passengers.
13.	Inform the Flight Crew in case of irregularity and/or delay.
14.	In case of flight cancellations, set all matters connected with the care for the flight crew such as: • Hotel accommodation. • Ground transfer. • Meals, etc.
15.	Provide aircraft ramp handling with regard to the following: • Guiding the aircraft to the parking position. • Immobilizing the aircraft in the parking position. • Immobilizing the aircraft during severe weather conditions (strong winds, etc.). • Protecting the aircraft against damage during ramp handling. • Cleaning the flight deck and cargo holds (if necessary). • Periodical control of catering production and delivery. • Control of loading / unloading and weight & balance process. • Handling special cargo on the ramp. • Pushback, towing, etc.
16.	Delivery of flight documents (loadsheet, LIR, NOTOC, etc.) to the Flight Crew.
17.	Inform the Flight Crew and provide all necessary documentation related to the special categories of passengers (DEPO, INAD, PRM, UMNR, etc.).
18.	After aircraft departure ensure: • sending of required operational and passenger messages (MVT, LDM, PSM, PTM, BTM, BSM, etc). • contact the Border Police in order to obtain information regarding possible INAD passenger(s) and provide all necessary assistance;

2.4.2. Handling Agent Tasks and Supervision Activities (cont.)

Handling Agent and Supervision Tasks (cont.)	**ACTION (cont.)**	
	18.	• Collect all necessary documents (paper coupons, EXB coupons, etc.) required for Revenue & Statistics Department. • Store and keep Station File;
	19.	Notify appropriate staff (OU staff, Handling Agent, Supervision) about any irregularities which occurred during ground handling and demand for corrective actions in order to avoid such events in the future.

2.4.3. Minimum Ground / Turnaround Times

<table>
<tr><td>General</td><td>

To have consistent processes at all stations and on all turnarounds, Croatia Airlines has set up two basic sets of ground times that are applicable to their operations:

✓ Standard Transit Ground Time (SGT).
✓ Minimum Transit Ground Time (MGT).

These times are designed to meet operational requirements and are dependent upon a number of factors.
In case of late incoming flight, the Minimum Ground Time procedures are applicable should be taken in order to shorten the turnaround time. This must always be coordinated with Cockpit and Cabin Crew.
Compliance with rules and regulations is a necessity to manage a turnaround process safely.

IMPORTANT: However, it should be clearly understood that there should be no compromise to safety.
</td></tr>
<tr><td>Operational Ground Times</td><td>

In an effort to optimize aircraft utilization and increase planning flexibility, defined turnaround times (operational ground time) are applicable:

<table>
<tr><th>Aircraft Type</th><th>Published Scheduled ground time</th><th>SGT</th><th>MGT</th><th>Ground Time for intermediate stop at direct flights (transit flights)</th></tr>
<tr><td>A32F</td><td>any</td><td>40 min.</td><td>35 min.</td><td>30 min (SGT) / 25 min. (MGT)</td></tr>
<tr><td>Q400</td><td>Any</td><td>35 min.</td><td>30 min.</td><td>25 min (SGT) / 20 min. (MGT)</td></tr>
</table>
</td></tr>
</table>

2.4.3. Minimum Ground / Turnaround Times (cont.)

Turnaround Process A319, A320

- In order to ensure that the ground handling remains within the maximum available operational ground time, it is imperative that the following turnaround process timings are adhered to. **Particularly in case of late arrival, it is mandatory to keep the ground time as short as possible.**

40' Turnaround Process A319, A320

ATA	STD	Action	Max.time allowed	Who
-3	-43	Ramp preparation completed (ramp equipment ready, FOD check performed, dock guidance system activated, or marshaller confirmed).	n/a	Ramp
0	-40	Cargo and mail on stand.	n/a	Cargo
0	-40	Check in closed (*Note I*)	n/a	Station, H/A
0	-40	Loading Instruction (LIR) including NOTOC handed over to ramp supervisor.	n/a	Cargo, Loadcontrol
+2	-38	Air bridge / Stairs connected.	2 min.	Ramp
+2	-38	Handover of briefing documents (*Note IV*)	n/a	Station, TRC
+2	-38	Aft service stairs positioned, and standard signals given.	2 min.	Ramp
+3	-37	Aft door opened safely after standard signal received.	1 min.	Cabin Crew
+4	-36	First cleaner to enter aircraft.	n/a	Cleaning
+10	-30	Deboarding completed.	8 min.	n/a
	-27	Start of preboarding (*Note II*)	n/a	Station, H/A
	-27	Start of boarding (Notes II and III)	n/a	Station, H/A
	-25	Fuelling (if required) completed.	n/a	Fuelling
	-25	Catering (if required) completed – all catering personnel off aircraft.	11 min.	Catering
	-25	Cleaning completed – all cleaners off aircraft.	11 min.	Cleaning
	-25	Aircraft Security Search completed (Note VI)	n/a	Cabin Crew
	-25	First regular passenger to enter aircraft.	n/a	Station, H/A
	-20	Communicate final fuel figures to TRC.	n/a	Flight Crew
	-10	Assess necessity of offloading missing pax/bags.	n/a	Station, H/A
	-8	Aft service stairs removed (*Note III*)	n/a	Ramp
	-7	Final Loadsheet	n/a	TRC, Loadcontrol
	-5	Pushback tractor connected (if required)	n/a	Ramp
	-5	All doors closed (Note V).	n/a	All
	-3	Request start-up clearance.	n/a	Flight Crew

2.4.3. Minimum Ground / Turnaround Times (cont.)

Turnaround Process A319, A320	***NOTE***: I. check In closing depends on respective Station but not later than -40 minutes STD; II. The boarding sequence must be announced during the boarding announcement. Strict implementation of sequence (sector) boarding to be observed for dock gate departures, but sector boarding not applicable for bus gate departure. III. Boarding on remote stands may be done simultaneously through forward and aft doors, providing proper guidance of passengers is assured. IV. In case of crew change, boarding information is to be given to new crew. V. Loading of last-minute baggage may continue until the passenger door is closed, even if the deadline of STD-5 has passed. VI. The lower compartment is covered in the LIR (Loading Instruction Report) and therefore performed on all flights. At transit stations, it is not required to unload transit deadload. Nevertheless, it is essential to compare inbound LDM with transit load (bulk load) before loading the joining load.

2.4.3. Minimum Ground / Turnaround Times (cont.)

Turnaround Process DASH8 Q400

- In order to ensure that the ground handling remains within the maximum available operational ground time, it is imperative that the following turnaround process timings are adhered to. **Particularly in case of late arrival, it is mandatory to keep the ground time as short as possible.**

35' Turnaround Process DASH 8 Q400

ATA	STD	Action	Max.time allowed	Who
0	-40	Check in closed (*Note I*)	n/a	Station, H/A
-3	-38	Ramp preparation completed (ramp equipment ready, FOD check performed, dock guidance system activated, or marshaller confirmed).	n/a	Ramp
0	-35	Cargo and mail on stand.	n/a	Cargo
0	-35	Loading Instruction (LIR) including NOTOC handed over to ramp supervisor.	n/a	Cargo, Loadcontrol
+2	-33	Air bridge / Stairs connected.	2 min.	Ramp
+2	-33	Handover of briefing documents (*Note IV*)	n/a	Station, TRC
+4	-31	First cleaner to enter aircraft.	n/a	Cleaning
+10	-25	Deboarding completed.	8 min.	n/a
	-22	Start of preboarding (*Note II*)	n/a	Station, H/A
	-22	Start of boarding (Notes II and III)	n/a	Station, H/A
	-20	Fuelling (if required) completed.	n/a	Fuelling
	-20	Catering (if required) completed – all catering personnel off aircraft.	11 min.	Catering
	-20	Cleaning completed – all cleaners off aircraft.	11 min.	Cleaning
	-20	Aircraft Security Search completed (Note VI)	n/a	Cabin Crew
	-20	First regular passenger to enter aircraft.	n/a	Station, H/A
	-20	Communicate final fuel figures to TRC.	n/a	Flight Crew
	-10	Assess necessity of offloading missing pax/bags.	n/a	Station, H/A
	-7	Final Loadsheet on board.	n/a	TRC, Loadcontrol
	-5	Pushback tractor connected (if required)	n/a	Ramp
	-5	All doors closed (Note V).	n/a	All
	-3	Request start-up clearance.	n/a	Flight Crew

2.4.3. Minimum Ground / Turnaround Times (cont.)

Turnaround Process DASH 8 Q400 **(cont.)**	***NOTE***: VII. Check In closing depends on respective Station but not later than -40 minutes STD. VIII. The boarding sequence must be announced during the boarding announcement. Strict implementation of sequence (sector) boarding to be observed for dock gate departures, but sector boarding not applicable for bus gate departure. IX. Boarding on remote stands may be done simultaneously through forward and aft doors, providing proper guidance of passengers is assured. X. In case of crew change, boarding information is to be given to new crew. XI. Loading of last-minute baggage may continue until the passenger door is closed, even if the deadline of STD-5 has passed. XII. The lower compartment is covered in the LIR (Loading Instruction Report) and therefore performed on all flights. At transit stations, it is not required to unload transit deadload. Nevertheless, it is essential to compare inbound LDM with transit load (bulk load) before loading the joining load.

2.4.3. Minimum Ground / Turnaround Times (cont.)

Additional to Standard Procedures	**Upon Arrival.** • *Dock stand arrivals*: ✓ Passengers are to disembark through forward door only. ✓ Information to Crew, especially boarding time for departure is communicated immediately. ✓ Stairs positioned at the AFT left door must be provided immediately upon arrival. For all movements communication and standard signals refer to sections 2.2.3 and 2.2.4. Cleaners will enter to the aircraft through AFT stairs and start cleaning while passengers are disembarking. ✓ Wherever possible, the AFT left door must be closed by the Cabin Crew immediately after cleaners have boarded for security reasons. • *Open (remote) stand arrivals:* ✓ Passengers may disembark through FWD and AFT doors, provided proper guidance of passengers is ensured. ***NOTE*:** *DASH8 Q400 FWD door ONLY*. ✓ Information to Crew, especially boarding time is communicated immediately. ✓ Cleaners will enter the aircraft through AFT stairs and start cleaning after end of disembarkation. ✓ Passenger bus containing business class passengers must depart before passenger bus containing economy class passengers. **During Turnaround** • *Dock stand turnarounds:* ✓ AFT stairs to be removed after cleaners have exited the aircraft. **Boarding** • Boarding is to start in coordination and with prior interaction with the Purser. • In order to grant that first passenger, enter the aircraft at indicated time, the air bridge or passenger bus has to be used as waiting or buffer areas for passengers. For passenger convenience, the actual waiting time in air bridges and/or bus shall be limited to 3 minutes. **Local Procedures** • Local procedures may apply in addition to the Standard Procedures described in this Manual.

2.4.3. Minimum Ground / Turnaround Times (cont.)

Boarding Procedure	**Pre-boarding.** • For passenger needing special assistance (if applicable): ✓ UM's. ✓ Passenger with reduced mobility or disabled passengers (PRMs). ✓ Families with infants and/or small children. ✓ Deportees, INADs. **Priority Boarding.** • Priority passengers are boarder first on dock stand flights. The following passengers are eligible for priority boarding: ✓ Business class. ✓ HON Circle. ✓ Senator. ✓ STAR Gold. **Priority Channel** • Wherever infrastructure permits, a separate boarding channel for priority passengers shall be established by using "tensa" barriers and gate signage. • The channel shall be open for priority passengers during the entire boarding procedure (i.e., also after economy boarding has started). **Boarding Announcements** • The following announcements must be made in the order specified below: ✓ Pre-boarding call. ✓ Priority boarding call (max. 1 min. after pre-boarding announcement). ✓ Economy boarding call (max. 3 min. after priority boarding announcement). ***NOTE:*** *The wording for the announcements can be found on the Croatia Airlines Link for Handling Agents*. **Sequence Boarding (per Row)** • Economy Class - passenger seated in the back of the aircraft are boarded before passengers seated in the front of the aircraft. • The economy class of an aircraft is divided into 2 or 3 sequences, depending on the size of the aircraft for this purpose. ***NOTE:*** *For COVID-19 Handling Advice refer to PBHM, chapter 13.*

2.4.4. On-time Performance

General	• Punctuality and on-time performance is a basic quality standard of Croatia Airlines, while taking into accounts the demands for a safe and economical operation. • Timetables should be based on realistic block-to-block times. • Ground stops shall be based on the practical possibility to achieve and maintain a satisfactory level of punctuality under normal conditions. • To guarantee an on-time performance, each station must establish deadlines for acceptance of traffic load, according to the standards outlined in the Standard Ground Handling Agreement (SGHA) and Service Level Agreement (SLA) issued by Croatia Airlines GHA Department. Depending on the local conditions, deviations from the basic deadlines may be allowed. • Late acceptance of traffic load is permitted only with the agreement of the station responsible or other authorized staff (e.g. OC&HUB Centre, Regional Station Manager, HUB ZAG, etc.).
Authority to Delay a Flight	• Deviation from this policy is authorized under certain conditions and within certain limits. • Prior authorization is needed from: ✓ OPERATIONS CONTROL & HUB CENTER Phone: +385 1 6164522; +386 1 6164568 SITA: ZAGOWOU; ZAGKKOU e-mail: ops.control@croatiaairlines.hr; hub.control@croatiaairlines.hr
Limits and Conditions to Delay a Flight	• A delay without special approval may be considered in the following case: ✓ Up to maximum 15 minutes. ***NOTE:*** *Excluded from these rules are the so-called "Zero Delay Flights" (e.g., LHR, SJJ, etc.).*
Decision Criteria for Delaying a Flight	• When deciding to delay a flight, the following criteria must be taken into account: ✓ Departure slot, if applicable. ✓ Generally, checked baggage should travel with its owner. ✓ The number of late transfer passengers in relation to the total passenger load. ✓ The status of the late transfer passengers (VIP, CIP, HON Circle member, Senator, Frequent Traveller, STAR Gold, STAR Silver, Business Class passenger, long-haul, etc.); ✓ The consequence of a delay on: ▪ Aircraft rotation. ▪ Onward connections at downline station(s). ▪ Crew rotation.

2.4.4. On-time Performance (cont.)

Decision Criteria for Delaying a Flight **(cont.)**	✓ Operational and weather conditions and developments. ✓ Transfer passengers booked on the return flight. ✓ Type and time of the flight. ✓ Rerouting possibilities to the final destination on: ▪ Pool partner flights. ▪ Other means of transportation. ✓ Available hotel accommodation.
Departure Time	• The Actual Departure Time (ATD) is: ✓ The time at which the aircraft starts to move from the parking position, either by own power or by a push-back tug. • An ATD, which does not exceed the scheduled time of departure (STD) by more than 3 minutes, is considered on time. • The time of moving from the parking position is also taken as ATD when de-icing is done at a special de-icing area.

2.4.5. Operational Irregularities

General	• Operational irregularities as referred to in the following instructions are all deviations from the published schedule. • These irregularities may be: ✓ Early departure of flight. ✓ Delay of flight. ✓ Croatia Airlines SLOT Obedience Policy. ✓ Over-flights of scheduled stops. ✓ Rerouting of flight. ✓ Diversion of flight en-route. ✓ Cancellation of flight.
Operational Control	• The OC&HUB Centre becomes responsible for the initiation, continuation, diversion, termination, delay or cancellation of a flight, 72 hours before scheduled departure. • In case of operational irregularities, all action, either operational or precautionary shall be taken by the OC&HUB Centre after effecting the necessary coordination with other departments and offices concerned. • Instructions for deviation from the published schedule may be given by the OC&HUB Centre for special reasons. • **Decisions required in case of operational irregularities shall be governed by the following principles:** ✓ The safety of flight operations may under no circumstances be infringed. ✓ All passengers affected, cargo and mail shall reach final destination with minimum possible delay. ✓ Loss of revenue and/or additional expenses shall be kept to a minimum. • All operational irregularities shall be handled solely by the OC&HUB Centre. • Decision made from a traffic point of view regarding flight operations shall be the exclusive responsibility of the operations controller. Prior to acting involving non-scheduled overnight stays of airplanes and crews, Maintenance Division and Crew Scheduling department shall be consulted. • Appropriate company head offices and departments shall be informed through flight disposition message on the action taken.

2.4.5. Operational Irregularities (cont.)

Early Departure of Flight	• An early departure of a flight is defined as a flight departing ahead of the published scheduled departure time. **SCHEDULED FLIGHTS** • All scheduled flights shall be operated in accordance with the published schedule. • Due to following reasons, a flight may depart ahead of the specified scheduled departure time **up to 15 minutes**: ✓ If no passengers and no cargo/mail are to be expected anymore. ✓ In order to extend the transit time at next station in case of critical load or insufficient ground equipment, provided that no revenue load will be left behind. ✓ When the scheduled time of arrival at next station is expected to be exceeded, provided that no revenue load will be left behind. • **More than 15 minutes:** ✓ In order to avoid certain meteorological or other conditions, which might adversely affect the further operation of the flight. • Special consideration shall be given to commercial aspects, i.e. loss of revenue shall be kept to a minimum. **NON-SCHEDULED FLIGHTS** • Non-scheduled flights (charter flights, additional flights, ferry flights, etc...) are permitted to depart up to 30 minutes ahead of the scheduled departure time as published in the Ad hoc Schedule Message (ASM)/Flight Disposition Message (FD). • Departures ahead of scheduled exceeding 15 minutes are permitted after coordination with Operations Centre. • Night flying restrictions, runway closures and other relevant limitations shall be considered when considering an early departure.
Delay of Flight	• A delay occurs when the scheduled departure time is exceeded. All flights shall be operated in accordance with the published schedule (or with flight disposition massages or operation circulars respectively). • In case of unforeseen delays, it is the responsibility of departments, stations and/or flight crew concerned to reduce delays as much as possible. • Flights may, however, be delayed by disposition for the following reasons: ✓ To avoid adverse meteorological conditions at the departure airport, enroute or at the airport of destination. ✓ To ensure connection for passenger's load from other flights operating behind schedule. ✓ To take "AOG" (aircraft on ground) spare parts on board for an airplane grounded enroute due to technical reasons. • Whenever possible, OC&HUB Centre shall try to coordinate ground operations activities in order to minimize turn-around times; in extreme situations, cargo can be refused for carriage, some of standard handling activities may be intentionally omitted, etc

2.4.5. Operational Irregularities (cont.)

Delay of Flight (cont.)	• Technical delay, as specifically unpredictable kind of irregularity shall be handled in close cooperation with CTN Technical Dispatch, which shall be responsible to furnish Operations Centre with all available information from trouble shooting phase, expected AOG part delivery and progress of repair work. • The OC&HUB Centre shall have the authority to delay a flight. • In case of adverse meteorological conditions, the Commander decides about a delayed departure. Should the expected delay exceed 10 minutes, the OC&HUB Centre shall be notified immediately. • In other cases, the Station Manager is authorized to delay all flights up to 10 minutes. • Authority for delay in excess of 15 minutes shall be obtained from the OC&HUB Centre. • The Commander shall immediately be informed as soon as a delay is expected to occur. • In case of late arrival or late positioning of an airplane all efforts shall be taken to reduce the ground time to an absolute minimum. • A delay shall be reported in the delay message and/or in the departure message by use of delay codes (*refer to Ground Operations Manual, chapter 5.2.3*). • The reason for the delay will be determined by the handling agent and / or Croatia Airlines representative. ***IMPORTANT:*** *The handling agent and / or Croatia Airlines representative shall inform the Commander about the reason as soon as possible, latest when flight documents are brought to the airplane*. • In case of delay due to NMOC regulation (flight with allocated CTOT) SLOT obedience policy shall be applied.
Croatia Airlines SLOT Obedience Policy	• In case of any restrictions after submission of ATS Flight Plan, a slot (CTOT) may be received. In that case, OCC&HUB Center shall be responsible to minimize impact of such restrictions on overall traffic. ***NOTE:*** *All their communication with NMOC must be done according to Eurocontrol's ATFCM User's Manual.* • Almost all of Croatia Airlines flights have to be coordinated with the Eurocontrol. Too many aircraft in the air at the same time and place can lead to an unsafe situation. One of the tools used by the Network Manager Operations Centre to prevent this from happening is to apply CTOTs, which is also known as issuing ATFM slots or simply slot. The slot is actually a period of time within which take-off has to take place. In Europe, (EUROCONTROL's area of operations), a slot is defined as the period between 5 minutes before and 10 minutes after the CTOT. The aircraft is required to be at the runway ready for departure at its CTOT. The leeway is to allow air traffic control to integrate the aircraft into the other traffic. In other words, taxi time has to be considered by the Commander considering all relevant information (flow of traffic, need for de/anti-icing, etc.). If a slot is missed (or if it is already certain in advance that it will be missed), the Network Manager Operations Centre assigns a new one. A flight, which has a slot, may be issued an improvement on its slot as a result of the newly available capacity. The slot and any revisions are communicated to the aircraft operator as well as the air traffic control unit at the departure airport by NMOC.

2.4.5. Operational Irregularities (cont.)

Croatia Airlines SLOT Obedience Policy (cont.)	• Croatia Airlines Operations centre is always trying to minimize SLOTs and therefore the following SLOT obedience policy applies. • **SLOT up to 90 minutes from STD/ETD:** ✓ Preparation for the flight, aircraft and passengers handling shall be organized ON-TIME (STD on-time, no delay). ✓ Once the passengers are on board, they are to be informed about the delay (and the reason for it) by the Commander. ✓ The flight crew shall request ATC (TWR) to send REA ("ready message") to the Network Manager in order to receive improvement on its slot. ✓ All relevant safety announcements can be made and refreshing drinks can be served while waiting. • **SLOT which is more than 90 minutes from STD/ETD:** ✓ The flight preparation and aircraft handling shall be done as soon as possible (as if the flight wasn't delayed). ✓ Passenger boarding – shall be completed at least 60 minutes before the new Off-Block time dictated by the SLOT. ✓ Passengers shall be informed about the delay while they are still at the boarding gate. ✓ Once the passengers are on board, they are to be informed about the delay (and the reason for it) by the Commander. ✓ The flight crew shall request ATC (TWR) to send REA ("ready message" to the Network Manager in order to receive improvement on its slot. ✓ All relevant safety announcements can be made and refreshing drinks can be served while waiting. ***NOTE:*** *In case that airport has CDM procedure installed, crew must contact CTN Station Manager (if available) or CTN Handling Agent and/or Supervision to start procedure for improvement, if possible.* ***REFERENCE:*** *OM-A, chapter 02.03.02. E2*
Overflight of a Scheduled Stop	• An over-flight of a scheduled stop is defined as the omission of a scheduled intermediate stop on a multi-sector flight. • Over-flights of scheduled stops may become necessary for operational and/or commercial reasons either prior to departure or during flight as outlined below. • **Prior to departure if:** ✓ Operational and or other conditions at next station are prohibitive or render a landing highly improbable (i.e., meteorological conditions, runway closure, disaster, strike, etc…). ✓ No revenue load to or from next station is expected. ✓ Existing delays have to be reduced. • **During flight if:** ✓ Operational and/or other conditions at next station are prohibitive. ✓ Technical defects are detected in flight which cannot be repaired at next scheduled stop without excessive delay, and which make it desirable to proceed to a station with better maintenance facilities.

2.4.5. Operational Irregularities (cont.)

Overflight of a Scheduled Stop **(cont.)**	• Generally, the authority to arrange an over-flight rests with the OC&HUB Centre. The final authority in respect of an over-flight whilst in flight rests with the Commander. He/she shall act, whenever possible, according to recommendations forwarded to him by the OC&HUB Centre. • Arrangements for an over-flight of a scheduled stop prior to departure shall be made by the OC&HUB Centre in cooperation with the regional management concerned, and in close coordination with the Commander. • Recommendations for over-flight of a scheduled stop shall be made in form of a teletype message containing relevant information about reason and load protection and shall be addressed to the: ✓ OC&HUB Centre and the regional management concerned and; ✓ Station of last scheduled stop, station to be over-flown and subsequent line stations. • Stations shall immediately, upon receipt of such message, forward any objections they might have to the OC&HUB Centre and to the responsible regional management.
Rerouting of Flight	• A rerouting as defined as a planned inclusion or omission of one or more destinations in the scheduled routing of a flight. • Rerouting a scheduled flight may become necessary for commercial and/or operational reasons in order to: ✓ Accommodate additional revenue load via the altered routing. ✓ Deliver spare parts for an aircraft on ground at a station not within the scheduled routing of the flight. • When re-routing of the flight is planned due operational conditions at originally planned destination, passenger protection measures shall be coordinated well in advance with CTN Ground Operations or other authorized representative and published by operations circular message or IRR message. • The authority for re-routing of flights rests with the OC&HUB Centre.
Diversion of Flight En-Route	• Meaning of the term: a published scheduled or non-scheduled flight proceeding to another airport than its next planned destination. • Flights may divert en-route for the following reasons: ✓ Operational conditions at planned destination being prohibitive or rendering a landing improbable to a high degree. ✓ Technical defects detected in flight requiring immediate landing at next suitable airport. ✓ Passenger on board of flight requiring immediate medical assistance. ✓ Meteorological conditions encountered or reported en-route, requiring alteration of intended routing. ✓ Other reasons (e.g., unruly passenger, bomb warning, etc...). • Responsibility to divert while en-route rests entirely with the Commander.

2.4.5. Operational Irregularities (cont.)

Diversion of Flight En-Route (cont.)	However, offices performing in-flight assistance shall forward recommendations for alteration of route and/or destination or alternate to the Commander of the flight concerned. • In case of a flight diverting while en-route notification shall be passed to the Operations Centre and to the office performing in-flight assistance copying station of originally planned destination and point of departure. Notification shall contain data about reason for diversion of flight, new planned destination and/or alternate and estimated time of arrival of the flight. Offices receiving any such message shall immediately inform the Operations Centre. • All information in connection with the flight (load message, passenger transfer message, etc.) must be forwarded immediately to the alternate airport. • Passenger protection measures and passenger flow shall be reviewed; final decisions in that respect shall be coordinated with local CTN Station Manager or authorized representative (especially when HOTAC or ground transfer are concerned). • In case Operations Centre or offices performing in-flight assistance receive information that operational conditions have changed to a degree necessitating alteration of planned routing and/or destination, recommendations for alternative plans shall be forwarded to the Commander. • The alternate airport(s) to be selected for a diversion shall be coordinated as far as possible between offices concerned, taking into consideration operational and commercial aspects. • Diversion of the flight shall be handled in such a way that safety and regularity of diverted flight are handled first, then passenger protection and schedule recovery scenarios can be applied.
Cancellation of Flight	• Cancellation of a flight is the annulation of a previously published scheduled on non-scheduled flight or segment thereof before departure (i.e. due to lack of equipment, extended delay, meteorological conditions, crew shortage, commercial reasons, etc…). • Operations Centre activities in case of cancellation of the flight shall be focused to: ✓ Passenger and load protection. ✓ Aircraft positioning. ✓ Crew usage aspects. ***IMPORTANT: Only the Operations Centre has the authority for cancellation of flight*.**
Information to Flight Crew	• Timely and comprehensive information to the flight crew is essential in the interest of: ✓ Safety and regularity of flight operations. ✓ Good customer service. • Station personnel must inform the flight crew, especially of. ✓ Possible irregularities in the ground handling and the reasons: ▪ Contact the Commander as early practicable. If the irregularity is known before the arrival of the aircraft, OCC&HUB Center must be informed.

2.4.5. Operational Irregularities (cont.)

Information to Flight Crew **(cont.)**	▪ Make recommendations for minimizing the negative effects of such irregularities on the flight schedule and passengers. ✓ Unusual occurrences at the airport that can cause irregularities in the ground handling, such as: ▪ Breakdown of airport facilities. ▪ Strikes. ▪ Intensified security controls. ▪ Reception of high-ranking persons. ▪ Presence of military forces. ▪ Demonstrations, etc. ✓ Any unusual observations or occurrences at and around the aircraft (in that case inform the Commander immediately).

2.4.6. Loading and Storage of Aircraft Handling Documents

Handling of Passenger and Crew related Documents	• Following documents must be handed over the flight crew: ✓ Loadsheet. ✓ Signed Loading Instruction/Report. ✓ Passenger Information List (PIL) including: ▪ All CTN services and related passenger names, if applicable. ▪ All outbound connections. ***REFERENCE:*** *Refer to PBHM, chapter 2.9.* ✓ General Declaration (if applicable). ✓ Final Passenger Manifest (if applicable).
Handling of Cargo and Mail Documents	• All available cargo and mail documents must be sent separately in the CTN Company Mail envelopes. ***NOTE:*** *One CARGO envelope for cargo documents and another MAIL envelope for mail documents.* • Following cargo documents must be sent on daily basis to the Cargo Department (cargo.interline@croatiaairlines.hr): ✓ Cargo Manifest. ✓ Cargo Transfer Manifest – in case that one or more shipment has been transferred from/to another carrier, a copy of transfer manifest should be attached. ✓ Air Waybill (AWB) – attach one copy of each AWB to the manifest in the sequence listed on the manifest. • Following mail documents must be sent on daily basis to the Cargo Sales Department (cargo@croatiaairlines.hr): ✓ Mail Manifest. ✓ Mail Transfer Manifest. ✓ CN 38. ✓ CN 41. ✓ CN 46. ✓ CN 47. • Most cargo / mail documents are processed and exchanged electronically and will therefore not accompany the shipment. If required by local regulations, documentation will be available in paper format and be part of the shipment. • Cargo and mail documents shall be loaded clearly visible in the door section of the assigned compartment or attached to the shipment for easy access and offload. ***IMPORTANT:*** *Do not load cargo and mail documents under baggage, cargo and mail.* • In case of missing cargo and mail, documents inform Croatia Airlines Cargo Handling Staff (e-mail: cargo.handling@croatiaairlines.hr).

2.4.6. Loading and Storage of Aircraft Handling Documents (cont.)

Handling of Documents required for Revenue Accounting and Statistics

- Most documents required for Revenue and Statistics purposes are processed and exchanged electronically and will therefore not included in co-mail exchange.
- Following paper documents (if applicable) shall be sent in co-mail envelope with flight number and date to the Flight Revenue and Statistic Department (e-mail: flight.docs@croatiaairlines.hr) on daily basis:
  - ✓ Excess Baggage Tickets.
  - ✓ Paper Tickets.
  - ✓ Flight Interruption Manifest (FIM).
  - ✓ DHC Crew Journey Log.

NOTE: *In case of disruption and ground transfer needs, passenger list with respective ticket numbers shall be sent immediately the Flight Revenue and Statistic Department (e-mail: flight.docs@croatiaairlines.hr).*

ELECTRONIC DISTRIBUTION		
TYPE	**E-MAIL**	**SITA**
ETL	-	ZAGDAOU
Final Pax List (ALL BRD/ETKT – DCS)	flightdocs@croatiaairlines.hr	ZAGDAOU
LDM	-	ZAGDAOU

2.4.6. Loading and Storage of Aircraft Handling Documents (cont.)

Station File

- According to International Airline Practices and Civil Aviation Authorities requirements, it is mandatory that the station of departure keeps a documentation pertaining to each flight.
- All Handling Agents are instructed to ensure that a "Croatia Airlines Station File" is kept, and they will be held responsible in case of future problems.

STATION FILE	
Filling Period	Minimum filing period: 3 MONTHS. Local regulations must be complied with if these require a longer filing period.
Contents of Station File	The documents required for the Station File (for each flight handled) are listed below):
	• General Declaration (if applicable)
	• Passenger Manifest
	• Cargo and Mail Manifest
	• Load and Trim Sheet
	• Loading Instruction and Report
	• NOTOC
	• Copy of Shipper's Declaration for Dangerous Goods (if applicable)
	• DGR Acceptance Checklist and all concerning messages
	• AWB / Airmail – if cargo, mail, DG are loaded
	• Dangerous Goods Occurrence Report (if applicable)
	• Company Flight Plan
	• Copy of the Technical Report
	• All messages concerning the flight
	• Flight Report – if completed as required for statistical purposes by local authorities at station of origin
	• All documents concerning passengers (e.g., UM forms, PRM's, PETC, AVIH, tec.)
	• All documents concerning ticketing (if applicable)

3. LOAD CONTROL

3.0. OVERVIEW

Contents	This chapter contains the following sections: 3.1. General Information 3.2. Staff Qualification for Performance of Load Control Duties 3.3. Load Control Procedure 3.4. Load Control Process Flow Scheme 3.5. Weight and Balance 3.6. Weight Values 3.7. Aircraft Weight Definition 3.8. Load and Trim Sheet 3.9. Load Planning 3.10. Weight Control of Load

3.1. GENERAL INFORMATION

Introduction	• Load control is a function which ensures the production of all applicable documentation to comply with operator and regulatory authorities for an individual flight. • This includes planning, reporting, and recording the loading of the aircraft.
Load Control Tasks	• The Load control process comprises of the following tasks: ✓ Load planning: ▪ production of a Loading Instruction Report (LIR). ▪ weight and balance calculation. ✓ Aircraft loading and unloading supervision: ▪ verification and recording of aircraft loading. ▪ communicating final loading figures. ✓ Weight and balance calculation: ▪ load sheet production. ▪ other loading documents such as Notification to Captain/Notice to Captain (NOTOC). ✓ Post-departure messages ▪ transmission of messages. ▪ document retention, as applicable.
Load Control Principles	• Load Control is an essential function with the purpose of ensuring that the aircraft is safely loaded within operational limits, considering both the weight and center of gravity parameters. • To ensure flight safety, all items to be loaded into an aircraft must be precisely planned, documented and filled. Documented communication is required to guarantee accurate weight and balance calculations for the Pilot in Command (PIC) prior to an aircraft's departure. • Therefore, the Load Control process shall ensure that for each flight: ✓ Aircraft weight and balance conditions are correct and within limits. ✓ Aircraft is loaded in accordance with the specific loading instructions. ✓ Information about dangerous goods and other special loads is considered. ✓ The load sheet reflects the actual loading of the aircraft, including Last Minute Changes (LMC): ✓ Operational messages are dispatched to relevant bodies. ✓ All approved documentation is filed for retention.

3.1. GENERAL INFORMATION (cont.)

Regulatory Requirements	• Load Control can be performed directly by the Operator or by a Third party. It can be performed locally or remotely. • Load Control may be performed manually or with a computerized Departure Control System (DCS) approved by the Operator.
Remote Load Control	• Remote Load Control is a process of performing the load planning task and/or weight and balance calculation task for a departing flight in a remote location. ✓ The key roles of remote Load Control are: ▪ to perform the load planning task. ▪ to compute the weight and balance calculation task in liaison with the departure station. ✓ The key roles of the departure station are: ▪ supervision of aircraft loading as defined in GOM, chapter 4 (“Aircraft Loading”). ▪ communicate to remote Load Control any discrepancies and/or deviations during the loading/offloading process. ▪ report final loading of the aircraft to the remote Load Control. • Information exchange is essential for a safe remote Load Control process. Data shall be transmitted between remote Load Control, departure station and cockpit crew either directly or indirectly, using predetermined means of communication as established by the OU (Operator).
Post-Departure Messages Task	• All post-departure messages and any other relevant messages pertaining to flight handling shall be sent to the defined stations as per operator requirements. Such messages may include, but are not limited to: ✓ Load Departure Message (LDM). ✓ Container Pallet Message (CPM). ✓ ULD Control Message (UCM). ✓ Statistical Load Summary (SLS). • Messages shall be produced and delivered in accordance with respective AHM chapters. • A flight file shall be maintained for each departing flight in a secure location according to local regulations and/or operator requirements.

3.2. STAFF QUALIFICATION FOR PERFORMANCE OF LOAD CONTROL DUTIES

General Qualification Requirements	• All operational positions off ground handling operations shall be operated by personnel based on their knowledge, training, skills and experience appropriate for the position. • Members shall in the interest of flight safety, establish procedures for an efficient load control and ensure a high level of proficiency of all stuff engaged in load control work and loading supervision. • Personnel engaged in load control duties must: ✓ Be fluent in the English language, both written and oral ✓ Fully understand the principles of weight and balance ✓ Be familiar and understand the terms and definitions used in association with weight and balance operations. • Training for the Load Control task shall be performed by a qualified instructor. Load Control licensing, training and documentation shall be in compliance with regulations and operator's policies.
Obtaining Qualification	• The load controller shall be qualified and licensed for the job function. • A formal qualification is required for employees who, regularly or occasionally: ✓ Plan load distributions. ✓ Issue loading instructions. ✓ Perform weight and balance calculation (load sheet). ✓ Check load sheet and enter last minute changes (refer to GOM, section 3.8). ✓ Supervise the performance of these duties. ✓ Supervise ramp handling and aircraft loading. • Regardless of whether the load sheet and loading instruction are established manually or by an EDP system: ✓ A basic load control course must be successfully completed. ✓ If failing the basic load control course, the course must be repeated, or the tests taken again, according to individual requirement.
Expiry of Qualification	• The qualification is valid for max. 3 years from the year in which the course or test was taken. • It must be renewed within the calendar year in which it expires. • If qualification is expired, load control duties that require formal qualification may not be performed anymore.
Renewal of Qualification	• Either by successfully completing a load control refresher course, or by • Successfully passing the written load control tests • If failing the refresher load control course, the course must be repeated, or the test taken again, according to individual requirement. If failing a second attempt, load control duties may not be performed anymore, and training should be started again from the beginning.

3.2. STAFF QUALIFICATION FOR PERFORMANCE OF LOAD CONTROL DUTIES (CONT.)

Training	• Training for the load control function shall be performed by a qualified instructor authorized by the operator. • All staff performing ramp handling duties have to be properly trained with respect to their functions and follow the general recommendations given in GOM, chapter 6 and IATA AHM 1100. • If the training is provided by the handling agent, it is the CTN responsibility to audit this training. • Training program and related material shall be reviewed and regularly updated. • Applications for basic and refresher training: ✓ Consent required from superior or station responsible. ✓ Station responsible: Decides him/herself. ✓ Respective airline's training departments may call in staff for training.
Qualification Required	• The load controller shall be qualified and licensed for the job function. • Load control duties must be performed by the contracted ground handling agents' staff unless otherwise agreed in the ground handling contract. • The Contracting Department must make sure the handling agent knows Croatia Airlines specific requirements. • Load control must be monitored by qualified CTN staff and/or Supervision Agent. • In exceptional cases, if the handling agent is not qualified, load control duties must be partly or fully taken over by CTN staff or person authorized by CTN, or by the crew.
Responsibility and Load Control Records	• The responsible station must: ✓ Ensure that a sufficient number of trained and qualified staff is available to guarantee safe and efficient load control. ✓ Keep record of all staff performing load control duties for which a formal qualification is needed.
Documentation Requirements	• The operator is responsible for providing all relevant documentation for load planning and weight and balance calculations. • The operator shall define data content and terminology for documents reports and messages. • The person issuing the load sheet is responsible for accurately reflecting the data received on all documents, reports, and messages with regard to each flight handled as per AHM ch.5 “Load Control”. • Relevant documents shall be manually or electronically signed as per operator and regulatory requirements. • Specified documents shall be retained for a period in accordance with applicable regulations and the requirements of the operator, but no less than a period of three months. Disposal of documents may also be subject to regulation.

3.2. STAFF QUALIFICATION FOR PERFORMANCE OF LOAD CONTROL DUTIES (CONT.)

Documentation Requirements (cont.)	• As a minimum, the documentation for each departing flight shall include: ✓ Final LIR signed by the responsible person. ✓ NOTOC (when applicable). ✓ Fuel figures confirmation (when applicable). ✓ Final load sheet and trim sheet, including LMC, signed by PIC.

3.3. LOAD CONTROL PROCEDURE

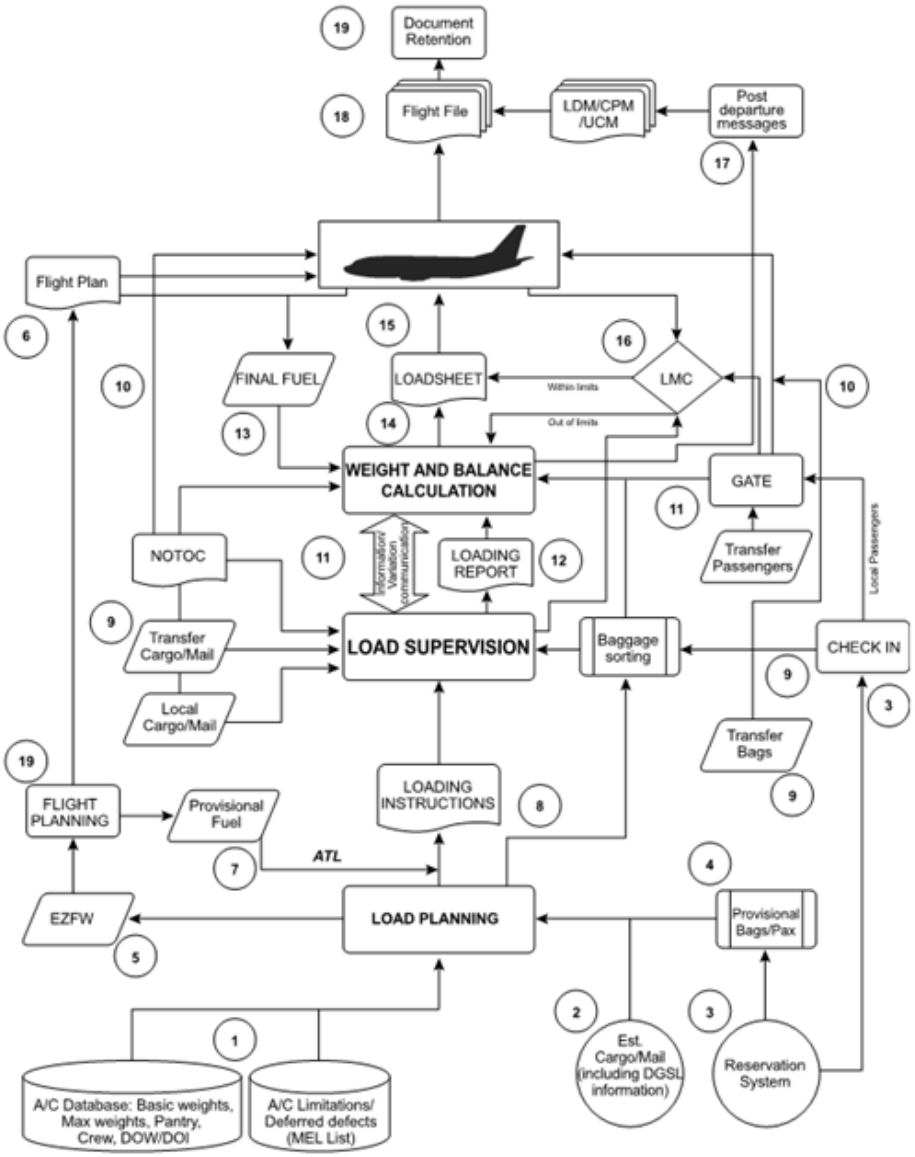
Policy	• The CTN policies, published in the respective Operations Manuals – OM-A, OM-B, AHM – are defined as follows: ✓ Safety always has first priority. ✓ Priority sequence of economy, punctuality and passenger comfort depends on situation and impact of possible consequences. ✓ Application of load control rules have priority over other station work, including punctuality. • Load control regulations published in this chapter apply to all stations.
Purpose of Load Control	• Load control procedure shall ensure that: ✓ Aircraft weight and balance conditions are correct and within limits. ✓ Aircraft is loaded in accordance with the specific loading instructions. ✓ Information about dangerous goods and other special loads is considered. ✓ The load sheet reflects the actual loading of the aircraft, including last minute changes (LMC). ✓ Operational messages are dispatched to relevant bodies. ✓ All approved documentation is filed for retention.
Centre of Gravity (CG)	• The weight and balance calculations are applied to define the Centre of Gravity location of a loaded aircraft. • The Centre of Gravity of an aircraft must be located in a specific area, within the limits specified in the weight and balance records of the aircraft and meet the requirements of CR 965/2012 and/or local national requirements. • The proper position of CG is the base of safe and economic flight. • It is prohibited to operate an aircraft with CG out of limits. ***REFERENCE:*** *Further information in OM-B part 0-3*
Additional Requirements	• Recalculations of gross weights and balance conditions: ✓ Is mandatory in case of manual load sheet. ✓ Is optional in case of EDP load sheet calculation. • Recalculated figures must be compared with corresponding load sheet figures. ✓ Significant differences must be clarified before departure. ✓ Recalculation must be put in the flight file.
Confirmation of Verbal Information	• Any load control figure verbally communicated must be confirmed before departure either in writing, or by any other effective pre-departure checks.

3.3. LOAD CONTROL PROCEDURE (cont.)

<table>
<tr><td>Load Control Duties</td><td>
<table>
<tr><th colspan="2">LOAD CONTROL FUNCTION</th></tr>
<tr><td>1</td><td>LOAD PLANNING AND WEIGHT AND BALANCE CALCULATION
Issue of Loading Instruction and Load sheet according to instructions in this Manual.
Function designators: Load sheet Agent and Load Planner.</td></tr>
<tr><td>2</td><td>THE AIRCRAFT LOADING AND UNLOADING SUPERVISION
Supervision of aircraft loading.
Completion of Loading Report according to instructions in section “Aircraft Loading”.
Function designator: Loading Supervisor.</td></tr>
<tr><td>3</td><td>CHECKS
Checking of Load sheet.
Entry of Last-Minute Changes according to instructions in GOM, ch. 3.8.</td></tr>
<tr><td>4</td><td>POST-DEPARTURE MESSAGES
Transmission of messages.
Document retention, as applicable.
Function designator: May all be performed by the same person responsible for the above tasks.</td></tr>
</table>
</td></tr>
<tr><td>Division of Duties</td><td>
• Basic Rule:
✓ Whenever possible, each of the 3 load control functions must be assigned to different qualified staff members.
✓ This is applicable, irrespective if planning of load distribution and load sheet calculations are done manually or by EDP system.
✓ Load sheet may be issued by crew.
EXCEPTIONS: Only permitted if the basic rule cannot be applied.
✓ Functions 1 and 3: May be performed by 1 person if planning of load distribution and load sheet calculations are done by an EDP system and both documents are printed out.
✓ Not to be combined with supervision of the loading (function 2).
</td></tr>
</table>

3.4. LOAD CONTROL PROCESS FLOW SCHEME

Load Control Process Flow Scheme



NOTE: *Actions in triangles above are defined below.*

3.4. LOAD CONTROL PROCESS FLOW SCHEME (cont.)

Load Control Process Flow Legend

CIRCLE #	ACTION
1	Aircraft designation: access to permanent and semi-permanent data as per AHM565 and maintenance data related to limitations that could affect loading and weight and balance.
2	Estimated/Provisional cargo and mail, data including DGSL information, to load planning.
3	Data from reservation system to capacity calculation (passenger and bag counts) and check in (SSR).
4	Provisional passengers sorted by class and provisional bags according to operator policy to load planning.
5	Provide EZFW, to flight planning system.
6	Operational flight plan to PIC.
7	Provisional fuel, to calculate the allowed traffic load and verify that load planning is within limits.
8	Loading Instruction to Load Supervision and loading team. Segregation plan to sorting area.
9	Actual data flowing from check-in (passenger number, baggage pieces and weight, special load information), cargo and mail warehouse (special load information), transfer load.
10	Load to aircraft.
11	Load info and variation communication between Load Control and Load Supervision: discrepancies between planned and real load weight, nature and distribution.
12	Final data confirmation from Loading Supervision and Gate (gate collected items).
13	Final fuel figures communication from the flight planning system or PIC.
14	Loadsheet verification and release.
15	Loadsheet to aircraft.
16	Last minute changes.
17	Post-departure load messages and DGSL information to station of arrival.
18	Signed documents verification and collection.
19	File archiving and retention.

3.5. WEIGHT AND BALANCE

Basic Rule	• Only original Croatia Airlines documents and load sheets shall be used to determine weight and balance of Croatia Airlines aircraft. If such form is not available, handling companies may use their own manual load-sheet forms, provided they correspond with the IATA AHM recommendation 516. • **Following documents are obligated**: ✓ A319-112 AHM 560, Aircraft Data, OP-PSU-024. ✓ A319-112 9A-CTN AHM 560 Aircraft Data, OP-PSU-115. ✓ A320-214 AHM 560, Aircraft Data, OP-PSU-026. ✓ DASH 8 Q 400 AHM 560, Aircraft Data, OP-PSU-075. ✓ Load & Trim Sheet A320-214, OB-PSU-004. ✓ Load & Trim Sheet A319-112, OB-PSU-076. ✓ Load & Trim Sheet A319-112 9A-CTN; OB-PSU-096. ✓ Load & Trim Sheet DASH 8 Q400, OB-PSU-063. ✓ Loading instructions A319, OB-ZOU-006. ✓ Loading instructions 9A-CTK (pax vers.-BULK), OB-ZOU-009. ✓ Loading Instructions Dash8 Q400, OB-ZOU-054.

3.5. WEIGHT AND BALANCE (cont.)

Weight and Balance Calculation Task	• The objective of the weight and balance calculation task is to ensure that a final and accurate load sheet is issued, and this has been crosschecked with: ✓ Final LIR from the person in charge of the Loading Supervision task. ✓ Final passenger close-out data. ✓ Final fuel figures. ✓ All aircraft operational and structural limitations for the appropriate aircraft registration. ***Note 1**: If a preliminary load sheet is produced, one or more criteria may not have been finalized.* ***Note 2**: The person designated with the weight and balance calculation task shall ensure all data is finalized or confirmed for manual or electronic load sheet production.* ✓ Load sheet accuracy check will continuously be performed prior to production or transmission of the final load sheet: ▪ correct flight number and date (flight identifier). ▪ correct aircraft registration. ▪ correct DOW/DOI used according to aircraft type, registration, version, number of crew and pantry. ▪ underload (total traffic load not exceeding allowed traffic load). ▪ correct entry of final fuel figures. ▪ correct entry of transit load data from incoming load-message/load sheet. ▪ correct passenger close-out data. ▪ if containerized aircraft, ULD tare weight is added. ▪ hold baggage weight and gate delivery items shall be added. ▪ actual loading positions of dangerous goods and other special load indicated on the NOTOC, if applicable. ▪ balance calculation and conditions of loaded aircraft, including LMC, are within prescribed limits. ▪ the load sheet must be checked against the final LIR and other information related to the actual load. ✓ Any Operator specific requirements are adhered to, if applicable. ✓ All specified documents shall be signed by means of manual or electronic identifiers. ✓ Load sheet format and contents shall meet the minimum criteria set in AHM 516, AHM 517, AHM 518. ✓ The Load sheet shall then be delivered to PIC either as a hard copy (manual or digital) or ACARS format. ✓ Any changes occurring after the final load sheet has been produced must be accounted for by either production of a new edition of load sheet or via documented Last Minute Change process as per the Operator's requirement.

3.5. WEIGHT AND BALANCE (cont.)

Weight and Balance Calculation Task (cont.)	✓ If a discrepancy is discovered after the aircraft push-back, the PIC must be informed immediately to prevent an unsafe take-off.
Weight Calculation	• Weight calculation is: ✓ Required for every flight. ✓ Made either manually or by EDP system. ✓ Only to be done by the qualified staff. • The purpose is to ensure that: ✓ Structural and operational aircraft weight limits are nor exceeded. ✓ The number of passengers accepted does not exceed maximum number specified for the respective cabin configuration or seat limitation.
Balance Calculation	• Balance calculation is: ✓ Required for every flight for which a load sheet is issued. ✓ Made either manually or by EDP system. ✓ Only to be done by qualified staff. • The purpose is to ensure that the aircraft is loaded, and the passengers are seated in such a way that balance conditions are within prescribed limits.
Loading Instruction Report (LIR)	• Loading Instruction Report is: ✓ Required for every flight for which a load sheet is issued by ground staff. ✓ Only to be made by qualified staff. ***NOTE:*** *For more details refer to section 3.9. "Loading Instruction and Report".*
Aircraft Release	• Load control is completed, and the aircraft is released for departure (i.e., released for moving away from the parking position) when the: ✓ Load sheet release check has been completed and the load sheet and loading instruction (LIR) are aligned. ✓ Flight crew has accepted the load sheet issued for that flight, if necessary, has been informed of any last-minute changes (LMC). ✓ Aircraft weight and balance conditions are correct and within the designed limits.
Load Priority List	• Load may have to be refused or offloaded, due to: ✓ Lack of space (seat or volume). ✓ Weight reasons. ✓ Balance reasons. • In such cases, use the load priority list published in GOM to determine which load must be refused or offloaded.

3.5. WEIGHT AND BALANCE (cont.)

Training Technical and Test Flights	• A load sheet does not to be issued by ground staff, unless requested by the flight crew. • If necessary, the flight crew must provide all data, including DOW/DOI. • If the flight crew issues a load sheet the flight crew is responsible to correct loading of the aircraft.
Information Exchange	• All data pertaining to aircraft weight and balance calculations shall be communicated to the person charged with the load planning task; this information shall be documented and filed using one of the following methods: ✓ Digitally. ✓ Written via documentation. ✓ Verbal communication: in this case, the person receiving the information must assure that one of the following is applied: ▪ read back all information received by radio or telephone or other electronic means to guarantee accuracy of the data. ▪ record all verbal transmissions in written format (manually or digitally) to be able to clarify all discrepancies before the final load sheet is transmitted. ▪ digitally record all verbal communications. ▪ a written transmission is always the recommended method. If it is necessary to use verbal communication, ensure that the following details are recorded: • Name of the agent. • Time of transmission • Confirmation that the receiving party has acknowledged the changes ***NOTE:*** *This record must form part of the flight file for retention.*

3.6. WEIGHT VALUES

General

- Croatia Airlines established following weight values obligatory for weight and balance calculation purpose:

STANDARD WEIGHTS	• Crew • Passenger
ACTUAL WEIGHTS	• Baggage • Cargo • Mail

***Note**: All weights applying in weight and balance calculations must be in kilograms (kg)*

Standard Weights

- For weight and balance calculation, the following standard weights must be applied (based on Air Operations Regulations):

Passenger category	Standard weight All flights Except holiday charters	Holiday charters**
Adult MALE	88 Kg	83 Kg
ADULT FEMALE	70 Kg	69 Kg
Child 2-12 yrs *	35 Kg	35 Kg
Infant 0-2 yrs	0 Kg	0 Kg

*or infant under 2 years if occupying a separate seat

** holiday charter is treated as an element of a holiday travel package It is a flight where the entire passenger capacity is hired by one or more charter(s) for the carriage the passenger

- The weight of carry -on baggage -8 kg- is included in the standard passenger weight.

***NOTE**: On any flight identified as caring a significant number of passengers whose weights, including hand baggage, are expected to exceed the standard passenger weight, the actual weight of such passengers must be deter-mined by adding an adequate weight increment.*

Standard Crew Weight

COCKPIT CREW	96 kg
CABIN CREW	86 kg
EXTRA CREW	86 kg

- Cabin baggage weight 11 kg is included.
- Valid for male and female crew members.

3.6. WEIGHT VALUES (cont.)

<table>
<tr><td>Standard Baggage Weight</td><td>

Standard baggage weight may be used for load control purposes if actual weight cannot be established.
In that case the following baggage weights may be used (weights based on CR 965/2012):
<table>
<tr><th>FLIGHTS</th><th>STANDARD WEIGHTS</th></tr>
<tr><td>Domestic
With origin and destination within of the borders of the State.</td><td>11 Kg</td></tr>
<tr><td>Within Europe
With origin and destination within geographical Europe, including North Africa and the near East.</td><td>13 Kg</td></tr>
</table>

Standard baggage weight is applicable to all pieces of standard checked baggage whose sum of dimensions do not exceed 158 cm.
In case of non-standard/oversized baggage (courier baggage, athletic equipment etc.) please note that:

✓ Load control office shall be informed.
✓ Standard baggage weight may not be used for this baggage.
✓ Baggage must be weighed.
✓ Baggage must be dispatched to the aircraft on separate carts.
✓ Each cart must have a weight slip

</td></tr>
<tr><td>Gate Delivery Items</td><td>

Information about all Gate delivery items (individual or cumulative weights that exceed normal allowances) must be communicated to load control for the purposes of weight and balance calculation (gate delivery baggage).

</td></tr>
<tr><td>Catering equipment</td><td>

The weight of the catering supplies stowed in the cabin is included in the DOW/DOI.
Catering equipment carried in the hold is to be considered as additional load (EIC) for weight and balance calculations; such equipment must be re-turned to the catering office concerned.

</td></tr>
<tr><td>Cargo and Mail</td><td>

For load sheet purposes, weights on cargo manifest, C38 and C41 are used if the actual weight cannot be established.
When loading the aircraft (bulk load only) make sure:

✓ All cargo is loaded as per manifests; and
✓ All mail is loaded as per C38 and C41.

</td></tr>
</table>

3.6. WEIGHT VALUES (cont.)

Reduction of load in galleys	• If catering offices reduce the catering load for a special flight, they must inform load control of flight, destination, weight and location. • In case the load sheet is made by crew, inform the PIC. • Reducing of the galley load must be recorded on the load sheet as follows: ✓ Deducted the weight to the DOW. ✓ Correct the DOI using the "index correction table for load in galleys" published in the respective aircraft guides. ***NOTE:*** *Correction of DOW/DOI must be show on the load sheet.* • Add details about weight reduction and location in SI part of LDM.
Additional Load in galleys	• Additional urgently needed catering equipment forwarded in unused galley space is not included in the pantry weight of the pantry code and/or DOW. • Catering offices deciding to forward such load must inform the load control offices about the destination, weight(s) and location(s). • Such load must be recorded on the load sheet as follows: ✓ Add the weight to the DOW. ✓ Correct the DOI, using the "index correction tables for load in galleys" published in respective aircraft guides. ***NOTE:*** *Corrections of DOW and DOI must be shown on the load sheet.* ✓ Add details about destination, weight and location in the SI part of the LDM in case the load sheet is made by crew, inform the PIC.

3.7. AIRCRAFT WEIGHT DEFINITION

<table>
<tr><td>General</td><td colspan="2">

Every aircraft has certain weight restrictions which are determined by the manufacturer.
The operator must not exceed the stipulated limitations when loading the aircraft.

</td></tr>
<tr><td>Maximum Design Weight</td><td>MZFW
Maximum Zero Fuel Weight</td><td>

Maximum design weight of loaded aircraft without fuel
This weight results from the designed strength of the wings.

</td></tr>
<tr><td></td><td>MTOW
Maximum Take-off Weight</td><td>

This is the maximum permitted weight at commencement of the take-off run:

✓ Design - determined by the manufacturer of an aircraft (does not depend on operational conditions),
✓ Operational - reduced by the operator subject to conditions prevailing at the airfield of departure or arrival.

Actual MTOW is calculated accordingly to operational conditions of the runway on the base of Airplane Flight Manual.
Design MTOW may be reduced by:

✓ Runway characteristic: length, slope, pavement, elevation, obstacles on the climb path.
✓ Weather conditions: temperature, precipitation, wind component.
✓ Noise abatement rules.

</td></tr>
<tr><td></td><td>MLAW
Maximum Landing Weight</td><td>

This is the maximum permitted weight at which the aircraft may lend.

✓ Design – determined by manufacturer of an aircraft (does not depend on operational conditions);
✓ Operational – reduced by the operator subject to conditions prevailing at the airfield of departure or arrival.

Design MLAW, similarly to design MTOW, may be reduced by the operator subject because of operational conditions mentioned above.
Only real MTOW and MLAW values, taking into consideration all operational factors are allowed to be used for weight and balance calculations.

</td></tr>
<tr><td></td><td>MTXW
Maximum Taxi Weight</td><td>

This is maximum permitted weight of the aircraft at which it may be moved, either using its engines or being pushed or towed.
MTXW includes MTOW and Taxi Fuel.

</td></tr>
</table>

3.7. AIRCRAFT WEIGHT DEFINITION (cont.)

Operational Weights

DOW Dry Weight Operating	• Dry Operating Weight consists of Basic Weight (BW), Crew weight, crew baggage, pantry weight, toilet fluids and potable water. • DOW = MW + CREW + CREW BAG + Operators Items + Toilet Fluids + Potable water.
TOF Take Off Fuel	• Fuel quantity necessary at commencement of the take-off run. • Take-off Fuel does not include Taxi Fuel.
TF Trip Fuel	• Fuel quantity necessary for trip calculated from commencement of take-off run to touch-down.
TXF Taxi Fuel	• Fuel quantity necessary for taxing.
OW Operating Weight	• Operating Weight includes Dry Operating Weight (DOW) and Take-off Fuel (TOF).
TL Traffic Load	• Traffic Load consist of following weights: passengers, baggage, cargo, mail and non-revenue load as EIC, THS, ballast carrying in holds. • TTL = PAX + BAG + CARGO + MAIL
ZFW Zero Fuel Weight	• Actual weight of loaded aircraft without fuel.
LAW Landing Weight	• Actual weight of aircraft for landing.
TOW Take Off Weight	• Actual weight of aircraft for take-off.
COG Location – Units Specification	BI BASIC INDEX - index at Basic Weight DOI DRY OPERATING INDEX- index at Dry Operating Weight DLI DEADLOAD INDEX - index at cargo compartment loaded DLMAC DEADLOAD MAC - % MAC at cargo compartment loaded LIZFW LOADED INDEX at ZERO FUEL WEIGHT - index at ZFW MACZFW % MAC at ZERO FUEL WEIGHT - % MAC at ZFW LITOW LOADED INDEX at TAKE OFF WEIGHT - index at TOW MACTOW % MAC at TAKE OFF WEIGHT - % MAC at TOW LILAW LOADED INDEX at LANDING WEIGHT - index at LAW MACLAW % MAC at LANDING WEIGHT - % MAC at LAW

3.8. LOAD AND TRIM SHEET

General	• In order to produce the load sheet the following criteria shell be met: ✓ Passenger acceptance finalised. ✓ All hold load confirmed. ✓ Fuel figures finalised. ✓ Crew configuration confirmed. ✓ All operator specific requirements confirmed. • Load controller may release a Preliminary Load sheet with one or more of the above criteria not yet finalised as per operator requirements. • The load controller shall confirm that all aircraft limitations are adhered to before any load sheet is released.
Load sheet	• A document which contains data on actual loading and CG location of an aircraft. • Load sheet must be prepared in four copies and distributed as follows: ✓ Original copy for Flight Crew. ✓ One copy for revenue accounting and statistic. ✓ One copy for the handling company, if required. ✓ One copy for destination station; to be given in hand of Purser. ***NOTE**: The original copy for the flight crew and the copy for the flight file must be signed.*
Type of Load sheets	• Load sheet may be produced by: ✓ Electronic Data Processing machine in Departure Control System (DCS). ▪ EDP load sheet has an IATA AHM 517 standard format. ▪ The database for Croatia Airlines aircraft to produce EDP load sheets is created on the base of IATA AHM 560. ✓ Manually ▪ Manual load sheet is calculated using the UNIVERSAL INDEX method. This method uses numerical addition to establish aircraft weight and COG location.
Load sheet Agent Responsibility	• By signing the load sheet, the load sheet agent confirms that: ✓ The data have been correctly entered. ✓ The data have been compared with those of the recalculation. ✓ Signified differences have been clarified. • The person preparing the load sheet must be named on it. • A computerized load sheet form may have a printed ID code instead of signature.

3.8. LOAD AND TRIM SHEET (cont.)

Load controller responsibility	• The load controller must check and, if necessary, correct the load sheet in accordance with the regulations in "Last minutes changes". • The load controller must ensure that: ✓ Passenger figures correspond with the figures established at the gate check. ✓ Load distribution figures correspond with the equivalent figures on the loading report. ✓ Fuel figures correspond with the final quantities stated on the fuelling order is responsibility of the flight crew only.
Documents Required	• To carry out the prescribed checks, the load controller needs, in addition to the load sheet: ✓ Completed and signed load instruction/report. ✓ The recalculation. ✓ The fuel order showing the final amount of fuel uplifted- responsibility of the flight crew.
Deadload Cross-Check	• By signing the loading instruction/report, the load controller confirms that: ✓ The compartment totals of the loading report have been compared with the corresponding figures of the load sheet. ✓ The reasons for significant differences have been clarified in accordance with instructions in "Last minute changes".
Presentation of Load sheet to the Commander	• At the latest 7 minutes before STD or ETD of the flight. • Last minute changes must not necessarily be entered before it is handed to the flight crew. • No entries may be made on the copy for the flight crew if further changes are to be expected. • Even if further changes are expected, load sheet figures must be checked before the load sheet is handed over to the commander. • A copy of the loading instruction/report must be attached with load sheet when handed to the commander.
Signature	• Load sheet must be signed by the load controller (and load sheet agent and Commander). • The signature does not cover the area of responsibility of the load sheet agent.

3.8. LOAD AND TRIM SHEET (cont.)

Transmission of Loading Report Data to Load sheet Agent	• If direct comparison of the loading report and load sheet is not possible: ✓ Loading report data can be transmitted to the load sheet agent by radio or telephone or other electronic means. ✓ Data can be transmitted by the responsible loading supervisor or load controller. ✓ All transmissions must be made by same person. ✓ Responsible person must keep the load sheet agent informed of: ▪ Subsequent changes to data already transmitted. ▪ Completion of the load operations. ✓ He must confirm, by signing the loading report that all data (including changes) have been transmitted to the load sheet agent. • The load sheet agent must: ✓ Read back all information received by radio or telephone, or other electronic means to confirm correctness of information. ✓ Record all transmissions on paper to be able to clarify differences at any time before the final load sheet is transmitted. ✓ Keep this record until departure of the flight ✓ Put the updated and signed loading report in the flight file, where it must remain.

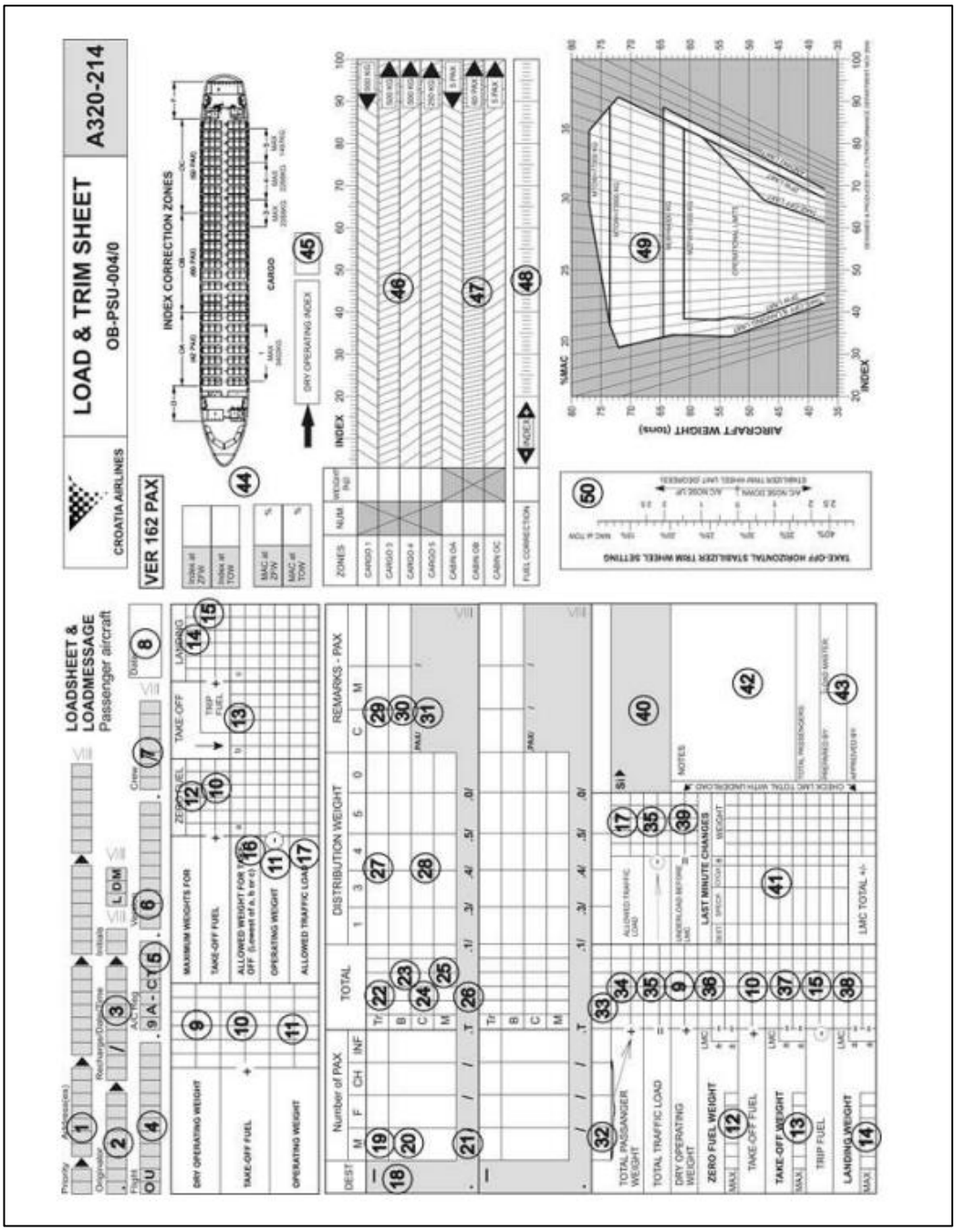
3.8. LOAD AND TRIM SHEET (cont.)

Load and Trim Sheet

(A32F)

(Specimen)

- Due to graphical similarity of Croatia Airlines A32F fleet load sheets, only load sheet for A320-214 and examples of its completion are presented.



3.8. LOAD AND TRIM SHEET (cont.)

Manual Load sheet – Description of A32F Load sheet

- The load and trim sheet (LTS) must be completed as follows:

Ref No	Description
1.	Telex address for load messages as required.
2.	Telex address of originator.
3.	Date and time.
4.	Flight number.
5.	Airplane registration.
6.	Class service version.
7.	Crew version – number of cockpit and cabin crew.
8.	Date.
9.	Dry operating weight (DOW).
10.	Take-off fuel (TOF).
11.	Operating weight (sum of 9+10).
12.	Maximum zero fuel weight (MZFW).
13.	Maximum take-off weight (MTOW).
14.	Maximum landing weight (MLW).
15.	Trip fuel (TF).
16.	Allowed weight for take-off (minimum of 12+10; 13; 14+15).
17.	Allowed traffic load (difference between 16 and 11).
18.	Airport of destination.
19.	Total number of transit passengers.
20.	Total number of joining passengers.
21.	Total number of passengers (transit and joining) including LMC.
22.	Weight of transit load.
23.	Weight of joining baggage.
24.	Weight of joining cargo.
25.	Weight of joining mail.
26.	Total weight of load including LMC.
27.	Weight distribution per compartment of transit load.
28.	Weight distribution per compartment of joining load.
29.	Seat occupied by transit per class.
30.	Seat occupied by joining passengers per class.
31.	Total seat occupied by passengers per class including LMC.
32.	Total number of passengers.
33.	Total weight of load (sum of 22, 23, 24, 25).
34.	Total weight of passengers according to company regulations.

Continued on next page

3.8. LOAD AND TRIM SHEET (cont.)

Manual Load sheet – Description of A32F Load sheet

(cont.)

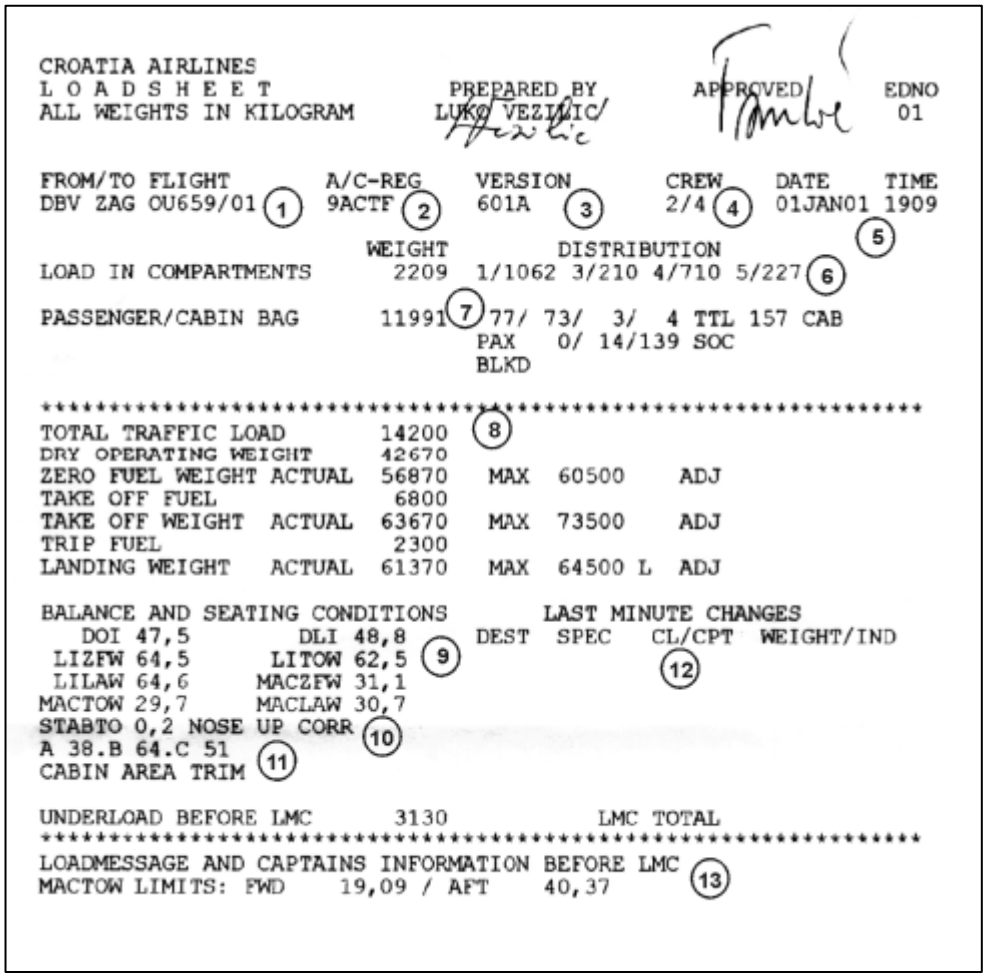
Ref No	Description
35.	Total weight of traffic load.
36.	Actual zero fuel weight.
37.	Actual take-off weight.
38.	Actual landing weight.
39.	Underload before LMC.
40.	Supplementary information – load information for which abbreviated load message is required (e.g., AVI, HEA, etc.).
41.	Last minute changes (LMC) specification.
42.	Notes – load information for which no abbreviated load message is required (e.g., DIP, EIC, etc.).
43.	Signature of the authorised agent that prepared LTS, the Load master and the Commander of the airplane.
44.	DOI at ZFW and TOW and appropriate CG position expressed as percentage of Mean Aerodynamic Chord (Referent Chord).
45.	Cry Operating Index (DOI) corresponds to crew configuration.
46.	Graphical scales for DOI correction due to cargo compartment load weight and distribution.
47.	Graphical scales for DOI correction due to passenger weight and distribution.
48.	Fuel correction graphical scale.
49.	Balance Chart – Envelopes represent CG operational limits.
50.	Scale for determination of take-off horizontal stabilizer trim wheel setting.

3.8. LOAD AND TRIM SHEET (cont.)

Load sheet Produced by Electronic Data Processing Machine (EDP Load sheet)

Fleet A32F

Example of EDP load sheet



```
CROATIA AIRLINES
L O A D S H E E T                PREPARED BY        APPROVED        EDNO
ALL WEIGHTS IN KILOGRAM          LUKO VEZILIC/                        01

FROM/TO FLIGHT        A/C-REG     VERSION        CREW     DATE     TIME
DBV ZAG OU659/01 (1)  9ACTF (2)   601A (3)       2/4 (4)  01JAN01  1909
                                                                   (5)
                          WEIGHT        DISTRIBUTION
LOAD IN COMPARTMENTS        2209  1/1062 3/210 4/710 5/227 (6)

PASSENGER/CABIN BAG        11991 (7) 77/ 73/  3/  4 TTL 157 CAB
                                     PAX   0/ 14/139 SOC
                                     BLKD

*****************************************************************
TOTAL TRAFFIC LOAD         14200 (8)
DRY OPERATING WEIGHT       42670
ZERO FUEL WEIGHT ACTUAL    56870   MAX  60500    ADJ
TAKE OFF FUEL               6800
TAKE OFF WEIGHT  ACTUAL    63670   MAX  73500    ADJ
TRIP FUEL                   2300
LANDING WEIGHT   ACTUAL    61370   MAX  64500 L  ADJ

BALANCE AND SEATING CONDITIONS        LAST MINUTE CHANGES
   DOI 47,5        DLI 48,8        DEST  SPEC   CL/CPT  WEIGHT/IND
 LIZFW 64,5      LITOW 62,5 (9)                (12)
 LILAW 64,6     MACZFW 31,1
MACTOW 29,7     MACLAW 30,7
STABTO 0,2 NOSE UP CORR (10)
A 38.B 64.C 51
CABIN AREA TRIM (11)

UNDERLOAD BEFORE LMC       3130            LMC TOTAL
*****************************************************************
LOADMESSAGE AND CAPTAINS INFORMATION BEFORE LMC
MACTOW LIMITS: FWD    19,09 / AFT    40,37 (13)
```

Ref No	Description
1.	Departure / Destination IATA code, flight number.
2.	Airplane registration.
3.	Class service version.
4.	Crew configuration – number of cockpit and cabin crew members.
5.	Date and time.
6.	Load distribution per cargo compartments.
7.	Number of passengers (male, female, child, infant) and their distribution per class service (business, economy).
8.	Calculation of weights.

Continued on next page

3.8. LOAD AND TRIM SHEET (cont.)

Load sheet Produced by Electronic Data Processing Machine (EDP Load sheet)

Fleet A32F

(cont.)

Ref No	Description
9.	Calculation of Indexes

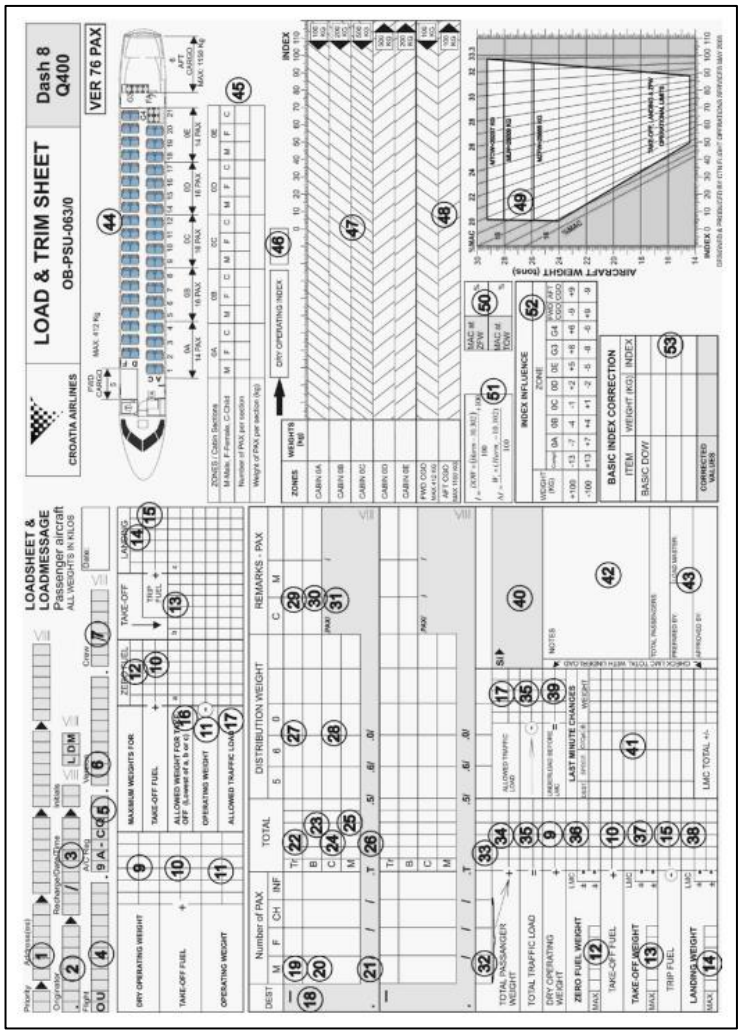
DOI	Dry Operating Index – corresponding for crew configuration
LIZFW	Loaded Index at ZFW
LITOW	Loaded Index at TOW
LILAW	Loaded Index at Landing Weight
MACZFW	CG position in percentage of MAC at ZFW
MACTOW	CG position in percentage of MAC at TOW
MACLAW	CG position in percentage of MAC at Landing Weight

10.	STAB TO – Trimmer position at take-off
11.	Distribution of passengers per cabin section
12.	LMC information
13.	Load message

Load and Trim Sheet

Dash 8 Q400

(Specimen)



3.8. LOAD AND TRIM SHEET (cont.)

Manual Load Sheet – Description of Dash 8 Q400 Load sheet

- The load and trim sheet (LTS) must be completed as follows:

Ref No	Description
1.	Telex address for load messages as required.
2.	Telex address of originator.
3.	Date and time.
4.	Flight number.
5.	Airplane registration.
6.	Class service version.
7.	Crew version – number of cockpit and cabin crew.
8.	Date.
9.	Dry operating weight (DOW).
10.	Take-off fuel (TOF).
11.	Operating weight (sum of 9+10).
12.	Maximum zero fuel weight (MZFW).
13.	Maximum take-off weight (MTOW).
14.	Maximum landing weight (MLW).
15.	Trip fuel (TF).
16.	Allowed weight for take-off (minimum of 12+10; 13; 14+15).
17.	Allowed traffic load (difference between 16 and 11).
18.	Airport of destination.
19.	Total number of transit passengers.
20.	Total number of joining passengers.
21.	Total number of passengers (transit and joining) including LMC.
22.	Weight of transit load.
23.	Weight of joining baggage.
24.	Weight of joining cargo.
25.	Weight of joining mail.
26.	Total weight of load including LMC.
27.	Weight distribution per compartment of transit load.
28.	Weight distribution per compartment of joining load.
29.	Seat occupied by transit per class.
30.	Seat occupied by joining passengers per class.
31.	Total seat occupied by passengers per class including LMC.
32.	Total number of passengers.
33.	Total weight of load (sum of 22, 23, 24, 25).
34.	Total weight of passengers according to company regulations.

Continued on next page

3.8. LOAD AND TRIM SHEET (cont.)

Manual Load Sheet – Description of Dash 8 Q400 Load sheet

(cont.)

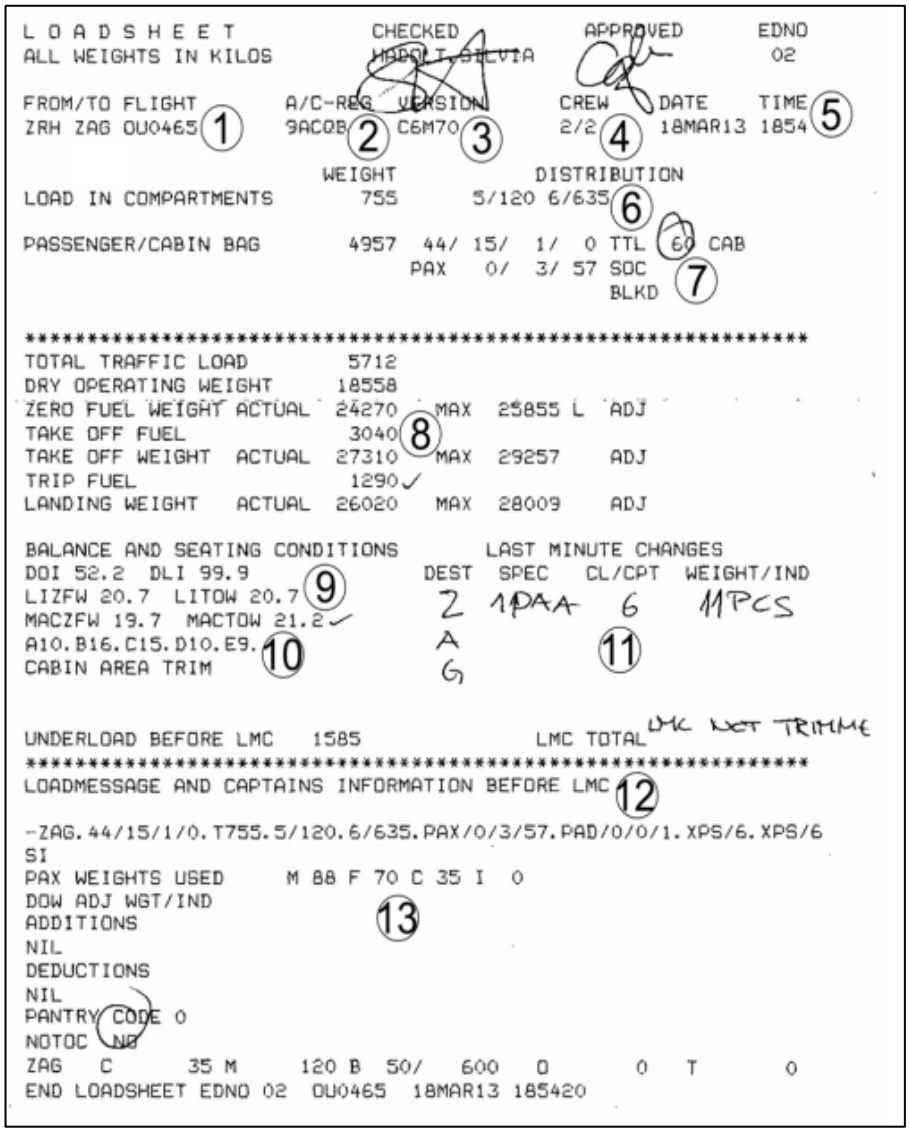
Ref No	Description
35.	Total weight of traffic load.
36.	Actual zero fuel weight.
37.	Actual take-off weight.
38.	Actual landing weight.
39.	Underload before LMC.
40.	Supplementary information – load information for which abbreviated load message is required (e.g., AVI, HEA, etc.).
41.	Last minute changes (LMC) specification.
42.	Notes – load information for which no abbreviated load message is required (e.g., DIP, EIC, etc.).
43.	Signature of the authorised agent that prepared LTS, the Load master and the Commander of the airplane.
44.	Aircraft layout,
45.	Table for calculation of passenger's weight according passenger's distribution per aircraft cabin sections. In case that passenger structure per cabin section isn't known, it is allowed to use average passenger weights per whole cabin (total passenger weights divided with total number of male, female and child passengers) for determination of passenger weight per cabin section.
46.	Dry Operating Index (DOI) corresponds to crew configuration.
47.	Graphical scales for DOI correction due to passenger weight and distribution.
48.	Graphical scales for DOI correction due to cargo compartment load weight and distribution.
49.	Balance Chart – Envelopes represent CG operational limits.
50.	CG position at ZFW and TOW expresses as percentage of Mean Aerodynamic Chord (Referent Chord).
51.	Formula for index and index influence.
52.	Index influence per aircraft zones.
53.	Table for basic DOW and DOI index correction.

3.8. LOAD AND TRIM SHEET (cont.)

Load sheet Produced by Electronic Data Processing Machine (EDP Load Sheet)

Fleet Dash 8 Q400

Example of EDP load sheet



```
L O A D S H E E T                CHECKED              APPROVED        EDNO
ALL WEIGHTS IN KILOS             HADOLT SILVIA                          02

FROM/TO FLIGHT          A/C-REG  VERSION        CREW     DATE     TIME
ZRH ZAG OU0465 (1)      9ACQB (2) C6M70 (3)     2/2 (4)  18MAR13  1854 (5)

                          WEIGHT              DISTRIBUTION
LOAD IN COMPARTMENTS        755        5/120 6/635 (6)

PASSENGER/CABIN BAG        4957  44/ 15/  1/  0 TTL  60 CAB
                                PAX   0/  3/ 57 SOC
                                                BLKD (7)

*****************************************************************
TOTAL TRAFFIC LOAD          5712
DRY OPERATING WEIGHT       18558
ZERO FUEL WEIGHT ACTUAL    24270   MAX   25855 L   ADJ
TAKE OFF FUEL               3040 (8)
TAKE OFF WEIGHT  ACTUAL    27310   MAX   29257     ADJ
TRIP FUEL                   1290 ✓
LANDING WEIGHT   ACTUAL    26020   MAX   28009     ADJ

BALANCE AND SEATING CONDITIONS        LAST MINUTE CHANGES
DOI 52.2  DLI 99.9                 DEST  SPEC   CL/CPT  WEIGHT/IND
LIZFW 20.7  LITOW 20.7 (9)          Z   1PAA    6      11PCS
MACZFW 19.7  MACTOW 21.2 ✓          A                (11)
A10.B16.C15.D10.E9. (10)            G
CABIN AREA TRIM

UNDERLOAD BEFORE LMC    1585                LMC TOTAL  LMC NOT TRIMME
*****************************************************************
LOADMESSAGE AND CAPTAINS INFORMATION BEFORE LMC (12)

-ZAG.44/15/1/0.T755.5/120.6/635.PAX/0/3/57.PAD/0/0/1.XPS/6.XPS/6
SI
PAX WEIGHTS USED      M 88 F 70 C 35 I  0
DOW ADJ WGT/IND
ADDITIONS                   (13)
NIL
DEDUCTIONS
NIL
PANTRY CODE 0
NOTOC  NO
ZAG   C      35 M     120 B  50/   600   0       0   T       0
END LOADSHEET EDNO 02  OU0465  18MAR13 185420
```

- Generally, EDP load sheets are calculated shortly before departure, so that only minor LMC may occur.

Ref No	Description
1.	Departure / Destination IATA code, flight number.
2.	Airplane registration.
3.	Class service version.
4.	Crew configuration – number of cockpit and cabin crew members.
5.	Date and time.
6.	Load distribution per cargo compartments.
7.	Number of passengers (male, female, child, infant) and their distribution per class service (business, economy).

Continued on next page

.8. LOAD AND TRIM SHEET (cont.)

Load sheet Produced by Electronic Data Processing Machine (EDP Load Sheet)

Fleet Dash 8 Q400

(cont.)

Ref No	Description
8.	Calculation of weights.
9.	Calculation of Indexes

DOI	Dry Operating Index – corresponding for crew configuration
LIZFW	Loaded Index at ZFW
LITOW	Loaded Index at TOW
LILAW	Loaded Index at Landing Weight
MACZFW	CG position in percentage of MAC at ZFW
MACTOW	CG position in percentage of MAC at TOW
MACLAW	CG position in percentage of MAC at Landing Weight

10.	Distribution of passengers per cabin section.
11.	LMC information.
12.	Load message.
13.	Supplementary information.

3.8. LOAD AND TRIM SHEET (cont.)

EDP System	• Issue of EDP Load sheet ✓ When an EDP system is used for weight and balance calculations, an EDP load sheet may be issued instead of a manually completed load sheet. • Conditions ✓ Prior approval must be given by Operations Engineering department. ✓ Prior to the introduction of the EDP system, the handling company must provide the above departments with the following info: ▪ Printout to the data base records. ▪ Per aircraft type stored in the system: minimum two load sheets showing different loads. • Basic requirements for EDP system ✓ Before a load sheet is printed, the EDP system must automatically check that: ▪ Maximum gross weights of the aircraft are not exceeded. ▪ Weight limit of each compartment is not exceeded. ▪ Combined load limits are not exceeded. ▪ Calculated centre of gravity of the aircraft is within the prescribed limits. ✓ The system must inhibit printout of the load sheet if any weight limit is exceeded or if the calculated centre of gravity is outside the prescribed limits. ✓ If the balance calculation and the required checks of the centre of gravity limits are not or only partly performed by the EDP system, the missing item(s) must be manually determined, using the relevant balance table/balance chart form. The EDP load sheet must be amended accordingly. • Data base ✓ The department responsible for the basic aircraft data is Operations Engineering Department (e-mail: performance@croatiaairlines.hr; SITA: ZAGOPOU). ***NOTE:*** *If changes are not approved by the time, they become effective, the EDP load sheet may not be accepted. A manual load sheet must be issued until approval is given.* • Data Base – changes to DOW/DOI and pantry codes ✓ The department responsible for updating and/or distribution of changes of DOI/DOW and pantry codes to EDP system coordinator is Operations Engineering Department (ZAGOPOU) ***NOTE:*** The station responsible must hand over the relevant information to the EDP system coordinator and the Local Control department of the handling company.

3.8. LOAD AND TRIM SHEET (cont.)

Last Minute Changes

- Last minute changes (LMCs) are adjustments to the load sheet after the load sheet has been completed.
- Only qualified staff is authorised to make LMC adjustments.

IMPORTANT: *Fuel may not be stated as LMC.*

In case of LMC load controller must	• Return correct load sheet copies and the signed loading report to the Traffic Office for filing. • Immediately and accurately inform the load sheet agent of any LMC made at the aircraft.
Entry of LMC on the load sheet	Not necessarily to be entered on the load sheet before it is handed over to the crew. No entries should be made on the copy for the flight crew if further changes are expected.
Traffic load LMC	Refers to the difference between: • The actual loading according to the loading report and corresponding figures on the load sheet. • The actual number of passengers according to the gate check and corresponding figures on the load sheet.
Crew LMC	Refers to the difference between the actual number of crew members and corresponding numbers on the load sheet.
Correction of weights in case of traffic load and crew LMC	Traffic load and crew LMC must be entered in the LMC box of the load sheet. Before making the entries in the LMC box, make sure the maximum weight of each compartment and, if applicable, the combined maximum weight is not exceeded. Make sure the weight of a positive (+) LMC is not exceeding the current underload figure.
Adjustments of gross weights	The previously calculated actual ZFW, TOW and LDW need not be adjusted.
Corrections of balance conditions	• General rules for correction of balance conditions: ✓ Except as provided in “last minute balance conditions” below, correction of previously calculated balance conditions is always required if they are affected by LMCs. ✓ The balance data to be corrected are specified in the respective aircraft guides.

3.8. LOAD AND TRIM SHEET (cont.)

Last Minute Changes

(cont.)

Last minute balance correction	• Using the index correction data published in operations manual (AHM 560) for LMC purposes. • After completion of the LMC entries, perform the following actions: ✓ Take the index correction from the total weight of the deadload LMC per compartment – use the correction data published in operations manual (AHM 560) for the respective aircraft type. ✓ Take the index correction for the total number of LMC passengers per seat row or cabin section. ✓ Mark these corrections in column “INDEX CORR” of the LMC on the appropriate line. ✓ Add/deduct the difference between the totals of positive and negative index units to/from the LIZFW and, if applicable, the LITOW. ✓ Correct the % MAC data according to the instructions given in the aircraft part. • Without using the index correction data for LMC purposes: ✓ If the weight change for a compartment or the number of LMC passengers exceeds the range covered by the respective appropriate data, then repeat the balance calculation using the deadload and passenger figures. ✓ When all necessary corrections have been made, check the balance document if the corrected LIZFW and, if applicable, the LITOW are still within the prescribed limits. If not, shift load or use ballast.
Application of LMC tolerances	Previously calculated balance conditions need not be corrected if the changes in the weight of the deadload and the number of passengers do not exceed the tolerances specified in the respective aircraft guides. The tolerances are applicable for (+) and (-) differences.
Deadload tolerance	To establish if the deadload tolerance can be applied, add up all changes in the weight of the deadload entered in the LMC box of the load sheet, irrespective of (+) or (-) sign. The previously calculated balance conditions must be corrected if the sum is exceeding the tolerance.

3.8. LOAD AND TRIM SHEET (cont.)

Last Minute Changes

(cont.)

General LMC tolerances	Refer to the respective aircraft guides.	
Seat row trim LMC tolerances	The use of the LMC tolerances specified in the respective aircraft guides, is permitted only if the effect of the passengers on the balance of the aircraft is calculated by seat row.	
Overload condition / Actions in overload conditions	Aircraft overloaded at	Action to be taken
	ZFW	Reduce load according to the priority lists published in chapter “Aircraft Loading”
	TOW and/or LDW	• Inform the PiC. • Wait for the decision as to the actions to be taken to remedy the overload condition. • Write the decision on the flight file copy of the load sheet. • Make sure any offload requested by the PiC is carried out.

- Standard procedure:
  - ✓ The load sheet presented to the PIC shall include all LMCs. These will be shown as entries in the LMC box and, if required, as corrections to gross weights, fuel figures and balance conditions.
- Alternative procedure:
  - ✓ Operators may allow the load sheet to be handed over to the PIC before any last-minute adjustments are made.

NOTE: *Where local regulations require LMCs to be included in the load sheet, it may be possible for operators to seek the consent of their authorities for use of the alternative procedure.*

- If LMCs are conveyed to the PIC separately, this may be done by the responsible person, either verbally or in writing, in accordance with the operator's standard operating procedures. Where no procedure has been determined, on each flight the method to be employed must be agreed upon beforehand with the PIC. Employing both methods for the same flight must be avoided as this can lead to confusion and time lost for clarification. In cases where no changes have to be reported, the responsible person must confirm to the PIC that the data recorded on the load sheet copy already handed over remains unchanged.
- LMCs are to be communicated to the PIC only after the responsible person has entered all changes and corrections on the load sheet copies retained on the ground, and after he/she has carried out the checks.
- If the PIC is informed verbally of LMCs, either directly or by using the internal communication facilities of the aircraft (interphone, intercommunication system, ACARS), or by radio communication, the following details must be recorded in writing:
  1. Name of agent.
  2. Time of transmission.
  3. Confirmation that the flight crew has acknowledged the changes.
  4. This record must be kept in the flight file

3.8. LOAD AND TRIM SHEET (cont.)

Last Minute Changes **(cont.)**	• To inform the PIC about LMCs, either verbally or in writing, when the responsible person is not including the LMCs on the load sheet, a special LMC slip should be used. The information to be recorded on this form may be limited to the following: 1. Total weight of all LMCs. 2. Total number of LMC passengers. 3. Corrected balance conditions–even if it is not allowed by the operator (e.g., "BAL not corrected"). 4. If no changes are to be reported, confirm that data on the load sheet copy already handed over, remain unchanged. 5. This record shall be kept in the flight file. • <u>Change of fuel figures</u> ✓ **Verbal communication is not allowed.** ✓ **In case of change of fuel figures, new load sheet has to be delivered to the flight crew.** • <u>Load sheet discrepancies</u> ✓ Any discrepancies found after the Load sheet release, shall be communicated to person responsible for the Load sheet. ✓ Pilot in command and/or operator shall be informed without delay, as per operator communication policy.

3.8. LOAD AND TRIM SHEET (cont.)

<table>
<tr>
<td>Crew and Crew Seats</td>
<td>

<u>Passengers on Crew seats</u>

✓ Revenue passengers should never be accommodated on cockpit jump seat unless they hold Pilot in Command permit.
✓ The decision to accept a person for travel on a cockpit jump seat finally lies with the PIC, in coordination with the ground staff. The Purser shall be informed when travel in the cockpit is applicable.
✓ Travel on the cabin jump seats is allowed only to ID passengers who comply with ‘seating in exit row’ criteria as defined in OM-A Ch.08.03.
✓ The decision to accept such passengers lies with the PIC, in coordination with the Purser and ground staff.

<table>
<tr><td>Load sheet</td><td>Persons occupying crew seats in the flight deck or the cabin, must be recorded on the load sheet as passengers:
✓ On EDP load sheet: if the DCS can handle such passengers on the load sheet, they must be entered as LMC.
✓ On manual load sheet: always to be entered as LMC.
The number of passengers accommodated on crew seats is to be included only the “Total number of passengers”.
Do not change the number of seats occupied per class (.PAX/..)
EXAMPLE: SI ZAG/2OUSTAFF SEATED ON FLIGHT DECK</td></tr>
<tr><td>Balance calculation</td><td>No correction is required for cabin crew seats.
For flight crew seats, take the following actions:
1. Calculate the difference between:
a. The DOI applicable for the total number of seats occupied by the flight crew and
b. The one applicable for the total number of seats occupied in the flight deck
2. Deduct the index unit(s) from the LIZFW and if applicable, the LITOW.</td></tr>
<tr><td>Load message</td><td>Passengers on crew seats are not to be included in the passenger’s figures transmitted in the LDM.
Mark the SI part of the LDM the destination, number and status of the passengers and the location of the crew seat and confirm that he is not included in the passenger figure of the respective destination.</td></tr>
<tr><td>Reseating of the crew</td><td>If a flight attendant is re-seated in the flight deck so that a passenger can occupy the cabin crew seat, enter the following on the load sheet:
1. Necessary details for the passengers accommodated on the cabin crew seat in the LMC box and correct the passenger figures accordingly.
2. Do not change the crew figures in the header line but show the re-siting of the flight attendant by an appropriate entry in the LMC box of the load sheet.
3. Correct balance conditions for the additionally occupied flight crew seat according to the instructions in “Balance calculation” above.</td></tr>
</table>
</td>
</tr>
</table>

3.8. LOAD AND TRIM SHEET (cont.)

Crew and Crew Seats **(cont.)**	• Deadheading Crew (DHC) ✓ Deadheading crew is crew travelling by air to/from their duty station to take up or to terminate flight duty. ✓ They are to be checked in and considered as passengers for weight and balance purposes. ✓ They are not part of the working crew on board. ✓ Stations are advised about the number of DHCs, destination, flight, and date by: Crew Control – ZAG. • Extra crew Members on the flight (XCR) ✓ Having extra crew member (additional operating crew member, mechanic in escort, observer, trainee, etc.) who is on board the aircraft according to the flight order and do not have flying ticket, following situations may occur: 1. **Extra crew member using vacant crew seating**. Following data shall be submitted: Crew complement shall include extra crew member and respective DOW/DOI data shall be used (e.g., flying crew is 2/4 + 1 mechanic in escort in cockpit. Crew complement shall be indicated as 3/4 and respective DOW/DOI data shall be used). A note in the "Remark" section of the load-sheet should be (following above example): "1 XCR MEC in cockpit". 2. **Extra crew member using passenger seat**. Following data shall be submitted: Crew complement shall include extra crew member(s) under cab-in crew figure. The DOW/DOI data must account standard weight and actual seating position of extra crew members. A note in the "SI" section of the load sheet is mandatory by using code .XCR/cc/yy, where cc indicates number of extra crews occupying seats in "C" class and yy indicates number of extra crews occupying seats in "Y" class. ***Note:*** *under "Si" section: ".XCR/1/0".* The Ground Operations and Space Control should block adequate number of seats: PBHM section 7.8. **3. Combination of above two cases** ***NOTE:*** *Extra crew members shall not be included in passenger figures*.

3.8. LOAD AND TRIM SHEET (cont.)

Crew and Crew Seats **(cont.)**	• <u>Supernumeraries Crew</u> ✓ A person in addition to the flight crew that is not a cabin crew member but is on board and is not classified as a passenger by the operator or the Authority. ✓ Supernumeraries shall be treated as regular passengers. ✓ Such person is on board because: ▪ He/she is state of company authorised inspector, auditor or observer in the performance of his or her duties (e.g., CTN auditor or inspector, CCAA inspectors, IOSA auditor, mechanic, FOO/FOA). ▪ He/she is assigned to a passenger flight by the operator to conduct certain customer service activities (e.g., serving beverages, conducting customer relations, selling tickets) in the cabin; not designed to perform any safety duties. ✓ Supernumeraries shall not impend the flight or cabin crew during the performance of their duties and crew duties should not be assigned to them. ✓ Supernumeraries shall obtain the same briefing as passengers before departure when seated in the cabin; when admitted to the cockpit see OM-A 08.03. ✓ Supernumeraries on board shall be listed either on Journey Log of passenger list. ✓ For flight with supernumeraries and no cabin crew on board refer to OM-A Ch.08.07 and respective aircraft type AHM-560. ***EXAMPLES:*** **Aircraft A320-214** <u>6 SUPERNUMERARIES CREW (e.g., 6 DHC on board)</u> • Entry value for crew 2/0: ✓ DOW 42531, DOI 46,4 (if catering is present on board of the aircraft, correct the DOW for +480 kg and the DOI for -1 index). ✓ correction for DOW is 6x86 kg, correction DOI +0,3 (3x-0.6 and 3x0.7, if 3 of them are sitting in section 0A and 3 in 0C). • Values DOW/DOI for Load sheet: ✓ Crew 2/0, DOW: 43047, DOI: 46,7. ✓ NOTE: In Load sheet DHC should be stated under SI as “6 Supernumeraries”.

3.8. LOAD AND TRIM SHEET (cont.)

Crew and Crew Seats **(cont.)**	**Aircraft A320-214** 5 SUPERNUMERARIES CREW (e.g., 5 DHC on board) • Entry value for crew 2/0: ✓ DOW 42531, DOI 46,4 (if catering is present on board of the aircraft, correct the DOW for +480 kg and the DOI for -1 index). ✓ correction for DOW is 5x86 kg, correction DOI -0,4 (3x-0.6 and 2x0.7, if 3 of them are sitting in section 0A and 2 in 0C). • Values DOW/DOI for Load sheet: ✓ Crew 2/0, DOW: 42961, DOI: 46,0. NOTE: In Load sheet DHC should be stated under SI as “5 Supernumeraries”. **Aircraft A319-112** 6 SUPERNUMERARIES CREW (e.g., 6 DHC on board) • Entry value for crew 2/0: ✓ DOW 40940, DOI 45,0 (if catering is present on board of the aircraft, correct the DOW for +507 kg and the DOI for +0,9 index). ✓ correction for DOW is 6x86 kg, correction DOI +0,3 (3x-0.3 and 3x0.4, if 3 of them are sitting in section 0A and 3 in 0B). • Values DOW/DOI for Load sheet: ✓ Crew 2/0, DOW: 41456, DOI: 45,3. ✓ NOTE: In Load sheet DHC should be stated under SI as “6 Supernumeraries”. **Aircraft A319-112 (cont.)** 5 SUPERNUMERARIES CREW (e.g., 5 DHC on board) • Entry value for crew 2/0: ✓ DOW 40940, DOI 45,0 (if catering is present on board of the aircraft, correct the DOW for +507 kg and the DOI for +0,9 index). ✓ correction for DOW is 5x86 kg, correction DOI -0,3 (3x-0.3 and 2x0.4, if 3 of them are sitting in section 0A and 2 in 0B). • Values DOW/DOI for Load sheet: ✓ Crew 2/0, DOW: 41370, DOI: 44,9. ✓ NOTE: In Load sheet DHC should be stated under SI as “5 Supernumeraries”.

3.8. LOAD AND TRIM SHEET (cont.)

Crew and Crew Seats **(cont.)**	**Aircraft Dash-8 Q400 (9A-CQA)** <u>6 SUPERNUMERARIES CREW (e.g., 6 DHC on board)</u> • Entry value for crew 2/0: ✓ DOW 18360, DOI 38,1 (if catering is present on board of the aircraft, correct the DOW for +182 kg and the DOI for +12,7 index). ✓ correction for DOW is 6x86 kg, correction DOI -6,3 (3x-6.2 and 3x4.1, if 3 of them are sitting in section 0A and 3 in 0E). • Values DOW/DOI for Load sheet: ✓ Crew 2/0, DOW: 18876, DOI: 31,8. NOTE: In Load sheet DHC should be stated under SI as “6 Supernumeraries”. **Aircraft Dash-8 Q400 (9A-CQF)** <u>5 SUPERNUMERARIES CREW (e.g., 5 DHC on board)</u> • Entry value for crew 2/0: ✓ DOW 18360, DOI 34,5 (if catering is present on board of the aircraft, correct the DOW for +182 kg and the DOI for +12,7 index). ✓ correction for DOW is 5x86 kg, correction DOI -0,1 (2x-6.2 and 3x4.1, if 2 of them are sitting in section 0A and 3 in 0E). • Values DOW/DOI for Load sheet: ✓ Crew 2/0, DOW: 18790, DOI: 34,4. ✓ NOTE: In Load sheet DHC should be stated under SI as “5 Supernumeraries”.

3.9. LOAD PLANNING

General	• The load planning procedure typically takes into consideration, as applicable for each flight, the following: ✓ Aircraft empty weight and center of Gravity. ✓ Operating equipment, e.g., crew, catering, EIC. ✓ Aircraft limitations. • Total traffic load and the EZFW can be calculated as described in AHM 590. • The flight plan will state the estimated fuel load which the Load. • Controller will use to ensure load is optimized without limits being exceeded. • The load distribution shall be planned by the Load Controller adhering to the operator's specific requirements and procedures. • The LIR will be released to the airport loading team. After confirmation of final loading, Load sheet shall be released and provided to PIC. • The purpose of load planning is to achieve: ✓ Maximum safety. ✓ Maximum regularity, considering the length of the scheduled ground stops en-route. ✓ The most economical utilisation of aircraft capacity with respect to safety aspects. ✓ Smooth handling of aircraft and load at all stations en route. ✓ Most accurate EZFW to give to the flight crew with the aim of efficient fuel planning.
Applicability	• Load planning applies to all flights. • The extent of load planning depends on aircraft type, number of transit stops and traffic volume.
Responsibilities	• Load planning is usually done at the originating station unless circumstances require load planning at a station en route. ✓ Stations en route must inform the responsible load planning office of: ✓ Any new development in nature, amount, and density of load. ✓ Possible excess load. ✓ All cargo originating at their station.
Load Planning Task	• The Load Planning task shall ensure loads are planned safely and distributed in the aircraft compartments and/or holds considering all aircraft limits. • The Load Planner shall: ✓ Check aircraft basic weight/index (BW/BI). ✓ Check all items to be included in the Dry Operating Weight/Index (DOW/DOI). ✓ Check operational messages from the previous flight or leg, including any special loads, if applicable.

3.9. LOAD PLANNING (cont.)

Load Planning Task **(cont.)**	✓ Check aircraft operational limitations or any other restrictions that may limit load planning. ✓ Calculate expected traffic load. ✓ Check any dangerous goods and special loads (DGSL) that require special handling and segregation. ✓ Plan Unit Load Devices (ULDs), taking into consideration the expected loading figures, the aircraft configuration and specific Operator requirements. ✓ Allocate loading positions for all traffic load and special loads, if applicable, taking into consideration all flight legs. ✓ Calculate the Estimated Zero Fuel Weight (EZFW) and transmit to flight dispatch, as applicable, for flight planning purposes. ✓ EZFW should be communicated every time there is a significant difference from the previous calculation, as per Operator requirements. ✓ Check fuel load and distribution. ✓ Perform a pre-calculation of the aircraft weight and balance should be done to ensure that the aircraft operational limits are not exceeded. ✓ Give consideration to aircraft ground stability to avoid tail tipping, as per operator requirements and aircraft specifications. Particular attention must be paid to the distribution of the transit load on multi-sector flights. The distribution of the load remaining in the compartments at the next station should be planned such that it meets the above condition. When this is condition cannot be met, the offloading/loading sequence in the transit station shall be planned to ensure aircraft ground stability is maintained. Methods to ensure ground stability include use of tables or graphs to determine the weight required in forward compartments to counteract weight to be loaded in aft compartments, or calculation of center of gravity for comparison against the applicable tipping and/or towing limit: ▪ Method 1—a scale or table determining the distribution of the loads weight-wise, showing the weight required in the forward compartments to secure ground stability and the load which can be placed in the aft compartments. ▪ Method 2—calculation of the dead load index/%MAC which shall be forward of the dead load index limit on the balance chart and transmitted on the LDM. ▪ Method 3—dynamic calculation of aircraft ground stability by using a software application that takes every movement of load into account. ✓ Produce a Loading Instruction and Report (LIR).

3.9. LOAD PLANNING (cont.)

Local Cargo	• On request, each station will be allocated certain space for local cargo. • This allotment, resulting from both commercial capacity control and operational planning for handling purposes, is binding for all. • Local cargo exceeding this allotment without confirmation from the space control responsible may be offloaded at the next station unless it takes up part of the local allotment for mail and/or baggage. ***NOTE:*** *This is not applicable to load carried to the next station only.*
Additional Unbooked Cargo	• Additional unbooked cargo may be loaded if: ✓ It seems likely that most or all of it can be carried to the destination, or ✓ The station where it might be offloaded offers good forwarding possibilities to the destination, and ✓ Communication is established between stations, and ✓ The requirements mentioned above are met.
Maximum Capacity Available	• The maximum usable capacity over a complete route, depends on: ✓ The maximum payload per sector. ✓ The maximum payload per sector as obtained by the dispatch office responsible for the flight or as a result of operational requirements (CFP). ✓ The maximum volume capacity of the aircraft. ***DEFINITION:*** *The "critical leg" is the sector with the lowest available payload (weight or volume).*
Capacity Planning per Sector	• Based on the maximum capacity available, the load planner decides if the total load booked by all stations en route can be carried. • If bookings exceed the available capacity, the cargo or in certain cases the post office mail exceeding the allotment must be reduced. • If booked cargo must be refused: ✓ The responsible cargo space control office decides which station's cargo load must be reduced. ✓ If not reachable, the load planner decides in consultation with the station concerned.
Improvement of Planning	• To improve future planning, load planning offices must: ✓ Analyse their planning compared with the actual situation of the flight. ✓ Compile statistic (e.g., mail allotments and uplift per station, baggage, cargo and mail density, stowage loss). ✓ Exchange information of common interest.

3.9. LOAD PLANNING (cont.)

Load Conversion Figures

- The figures below are guidelines for load planning purpose.

IMPORTANT: *If more exact or different conversion factors are available, these must be applied.*

Baggage	Weight planning must be based on locally established average baggage weights per passenger. Load distribution must be based on standard baggage weights.	
Cargo	Use actual dimensions for load planning. If actual dimensions are not available, use locally established average density figures.	
Density Figures (*)if local average figures are not available	Type of load	Density figures in kg/m3
	Baggage	180
	Ballast	1 400
	Cargo (*)	180
	Mixed letter/parcel mail	220
	Parcel mail	150
Passengers	Load planning must be based on standard passenger weight, by calculation of male, female and children separately.	
Stowing loss	The actual figures must be increased by the “broken stowage factor” to compensate loss of available volume due to space gaps between loaded items: • Average load – 30% • Load density cargo – 50% • Small soft load – lower factor *Note: The conversion figures given above (density figures) for baggage, ballast, cargo, and mail include stowing loss.*	

3.9. LOAD PLANNING (cont.)

Load Distribution	• On all sectors, balance conditions of the aircraft and the total load in the compartments must be within limits. • Observe special loading regulations and restrictions for ground stability (refer to 'Aircraft Ground Stability – Tipping' , see before and below). • On arrival, all stations must have direct access to their offload and baggage must be available first. • If load for different stations is carried in the same compartment, it must be clearly separated to avoid over carriage. • Stations should not have to reload large amounts of transit load for balance reasons. • Stowing regulations for baggage, dangerous goods, live animals and other special loads must be strictly observed. • Temperature requirements, loading restrictions and maximum quantities per compartment must be strictly followed if live animals and/or perishable goods are involved. • <u>Planning for fuel economy</u> ✓ To limit fuel consumption and save fuel costs, the aircraft shall be loaded in such a way that the centre of gravity is positioned as close as possible to the aft limit. • <u>Bulk load</u> ✓ Loading errors can be reduced by stowing each category of load in a different compartment or compartment section.
Aircraft Ground Stability – Tipping	***NOTE:*** *For more details refer to "Load Planning Task" in this section and 4.2.4. "Aircraft Ground Stability and Tipping".*

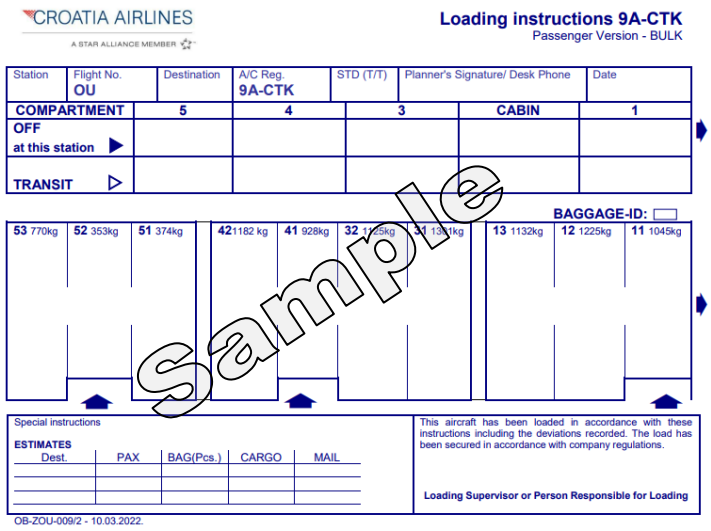
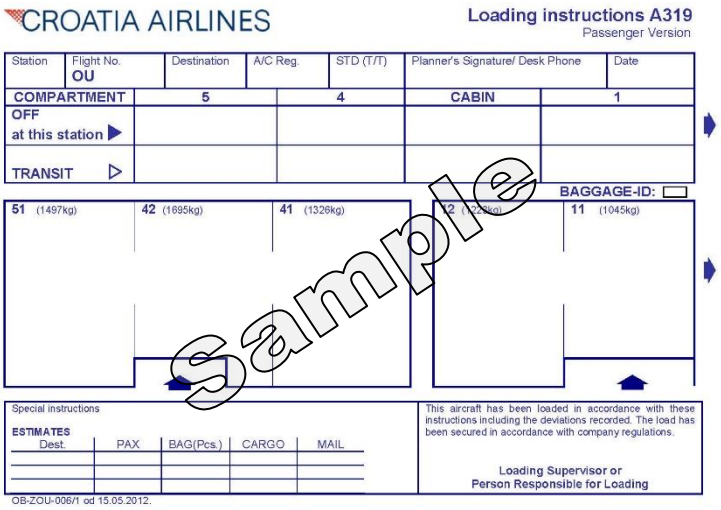
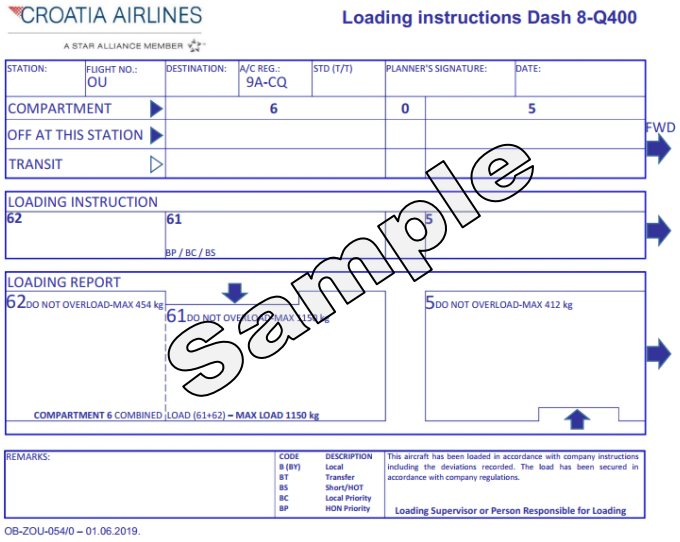
3.9. LOAD PLANNING (cont.)

Loading Instruction / Report – LIR

- A LIR shall be issued for each departing flight to ensure all safety parameters specific to each flight are adhered to. Manual LIR shall conform to AHM 515, electronic data processing (EDP) LIR shall conform to AHM 514. Both could be subject to operator customization.
- Complete load distribution for the departing flight, using provisional data and adhering to the segregation policy, as per AHM 514 to AHM 515 and Operator requirements.
- The aircraft shall be loaded in accordance with the LIR. All deviation requests shall be approved as per operator requirements.
- Indicate all information that could affect loading in the Supplementary Information (SI) section.
- LIR shall be signed by responsible person as described in AHM 514 or 515 to confirm that the containers/pallets and bulk load have been loaded and secured in accordance with operator instruction.
- A loading instruction/report consists of two parts as shown in the table below:

Part	Responsible	Function
Loading instructions	Prepared by the load sheet agent / load planner	To instruct the loading supervisor about: • The distribution of the onload; • Segregation of special loads; • For transit flights, the weight and location of the off and through load.
Loading report	Completed by the loading supervisor	To confirm that the aircraft has been loaded according to the given instructions. Deviation from the instructions is only allowed with the consent of the load sheet agent / load planner and must be clearly stated on the loading report.

3.9. LOAD PLANNING (cont.)

Manual Loading Instruction / Report A320	
Manual Loading Instruction / Report A319	
Manual Loading Instruction / Report Dash 8 / Q400	

3.9. LOAD PLANNING (cont.)

Loading Instruction / Report description

- Heading

Station	Three-letter IATA airport code of issuing station
Flight No.	Flight number for which the instruction is issued
Destination	3-letter IATA airport code(s) of route station(s)
A/C Reg.	Aircraft registration
STD (L/T)	Schedule Time of Departure (local time)
Planners Signature/Desk Phone	Name and phone number of Load sheet Agent
Date	Local date e.g. 05JUN21

Instruction of onloading	• Loading Instruction/Report is to be filled for each compartment taking into consideration the compartments weight limitations, its volume, and the structural strength limits. • The Loading Instructions must be completed by the Load sheet Agent. The information specified on it must include details of the load per compartment as follows: For multi-sector flights the destinations using three-letters IATA codes, followed by category of load e.g. Baggage (B), Cargo (C), Mail (M) followed by weight and, if necessary, number of pieces followed by specific handling code(s) in case of special load. • The Loading Report must be completed by the Loading Supervisor while loading is in progress. The information specified on it must include actual load details per compartment or deviations from original instructions.
Special instruction	• The Special Instructions must be completed by the Load sheet Agent. • This part is to instruct the Loading Supervisor about: goods which require special handling or stowage, e.g. live animals, dangerous goods, etc., supporting of heavy items, securing of items which may cause a hazard, relocation of transit load, load to be located in passenger cabin, and any other information which is useful for the Loading Supervisor e.g. summary of planned onload.
Signatures	• This part is designed for confirmation that the aircraft has been loaded in accordance with the instructions, including the deviations shown on the report, and that the load has been secured in accordance with company instructions. • Signature of responsible Load sheet Agent and name and signature of responsible Loading Supervisor must be laced.

Off-Loading Instructions

- An Off-Loading instruction may be issued prior to aircraft arrival.
- Refer to AHM 514/515 for data elements and format.
- For transit flights, produce offloading instructions as per AHM 514 to AHM 515, where transit load, off-load and all positions are reported.
- Consideration shall be given to ensure aircraft stability during offloading process and passenger disembarkation process.

3.9. LOAD PLANNING (cont.)

Notification to the Captain (NOTOC)	• The Notification to the Captain (NOTOC) is used to inform PIC of dangerous goods and/or special loads (DGSL) carried as cargo or mail. • The cargo department is responsible for providing DGSL information in legible written, printed, or digital form and transmitting it to the person charged with load planning task. The Load Planner shall produce LIR taking into consideration DGSL information, their compatibility and segregation criteria. • The information contained in the NOTOC shall be made available to the person charged with aircraft loading and supervision task. The person shall: ✓ Verify that DGSL are not damaged or leaking. ✓ Ensure the correct positioning of DGSL as per the LIR and NOTOC. ✓ Report actual loading position. ✓ Signs the NOTOC. ✓ Deliver the signed NOTOC to PIC for signature. • The NOTOC must be issued in adequate number of copies, in order to provide information to all concerned and for file retention. • DGSL information shall be made available to the next downline airport before the flight arrives ***NOTE:*** *For NOTOC forms refer to AHM 381 and the current DGR.*

3.10. WEIGHT CONTROL OF LOAD

General	• Different systems of weight control are applied, depending on: ✓ Aircraft type. ✓ Destination of the flight. ✓ Local conditions at the departure station. • The actual weight shall be used for load control purposes for baggage, cargo, and mail. It is obtained by means of bulk weighing or from the actual weight established at check-in. • <u>Bulk Weighing</u> ✓ Should be applied if weigh bridges with the required capacities are installed. ✓ Can be applied to baggage, cargo and mail. ✓ Loaded transport carts are weighed before being dispatched to the aircraft. ✓ Tare weight of cart must be deducted from the total weight. ✓ Weight that established must be entered on: ▪ Weight slips attached to the carts. • <u>Weight established at check-in (baggage)</u> ✓ Actual piece weights must be transmitted to the load sheet agent. ✓ These weights might be different from entries in the passenger ticket. ✓ Pieces must be counted when loaded on to carts, total number put into each compartment must be recorded on the Landing Instruction form.

4. AIRCRAFT LOADING

4.0. OVERVIEW

Contents	This chapter contains the following sections: 4.1. General Loading Regulations 4.2. Loading Principles 4.3. Distribution of Load 4.4. Safety Requirements Specific to Aircraft Loading Operations 4.5. Loading Limitations 4.6. Unloading Procedures 4.7. Load in the Passenger Cabin

4.1. GENERAL LOADING REGULATIONS

4.1.0. Overview

Contents	This section contains the following: 4.1.1. General Loading Regulations. 4.1.2. Supervision of Aircraft Loading. 4.1.3. Loading Priorities. 4.1.4. Positioning of Load. 4.1.5. Loading Procedures.

4.1.1. General Loading Regulations

General	• The aircraft loading and unloading has to be performed with utmost care in order to avoid any accidents, as well as damages to the aircraft and the load. Proper handling of all loading equipment and material shall especially be ensured. Heavy loading tools and rollers shall not be applied directly to the floor of the cabin or compartment. If such tools are required, the floor must be protected by supporting planks. • Compartment nets must be kept inside the aircraft compartments and not left hanging outside, to avoid clips and attachment points from striking fuselage or inadvertently hooked on GSE and pulled out of the aircraft. • Only the permitted compartments are used for loading. Loading in toilets, in the lounge, or in the crew compartments is prohibited. • In compartments with pallet positions, no load positioned beside the pallets on the compartment floor. • The load must be properly protected against rain or snow until it is put on board the aircraft. • The condition of the load must be inspected prior to loading, in order to detect leaking or damaged shipments. ***IMPORTANT:*** *Leaking shipments may not be loaded.* • Any damage noticed or contamination suspected to be caused by Dangerous Goods must be reported to the appropriate departments (cargo.handling@croatiaairlines.hr). ***IMPORTANT:*** *As long it is not assured that the contamination is caused by a harmless source, the shipment may not be loaded.* • Any load with missing identification (e.g., missing baggage tag, cargo label) must be identified before loading. • The load is distributed according to the load instruction (LIR). • The regulations for crew baggage, cabin load and special loads, including loading incompatibilities are observed. • Sensitive shipments (e.g., measuring instruments, fragile items, flowers, etc.) are loaded with special care and stowed in a way to prevent it from being damaged by other load. If necessary, the unloading or transfer station has to be notified about sensitive load by means of LDM/CPM. • Pieces with special handling instructions as labels or imprints i.e. “This side up”, “Fragile” etc. are handled accordingly. • Specially marked positions, which must always be accessible for safety reasons, will not be blocked. (Vision lenses or gear extension indicators respectively in the cabin floor, emergency exits etc.). • The available separation nets must be properly secured to prevent shifting of load in flight. If door nets, net sector divider nets or net stanchions show any damage (missing tie-down fittings, torn or cut net parts, missing rings, etc.), the net sector divider net is considered to be unserviceable. ✓ The following rules apply: ▪ DO NOT load anything in all net sectors affected by the damaged door net or divider net. ▪ Lash all pieces in these net sectors.

4.1.1. General Loading Regulations (cont.)

General (cont.)	✓ Missing and/or damaged nets or mounting parts shall be reported to: ▪ The flight crew. ▪ OU staff and/or authorized personnel (TRC, Supervision, etc.). ▪ The next station en-route by means of a "SI" text on the LDM / CPM. • Heavy loads must be stowed at the bottom. If necessary, put heavy loads on spreaders in order not to exceed the maximum floor load and running load limitations. • Special loads must be stowed in accordance with the relevant regulations (refer to GOM, ch. 7. " Special Loads"). • For maximum utilization of the available compartment volume, load must be stowed as tightly as possible. ***IMPORTANT:*** *Maximum loading height MUST be always observed.* • Whenever possible, ensure that DAA items, notably wheelchairs and baby buggies are loaded at the compartment door section in order to speed up delivery to the passengers. It must also be assured that DAA items are loaded in such a way as to prevent them from becoming damaged by any other load. • When loading is completed, a visual check of the compartment should be done to roughly compare the volumes and weights with those mentioned on the loadsheet. • Door protection nets must be properly secured before closing the compartment.
Load shall be excluded from transportation	• If it is not properly packed and / or if it may cause damage to the aircraft or other load. • If its If weight is not properly determined, if it might contaminate the compartment and / or the load (dirty bowls for casings, tarpaulins etc.). • If it is not in accordance with applicable packing requirements (e.g., for Dangerous Goods, human remains, animals etc.). • If special handling instructions cannot be observed. • If necessary, loading accessories are not supplied.
Loading is considered completed	• After the load has been secured and the compartment doors have been closed properly. • Door safety nets/compartment separation nets, as well as the crash net, where available, shall be installed properly. ***NOTE:*** *This is also applicable when there is no load in the compartment or when no unit load devices are carried.*

4.1.1. Loading Regulations (cont.)

Maximum Loading Height	• Some aircraft have lining panels or blow-out panels in the compartment walls or ceiling which when being damaged can turn the compartment or the whole aircraft inoperative. Blow out panels are released in case of pressure differences between the cabin and the holds. Never push or lean against a compartment lining or blow-out panel. • Observe minimum safety distance between compartment ceiling and top of the load. If there are markers available showing the maximum loading height only load up to this height. • If no markers available, you must leave a gap of at least 5 cm (2'') between the load and the compartment ceiling. *EXAMPLE:*

4.1.2. Supervision of Aircraft Loading

General	• Any aircraft loading operation shall only start with the presence of the ramp aircraft loading supervisor or person who is responsible for loading/unloading. • Before loading, the hold shall be visually inspected for damage that can affect the load capacity. • A qualified individual (e.g., loading supervisor) must supervise the loading of the aircraft and provide a signed confirmation, before aircraft departure, to state that: ✓ The aircraft has been loaded/offloaded as instructed, including any special load instructions. ✓ Ensure compliance between loading instructions and load presented, including: ▪ Special handling codes and complementary information. ▪ Bulk load: pieces and weight (where applicable). ▪ Airport of unload. ▪ Preliminary Notice to Captain (NOTOC) as per AHM 381 (where applicable). ✓ Visually check serviceability of locks and restraints that could affect the load capacity of the aircraft prior to loading. ✓ The bulk load is correctly secured, and locks and nets are in use. ✓ Ensure lashing/load spreading is correctly applied. ✓ Ensure all loads, including visible Dangerous Goods packages are inspected for leakage and damage prior to loading. ✓ Ensure all loads, including Dangerous Goods packages have been stowed and secured according to regulations and airline procedures. ✓ Ensure the holds are free of any foreign objects. ✓ Ensure that any loaded items do not block the aircraft fire suppression systems. ✓ Adhere to fleet specific loading guidance. ✓ Ensure any deviations are approved by the Load Agent and recorded. ✓ At the completion of loading, a qualified individual must confirm and pass the final loading information to the Load Agent.

4.1.2. Supervision of Aircraft Loading (cont.)

Loading of General Baggage, Cargo, and Mail	• The person responsible for loading is in charge of, and responsible for, the safe and efficient loading and offloading of the aircraft as well as the protection of the goods carried. He will ensure the aircraft is loaded as specified by the load agent, in accordance with the operating airline procedures. • The person responsible for loading shall be trained in accordance with GOM, Ch. 6. "Training".
Loading of Dangerous Goods	• The person responsible for loading is responsible for the loading of Dangerous Goods shipments as described in the IATA DG Manual and must be qualified as per IATA Dangerous Goods Regulations (DGR) training requirements.
Communication Requirements	• When Verbal communication is used it is critical that combination of letters and numbers are pronounced and understood by those who transmit and receive voice messages by radio or telephone, regardless of their native language. The ICAO phonetic alphabet and numbering system shall be used by all parties when involved in aircraft turn-around. • To ensure all load is accounted for accurately prior to departure, the parties responsible for loading and load planning shall clearly communicate and confirm: 1. Flight Number. 2. Flight Leg (as applicable). 3. LIR edition number. 4. All load by position/in compartments needs to be reported, including NIL-Position/Compartment(s). 5. Return load (stand-by load which is not loaded). 6. All commodities and sub-commodities shall be reported. 7. When communicating load figures using verbal communication between the person reporting the load and the person responsible for load planning task, the person responsible for load planning task shall always read back the information given according to the same guidelines above. ***Note 1**: The same principle will also apply when load control office is verbally communicating information to the person responsible for the loading supervision task, and when loading information is verbally communicated between loading team members and loading team supervisor.* ***Note 2**: To further prevent miscommunication during the aircraft turnaround handling and close out reconciliation process, implementation of standard verbiage for load discrepancy communication should be used between the person responsible for the loading supervision task and person responsible for load planning task and between the person responsible for loading supervisor task and loading team members.* ***Note 3**: Efficient communication devices (e.g., headsets, high performance radio, phones etc.) should be provided to relevant involved teams in case of verbal communication in order to avoid misunderstanding in a noisy environment.*

4.1.2. Supervision of Aircraft Loading (cont.)

<table>
<tr><td>Communication Requirements
(cont.)</td><td>Load Discrepancy Communication
<table>
<tr><td>Discrepancy</td><td>Description</td></tr>
<tr><td>Offload</td><td>Planned load removed from aircraft for any reason (e.g., missing passenger/baggage, damaged cargo, etc.).</td></tr>
<tr><td>Position change</td><td>Change of position within the cargo compartment or change of cargo compartment location.</td></tr>
<tr><td>Missing</td><td>Load not received for any reason but planned on loading instruction report.</td></tr>
<tr><td>Weight</td><td>Difference between deadload weight as shown on LIR and actual weight of the load.</td></tr>
<tr><td>Incorrect load</td><td>Mismatch of received load for flight (e.g., incorrect ULD number, wrong flight number, incorrectly documented special load).</td></tr>
<tr><td>Restraints</td><td>Missing, damaged or malfunctioning floor locks, load restraints or nets.</td></tr>
<tr><td>Technical</td><td>Compartment technical issues (e.g., faulty locks, unserviceable stanchions, divider nets, other defects).</td></tr>
<tr><td>Not planned</td><td>Any deadload not included in LIR.</td></tr>
</table></td></tr>
<tr><td>Actions Prior to Loading</td><td>• Prior to loading, the Handling Agent person responsible for aircraft loading supervision task shall:
✓ Verify the aircraft registration with the registration on the LIR.
✓ Carry out a hold inspection once unloading is complete or prior to commencing loading.
✓ Assemble and check the load against the LIR.
✓ For bulk loading, confirm:
▪ Cart’s identification labels are correctly filled in.
▪ Loose pieces/weight information is correct (where applicable).
✓ Ensure LIR is received and understood by the persons responsible for aircraft loading task, including details and requirements of special load (e.g., Dangerous Goods).
✓ Ensure special equipment (e.g., tie-down straps, load spreaders, plastic sheeting for wet cargo) is available, as required.</td></tr>
<tr><td>Actions During Loading</td><td>• During loading, the Handling Agent person responsible for the aircraft loading supervision task shall:
✓ Crosscheck the load against the LIR, as the loading progresses to ensure the correct sequence of loading takes place in accordance with the specified timelines.
✓ Regularly check with loading agents who are physically loading the aircraft and in particular, attend to any issues raised concerning loading.
• Liaise with the person responsible for weight and balance calculation task and receive authorization for any deviations including any last-minute changes to the LIR. The weight and Balance Calculation task shall check the deviation and confirm if possible or give an alternative solution.</td></tr>
</table>

4.1.2. Supervision of Aircraft Loading (cont.)

Actions During Loading **(cont.)**	✓ If an authorized change of load order occurs, provide confirmation of change to the persons responsible for aircraft loading task prior to recommencing loading in the hold. ✓ Ensure that where applicable, transit loads are not over-stowed for transit stations. ✓ At the completion of loading, receive confirmation of the following from the persons responsible for aircraft loading task: ▪ The loading status of the aircraft holds and compliance with the latest edition of the LIR. ▪ Confirmation that loads are secured and that all locks, stops, nets, net stanchions, fire blankets are raised, closed, locked, or installed and that load securing is correctly applied. ✓ Undertake a final visual inspection of the aircraft holds to ensure compliance and that no item of FOD have been left in the aircraft holds. ✓ Load and restraints (including correct restraint settings at NIL/NOFIT positions) that are visible are properly secured and/or raised.
Actions After Loading	• After loading has been completed the Handling Agent person responsible for aircraft loading supervision task shall: ✓ Perform a final hold check to ensure: ▪ The cargo doors have not been damaged during loading. ▪ The doors are closed and locked properly. ✓ Sign the LIR, and in doing so, confirm that: ▪ The aircraft has been loaded in accordance with the LIR and the LIR edition number. ▪ That the load is secured and locks, stops, nets, fire blankets etc. are correctly installed, raised, locked etc. ▪ If applicable, the aircraft has been unloaded as per the OIR (Offloading Instruction Report). ✓ Confirm the final actual loading is in accordance with final LIR, in order to finalize the weight and balance calculation. Final LIR shall include last minute changes (LMC).

4.1.3. Loading Priorities

General

- Load may have to be refused or offloaded, due to:
  - ✓ Lack of space (seat or volume).
  - ✓ Weight reasons.
  - ✓ Balance reasons.
  - ✓ Loading and/or transport conditions, which put risk to the aircraft, passenger, crew, and other load (e.g., leaking Dangerous Goods shipments, exceeding of maximum radiation for RRY shipments, etc.).
- If the flight is overbooked in the cabin, but has no weight, trim or volume problems, the acceptance of passengers is under full responsibility of the passenger service staff.

  IMPORTANT: *Passenger acceptance shall always have priority over the cargo and mail acceptance.*
- For identification of cargo and/or mail shipments to be offloaded, if required, consult Croatia Airlines Cargo Handling or Cargo Sales Departments (cargo.handling@croatiaairlines.hr; cargo@croatiaairlines.hr).
- Baggage withdrawn from the flight should be immediately delivered to the staff in charge of baggage-related complaints in order to agree on the way of sending the baggage to its destination.
  The staffs at the point of baggage offloading are responsible for sending a message to the staff in charge of baggage-related complaints at the destination airport, with the information on how and when the baggage withdrawn from the flight will be sent to its destination.
- Short-shipped mail (mail listed on the CN38, but cannot be loaded due to volume or weight limitations; also mail erroneously not loaded) shall be returned to the post office against receipted CN38 or substitute.

Priority Table

Priority	Load Category
1	• Deadheading Crew (DHC). • OU Maintenance staff needed for emergency repairs at outstations.
2	• AOG equipment. • Urgent life-saving medicines and transplant organs (LHO).
3	• Passengers with a confirmed booking status (HK). • ID00S1 ID00R1, ID00B1 passengers;
4	• Checked-in free baggage and excess baggage.

Continued on next page

4.1.3. Loading Priorities (cont.)

Priority Table (cont.)

Priority	Load Category
5	• RUSH (“Expedite”) Baggage of OU passengers entitled to a firm booking.
6	1. Live Animals (AVI). 2. Hatching Eggs (HEG). 3. Human Remains (HUM). 4. Radioactive Material (RRE, RRW, RRY). 5. Emergency Solutions (XCP). 6. Must Go (SLM). 7. Courier Solutions (SDA, ZXO, OBC, UCB). 8. Cool / Temp control (ACT, PAS). 9. Td Flash express (XCS). 10. Capacity agreements (CPA, SCA). 11. Perishables (PEM, PES, PEP, PER, PEF). 12. Airmail (MAL). 13. Guaranteed capacity access (GCA). 14. Specials other than fresh (VUN, DGR). 15. Other standard cargo shipments.
7	• Mishandled (RUSH / EXPEDITE) baggage of non-OU passengers entitled to a firm booking.
8	• Un-booked excess baggage in quantities exceeding 100 kg belonging to booked passengers.
9	• ID-passengers entitled to a firm reservation.
10	• Revenue Cargo.
11	• Service Cargo
12	• Mishandled baggage of passengers not entitled to a firm booking.
13	• ID-passengers traveling on “SA” basis (subject to space available) with their baggage.
14	• Company Service 2 Cargo

4.1.4. Positioning of Load

General	• All baggage, cargo, and mail to be loaded at a station shall be positioned at the aircraft in due time with regard to valid SGHA and SLA in order to ensure a scheduled departure.
Load Handover	• The handover process between cargo handling (cargo warehouse), baggage handling (baggage make-up area) and ground handling (ramp) departments shall be done systematically to ensure a safe departure. • Depending on the airport infrastructure and/or local agreements, the handover of cargo, mail and baggage to the ramp should be done at a dedicated handover point.
Load Transportation	• Prior to transporting cargo and/or mail from the cargo warehouse or baggage from the baggage make-up area, the equipment operator shall ensure that: ✓ The GSE used for transportation is serviceable for both loose loads and/or built up ULDs as required. ✓ Baggage carts appear to be serviceable, and gates/covers/doors are correctly closed/installed prior to transportation. ✓ They comply with any limitations regarding the maximum number of dollies in a 'train of dollies' as per local requirements. ✓ An inspection of all loads is carried out to ensure that: ▪ The cargo, mail and/or baggage for transport is the correct load for the departing flight(s). ▪ No nets, ropes, straps, protective materials, can drag on the ground or get jammed in rollers, ball-mats, or wheels. ▪ All built-up cargo/mail/baggage is safe to move and will not shift, roll, or topple. ▪ All dollies are serviceable, and all restraints are engaged to secure the ULD on the dollies. ▪ The ULD container/pallet has no obvious distortion/damage. ▪ Nets and straps are correctly attached to the ULD and have no signs of damage that may impair their performance (e.g., cuts, tears, or fraying). ✓ They receive all documentation, pouches, and special instructions for the applicable flight, as per operating airlines procedures.
Load Delivery for Departure	• Depending on the location of the handover point the person responsible for aircraft loading supervision task or the person responsible for receiving the load shall: ✓ Receive all documentation, pouches, and special instructions for the specific flight, if applicable. ✓ Carry out an inspection of all the load to ensure that: ▪ The load is correct for the departing flight(s). ▪ No damage has occurred during the transport process. ▪ There is no evidence of tampering with the load (e.g., cuts, tears to plastic foil etc.)

4.1.4. Positioning of Load (cont.)

Load Delivery for Departure **(cont.)**	▪ No nets, ropes, straps, protective materials, etc. should drag on the ground or get jammed in rollers, ball-mats or wheels whilst maneuvering or whilst being loaded onto aircraft. ▪ Carry out Visually Detectable Damage Check prior to loading. ▪ There are no signs of leakage from ULD's. ▪ All items of load are properly packed and will not damage nor contaminate the aircraft. ▪ All ULD's are safe to move and will not shift, roll or topple whilst maneuvering/loading onto aircraft. ▪ Container curtains, door(s), nets are fully closed/latched and secure in preparation for loading. ▪ All dollies are serviceable, and all restraints are engaged to secure the ULD on the dollies prior to the ULD being loaded onto the aircraft. ▪ All items of load are fit to be loaded on the aircraft. ✓ Ensure the load is protected from adverse weather conditions, if applicable. ✓ Report any damage to the load/s, whether it discovered when the load arrives on stand or occurs during handling/loading, immediately. ✓ The is no contamination (including snow, ice, water, water, wood, plastic) on the ULD or bulk load/loose load pieces. ✓ Report torn or missing baggage tags and cargo labels, and do not load unless corrected. ***NOTE:*** *Report any discrepancies e.g., spills, unusual fumes, or smells, etc. prior to or during the loading to the person responsible for aircraft loading supervision task or the weight and balance calculation task or flight crew or local authorities as required, immediately.*
Deadlines	• The station manager and the cargo manager shall agree upon deadlines for the acceptance and positioning of baggage, cargo, and mail. • If necessary, special deadlines shall be fixed for the different aircraft types and/or flight routes. The deadline shall meet sales and handling requirements as far as possible. ***NOTE:*** *For cargo and mail shipments refer to section 7.1.1. "Transportation of Cargo (Deadlines).*
Positioning	• Handling Agent respective departments (Passenger, Cargo and Mail Service Departments) are responsible for the punctual positioning of cargo and mail. • Following items shall be considered: ✓ The load must be protected against the influence of weather and contamination. ✓ For multi-sector flights, the load shall be positioned separately for each destination. Cabin load and special cargo shall be separated from other load. ✓ Special loads shall be checked in due time for a possible special handling (i.e., lashing, supporting). If necessary, load accessories/tie-down equipment shall be provided in sufficient quantity.

4.1.5. Loading Procedures

General	• Loading shall not commence if there is no LIR either electronic or hard copy, unless otherwise specified by the operator. • Before loading commences, verify the aircraft registration with the registration on the loading instruction report. • Before loading commences, carry out inspection of cargo compartments and restraint system. Report any defects to supervisor, the flight crew, and/or a company representative as required by operating airline. • Carry out a Visually Detectable Damage Check prior to loading (applicable for ULDs). • Before loading commences, the load shall be assembled and checked against Loading Instruction Report (LIR). Weights must be cross-checked. • Carry out a visual inspection of all items of bulk load prior to loading to ensure no damage/leakage. • Load accessories (tie-down, straps, etc.) must be available for special load (HEA, DGR, etc.) securing. • LIR must be delivered in timely manner and understood by the Flight Crew. • Items with directional handling labels should be loaded so that the labels will be visible during offload. • When loading pallets or containers make sure that, the edges are either guided by the side rails or fit under the stops/locks/guides and that the height of the pallet allows for sufficient clearance in the door opening. • Ensure separator nets, fire barriers, door nets, pallet locks are installed and locked as required as the hold is loaded. • Keep count of bulk loaded baggage by compartment and destination. • Document all changes to the load and sign the Load Instruction Report (LIR). • Carry out load verification prior to finalizing the weight and balance. ***REFERENCE:*** *For further details refer to section 4.2.1 "Bulk Loading" and 4.1.2. "Supervision of Aircraft Loading".*

4.2. LOADING PRINCIPLES

4.2.0. Overview

Contents	This section contains the following: 4.2.1. Bulk Loading 4.2.2. Weighing of Bulk Load 4.2.3. Securing of Load 4.2.4. Aircraft Ground Stability and Tipping 4.2.5. Pallet Loading

4.2.1. Bulk Loading

General

- The Handling Agent staff responsible for loading shall ensure following:
  - ✓ To prevent damage to aircraft or collisions with the belt loader, keep a gap of at least 1 m (3 ft) between carts/dollies and the belt loader when towing.
  - ✓ When unloading or loading items onto a belt loader, ensure that they are stable, and correctly positioned on the belt to avoid items falling off.
  - ✓ Stabilize irregularly shaped items to prevent falling from the conveyor belts during loading and unloading.
  - ✓ Do not place any loads directly on the ramp, especially if the ramp is contaminated.
  - ✓ When loading or unloading smaller aircraft, or aircraft with low wings:
    - Tractors shall stop approximately 1 m (3 ft) from the belt loader to unhook carts. Move the tractor away and position carts by hand as required.
    - When removing carts, the tractor shall be positioned pointing away from the aircraft wing and the cart pulled to the tractor as required.
  - ✓ When loading aircraft directly without the use of equipment
    - Always drive parallel to the fuselage, maintaining a gap of 1m (3ft) when positioning carts.
    - Always turn away from the aircraft.
    - Use belt loaders if the door sill height does not allow items to be passed into the doorway without undue lifting. Always consider the use of belt loaders for heavy items over 23 kg (50 lbs.).

NOTE: *For additional detail instruction refer to section 4.1.1. "General Loading Regulations".*

✓ **Stowing sequence:**

Sequence	Type of Load
1	Cargo
2	Mail
3	Baggage (to be stowed last, so that it can be unloaded first). Observe priority sequence (local, transfer, priority baggage).
4	DAA Baggage (Delivery at Aircraft) / and Gate Baggage.

- ✓ For maximum utilization of the available compartment volume, load must be stowed as tightly as possible.

  IMPORTANT: *Maximum loading height MUST be always observed.*
- ✓ Whenever possible, ensure that DAA items, notably wheelchairs and baby buggies are loaded at the compartment door section in order to speed up delivery to the passengers.
- ✓ It must also be assured that DAA items are loaded in such a way as to prevent them from becoming damaged by any other load.
- ✓ When loading is completed, a visual check of the compartment should be done to roughly compare the volumes and weights with those mentioned on the loadsheet.
- ✓ Door protection nets must be properly secured before closing the compartment.

4.2.1. Bulk Loading (cont.)

Securing of Load in Bulk Compartments	• Refer to GOM, chapter 4.2.3 “Securing of Load”.
Maximum Loading Heights	• Refer to GOM, chapter 4.1.1 “Loading Regulations”.

4.2.2. Weighing of Bulk Load

General	• To obtain the weight and center of gravity of an aircraft, among others, the actual payload weight (passengers, baggage, cargo and mail) must be determined. • The responsibility for the utilization of correct payload weights in the weight and balance documentation lies with the department concerned with the aircraft handling.
Determination of Weights	• The department competent for cargo-handling, guarantees, that the weights of the cargo and mail load positioned for a flight, which are transmitted to the aircraft-handling department, are correct. • For the determination of cargo and mail weights, the following methods can be applied: ✓ Weighing and addition of the weights of individual cargo/mail shipments. ✓ Weighing and addition of the weights of parts of the positioned cargo/mail load (trolleys). • The department responsible for aircraft handling is advised to familiarize itself with the method of determination of weight applied at its station. • Handling agent must ensure that scales are calibrated and checked at proper intervals and ensure of records. • If none of the above-mentioned methods can be applied, the following departments have to be notified: ZAGFFOU ZAGKKOU.
Documentation	• Bulk load: ✓ The determined net weight shall be entered in the column "Net Weight (kg)" in the trolley tag. These entries in the trolley tag shall be confirmed by the signature of the person responsible for the weight determination. The determined weights shall be transmitted to operations in form of a written statement. According to local arrangements, EDP-print outs, cargo manifests, bulk load weight statements, etc. can be used. A copy of the form used for the transmission of the weights shall be filed with the triple.

4.2.3. Securing of Load

General	• When transporting a load in an aircraft, it must be secured such that: ✓ It shall not move during the flight, which could dangerously affect the weight distribution and balance of the aircraft. ✓ It shall not cause damage to the aircraft structure or other important parts of the aircraft. ✓ It shall not cause damage to another load or become damaged itself. ✓ In case of an emergency landing, neither passengers nor Crew are injured by the load. • The following items must be secured: ✓ Items weighing 150 kg or more, irrespective whether the compartment or net section is volumetrically full or not. ✓ Items with an individual mass between 50 kg and 150 kg if the compartment is not volumetrically full. ✓ Items with an individual mass of less than 50 kg but having a density of more than 240 kg/m3 (high density load, e.g., pieces of machinery, metal bars); lashing is not required if the compartment or net section is volumetric full and remains full up to the point of unloading of these items. ***NOTE:*** *A compartment or net section is considered volumetrically full if it is filled up to at least 80% of its capacity.* • The following methods must be used for securing these items: ✓ Items described above must be tied down to the tie-down tracks of the compartment by means of tie-down fittings and ropes or straps. ✓ Any other individual items which by their nature, shape or density may constitute a hazard, must be restrained by either filling the compartment or net section to its volumetric capacity or by using the previous method.
Bulk Compartments	• The Load in bulk compartments is generally secured by door nets and net sector divider nets. • Ensure that following items are always secured: ✓ Barrels or drums filled with liquids. ✓ Cages or boxes with live animals (AVI). ✓ Heavy pieces (HEA) weighing 150 kg or more. ✓ Coffins with human remains (HUM). ✓ Dangerous Goods. ✓ Powered mobility devices. ✓ Load which needs spreading. ✓ Fragile loads.

4.2.3. Securing of Load (cont.)

<table>
<tr>
<td>Bulk Compartments (cont.)</td>
<td>

Following loads must not move vertically upward or horizontally during flight.
If the available volume of the compartment or net section is not volumetrically filled (three quarters of the height) with load, additional securing is necessary for:

✓ Load which is sensitive against shocks or tilting.
✓ Wet cargo.
✓ High density packages.
✓ Pipes, tubes, bars, beams, planks, poles or other objects of a penetrating nature.

IMPORTANT: If long pieces do not fit into one net section and the divider net cannot be closed correctly, check with airline representative or if available with airline maintenance staff for load restrictions.
</td>
</tr>
<tr>
<td>Tie-Down - General</td>
<td>

Definition of forces:

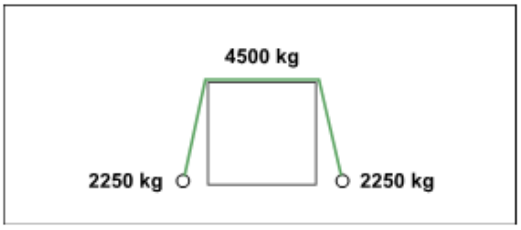
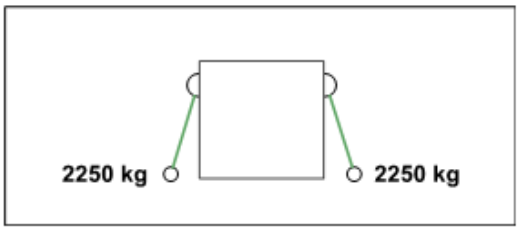
✓ Tie-down load on board of the aircraft properly to withstand the following different forces during take-off, flight and landing.

<table>
<tr><th>Force</th><th>Definition</th></tr>
<tr><td>Forward</td><td>Horizontal forces effective during landing and steep angles of descent.</td></tr>
<tr><td>Backward</td><td>Horizontal forces effective during take-off and steep angles of climb.</td></tr>
<tr><td>Sideward</td><td>Vertical forces effective during rough landing, turbulence, and close turns.</td></tr>
<tr><td>Upward</td><td>Vertical forces effective during landing and heavy turbulence in flight.</td></tr>
</table>

✓ Depending on the flight situation, the ultimate forces can be stronger than the normal gravity force of 1 g.
Secure all loads against the different forces according to the gravity factor (‘g-factor’).

</td>
</tr>
</table>

4.2.3. Securing of Load (cont.)

Tie-Down of Load With Straps or Ropes	• If the primary restraint of the load is done by straps, tie-down must be carried out according to AHM 311 or ULDR (OS 6/07). **IMPORTANT:** The usage of tie-down material with different capacities is not allowed. • There are two ways to secure a package with tie-down ropes or tie-down straps: ✓ **EMBRACED LASHING** (lashing across or around a package): ▪ the embraced lashing method with tie-down straps or tie-down ropes is to fasten the strap or rope from one tie-down fitting across or around the load to a second tie-down fitting on the opposite side. ▪ a strap attached to the fittings on opposite sides of the load is rated for twice its ultimate load capacity, e.g., an ETSO/TSO-C172 strap with 2,250 kg rated restraint capacity will provide up to maximum 4,500 kg ultimate load for standard lashing.  ✓ **DIRECT LASHING** (lashing directly fastened to the package): ▪ If a tie-down strap is directly fastened to the load with one tie-down fitting, the ultimate restraint capacity of the strap, e.g., an ETSO/TSO-C172 strap with 2,250 kg ultimate load, will apply. 

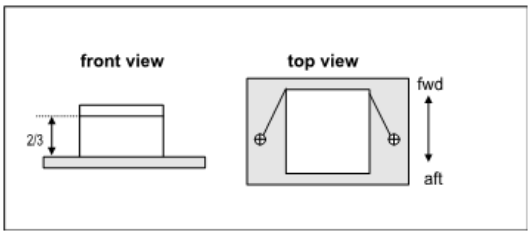
4.2.3. Securing of Load (cont.)

Tie-Down of Load With Straps or Ropes

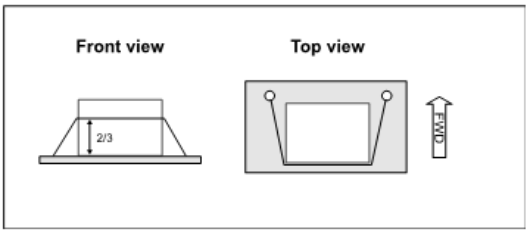
(cont.)

Examples:

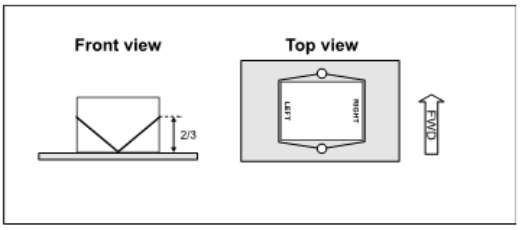
Forward



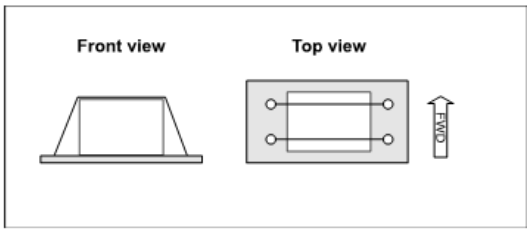
Backward



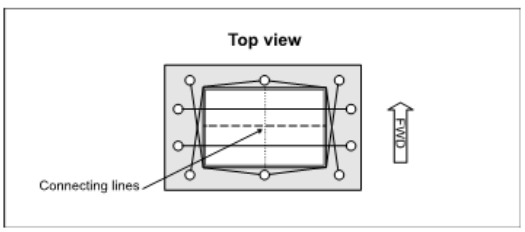
Sideward



Upward



Completed tie-down



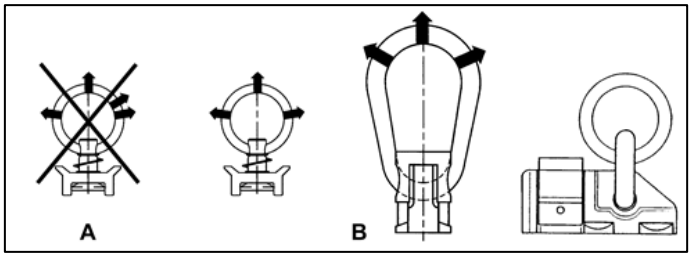
4.2.3. Securing of Load (cont.)

Use of Tie-Down Material

- Make sure that tie-down material is in a serviceable condition.
- **Tie-Down ropes:**
  - ✓ Fix tie-down ropes to the aircraft floor tracks or tie-down fittings.
  - ✓ Make sure that the overlapping ends of the tie-down ropes are long enough and will not loosen in the case of sudden stress.
  - ✓ Fix the tie-down ropes to the tie-down rings in a way that they may be easily loosened for unloading.
  - ✓ Do not fix tie-down ropes to other parts of the aircraft.
  - ✓ Do not use the same attachment points for lashing, which are used to secure the net sector divider nets.

  IMPORTANT: *Wet ropes may not be used, as they may loosen up when they dry out.*

- **Tie-Down fittings:**
  - ✓ A single tie-down fitting may receive up to three straps/ropes in three different restraint directions (one up and two opposite horizontal directions).
    Forces generated by the load can never act in more than one direction at the same time; thus, the fitting will never be pulled by more than one strap/rope at the same time.
    Therefore, a fitting may never receive more than one strap/rope in the same direction.



Alpha-Numeric	Description
A	Forbidden
B	Allowed

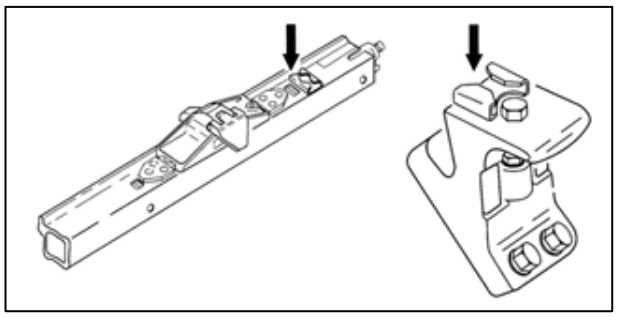
  - ✓ Fix tie-down rings to the aircraft floor only at tie-down points or tie-down tracks.
  - ✓ Distribute the attachment points of the tie-down rings evenly (nearly equal distances) over the length of the piece.

4.2.3. Securing of Load (cont.)

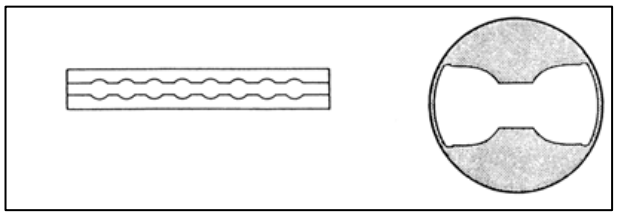
Use of Tie-Down Material

(cont.)

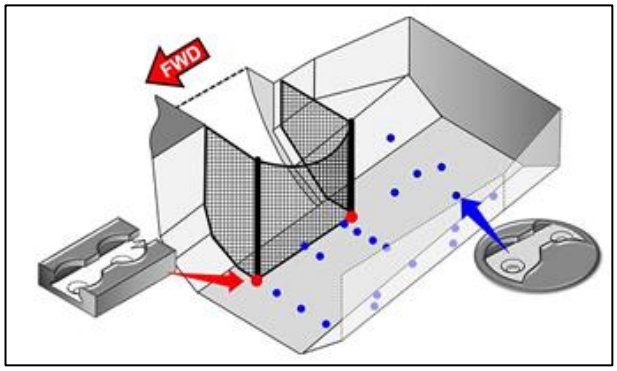
Example of tie-down attachment points on outboard side lock and side guide:



Example of tie-down attachment points on track and anchor plate:



Example of tie-down attachment points in the bulk compartment:



Caution: Tie-down on any other part of the aircraft structure, or on other restraints than those above, even if equipped with rings or tie-down points, **is forbidden.**

- **Tie-Down straps:**
  - ✓ Use only certified ETSO/TSO C172 tie-down straps.
  - ✓ Fix tie-down straps to the aircraft with their fixed tie-down rings only at tie-down points or tie-down tracks.

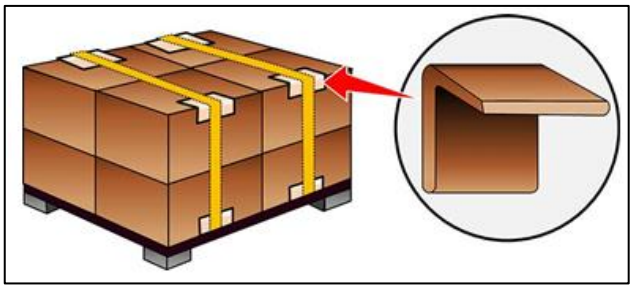
  Example:

4.2.3. Securing of Load (cont.)

Use of Tie-Down Material (cont.)

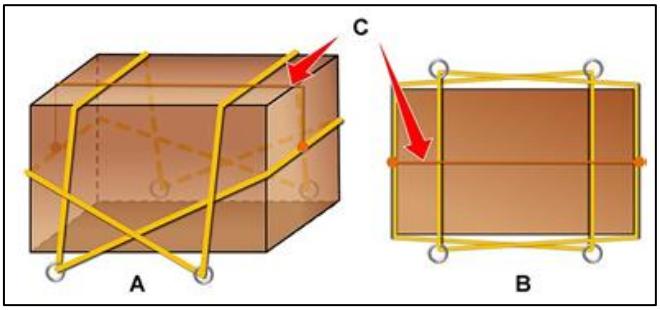
- **Tightening:**
  - ✓ Tighten the lashing strongly, but not so strong that load or tie-down material is damaged.
  - ✓ Make sure that all tie-down ropes or tie-down straps used for lashing the same piece have the same tension.
  - ✓ To protect fragile or sensitive cargo or dangerous goods, use cloth, cardboard, or similar material for edge protection.
- **Sharp edges:**
  - ✓ To avoid cutting or grinding of tie-down ropes or tie-down straps smoothen sharp edges with a piece of soft materials (e.g. cloth, cardboard, plank or similar).

Example:



Standard Lashing

- For standard lashing use:
  - ✓ 4 tie-down rings.
  - ✓ 4 tie-down ropes or tie-down straps:
    - 2 against upward forces.
    - 1 against forward forces.
    - 1 against backward forces.
    - 1 safety rope.
- The safety rope prevents the tie-down ropes or tie-down straps used against forward and backward forces from sliding down



Alpha-Numeric	Description
A	Isometric view
B	Top view
C	Safety rope

4.2.3. Securing of Load (cont.)

Standard Lashing

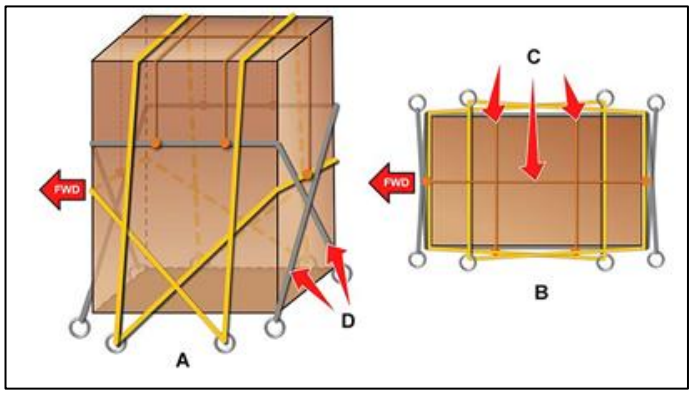
(cont.)

- Sideward forces
  - ✓ Sideward forces are normally covered by the standard lashing for upward, forward, and aft, but the rope/straps must be close to the pieces.

  Exception: If a piece is more than twice as high as wide:

  - tie-down against sideward forces additionally to the standard lashing.
  - place this additional lashing between half and two third of the height.
  - secure this lashing by two safety ropes to prevent them from sliding down.

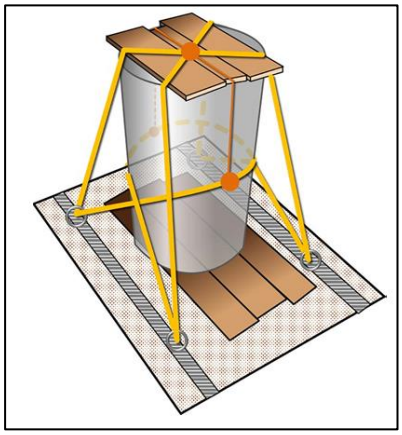
Example:



Alpha-Numeric	Description
A	Isometric view
B	Top view
C	Safety rope
D	Additional lashing

- Barrels:
  - ✓ Barrels are difficult to lash because of their round shape and mostly sharp rims.
  - ✓ Use supporting planks for a safe lashing.

  Example.



4.2.3. Securing of Load (cont.)

Information About Number of Lashing Required

- **Tie-down of a load with straps or steel cables:**
  - ✓ This table to be used for the tie-down of a load with straps or steel cables (based on strength 2.250 kg) attached to double stud fittings (based on strength 2.250 kg) on pallets or on the main deck of combination or cargo aircraft[1].

Load to be restrained		Number of Double Stud Fittings	Number of Standard Straps or Steel Cables Hooked on Two Fittings**				
Kilograms	Pounds		1,5G				
			Left***	Right***	Forward	Aft	Upwards
less than 3.000	less than 6.600	4	1	1	1	1	2
3.001-4.500	6.601-10.000	6	2	2	2	2	3
4.501-6.000	10.001-13.300	8	2	2	2	2	4
6.001-7.500	13.301-16.500	10	3	3	3	3	5
7.501-9.000	16.501-20.000	12	3	3	3	3	6

[1] The values shown allow for a maximum strap angle of 30° to the restraint direction. Minimum distance between two fittings should be specified for each type of aircraft e.g., single stud 30 cm and double stud 50 cm.

[2.] When the strap or cable is hooked on a fitting on one end and to the piece of cargo on the other end, then the number of straps or cables is double the number indicated in the tabulation.

[3] For a normal shaped load the sideways restraint is provided by the restraints in the other directions. Load with irregular shape or high center of gravity requires left-right restraint.

- **Tie-down of a load with ropes:**
  - ✓ This table to be used for the tie-down of a load with ropes (based on strength assumed to be 450 kg) attached to single stud fittings (based on strength 900 kg) in the bulk hold of an aircraft or inside a container[1].

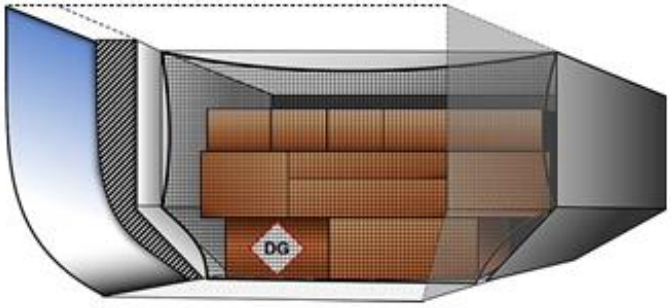
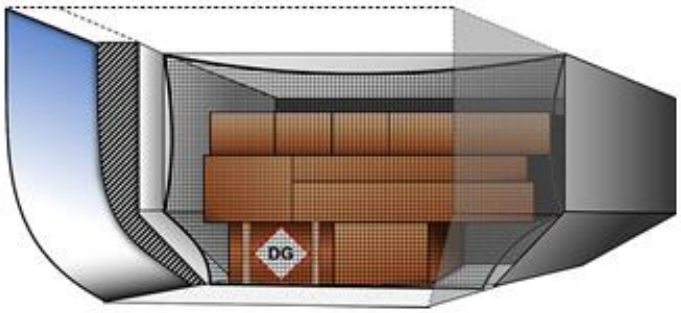
Load to be restrained		Number of Single Stud Fittings	Number of Ropes Hooked on Two Fittings**(One of each side of the load)				
Kilograms	Pounds		1,5G				
			Left***	Right***	Forward	Aft	Upwards
less than 300	less than 660	2	1	1	1	1	1
301-600	661-1.320	4	1	1	1	1	2
601-900	1.321-1.980	6	2	2	2	2	3
901-1.200	1.981-2.640	8	2	2	2	2	4
1.201-1.500	2.641-3.300	10	3	3	3	3	5
1.501-1.800	3.301-3.960	12	3	3	3	3	6
1.801-2.100	3.961-4.620	14	4	4	4	4	7
2.101.2.400	4.621-5.280	16	4	4	4	4	8

[1] The values shown allow for a maximum strap angle of 30° to the restraint direction. Minimum distance between two fittings should be specified for each type of aircraft, e.g., single stud 30 cm and double stud 50 cm.

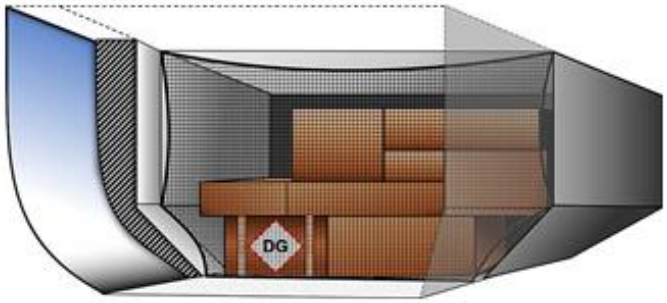
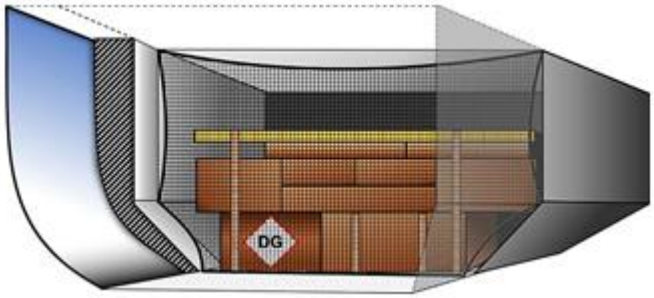
[**] When the rope is hooked on a fitting on one end and to the piece of cargo on the other end, then the number of ropes is double the number indicated in the tabulation.

[***] For a normal shaped load, the sideways restraint is provided by the restraints in the other directions. Load with irregular shape or high center of gravity requires left-right restraint.

4.2.3. Securing of Load (cont.)

Securing of Dangerous Goods	• Handle dangerous goods with utmost care to prevent any damage to persons or goods. • Strictly observe all special handling instructions, labels or imprints (e.g. 'This Way Up!' or arrows showing the proper orientation of the package). • On a pallet, securing by tie-down is not necessary if all load on the pallet including the dangerous goods package is secured by the pallet net. • In a bulk compartment or a container, securing by tie-down is not necessary if the package cannot move horizontally or vertically. The net section or container must be volumetrically full (three-quarters of the height) and the entire floor area must be covered. • Observe the securing requirements as shown below: *Example 1:* When the net sector in the bulk compartment or a lower deck aircraft container is volumetrically full or filled completely with other load on the entire floor area, securing by tie down is not necessary (see picture below).  *Example 2:* The entire floor area of a container or lower deck aircraft container is not filled completely with another load, tie-down the dangerous goods package to prevent any movement (see picture below). 

4.2.3. Securing Load (cont.)

Securing of Dangerous Goods **(cont.)**	*Example 3:* If the net-sector in the bulk compartment or container, which is not volumetrically full, tie-down the dangerous goods package to prevent any movement (see picture below).  • Securing of small DG packages ✓ If securing by tie down in a net sector or container is not possible because of the small size of the package: ▪ fill the net sector or container as shown above (see Example 3), or ▪ put planks on top of the package (see Example 4) to make securing by tie down possible **IMPORTANT: If both are not possible, do not load the package.** *Example 4:* The net-sector in the bulk or a container is not volumetrically filled; tie down of all items is required. 

4.2.4. Aircraft Ground Stability and Tipping

General	• Unloading or loading may cause the aircraft to become unstable or could cause tipping. For some aircraft types, a tail post or nose tether is available and shall be used according to operator's specific procedures. • Unloading sequence may be reported in the offloading instructions report, OIR and loading sequence in the LIR. • A critical aft center of gravity situation may lead to tail tipping of the aircraft during handling or towing operations. Precautions must be taken to eliminate this possibility as it can occur on many aircraft types.
Load Planning	• In order to avoid the risk of tail tipping the following precautions shall be taken: ✓ When planning the load distribution, sufficient load should be allocated in the compartments forward of the center of gravity to ensure ground stability. ✓ Particular attention must be paid to the distribution of the transit load on multisector flights. The distribution of the load remaining in the compartments at the next station must be such that it meets the above condition.
Loading and Offloading	• In case detailed information of the unloading and loading sequence are not available, as a general principle for cargo aircraft and passenger aircraft sensitive to tail tipping, ensure the sequence below is adhered to ✓ Unload the aft hold first. ✓ Unload the main deck in sequence to always have more load in front of the wing box than aft of the wing box. ✓ Unload the forward hold last. ✓ Load the forward hold first. ✓ Load the main deck in sequence to always have more load in the front of the wing box than aft of the wing box. ✓ Load the aft hold and bulk last. If this sequence cannot be followed, check with the operator for instructions about the correct unloading/loading sequence.
Methods to Ensure Ground Stability	• Methods to ensure ground stability include use of tables or graphs to determine the weight required in forward compartments to counteract weight to be loaded in aft compartments, or calculation of center of gravity for comparison against the applicable tipping and/or towing limit: ✓ Method 1—a scale or table determining the distribution of the loads weight-wise, showing the weight required in the forward compartments to secure ground stability and the load which can be placed in the aft compartments. ✓ Method 2—calculation of the dead load index/%MAC which shall be forward of the dead load index limit on the balance chart and transmitted on the LDM. ✓ Method 3—dynamic calculation of aircraft ground stability by using a software application that takes every movement of load into account.

4.2.5. Pallet Loading

Loading Principles for Pallet Loading	• Prior to loading pallet units, the serviceability of the material shall be checked. • Pallets shall be built up only when placed on pallet dollies or on other roller equipped loading platforms. • Proper handling of the loading equipment shall especially be ensured, e.g., heavy loading tools and rollers shall not be applied directly to the pallet floor, if such tools are required, the pallet floor must be protected against damages by supporting planks. • All shipments loaded on one pallet shall be bound for the same station of unloading. If possible, transfer cargo should be loaded on separate pallets to avoid sorting-out at the point of unloading. • All pieces of a shipment shall be loaded on one pallet, if possible. • Heavy and strongly packed items shall be placed on the bottom. They should be stowed as near to the center of the pallet as possible. • It has to be ensured that no extreme floor loads occur when loading the pallet. This has to be observed particularly in case of single pieces with a high weight and a small floor contact area. A maximum of 2.000 kg/m2 is considered as a reference figure. If this value will be exceeded, spreading material (supporting planks or platforms) has to be used. • Lighter items shall be distributed over heavy cargo. This arrangement will decrease the possibility of damages and achieve that the center of gravity of the pallet remains within the prescribed limits. • All parts of the load shall be stowed as evenly as possible on top of each other in order to prevent a slipping of the total load. • Small sized items on pallets shall be properly secured to avoid a slide though the pallet-net meshes. For this purpose, a plastic net is available. • The loading area of a pallet is confined by the contour unit or by the tie-down track at the edge of the pallet, respectively. Barrels, drums as well as dangerous goods, must never be loaded directly on or extend over the pallet rim. The net attachment fittings shall always be kept free from load and shall easily be accessible. • Aircraft-related limitations (compartment cross-section, door height, maximum capacities), as well as load limitations of the unit load devices, shall be considered accordingly for pallet loading. • When pallet built-up is completed, the load has to be secured to the pallet by means of a pallet net or straps, respectively. • Tension of tie-down equipment must be sufficient; over-tensioning should be avoided, since it might cause the pallet edge-rail to bend up which eventually complicates transport and locking in aircraft loading systems.

4.2.5. Pallet Loading (cont.)

Loading Principles for Pallet Loading (cont.)	• Moisture sensitive cargo loaded on pallets without contour containers have to be completely wrapped in plastic foil so that they do not suffer any damage due to moist weather. Before placing any load on the pallet, cover it with a sufficiently large plastic foil, which should have an extra meter on each side of the pallet, so that it can be folded over the first layer of the cargo. The loose ends of the plastic foil will be fixed by loading a second layer on top. Then the top layer will again be covered by plastic foil, which has to reach down over the wrapped sides of the first layer. ***EXEMPTION:*** *Exempt are pallets that contain live animals (other than fish), flowers, fruits, or vegetables. For the transportation to/ from the aircraft, these shipments may be protected by means of plastic foil drawn over the net. The foil sheet must be removed prior to loading the pallet into the aircraft.* • For the transportation of wet cargo, the bottom of pallets always shall be covered with absorption sheets. • Accumulation of water or snow shall be removed from the pallet loads prior to loading into the aircraft.
Securing of Pallets without Contour Units	• The load shall normally be secured by means of a pallet net. The net will be attached to the pallet by net attachment fittings, which will be snapped into the track profile at the points marked with red color. All nets are designed to secure the maximum permissible load against at least 3 g in all directions. • Instead of the pallet net, straps/ropes for an individual lashing may also be used. • Following must, however, be observed: ✓ The straps/ropes must be attached in the area of the marked net attachment points at the edge rail of the pallet. ✓ In the area of a net attachment point, only one strap/rope for each directional force may be attached.
Pallet Restraint System	• All container stops and pallets locks required to secure containers and pallets must be extended and locked prior to any flight. This includes cargo holds are empty, unless specified by the operating airline policies. • A tactile check must be performed by checking the security of each lock with your hands.

4.3. SAFETY REQUIREMENTS SPECIFIC TO AIRCRAFT LOADING OPERATIONS

4.3.0. Overview

Contents	This section contains the following titles: 4.3.1. Safety Requirements 4.3.2. Identifying Shipments Requiring Special Handling 4.3.3. Cargo Hold Inspection 4.3.4. Use of Carts 4.3.5. Use of Tractors 4.3.6. Use of Belt Loaders 4.3.7. Loading of Low-Wing Aircraft 4.3.8. Bulk Loading of Smaller Aircraft

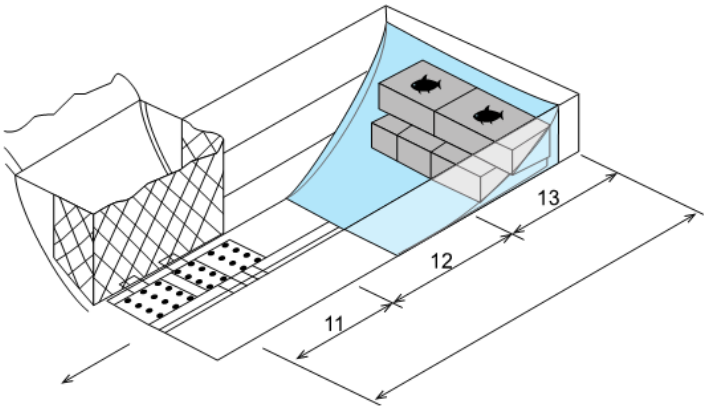
4.3.1. Safety Requirements

General	• The Handling Agent responsible staff shall ensure following: ✓ Holds and compartments shall only be entered or exited by using the appropriate loading equipment, which shall be positioned and secured at the aircraft door. ✓ Carts shall not be used to gain access to cargo compartments. ✓ Loading equipment shall not be removed from the aircraft when personnel are still in the cargo hold. ✓ Equipment operators shall ensure that other personnel are not entrapped by movement of loads, pallets and/or containers, either in the aircraft or on the loading equipment. ✓ Personnel shall not walk between carts and dollies even when they are stationary on the ramp. ✓ Hinged side gates of loaded carts should be lowered carefully incase loads fall out and cause injury. ✓ Extreme caution shall be used when using covered carts. ✓ Take care when pulling or pushing carts especially when ramp conditions are slippery. When necessary, obtain assistance. ✓ Protect all loads from adverse weather, attention shall be given to live animals and/or perishables. ✓ Use tarpaulins or covered carts during adverse weather. ✓ Use correct manual handling techniques and practices when handling heavy items. Get assistance when moving heavy articles. ✓ When loading has been completed, equipment operators shall move all loading equipment to the designated parking location outside of the ERA.

4.3.2. Identifying Shipments Requiring Special Handling

General	• The Handling Agent responsible staff shall ensure following: ✓ All shipments requiring special handling will be identified on the Load Message (LDM) or Container Pallet Message (CPM) for an arrival flight or under a NOTOC for departing flights. ✓ Comply with any special handling requirements. Be alert for special load and/or dangerous goods shipments. ✓ Always follow the orientation markings and/or special handling instructions as applicable while handling. ✓ Make sure that packages with directional handling labels are kept in the correct orientation (e.g., THIS WAY UP). ✓ Always observe the specific instruction labels and markings (i.e., Cargo Aircraft Only (CAO), FRAGILE, TOP, THIS SIDE UP). ✓ Always handle fragile items with care.
Dangerous Goods	• Transportation shall be in accordance with the IATA Dangerous Goods Regulations (DGR) Manual. ***NOTE:*** *For additional information refer to GOM, section 7.3. "Dangerous Goods".*
Live Animals	• Transportation shall be in accordance with the IATA Live Animals Regulation (LAR). ***NOTE:*** *For additional information refer to GOM, section 7.6. "Live Animals".*
Wet Cargo	• The following types of cargo, if not subject to the IATA Dangerous Goods Regulations (DGR), shall be considered as wet cargo: ✓ Liquids in watertight containers. ✓ Wet materials not packed in watertight containers, e.g., fish packed in wet ice, fresh or frozen meat, casings (fresh animal guts), wet hides, skins, etc. ✓ Goods which by their nature may produce liquid, e.g., larger live animals (usually mammals) where presence of faeces and urine is likely. ✓ Fruits/vegetables with high moisture, e.g., berries. ***NOTE:*** *Live animals such as birds, reptiles, insects, and certain mollusks (terrestrial) in appropriate animal containers do not pose a higher risk for corrosion than normal baggage/cargo and are therefore excepted. Refer to IATA Live Animals Regulations (LAR).* **CAUTION:** Spillage or leakage during carriage by air could lead to corrosion or other damage to the aircraft structure or its components, or damage to other load. ✓ The person responsible for the aircraft loading supervision task shall ensure the wet cargo is properly packed and free of leakage. Do not load damaged or leaking packages.

4.3.2. Identifying Shipments Requiring Special Handling (cont.)

Wet Cargo (cont.)	✓ Loading precautions: ▪ Spread plastic sheets or tarpaulins to protect the aircraft floor and walls and catch any spillage or leakage. Use absorbent material as required by the operator. ▪ For wet cargo in containers which are not watertight: follow the instructions of the operating airline. ▪ Load packages in accordance with orientation labels (e.g., This-way-up).  ***NOTE 1**: When wet or damp, the strength of some packaging can be considerably reduced. Special attention shall be given to avoid crushing of the packages when stacking to several levels.* ***NOTE 2**: For reference regarding packing of wet cargo and temperature sensitive packaging refer to IATA Perishable Cargo Regulations (PCR) and IATA Temperature Control Regulations (TCR).*

4.3.3. Cargo Hold Inspection

General	• The Handling Agent responsible staff shall ensure following: ✓ A cargo hold inspection shall be performed: ▪ After aircraft unload is complete. ▪ Prior to loading if this does not follow immediately after unloading is complete. ▪ In case the aircraft was unattended between unloading and loading, or. ▪ There was a change of persons responsible for the aircraft loading and supervision task. ✓ The person undertaking the cargo hold inspection shall perform a visual check of all cargo holds to ensure: ▪ No damage of compartment floors, walls, ceiling, door frames, panels, door. ▪ No missing, damaged, or malfunctioning floor locks, load restraints or nets. ▪ No spills. ▪ No loads other than transit loads have been left on-board the aircraft. ▪ Any other items that should not be present in the hold have been unloaded. ✓ The person responsible for undertaking the cargo hold inspection shall provide positive confirmation that the inspection has been carried out to the person responsible for the aircraft loading supervision task prior to the commencing loading of the aircraft, if appropriate. ✓ Any damage or discrepancies observed shall be reported to the person responsible for the aircraft loading supervision task or the weight and balance calculation task as a minimum. ***NOTE:*** *A check shall be conducted in a hold even if on arrival the hold was reported as being empty.* ✓ Any other items that should not be present in the hold.
Cargo Hold Damage	• The Handling Agent and other ground handling staff (e.g., airline staff) shall ensure following: ✓ Any damage such as holes, tears or detachment to compartment liners may reduce their effectiveness, permitting air to enter the compartment and fire suppression agent to escape, reducing the capability to handle a fire event and may lead to specific loading limitations, therefore: ▪ Any technical malfunction or damage shall be reported to the Captain, airline representative and/or maintenance (if available) for further action as applicable. ▪ Adhere to any resulting load limitations according to the operator's instructions. ▪ Inform the onward stations of the load limitations according to the instructions of the operator's representative, if the defect cannot be rectified before departure.

4.3.3. Cargo Hold Inspection (cont.)

Spills in Cargo Holds	• Spills can occur in cargo holds during unloading and/or loading and in flight due to: ✓ Improper packaging. ✓ Damage due to mishandling prior to loading. ✓ Improper loading in the compartment. • Spills can be of liquids, gels, or material in a powdered or granulated form. • Spills can be hazardous, corrosive, flammable, explosive, toxic, poisonous, etc. Even water can cause serious damage to electrical components and systems. • Spills can be corrosive to the aircraft structure. Mercury spills are particularly corrosive to the extent that the affected aircraft structure may have to be completely replaced if the spill is not cleaned up quickly. • The Handling Agent responsible staff shall ensure following: ✓ It is essential that any spill is reported immediately so that corrective action can be taken. ✓ Initiate the local spill response plan for spill events. ✓ Request information from the respective Cargo Terminal Operator about the nature of what has leaked as well as the Safety Data Sheet, if applicable. ***NOTE.*** *For Croatia Airlines reporting process refer to section 8.2. "Handling, Notifying and reporting of Ramp Incidents, Accidents and Other Occurrences".*

4.3.4. Use of Carts

General	**IMPORTANT:** when parked and/or when not connected to motorized vehicles, all non-motorized GSE must have brakes set or chocks in place. • The Handling Agents responsible staff shall ensure following: ✓ The number of carts and dollies allowed is usually limited by the local Airport Authority or Handling Agent, however, in critical conditions (e.g., slippery surface conditions, congested facilities, low visibility) this number should be re-evaluated and might be reduced to ensure safe operations on the ramp. ✓ Do not wedge light packages between heavier items. ✓ During transportation in carts, ensure that the load is properly secured by using appropriate locks, stops, rails, curtains, and straps. ✓ Ensure the overall height of load permits safe lifting of each piece of load during loading and offloading of carts by personnel standing on the ground. ✓ When using tarpaulins, ensure all straps are securely fastened to the baggage cart. ✓ When not in use the braking system shall be engaged on all strings of baggage carts.

4.3.5. Use of Tractors

General	• The Handling Agents responsible staff shall ensure following: ✓ Drive tractors and carts within speed limits according to local airport regulations, and take care to avoid sharp turns, jerks, and sudden stops. ✓ Approach the aircraft at walking speed. ✓ Limit the number of carts in a train to the maximum specified by the local airport regulations. ✓ Do not attempt sharp turns close to the aircraft. Keep at least 1 m (3 ft) away from the fuselage.

4.3.6. Use of Belt Loaders

General	**IMPORTANT:** when parked and/or when not connected to motorized vehicles, all non-motorized GSE must have brakes set or chocks in place. ✓ The Handling Agent responsible staff shall ensure following: ✓ Ensure proper separation between articles on the conveyor belt to avoid jamming. ✓ Adjust the back of the conveyor belt correctly to avoid dropping goods from the belt. ✓ The handrail may be lowered to accommodate large items during loading and offloading. ✓ Handrails shall be deployed when a belt loader is used to gain access to aircraft cargo holds. ✓ However, caution shall be exercised where there is restricted clearance with the aircraft fuselage or engines.

4.3.7. Loading of Low-Wing Aircraft

General	• To prevent damage to aircraft with low wings, baggage tractors shall stop approximately 1 m from the belt loader to unhook the carts. Move the tractor away and position the carts by hand. • Take care when pulling or pushing carts especially when ramp conditions are slippery. When necessary, obtain assistance. • When removing baggage carts, the tractor shall be positioned pointing away from the aircraft wing and the baggage cart pulled to the tractor. ***CAUTION:*** *Extreme caution must be used when using covered baggage carts.*

4.3.8. Bulk Loading of Smaller Aircraft

General	• Use belt loaders if the door sill height does not allow items to be passed into the doorway without undue lifting. ***IMPORTANT:*** *Always consider the use of belt loaders for heavy items (over 23 kg/50 lbs).* • Keep a gap of at least 1 m (3 ft) between baggage carts and the cargo belt when towing, to prevent collisions when approaching the belt loader. • Carts must be disconnected from the tractor and maneuvered by hand if the carts or need to be closer than 1 m (3 ft).

4.4. DISTRIBUTION OF LOAD

4.4.0. Overview

Contents	This chapter contains the following sections: 4.4.1. Baggage 4.4.2. Reconciliation Baggage / Passenger 4.4.3. Crew Baggage 4.4.4. Mail 4.4.5. Cargo 4.4.6. Irregularities

4.4.1. Baggage

<table>
<tr><td>General</td><td>

The load shall be loaded (distributed) in the following sequence:

Cargo.
Mail.
Baggage.

IMPORTANT: Baggage must be easily accessible at each destination and must not be blocked by other load.
</td></tr>
<tr><td>Type of Baggage</td><td>

This table shows the different types of baggage:

<table>
<tr><th>Type of Baggage</th><th>Load Information Code</th><th>Definition</th></tr>
<tr><td>Priority Baggage (HON)</td><td>BP</td><td>Local priority baggage identified with the HON Priority tag.</td></tr>
<tr><td>Priority Baggage</td><td>BC</td><td>Local priority baggage identified with the Priority tag.</td></tr>
<tr><td>Transfer Baggage</td><td>BT</td><td>Baggage, which must be transferred onto a connecting flight at the next transfer station.</td></tr>
<tr><td>Local Baggage</td><td>B (or BY)</td><td>Baggage whose final destination is the next station en route.</td></tr>
<tr><td>Short / HOT Baggage</td><td>BS</td><td>Baggage identified with the imprint SHORT or SCON or with a HOT label having an interline connection out of ZAG within 45 minutes.</td></tr>
<tr><td>Delivery at Aircraft</td><td>DAA</td><td>Carry-on baggage loaded in hold at the time of boarding and returned to the passenger when disembarking at the aircraft.</td></tr>
<tr><td>Gate Baggage</td><td>-</td><td>Gate baggage is either excessive, oversize or heavy carry-on baggage which is removed at the gate.</td></tr>
</table>
</td></tr>
<tr><td>Priority Baggage
(BP, BC)</td><td>

Priority baggage marked with “HON” Priority Tag and “PRIORITY” tag is baggage on top of other passenger’s bags and needs special attention.
Loading, whenever possible should be in the vicinity of a door section (preferably in the AFT Hold).
The loading position and number of pieces of priority baggage shall always be mentioned in the “SI” part of the LDM.

✓ A319/320: loading position 42.
✓ Q400: loading position 61.
✓ LDM: SI BP42/1 BC 42/3; SI BP/NIL BC/NIL

NOTE: In DASH 8 Q400 Priority baggage shall be loaded behind DAA baggage.
Priority baggage must be unloaded first and delivered instantly to the baggage claim and sorting area.
IMPORTANT: Avoid waiting until the local baggage has been offloaded.

</td></tr>
</table>

4.4.1. Baggage (cont.)

<table>
<tr>
<td>Priority Baggage (BP, BC)

(cont.)</td>
<td>

If local priority baggage labelled with HON Priority tag and Priority tag is arriving in the baggage hall at the same time with local baggage, the baggage handlers are requested to deliver the baggage conveyor belt in the correct order (1. HON Priority tag; 2. Priority tag; 3. other non-priority baggage).

IMPORTANT: A clearly visible gap between the different type of baggage categories must be done.
Priority baggage marked with “HON” Priority Tag:
✓ “HON Circle” members.
✓ Marked with “HON” Priority tag

Priority Baggage marked with “PRIORITY” Tag
✓ Business class passengers.
✓ Senator members.
✓ STAR GOLD passengers.
✓ VIP passengers.
✓ UMNR.
✓ Passengers who require special assistance.

</td>
</tr>
<tr>
<td>Transfer Baggage (BT)</td>
<td>

Baggage, which must be transferred onto a connecting flight at the next transfer station.
Transfer baggage must always be separated (separate net sections or preferably in separate compartment) from local baggage and loaded in a way to ensure a quick offload.
The loading position and the number of pieces shall always be mentioned in the “SI” part of the LDM:
✓ A319/320: preferably in compartment / section 42.
✓ Q400: preferably in compartment / section 61.
✓ LDM SI BT42/25; SI BT61/15; SI BT/NIL.
Transfer baggage shall be offloaded and delivered to the respective baggage handling department.

</td>
</tr>
</table>

4.4.1. Baggage (cont.)

Short / HOT Baggage (BS)	• Baggage identified with the imprint SHORT or SCON on the baggage tag or with a HOT label having an interline connection out of ZAG within 45 minutes. • Loading, whenever possible should be in the vicinity of a door section (preferably in the AFT Hold). The loading position and number of pieces of Short / HOT baggage shall always be mentioned in the “SI” part of the LDM. ✓ A319/320: loading position 42. ✓ Q400: loading position 61. ✓ LDM: SI BS 42/2; SI BS 61/3; SI BP/NIL BC/NIL ***NOTE:*** *In DASH 8 Q400 Short/HOT baggage shall be loaded behind DAA baggage.* ***IMPORTANT:*** *SHORT/HOT connection baggage has always to be unloaded first together with priority baggage and immediately be delivered to the respective baggage handling department.*
Local Baggage (B, BY)	• Baggage whose final destination is the next station en route. • For loading position, see “Loading Sequence”. • The loading position with number of pieces must be mentioned in the “SI” part of the LDM: ✓ SI BY1/40 • Local baggage shall be unloaded and delivered to the baggage claim area.
Delivery at Aircraft (DAA)	• Carry-on baggage loaded in hold at the time of boarding and returned to the passenger when disembarking at the aircraft. ***IMPORTANT: DAA procedure is applicable ONLY on DASH 8 Q400 aircraft.*** • Types of DAA: ✓ Fully collapsible baby strollers. ✓ Fully collapsible and foldable manual wheelchairs / mobility devices. ✓ Regular carry-on baggage which cannot be safely stowed in the cabin. • DAA is not considered as checked baggage, although carried in hold. ✓ The number of DAA pieces and loading position must be reported to the flight crew by means of a LMC entry on the completed loadsheet. ✓ The influence of the loadsheet data and balance condition resulting from DAA loading is handled by the Flight Crew. ***NOTE:*** *Refer to OP-PSU-075 Dash 8 – Q400 AHM560”.* • DAA baggage is identified by a special DAA tag.

4.4.1. Baggage (cont.)

Delivery at Aircraft (DAA) **(cont.)**	***IMPORTANT:*** *For purposes of Dangerous Goods Regulations, DAA must be treated as checked baggage. Passengers must be informed and items of Dangerous Goods which are specifically prohibited from being in checked baggage must be removed from baggage by the passenger(s) prior to loading in aircraft hold.* ***REFERENCE:*** *For more details, refer to PBHM, chapter 10.11.* • DAA should be placed close to the compartment door (position/section 61) for ease retrieval. Furthermore, special care must be taken to assure that wheelchairs, walkers, and strollers are loaded to minimize the risk of in-flight damage by other items. • The loading position of DAA baggage must be mentioned in the SI-part of the LDM and/or CPM, in the following format: ✓ DAA/Destination/Location/Number of Pieces. *Example: DAA/ZAG /6/15* ***NOTE:*** *For multi-leg flights also, the destination has to be mentioned in the remark.*
Gate Baggage	• Baggage and/or items which exceed the free allowance of carry-on bags are removed at the gate or by the cabin crew and loaded into the baggage compartment of the aircraft. • Information about all gate delivery items (individual or cumulative weights that exceed normal allowances) must be communicated to load control for the purposes of weight and balance calculation (gate delivery baggage). • The baggage must be loaded according to the respective baggage type (e.g., transfer/priority baggage). These pieces will be included for loadsheet calculation. ***NOTE:*** *Standard Baggage Weights shall be applied (13 kgs for international flight and 11 kgs for domestic). For further details see GOM chapter 3" Standard Baggage Weights".* ***IMPORTANT:*** *For purposes of Dangerous Goods Regulations, Gate Baggage must be treated as checked baggage. Passengers must be informed and items of Dangerous Goods which are specifically prohibited from being in checked baggage must be removed from baggage at the gate by the passenger(s) prior to loading in aircraft hold.* ***REFERENCE:*** *For more details, refer to section 3.6. "Weight Values" and PBHM, chapter 10.11.*

4.4.1. Baggage (cont.)

Loading / Unloading Sequence

Type of Baggage	Load Information Code	Loading	Unloading
Priority Baggage (HON)	BP	4	1
Priority Baggage	BC	4	1
Transfer Baggage	BT	2	3
Local Baggage	B (or BY)	1	4
Short / HOT Baggage	BS	3	2
Delivery at Aircraft	DAA	4	1
Gate Baggage	-	According to the respective baggage type	According to the respective baggage type

Baggage with Dangerous Goods Labels or Marks

- It is for forbidden to load any baggage marked with Dangerous Goods labels or marks in, checked, carry-on or rush baggage.

REFERENCE: *If such a piece of baggage is detected, see chapter 7" Dangerous Goods".*

Damaged Baggage Procedure

- Proceeding with baggage which shows traces of damage and does not provide adequate protection for its contents:
  - ✓ In order to protect a damaged piece of baggage, baggage handling staff should be prepared to place the piece inside an appropriate bag.
  - ✓ Weigh the damaged piece of baggage prior to loading it into the bag and enter information concerning weight of the piece in the relevant documentation.
  - ✓ Deliver the appropriately protected piece of baggage to the staff handling baggage related complaints so that appropriate action may be taken.

REFERENCE: *For more details refer to PBHM, chapter 11.6 "Damaged baggage"*

Baggage with a Missing Destination Tag

- Should it be discovered that any piece of baggage is not marked with a destination tag, report this fact to the supervisor.
- Information on the location where lack of baggage tag was discovered, weight of the piece and baggage handling persons should be entered in the relevant documentation.
- Afterwards the baggage should be delivered to the staff handling baggage related complaints (LL, LZ) so that appropriate action may be taken.

4.4.2. Reconciliation Baggage / Passenger

General	• Croatia Airlines shall transport checked-in baggage only if its owner is on the same flight and shall prevent the introduction of any other bags. • The requirements shall be enforced by conducting baggage reconciliation throughout the network.
Types of Baggage Reconciliation	• There are two baggage reconciliation procedures: ✓ Manual system using the “Bingo” sheet. ✓ Automated system. ✓ Any other means or procedure that assures baggage reconciliation.
Manual System	• The essential elements of a manual system are the following: ✓ Check destination, flight number and date on each baggage tag prior to loading a baggage onto a baggage cart to ensure faultless loading. ✓ Compare the number of baggage ready for loading into the aircraft with the total number of baggage checked in. The use of a “bingo-sheet” is the minimum requirement to perform this comparison and for quicker identification. ✓ If the total number of baggage loaded into the aircraft match or is less than the number of checked-in baggage, the flight may be released. ✓ If the total number of baggage loaded into the aeroplane is more than the number of baggage checked-in, the flight may not be released and following checks are necessary: ▪ Has any unaccompanied hold baggage (e.g., rush baggage) been loaded without being manifested? ▪ Has any crew or dead heading crew (DHC) baggage erroneously been counted together with the passenger baggage? ▪ Has any “Delivery at aircraft” baggage wrongly been counted without being manifested? ✓ If all checks are negative, the loaded baggage has to be offloaded, then rechecked and recounted. ✓ If any discrepancy is discovered and is adequately corrected, all baggage has to be reloaded and the flight may then be released. ✓ If the discrepancy remains, a baggage identification must be made. That means that each passenger must identify his/her luggage prior to be loaded. • Bingo sheets are primarily used in a manual baggage sorting area (i.e., where no automated baggage to passenger reconciliation is performed). On such a sheet, each individual piece of baggage is to be entered. This may be done by: ✓ Directly affixing one of the small baggage number stickers that each bag receives at the time of check-in. ✓ By manually registering the baggage numbers on the bingo sheet. ***IMPORTANT:*** *Bingo sheets, if used are to remain in the flight file and filled accordingly.*

4.4.2. Reconciliation Baggage / Passenger (cont.)

Automated System	• The essential elements of a commonly applicable method for automated reconciliation of hold baggage at airports are the following: ✓ Introduction of an automated system for the acceptance, handling, and final reconciliation of all hold baggage with the respective passengers actually boarding the aircraft. ✓ Allocation of a machine-readable coded reference number to each passenger and his hold baggage, which will be recorded on the appropriate boarding passes and on each piece of baggage. ✓ Introduction of records in the automated Departure Control System (DCS) which shall contain the coded reference numbers allocated to passengers and their baggage and identify the reference numbers of all baggage loaded with those of the passengers having boarded the aircraft. ✓ Means of communication for a rapid exchange of the required passenger and baggage between aircraft operator stations at different airports.
Identification of Missing or Additional Passengers	• Identification of missing or additional passengers is compulsory and must be cleared beyond any doubt. • Identification can be done: ✓ Electronically, e.g., gate-reader, entering seat or sequence numbers in the check-in system. ✓ Manual comparison of the flight coupons with the checked-in list of the passengers. ✓ By means of the “bingo-sheet”. • Checked-in baggage of passengers not being on board must be offloaded at all times.
Identification of Unaccompanied Baggage	• For any “Rush” or “Expedite” baggage, a clear identification of AHL-tracer and/or forwarding advice must be on hand. • Any kind of “Rush” or “Expedite” baggage may only be loaded onto a Croatia Airlines aircraft after being security screened and manifested. • Load planning must be informed about number of pieces and weight of rush / expedite baggage. • Rush / Expedite baggage must be mentioned on the LDM.

4.4.3. Crew Baggage

<table>
<tr><td>Operating Crew</td><td>

The baggage of the operating crew is tagged with the label "Crew”.
The baggage must be identified by the crew if they did not bring their baggage to the aircraft themselves.
It shall be loaded in the following compartments/net sections:
<table>
<tr><th>Aircraft type:</th><th>Stowage:</th></tr>
<tr><td>A 319/320</td><td>51</td></tr>
<tr><td>Q400 – Dash 8</td><td>FWD (5)</td></tr>
</table>

If the volume of the designated net section concerned is not sufficient, the remaining crew baggage shall be loaded in some other net section of the same compartment.
In case there is still space in the net section after the crew baggage has been loaded, this volume may be used for other load (preferably passenger baggage and company mail) - if required.
However, it must be ensured that the crew baggage is accessible for quick unloading at the station where a crew change is scheduled.

</td></tr>
<tr><td>DHC</td><td>

The baggage of crew members travelling to/coming from a duty flight shall be checked-in and loaded as normal passenger baggage.
After arrival, it shall be delivered to the passengers' baggage claim area.
In exceptional cases (e.g., flight duty immediately after arrival, immigration, and crew transportation together with operating crew, etc.) the deadheading crew member may request that his/her baggage is labeled “Delivery at aircraft” tag for pick-up at the aircraft.

</td></tr>
</table>

4.4.4. Mail

General	• Mail shipments shall be loaded on an easily accessible position to ensure a quick access. • The quick loading/unloading of baggage, however, must not be affected.
Positioning of the Mail on the Ramp	• The cargo, which has been manifested for an individual flight, shall be positioned on the ramp, or turned over to operations at an agreed deadline. ***IMPORTANT:*** *Mail shipments must be positioned on the stand latest -45 STD/ETD.*
Security	• Mail should never be left unattended while awaiting loading onto aircraft. • No entry should be allowed to the hold of an aircraft containing mail except authorized personnel only. • Mail bags should be counted on aircraft and should be handled with care at all times. Any known damage to contents, labels, seals or bags should be reported to post office officials. • Dispatches of mail containing more than one mail bag should always be kept intact (because postal documents are usually attached to one bag only).

4.4.5. Cargo

Positioning of the Cargo on the Ramp	• The cargo, which has been manifested for an individual flight, shall be positioned on the ramp, or turned over to operations at an agreed deadline. ***IMPORTANT:*** *Cargo shipments must be positioned on the stand latest -45 STD/ETD.* • It shall be segregated according to stations of unloading, and any lashing material and loading equipment required shall be supplied with it.
Special Shipments	• Special Shipments and all shipments requiring any special handling shall be separated from any other load for easy recognition by the loading staff.
Urgent Shipments	• Cargo destined for quick off-loading at the airport of unloading (like press/film material, medicines, or similar goods), shall be loaded last, preferably close to the compartment doors for immediate access.
Small Cargo Items	• Small Cargo Items shall be stowed into sacks and shall be positioned for loading segregated from other load. • As small cargo items are mostly urgent shipments, the sacks must on principle, be loaded last and unloaded first.
Stand-By Cargo	• Stand-by cargo must be stowed next to the compartment door in order to enable easy offloading at the next station en-route if necessary. • Heavy goods and perishable cargo may not be accepted on stand-by basis.

4.5. LOADING LIMITATIONS

4.5.0. Overview

Contents	This chapter contains the following sections: 4.5.1. Aircraft Structure Limitations 4.5.2. Floor Panels Limitations 4.5.3. Supporting of Load” 4.5.4. A319 Compartments Loading Guide 4.5.5. A320 Compartments Loading Guide 4.5.6. Dash 8 Q400 Compartments Loading Guide

4.5.1. Aircraft Structure Limitations

Running (Linear) Load Limitation	• The linear limitation determines the maximum load acceptable on any given fuselage length. (The manufacturer defines a running limitation so that the fuselage contortion during flight does not exceed at any point the maximum allowed limit, which would result in a risk of permanent damage of aircraft structure. This limitation is expressed in kg per m of fuselage length.) • The linear limitation applies to the whole of the load located in a given part (on a given length) of the hold, and determines the total maximum load allowed in each bulk compartment section. ***IMPORTANT: It is strictly prohibited to exceed this maximum load per section.*** • In the event of carriage of one or several heavy packages, the running load limitation is complied with, and there is no need to check it, if the following rules are applied: 1. Total load in the hold section (including the heavy package/s) is below the allowed maximum load for the section. 2. The use of a spreader floor if the area load limitation is exceeded.
Area Load Limitation	• The compartment area load limitation, expressed in kg/m², is to prevent the weight of load (kg) resting upon a certain area of the compartment floor (m²), to exceed the capability of the aircraft structure underneath the floor (beams, crossbeams, attachments to the aircraft body). • If it is stated that the area load limit is 732 kg/m², this means that on 1 m² of the floor, not more than a total amount of 732 kg may be loaded, with one or several pieces of cargo, and irrespective of the way the piece(s) of cargo is (are) in contact with the floor within the square meter considered. • In practice, the area load limitation shall be checked dividing the weight of the piece of cargo by the area defined by the external contour of its contact points on the floor. *EXAMPLE:* In this case the area to take into account is not the crates or the surface of its feet but the area S = L X l defined by the external contour of its contact points: W = 240 kg S = 0,4 X 0,6 = 0,24 m² $\frac{W}{S} = \frac{240}{0,24} = 1000 \text{ kg/m}^2 > 732 \text{ kg/m}^2$ If the resulting figure is higher than the limitation, the load cannot be accepted as it is. It will be necessary to provide a spreader floor to be placed under the load. The spreader floor shall meet two requirements: 1. It shall possess a sufficient degree of stiffness to effectively accomplish the load transfer; this degree of stiffness will be dictated by the weight of the load and the length of spreader projecting beyond or within each actual contact point of the package with the spreader floor. 2. The resulting area defined by the external contour of the contact points of the spreader floor shall distribute the load below or up to the maximum permitted area load.

4.5.1. Aircraft Structure Limitations

Area Load Limitation **(cont.)**	• To determine the area required, the following calculation is made: divide the weight of the piece of cargo by the hold area load limit. *EXAMPLE:* Load = 240 kg Area load limit = 732 kg/m² Min. surface defined by the external contour of the contact points of the spreader floor: 240 ------- = 0,33 m Spreader = 10 kg S = L X l = 0,7 m X 0,5 m = 0,35 m² 732 • The load imposed by the total weight of cargo and spreader on the aircraft structure may now be compared with the area load limit - dividing the weight by the new area S: (240 + 10) kg ---------- = 715 kg/m² < 732 kg/m² 0,35 m² • If the package requires a spreader floor, this means that even with this floor the maximum area load limitation is reached, therefore, no other cargo shall be loaded on the package itself or on the accessible parts of the spreader floor. • The required contact area for cargo items of different weights may be obtained from the table below, giving minimum measurements for length and width in different weight intervals.

4.5.1. Aircraft Structure Limitations (cont.)

Area Load Limitation

(cont.)

AIRBUS 320

LENGTH/WIDTH IN CM	20	40	60	80	100	120	140	160	180	200
10	20	30	40	60	70	90	100	120	130	150
20	30	60	90	120	150	170	200	230	260	290
30	40	90	130	180	220	260	310	350	400	440
40	60	120	180	230	290	350	410	470	530	590
50	70	150	220	290	370	440	510			
60	90	180	260	350	440	530				
70	100	200	310	410	510					
80	120	230	350	470	590					
90	130	260	390	530						
100	150	290	440	590						
120	170	350	530							
140	200	410	610							
160	230	470								
180	260	530								
200	290	590								

WEIGHT IN KG

NOTE: *The weight values in the table are given for each 10 or 20 cm only, and interpolation in most cases is necessary. All measurements should be rounded off to the nearest ten-unit value, e.g.106 cm to 110 cm.*

- When using the table:
  - ✓ Enter the actual length and width of the contact area and read off the allowed weight at the inter section between the applicable length and width value.
  - ✓ If the weight obtained is lower than the actual weight of the item, the contact area will have to be enlarged by means of supporting planks.

NOTE: *The values in the table are based upon an area load of 732 kg/m² which is the limitation of the aircraft structure and shall never be exceeded.*

- The maximum applicable weight in the table is 500 kg.
- For heavier items and/or odd dimensions, actual floor contort area must be individually determined. Request must always be sent to the Croatia Airlines Cargo Handling Office (cargo.handling@croatiaairlines.hr).

4.5.2. Floor Panels Limitations

General	• The bearing capacity of the floor structure of the cargo compartments is limited and must not be exceeded. If necessary, the floor contact area/length of the load shall be increased by means of supporting planks or platforms. Due regard must be given to: ✓ The maximum load capacity of the floor, i.e., the maximum permissible weight per m². ✓ The maximum floor load of the compartment in longitudinal direction, i.e. the maximum permissible weight per running meter. ***NOTE:*** *For the maximum floor loads of the cargo compartments, see the chapters relating to the individual aircraft types.* • The floor contact area of an item is the area which is actually in contact with the floor and which represents the actual pressure area. • Additional cargo loaded on top of an item and/or on the free space of the supporting planks or platform respectively shall be considered in the calculation of the floor loading limitations. • Generally supporting planks must never be broken for covering smaller areas, since the contact area cannot exactly be determined, and it would result in an unnecessary waste of material. • A high pressure on the supporting planks by a comparatively small contact area of an item may bend the planks. To avoid this, several layers of planks shall be used. ***NOTE:*** *For more details regarding supporting equipment, see section 4.5.3 "Supporting of Load".*
Contact Load Limitation	• The floor contact load limitation (expressed in kg/m²) is used to prevent the weight imposed by those parts of the load in direct contact with the floor from exceeding the capability of the horizontal floor panels (metal sheets, honey comb sandwich panels). • If it is stated that the floor contact load limit is 2040 kg/m², this limitation shall be checked dividing the weight of a piece of cargo by the sum of its actual contact area with the floor. *EXAMPLE:* Actual contact area = 30 cm X 5 cm X 2 battens = 0,03 m² 480 kg ---------- = 16 000 kg/m² > 2040 kg/m² 0,03 m² • If the resulting figure is higher than the limitation, the load cannot be accepted as it is. It is necessary to provide a spreader floor to be placed under the load.

4.5.2. Floor Panels Limitations (cont.)

Contact Load Limitation **(cont.)**	• The spreader floor shall meet two requirements: ✓ As defined in „Area Load Limitation" (section 4.5.1 "Aircraft Structure Limitations"). ✓ Its actual contact area with the aircraft floor will distribute the load below or up to the maximum permitted contact load. • To determine the contact area required, the following calculation is made: divide the weight of the piece of cargo by the floor contact load limit. *EXAMPLE:* Load = 480 kg Floor contact load limit = 2040 kg/m² $\text{Minimum contact surface} = \frac{480}{2040} = 0{,}24\ m^2$ Weight of spreader = 20 kg Spreader floor contact surface = 1 m X 0,125 m X 2 = 0,25 m² ***NOTE:*** *The total weight is combination of load and spreader.* • The load imposed by the cargo on the aircraft floor panels through the spreader floor may now be compared with the contact load limit dividing the weight by the new contact area: *EXAMPLE:* $\frac{480 + 20\ kg}{0{,}25\ m^2} = 2000\ kg/m^2 < 2040\ kg/m^2$ • If the package requires a spreader floor, this means that even with this floor the maximum contact load limitation is almost reached: therefore, no other cargo shall be loaded on the package itself or on the accessible parts of the spreader floor. • When loading heavy pieces of cargo, it is recommended to take the following steps: ✓ Check with structure area load limitation. ✓ Even if the area load limitation is not exceeded but if the actual contact area of the piece of cargo with floor is small, (e.g. narrow battens, rims, etc.), place spreader material between the piece of cargo and the floor. The contact surface of the spreader should be at least equivalent to one quarter of the external contour area used for check calculation (in step 1.).
Point Load Limitation	• It defines the resistance to puncture (by heavy load bearing onto a very small surface) to the material used in a bulk hold floor. It is equivalent to a pressure, and is expressed in kg/cm².

4.5.2. Floor Panels Limitations (cont.)

Point Load Limitation **(cont.)**	• In practice, the concentrated load limit of bulk floors is very high, and normally handling packages does not reach that limit. It is recommended, however, to apply the following elementary package handling precautions in order to avoid a floor puncture by a point load during handling in a bulk hold: ✓ During handling, never lay a heavy (more than 50 kg) package on one corner; ✓ Never drop down a heavy package on an edge or a corner; the impact might result in floor puncture; ✓ When using a "Pinch Bar", place a floor protector device beneath the "Pinch Bar" prior to applying the load, e.g. a plank or piece of plywood.

4.5.3. Supporting of Load

Limitations

- Because of the light structure of an aircraft, restrictions are imposed on the loads.
- The bearing capacity of the floor structure is limited by two factors:

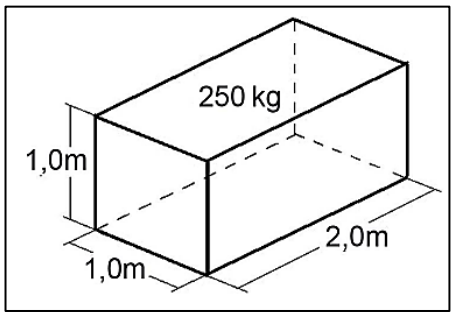
Limitation	Definition
Maximum Floor Load	The maximum floor load is the maximum load per unit of floor area (kg/m^2) which is allowed within a specific compartment.
Maximum Running Load	The maximum running load is the maximum load per unit of length (kg/m) measured in the longitudinal (fore – aft) direction. Which is allowed within a specific compartment or compartment section.

REFERENCE: *For the applicable maximum floor and maximum running load, refer to section 4.5.1.*

Actual Floor Contact Area

- Before loading a heavy item, always determine first the:
  - ✓ Actual floor contact area;
  - ✓ Length over which the item is actually in contact with the floor;
  - ✓ Floor loading and the running load must always be considered together.

EXAMPLE 1:



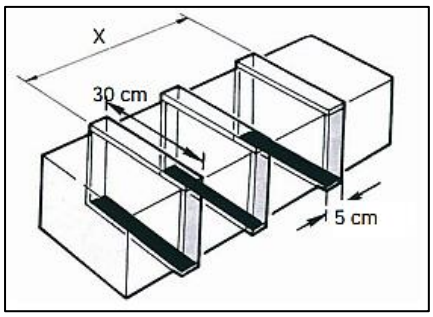
- Contact area 2,0m x 1,0m = 2,0m^2
- Length of floor contact area = 2,0m

EXPLANATION: *The piece is in contact with the floor on its entire length, which is therefore the applicable dimension for establishing the actual running load.*

4.5.3. Supporting of Load (cont.)

<table>
<tr>
<td>Actual Floor Contact Area

(cont.)</td>
<td>EXAMPLE 2:

▪ Contact area: 0,3m x 0,05m x 3 = 0,045m^2

EXPLANATION:

✓ Only the battens are in contact with the floor and only that floor area must be taken into account when working out the floor loading.

✓ For the same reason, given the floor loading, only the length measured over the outer two battens (marked X) can be considered for the actual running load.

✓ To minimize the spreading requirement, the heavy item should be placed, if possible, in such a way that its side of greatest area is in contact with the compartment floor.</td>
</tr>
<tr>
<td>Minimum Required Floor Contact Area</td>
<td>• To prevent overloading of the aircraft structure, an item must be in contact with the compartment floor on a certain minimum area (floor load) and a certain minimum length (running load).

These requirements are dictated by the mass of the item, the maximum floor load and the maximum running load.

Calculation of the Actual Floor Load per m^2:

$\frac{\text{Weight of item (kg)}}{\text{Actual floor contact area (m}^2\text{)}}$ = Actual floor load per m^2

• If the actual floor load per m^2 exceeds the maximum allowed floor load per m^2 the calculation of minimum required floor contact is required.

Calculation of Minimum Required Floor Contact Area:

$\frac{\text{Weight of item (kg)}}{\text{Max. floor load (kg/m}^2\text{)}}$ plus 10% *= Minimum required floor contact area (m²)

• The minimum required floor contact area is only applicable if no other load is stowed on top of and/or alongside the item.

NOTE: *The weight of supporting material has to be considered by adding 10% to the calculated floor contact area.

• The number and length of the supporting planks must cover an area, which is slightly larger than the minimum required according to the calculations.</td>
</tr>
</table>

4.5.3. Supporting of Load (cont.)

Minimum Required Length of the Floor Contact Area	• Calculate the actual floor load per running meters by dividing the weight of the piece through the length of the floor area in flight direction. **Calculation of the Actual Floor load per running meter:** Weight of item (kg) / Length of the floor contact area in flight direction (m) = Actual floor load per running meter (kg/m) • If the actual floor load per running meter exceeds the maximum allowed floor load per running meter the calculation of the minimum required length of the Floor Contact Area is required. **Calculation of the Minimum required Length of the Floor Contact Area:** **Calculation of the Minimum required Length of the Floor Contact Area:** Weight of item (kg) / Max. allowed running load (kg/m) plus 10% * = Minimum required length of floor contact are (m) • The minimum required length of the floor contact area is only applicable if no other load is stowed on top of and/or alongside the item. ***NOTE:*** **The weight of supporting material has to be considered by adding 10% to the calculated floor contact area.*
Load Spreading	• Load spreading is required if either the actual floor contact area or the length over which the item is in contact with the floor, is smaller than what is required by "Minimum required floor contact area" above.
Extra Load	**Calculation of extra weight which can be possibly loaded on top of HEA:** Actual contact area of supporting planks x Maximum floor load - 10% (for the weight of planks) = Possible net load - Weight of item = Possible extra Weight
Width of Floor Contact Area	**Calculation of Width of Floor Contact Area:** Minimum required floor contact area (m^2) / Minimum required length of floor contact area (m) = Width of floor contact area (m) **Reducing the Calculated Width of Floor Contact Area:** • In case the calculated width of the contact area exceeds the width of the item or is even greater than the space available between the compartment floor tracks, it is permitted to reduce the width of the area by increasing its length. Minimum required floor: Contact area (m^2) / Chosen width of floor contact area (m) = Length of floor contact area (m)

4.5.3. Supporting of Load (cont.)

Width of Floor Contact Area (cont.)

Limiting the Width of the Required Floor Contact Area to the Width of the Item:

- To avoid the use of transversal planks, the width of the contact area can be limited to the width of the heavy item. The length of the contact area is calculated as follows (Minimum required floor):

$$\frac{\text{Contact area } (m^2)}{\text{Width of item } (m)} = \text{Length of floor contact area } (m)$$

NOTES:

- ✓ The above is not applicable to the length of the floor contact area; the required length calculated according to "Minimum required floor contact area" above cannot be reduced by increasing the width of the contact area;
- ✓ When establishing the width of the contact area, the dimensions of the planks available must also be taken into account, the width should be such that a whole number of planks can be accommodated within the given width of the contact area.

Number of Longitudinal Planks

- The number of planks that can be used within the given width of the floor contact area depends on the width of the planks available.
- Calculation:

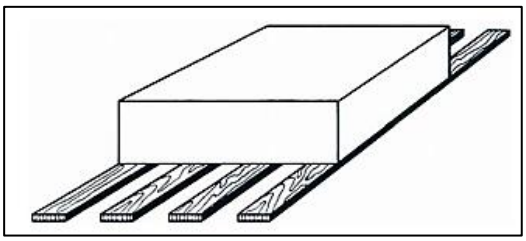
$$\frac{\text{Minimum required floor contact area } (m^2)}{\text{Area of plank } (m^2)} = \text{Number of planks}$$

- Dimension of planks:

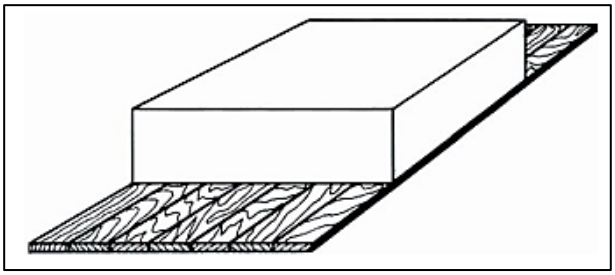
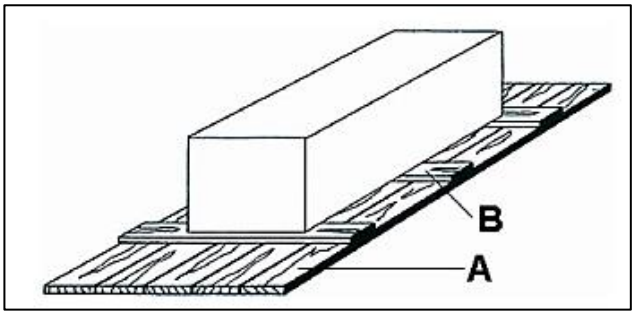
Length	Width	Area
1,0 m	0,15 m	0,15 m^2
1,5 m	0,15 m	0,22 m^2
2,0 m	0,15 m	0,30 m^2

Arrangements of Planks

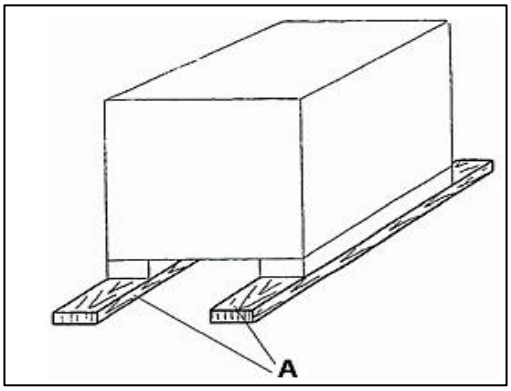
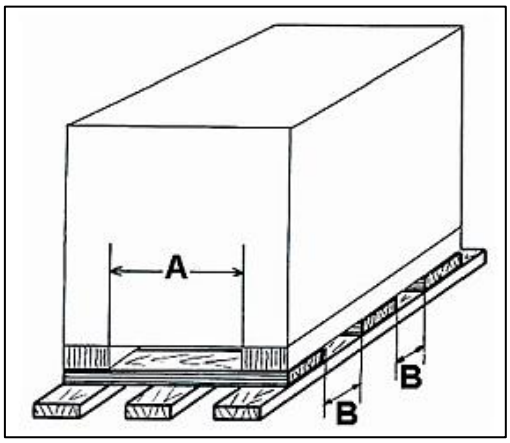
- Depending on the width of the floor contact area in relation to the width of the item, 3 different arrangements of the supporting planks are possible.
- All planks used for load spreading must be continuous lengthwise.
- **Required Width of the Floor Contact Area is smaller than the Width of the Item:**
  - ✓ The required number of planks must be equally distributed over the entire width of the item to prevent it from tilting.



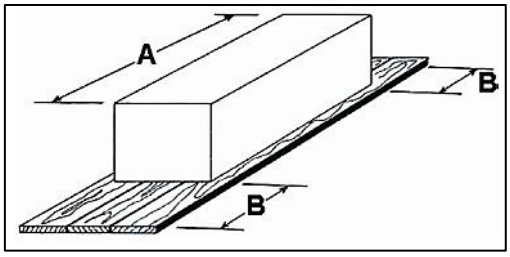
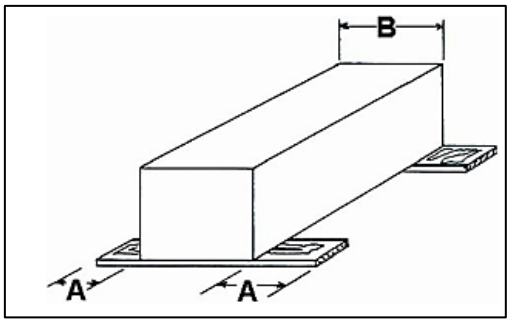
4.5.3. Supporting of Load (cont.)

Arrangements of Planks **(cont.)**	• **Required Width of the Floor Contact Area is equal to the Width of the Item:** ✓ The planks must be placed adjacent to each other. ✓ Their total width must be equal to the width of the item.  • **Required Width of the Floor Contact Area exceeds the Width of the Item:** ✓ The longitudinal planks must be placed adjacent to each other. ✓ Their total width must be equal to the required width of the floor contact area. ✓ Transversal planks must be put on top of the longitudinal planks to distribute the mass of the item over the whole floor contact area. ✓ The number of the transversal planks required depends on the thickness and the total protruding lengt.  A: Longitudinal planks. B: Transversal planks (if more than 2 are required, space intermediate planks equally between the outer 2).

4.5.3. Supporting of Load (cont.)

Arrangements for Pieces having Forklift Skids	• **Method 1:** ✓ One plank underneath each skid  A: 1 plank underneath each skid. • **Method 2:**  A: Total protruding length of transversal planks. B: Spacing between transversal planks must be equal or less than the total protruding length of the longitudinal planks.

4.5.3. Supporting of Load (cont.)

Protruding Length of Planks	• The planks must be sufficiently stiff to accomplish the load transfer. • For a given width, the required thickness depends on the mass of the item, the number of planks, and primarily on the length of the plank projecting beyond each side of the actual length or width of the item (protruding length). • **Longitudinal Planks:**  A: Actual length of piece. B: Protruding length. • **Transversal Planks:**  A: Protruding length. B: Actual width of piece. The total protruding length = 2 x A.

4.5.3. Supporting of Load (cont.)

Required Thickness of Planks

- The minimum plank thickness given in the table below are applicable for plank widths of up to 15 cm.
- For plank widths over 15 cm, this minimum thickness must be increased by 0.5 cm for every 5 cm above 15 cm.

Weight of Items (kg)	**Total Protruding Length (cm)**							
1001-1500	138-174	106-137	78-105	54-77	35-53	20-34	9-19	up to 8
501-1000	-	-	117-150	81-116	52-80	30-51	13-29	up to 12
Up to 500	-	-	-	-	104-161	59-103	26-58	up to 25
No.of Planks								
2	11,5	10,0	9,0	7,5	6,5	5,0	4,0	2,5
3	10,0	9,0	7,5	6,5	6,5	5,0	4,0	2,5
4	10,0	7,5	6,5	6,5	5,0	4,0	4,0	2,5
5	7,5	7,5	6,5	5,0	5,0	4,0	2,5	2,5
6	7,5	6,5	6,5	5,0	4,0	4,0	2,5	2,5
7	6,5	6,5	5,0	5,0	4,0	4,0	2,5	2,5
8	6,5	5,0	5,0	4,0	4,0	2,5	2,5	2,5
	Required thickness of planks							

- How to use the Table
  - ✓ Follow these steps to obtain the required plank thickness:

Step	Description
1	Enter the table at the applicable weight range.
2	Follow the line horizontally to the applicable total protruding length range.
3	From this point, follow the line downwards to the lower half of the table.
4	Read of the plank thickness required for the applicable number of planks.

Simplified Calculation Table for Aircrafts with a Maximum Floor Load of 732kg/m^2

- The table below may be used for a simplified calculation of the needed floor contact areas for piece weights up to 500 kg only.

Piece weight up to	Needed floor contact area (m^2) including 10% for weight of supporting material	Needed quantity of standard supporting planks (width 15 cm)	
		1 m planks	1,5 m planks
50	0,075	2	2
100	0,15	2	2
200	0,30	2	2
250	0,37	3	2

4.5.3. Supporting of Load (cont.)

Supporting of Barrels

- Drums must be palletized vertically.

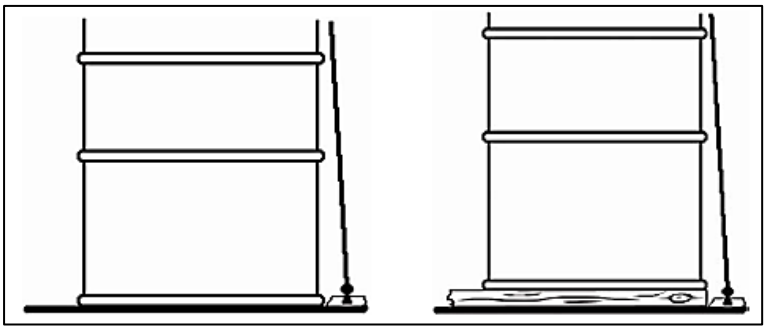
  ***EXCEPTIONS**:*

  - ✓ If previously palletized on wooden pallets and tightly held by shrinking foil;
  - ✓ If drums contain high density solids, and vertical position would exceed loading limitations.

- **Base protection**

  To avoid contact of barrel bases with the restraints:

  - ✓ Put planks on edge between the drums and the net fitting.
  - ✓ Raise the drum base minimum 5 cm above the pallet, using the same method.



- **Upper surface protection**

  Loading other cargo on top of the barrels is allowed, IF:

  - ✓ There is no risk of puncture or crushing of the barrel.
  - ✓ The other cargo allows efficient restraining of the totality of the pallet.

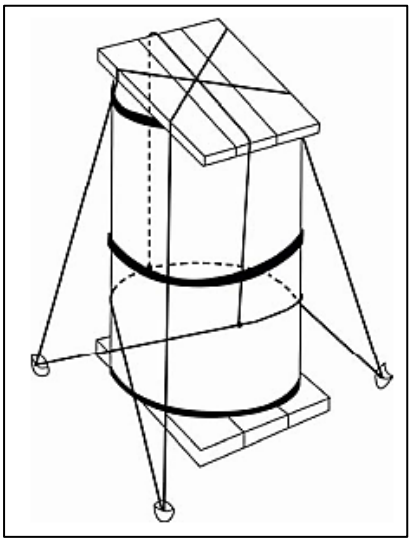
- **Stacking up**

  - ✓ The lower level must be perfectly horizontal.
  - ✓ Standardized metal barrels of 200 liters/50 gallons (diameter approx. 60 cm/24 in. – height approx. 90 cm/36 in.) are not stackable, if loaded in the lower compartments. Only one level allowed.
  - ✓ Barrels of less than 200 liters/50 gallons are stackable:
    - If any horizontal movement between barrels is impossible.
    - Maximum 3 levels allowed.
    - Up to maximum 160 cm high.
    - Intermediary floor between 2nd and 3rd level mandatory.
    - Horizontal circling of 2nd and 3rd level by standard tie-down straps once the net installed.
    - Forward and aft triangle is reinforced with straps to hold the upper level in case of heavy barrels.

- **Barrels above other Cargo**

  - ✓ Not allowed.

4.5.3. Supporting of Load (cont.)

Supporting of Barrels	• **Bulk loading** ✓ Apply the standard rules for bulk loading. ✓ Load the barrels vertically. ✓ Block them by means of other cargo without sharp edges. ✓ If no other cargo is available, tie the barrels down individually, using planks, rope, and single stud tie-down fittings. *EXAMPLE:* 
Loading Accessories	• Loading accessories are equipment items required for securing, stowing and/or protecting the load as well as the aircraft interior. • Loading accessories must be handled at stations according to the following rules: ✓ Each station is responsible for the allotted equipment and for any excess material held or received. ✓ Any missing item must be immediately traced. ✓ Equipment must be stored in a safe place. ✓ Loading accessories used on the inbound flight, must be collected from the compartments and cabin, properly cleaned, bundled, marked with a tag and returned to the owner station, unless otherwise instructed. ✓ If requested by the regular stowing station, surplus equipment must be immediately returned. ✓ Damaged or worn equipment may not be used; if repair is locally not possible at a reasonable price, the equipment must be returned to the appropriate handling office at headquarters. ✓ If loading accessories are transferred to another carrier, a work order signed by the responsible representative of the carrier must be issued; invoicing will be done according to current instructions.

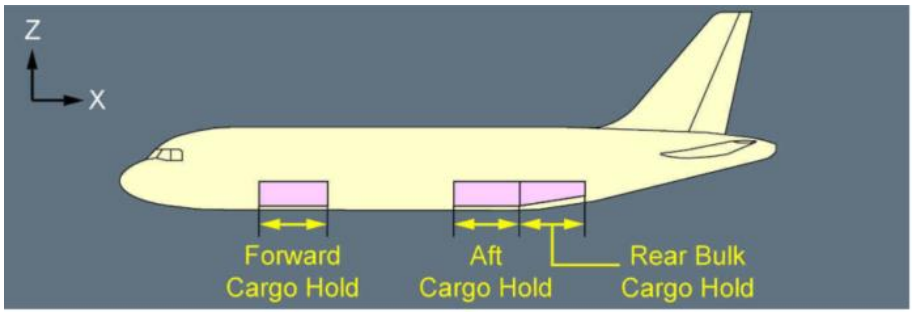
4.5.3. Supporting of Load (cont.)

Loading Accessories **(cont.)**	• If loading accessories are transferred to another carrier, a work order signed by the responsible representative of the carrier must be issued; invoicing will be done according to current instructions. • The following logistics rules must be applied: ✓ Requests for loading accessories must be addressed to the Croatia Airlines ZAG Cargo Handling staff (cargo.handling@croatiaairlines.hr) . A reasonable lead time must be taken into account. ✓ Items are to be bundled if possible. ✓ They must be marked with a tag containing flight number, destination, date and mass. ✓ The dispatch of the material must be advised by telex to the requesting station. ✓ Loading accessories must be sent as EIC. ✓ The storage station must be notified of any material pre advised but not received on the specific flight.

4.5.4. A319 Compartments Loading Guide

Number of Compartments

- The A319 has two holds in the fuselage portion below the main deck floor, one forward and one aft of the wings. For weight and balance purposes, the AFT hold is divided into two compartments. A divider net and a tarpaulin separate the AFT and Rear Bulk Cargo Holds;
- The following numbering scheme applies:
  - ✓ Forward Cargo Hold (1);
  - ✓ Aft Cargo Hold (4);
  - ✓ Rear Bulk Vargo Hold (5);
- The compartment configuration installed on Croatia Airlines Airbus 319 aircraft is FULL BULK version, (i.e. it is suitable for transport of **bulk load only**).



Classification and Features

Registration	Compartment	Classification	Features
9A-CTG 9A-CTH	1,4,5	D	✓ pressurization
			✓ not accessible during flight
			✓ no smoke detection
9A-CTI 9A-CTL 9A-CTN	1,4,5	C	✓ pressurization
			✓ not accessible during flight
			✓ smoke detection
			✓ fire extinguishing system

Temperature in Compartments

	Forward Hold (1)	Aft Hold (4,5)
Temperature	Above 2°C not adjustable*	Above 2°C not adjustable*
Heating	No	No
Cooling	No	No
Ventilation	No	No

NOTE ** Depends on the initial temperature. The coolest places are at the floor and in the hold door areas. The temperature is higher under the compartment ceiling.*

4.5.4. A319 Compartments Loading Guide (cont.)

Weight Limitations

IMPORTANT: All weight limitations are based on structural limitations and must never be exceeded.

Maximum Capacity	Comp. 1 (FWD)		Comp. 4 (AFT)		Comp. 5 (AFT)
Gross Weight (kg)	2268		3021		1497
Volume (m^3)	8.53		11.94		7.22
Max.distributed load (kg/m^2)	732		732		732
Max.point load (kg/cm^2)	6.6		6.6		6.6
Maximum Capacity	**11**	**12**	**41**	**42**	**51**
Gross Weight (kg)	1045	1223	1326	1695	1497
Volume (m^3)	4.14	4.39	5.23	6.71	7.22

NOTE: *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.*

*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.*

Load Factors

When a restraint system is required to fasten an item, the following table must be used to calculate the apparent weight of an item, in order to ensure that the restraint system resists the maximum apparent weight of the item in each direction.

Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
1	1.69	1.37	0.88	2.44

Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
4	1.69	1.37	1.58	3.30

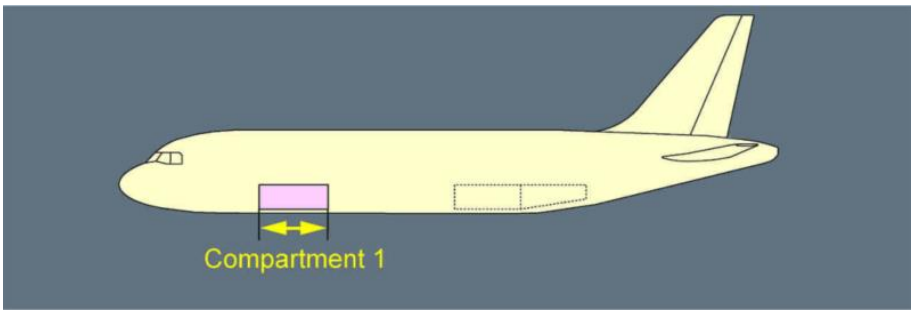
Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
5	1.69	1.37	1.80	3.58

NOTE: *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.*

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

The Forward Cargo Hold has one compartment (compartment 1).



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

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.*

The cargo hold is divided into sections 11 and 12 to help the control of the loading.

The following table provides the maximum gross weight and volume per section:

Maximum Capacity	11	12
Gross Weight (kg)	1045	1223
Volume (m^3)	4.14	4.39

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.

RESTRAINT CONDITIONS

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

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

For bulk loading, if the mandatory nets are installed, no additional restraints are required.

Exceptions: *For exceptions please refer to ch. 4.2.3." Securing of Load".*

A bulk item may be too large to fit in a net section. In this case, the mandatory divider net should be removed, and all bulk items must be individually fasten in the cargo hold.

IMPORTANT: *A minimum clearance of 0.051 m between the top of the load and the cargo hold ceiling must be ensured.*

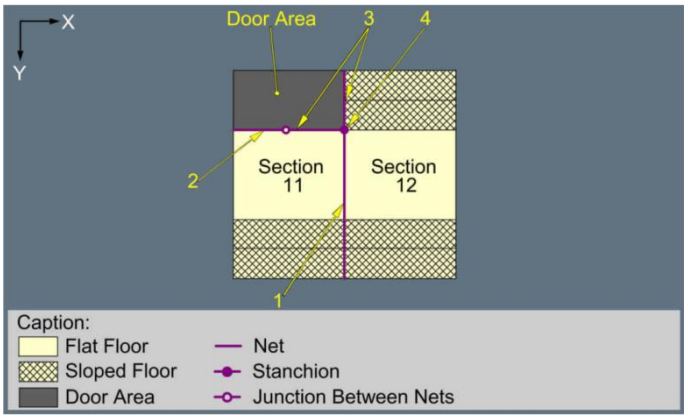
4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

SECTION / NET ARRANGEMENT

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 C	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:

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m^3)	(ft^3)
11	9.858	387.99	11.633	457.99	10.746	422.99	4.140	144.44
12	11.633	457.99	13.107	516.10	12.370	487.05	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.

The following tables provides:

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

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

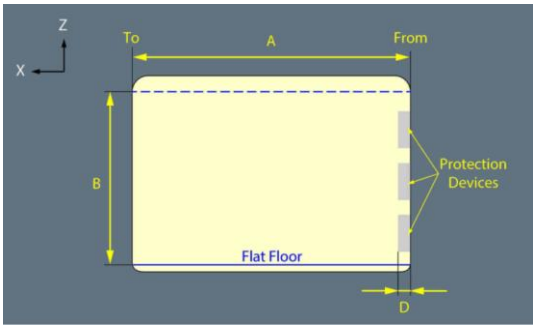
Legend	Missing or Damaged Equipment	Affected Sections	MAX Gross Weight to apply, in the case of a Required Weight Reduction	
			(kg)	(lb)
1	Divider net type C	11	784	1 728
		12	917	2 022
2	Door net type C	11	784	1 728
3	Door net type A	11	784	1 728
		12	917	2 022
4	Stanchion	11	784	1 728
		12	917	2 022

CARGO HOLD DOOR

The Forward Cargo Hold is equipped with a door on the right side of the fuselage.

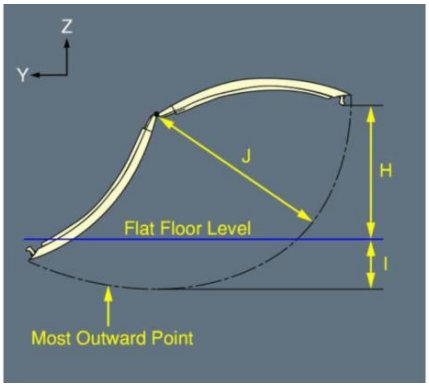
The door opens outward.

Front view of the door (illustration)



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 (illustration)



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

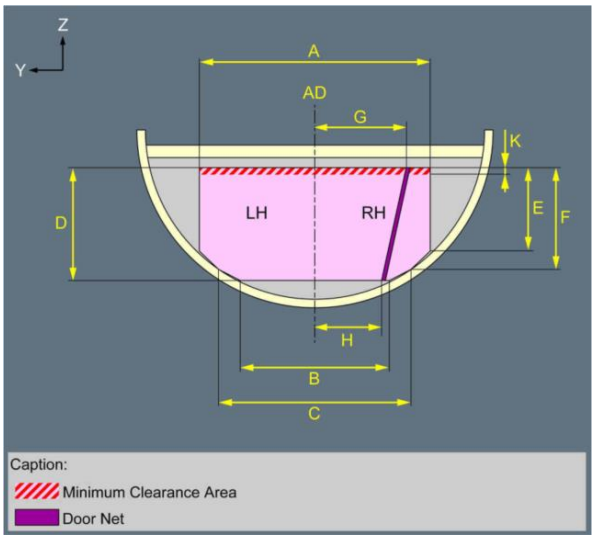
4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

CROSS SECTION

Cross section (illustration)



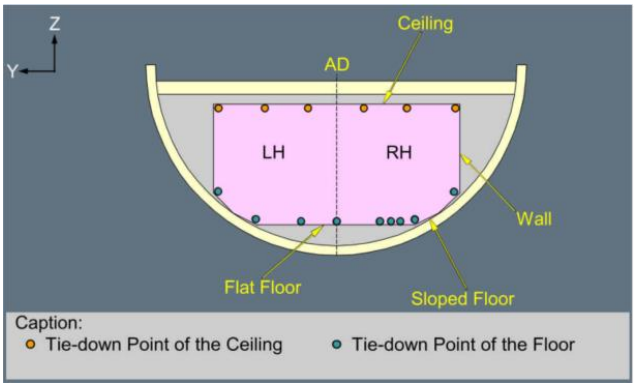
The table below provides the cross sections of the Forward Cargo Hold:

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
13.107	2.630	1.430	2.098	1.242	0.797	1.065	-	-	0.051

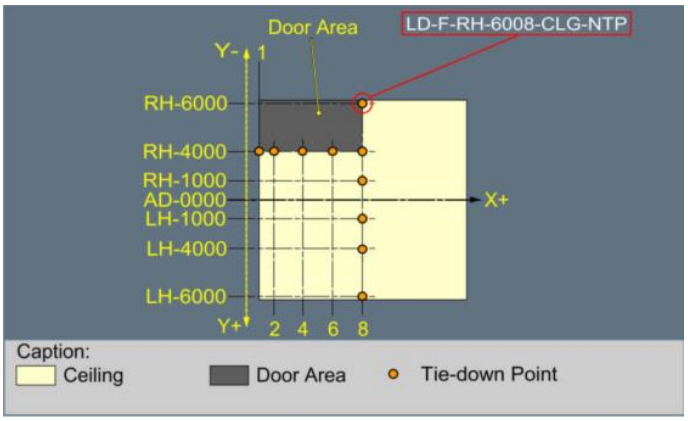
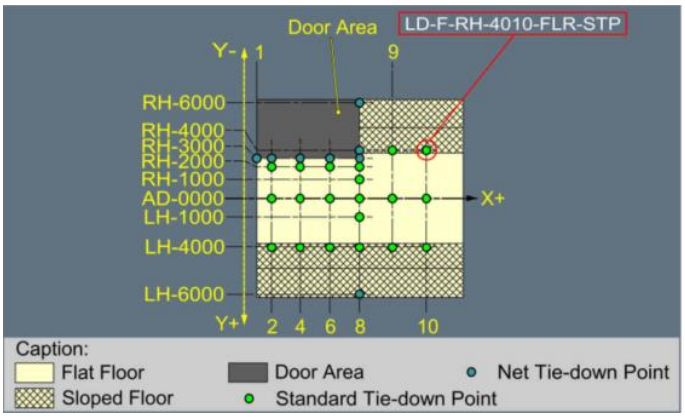
TIE-DOWN POINT LOCATION

To attach (install) the nets the Forward Cargo Hold is equipped with tie-down points on the ceiling, the slopped floor and the flat floor of the cargo hold.

Possible location of the tie-down points (illustration):



4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold) **(cont.)**	*Tie-down points of the ceiling (illustration)*  Tie-down points of the flat and sloped floors (illustration) 

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

LOADING RECOMMENDATIONS

To load an item in the Forward Cargo Hold, the following factors must be considered:

- 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 12) with the mandatory divider net installed.

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	2.787	2.422	1.909
0.100	2.703	2.329	1.809
0.200	2.623	2.239	1.709
0.300	2.547	2.152	1.609
0.400	2.477	2.069	1.509
0.500	2.427	1.996	1.410
0.600	2.427	1.996	1.372
0.700	2.427	1.996	1.372
0.800	2.427	1.996	1.372
0.900	2.427	1.996	1.372
1.000	2.427	1.996	1.372
1.100	2.427	1.996	1.372
1.200	2.427	1.996	1.372
1.300	2.427	1.996	1.372

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

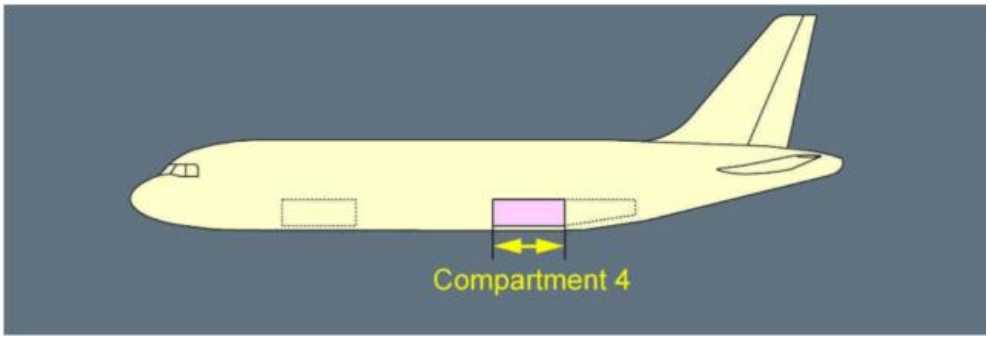
Maximum package dimensions with the mandatory divider net removed

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	3.650	3.508	3.364
0.100	3.564	3.430	3.301
0.200	3.480	3.357	3.243
0.300	3.399	3.287	3.192
0.400	3.321	3.224	3.149
0.500	3.248	3.166	2.985
0.600	3.180	3.116	2.782
0.700	3.118	3.075	2.579
0.800	3.064	2.921	2.374
0.900	3.019	2.721	2.167
1.000	2.940	2.521	1.956
1.100	2.739	2.320	1.739
1.200	2.538	2.120	-
1.300	2.336	1.919	-
1.400	2.134	1.718	-
1.500	1.931	1.648	-
1.600	1.850	-	-

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 4 (AFT-Aft Cargo Hold)

The Aft Cargo Hold has one compartment (compartment 4).



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

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.*

The cargo hold is divided into sections 41 and 42 to help the control of the loading.

The following table provides the maximum gross weight and volume per section:

Maximum Capacity	41	42
Gross Weight (kg)	1326	1695
Volume (m^3)	5.23	6.71

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.

RESTRAINT CONDITIONS

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

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

For bulk loading, if the mandatory nets are installed, no additional restraints are required.

Exceptions: *For exceptions please refer to ch. 4.2.3." Securing of Load".*

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

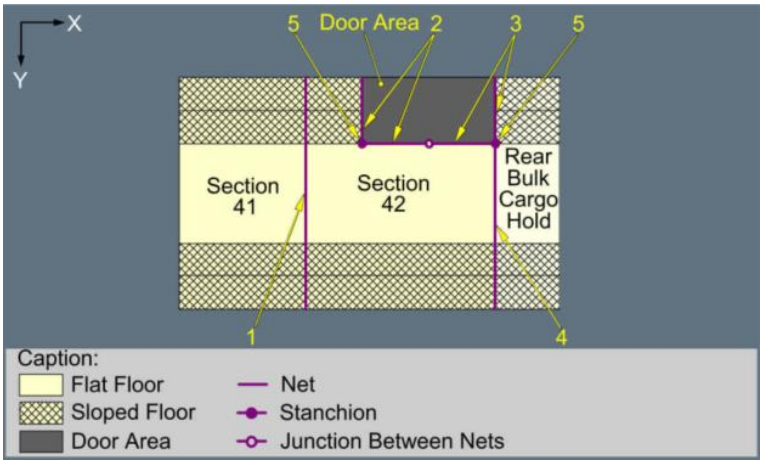
All bulk items must be individually fasten in the cargo hold.

IMPORTANT: *A minimum clearance of 0.051 m between the top of the load and the cargo hold ceiling must be ensured.*

Compartment 4 (AFT-Aft Cargo Hold)

(cont.)

SECTION / NET ARRANGEMENT



Legend	Related Net Type	Installation Requirement
1	Divider net type A2	Mandatory
2	Door net type B	Mandatory
3	Door net type A1	Mandatory
4	Divider net type C	Mandatory
5	Stanchion	Mandatory

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items:

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m^3)	(ft^3)
41	19.608	771.97	21.361	840.98	20.485	806.50	5.230	184.70
42	21.361	840.98	24.028	945.98	22.695	893.50	6.710	236.96

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 following tables provides:

- the correspondence between the missing or damaged equipment, and the sections affected;
- the maximum gross weight per net section must be applied, 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	41	995	2 194
		42	1 271	2 802
2	Door net type B	42	1 271	2 802
3	Door net type A1	42	1 271	2 802
4	Divider net type C	42	1 271	2 802
5	Stanchion	42	1 271	2 802

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 4 (AFT-Aft Cargo Hold)

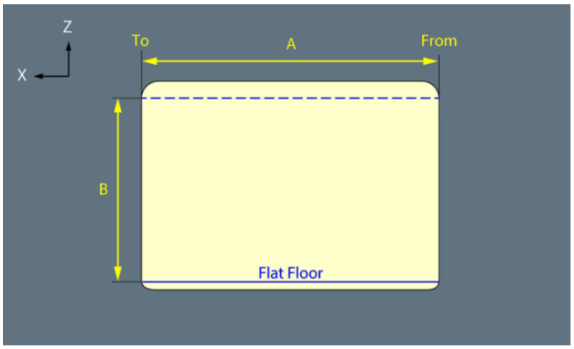
(cont.)

CARGO HOLD DOOR

The Aft Cargo Hold is equipped with a door on the right side of the fuselage.

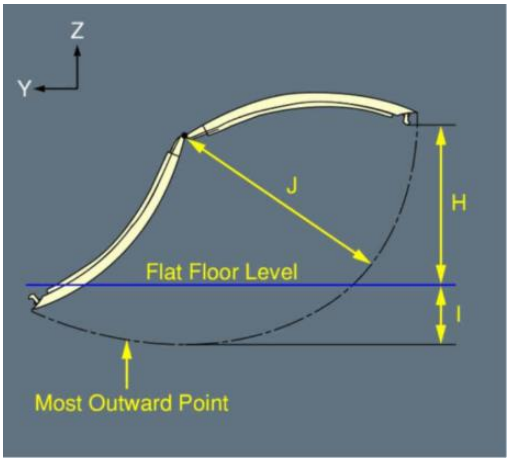
The door opens outward.

Front view of the door (illustration)



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 (illustration)



Legend		Dimensions	
		(m)	(in)
H	Clearance between the flat floor level and the hooks (when the door is in fully opened position)	1.368	53.86
I	Clearance below the flat floor level when the door is operated	0.704	27.72
J	Door opening radius	2.073	81.61

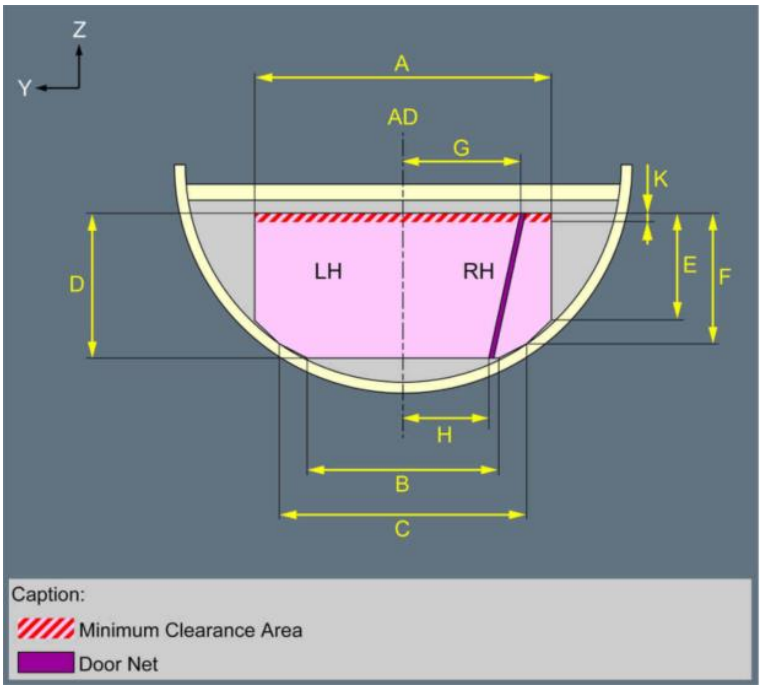
4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 4 (AFT-Aft Cargo Hold)

(cont.)

CROSS SECTION

Cross section (illustration)



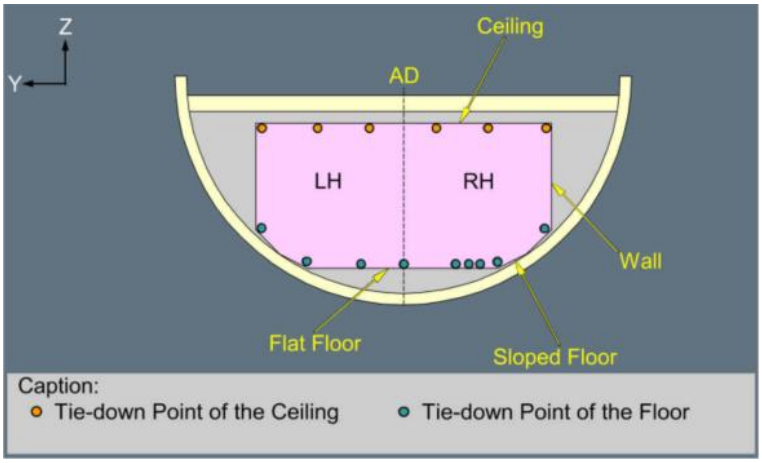
The table below provides the cross sections of the Forward Cargo Hold:

H-ARM (m)	Dimensions (m)								
	A	B	C	D	E	F	G	H	K
19.608	2.630	1.430	2.098	1.242	0.797	1.065	-	-	0.051
22.162	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	0.051
23.495	2.630	1.430	2.098	1.242	0.797	1.065	0.765	0.577	0.051
24.028	2.630	1.408	2.098	1.208	0.756	1.024	0.765	0.577	0.051

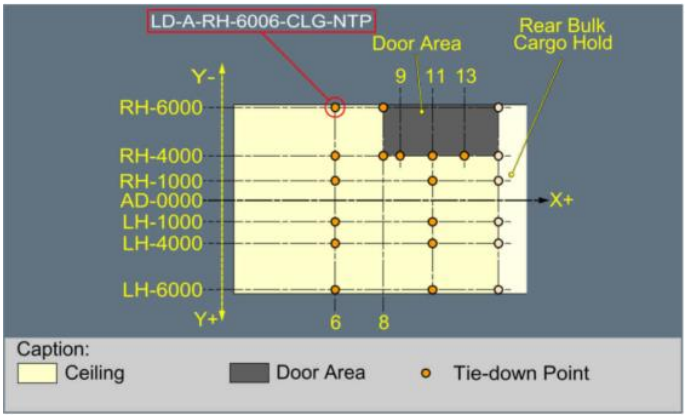
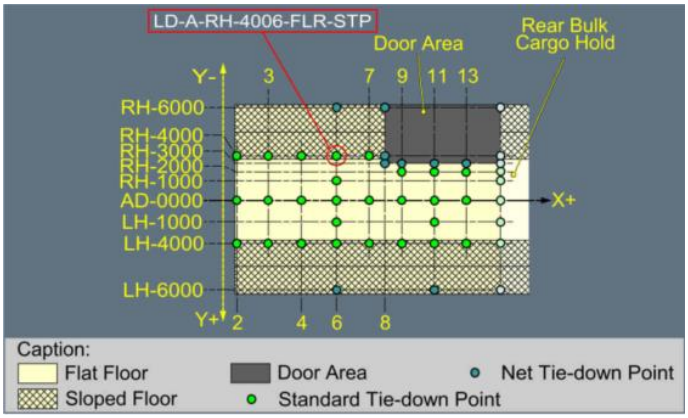
TIE-DOWN POINT LOCATION

To attach (install) the nets the Aft Cargo Hold is equipped with tie-down points on the ceiling, the slopped floor and the flat floor of the cargo hold.

Possible location of the tie-down points (illustration):



4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 4 (AFT-Aft Cargo Hold) **(cont.)**	*Tie-down points of the ceiling (illustration)*  *Tie-down points of the flat and sloped floors (illustration)* 

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 4 (AFT-Aft Cargo Hold)

(cont.)

LOADING RECOMMENDATIONS

To load an item in the Forward Cargo Hold, the following facotrs must be considered:

- the dimensions of the package;
- the installation of the ventilation and temperature control systems in the forwrad 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 net sections 41 or 42 with the mandatory divider net installed.

Net section 41:

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	2.935	2.590	2.118
0.100	2.842	2.492	2.021
0.200	2.752	2.395	1.925
0.300	2.664	2.298	1.830
0.400	2.579	2.202	1.737
0.500	2.498	2.109	1.652
0.600	2.427	2.018	1.652
0.700	2.427	1.996	1.652
0.800	2.427	1.996	1.652
0.900	2.427	1.996	1.652
1.000	2.427	1.996	1.652
1.100	2.427	1.996	1.652
1.200	2.427	1.996	1.652
1.300	2.427	1.996	1.652
1.400	2.427	1.996	-
1.500	2.427	1.996	-
1.600	2.427	1.996	-

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 4 (AFT-Aft Cargo Hold)

(cont.)

Net section 42:

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	3.162	2.997	2.826
0.100	3.067	2.909	2.753
0.200	2.974	2.825	2.684
0.300	2.883	2.744	2.623
0.400	2.793	2.667	2.569
0.500	2.706	2.596	2.526
0.600	2.623	2.533	2.494
0.700	2.545	2.479	2.467
0.800	2.474	2.437	2.437
0.900	2.412	2.402	2.249
1.000	2.362	2.362	2.036
1.100	2.317	2.317	1.816
1.200	2.266	2.211	-
1.300	2.211	2.009	-
1.400	2.149	1.807	-
1.500	2.034	1.715	-
1.600	1.805	-	-
1.700	1.805	-	-

Maximum package dimensions with the mandatory divider nets not installed

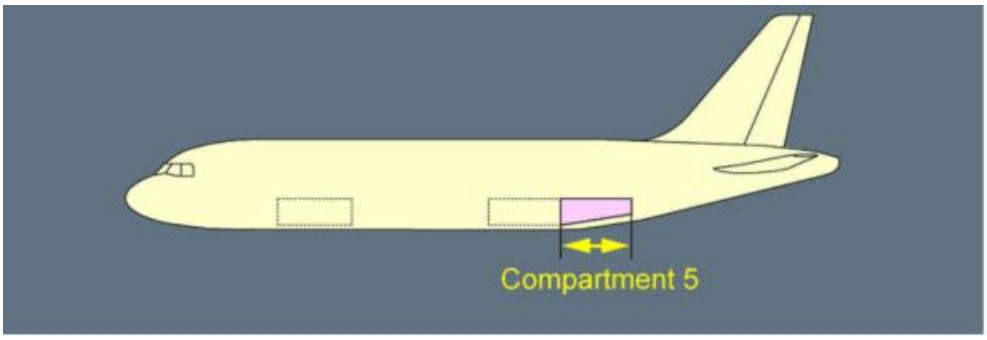
The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider nets removed.

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	4.698	4.588	4.084
0.100	4.627	4.526	3.883
0.200	4.559	4.215	3.681
0.300	4.496	4.015	3.479
0.400	4.239	3.815	3.276
0.500	4.039	3.614	3.073
0.600	3.839	3.414	2.869
0.700	3.638	3.214	2.665
0.800	3.438	3.014	2.458
0.900	3.238	2.813	2.250
1.000	3.038	2.613	2.038
1.100	2.837	2.412	1.818
1.200	2.637	2.211	-
1.300	2.436	2.009	-
1.400	2.236	1.807	-
1.500	2.034	1.715	-
1.600	1.850	-	-
1.700	1.850	-	-

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 5 (Rear Bulk Cargo Hold)

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.

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.*

The following table provides the maximum gross weight and volume per section:

Maximum Capacity	**51**
Gross Weight (kg)	1497
Volume (m^3)	7.22

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.

RESTRAINT CONDITIONS

A mandatory divider net separates the rear bulk cargo hold from the aft cargo hold to ensure the restraint of the load.

For bulk loading, if the mandatory nets are installed, no additional restraints are required.

Exceptions: *For exceptions please refer to ch. 4.2.3." Securing of Load".*

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

All bulk items must be individually fastened in the cargo hold.

IMPORTANT: *A minimum clearance of 0.051 m between the top of the load and the cargo hold ceiling must be ensured.*

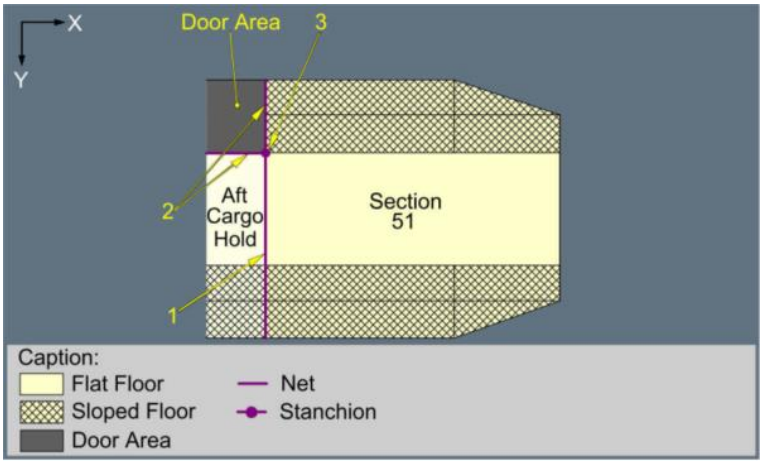
4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 5 (Rear Bulk Cargo Hold)

(cont.)

SECTION / NET ARRANGEMENT

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 C	Mandatory
2	Door net type A1	Mandatory
3	Stanchion	Mandatory

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items:

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m^3)	(ft^3)
51	24.028	945.98	27.270	1 073.62	25.649	1 009.80	7.220	254.97

The maximum usable volume of the cargo hold is based on:

- the maximum theoretical volume;
- the volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling.

The following tables provides:

- the correspondence between the missing or damaged equipment, and the sections affected;
- the maximum gross weight per net section must be applied, 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 C	51	1 123	2 476
2	Door net type A1	51	1 123	2 476
3	Stanchion	51	1 123	2 476

CARGO HOLD DOOR

The rear bulk cargo hold is not equipped with a door.

To load and unload the rear bulk cargo hold, the operator must use the door of the aft cargo hold after removal of the divider net between the aft and rear bulk cargo holds.

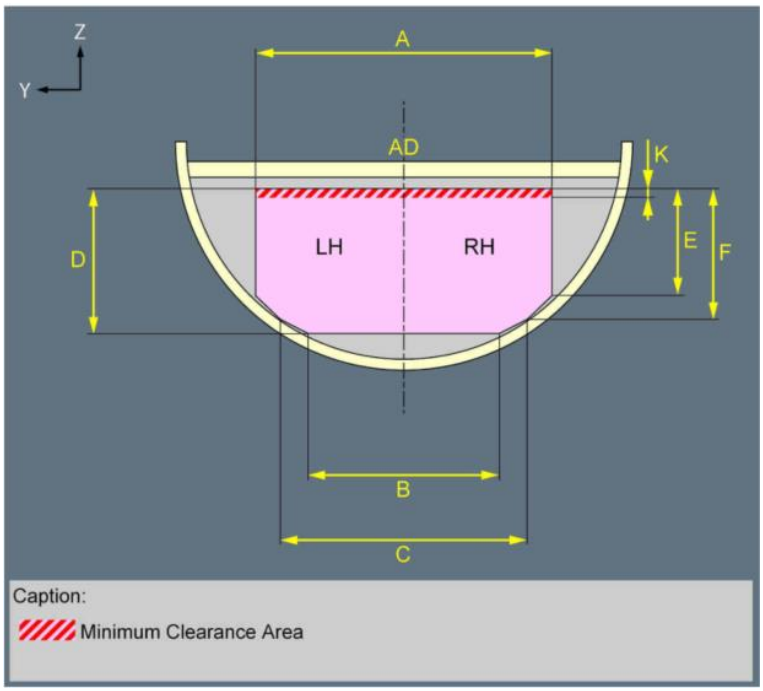
4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 5 (Rear Bulk Cargo Hold)

(cont.)

CROSS SECTION

Cross section (illustration)



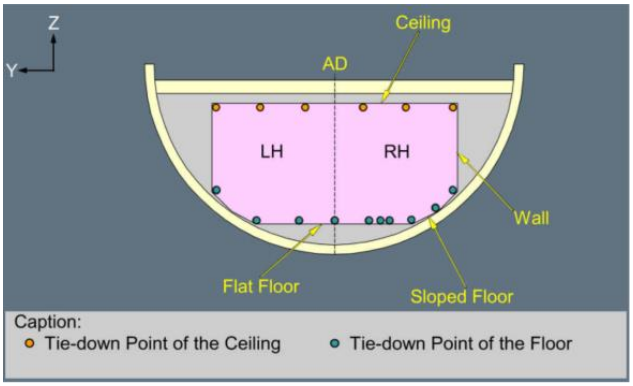
The table below provides the cross sections of the Forward Cargo Hold:

H-ARM (m)	Dimensions (m)						
	A	B	C	D	E	F	K
24.028	2.630	1.408	2.098	1.211	0.756	1.027	0.051
24.562	2.630	1.368	2.098	1.147	0.682	0.953	0.051
25.095	2.630	1.328	2.098	1.084	0.608	0.879	0.051
25.629	2.630	1.288	2.098	1.020	0.533	0.805	0.051
26.162	2.630	1.248	2.098	0.957	0.459	0.731	0.051
26.695	2.113	1.113	1.839	0.891	0.558	0.699	0.051
27.270	1.558	0.968	-	0.820	0.664	-	0.051

TIE-DOWN POINT LOCATION

To attach (install) the nets the, Aft Cargo Hold is equipped with tie-down points on the ceiling, the slopped floor and the flat floor of the cargo hold.

Possible location of the tie-down points (illustration):

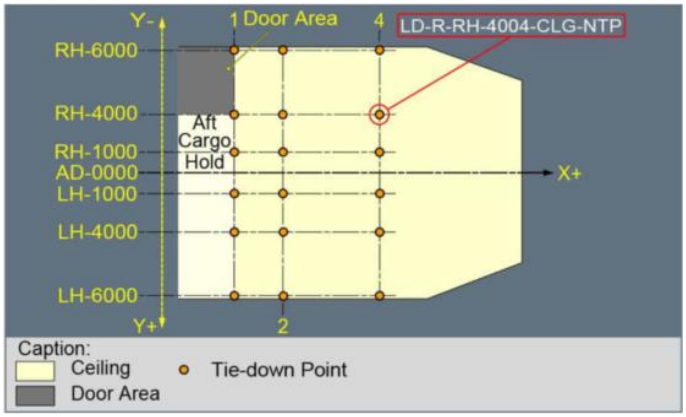


4.5.4. A319 Compartments Loading Guide (cont.)

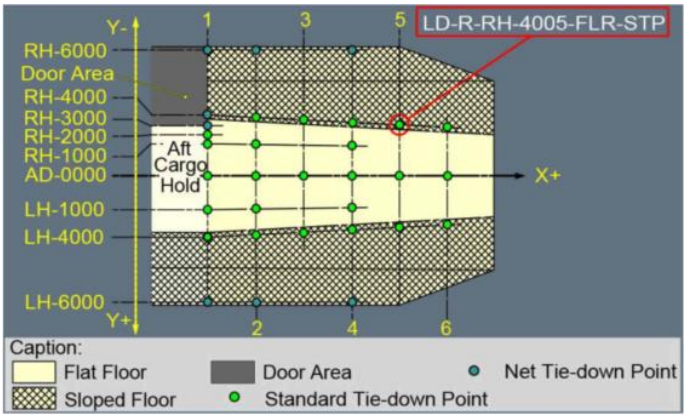
Compartment 5 (Rear Bulk Cargo Hold)

(cont.)

Tie-down points of the ceiling



Tie-down points of the flat and sloped floors



LOADING RECOMMENDATIONS

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.

4.5.4. A319 Compartments Loading Guide (cont.)

Compartment 5 (Rear Bulk Cargo Hold)

(cont.)

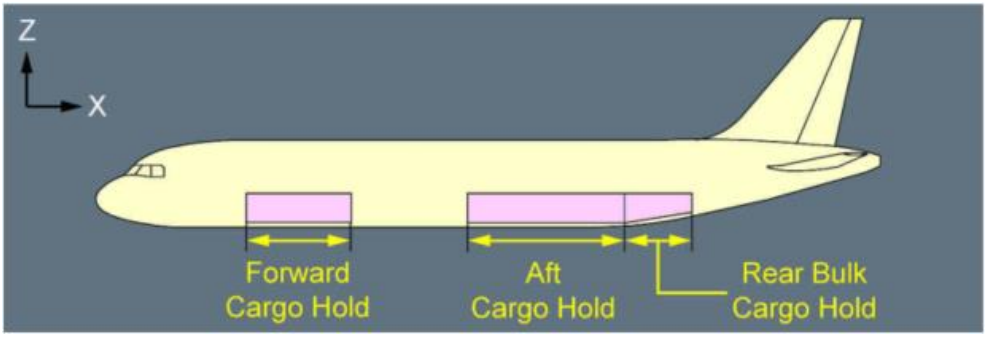
Maximum dimensions can be reached if the operator lifts and puts the packages on the sloping part of the floor (possible in a diagonal position). To avoid high local loads, it is recommended to use load spreaders on the sloping part of the floor.

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	3.728	3.663	3.473	2.421	1.720
0.100	3.651	3.582	3.402	2.337	1.620
0.200	3.574	3.502	3.335	2.255	1.520
0.300	3.498	3.424	3.271	2.175	1.421
0.400	3.422	3.348	3.211	2.099	1.321
0.500	3.347	3.274	3.156	2.027	1.228
0.600	3.274	3.204	3.108	1.962	1.228
0.700	3.202	3.137	3.067	1.909	1.228
0.800	3.133	3.077	3.035	1.867	1.228
0.900	3.066	3.023	2.958	1.821	1.228
1.000	3.004	2.977	2.810	1.768	1.228
1.100	2.948	2.940	2.670	1.707	1.228
1.200	2.901	2.901	2.474	1.554	1.228
1.300	2.857	2.836	2.274	1.498	-
1.400	2.809	2.631	2.055	1.498	-
1.500	2.692	2.423	1.805	-	-
1.600	2.528	2.211	1.733	-	-
1.700	2.528	2.153	1.733	-	-

4.5.5. A320 Compartments Loading Guide

Number of Compartments

- The A320 has two holds in the fuselage portion below the main deck floor, one forward and one aft of the wings. For weight and balance purposes, the AFT hold is divided into two compartments. A divider net and a tarpaulin separate the AFT and Rear Bulk Cargo Holds;
- The following numbering scheme applies:
  - ✓ Forward Cargo Hold (1).
  - ✓ Aft Cargo Holds (3,4).
  - ✓ Rear Bulk Cargo Hold (5);
- The compartment configuration installed on Croatia Airlines Airbus 320 aircraft is BULK and ULD (Cargo Loading System - CLS) version.
- **BULK operation is default loading operations on Airbus 320 aircraft.**



Classification and Features

Registration	Compartment	Classification	Features
9A-CTK 9A-CTO	1,3,4,5	C	✓ pressurization
			✓ not accessible during flight
			✓ smoke detection
			✓ fire extinguishing system

Temperature in Compartments

	Forward Hold (1)	Aft and Rear Hold (3,4,5)
Temperature	Above 2°C not adjustable*	Above 2°C not adjustable*
Heating	No	No
Cooling	No	No
Ventilation	No	No

***NOTE** * Depends on the initial temperature. The coolest places are at the floor and in the hold door areas. The temperature is higher under the compartment ceiling.*

4.5.5. A320 Compartments Loading Guide (cont.)

Weight Limitations (ULD version)

IMPORTANT: All weight limitations are based on structural limitations and must never be exceeded.

Maximum Capacity	**Comp. 1 (FWD)**			**Comp. 3 (AFT)**		**Comp. 4 (AFT)**	
Gross Weight (kg)	3402			2268		2268	
Volume (m^3)	-			-		-	
Maximum Capacity	**11**	**12**	**13**	**31**	**32**	**41**	**42**
Gross Weight (kg)	1134	1134	1134	1134	1134	1134	1134
Volume (m^3)	-	-	-	-	-	-	-

NOTE: *Rear Bulk Cargo Hold (5) is allowed for bulk cargo only.*

Weight Limitations (Bulk version)

IMPORTANT: All weight limitations are based on structural limitations and must never be exceeded.

Maximum Capacity	**Comp. 1 (FWD)**			**Comp. 3 (AFT)**		**Comp. 4 (AFT)**		**Comp. 5 (Rear Bulk Hold)**		
Gross Weight (kg)	3402			2426		2110		1497		
Volume (m^3)	13.28			9.76		8.50		5.88		
Max. distributed load (kg/m^2)	732			732		732		732		
Max.point load (kg/cm^2)	6.6			6.6		6.6		6.6		
Maximum Capacity	**11**	**12**	**13**	**31**	**32**	**41**	**42**	**51**	**52**	**53**
Gross Weight (kg)	1045	1225	1132	1301	1125	928	1182	374	353	770
Volume (m^3)	4090	4770	4420	5230	4530	3750	4750	1460	1380	3040

NOTE: *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.*

*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.*

*Intensity of bulk operations is not limited. **Bulk operation is default loading operation.***

4.5.5. A320 Compartments Loading Guide (cont.)

Load Factors

When a restraint system is required to fasten an item, the following table must be used to calculate the apparent weight of an item, in order to ensure that the restraint system resists the maximum apparent weight of the item in each direction.

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

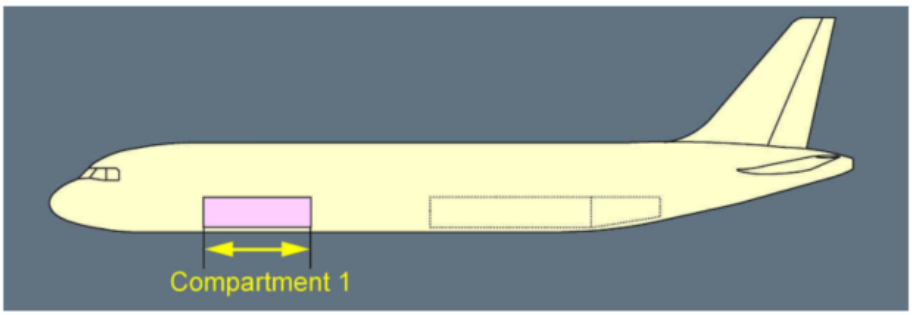
Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
3	1.69	1.12	1.46	3.01
4	1.69	1.12	1.72	3.53

Compartment	Direction			
	FWD	Aft	Side	Up
	Load Factors			
5	1.69	1.12	2.15	4.26

NOTE: *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.*

Compartment 1 (FWD-Forward Cargo Hold)

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.

NOTE: *On Croatia Airlines A320 CLS is covered by pallets, therefore bulk operation is default loading operation.*

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.

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.

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

The cargo hold is divided into sections 11 and 12 to help the control of the loading.

The following table provides the maximum gross weight and volume per section:

Maximum Capacity	11	12	13
Gross Weight (kg)	1045	1225	1132
Volume (m^3)	4.090	4.770	4.420

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.

RESTRAINT CONDITIONS

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

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

For bulk loading, if the mandatory nets are installed, no additional restraints are required.

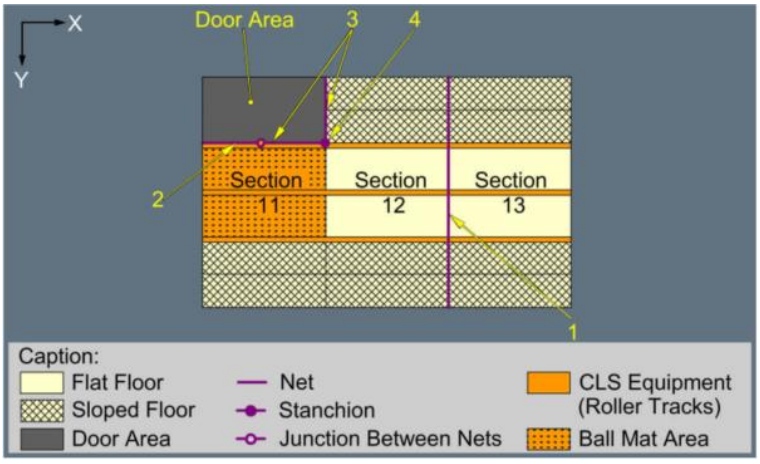
Exceptions: *For exceptions, please refer to ch. 4.2.3." Securing of Load".*

A bulk item may be too large to fit in a net section. In this case, the mandatory divider net should be removed, and all bulk items must be individually fasten in the cargo hold.

IMPORTANT: *A minimum clearance of 0.051 m between the top of the load and the cargo hold ceiling must be ensured.*

SECTION / NET ARRANGEMENT

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

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

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

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items.

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m^3)	(ft^3)
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:

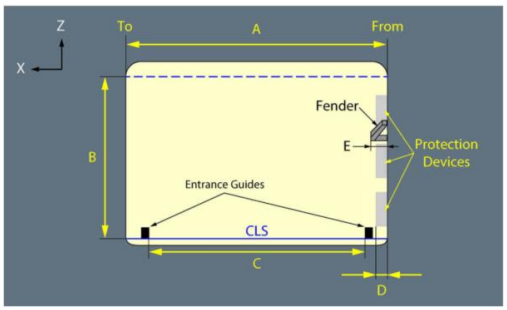
- the maximum theoretical volume.
- the volume reduction due to the door area.
- the volume reduction due to the minimum clearance between the top of the load and the cargo hold ceiling.
- the volume reduction due to the protection devices for the decompression devices on the cargo hold wall.

CARGO HOLD DOOR

The Forward Cargo Hold is equipped with a door on the right side of the fuselage.

The door opens outward.

Front view of the door (illustration)

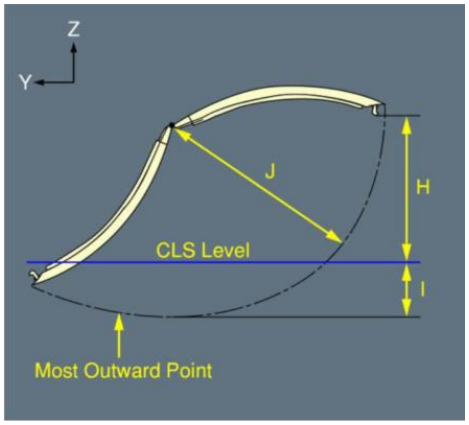


4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

Legend		Dimensions (m)	Dimensions (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

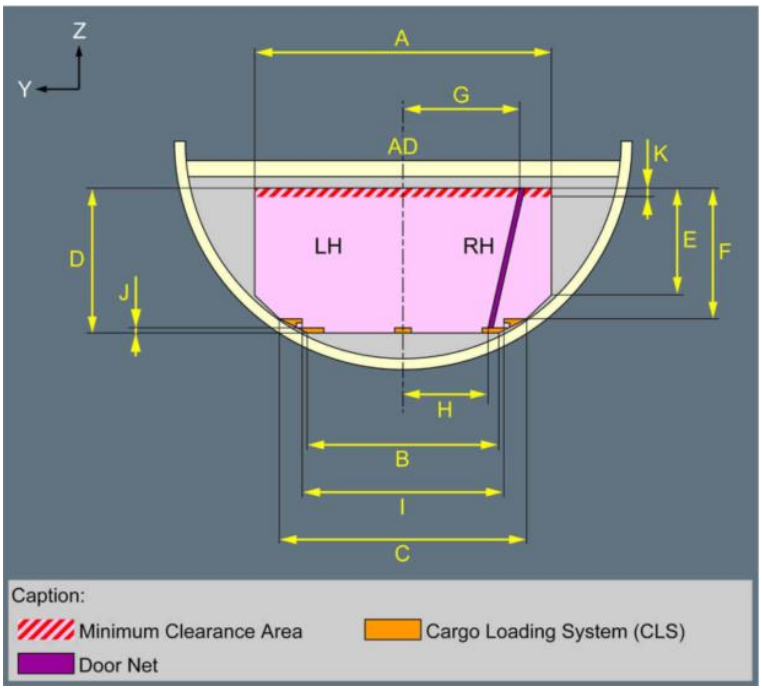


Legend		Dimensions (m)	Dimensions (in)
H	Clearance between the CLS level and the hooks (when the door is in fully opened position)	1.385	54.53
I	Clearance below the CLS level when the door is operated	0.687	27.05
J	Door opening radius	2.024	79.68

NOTE: *Fender on 9A-CTK only.*

CROSS SECTION

Cross section (illustration)



4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

The table below provides the cross sections of the Forward Cargo Hold:

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

TIE-DOWN POINT LOCATION

This part provides the location of all the tie-down points installed in the forward cargo hold.

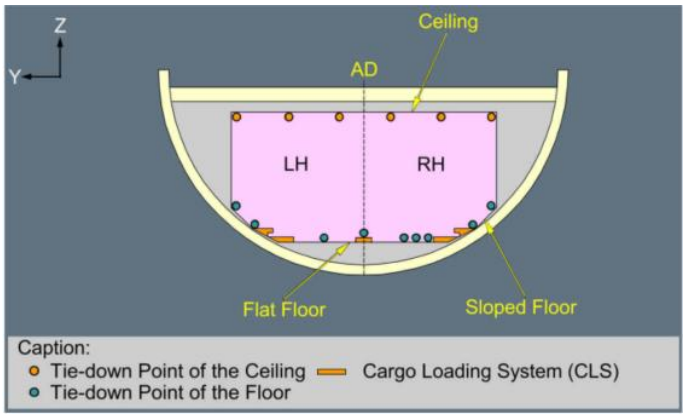
The forward cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

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.

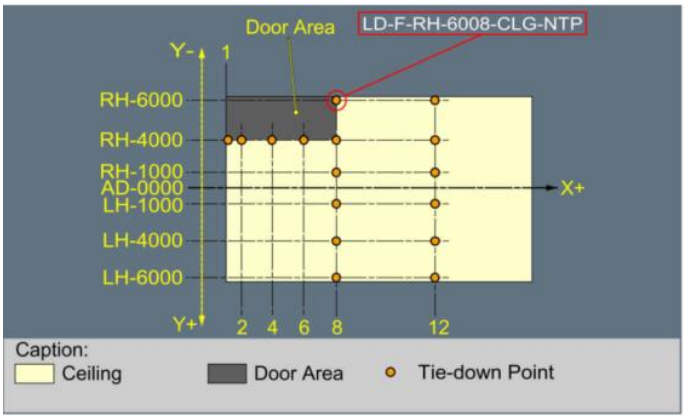
The tie-down points on the ceiling of the cargo hold are only dedicated to the installation of nets.

To restrain bulk items, the operator only uses the standard tie-down points.

Possible location of the tie-down points (illustration)



Tie-down points of the ceiling (illustration)

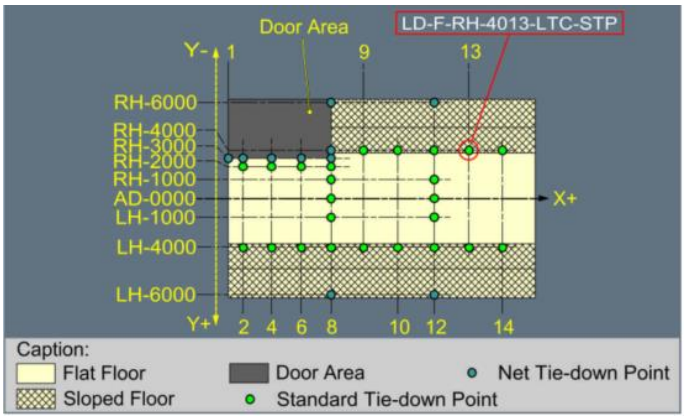


4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

Tie-down points of the flat and sloped floors



LOADING RECOMMENDATIONS

To load an item in the Forward Cargo Hold, the following factors must be considered:

- 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.

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

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 1 (FWD-Forward Cargo Hold)

(cont.)

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	-

Maximum package dimensions with the mandatory divider net removed

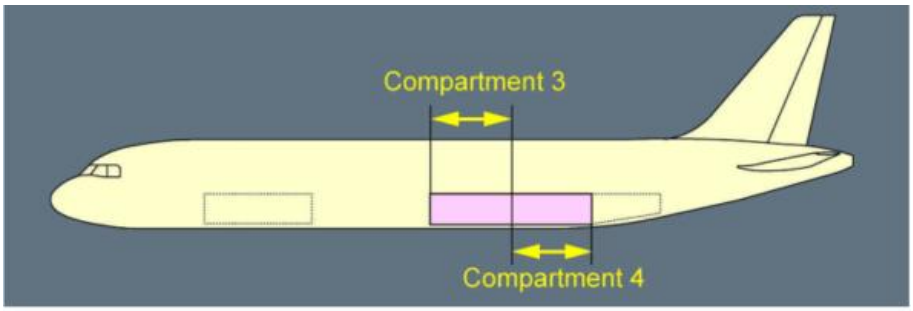
The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider net removed.

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	-

4.5.5. A320 Compartments Loading Guide (cont.)

Compartments 3,4 (AFT-Aft Cargo Hold)

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.

NOTE: *On Croatia Airlines A320 CLS is covered by pallets, therefore bulk operation is default loading operation.*

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.

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 cargo hold is divided into sections 31,32,41,42 to help the control of the loading.

The following table provides the maximum gross weight and volume per section:

Maximum Capacity	31	32	41	42
Gross Weight (kg)	1301	1125	928	1182
Volume (m^3)	5230	4530	3750	4750

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.

RESTRAINT CONDITIONS

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 bulk loading, if the mandatory nets are installed, no additional restraints are required.

Exceptions: *For exceptions please refer to ch. 4.2.3." Securing of Load".*

4.5.5. A320 Compartments Loading Guide (cont.)

Compartments 3,4

(AFT-Aft Cargo Hold)

(cont.)

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.

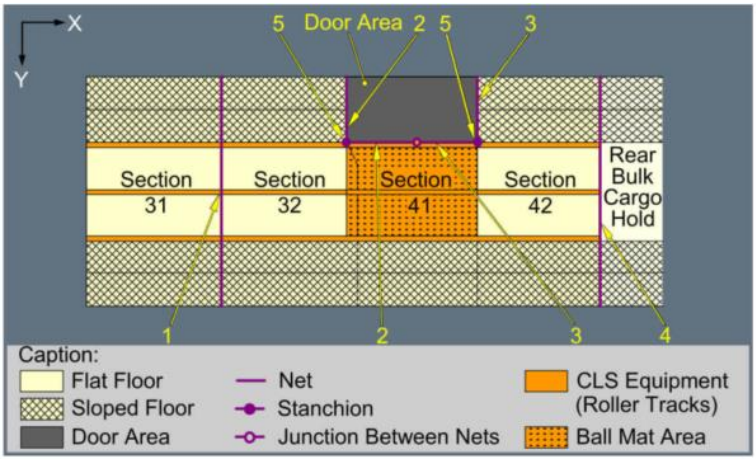
This new net section is defined by two successive mandatory divider nets, or by a mandatory divider net and a wall.

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

IMPORTANT: *A minimum clearance of 0.051 m between the top of the load and the cargo hold ceiling must be ensured.*

SECTION / NET ARRANGEMENT

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 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

4.5.5. A320 Compartments Loading Guide (cont.)

Compartments 3,4

(AFT-Aft Cargo Hold)

(cont.)

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items:

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m^3)	(ft^3)
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.

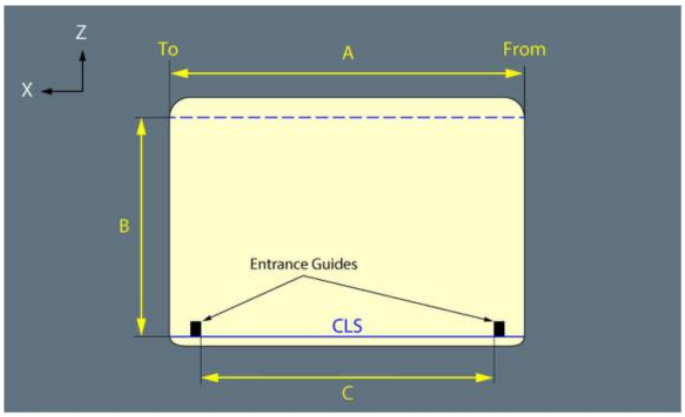
CARGO HOLD DOOR

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.

Front view of the door (illustration)



Legend		Dimensions (m)	Dimensions (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

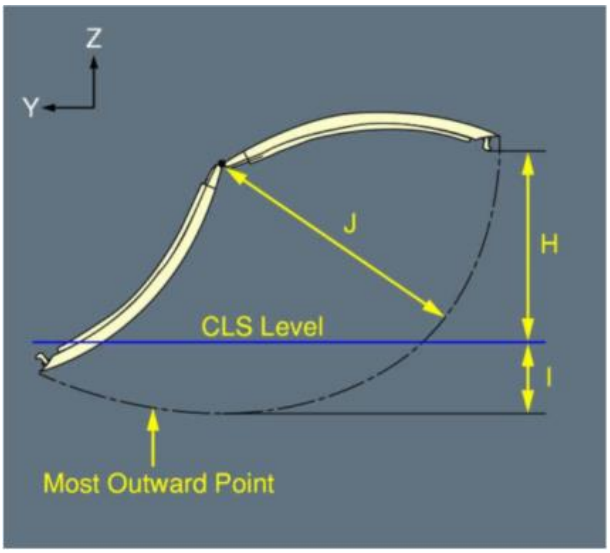
4.5.5. A320 Compartments Loading Guide (cont.)

Compartments 3,4

(AFT-Aft Cargo Hold)

(cont.).

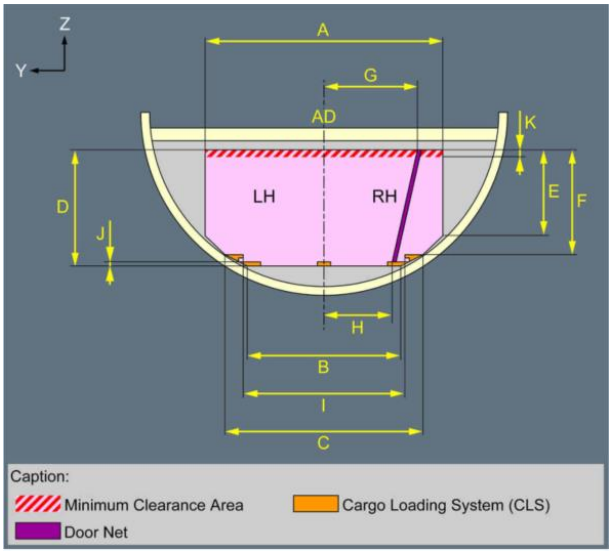
Side view of the door (illustration)



Legend		Dimensions (m)	Dimensions (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

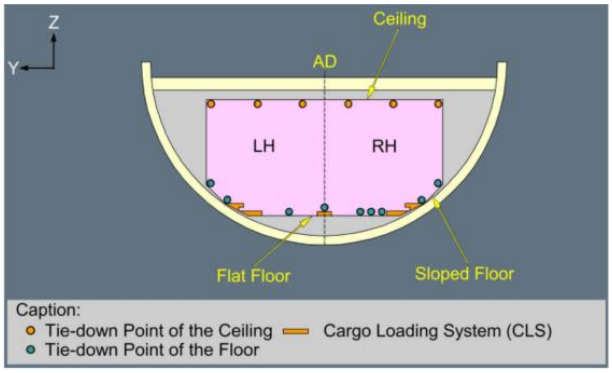
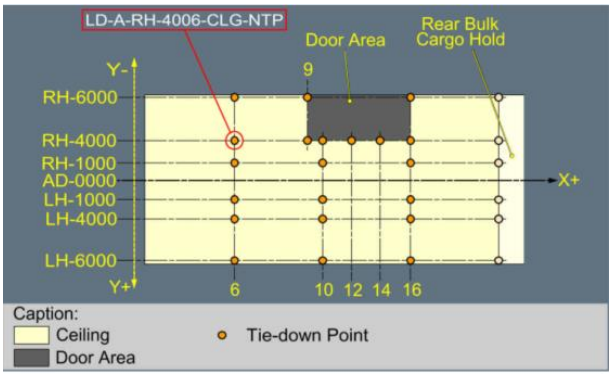
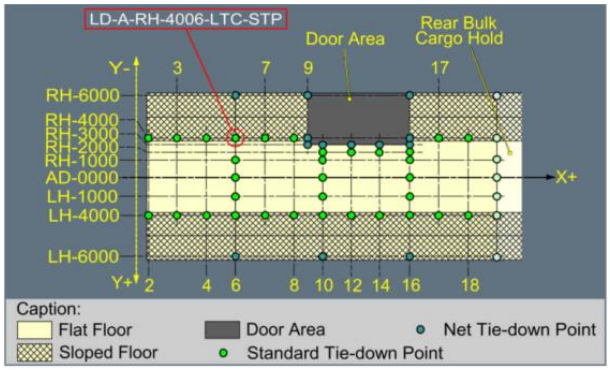
CROSS SECTION

The table below provides the cross sections of the cargo hold.



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

4.5.5. A320 Compartments Loading Guide (cont.)

Compartments 3,4 **(AFT-Aft Cargo Hold)** **(cont.)**	**TIE-DOWN POINT LOCATION** This part provides the location of all the tie-down points installed in the AFT 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. *Possible location of the tie-down points (illustration):*  *The tie-down points of the ceiling (illustration):*  *Tie-down points of the flat and sloped floors (illustration):* 

4.5.5. A320 Compartments Loading Guide (cont.)

Compartments 3,4

(AFT-Aft Cargo Hold)

(cont.).

LOADING RECOMMENDATIONS

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.

9A-CTK

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.

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
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	-

4.5.5. A320 Compartments Loading Guide (cont.)

Compartments 3,4

(AFT-Aft Cargo Hold)

(cont.)

Maximum package dimensions with the mandatory divider nets not 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.

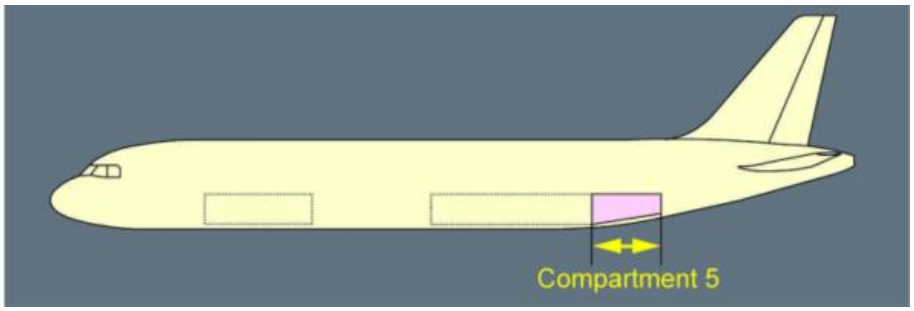
The following tables provide the maximum dimensions of the packages that can be loaded with the mandatory divider nets removed.

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	-

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 5 (Rear Cargo Hold)

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.*

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 following table provides the maximum gross weight and volume per section:

Maximum Capacity	**51**	**52**	**53**
Gross Weight (kg)	374	353	770
Volume (m^3)	1460	1380	3040

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.

RESTRAINT CONDITIONS

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 bulk loading, if the mandatory nets are installed, no additional restraints are required.

Exceptions: *For exceptions please refer to ch. 4.2.3." Securing of Load".*

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.

IMPORTANT: *A minimum clearance of 0.051 m between the top of the load and the cargo hold ceiling must be ensured.*

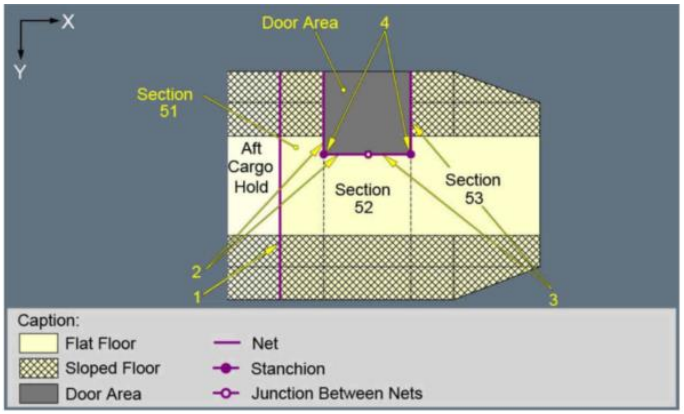
4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 5 (Rear Cargo Hold)

(cont.)

SECTION / NET ARRANGEMENT

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 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

The following table provides the usable volume and H-ARMs for each section available for the loading of bulk items:

Section	H-ARMs						MAX Usable Volume	
	From		To		Average			
	(m)	(in)	(m)	(in)	(m)	(in)	(m^3)	(ft^3)
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.

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 5 (Rear Cargo Hold)

(cont.)

CARGO HOLD DOOR

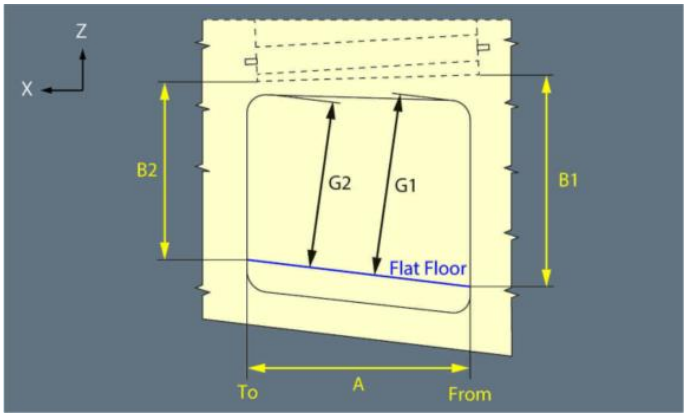
The rear bulk cargo hold is equipped with a door on the right side of the fuselage.

The door opens inward.

To load and unload the rear bulk cargo hold, the operator must use:

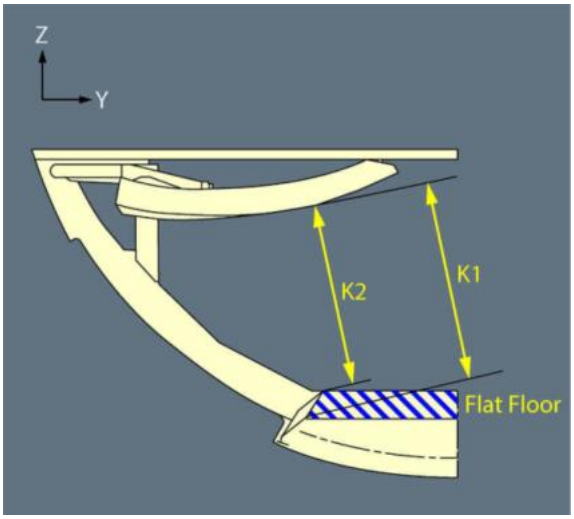
- the door of the rear bulk cargo hold, or
- the door of the aft cargo hold, after removal of the divider net between the aft and rear bulk cargo holds.

Front view of the door (illustration)



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 (illustration)



4.5.5. A320 Compartments Loading Guide (cont.)

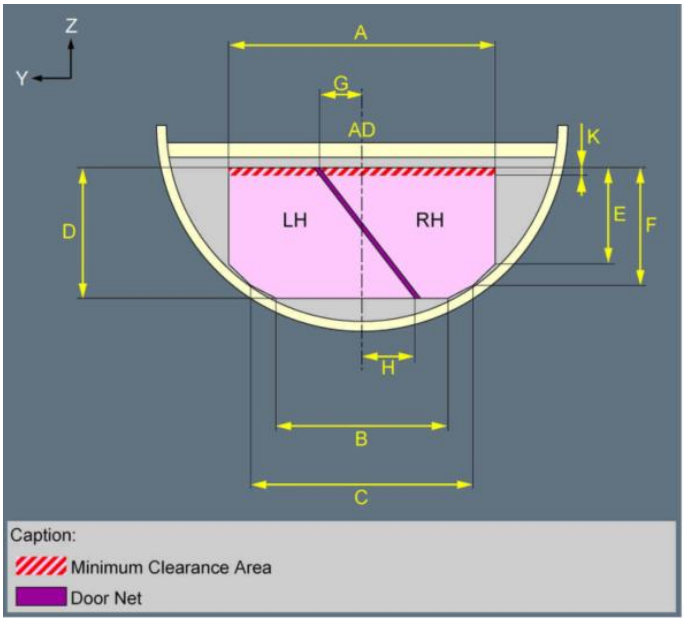
Compartment 5 (Rear Cargo Hold)

(cont.).

Legend		Dimensions (m)	Dimensions (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

CROSS SECTION

The tables below provide the cross sections of the cargo hold.



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

TIE-DOWN POINT LOCATION

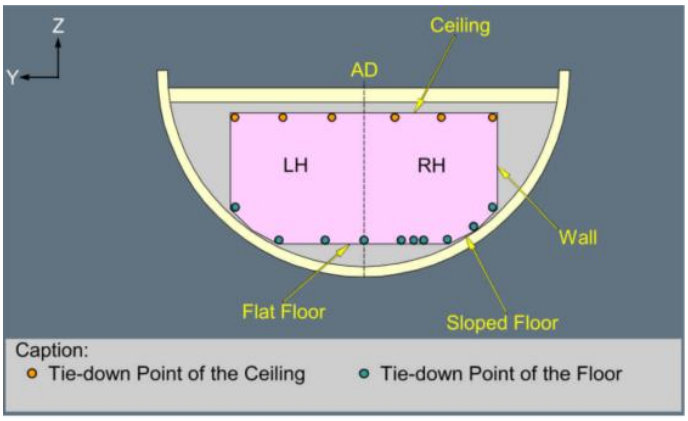
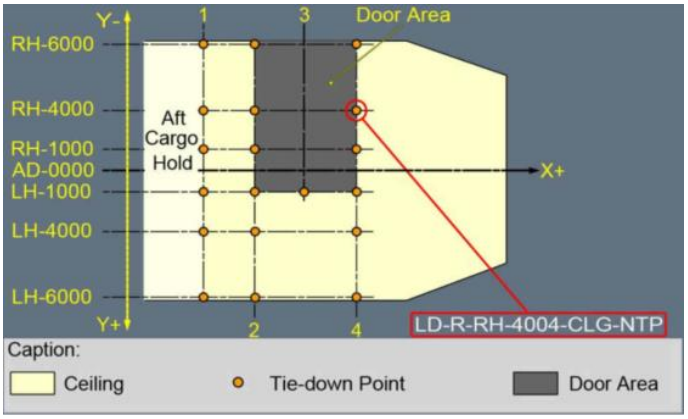
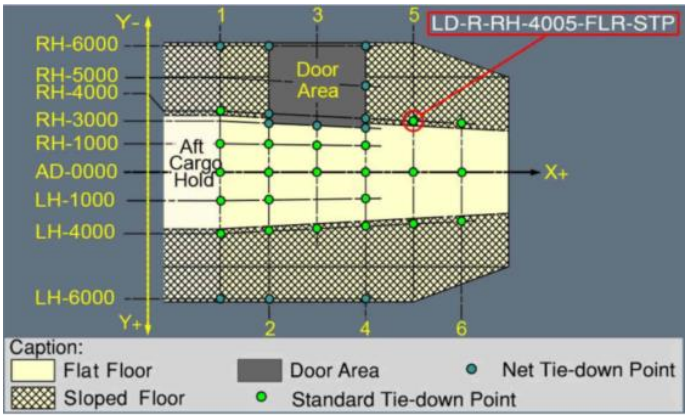
The rear bulk cargo hold is equipped with tie-down points on the ceiling, the sloped floor and the flat floor of the cargo hold.

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 that are not already used to attach the nets.

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 5 (Rear Cargo Hold) **(cont.)**	*Possible location of the tie-down points*  *Tie-down points of the ceiling*  *Tie-down points of the flat and sloped floors* 

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 5 (Rear Cargo Hold)

(cont.).

LOADING RECOMMENDATIONS

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 of 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.

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	-

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.

4.5.5. A320 Compartments Loading Guide (cont.)

Compartment 5 (Rear Cargo Hold)

(cont.)

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	-	-	-	-

4.5.6. DASH 8 Q400 Compartments Loading Guide

Baggage (Cargo) Compartments Arrangement	• The Dash−8 Series 400 aircraft has two Class C baggage compartments: ✓ the Forward Baggage Compartment (Hold 5). ✓ the Aft Baggage Compartment (Hold 6) is divided into two hold sections: ▪ Aft Lower (C61), and ▪ Aft Upper (C62). • The forward baggage compartment (Hold 5) is located on the forward right side of the fuselage and is accessible from the cabin on ground, but the exterior door cannot be opened from inside. • The Aft baggage compartment (Hold 6) is located on the left side of the fuselage and is not accessible from the cabin. • Each compartment is equipped with its own doors for loading / unloading activities and has different dimensions. • The Forward and Aft Baggage Compartments contain an integrated smoke detection, indication and extinguishing system.
Baggage (Cargo) Compartment Limits	• **FWD Baggage Compartment (Hold 5)** maximum weight and volume capacity is: ✓ 412 kg. ✓ 2,58 m^3. ***NOTE:*** *In all cases, the baggage must be loaded to decrease the lateral effect on the aircraft center of gravity.* • **AFT Baggage Compartment (Hold 6)** maximum combined weight and volume capacity is: ✓ 1150 kg. ✓ 10,34 m^3. ✓ Lower (Section 61) maximum weight capacity is 1150 kg. ✓ Aft (Section 62) maximum weight capacity is 454 kg.
Maximum Single Item Weight	• **Forward Baggage Compartment (Hold 5)** ✓ 50 kg. • **Aft Baggage Compartment (Hold 6)** ✓ 200 kg.
Baggage Compartments Floor Loading Limits	**Maximum floor loading limit (kg/m^2):** • FWD Baggage Compartment (HOLD 5): ✓ 610 kg/m^2. • AFT Baggage Compartment (HOLD 6): ✓ 1150 kg/m^2 (combined sections 61+62). ✓ 610 kg/m^2 - lower (61) section. ✓ 366 kg/m^2 – lower (62) section.

4.5.6. DASH 8 Q400 Compartments Loading Guide (cont.)

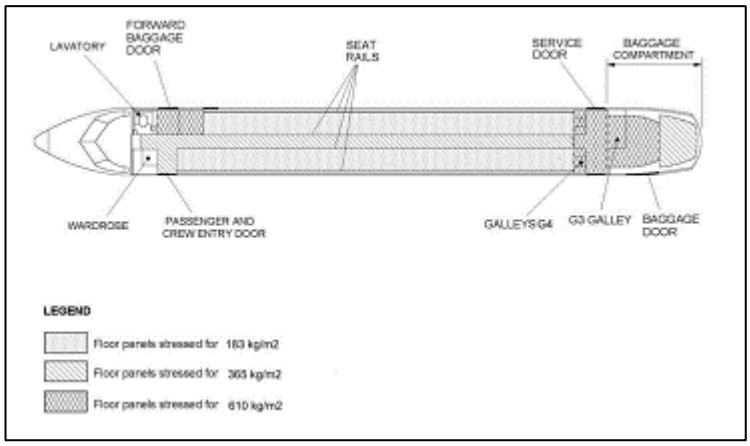
Cabin Floor Loading Limits

- The cabin floor can be loaded in limits of the different floor areas up to a maximum of 488 kg/m run. A foot run is measured parallel to the airplane's longitudinal axis and extends over the full width of the floor.

NOTE: *A maximum load of 488 kg/m run must not be exceeded. Maximum loading capacities of floor areas are as follows:*

• Under the passenger seats, on the 37.5lb/sq ft (183 kg/m²) floors:	Maximum overall loading and maximum concentrated load on any one square foot is 183 kg/m².
• In the cabin entrance area, on the center aisle of the cabin and in the lavatory area on the 366 kg/m² floors: • In the galley area on the 610kg/m² floors:	Maximum overall loading and maximum concentrated load on any one square foot is 366 kg/m².

ILLUSTRATION:



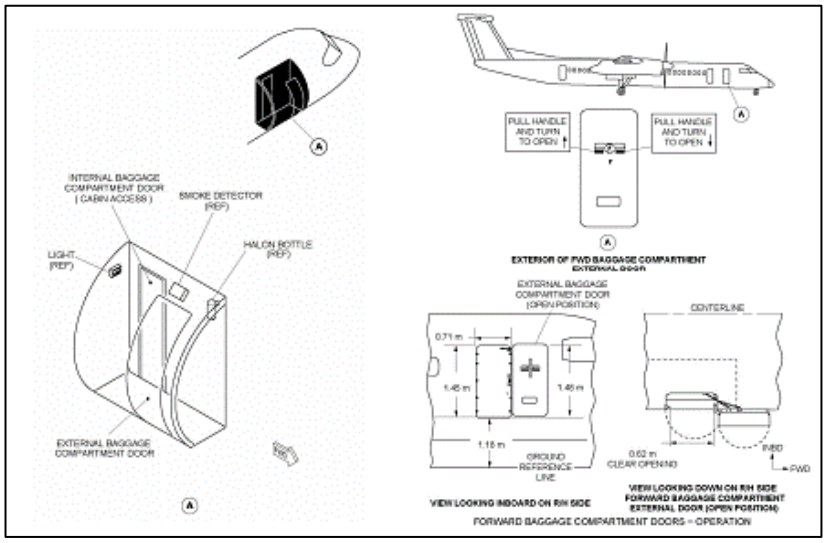
FWD Baggage (Cargo) Compartment (Hold 5)

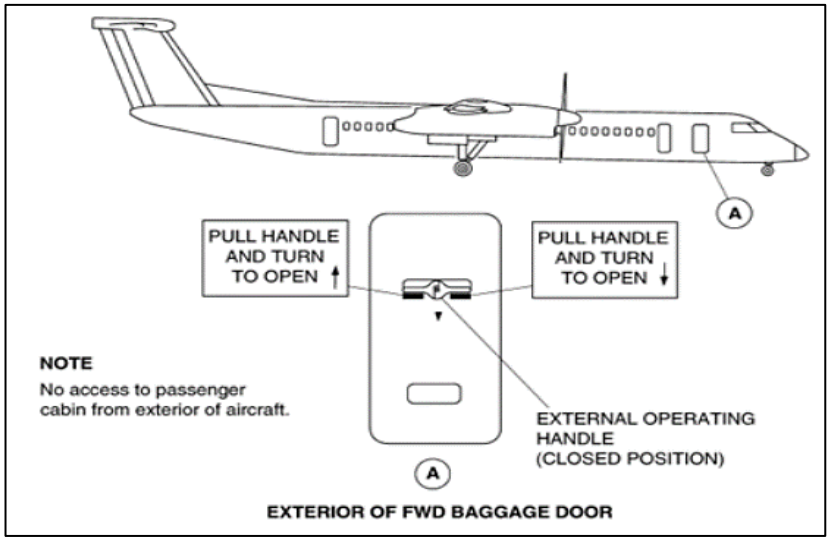
- The Forward Baggage Compartment is located in the right side of the aircraft, forward of the passenger-seating compartment.
- The capacity of the Forward Baggage Compartment is 2.58 m^3 for the standard configuration or 1.4 m^3 for the optional configuration.
- For securing load no provisions are available in compartment.
- A door used to gain entry into the compartment is located on right side of the aircraft forward fuselage.
  This door lets ground personnel get access to the forward baggage compartment from outside of the aircraft.
- Another door used to gain entry into the compartment is located in the cabin of the aircraft and allows personnel to gain access to the forward baggage compartment from within the aircraft.
  The door located inside the cabin can only be opened when the parking brake is set on. When the parking brake is not set, access to the forward baggage compartment from the cabin is not possible.

CAUTION: *Opening and closing of the external doors is limited to wind speeds gusting up to 65 knots.*

4.5.6. DASH 8 Q400 Compartments Loading Guide (cont.)

FWD Baggage (Cargo) Compartment (Hold 5) **(cont.)**	• The external door to the forward baggage compartment is opened and closed using a handle mounted into an exterior recess in the door. To open the door, the handle must be pulled out and turned clockwise 90 degrees. The door must then pulled out and moved to the right. To close the door, pull the door out and move it left, towards the door opening. The door handle must be turned counterclockwise 90 degrees and pushed into the recess. *ILLUSTRATIONS:*

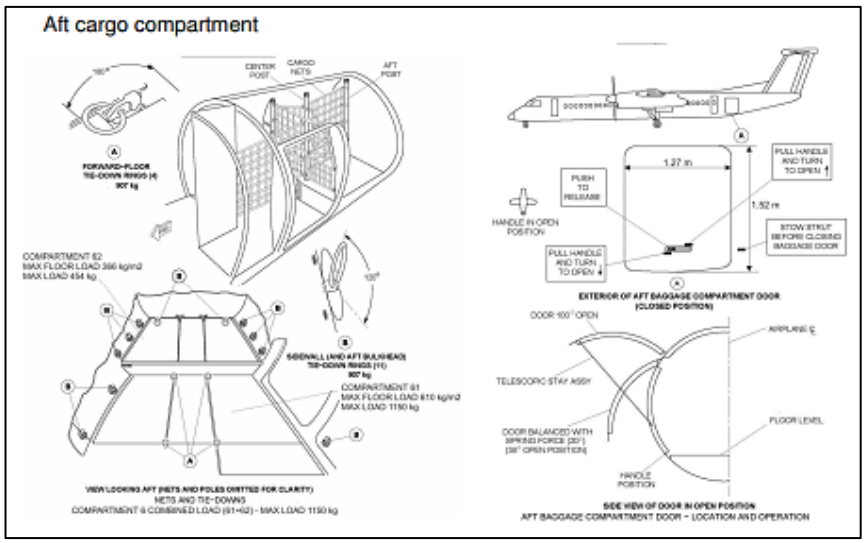




4.5.6. DASH 8 Q400 Compartments Loading Guide (cont.)

AFT Baggage (Cargo) Compartment (Hold 6)	• The AFT baggage (cargo) compartment (HOLD 6) is located on the left side of the fuselage and is not accessible from the cabin. • For loading purposes (segregation of load per destination and/or load category), the AFT compartment is divided into two hold section (61/62). • Baggage restraints, optional baggage divider nets and tie−down rings are installed in the aft baggage compartment to restrain cargo and baggage, and keep the cargo and baggage from moving during flight. • The aft baggage compartment also contains two ventilation valves, which are identified as the inlet ventilation valve and the outlet ventilation valve. The inlet ventilation valve lets air to flow into the baggage compartment and the outlet ventilation valve lets air flow out of the baggage compartment and into the atmosphere. • A door used to gain entry into the compartment is located on the left side of the aircraft aft fuselage. This door lets ground personnel get access to the aft baggage compartment from outside of the aircraft. ***IMPORTANT:*** *Always keep the door net inside the compartment in order to prevent the net fittings from damaging the aircraft skin and to prevent the nets from becoming wet in case of rain.* • The aft baggage compartment door is located on the left side of the fuselage, to the rear of the aircraft. • The aft baggage compartment door is opened and closed using a flush mounted handle in the door outer surface. **To open the door**, push the release button on the handle. The door handle moves outward from the door. Rotating the handle 90 degrees counterclockwise opens the door. The door can then be lifted to the full open position. A telescopic support strut located on the bottom edge of the baggage door can be used to additionally support the door. **To close the door**, collapse the telescopic strut and push it back into the spring clip on the bottom edge of the baggage door. Pull the door down and into the opening. The door handle must be rotated clockwise 90 degrees and pushed into the recess until it is flush with the fuselage skin. ***CAUTION:*** *Opening and closing of the external doors is limited to wind speeds gusting up to 65 knots.*

4.5.6. DASH 8 Q400 Compartments Loading Guide (cont.)

AFT Baggage (Cargo) Compartment (Hold 6) **(cont.)**	*ILLUSTRATIONS:* 
Compartments Loading Restrictions and Capability	• Loading Restrictions: ✓ For weight restrictions regarding maximum single item weight, maximum floor load and maximum running load refer to previous sections and OP-PSU-075 Dash 8 – Q400 AHM560". ✓ Special precautions to prevent the aircraft from tail tipping during standard ground operations are not in force. ✓ If any part of the net in HOLD 6 is unserviceable, torn, cut or missing, inform the Flight Crew and/or Maintenance Staff (if available). If the net cannot be repaired, loading restrictions will be decided by the Commander. If repairs cannot be carried out at your station, also inform the destination station by an appropriate SI-remark on the LDM and the technical department at the home base (ZAG): mcc@croatiaairlines.hr. • Maximum Dimension Table: ✓ The acceptance as well as the loading of cargo offered for transportation is limited either by the dimensions of single load items or weight maxima per cargo compartment. ✓ The following tables give the maximum permissible size of cargo items that can be loaded into cargo compartments based on door dimensions respectively compartment depth.

4.5.6. DASH 8 Q400 Compartments Loading Guide (cont.)

Compartments Loading Restrictions and Capability

(cont.)

- Guidelines for usage of tables:
  - ✓ Read off the applicable width and height according to dimensions of shipment.
  - ✓ Draw a fictive vertical line from the width upwards (if the exact figure is not shown in the table, use the next higher available).
  - ✓ Draw a fictive horizontal line from the height (if the exact figure is not shown in the table, use the next higher available).
  - ✓ Receive the maximum possible length at the points where the lines intersect.
  - ✓ Consider possible turning of item if no “THIS SIDE UP” label is attached (exchange of height and width) to receive improvement / increase of length factor.

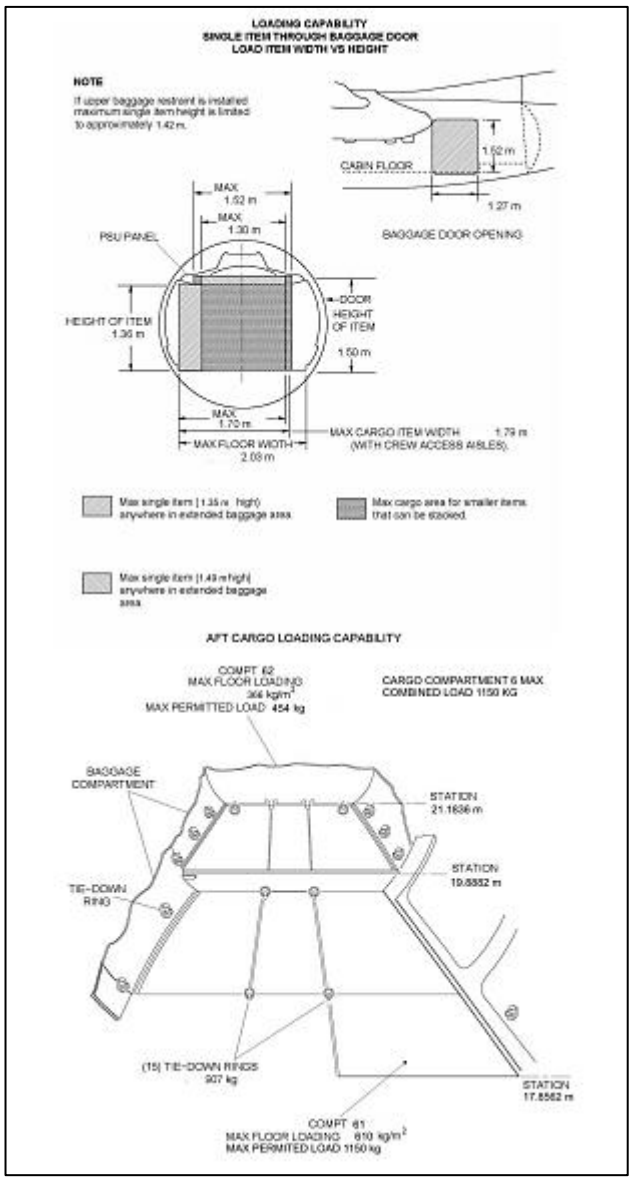
Compartment 6

HEIGHT (cm) \ LENGTH (cm)	8	15	23	30	38	46	53	61	69	76	84	91	99	107	114	122
152	114	114	111	111	111											
145	116	114	114	114	114	111	111	109	109	106	106					
137	144	144	144	144	142	139	139	137	134	132	129					
130	149	149	149	149	147	147	144	142	139	137	137					
122	149	149	149	149	147	147	144	142	139	137	137					
114	190	182	177	170	162	154	152	152	152	149	149	147	147	144	142	139
107	190	182	177	170	162	154	152	152	152	149	149	147	147	144	142	139
99	190	182	177	170	162	154	152	152	152	149	149	147	147	144	142	139
91	190	182	177	170	162	154	152	152	152	149	149	147	147	144	142	139
84	292	284	279	274	266	261	256	254	248	246	241	238	233	220	208	193
76	292	287	279	274	269	264	259	254	248	246	243	241	236	223	210	200
69	292	287	281	274	269	264	259	254	251	246	243	241	236	223	210	200
61	292	287	281	276	269	264	259	256	251	248	243	241	238	226	213	203
53	292	287	281	276	271	266	261	256	251	248	246	243	238	226	213	203
46	292	289	281	276	271	266	261	256	251	248	246	243	238	226	213	203
38	294	289	284	276	271	266	261	256	254	248	246	243	238	226	213	203
30	294	289	284	276	271	266	261	259	254	251	246	243	241	228	215	203
23	294	289	284	279	271	266	264	259	254	251	248	246	241	228	215	203
15	297	289	284	279	274	269	264	259	254	251	248	246	241	228	215	203
8	297	292	284	279	274	269	264	259	256	251	248	246	243	231	218	203

WIDTH (cm)

NOTE: A clearance of 2,5 cm on each side has been taken into account

4.5.6. DASH 8 Q400 Compartments Loading Guide (cont.)

Compartments Loading Restrictions and Capability **(cont.)**	*ILLUSTRATION:* 
Ballast	• Ballast of 200 kg is mandatory in zone cargo compartment 6 (aft cargo) for training flights only (crew code 2+0 and 3+0).

4.5.6. DASH 8 Q400 Compartments Loading Guide (cont.)

Delivery at Aircraft (DAA)	• Hand baggage (DAA) has to be loaded in the compartment 6 and requires a remark on the LDM. ***EXAMPLE:*** *DAA 6/X (x is number of pieces in DAA)* • The number of DAA pieces should be reported to the flight crew. • DAA weight influence check: ✓ There is no influence of DAA on aircraft weight (baggage is only moved from cabin to cargo compartment). However, in case of DAA, cargo compartment 6 load limit must be observed. ***REFERENCE:*** *For more details refer to OP-PSU-075 Dash 8 – Q400 AHM560".*

4.6. UNLOADING OF AIRCRAFT

4.6.0. Overview

Contents	This chapter contains the following sections: 4.6.1. Unloading Procedures

4.6.1. Unloading Procedures

General	• Already before arrival of the aircraft, the activities required for unloading should be planned carefully. • The personnel and equipment required shall be available at the parking position on arrival of the aircraft. • Immediately after the engines have stopped, the equipment will be placed into position in accordance with the applicable safety regulations. • Unloading shall be commenced in accordance with the loading instruction. • All unloaded items must be properly protected against rain and snow. • Live Animals must be immediately transferred to the cargo warehouse (except if shipped as checked baggage).
Baggage	• Baggage must be unloaded first and dispatched to the arrival hall immediately. • Baggage must arrive on the conveyor belt in the baggage claim area in the following sequence: ✓ HON Priority baggage, if applicable. ✓ PRIORITY baggage, if applicable. ✓ Non-priority baggage.
Cabin Load	• Cabin load, if any, will be unloaded as soon as passengers have disembarked.
Cargo and Mail	• Cargo and Mail for the respective destination shall be unloaded according to the loading documents and shall be handed over to the mail office or cargo department, respectively.
Route Equipment	• Route equipment, (e.g., flight kit and standard equipment), shall not be unloaded.
Scaling Process	• If the Flight Crew experiences a handling irregularity on take-off, the Flight Crew may request aircraft scaling (weighing of all baggage and cargo / mail on board) at the arrival station. Aircraft must not be offloaded when a scaling has been requested until the process has been initiated. Contact the airline representative or authorized staff for further details.

4.6.1. Unloading Procedures (cont.)

Unloading Safety Precautions	• The Handling Agent responsible staff shall ensure following: ✓ Check to ensure that the aircraft hold load has not shifted during the flight. ✓ Check for damage to the aircraft hold as the unload progresses. ✓ Take care if load has shifted during flight, a check to verify the contour of the cargo loads passing through the doorway shall be made to ensure, sufficient space between the doorway depressor seals and cargo load is assured. Contact the person responsible for aircraft loading supervision task if shifted load will not safely exit the door. ***NOTE 1:*** *Report any discrepancies e.g., spills, unusual fumes, or smells, etc. prior to or during the unloading process to the person responsible for aircraft loading supervision task or as required by the operator or authority, immediately.* ***NOTE 2:*** *Offloading Instructions Report, OIR, which is a systematic plan for unloading, may be issued prior to aircraft arrival. For transit flights, an OIR may be issued.*
Cargo Hold Inspection	***NOTE:*** *Refer to section 4.3.3." Cargo Hold Inspection".*

4.7. LOAD IN THE PASSENGER CABIN

4.7.0. Overview

Contents	This chapter contains the following sections: 4.7.1. Stowing of Load in the Passenger Cabin

4.7.1. Stowing of Load in the Passenger Cabin

General	• Stowing of checked baggage, cargo and mail in the passenger cabin or securing the above to a passenger seat is not permitted. ***EXCEPTIONS:*** *See below.* ***NOTE:*** *"Living Human Organs and Fresh Blood Plasma" (LHO) can be loaded in the cabin (see, 7.5.9."Loading").*
Exceptions	• The following cabin load can be accepted in the passenger cabin: ✓ Cabin Baggage. ✓ Special Baggage. ✓ Stretchers. ***REFERENCE:*** *PBHM, ch.9. "Carry-on Baggage".*
Loading and Securing of Cabin Load	• Cabin load must be secured and lashed by meaning of seat belt and/or extension seat belt. • A blanket or a plastic foil shall be used, if necessary to protect the seat against contamination.
Stowing of Cabin Load	• Free carry-on baggage and/or items shall be stowed on board in the overhead compartment or under the seat in front of the passenger. • Cabin load may be carried on a single seat, preferably on window seat. ***IMPORTANT:*** *Seats in the rows with emergency exits shall not be used.* • One or more seats must be reserved in advance and paid for. • The maximum weight limit of 75 kg per seat must be observed. • The item must be packed and covered in a manner to avoid possible injury to passengers and cabin crew members. • It must be ensured that the secured item will not obscure any passenger's view of the seat belt sign, no smoking or required exit sign. • Free access to the emergency exits/cabin doors and floor panels must be guaranteed and must not be blocked by cabin load. • Cabin aisles must be kept free.

4.7.1. Stowing of Load in the Passenger Cabin (cont.)

Stowing of Cabin Load

(cont.)

- Maximum dimensions:

Aircraft type	Maximum dimension from cabin floor
A 319/320	150X42X25
DASH	125X42X25
CRJ*	130X42X25

Aircraft type	Maximum dimension from seat
A 319/320	110 X 42 X 50
DASH	80 X 42 X 50
CRJ*	90 42 X 60

*Wet-Lease Aircraft.

Documentation of Cabin Load

- Baggage loaded in the cabin shall be included in the “B” (baggage) and “0” (cabin) column on the load sheet.
- In the balance chart each seat occupied by baggage is considered as an additional passenger.
- PETC in care of passenger is hand baggage and registration in the load sheet is not necessary.
- Use 3-letter code “SOC” in traffic documents and messages to indicate such load.
- Balance calculation:
  1. Convert the total weight of the load on the passenger seat(s) into an equivalent number of passengers, using the standard adult weight (84 kg) as the divisor (to be considered as minimum 1 passenger for balance purposes).

     NOTE: *If the local EDP system is capable to calculate the actual weight accommodated on a seat (section / seat-row trim), the general rule as shown above does not apply.*
  2. Add this number to the number of passengers seated in the respective cabin section for balance purposes.

4.7.1. Stowing of Load in the Passenger Cabin (cont.)

Cabin Baggage	• Following unchecked baggage can be accepted in the passenger cabin: ✓ **Carry-on baggage** ▪ Free carry-on baggage and items. ✓ **Pets in cabin (PETC), such as:** ▪ Small domestic animals (dogs and cats only). ✓ **Service animals (SVAN):** ▪ Trained animals to assist a person with a disability (i.e., seizure alert animals, animals trained to assist the blind or the hearing impaired). ***REFERENCE:*** *PBHM, chapter 9. "Carry-on Baggage".*
Special Baggage	• Special baggage carried in the cabin, but subject to special regulations and charges: ✓ **Bulky, fragile, and valuable baggage in cabin, such as:** ▪ Musical instruments. ▪ Works of art. ▪ Electronic equipment. ▪ Diplomatic baggage. ▪ Valuable baggage (i.e., gold, bank notes, etc.…). ***REFERENCE:*** *PBHM, chapter 9. "Carry-on Baggage".*
Stretchers	• For the transportation of passengers on stretchers a booking request has to be sent to the Croatia Airlines (CTN) Space Control (cap.ctrl@croatiaairlines.hr). ✓ They will then check the availability of space on the flight(s) concerned as well as the availability of a station engineer for the installation of the stretcher at the respective station. ✓ When accepting the reservation, Space Control informs all departments concerned and initiates the disposition of a stretcher to the station of occurrence. • Stretchers and accessories are stored and brought into operation by ZAG TM (Croatia Airlines Maintenance Department). ✓ For transportation of disabled passengers preferably CTN stretcher equipment shall be used. ✓ In a case of emergency only, where the life of a patient is endangered and where a CTN stretcher is not available on short notice, a different stretcher may be used. ✓ The station engineer is responsible for the correct installation/removal of the stretcher as well as for the fitting of the curtains. ✓ For stations without station engineer, the stretcher will depending on the availability of space - be installed at a previous station, or be removed at a subsequent station with station engineer. ✓ After use, the immediate return of the stretcher equipment to ZAG has to be initiated.

4.7.1. Stowing of Load in the Passenger Cabin (cont.)

Stretchers (cont.)	• Handling of the Stretcher Case ✓ Passengers on stretchers should be boarded before embarkation and deboarded after disembarkation of the other passengers, respectively. ✓ The occupied stretcher shall be positioned and secured with the patient's head in flight direction. • Load Documentation ✓ "BED": ▪ Stretchers installed in the cabin. Their weight is not considered. ✓ "BEH": ▪ Stretchers loaded in holds with their weight stated ***REFERENCE:*** *Refer to PBHM, 6.5.8." Stretchers".*

5. COMMUNICATION & MESSAGES

5.0. OVERVIEW

Contents	This chapter contains the following: 5.1. Communication 5.2. Messages 5.2.1. General Information 5.2.2. Priority Indicator 5.2.3. Delay Codes 5.2.4. Departure Message 5.2.5. Arrival Message 5.2.6. Delay Message 5.2.7. Return to Ramp Message 5.2.8. Diversion Message 5.2.9. Loadmessage (LDM) 5.2.10. Other Operational Messages 5.2.11. Load Information Codes

5.1. COMMUNICATION

Purpose	• The purpose of the Communication System is to ensure an effective exchange of information between all personnel – no matter if internal or external staff. • It shall ensure that any information relevant to perform ground operation tasks, including safety and security issues are passed on throughout the system. This applies for “from top to bottom” as well as “from bottom to top”.
Communication Channels (day-to-day information)	• Daily communication shall be performed by (but not limited to): ✓ E-mail. ✓ Phone calls. ✓ Fax. ✓ SITATEX. ✓ ACARS. ✓ VHF Radio-stations. ✓ INTRANET. ✓ Link for Handling Agents. ✓ SMS, Chat Tools (e.g., WhatsApp…). ✓ Ad-hoc meetings, briefings. ✓ Social Media.

5.2. MESSAGES

5.2.0. Overview

Contents	This chapter contains the following sections: 5.2.1. General Information 5.2.2. Priority Indicator 5.2.3. Delay Codes 5.2.4. Departure Message 5.2.5. Arrival Message 5.2.6. Delay Message 5.2.7. Return to Ramp Message 5.2.8. Diversion Message 5.2.9. Loadmessage (LDM) 5.2.10. Other Operational Messages 5.2.11. Load Information Codes

5.2.1. General Information

Construction of message formats	• The construction of messages should be such that they may be easily prepared and readable in both manual and EDP processing. • Messages should be constructed with due regard to transmission costs and therefore the number of characters should be kept to a minimum. • The message description will determine the sequential order of elements to form an SMT (Standard Message Texts). The sequence will take account of the logical progression of elements required for computer processing, and the needs of manual reading. Any parts of the message intended for only manual reading shall follow after the machine-readable text. ***REFERENCE:*** *AHM 710 Standards for Message Formats.*
Maximum number of characters	• Each line shall not exceed a maximum of 64 characters (printed characters and spaces) and shall end with an alignment function consisting of carriage return/ line feed.
Message splitting	• The length of a single transmission shall not exceed 2.000 characters (approximately 31 fully printed lines from start of address to end of text signals).
Standards for message corrections	• If corrections to an already dispatched message are necessary: ✓ Dispatch a complete message again. ✓ Use the SMI (Standard Message Identifier) “COR” as a first line. ✓ The second line shows SMI for message type (e.g., MVT). ✓ Dispatch the corrected message as soon as the correction is made.

5.2.2. Priority Indicator

<table>
<tr><td>Introduction</td><td>

Priority Indicators are to be:

✓ Shown at the beginning of the address line;
✓ Followed by a space.

NOTE: Many systems generate all messages with an automated / standard indicator.
</td></tr>
<tr><td>Indicators</td><td>

There are different indicators for different types of messages:

<table>
<tr><th>Indicator</th><th>Type of Message</th></tr>
<tr><td>QD</td><td>• For messages with a non-urgent character;
• Almost as fast as QU, but low transmission cost (60% of standard cost).</td></tr>
<tr><td>QK/QN</td><td>• Standard Indicator;
• Standard transmission costs.</td></tr>
<tr><td>QU</td><td>• Stands for “Urgent Message”;
• Has priority in transmission, but high transmission cost (150% of standard cost);
• To be used for standard operational messages, unless otherwise operationally required;
• Not to be used to obtain a quick action or reply.</td></tr>
<tr><td>QX</td><td>• Priority Indicator;
• Very high transmission costs (200% of standard costs).</td></tr>
<tr><td>SS</td><td>• Top Priority Indicator
• Only for distress messages related to an aircraft incident.</td></tr>
<tr><td>No indicator</td><td>• For all ordinary messages.</td></tr>
</table>
NOTE: By unserviceable computer system (SITA), standard operation messages shall be forwarded by E-mail.
</td></tr>
</table>

5.2.3. Delay Codes

General	• Delay Codes are used to express the reason for delay or other handling irregularities in aircraft Movement Messages (MVT). • It is essential that these codes be applied impartially and not be considered as reasons for blame but rather to identify corrective action. In case of doubt of interpretation, the “SI-part” of the Movement Message may be used for supplementary explanation. • For every flight with an actual block off time more than 3 minutes after STD an IATA delay code shall be assigned. ***NOTES:*** • For a delay within 3 minutes after STD use delay code 03 (DL03). If the block-off time is more than 3 minutes after STD, e.g. 5 minutes, an IATA delay code for all 5 minutes is necessary. • If more than one delay code is assigned for a flight, the minimum time for each delay code is 4 minutes. Otherwise, the time of the delay code less than 4 minutes has to be added to another delay code and has not to be mentioned. • On MVT messages, a maximum of 4 delay codes per flight may be mentioned. If more than 2 delay codes per flight are necessary use format as described in IATA AHM 780. Still more than 4 delay codes must not be used. If there are more delay reasons, the delay code with the smallest amount of minutes has to be neglected. • In order to improve reporting and therefore collection of statistical information, whenever possible use “Sub Delay Codes” and avoid using only the main group. • The actual off-block time should always be coordinated between Handling Agent (e.g. ramp coordinator) and Airline (PIC or Airline Representative). • The reason for the delay will be determined by the Handling Agent and/or CTN representative (stations with own staff and/or Supervision). The Handling Agent and/or CTN representative shall inform the Commander about the reason as soon as possible, latest when flight documents are brought to the aircraft.

5.2.3. Delay Codes (cont.)

ATFM Delays	**Enhanced reporting on ATFM delays by the use of Sub-Codes:** • In order to improve reporting, and therefore collection of statistical information, by ATFM units, use the sub-codes for the following delays: ✓ 81, 82, 83, 89. ✓ 98, 99. A conversion table between NMOC reasons for ATFM regulations and IATA delay codes is already available in IATA AHM 730. ***Example:*** -TITLE SAM -ARCID CTN56E -IFPLID AA08335853 -ADEP EBBR -ADES LDZA -EOBD 181126 -EOBT 0930 -CTOT 1005 -REGUL EDGORK26 -REGUL EBEC126M -TTO -PTID SUXIM -TO 1025 -FL F190 -TAXITIME 0013 **-REGCAUSE CE 81** For regcause CE 81 applicable IATA Delay Code and Sub-code is 81Y (ATFM due to ATC en-route demand/capacity).
Delay Reporting	• Following ground operations delays exceeding 14 minutes have to be reported in station feedback with additional information to the HUB Control and Ground Services Department. ✓ AIRLINE INTERNAL CODES: 2,4,5. ✓ PASSENGER AND BAGGAGE CODES:11,12,13,14,15,16,17,18,19 ✓ CARGO AND MAIL CODES: 21 – 29. ✓ AIRCRAFT AND RAMP HANDLING: 31,32,33,34,35,36,37,39. ✓ DAMAGE TO AIRCRAFT CODES: 52. ✓ EDP/AUTOMATED EQUIPMENT FAILURE CODES: 55,56. ✓ FLIGHT OPS AND CREWING CODES: 61,63,65,66,68. ✓ AIRPORT AND GOVERNMENTAL AUTHORITIES CODES: 85,86,87,89. ✓ REACTIONARY CODES: 91,92,94,95. ✓ OTHER REASON CODE: 99. • The report has to be sent immediately after departure by e-mail to: ✓ groundservices@croatiaairlines.hr ✓ hub.control@croatiaairlines.hr

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes

Delay Code	Sub code	Description	Remarks
AIRLINE INTERNAL CODES			
02	**Miscellaneous Departure Procedures**		
	02A	ACDM discrepancies (TSAT-off block request) Target Startup Approval Time (TSAT) minus Actual Off block Request Time (AORT). e.g. late pushback request	Only valid for an ACDM airports: AMS, BCN, BER(SXF), BRU, CPH, DUS, FRA, GVA, HAM, HEL, LGW, LHR, LYS, MAD, MXP, LIN, MUC, NAP, CDG, ORY, OSL, PMI, PRG, FCO, ARN, STR, VCE, ZRH
	02B	Departure procedures after start-up clearance.	e.g. engine start on roll out position
03	**Delay within 3 minutes after STD**		
04	**Non Standard Technical Reasons**		
	04A	Technical inspection requested by flight deck crew subsequently found unnecessary.	
	04B	Technical inspection requested by ground staff subsequently found unnecessary	
	04C	Rejected by MCC.	
05	**Inadequate Ground Time (GT)**		
	05A	Slow deboarding delays consecutive process.	
	05B	Airline specific ground process exceptions.	e.g. bus transfer time insufficient due to late gate closing, differences of gate and boarding procedures
	05C	Not enough ground time for technical checks within daily rotations.	e.g. R check
	05D	Extended unloading of cabin items after specified inbound flights	
	05E	Extended loading of cabin items before specified outbound flights.	
	05F	Special planned cases only.	Prior defined and confirmed, to be used only after pre-information.

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

IATA STANDARD CODES (OTHERS)			
09	**Scheduled Ground Time Less Than Declared Minimum Ground Time**		
PASSENGER AND BAGGAGE			
11	**Late check-in due to late acceptance**		
	11A	Late acceptance of TRANSFER passengers.	Acceptance after check-in deadline. NOTE: Check-in deadline depend on the station and the type of flight (domestic / international traffic 45 minutes prior to STD / ETD).
	11B	Late acceptance of LOCAL passengers.	
	11C	Lack of check in staff.	
	11D	Ground transportation/ airport access congestion/ closure.	
12	**Late check-in due to congestion in check-in area**		
	12A	Congestion in check-in area (LANDSIDE).	Departure hall (e.g. insufficient counters open)
	12B	Congestion in check-in area (TRANSFER).	Transfer area
	12C	Lack of check in staff and all supervising.	
	12D	Ground transportation/ airport access congestion/ closure.	
13	**Check-in error**		
	13A	Check-in error by agent (check-in staff).	e.g. departure hall, transfer area, double seating, TCI
	13B	Self-check-in error.	e.g. internet, kiosk
	13C	Check-in error - intermodal.	e.g. train
14	**Oversales, booking errors** (incl. unscheduled equipment or seat configuration change for commercial reasons).		
	14A	Oversales, overbooking, resulting in denied boarding.	
	14B	Booking error.	
	14C	Configuration change commercial reasons.	
	14D	Involuntary downgrading/ upgrading of passengers.	
15	**Boarding, discrepancies and paging, missing checked in passengers WITHOUT BAGGAGE OFFLOAD**		
	15A	Boarding error/ pax figures discrepancies.	e.g. pax search on board due to wrong number of passengers on board/ tickets/ boarding passes
	15B	Late boarding start.	e.g. late opening gate due to lack of staff
	15C	Late boarding end.	e.g. late security match
	15D	Slow boarding by gate staff.	e.g. ticket problems
	15E	Slow passenger boarding/ deboarding.	

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

15	15F	Missing/ late check-in pax.	e.g. without baggage
	15G	Late bus order/ release by gate.	
	15H	Reseating pax after version or equipment change.	
16	**Commercial publicity, passenger convenience, VIP, press, ground meals and missing personal items**		
	16A	Late acceptance (commercial reasons).	
	16B	Disruptive pax handling.	e.g. unruly included baggage offload, unloading initiated by crew
	16C	Illness/ death of passenger.	
	16D	Passenger requested offload.	including baggage offload
	16E	Missing personal items (pax own mistake).	
	16F	DEPO&INAD handling.	
	16G	Excessive hand luggage handling.	
	16H	Ground meals	e.g. delayed flight
17	**Catering Order**		
	17A	Late or incorrect order.	
	17B	Late order of additional return catering by destination.	
18	**Baggage processing, sorting, etc.**		
	18A	Late delivery local baggage.	
	18B	Late delivery transfer baggage.	
	18C	Late delivery baggage from gate.	
	18D	Baggage Reconciliation System (BRS).	e.g. baggage reconciliation, breakdown of BRS, error due to matching discrepancies
	18E	Baggage problems due to aircraft capacity.	
	18F	Lack of staff.	e.g. sorting area, transport, etc.
	18G	Rush baggage irregularities.	
19	**Reduced mobility, boarding and deboarding of passengers with reduced mobility**		
	19A	Deboarding of passengers with reduced mobility from inbound flight.	
	19B	Boarding of passengers with reduced mobility onto outbound flight.	
	19C	Late / Lack / Error of PRM transport.	
	19D	Late / Lack of ambulance / STCR handling.	
	19S	Late / Lack of PRM staff.	

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

CARGO ONLY			
21	**Documentation**		
	21A	Late or incorrect cargo figures given to load control by cargo department.	Including NOTOC details.
	21B	Late or incorrect cargo documentations.	
22	**Late positioning**		
	22A	Reloading aircraft due to missing cargo.	
	22B	Lack of staff.	
	22C	Lack of equipment.	
	22D	Positioned to wrong stand.	
23	**Late acceptance (after deadline)**		
	23A	Special request from shipper or client.	
	23B	Lack of staff.	
	23C	Wrongly issued or missing documents from shipper.	
	23D	Late positioning from security checkpoint.	
24	**Inadequate packing or inadequate provision of loading material**		
	24A	Inadequate packing dangerous goods.	
	24B	Incorrect pallet / ULD build-up	
25	**Oversales, booking errors (Incl. equipment or configuration change for commercial reasons)**		
26	**Late preparation in warehouse**		
	26A	Lack of staff.	
	26B	Lack of equipment.	
	26C	Facility limitations.	
MAIL ONLY			
27	**Documentation, packing**		
28	**Late positioning (e.g. positioned to wrong stand)**		
29	**Late acceptance.**		
	29A	Commercial reasons.	
	29B	Standby mail.	
	29C	Lack of staff.	

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

AIRCRAFT AND RAMP HANDLING			
31	**Aircraft documentation late / inaccurate, weight & balance, general declaration, pax manifest, etc.**		
	31A	Late / incorrect documentation.	e.g. loading instruction / plan, fuel figures, general declaration, pax manifest
	31B	Late / incorrect remote / centralized loadsheet processing.	
	31C	Late / incorrect local loadsheet processing.	
	31D	Repositioning of passengers / deadload for balance reasons.	Including offloading due to balance reason.
	31E	Lack of or late staff.	e.g. weight & balance, ramp agent, TRC
32	**Loading /unloading, bulky, special load, cabin load, lack of loading staff**		
	32A	Cabin load, bulky, special load, HEA.	
	32B	Volumetric / space problems.	Including bulk load.
	32C	Incorrect loading.	e.g. not according to load plan or loading principles
	32D	Late loading staff.	
	32E	Lack of loading staff.	
	32F	Late /lack of loading supervision agent.	
	32G	Late / lack of loading materials	e.g. lashing / supporting material.
33	**Loading equipment, lack of or breakdown, lack of staff**		
	33A	Late / lack of equipment.	
	33B	Breakdown of equipment.	
	33C	Lack of equipment operator.	
34	**Servicing equipment, lack of or breakdown, lack of staff**		
	34A	Late operation jet-way.	In case of breakdown use delay code 87
	34B	Late / lack / breakdown of pax stairs.	
	34C	Late / lack / breakdown of passenger transport.	e.g. bus, HON service, RDS, etc.
	34D	Late / lack / breakdown of GPU and/or ASU.	
	34E	Late / lack / breakdown of toilet and water service.	
	34F	Late / lack of operators.	e.g. drivers, de-icing operators, etc.

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

35	**Aircraft cleaning**		
	35A	Late completion.	
	35B	Additional or special cleaning required.	incl. called back to aircraft due to inadequate service
	35C	Late cleaning due to aircraft change.	e.g. additional time needed (not covered by delay codes 46/96)
	35D	Lack of staff.	
	35E	Insufficient, incorrect and/or equipment breakdown.	
36	**Fueling / defueling / fuel supplier**		
	36A	Lack / late / breakdown of fuel truck.	e.g. breakdown of fuel truck during the operation.
	36B	Fueling supervision.	e.g. in case of late boarding, if boarding during fueling not possible due to missing fueling supervision (no instant 2-way communication between cockpit and fueling supervisor).
	36C	Fueling error.	
	36D	Fuel shortage / contamination.	
	36E	De-fueling.	
	36F	Special procedure for technical reasons.	
37	**Catering, late delivery or loading**		
	37A	Late completion.	e.g. due to late delivery, wrong loading
	37B	Lack / late / breakdown of catering equipment.	e.g. catering truck, high-loader
	37C	Wrong or insufficient catering.	
	37D	Return catering.	e.g. not loaded at previous station
	37E	Late catering due to aircraft change	additional time needed (not covered by delay codes 46/96)
	37F	Lack of staff.	e.g. catering and/or supplier staff
	37G	LMC order by airline.	
38	**ULD, lack of or serviceability**		
39	**Technical equipment**		
	39A	Breakdown / lack of / late GPU.	
	39B	Late / lack / breakdown of pushback / tow-bar.	
	39C	Late / lack / breakdown of ASU.	air-starter
	39D	Late / lack / breakdown of ACU.	air-conditioner

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

39	39E	Late / lack / breakdown of de-icing equipment.	
	39F	Late / lack / breakdown of other technical equipment.	
TECHNICAL AND AIRCRAFT EQUIPMENT			
41	**Aircraft defects during transit or after positioning on ramp (except damage to aircraft due to outside causes)**		
	41A	Technical defects.	
	41B	Cabin outfit malfunctions.	e.g. seats, galley
	41C	Defects on inflight entertainments.	
	41D	Missing technical documents.	
	41E	Oxygen refill.	
42	**Scheduled maintenance, late release**		
	42A	Late documentation.	
	42B	Late positioning.	
43	**Non scheduled maintenance, special checks and / or additional works beyond normal maintenance schedule**		
44	**Spares and maintenance equipment, lack of / or breakdown**		
	44A	Lack of spares.	
	44B	Lack / breakdown of maintenance equipment.	
	44C	Late delivery of spares.	
45	**AOG spares, to be carried to another station**		
46	**Aircraft / equipment change for technical reasons**		
47	**Stand-by aircraft lack of planned standby aircraft for technical reasons**		
	47A	Request for maintenance not MEL, but reasonable and common sense decision.	
48	**Scheduled cabin configuration / version adjustments (lack or late medical equipment, e.g. STCR, OXY, etc.)**		
49	**Maintenance equipment / facilities / tools lack of / or break down**		
	49A	APU INOP engine start at position.	
	49B	Lack of or breakdown tow truck.	
	49C	Congestion engine run up area.	
DAMAGE TO AIRCRAFT			
51	**Damage during flight operation, bird or lightning strike, turbulence, heavy or overweight landing, collision during taxiing (any damage while aircraft moves under own engine power)**		
	51A	Lightning strike.	
	51B	Bird strike.	

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

51	51C	Foreign object damage (FOD) / compartment contamination.	
	51D	Severe weather conditions.	
	51E	Overweight / heavy landing.	
	51F	Collision during taxiing.	
	51G	Maintenance and / or aircraft change after damage during flight operations.	e.g. wheel change caused by nails except during taxiing
	51H	Passenger.	e.g. clogged toilets, seats
52	**Damage during ground operation, collisions (other than during taxiing), loading / off - loading damage, contamination, towing, extreme weather conditions**		
	52A	Collision (other than during taxiing), towing	
	52B	Damage by ground equipment.	
	52C	Damage by previous station or unknown.	
	52D	Maintenance and / or aircraft change after damage during ground operations.	
EDP/AUTOMATED EQUIPMENT FAILURE			
55	**Departure control system, check in or weight and balance, host down**		
	55A	Local DCS equipment failure.	e.g. PC monitors, PC hardware
	55B	Check in system failure.	e.g. ALTEA CM, IPORT, etc.
	55C	Self-service failure.	e.g. CUSS down, etc.
	55D	Weight and balance system failure.	e.g. ALTEA FM, IPORT, etc.
	55E	Boarding system failure.	e.g. gate readers, self-boarding equipment failure, etc.
	55F	Regulatory systems failure.	e.g. APIS, ADC, baggage messages, etc.
	55G	Network failure.	e.g. CUTE, SITA, etc.
56	**Cargo system, cargo preparation / documentation, host down**		
57	**Flight plans, host down**		
58	**Other automated system format**		
	58A	Airport systems.	
	58B	Maintenance systems.	
	58C	Catering systems.	
	58D	Cleaning systems.	
	58E	Fueling.	
	58F	Handling agents systems	
	58G	Baggage systems	e.g. BRS, BMS, BHS, etc.

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

58	58H	Ticketing / reservations system.	e.g. AMADEUS RES, etc.
	58I	Communication breakdown.	e.g. ACARS, WLAN, radio, phone, etc.
FLIGHT OPERATIONS AND CREWING			
61	**Flight plan, late completion or change of, flight documentation**		
	61A	Change / amend of flight plan.	
	61B	Late or incorrect flight dispatch docs.	including ATC flight plan
	61C	EFB / paper charts missing or invalid.	technical issues (EFP inop) outside of ground ops influence
	61D	Late delivery of flight documents to cockpit.	including USB delivery process by station
62	**Operational requirements, extra fuel, LMC, alteration**		
	62A	Fuel alterations.	e.g. additional request of fuel truck, including awaiting final weights - fuel critical flights
	62B	Load alterations.	e.g. offload due to weight restrictions, loading of additional pallet
63	**Late crew boarding or departure procedures, other than connection and standby (flight deck or entire crew)**		
	63A	Entire crew late boarding.	
	63B	Cockpit crew late boarding.	
	63C	Entire crew late boarding due to crew bus.	
	63D	Late crew pick up.	e.g. from hotel
	63E	Airport access congestion / traffic jam.	
	63F	Crew scheduling or crew control error.	e.g. discrepancies with crew figures including DHC
	63G	Holding / delaying pax boarding by crew.	
	63H	Security procedures.	
64	**Flight deck crew shortage, sickness, awaiting standby, flight time limitations, crew meals, valid visa, health docs, etc.**		
	64A	Awaiting standby crew.	
	64B	Flight time limitations / minimum crew rest.	
65	**Flight deck crew special request, not within operational requirements**		
	65A	Request for maintenance not minimum equipment list.	e.g. oxygen within limits
	65B	Special request.	including late catering order, crew meal, standby problems, error previous crew, etc.

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

66	**Late cabin crew boarding or departure procedures, other than connection and standby**		
	66A	Cabin crew late boarding.	
	66B	Cabin crew late boarding to crew bus.	
	66C	Boarding congestion into aircraft.	
67	**Cabin crew shortage, sickness, awaiting standby, flight time limitations, crew meals, valid visa, health documents, etc.**		
	67A	Awaiting standby crew.	e.g. sickness, travel documents, etc.
	67B	Flight time limitations / minimum crew rest.	
68	**Cabin crew error or special request, not within operational requirements**		
	68A	Head count.	
	68B	Re-order or late request.	e.g. catering, cleaning, toilet service
	68C	Special request.	e.g. medical kits, etc.
	68D	Galley / meal check.	
	68E	Evacuation slide deployed	
69	**Captain request for security check.**		
WEATHER			
71	**Station of departure (below operational limits)**		
72	**Station of destination (below operational limits)**		
73	**En-route or alternate**		
	73Z	Outside aircraft limits.	
	73Y	Outside crew limits.	
	73X	ETOPS.	
75	**De-Icing of Aircraft, removal of ice and / or snow, frost prevention excluding unserviceability of equipment**		
	75A	Remote de-icing.	
	75B	De-icing on position.	
	75C	Additional de-icing after holdover time expired.	
	75D	Lack of fluid.	
	75E	Fan blade de-icing.	
76	**Removal of snow, ice, water and sand from airport**		
77	**Ground handling impaired by adverse weather conditions**		
	77A	Ground handling suspension.	announced by authorities, formerly interruption of e.g. fueling or servicing
	77B	Handling activities impaired by adverse weather conditions.	e.g. consequential impacts after suspension

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

AIR TRAFFIC FLOW MANAGEMENT (ATFM) RESTRICTIONS			
81	**ATFM due to ATC en-route demand / capacity, standard demand / capacity problems**		
	81W	Weather.	
	81X	Environmental.	
	81Y	High demand or capacity.	
	81Z	ATC routing.	
	81G	Other.	
82	**ATFM due to ATC staff / equipment en-route, reduced capacity caused by industrial action or staff shortage or equipment failure, extraordinary demand due to capacity reduction in neighboring area**		
	82X	Staff shortage.	
	82Y	Equipment failure.	
	82Z	Industrial action.	
	82W	Military activity.	
	82V	Special event.	
83	**ATFM due to restriction at destination airport, airport and / or runway closed due to obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights**		
	83P	High demand / Airport facilities.	
	83S	Noise abatement / night curfew.	
	83W	Staff shortage.	
	83X	Equipment failure.	
	83Y	Industrial action.	
	83Z	High demand / ATC capacity.	
	83V	Accident / Incident.	
	83T	Special event.	
	83G	Other.	
84	**AFTM due to weather at destination**		
AIRPORT AND GOVERNMENTAL AUTHORITIES			
85	**Mandatory security**		
	85W	Baggage identification / unloading / intended.	e.g. baggage identification (e.g. red bags, not ok bags) / unloading due to missing pax / pax not allowed nor willing to travel, etc.
	85Y	Security control checkpoints.	e.g. congestion at security check due to lack of staff

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

85	85Z	Mandatory security check.	e.g. congestion at security check due to infrastructure including lanes
	85E	Security checkpoints excluding for passengers.	incl. staff security, commodity control catering, etc.
	85T	Extraordinary security events.	special security check involving pax, bag and hand baggage
	85U	Airline / aircraft security checks.	additional / special security inspections (e.g. aircraft search, cabin search by crew, etc.)
	85V	Airport / terminal security.	special airport security: unattended baggage / bomb warning / security breach
	85G	Other.	
	85X	Baggage / AVI security.	
86	**Immigration, customs, health, disinfection of aircraft**		
	86A	Incoming deboarding pax doc check by authorities.	incoming passenger checks
	86B	Extended check of travel documents / visa.	incl. airline own doc checks, APIS, etc.
	86C	Insufficient travel doc of pax / INAD / deportee.	e.g. false passports including baggage offload, deportee boarding
	86D	Inspection by Civil Aviation Authority.	
	86E	Aircraft disinfection.	
	86X	Health.	
	86Y	Customs.	
	86Z	Immigration / Emigration.	Incl. lack of border police and infrastructure
	86G	Other.	
87	**Airport facilities, parking stands, ramp congestions, lighting, building, gate limitations, etc.**		
	87A	Breakdown of airport fueling system.	
	87H	Late arrival or lack of follow me vehicle.	late or lack of follow me for push-back
	87P	Passenger transport system failure.	e.g. sky train, pax bus only if part of infrastructure
	87R	Airfield electrical system failure.	ground communication system failure
	87T	Jet bridge inoperative.	
	87U	No pushback clearance due to infrastructure (non-ATC).	e.g. taxi way limitations, etc.
	87V	Baggage sorting system down/ slow.	
	87W	Gate limitation/ no gate available excluding early arrivals.	or blocked

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

87	87X	Buildings	lighting or buildings
	87Y	Ramp congestion, abnormal stand access limitation (non - ATC)	
	87Z	Parking stands limitations / no parking stands available, excluding early arrivals.	
	87S	Lack of check-in counters.	
	87N	Public address / Flight Information Display System failure.	
	87M	Insufficient fire cover.	
	87J	Late positioning of aircraft.	e.g. when responsibility of Airport
	87I	Service road restriction.	
	87G	Other.	
88	**Restrictions at airport of destination, airport and / or runway closed due to obstructions, industrial action, political unrest, noise abatement, night curfew, special flights**		
	88A	Restrictions due to curfew.	
89	**Restrictions at airport of departure with or without ATFM, restrictions including ATS, start-up and push-back, airport and / or runway closed due to obstruction or weather, industrial action, staff**		
	89H	Construction work / maintenance.	
	89I	Late push back given due to other reason than infrastructure.	
	89J	Lost flight plan by ATC.	
	89K	Miscellaneous start-up delay (local ATC)	non CDM airport
	89L	Runway / taxiway closure.	
	89M	Airport closure.	
	89N	ATC environmental.	
	89O	Environmental benefit, delayed start-up / push back due to use of reduced standard taxi times.	CDM airport only: TSAT - TOBT
	89S	ATC weather.	
	89T	ATC special event.	
	89V	ATC accident / incident.	
	89U	Military activity / special flights / VIP	
	89W	ATC equipment.	breakdown ATFM / ATC computer
	89X	ATC staffing.	
	89Y	ATC industrial action.	
	89G	Other.	
	89Z	ATC demand / capacity.	

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

REACTIONARY			
91	**Load connection, awaiting load from another flight**		
	91A	Pax and / or baggage (+FLT. -Nr.) OU flights.	
	91B	Pax and / or baggage (+FLT. -Nr.) OAL flights.	
	91C	Cargo and mail (+FLT. -Nr.)	
	91D	Short connections / RDS	Ramp Direct Service
92	**Through check-in error, passenger and baggage**		
	92A	Through check-in error passenger.	incl. travel docs
	92B	Through check-in error baggage.	incl. hand baggage
93	**Aircraft rotation, late arrival of aircraft from another flight or previous sector**		
	93Z	Late arrival due departure delay at previous station.	
	93Y	Late arrival due en-route delay.	
	93X	Late arrival due delay after landing.	
	93W	Late arrival due to high demand for destination station.	
	93V	Late arrival due to weather at destination.	
	93U	Late arrival due to technical reasons.	
94	**Cabin crew rotation, awaiting cabin crew from another flight, incl. DHC**		
	94A	Operating cabin crew.	
	94B	Positioning or deadhead cabin crew.	
95	**Crew rotation, awaiting flight deck or entire crew from another flight, incl. DHC**		
	95A	Operating cockpit or entire crew.	
	95B	Positioning cockpit or entire crew.	
96	**Operational control, re-routing, diversion, consolidation, aircraft change for reasons other than technical**		
	96A	Consolidation.	e.g. delay of flight to accommodate pax
	96B	Aircraft change / equipment change for reasons other than technical.	Incl. rescheduled ground time less than declared minimum ground time; after preplanning day of ops completed
	96C	Secondary technical reason.	first change is code 46, 51 or 52 and delay 96C has to be used for all changes on the same day also in case of lack off spares + aircraft change caused by another station incl. rescheduled ground time less than declared minimum ground time
	96D	Diversion/ re-routing	

5.2.3. Delay Codes (cont.)

Delay Codes and Subcodes (cont.)

MISCELLANEOUS	
97	**Industrial action within own airline.**
98	**Industrial action outside own airline excluding ATC and ATS,**
99	**OTHER REASON, not matching any code above – UNDER INVESTIGATION.**

5.2.4. Departure Message

General	• The Departure Message timings consists of: ✓ **Off-block time** (ATD – Actual Time of Departure) is the following: ▪ The time at which the aircraft starts to move from the parking position either by own power or by a push-back tug, or ▪ The time at which the aircraft starts the engine. **Whichever is earlier!** ✓ **Airborne time** ▪ The airborne time is the time the aircraft landing gear has lost contact with the runway at take-off. • Off-block and airborne time shall be measured according following options: ✓ Use timings given from ACARS messages, when available. ✓ Use timings given from ATC, if ACARS not available. ✓ Use timings by visual time measurement, if options above are not available.
Distribution	• Standard distribution: ✓ Any downline Station. ✓ Companies and function designators as specified in Airport Directory and/or other airline internal publication. ✓ Recipients of the operational plan or diversion message in cases where an operational plan or diversion message has been sent. • Additional distribution: ✓ For delayed and diverted flights: ▪ Departure message to be addressed to all stations having received a delay or diversion message for that flight. ✓ In case of technical delays: ▪ Supplementary addresses as published in Airport Directory and/or other airline internal publication. • Any changes to your locally needed addresses shall be reported to respective Ground Handling Agreements Department (E-mail: gha@croatiaairlines.hr)
Corrections to Departure Message	• If corrections to an already dispatched Departure Message are necessary: ✓ Dispatch a complete Departure Message again. ✓ Use the Standard Message Identifier (SMI) “COR” as a first line. ✓ The second line shows identifier “MVT”. • Dispatch the corrected Departure Message as soon as the correction is made.
Time Format	• Unless otherwise required, all dates / times to be expressed in UTC.

5.2.4. Departure Message (cont.)

Message Description

- The Departure Message consists of 4 parts:

Part	Description
1.	Address and communication references.
2.	Standard message identifier and flight record.
3.	Aircraft movement information (Flight Information).
4.	Supplementary information.

Part 1: Address and communication references consists of the following elements:

Element No.	Element definition / description	Example
1.	Priority indicator for movement messages: QX or QU.	QU
2.	Teletype address(es) for departure message.	QX ZAGOWOU
3.	Originator, recharge, date/time group and operator's initials composed of the elements No. 3.1 through 3.4 Element No. 3 must be on one line.	.UTCKM1P 290626/6A98DFNI .SPUAPXH OU/290632
3.1	Teletype address of originator.	.UTCKM1P
3.2	Recharge, if required. Teletype address of originator (element No. 3.1) and designator of the airline to be charged for the message (element No. 3.2) must be separated by a space.	OU
3.3	Date and time group. Recharge designator (element No. 3.2) and date/time group (element No. 3.3) must be separated by an oblique. NOTE: The oblique is to be omitted if no recharge designator is shown.	/290632
3.4	Operator's initials, if required. Date/time group (element No. 3.3) and operator's initials (element No. 3.4) must be separated by space).	NI

5.2.4. Departure Message (cont.)

Message Description

(cont.)

Part 2: Standard Message Identifier and Flight Record consist of the following elements:

Element No.	Element definition / description	Example
4.	Standard identifier for movement passages: MVT. The identifier MVT must be on a separate line.	MVT
5.	Flight number and date: 1. The flight number must be identical with the one shown on the loadsheet and in the LDM. 2. The UTC date is to be given. 3. An oblique must separate flight number and date.	OU410/29
6.	Aircraft registration: 1. Flight number (element No. 5) and aircraft registration (element No. 6) must be separated by a full stop. 2. The hyphen between country code and aircraft identification is to be omitted.	.9ACQB
7	Airport of movement: 1. Aircraft registration (element No. 6) and airport of movement (element No. 7) must be separated by a full stop. 2. The 3-letter IATA airport or city code must be used. Elements No. 5 through 7 must be on one line.	.SPU

Part 3: Flight Information consist of the following elements:

Element No.	Element definition / description	Example
8.	Actual departure time: The departure indicator AD is followed by off-block and airborne date and time in UTC. (Date is optional) The time groups are to be separated by an oblique.	AD1941/1951
9.	Estimated time of arrival: 1. The indicator EA is followed by the estimated time of arrival in UTC. Actual departure time (element No. 8) and estimated arrival time (element No. 9) are to be separated by a space.	EA2031

5.2.4. Departure Message (cont.)

Message Description

(cont.)

Element No.	Element definition / description	Example
10	Airport of next intended landing according to flight schedule: 1. The 3-letter IATA airport code is to be used. 2. Estimated arrival time (element No. 9) and code for airport of next intended landing (element No. 10) are to be separated by a space. 3. Elements No. 8,9 and 10 must be on one line.	ZAG
11	Irregularity code and duration of delay: 1. The delay indicator DL is followed by not more than 2 irregularity codes and the duration of the delay in hours and minutes. Irregularity codes and time groups are to be separated by oblique's. 2. The DL-information must be completed whenever ATD is 3 minutes later than STD. Not more than 2 delay reasons can be shown. 3. Show up to 2 more delay codes by using the "Extra Delay Identifier" element: EDL (consisting of maximum 18 characters). When using sub delay codes to further define DL and EDL entries, use Identifier DLA followed by 4 fields of 3 characters per code (in the same order as DL and EDL lines) separated by a slash. All 3 slashes as separator must be present.	DL91/0016 DL93/66/0016/0008 EDL93/15/0041/0005 DLA85/// DLA11C/14A/93Z/65A DLA//93/
12.	Total number of seats occupied by passengers per destination (excluding infants): 1. The passenger indicator PX is followed by the number of seats occupied by passengers including PADs (without space or oblique). NOTE: The number of seats occupied by passengers shall be copied from the loadsheet. Element No. 12 must be on a separate line.	PX76 PX144
13.	Supplementary Information. The Supplementary Information Indicator SI is followed by a space. It must begin a new line.	Example for fuel required. SI FUEL REQUIRED AT SPU

5.2.4. Departure Message (cont.)

Message Examples	**Standard Departure Message:** QU ZAGOWOU… .FRAP9LH OU/130842 MESX028 NOV18 MVT OU417/13.9ACTJ.FRA AD130830/130842 EA0952 ZAG PX066
	Standard Departure Message with 4 Delay Codes: QU ZAGOWOU… .FRAP9LH OU/130842 MESX028 NOV18 MVT OU417/13.9ACTJ.FRA AD130910/130922 EA1032 ZAG DL93/81/0015/0015 PX066 EDL15/73/0005/0005
	Standard Departure Message with 4 Delay Codes and 2 Sub Delay Codes: QU ZAGOWOU… .FRAP9LH OU/130842 MESX028 NOV18 MVT OU417/13.9ACTJ.FRA AD130910/130922 EA1032 ZAG DL93/81/0015/0015 PX066 EDL15/73/0005/0005 DLA93Y//15B
	Example of Departure Message with Correction: QU ZAGOWOU… .FRAP9LH OU/130842 MESX028 NOV18 COR MVT OU417/13.9ACTJ.FRA AD130830/130842 EA0952 ZAG PX066
	Example of Delayed Take-Off Message: QU ZAGOWOU… .FRAP9LH OU/130842 MESX028 NOV18 MVT OU417/13.9ACTJ.FRA AD130830 EO0840 SI TAXI CONGESTION DUE TO HIGH TRAFFIC

5.2.5. Arrival Message

Dispatch	• An Arrival Message is to dispatched for every flight operated with OU flight number, irrespective the owner or operator. ***NOTES:*** ✓ Arrival Message for Code-Share flights is to be dispatched as bilaterally agreed. ✓ Arrival Message is to be dispatched immediately after landing.
Distribution	• Standard distribution: ✓ The station of next intended landing, if applicable. ✓ The originating station of flight or flight leg. ✓ Companies and function designators as specified in Airport Directory and/or other airline internal publication. ✓ Recipients of the Operational Plan or diversion message in cases where an operational plan or diversion message has been sent. • Additional distribution (e.g. for diverted flight): ✓ Arrival message to be addressed to the station of the originally intended landing.
Corrections to Arrival Message	• If corrections to an already dispatched Arrival Message are necessary: ✓ Dispatch a complete Arrival Message again. ✓ Use the SMI (Standard Message Identifier) “COR” as a first line. ✓ The second line shows SMI “MVT”. ✓ Dispatch the corrected Departure Message as soon as the correction is made.
Time Format	• Unless otherwise required, all dates/ times to be expressed in UTC.

5.2.5. Arrival Message (cont.)

Message Description

- The Arrival Message consists of 4 parts:

Part	Description
1.	Address and communication references.
2.	Standard message identifier and flight record.
3.	Aircraft movement information.
4.	Supplementary information.

Part 1 Address and communication references consists of the same element definitions and formats as for the Standard Departure Message.

REFERENCE: See “Address and Communication References” in 5.2.4 “Departure Message”.

Part 2 Standard Message Identifier (SMI) and Flight Record, consist of the same element definitions and formats as for the Standard Departure Message.

REFERENCE: See “Standard Messages Identifier and Flight Record” in 5.2.4 “Departure Message”.

Part 3 Flight Information consists of the following element:

Element No.	Element definition / description	Example
8.	Actual arrival time: 1. The arrival identifier AA is followed by touch down and on-block time in UTC. The time groups are to be separated by an oblique. 2. Element No. 8 must be on a separate line.	AA1941/1951

Part 4 Supplementary Information is described in the following element:

Element No.	Element definition / description	Example
9.	Supplementary Information. Additional information pertaining to the flight. A new line must be used beginning with the indicator “SI” and followed by a space.	

5.2.5. Arrival Message (cont.)

Message Examples	**Example of a Standard Arrival Message:** QU FRAKKOU ZAGAPXH ZAGDAOU ZAGFFOU ZAGKKOU ZAGOUOU ZAGOWOU .FRAP9LH OU/160734 MESX028 NOV18 MVT OU410/16.9ACTG.FRA AA160722/160733 SI NIL **Example of a corrected Standard Arrival Message:** QU FRAKKOU ZAGAPXH ZAGDAOU ZAGFFOU ZAGKKOU ZAGOUOU ZAGOWOU .FRAP9LH OU/160734 MESX028 NOV18 COR MVT OU410/16.9ACTG.FRA AA160725/160735 SI NIL

5.2.6. Delay Message

<table>
<tr><td>Dispatch</td><td>
A delay message is to be dispatched for every flight operated with OU flight number, irrespective the owner or operator.
</td></tr>
<tr><td>Criteria for dispatch</td><td>
The Delay Message is to be dispatched according to the following criteria:

✓ Delay Message is to be dispatched for flights, which will be delayed 15 minutes or more, in relation to schedule or otherwise stated departure time.
✓ Delay Message is to be dispatched as soon as the delay can be foreseen, but not later than the originally scheduled departure time.
✓ If a flight is delayed beyond the estimated departure time specified in a previously dispatched message, a new Delay Message is to be sent as soon as the further delay becomes apparent, but not later than the departure time specified in the previous Delay Message.
✓ After departure of the flight, a normal Departure Message is to be sent according to the Departure Message distribution list (ref. GOM chapter 5.2.4.).

REFERENCE: For Delay Codes, see 5.2.3. “Delay Codes”.
</td></tr>
<tr><td>Distribution</td><td>
The delay message is to be distribute as follows:

✓ All stations of the flight schedule.
✓ OU Netline Ops Computer: ZAGOWOU.
✓ Companies and function designators as specified in Airport Directory and/or other airline internal publication.

</td></tr>
<tr><td>Time Format</td><td>
Unless otherwise required, all dates/ times to be expressed in UTC.
</td></tr>
<tr><td>Message Description</td><td>
The delay message consists of 4 part:
<table>
<tr><th>Part</th><th>Description</th></tr>
<tr><td>1</td><td>Address and communication references.</td></tr>
<tr><td>2</td><td>Standard message identifier and flight record.</td></tr>
<tr><td>3</td><td>Aircraft movement information (Flight Information)</td></tr>
<tr><td>4</td><td>Supplementary information.</td></tr>
</table>
Part 1 Address and communication references consists of the same element definitions and formats as for the Standard Departure Message.

REFERENCE: See “Address and Communication References” in 5.2.4 “Departure Message”.

Part 2 Standard Message Identifier (SMI) and Flight Record, consist of the same element definitions and formats as for the Standard Departure Message.

REFERENCE: See “Standard Messages Identifier and Flight Record” in 5.2.4 “Departure Message”.
</td></tr>
</table>

5.2.6. Delay Message (cont.)

Message Description (cont.)

Part 3 Flight Information consists of the following element:

Element No.	Element definition / description	Example
8.	Estimated time of departure or next information.	
8A	Estimated time of departure. Estimated departure time indicator “ED” is followed by the estimated departure time.	ED100850
8B	Next information: 1. If a revised time of departure (element A) cannot be estimated even approximately at the time of the origination of the delay message, the indicator “NI” for “Next Information” shall be used in lieu of the indicator “ED”. 2. The indicator “NI” is followed by the date/time group in UTC at which further information will be issued.	NI100900
9.	Irregularity code(s): 1. The delay indicator “DL” is followed by not more than two (2) irregularity codes. The irregularity codes must be separated by an oblique. Element No.9 must be on a separate line.	DL41 DL46/96

Part 4 Supplementary Information consists of the following element:

Element No.	Element definition / description	Example
10.	Supplementary information. Additional information pertaining to the flight must be shown at the end of the delay message. A new line must be used beginning with the indicator “SI” and followed by a space.	

5.2.6. Delay Message (cont.)

Message Examples	**Example of a Delay Message:** QU AMSAD7X AMSAXXH AMSVPCR AMSOVXH ZAGOWOU ZAGKKOU .UTCKM1P 160734/6A887CMR MVT OU450/16.9ACTH.ZAG ED160830 DL84 **Example of a Delay Message with "NI" indication:** QD AMSAD7X AMSAXXH AMSVPCR AMSOVXH ZAGOWOU ZAGKKOU .UTCKM1P 160734/6A887CMR MVT OU450/16.9ACTH.ZAG NI160930 DL84

5.2.7. Return to Ramp Message

Dispatch	• A Return to Ramp Message (RR) is to be: ✓ Used to inform stations and departments concerned of returned flight to ramp. ✓ Dispatched by responsible load control (weight & balance office). • After departure of the returned flight, a normal Departure Message must be sent. ***REFERENCE:*** *See 5.2.4. "Departure Message".*
Distribution	• The Return to Ramp Message is to be distribute as follows: ✓ All stations of the flight schedule. ✓ OU Netline Ops Computer: ZAGOWOU. ✓ Companies and function designators as specified in Airport Directory and/or other airline internal publication.
Corrections to Return to Ramp Message	• If corrections to an already dispatched RR message are necessary: ✓ Dispatch a complete RR message again. ✓ Use the message identifier "COR" as a first line. ✓ The second line shows MVT. ✓ Dispatch the corrected Return to Ramp Message as soon as the correction is made.
Time Format	• Unless otherwise required, all dates/ times to be expressed in UTC.
Message Description	• The Return to Ramp Message consists of 4 parts:

Part	Description
1.	Address and communication references.
2.	Standard message identifier and flight record.
3.	Diversion information.
4.	Supplementary information.

Part 1 Address and communication references consists of the same element definitions and formats as for the Standard Departure Message.

REFERENCE: See "Address and Communication References" in 5.2.4 "Departure Message".

Part 2 Standard Message Identifier (SMI) and Flight Record, consist of the same element definitions and formats as for the Standard Departure Message.

REFERENCE: See "Standard Messages Identifier and Flight Record" in 5.2.4 "Departure Message".

5.2.7. Return to Ramp Message (cont.)

Message Description

(cont.)

Part 3 Aircraft Movement Information (Flight Information) consists of the following element:

Element No.	Element definition / description	Example
8.	Actual departure time: The departure indicator AD is followed by return to ramp (RR) time in UTC. (Date is optional)	AD0625 RR0640 Incl. date: AD090625/090640
9.	Irregularity code and duration of delay: 1. The delay indicator DL is followed by not more than 2 irregularity codes and the duration of the delay in hours and minutes. Irregularity codes and time groups are to be separated by oblique. 2. The DL information must be completed whenever ATD is later than STD. Not more than 2 delay reasons can be shown. 4. If there are more than 2 delay reasons, use the "Extra Delay Identifier" element: EDL (consisting of maximum 18 characters).	DL32/0010 DLA11C/14A/93Z/65A
10.	Estimated On-block Time	EB0710

Part 4 Supplementary Information consists of the following element:

Element No.	Element definition / description	Example
13.	Supplementary information. The supplementary information indicator "SI" is followed by a space. It must begin a new line.	EB0650 SI RETURN TO STAND DUE TO WRONG LOAD FIGURES

5.2.7. Return to Ramp Message (cont.)

Message Examples	**Example of Standard Return to Ramp Message:** QD AMSAD7X AMSAXXH AMSVPCR AMSOVXH ZAGOWOU ZAGKKOU .UTCKM1P 160734/6A887CMR MVT OU450/16.9ACTH.ZAG AD0725 RR0740 SI ABORTED TAKE OFF **Example of Standard Return to Ramp Message with Delay:** QD AMSAD7X AMSAXXH AMSVPCR AMSOVXH ZAGOWOU ZAGKKOU .UTCKM1P 160734/6A887CMR MVT OU450/16.9ACTH.ZAG AD0735 RR0750 DL71/0010 SI ABORTED TAKE OFF **Example of Standard Return to Ramp Message with Estimated On-Block Time:** QD AMSAD7X AMSAXXH AMSVPCR AMSOVXH ZAGOWOU ZAGKKOU .UTCKM1P 160734/6A887CMR MVT OU450/16.9ACTH.ZAG AD0725 RR EB0800 SI ABORTED TAKE OFF – UNDERCARRIAGE INSPECTION ON TAXIWAY BEFORE PROCEEDING TO THE GATE **Example of Standard Return to Ramp Message with correction:** QD AMSAD7X AMSAXXH AMSVPCR AMSOVXH ZAGOWOU ZAGKKOU .UTCKM1P 160734/6A887CMR COR MVT OU450/16.9ACTH.ZAG AD0735 RR0750 SI ABORTED TAKE OFF

5.2.8. Diversion Message

<table>
<tr><td>Dispatch</td><td>

A diversion message is to be:

✓ Used to inform stations and departments concerned of an inflight diversion.
✓ Dispatched by the station or department first receiving notification of the diversion.
✓ After departure of the diverted flight, a normal Departure Message is to be sent to all addresses that received the diversion message.

REFERENCE: See 5.2.4. “Departure Message”.

NOTE: The station of originally intended landing must immediately relay all operational and handling messages to the airport of diversion.
</td></tr>
<tr><td>Distribution</td><td>

The Diversion Message is to be distributed as follows:

✓ All stations of the flight schedule.
✓ OU Netline Ops Computer: ZAGOWOU.
✓ Companies and function designators as specified in Airport Directory and/or other airline internal publication.

</td></tr>
<tr><td>Time Format</td><td>

Unless otherwise required, all dates/ times to be expressed in UTC.

</td></tr>
<tr><td>Message Description</td><td>

The Return to Ramp Message consists of 4 parts:

<table>
<tr><th>Part</th><th>Description</th></tr>
<tr><td>1.</td><td>Address and communication references.</td></tr>
<tr><td>2.</td><td>Standard message identifier and flight record.</td></tr>
<tr><td>3.</td><td>Aircraft movement information (Flight Information)</td></tr>
<tr><td>4.</td><td>Supplementary information.</td></tr>
</table>
Part 1 Address and communication references consists of the same element definitions and formats as for the Standard Departure Message.

REFERENCE: See “Address and Communication References” in 5.2.4 “Departure Message”.

Part 2 Standard Message Identifier (SMI) and Flight Record, consist of the following elements:
<table>
<tr><th>Element No.</th><th>Element definition / description</th><th>Example</th></tr>
<tr><td>4.</td><td>Standard identifier for diversion message “DIV”.
The identifier “DIV” must be on separate line.</td><td>DIV</td></tr>
</table>
</td></tr>
</table>

5.2.8. Diversion Message (cont.)

Message Description (cont.)

Element No.	Element definition / description	Example
5.	Flight number and date: 1. The flight number must be identical with the one shown on the loadsheet and in the LDM from the previous station. 2. The local date is to be given. 3. Flight number and date of STD from the previous station must be separated by an oblique.	OU451/10
6.	Aircraft registration: 1. Flight number (element No.5) and aircraft registration (element No.6) must be separated by a full stop. 2. The hyphen between country code and aircraft code is to be omitted.	.9ACTK
7.	Airport of originally scheduled intended landing. 1. Aircraft registration (element No.6) and airport of movement (element No.7) must be separated by a full stop. 2. The 3-letter IATA airport or city codes must be used. Elements No.5,6 and 7 must be on one line.	.ZAG

Part 3 Diversion Information consists of the following elements:

Element No.	Element definition / description	Example
8.	Estimated time of arrival at diversion airport. The indicator “EA” is followed by the estimated time of arrival at the diversion airport.	EA1115
9.	Diversion airport: 1. The 3-letter IATA airport or city code is to be used. 2. Estimated arrival time (element No.8) and code for diversion airport (element No.9) are to be separated by a space. 3. Elements No.8 and 9 must be on one line.	MUC
10.	Reason for diversion. The indicator “DR” is followed by the irregularity code. ***NOTE:*** *For irregularity codes, see 5.2.3. “Delay Codes”.*	16

5.2.8. Diversion Message (cont.)

Message Description (cont.)

Element No.	Element definition / description	Example
11.	Total number of seats occupied by passengers: 1. The passenger indicator “PX” is followed by the number of seats occupied by passengers including PADs. 2. The total number of seats occupied by passengers shall be copied from the load message (LDM) or Departure Message. 3. Reason for diversion (element No.10) and total number of seats occupied by passengers (element No.11) are to be separated by a space. Elements No.10 and 11 must be on one line.	PX156
12.	Supplementary Information: 1. Additional information pertaining to the flight may be shown at the end of the Diversion Message. A new line must be used beginning with the indicator “SI” and followed by a space. 2. The reason for the diversion in plain language or other information such as “OPS Plan” or special load information for the diversion station may be given in the “SI-part” of the Diversion Message.	SI BIRTH ON BOARD.

Message Example

QD FRAOMLH ZAGOWOU ZAGKKOU DBVKKOU DBVAPXH ZAGAPXH
.UTCKM1P 151426/6A8077KI
DIV
OU664/15.9ACQC.ZAG
EA1511 SPU
DR72 PX59
SI AIRPORT CLOSED DUE TO HEAVY WIND

5.2.9. Load Message (LDM)

<table>
<tr><td>General</td><td>• The Load message recommended standards as per IATA AHM 583 (completion, format, and contents) apply.</td></tr>
<tr><td>Dispatch</td><td>• A Load message is to be dispatched for every flight operated with OU flight number, irrespective the owner or operator.
✓ The Load message for code-share flights is to be dispatched as bilaterally agreed.
✓ The Load message is to be dispatched not later than 10 minutes after departure of the flight.
✓ Be sure that all last-minute changes (passenger and/or deadload) are considered before dispatching the LDM.
NOTE: For ULD aircraft, a CPM (“Container/Pallet Distribution Message”) must be sent in addition to the LDM.</td></tr>
<tr><td>Distribution</td><td>• The Loadmessage is to be distributed as follows:
<u>Standard distribution</u>
✓ The station of next intended landing.
✓ OU Netline Ops Computer: ZAGOWOU.
✓ Companies and function designators as specified in Airport Directory and/or other airline internal publication.
<u>Additional distribution</u>
✓ In case of diversion, the station of original destination must immediately forward the LDM (and other handling messages) to the diversion airport.
✓ Any changes to your locally needed addresses shall be reported to respective Ground Handling Agreements Department (E-mail: gha@croatiaairlines.hr).</td></tr>
<tr><td>Time Format</td><td>• Unless otherwise required, all dates/ times to be expressed in UTC.</td></tr>
<tr><td>Message Description</td><td>• The Loadmessage consists of 4 parts:
<table>
<tr><th>Part</th><th>Description</th></tr>
<tr><td>1.</td><td>Address and communication references.</td></tr>
<tr><td>2.</td><td>Standard message identifier and flight record.</td></tr>
<tr><td>3.</td><td>Load information distribution and remarks per destination.</td></tr>
<tr><td>4.</td><td>Supplementary information.</td></tr>
</table></td></tr>
</table>

5.2.9. Load Message (LDM) (cont.)

Message Description (cont.)

Part 1 Address and communication references consists of the following elements:

Element No.	Element definition / description	Example
1.	Priority indicator: QK or QU	QK
2.	Teletype address(es) for loadmessage.	QK ZAGFFOU ZAGKKOU ZAGOWOU FRAOMLH ZAGAPXH ZAGDAOU SPUFFXH SPUKKOU SPUAPXH
3.	Originator, recharge, date/time group and operator's initials, composed of the elements No.3.1 through 3.4.	.FRALCLH OU/112014
3.1.	Teletype address of originator.	.FRALCLH
3.2.	Teletype address of originator (element No.3.1) and designator of the airline to be charged for the message (element No.3.2) must be separated by a space.	OU
3.3.	Date and time group (time in UTC). Recharge designator (element No.3.2) and date/time group (element No.3.3) must be separated by an oblique). *NOTE:* The oblique is to be omitted if no recharge designator is shown.	/112014
3.4.	Operator's initials, if required. Date/time group (element No.3.3) and operator's initials (element No.3.4) must be separated by a space.	EI

Part 2 Standard Message Identifier and Flight Record consists of the following elements:

Element No.	Element definition / description	Example
4.	Standard identifier of Loadmessage: "LDM".	LDM
5.	Flight number and date: 1. The flight number must be identical with the one shown on the Loadsheet and in the LDM. 2. The local date is to be given. 3. Flight number and date must be separated by an oblique.	OU415/11

5.2.9. Load Message (LDM) (cont.)

Message Description

(cont.)

Part 2 Standard Message Identifier and Flight Record consists of the following elements:

Element No.	Element definition / description	Example
6.	Aircraft registration: 1. Flight number (element No.5) and aircraft registration (element No.6) must be separated by a full stop. 2. The hyphen between country code and aircraft code is to be omitted.	.9ACTI
7.	Aircraft version number: 1. Aircraft registration (element No.6) and aircraft version number (element No.7) must be separated by a full stop.	.C12M126
8.	Number of crew including crew members occupying passenger seats (XCR): 1. First figures indicates number of flight crew, subsequent figure(s) number of cabin crew. 2. Crew figures must be separated by an oblique. 3. Aircraft version number (element No.7) and number of crew (element No.8) must be separated by a full stop. NOTE: Elements No.4,5,6,7 and 8 must be on one line.	.2/3

Part 3 Load Information and remarks per Destination consists of the following elements:

Element No.	Element definition / description	Example
9.	Destination. Airport of disembarkation of passengers and/or unloading of deadload: 1. The 3-letter IATA airport or city code must be used. 2. The code is to be preceded by a hyphen.	-ZAG

5.2.9. Load Message (LDM) (cont.)

Message Description (cont.)

Part 3 (cont.)

Element No.	Element definition / description	Example
10.	Number of passengers per category: 1. The figures for adults, children and infants must be separated each by an oblique. 2. Destination (element No.9) and number of passengers (element No.10) must be separated by a full stop.	2 possibilities: a) .31/17/3/1.0 (.0/0/0/0 *) Male: 31 Female: 17 Children: 3 Infants: 1 b) 48/3/1.0 (.0/0/0 *) Adults: 48 Children: 3 Infants: 1 * Zero must be shown if there is only deadload for a destination.
11.	"NIL" must be shown if there is no traffic load for a destination. The element must begin with a full stop.	.NIL
12.	Total weight of deadload. The element must begin with a full stop followed by the identifier.	.T386 .T0* * Zero must be shown if there is no deadload for a destination.
13.	Total weight of the load per compartment and/or ULD position: 1. This element is to be repeated for each compartment/ULD position containing load. 2. Each element must begin with a full stop.	.4/306.5/80
14.	Total number of seats occupied by passengers per class. The element must begin with a full stop followed by the identifier "PAX". *NOTE:* For further instructions/examples, see GOM "Manual Loadsheet".	.PAX/0/51
15.	Total number of seats occupied by PADs per class. The element must begin with a full stop followed by the identifier "PAD".	.PAD/0/0

5.2.9. Load Message (LDM) (cont.)

Message Description (cont.)

Part 3 (cont.)

Element No.	Element definition / description	Example
16.	Remarks: Any required loadsheet remark as listed in “Load Information Codes” must be shown for each destination following the PAX CM distribution. Elements No.9 through 16 are to be repeated for each destination.	.XCR/0/2 .PER/4

Part 4 Supplementary Information consists of the following elements:

Element No.	Element definition / description	Example
17.	Supplementary Information. Any other information pertaining to the whole flight may be printed at the bottom of the load message. It must begin a new line with the letters “SI” followed by a space. 1. Information about “Net revenue manifested”. For each destination a separate line must be used., starting with the 3-letter code, followed by a full stop. “B” followed by the net weight of baggage in kilogram (excluding tare weights). A full stop separates “C”, followed by the net weight of revenue cargo in kilogram (excluding tare weights). *NOTE:* FKT, Co-mail, empty ULDs and tare weights not to be included in those figures. Another full stop. “M” followed by the net weight of mail in kilogram. Another full stop. “E”, followed by the weight of unmanifested equipment (e.g. FKT, CSU, etc.) in kilogram (“E” is not applicable to manual loadsheets). 2. Information about special loads / DGR permitted in passenger / crew baggage (i.e. AVIH, battery powered mobility aid, etc.), description of item, passenger name and seat number. Should the special load transferring to a connecting flights, this shall also be indicated.	SI DBV B/1183.C/3.M/0 SI BS/6/3 BP/NIL BC/NIL BT/6/22 B/6/6 DAA/6/29 SI SPU B/1049.C/0.M/0 FCO B/258.C/0.M/0

5.2.9. Load Message (LDM) (cont.)

<table>
<tr><td>Message Description
(cont.)</td><td>Part 4 (cont.)
<table>
<tr><th>Element No.</th><th>Element definition / description</th><th>Example</th></tr>
<tr><td>17.</td><td>3. Information regarding Short Connection Baggage (HOT) must be reported using “SI” indicator.
4. Wherever aircraft are equipped with more than 1 hold, the loading location and category of baggage must be reported.
5. In case baby strollers have been loaded as DAA, the total amount of baby strollers loaded must be mentioned.</td><td></td></tr>
</table></td></tr>
<tr><td>Message Examples</td><td>Example of point-to-point flights:
QK ZAGFFOU ZAGKKOU ZAGOWOU FRAOMLH ZAGAPXH ZAGDAOU FRAAF7X FRAKKOU
.UTCKM1P 160613
LDM
OU410/16.9ACTG.C12M126.2/3
-FRA.58/20/0/0.T566.4/352.5/214.PAX/3/75
SI FRA B/566.C/0.M/0
BT/4/23 BP/4/1 B/5/14 BS/NIL BC/NIL
01PC BABY BUGGY LDD IN CPT4
Example of multi-leg flights:
QK ZAGKKOU ZAGOWOU…
.UTCKM1P 151344
LDM
OU380/15.9ACQA.C6M70.2/3
-SPU.26/9/0/0.T425.5/152.6/273.PAX/2/33.PER/6
-FCO.14/20/1/0.T321.6/321.PAX/1/34
SI SPU B/395.C/30.M/0
FCO B/321.C/0.M/0
SPU 01 PCS WEAP
SPU BT/5/10 BT/6/16 BC/NIL BS/NIL BP/NIL
FCO B/6/26 BC/NIL BS/NIL BP/NIL
DAA/6/13</td></tr>
</table>

5.2.10. Other Operational Messages

General	• Other operational messages such as SLS, etc. requested by a customer airline are provided according to the relevant IATA AHM standards or according to the customer airline request.

5.2.11. Load Information Codes

General	• All information concerning cabin and deadload has to be reflected on the loadsheet for information purpose to the cockpit crew. • In addition, further information is required on the LDM to ensure efficient ground handling on the next destination on route. • Such information shall be given in form of standardized load information codes like for example: AVI, XCR, DHC,, etc.
Sequence	• Remarks must be shown for each destination following the PAX and PAD CM distribution, in the following sequence: 1. Passenger and Cabin related remarks: DHC, XCR, BED, SOC, DAA, etc. 2. Deadload related remarks such as RFL, AVI, BAL, COM, etc. (Sequence: Dangerous Goods, Live Animals and other Special Load / Equipment).
Loadsheet / LDM for BULK Aircraft	• All passenger, cabin and deadload related remarks have to be reflected on the loadsheet and in the LDM.
Format Rules	• The following format rules apply: 1. All remarks are composed of the Load Information Code consisting of 3 alpha characters and the specification of variable length. 2. Any transmittable characters except hyphens (-) may be used in the specification. 3. All remarks must be preceded by a full stop. 4. The different data within remark (classes, loading position and weight, loading position and TI) must be separated by an oblique. ***REFERENCE:*** *For further information, see 5.2.9. "Load message (LDM)".*

5.2.11. Load Information Codes (cont.)

Load Information Codes

The table below shows the Load Information Codes:

Code	Description	Examples/Remarks
AOG	Unmanifested spare parts for "Aircraft on Ground" (AOG), followed by the loading position.	.AOG/4
AVI	Live Animals, followed by the loading position.	.AVI/4
BAL	Ballast hold loaded (unmanifested), followed by loading position and weight.	.BAL/1/250
BED	Stretcher installed (unmanifested), followed by the total number of seats blocked by the stretcher arrangement and the number of passengers traveling on those seats (patient and accompanying) and class. These passengers must be included in the PAX CM distribution.	.BED/6/1M
BEH	Stretcher loaded in Hold (unmanifested). 1-3 alpha numeric to indicate the loading position followed by an oblique and two numeric for the weight of stretcher.	.BEH/5/80
BIG	Items, which due to their weight and/or size must be loaded on 2 or more pallets. Must be shown for each loading position over which the piece is loaded.	
COL	Cool Perishable requiring a cool temperature for transport and storage. COL shipments should be loaded in compartment areas/sections where temperature setting is possible.	.COL/1/150
COM	Company Mail (unmanifested), followed by loading position and weight.	.COM/2/3
CSU	Catering Equipment and food supply not used on flight (unmanifested). 1-3 alpha numeric to indicate the loading position followed by an oblique and 2-4 numeric to indicate the weight.	.CSU/21/350
DAA	Delivery at Aircraft, followed by loading position and number of pieces.	.DAA/6/15
DHC	Crew positioning to/from duty not directly involved in the operation of the flight. DHC followed by the number of seats occupied per class. NOTE: DHC are included in the passenger figure and the class (CM) distribution.	.DHC/2/4
DIP	Diplomatic Mail, followed by loading position and the number of bags.	.DIP/2/3

5.2.11. Load Information Codes (cont.)

Load Information Codes (cont.)

Code	Description	Examples/Remarks
EAT	Foodstuffs for human consumption other than meat and fish/seafood as specific handling codes are designated for such goods, followed by the loading position.	.EAT/4
EIC	Unmanifested Equipment in Compartment (not included in DOW/DOI), such as lashing and supporting materials, etc., followed by loading position and weight. Specify under SI what kind of umanifested equipment (e.g. tie-down material, platforms, etc.). In case of multi-leg flight the specification under SI must be preceded by the 3-letter IATA airport code of destination. *NOTE:* Containers, pallets, igloos, nets as well as supporting and lashing materials used on pallets and in containers must not be considered as EIC.	.EIC/2/250
ELD	Extra Load Devices. 1-3 alpha numeric to indicate the loading position followed by an oblique and 1-4 numeric to indicate the weight.	.ELD/22/225
FIL	Undeveloped / Unexposed Films followed by loading position.	.FIL/2
FKT	Special Flight Kit (not included in DOW/DOI), unmanifested, followed by loading position and weight.	.FKT/2/250
HEA	Heavy Cargo above 150 kg per piece, followed by compartment number and weight. Must be used for items of 150 kg and more. Two or more heavy pieces loaded in the same compartment and to the same destination must be shown individually.	.HEA/2/350
HEG	Hatching Eggs, followed by loading position.	.HEG/2
HUM	Human Remains in Coffins, followed by loading position and weight. *NOTE:* No HUM remark is needed for funeral urns. An additional HEA remark for HUM weighing 150 kg or more is not required.	.HUM/2/225
ICE	Carbon dioxide, solid (Dry Ice), followed by loading position. NOTE: The “ICE” remark is also required for Dry Ice loaded into containers/ice-collers.	.ICE/4
LHO	Living Human Organs / Blood, followed by loading position.	.LHO/2

5.2.11. Load Information Codes (cont.)

Load Information Codes (cont.)

Code	Description	Examples/Remarks
MAG	Magnetized material, followed by loading position.	.MAG/5
OBC	Onboard Courier Baggage, followed by loading position.	.OBC/4
OBX	Obnoxious deadload that produces strong offensive odor. 1-3 alpha numeric to indicate the loading position.	.OBX/22
OHG	Oversized cargo that overhangs other positions. NOTE. The length of the overhangs and the loading position(s) affected must be given in the “SI” part of the CPM.	.OHG/21
OXY	Oxygen or air – gaseous, cylinders required for medical use, followed by seat number of the corresponding passenger as loading position.	.OXY/SEAT24F
PAD	Passengers not entitled to firm booking, travelling on “seat available basis” followed by the number of seats occupied per class. PADs are included in the PAX CM distribution.	.PAD/2/5 .PAD/0/0
PEA	Hunting trophies, skin, hide and all articles made from or containing parts of specifies listed in the CITES. 1-3 alpha numeric to indicate the loading position.	.PEA/2
PEF	Flowers, followed by loading position.	.PEF/2
PEM	Meat and meat products, followed by loading position.	.PEM/2
PEP	Fruits and vegetables, followed by loading position.	.PEP/2
PER	Perishable cargo, followed by loading position.	.PER/2
PES	Fresh fish, salted fish and seafood or frozen fish and frozen seafood, followed by loading position.	.PES/2
PIL	Pharmaceutical products to be protected from extreme temperatures, followed by loading position.	.PIL/21
RCL	Cryogenic Liquids (deeply refrigerated, liquefied gases), followed by loading position.	.RCL/2
RCM	Corrosive (labeled), followed by loading position.	.RCM/2
RDS	Diagnostic specimens, clinical specimens (labeled), followed by loading position.	.RDS/2

5.2.11. Load Information Codes (cont.)

Load Information Codes (cont.)

Code	Description	Examples/Remarks
RFG	Flammable Gas (labeled), followed by loading position.	.RFG/4
RFL	Flammable Liquid (labeled), followed by loading position.	.RFL/4
RFS	Flammable Solid (labeled), followed by loading position.	.RFS/4
RFW	Dangerous when Wet (labeled), followed by loading position.	.RFW/2
RIS	Infectious Substance, followed by loading position.	.RIS/2
RLI	Fully regulated lithium ion batteries, followed by loading position.	.RLI/21
RLM	Fully regulated lithium metal batteries, followed by loading position.	.RLM/2
RMD	Miscellaneous articles and substances, which during air transport present a danger not covered by other classes, followed by loading position.	.RMD/2
RNG	Non-flammable, Non-toxic Gas (labeled), followed by loading position.	.RNG/4
ROP	Organic Peroxide (labeled), followed by loading position.	.ROP/2
ROX	Oxidizer (labeled), followed by loading position.	.ROX/2
RPB	Toxic Substances, followed by loading position.	.RPB/2
RRY	Radioactive Materials of categories II and III Yellow (labelled), followed by loading position and transport indexes (TI). The figure expressing the TI must be shown with one decimal. The abbreviation PT (point) must be used to indicate the decimal point.	.RRY/2/5PT4
RSB	Polymeric Beads, followed by loading position and weight.	.RSB/2/45
RSC	Spontaneously Combustible (labeled), followed by loading position.	.RSC/2
RXS	Explosive 1.4S (ammunition for sporting and hunting purposes, labeled), followed by loading position.	.RXS/2
SDA	Same Day Courier Cargo, followed by loading position.	.SDA/4

5.2.11. Load Information Codes (cont.)

Load Information Codes (cont.)

Code	Description	Examples/Remarks
SOC	Seats Occupied by Baggage, cargo and/or mail, followed by the number of seats occupied per class. SOC are not included in the PAX CM distribution.	.SOC/0/3
TER	Thermometer and barometer that is mercury filled and carried by a representative of a government weather bureau or similar agency, followed by seat number of the corresponding passenger as loading position.	.TER/seat10c
UCB	Unaccompanied Courier Baggage, followed by loading position.	.UCB/4
WBD	Dry Battery operated wheelchair/mobility device, followed by loading position.	.WBD/4
WBW	Wet Battery operated wheelchair/mobility device, followed by loading position.	.WBW/4
WEA	Weapons and ammunition. 1-3 numeric to indicate the loading position.	.WEA/2
WET	Shipments of Wet Materials not packed in watertight containers, e.g. fish packed in wet ice. 1-3 numeric to indicate the loading position.	.WET/4
WLB	Lithium-ion Battery operated wheelchair/mobility device, followed by seat number of the corresponding passenger as loading position.	.WLB/seat10a
WMP	Manual powered wheelchair, followed by loading position.	.WMP/5
XCR	Crew occupying passenger seats, followed by the number of seats occupied per class. *NOTE:* XCR are included in the operating/active crew figures (not included in the pax figures).	.XCR/0/2
XCP	Premium Express Cargo (BXO).	.XCP/5
XCS	Express Cargo, followed by loading position.	.XCS/21

6. TRAINING

6.0. OVERVIEW

Contents	This chapter contains the following sections: 6.1. General Information 6.2. Training Programs 6.3. Mandatory Minimum Contents for Qualification Trainings 6.4. Dangerous Goods Handling Qualifications

6.1. GENERAL INFORMATION

General Requirements	• In order to ensure flight safety through an acceptable level of standardization and proficiency, the minimum requirements laid down in this section must be recognized in the training of Croatia Airlines Handling Companies personnel engaged in aircraft handling functions • Personnel engaged in aircraft handling duties shall: ✓ Have a sufficient knowledge of English to understand the instructions published in the training manuals and other relevant publications. ✓ Fully understand the principles of aircraft handling. ✓ Have a comprehensive knowledge of the regulations on aircraft loading and the ability to correctly interpret them.
Handling Agent	• All Contracted handling agents on behalf of Croatia Airlines engaged in: ✓ Passenger and Baggage Handling. ✓ Aircraft Handling (including load control). ✓ Cargo Handling must be trained and qualified to perform their role(s) and function(s) as defined in the respective job descriptions. • Handling Agents shall: ✓ Carry out its own training programs which enable its personal to perform handling duties in accordance with ICAO rules, IATA Requirements and OU policy. • Before being assigned to the specific task for OU ground operations, the required training shall be successfully completed. • Performing ground and cargo handling activities without completed training (as per requirements) shall only be allowed during training phase AND if staff is working under constant personal presence of a trainer and/or supervisor (NEVER works without the supervisor and/or trainer having the activity under visual sight)
Quality Audits	• Croatia Airlines is entitled to evaluate the Handling Agent's training program and inspect their training records. • Monitoring and control process of Handling Agent's qualification and training is achieved by regular audits/inspections according to: ✓ OM-D 01.01.09 QUALITY ASSURANCE PROGRAMME.
Training Terminology	**Initial Training** • Initial training is formal training provided to operational personnel prior to them being aligned to new duties, functions, positions and/or aircraft equipment. • Shall be designed to deliver operational competence. • It should be divided into theoretical and practical elements and include assessments of theoretical knowledge and practical competence appropriate to the role and operational requirements.

6.1. GENERAL INFORMATION

Training Terminology (cont.)	**Recurrent Training** • Recurrent training is formal training to ensure that operational personnel remain fully competent, against the latest regulatory and/or operational requirements, to perform their assigned roles and functions. • It should be divided into theoretical and practical elements and include assessments of theoretical knowledge and practical competence appropriate to the role and operational requirements. • It shall be conducted at a frequency of 36 months (except for DG which takes period of 24 months). **Re-qualification Training** • Re-qualification training is for operational personnel who: ✓ have previously achieved competence, but who no longer demonstrate the required competence, or ✓ have been absent from their operational role for a prolonged period of time. • This training shall address the identified gap(s) in competence and include assessments of theoretical knowledge and practical competence appropriate to the role and operational requirements. **Update Training** • Is provided to ensure personnel remain competent as a result of changes relevant to the achievement of their operational duties. • Update training could be introduced as a result of changes to equipment, infrastructure, systems, procedures, or a combination of these. ***NOTE:*** *Where an employee is absent from the operational or functional role for a prolonged period of time, regardless of the reason for their absence, a Handling Company shall ensure that the following minimum conditions given in IATA AHM-1100 are met.*
Training Requirements	• Mandatory training requirements are based on the current IOSA Requirements. • Croatia Airlines and its ground service providers shall ensure that training of operations personnel is reviewed and regularly updated in order to ensure continuous improvement and effectiveness. • The program shall consist of: ✓ Familiarization training on applicable regulations. ✓ In-dept training on requirements, including policies, procedures, and operating practice. ✓ Training in human factor principles. ✓ Safety training on associated operational hazards. ✓ The handling agent should have a documented training system in operation, in which the duration (number of hours), validity periods of certificates, and an evaluation system are specified.

6.2. TRAINING PROGRAMS

Testing and Evaluation	• The trainings must include: ✓ Testing or evaluation by written oral or practical means to verify sufficient knowledge and competence to perform their duties. ✓ A demonstration of adequate knowledge, competency, and proficiency to perform duties, execute procedures and/or operate equipment • The result of the testing shall be included in the training records. • All tests must be passed with a minimum scoring level of 75% except Dangerous Goods (80%). • If the result is 'fail', a second attempt is allowed. If the result is still 'fail', the examinee must attend a new training. • Upon successful completion of a test, participants can be considered qualified to fulfill their assigned duties. **On the Job Training** • Is evaluated by demonstration of adequate knowledge, competency, and proficiency to perform duties, execute procedures and/or operate equipment.
Training Methods	• The training program shall include both: ✓ Theoretical and ✓ Practical training. • Theoretical training can be performed as: ✓ Classroom training. ✓ Web-based training. ✓ Self-study training. • A practical/familiarization or on-the-job training ensures practical competency in all training objectives.
Training Records and Certificates	• Each successfully completed "qualification-training" shall be documented with a respective certificate (paper or electronic type). • The certificate shall display at least: ✓ The individual's name. ✓ Title of the training. ✓ The most recent training completion month. ✓ A description, copy, or reference to training materials used to meet the training requirements. ✓ The name and address of the organization providing the training. ✓ Evidence, which shows that a test has been completed satisfactorily. and must be available whenever needed, e.g., for audits. • Required Storage periods for training/qualification records are the last 2 trainings:

6.3. MANDATORY MINIMUM CONTENTS FOR QUALIFICATION TRAININGS

Requirements	• The mandatory training requirements are based on the current IOSA Requirements.
Training Subject Areas	• **Safety/Human Factors Training** requirements shall address **ALL** operational function(s): 1. Safety Philosophy. 2. Safety Regulations. 3. Hazards. 4. Human Factors. 5. Airside Markings and Signage. 6. Emergency Situations. 7. FOD Prevention. 8. Personal Protection. 9. Accidents, Incidents, Near Misses. 10. Airside Safety Supervision. • **Passenger Services Training Requirements:** 1. Aviation Basics. 2. Arrivals/Departures. 3. Baggage Services. 4. Check-in. 5. Passenger Assistance and PRM (Passengers with Reduced Mobility). 6. Post-Flight Requirements. 7. Special Category Passengers. 8. Transfer of Load Information. 9. Transfer, Transit and Connection. 10. Boarding Bridge Operations. 11. Aircraft Cabin Access Doors. • **Ramp Services Training Requirements:** 1. Basic Ramp. 2. Airside Driving. 3. Basic Hand Signals. 4. Aircraft Marshalling. 5. Boarding Bridge Operations. 6. Aircraft Cargo Access Doors. 7. Aircraft Cabin Access Doors.

6.3. MANDATORY MINIMUM CONTENTS FOR QUALIFICATION TRAININGS (cont.)

Training Subject Areas (cont.)	• **Ramp Services Training Requirements (cont.):** 8. Aircraft Loading. 9. Aircraft Arrival. 10. Aircraft Departure. 11. Aircraft Pushback. 12. Aircraft Towing. 13. GSE Operations. 14. Ground to Flight Deck Headset Communication and Engine Start. 15. Ramp Baggage Handling. 16. Aircraft Loading Supervision. 17. Airside Safety Supervision. • **Load Control Training Requirements:** 1. Aviation Basics. 2. Aircraft Weight & Balance Principles. 3. Load Planning and Load Sheet. 4. Documentation and Messaging. • **Aircraft Fueling Training Requirements:** 1. Safe Operation of Equipment. 2. Emergency Procedures. 3. Fuel Spillage Avoidance Response. 4. Aircraft Fueling and Defueling Procedures. 5. Aircraft Specific Training. • **Aircraft Ground De-/Anti-Icing Training Requirements:** 1. Common Standard, Regulation and Recommendation including Local Rule and Restriction. 2. Hazard of Snow, Ice and Frost. 3. Safe Operation of Equipment and De-/Anti-Icing Operation including Aircraft Critical Area. 4. Fluid Characteristics and Application, and Limitation of Holdover Time. 5. De-/Anti-Icing Codes, Communication and Coordination.

6.4. DANGEROUS GOODS HANDLING QUALIFICATIONS

Passenger Handling DG – Qualification (CAT9)	• Training for personnel with duties and/or responsibilities in passenger handling functions shall address dangerous goods subjects, to include, as a minimum: i. General philosophy ii. Limitations and procedures iii. Labelling and marking iv. Recognition of undeclared dangerous goods v. Provisions for passengers and crew vi. Emergency procedures vii. Airline Specific Procedures (as applicable)
Baggage Handling DG – Qualification (CAT8)	• Training for personnel with duties and/or responsibilities in baggage handling functions shall address dangerous goods subjects, to include, as a minimum: i. General philosophy ii. Limitations iii. Labelling and marking iv. Recognition of undeclared dangerous goods v. Storage and loading procedures vi. Pilot-in-command notification vii. Provisions for passengers and crew viii. Emergency procedures ix. Airline Specific Procedures (as applicable)
Load Control DG – Qualification (CAT10)	• Training for personnel with duties and/or responsibilities in operational load control functions shall address dangerous goods subjects, to include, as a minimum: i. General philosophy ii. Limitations (loading restrictions, compatibility rules) iii. List of dangerous goods iv. Labelling and marking (ULDs and parcels) v. Recognition of undeclared dangerous goods vi. Storage and loading procedures vii. Pilot-in-command notification (NOTOC) viii. Provisions for passengers and crew ix. Emergency procedures x. Airline Specific Procedures
Aircraft Handling & Loading DG – Qualification (CAT9)	• Training for personnel with duties and/or responsibilities in operational aircraft loading functions shall address dangerous goods subjects, to include, as a minimum: i. General philosophy ii. Limitations iii. Labelling and marking iv. Recognition of undeclared dangerous goods v. Storage and loading procedures vi. Pilot-in-command notification vii. Provisions for passengers and crew viii. Emergency procedures ix. Airline Specific Procedures (as applicable)

6.4. DANGEROUS GOODS HANDLING QUALIFICATIONS (cont.)

Cargo & Mail Handling DG – Qualification (CAT6, 7, 8)

Functional Groups

Subject areas to be addressed in dangerous goods training for cargo handling personnel is determined on the basis of operational functions as defined below. *****

Function 6: Personnel assigned responsibilities for dangerous goods acceptance

Function 7: Personnel assigned responsibilities for cargo and/or mail acceptance

Function 8: Personnel assigned responsibilities for cargo or mail handling, ULD build-up and/or storage

***Note**: *Function numbers correspond to those used in the IATA DGR, Subsection 1.5, Table 1.5. A.*

Training Subject Areas

Dangerous goods training subject areas are applicable to personnel in functional groups as shown below.

i	General philosophy	Functions 6, 7, 8
ii	Limitations	Functions 6, 7,8
iii	General requirements for shippers	Function 6
iv	Classification	Function 6
v	List of dangerous goods	Function 6
vi	General packing requirements	Function 6
vii	Packing instructions	Function 6
viii	Labelling and marking	Functions 6, 7, 8
ix	Shippers' declaration and other relevant documentation	Functions 6, 7
x	Acceptance procedures	Function 6
xi	Recognition of undeclared dangerous goods	Functions 6, 7, 8
xii	Storage and loading procedures	Functions 6, 8
xiii	Pilots' notification	Functions 6, 8
xiv	Provisions for passengers and crew	Functions 6, 7, 8
xv	Emergency procedures	Functions 6, 7, 8

7. CARGO AND MAIL

7.0. OVERVIEW

Contents	This chapter contains the following sections: 7.1. Cargo 7.2. Mail 7.3. Dangerous Goods 7.4. Special Loads - General 7.5. Miscellaneous Special Loads 7.6. Live Animals 7.7 Cargo and Mail Handover 7.8. Aircraft Ballast

7.1. CARGO

7.1.0. Overview

Contents	This section contains the following: 7.1.1. Transportation of Cargo 7.1.2. Irregularities

7.1.1. Transportation of Cargo

Responsibilities and Qualifications	• Cargo handling is fundamental in the overall handling process. Therefore, entrusted handling agents must ensure that all personnel handling Croatia Airlines are sufficiently trained and consequently certified in all relevant aspects of safety and security as well as within their areas of competence. • All contracted handling agents performing cargo handling activities on behalf of Croatia Airlines must have a basic and recurrent training program for their personnel. • The handling agent should have a documented training system in operation, in which the duration (number of hours), validity periods of certificates, and an evaluation system are specified. • Training program shall consist of: ✓ Familiarization training on applicable regulations. ✓ In-dept. training on requirements, including policies, procedures and operating practice. ✓ Training in human factor principles. ✓ Safety training on associated operational hazards. • Training shall be reviewed and regularly updated in order to ensure continuous improvement and effectiveness. The training must include testing or evaluation by written, oral or practical means, as applicable to satisfy the requirement for operational personnel to demonstrate adequate knowledge, competency, or proficiency to perform duties, execute procedures or operate equipment. • All personnel involved in cargo handling, must undergo basic and recurrent training in the areas of airside safety and equipment operation. Such training must take place not less than once in a three-year period (36 months). Furthermore, basic, and recurrent training for Dangerous Goods must be done at intervals not exceeding 2 years (24 months). • Croatia Airlines is entitled to evaluate the Handling Agent's training program and inspect their training records. • Monitoring and control process of Handling Agent's qualification and training is achieved by regular audits/inspections according to: ✓ OM-D 01.01.09 QUALITY ASSURANCE PROGRAMME ***IMPORTANT:*** *Performing Ground and Cargo Handling activities without completed training (as per requirements) shall only be allowed during training phase AND if staff is working under constant personal presence of a trainer and/or supervisor (NEVER works without the supervisor and/or trainer having the activity under visual sight).* ***NOTE:*** *For more details refer to chapter 6 "Training"*

7.1.1. Transportation of Cargo (cont.)

Requirements for Cargo Ground Support Equipment (GSE)	GENERAL • Before any ground support equipment may be used to handle any Croatia Airlines cargo shipments, the following general rules must be observed: ✓ GSE may only be operated by qualified personnel. ✓ Only equipment that complies with the respective governmental rules may be used. Furthermore, it must be assured that operated GSE must meet the technical specifications issued by regulatory bodies and manufacturers prior to being utilized in daily operations. ✓ Equipment is operated in a manner that prevents injury to personnel and damage to the aeroplane. ✓ Equipment must be visually in good shape. ✓ An adequate maintenance program must be in place which assures that all equipment remains serviceable and in good mechanical condition. Maintenance records must be available for each individual GSE. GSE OPERATOR LICENSE • Further to the required driver's license as laid down in IATA AHM 614 chapter 4, a specific driver / operator license is mandatory for each individual type (e.g., forklift, tractors, etc.) of GSE for which the personnel has been trained and certified. ***NOTE:*** *For more details refer to section 2.1.6." Ground Support Equipment" and chapter 6." Training".*
Types of Cargo	• Local Cargo ✓ Shipments bound for the point of unloading. • Transfer cargo ✓ Shipments to be transferred at point of unloading to other destinations. • Transit Cargo ✓ Shipments continuing their journey on the same flight.
Acceptance of Cargo	• Consignments are accepted by Croatia Airlines through its Approved Cargo Agents or directly from Shippers when an Air Waybill is issued which serves as a contract of carriage. • Prior to issuing an Air Waybill, it is the Shipper's responsibility to check if all special requirements are met (custom regulations, commercial invoices, permits, certificates, and embargos). • All cargo shipments must be booked. ***NOTE:*** *Special cargo shipments must never be accepted without confirmed bookings up to final destination points.* ***IMPORTANT:*** *Cargo, unaccompanied courier and express consignments and mail may only be carried by air where the security controls have been properly applied by the known consignor, the regulated agent for cargo / the regulated postal company for mail, the aircraft operator or any other appropriate entity.*

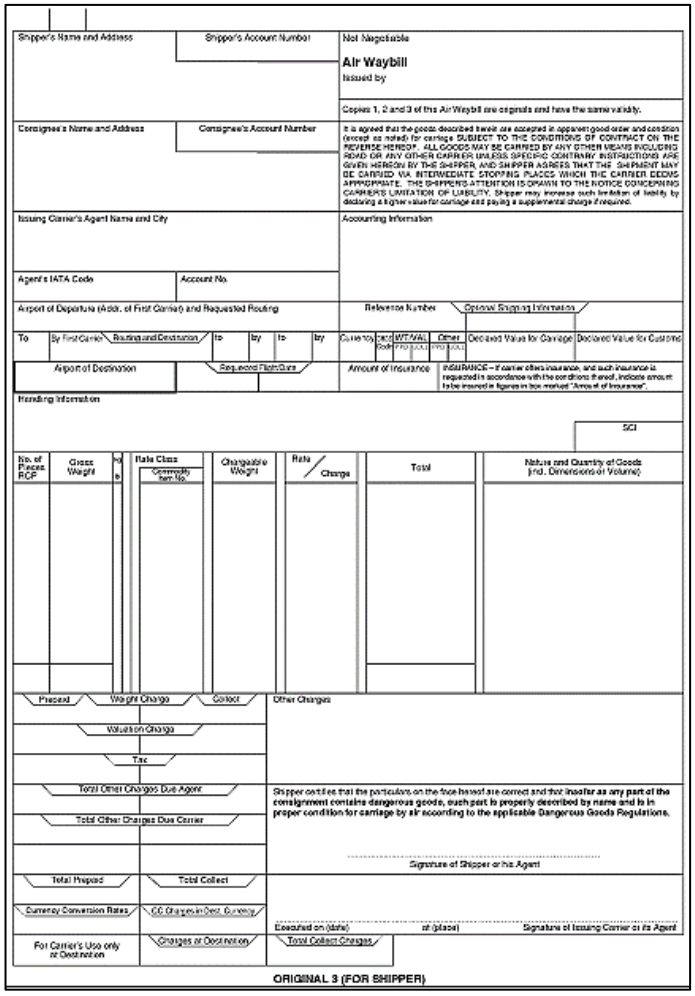
7.1.1. Transportation of Cargo (cont.)

Shipping Documents	• All international shipments shall be delivered together with an already completed Air Waybill or Shipper's Letter of Instruction, and where applicable, Shipper's Certification for Live Animals and other documents that may be required. • Documents required by Customs, Health and other authorities shall also be attached to AWB. • If, in exceptional cases, the Air Waybill or SLI is received prior to delivery of the cargo, processing of the documents shall be postponed until the time when the cargo is delivered. <u>AIR WAYBILL</u> • The air waybill is the most important cargo document issued by a carrier or its authorized cargo agents. It is therefore essential that the AWB is legibly prepared in accordance with TACT 6. • All cargo accepted for air transportation must be covered and accompanied by an air waybill (AWB). • The AWB serves several purposes: ✓ proof for receipt of the goods to be shipped. ✓ documentary evidence of the conclusion of the Contract of Carriage. ✓ freight bill. ✓ certificate of insurance if insurance is requested by the shipper from the carrier. ✓ customs declaration. ✓ waybill, i.e., instruction for carrier's staff with regard to handling, dispatch and delivery of shipments. • It may exclusively be used: ✓ for transportation of individual shipment, or. ✓ as 'Master Air Waybill' to cover transportation of shipments consolidated by an IATA-approved Air Cargo Consolidator. • The AWB is said to be 'issued' or 'cut' when: ✓ it is signed by the shipper, or on his behalf, and. ✓ counter-signed by the carrier or, on their behalf, by an authorized agent. ✓ at the location where electronic Air Waybill with Single Process is available. The e-AWB is the preferred method of shipping Air Cargo. • The mention AWB (Air Waybill) in this document refers to either an e-AWB (electronic) or a traditional AWB (Paper) unless otherwise specified. • The Air Waybill must be issued for all international and domestic (within Croatia) carriage of air cargo, both on-line with any one airline, and interline with two or more airlines. • No shipment or part may be carried until an air waybill is issued and executed.

7.1.1. Transportation of Cargo (cont.)

Shipping Documents (cont.)	USE OF AIR WAYBILL PARTS • A set of Croatia Airlines Air Waybills consist of 12 parts (3 originals, 6 copies and 3 extra copies) which are marked and designed as follows: ✓ Original 3 (for Shipper) - *Blue* - to be given to the shipper and to serve as: ▪ Proof of receipt of the goods for shipment. ▪ Documentary evidence of carrier's and shipper's signature to the contract of carriage. ✓ Copy 9 (for Agent) - *White* - to be retained by the agent or the carrier executing the Air Waybill. ✓ Original 1 (for Issuing Carrier) - *Green* - to be retained by the carrier issuing the Air Waybill for accounting purposes and to serve as documentary evidence of carrier's and shipper's signature to the contract of carriage. ✓ Original 2 (for Consignee) - *Pink* - to accompany consignment to final destination and to be tendered to the consignee on delivery. ✓ Copy 4 (Delivery Receipt) - *Yellow* - to be available at final destination and to be signed by consignee, and to be retained by delivering carrier as: ▪ Receipt of delivery of consignment. ▪ Evidence of carrier's completion of contract of carriage. ✓ Copy 5 (for Airport of Destination) - *White* - to be available at airport of destination. ✓ Copy 6 (for third Carrier.) – *White*. ✓ Copy 7 (for second Carrier) – *White*. ✓ Copy 8 (for First CARRIER) – *White*. ✓ Extra copy - *White* - to be retained by the cargo office at the airport of departure for filing purposes. ✓ Extra copy - *White* - for Croatia Airlines use/disposition.

7.1.1. Transportation of Cargo (cont.)

Shipping Documents (cont.)	*SPECIMEN (reduced size):* 

Shipper's Name and Address | Shipper's Account Number | Not Negotiable

Air Waybill

Issued by

Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity.

Consignee's Name and Address | Consignee's Account Number

It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. ALL GOODS MAY BE CARRIED BY ANY OTHER MEANS INCLUDING ROAD OR ANY OTHER CARRIER UNLESS SPECIFIC CONTRARY INSTRUCTIONS ARE GIVEN HEREON BY THE SHIPPER, AND SHIPPER AGREES THAT THE SHIPMENT MAY BE CARRIED VIA INTERMEDIATE STOPPING PLACES WHICH THE CARRIER DEEMS APPROPRIATE. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and paying a supplemental charge if required.

Issuing Carrier's Agent Name and City | Accounting Information

Agent's IATA Code | Account No.

Airport of Departure (Addr. of First Carrier) and Requested Routing | Reference Number | Optional Shipping Information

To | By First Carrier | Routing and Destination | to | by | to | by | Currency | CHGS Code | WT/VAL | Other | Declared Value for Carriage | Declared Value for Customs

Airport of Destination | Requested Flight/Date | Amount of Insurance | INSURANCE – If carrier offers insurance, and such insurance is requested in accordance with the conditions thereof, indicate amount to be insured in figures in box marked "Amount of Insurance".

Handling Information | SCI

No. of Pieces RCP	Gross Weight	kg lb	Rate Class / Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (incl. Dimensions or Volume)

Prepaid | Weight Charge | Collect | Other Charges

Valuation Charge

Tax

Total Other Charges Due Agent

Total Other Charges Due Carrier

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations.

Signature of Shipper or his Agent

Total Prepaid | Total Collect

Currency Conversion Rates | CC Charges in Dest. Currency

Executed on (date) at (place) Signature of Issuing Carrier or its Agent

For Carrier's Use only at Destination | Charges at Destination | Total Collect Charges

ORIGINAL 3 (FOR SHIPPER)

7.1.1. Transportation of Cargo (cont.)

Shipping Documents **(cont.)**	**<u>CARGO MANIFEST</u>** • The cargo manifest is a list of the consignments carried on board of an aircraft (or truck) operated on an CTN account. It serves as a document for the clearance of cargo, report to the customs, as statistical and revenue information and also contains data for aircraft loading. • The entries are based on the data supplied by the shipper on the air waybill. On all airlines' routes, (including truck services) whether regular or ad-hoc, a cargo manifest must be issued and completed according to the instructions below. • If goods are transported by air and if they are loaded or reloaded at an airport in the European Union, the EU transit procedure shall be compulsory. • Where the EU transit procedure is compulsory for goods transported by air from a EU airport, the manifest, provided it contains the information specified in Appendix 3 of Annex 9 to the Convention on International Civil Aviation, shall be equivalent to a EU transit declaration. • Where the transport operation relates both to goods which must move under the external EU transit procedure and to goods which must move under the internal EU transit procedure, such goods shall be listed on separate manifests. The most common statuses are T1, C and X. • The manifest or manifests referred to in the above paragraphs shall bear an endorsement dated and signed by the airline identifying them as a EU transit declaration and specifying the customs status of the goods to which they relate. Goods transported under the same customs status should be grouped and manifested on separate page (pages) of cargo manifest. • Thus, completed and signed, the manifest or manifests shall be treated as a T1 declaration or a T2 declaration, as the case may be. *<u>Definition of Manifests</u>* • Point-to-Point manifest ✓ Manifest listing shipments to be carried from one point of loading to one point of unloading. • Master manifest ✓ Manifest used on multi-sector flights listing shipments for different points of unloading. • Through going manifest ✓ Manifest listing cargo to be carried beyond a transfer point on two separate flights, to facilitate handling/documentation at a transfer station. Such manifests may only be used provided it has been agreed upon between the stations involved.

7.1.1. Transportation of Cargo (cont.)

Shipping Documents **(cont.)**	*Rules for Manifesting* • The manifest must be prepared on the basis of the air waybills, and must be written in English, except when issued for domestic services. • The entries must be prepared by data printer. • The shipments must be manifested in groups according to point of unloading, starting with the first port of call. • The destination and, where required, the country is to be written in plain language in the 'Nature of goods' column of the manifest. If there is no cargo for a station, the name of the station must be listed, and the word 'NIL' stated thereunder. This also includes stations under condition of technical landing only. • The manifest or manifests shall contain the following: ✓ the name of the airline transporting the goods. ✓ the flight number. ✓ the date of the flight. ✓ the name of the airport of loading (airport of departure) and unloading (airport of destination). and for each consignment on the manifest: ✓ the number of the air waybill. ✓ the number of packages. ✓ a summary description of the goods or, where appropriate, the indication 'consolidated`, if necessary, in an abbreviated form, (equivalent to groupage). ✓ the gross weight. ✓ the appropriate status T1, T2, TE (equivalent to T2 ES), TP (equivalent to T2 PT), and C (equivalent to T2L), X shall be indicated against each item on the manifest (in column “For Official Use Only”). • Within the Company, the Cargo Manifest is necessary working paper and accounting document. • When any change of format, additional entries, or when documents others than the Cargo Manifest are requested, and when provision of such additional entries is not required according to the ICAO Annex 9, such a request will be regarded as deviation from the standard procedure and shall be coordinated with cargo@croatiaarirlines.hr and cargo.handling@croatiaairlines.hr (SITA:ZAGFFOU). • The following documents can be used: ✓ Cargo Manifest. ✓ Cargo Transfer Manifest.

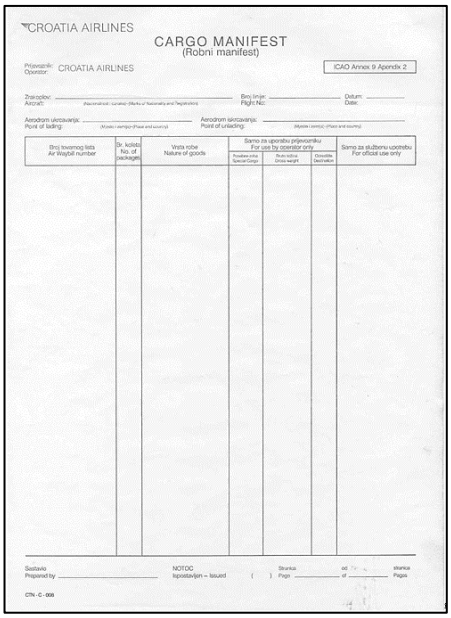
7.1.1. Transportation of Cargo (cont.)

Shipping Documents (cont.)

Distribution of Cargo Manifest Copies

- Cargo Manifest is always issued in the following number of copies:
  - ✓ for domestic services: (10) or more copies.
  - ✓ for international services: (12) or more copies.
- When the number of Cargo Manifest copies mentioned above have been assembled, the Manifest together with the Air Waybill(s) shall be handed over for dispatch in the document envelope.
- The Air Waybills must be attached to the back of the assembled Manifest pages in exactly the same sequence as listed on each single page.
- The Cargo Manifest (for international flights) is distributed as follows:
  - ✓ Airport of Loading:
    - 1 or more copies for Customs Authorities.
    - 1 copy for the Airport Customs Warehouse.
    - 1 or more copies for the Operations (Loading).
    - 1 copy for the Weight&Ballance Office.
    - 1 copy for the Accounting Department.
    - 1 copy for the manifesting Cargo Office (filing).
  - ✓ Airport of Unloading (each):
    - 1 or more copies for Customs Authorities (Transit and/or Inbound clearance).
    - 1 or more copies for Handling Agent (Unloading).
    - 1 copy for the Airport Customs Warehouse.

SPECIMEN (reduced size):



CROATIA AIRLINES

CARGO MANIFEST
(Robni manifest)

Prijevoznik/ Operator: CROATIA AIRLINES

ICAO Annex 9 Appendix 2

Zrakoplov/ Aircraft: _____ Broj linije/ Flight No.: _____ Datum/ Date: _____

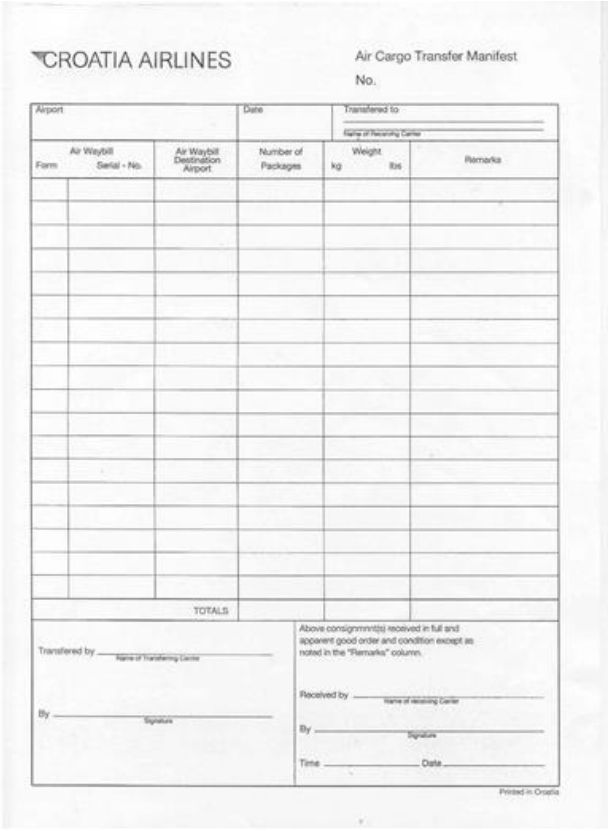
Aerodrom ukrcavanja/ Point of taking: _____ Aerodrom iskrcavanja/ Point of unloading: _____

Broj tovarnog lista / Air Waybill number	Br. kolleta/ No. of packages	Vrsta robe/ Nature of goods	Samo za uporabu prijevoznika/ For use by operator only: Posebna vrsta tereta/ Special Cargo	Bruto težina/ Gross weight	Posebna oznaka/ Destination	Samo za službenu uporabu/ For official use only

Sastavio/ Prepared by: _____ NOTOC/ Izdan/ Issued ( ) Stranica/ Page _____ od/ of _____ stranica/ Pages

CTN - C - 006

7.1.1. Transportation of Cargo (cont.)

Shipping Documents (cont.)	**CARGO TRANSFER MANIFEST** • The transfer manifest for interline carriage shall always be prepared by the transferring carrier. *Distribution of Copies* • The cargo transfer manifest shall be in four parts and distributed as follows: ✓ ORIGINAL: to cargo revenue accounting of transferring carrier (Croatia Airlines). ✓ COPY 2: to station file of Croatia Airlines. ✓ COPY 3: to revenue accounting of receiving carrier. ✓ COPY 4:to station file of receiving carrier. *SPECIMEN (reduced size):*  CROATIA AIRLINES Air Cargo Transfer Manifest No. Airport Date Transfered to Air Waybill Form / Serial - No. Air Waybill Destination Airport Number of Packages Weight kg / lbs Remarks TOTALS Transfered by By Above consignment(s) received in full and apparent good order and condition except as noted in the "Remarks" column. Received by By Time Date

7.1.1. Transportation of Cargo (cont.)

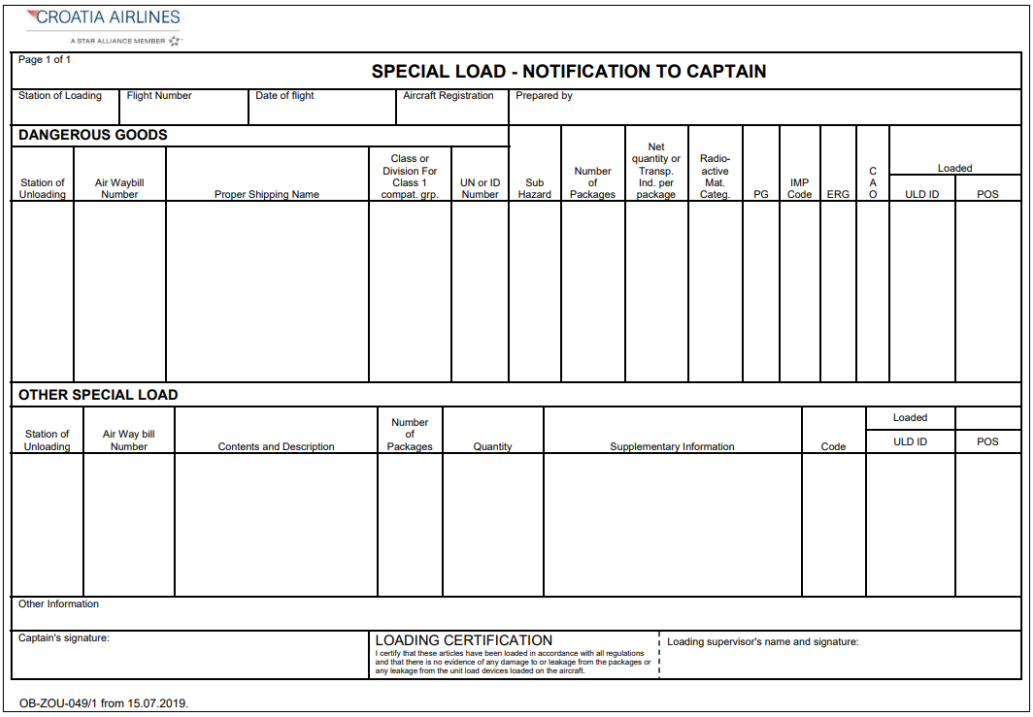
Shipping Documents **(cont.)**	**<u>NOTIFICATION TO CAPTAIN (NOTOC)</u>** • For safety reasons the flight crew must be informed about Dangerous Goods and other potentially hazardous nature load, loaded on board the aircraft. They must also be advised of live animals, live human organs and the required temperature settings and about all valuable cargo. • For this purpose, for all special load a NOTOC (Notification to Commander) must be issued. Dangerous Goods and other special load must be reflected on the NOTOC with a Special Handling Code. • The load control office shall be informed well in advance to ensure that these items are loaded in accordance with the loading and stowing regulations of ICAO/IATA and OU. *<u>NOTOC Procedure:</u>* • The NOTOC for special cargo has to be completed by the responsible agent of the cargo department prior to it's release to the weight and balance office or ramp. The manual NOTOC shall be issued in clearly readable handwriting or by typewriter (EDP). • It must be always delivered / transmitted to load planning and if required by the local procedures, it must be brought to the aircraft well ahead of the scheduled departure time of the flight concerned. The form is to be completed and signed by the agent responsible for the loading of the aircraft (ramp supervisor, loading supervisor, etc.) and the Captain. ***NOTE:*** *Transit stations must issue a NOTOC only for the joining load.* *<u>NOTOC Distribution:</u>* • The NOTOC form is to be completed 3-fold: ✓ One copy is to be filed at the cargo department. ✓ Two copies are to be handed over to the ramp supervisor at the aircraft for completion of boxes 28 – 3 (see Specimen below)1 and signature of the Captain in box 32 (see Specimen below). ✓ One copy is filed at Ground Services (e.g., load control, ramp services) and one copy is delivered to the Captain. ***IMPORTANT:*** *In case of DG Shipment, a copy of the NOTOC must be automatically sent to Croatia Airlines Operations Control and HUB Centre (refer to 7.3.9. "Notification to Captain (NOTOC)".*

7.1.1. Transportation of Cargo (cont.)

Shipping Documents

(cont.)

SPECIMEN (reduced size):



CROATIA AIRLINES
A STAR ALLIANCE MEMBER

Page 1 of 1

SPECIAL LOAD - NOTIFICATION TO CAPTAIN

Station of Loading	Flight Number	Date of flight	Aircraft Registration	Prepared by

DANGEROUS GOODS

Station of Unloading	Air Waybill Number	Proper Shipping Name	Class or Division For Class 1 compat. grp.	UN or ID Number	Sub Hazard	Number of Packages	Net quantity or Transp. Ind. per package	Radio-active Mat. Categ.	PG	IMP Code	ERG	C A O	Loaded	
													ULD ID	POS

OTHER SPECIAL LOAD

Station of Unloading	Air Way bill Number	Contents and Description	Number of Packages	Quantity	Supplementary Information	Code	Loaded	
							ULD ID	POS

Other Information

Captain's signature:	LOADING CERTIFICATION I certify that these articles have been loaded in accordance with all regulations and that there is no evidence of any damage to or leakage from the packages or any leakage from the unit load devices loaded on the aircraft.	Loading supervisor's name and signature:

OB-ZOU-049/1 from 15.07.2019.

7.1.1. Transportation of Cargo (cont.)

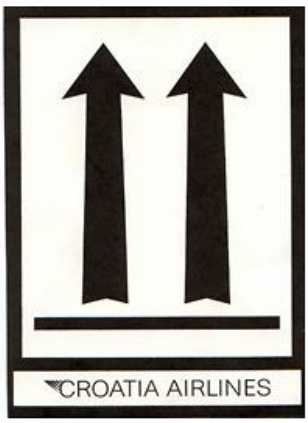
Cargo Identification Labels (Tags)	• The cargo Identification label/tag must be affixed to each piece of cargo. • The following instructions regarding identification labels must be observed: ✓ Identification labels/tags must clearly show the complete Air Waybill number, i.e., carrier's prefix-number followed by all eight digits, e.g., 831-43454367. ✓ If OU-cargo identification label/tag is used for other carrier's shipments (covered by such carrier's AWBs), then OU-prefix number 831- must be deleted. In the reverse case, other carrier's prefix number must be obliterated if shipment is covered by OU-AWB. ✓ In the event of consolidated shipments, the complete Master Air Waybill-number has to be shown. ✓ Whenever labels/tags for special shipments (e.g., live animals, perishables etc.) are used, these have to be attached adjacent to the identification label/tag. ✓ Old markings/labels should be removed or obliterated or covered up by new markings and/or identification label/tag. ✓ In case of long and/or bulky pieces (the addition of length, width and height of a package amounts to more than 3 meters), additional cargo identification labels shall be attached at opposite sides or at the ends, respectively. *LABEL SPECIMEN (reduced size)* CROATIA AIRLINES AWB NO. 831 – DESTINATION TOTAL NO. OF PIECES WEIGHT OF THIS PIECE TOTAL WEIGHT OF THIS CONSIGNMENT TRANSFER STATION(S) OTHER HANDLING INFORMATION HWB NO. *TAG SPECIMEN (reduced size)* CROATIA AIRLINES AWB NO. 831 - DESTINATION TOTAL NO. OF PIECES WEIGHT OF THIS PIECE TOTAL WEIGHT OF THIS CONSIGNMENT TRANSFERSTATION(S) OTHER HANDLING INFORMATION HWB NO.

7.1.1. Transportation of Cargo (cont.)

Labels for Special Shipments

Fragile¶
Affix·to·all·sides·of·packages·requiring·careful·handling¶
¤

This·way·up·package¶
(not·top·and·bottom)·¶
to·indicate·side·up¤



Urgent

URGENT – mini sticker

7.1.1. Transportation of Cargo (cont.)

Outbound Cargo	***Preparation for loading*** • Before positioning of cargo for loading, it shall be observed that shipments, respectively, pieces of cargo will not be loaded into the aircraft, if: ✓ They are not properly packed, and therefore, might cause damage to the aircraft and/or load (e.g., pipes and bars etc.). ✓ They contaminate the compartment and/or other load (e.g., wet cargo, fresh meat and fish, live animals). ✓ The packaging is not in accordance with the requirements (e.g., for human remains, live animals). ✓ Special instructions for loading (e.g., loading/transportation in upright position) cannot be followed. ✓ Necessary loading accessories (e.g., supporting planks/platforms for heavy cargo, plastic bowls, rubber tarpaulins) are not supplied. ✓ Shipments are not available at the aircraft in time. ***Deadlines*** • The deadlines shall meet both sales and handling requirements as far as possible. They are to pay due consideration to local conditions as well as to type of aircraft and/or flight routing. • Upon agreement between the Cargo Office Manager and the Station Manager (if available) or the Handling Agent, the deadlines shall be recorded as an instruction valid for both offices as shown below: ✓ STD minus 120 min. (for international) or 90 min. (for domestic flight) - reporting of estimated load to the Handling Agent ✓ STD minus 45 min.- positioning of cargo including possibly required load accessories on the ramp. ✓ STD minus 30 min. - reporting of final load figures to the operations. closeout of the Manifest. ✓ STD minus 30 min. (for international) or 20 min. (for domestic flight) - delivery of cargo documents to the aircraft. ***IMPORTANT:*** *When the Manifest has been closed and the final onload has been reported, no additional cargo shall be accepted for the flight.* ***NOTE:*** *If very urgent shipments, such as AOG, perishables, or similar goods are delivered after closeout of the manifest and if a check with the operations has shown that they can still be loaded, an additional Manifest titled "LMC" (last minute cargo) shall be prepared.*

7.1.1. Transportation of Cargo (cont.)

Outbound Cargo **(cont.)**	***Grouping of shipments*** • The shipments must be manifested in groups according to the point of unlading, starting with the first port of call. • Under each point of unlading (within each point of unlading), the shipments shall be grouped in the following order: ✓ Revenue cargo LOCAL (1). ✓ Non-revenue cargo LOCAL (service, reduced cargo). ✓ Revenue cargo in TRANSIT (2). ✓ Non-revenue cargo in TRANSIT (service, reduced). • Separate totals of number of packages and weight of the group "revenue cargo" and "non-revenue cargo" will be shown for each point of unlading. • The total of all manifested categories, i.e., cargo pieces and weights, has to be entered on each manifest page. • If there is no cargo for a station, the name of the station must be listed, and the word "NIL" stated thereunder. This also includes stations of technical landing. • In addition, all details relevant to the loading process shall be reported to operations. They include the following: ✓ Number of pieces and total weight of Service Cargo for each airport of unloading. ✓ Perishable and Wet Cargo. ✓ Human Remains. ✓ Live Animals. ✓ Heavy and bulky Items. ✓ Baggage Shipped as Cargo. ✓ Diplomatic Shipments. • In case of a Last-Minute Offload where the Manifest could not be amended, the respective station must be telex-pre-advised in order to avoid customs fines. ***Positioning of the outbound cargo on the ramp*** • The cargo which has been manifested for an individual flight shall be positioned on the ramp or turned over to operations at an agreed deadline. It shall be segregated according to stations of unloading, and any lashing material and loading equipment required, shall be supplied with it. • SPECIAL SHIPMENTS and all shipments requiring any special handling shall be separated from any other load for easy recognition by the loading staff. • CARGO DESTINED FOR QUICK OFF-LOADING at the airport of unloading (like press/film material, medicines or similar goods), shall be loaded last, preferably close to the compartment doors for immediate access on arrival. • A teletype message notifying details of consignments loaded onto a specific flight is necessary to enable particular handling arrangements at the airport of unloading (transfer or destination).

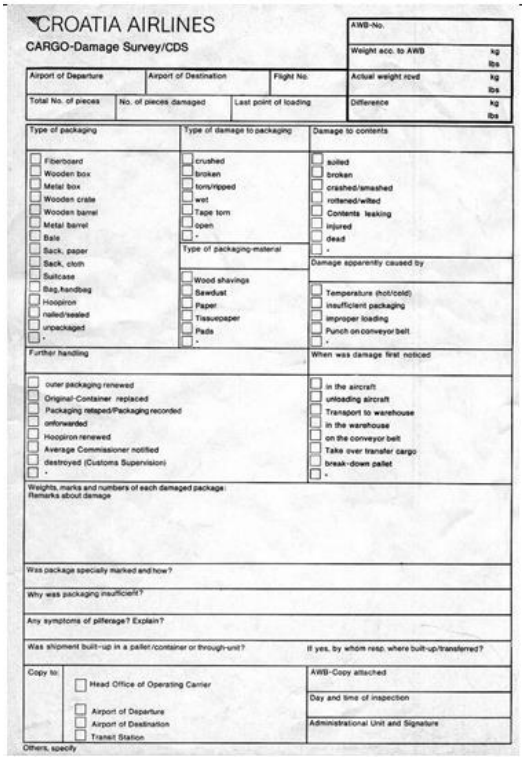
7.1.1. Transportation of Cargo (cont.)

Outbound Cargo **(cont.)**	• Sometimes Flight Manifest Message contains details of the onward movement of consignment loaded onto specific flight to enable transfers to be preplanned. • The FFM must be generated by the office preparing and issuing the Cargo Manifest and addressed to station offices, handling agents and/or other airlines receiving the consignment.
Transfer Cargo	***Definition*** • Transfer Cargo (Interline Cargo) means a consignment which is transferred from one carrier to another. Transfer is subject to the existence of an interline agreement between the two carriers involved. • A shipment tendered to a member carrier in accordance with the routing instructions in the AWB, must be accepted unless acceptance would be contrary to the carrier's tariffs rules or regulations, or unless the carrier has established an embargo on the service or type of goods in question. ***Handling principles*** • Transfer of Interline Cargo shall be effected against receipt of a "Cargo Transfer Manifest" • Prior to acceptance of a transfer shipment from another carrier, packages and documents must be checked on completeness and condition. The check is performed in the presence of the transferring carrier's agent. If necessary, any additional markings or entries on packages and documents required for internal purposes shall be effected by Croatia Airlines staff. • The transferring carrier is responsible that shipments are offered in good condition, and that all documents listed on the AWB are actually present. • If a damage is noticed, which does not preclude further transportation of the shipment, the transferring carrier shall indicate the extent of such damage on the Transfer Manifest. • The Shipment and the Transfer Manifest must be remitted to the receiving carrier at the same time. • The transferring carrier shall offer two copies of a signed transfer manifest, which shall contain at least the following information: ✓ AWB number. ✓ AWB airport of destination. ✓ Actual number of packages transferred. ✓ Actual weight transferred. • Before signing the receipt as receiving carrier, the following entries on the TRM must be checked: ✓ The AWB numbers against the actual documents. ✓ That the documents listed on the AWB are actually attached to the AWB. ✓ That the parcels markings correspond with the Air Waybills. ✓ That the packages are intact and not damaged.

7.1.1. Transportation of Cargo (cont.)

Transfer Cargo (cont.)	• Any discrepancies must be rectified by the transferring carrier prior to receipt by the receiving carrier. • Any irregularities must be endorsed by the receiving carrier in the "REMARKS" column of the Transfer Manifest in the presence and with the agreement of the transferring carrier's representative. ***Refusal of transfer cargo*** • Acceptance of transfer cargo shall be refused by Croatia Airlines in the following cases: ✓ Cargo with a declared value for carriage for which Croatia Airlines has value restrictions whereas other carrier does not have value limitations. ✓ Damaged cargo which must be repacked to avoid further damage, or the contents of which could be hazardous to the aircraft or other load. ✓ Insufficiently packed goods where repacking is necessary in order to avoid damage to contents. ✓ Shipments which are not packed, marked and labeled in accordance with current regulations. ✓ Outsized cargo which cannot be accommodated on the foreseen flights or routes. ✓ Cargo for which an embargo had been placed by Croatia Airlines. ***Acceptance restrictions*** • Unbooked shipments containing live animals, human remains, and perishable cargo shall only be accepted against an appropriate remark on the TRM (e.g. Croatia Airlines will not be responsible for damages due to excessive transportation time).
Inbound Cargo	***Arrival check*** • After unloading, incoming cargo shall be checked against the Manifest on completeness and intact condition. • Special shipments e.g., heavy items, live animals, perishable goods, human remains, - as pre-advised by the cargo office at the station of loading by telex-message, shall be paid special attention - and, at the same time, by checking any special handling codes like AVI, HUM, PER, etc. shown in the manifest - already at the aircraft side during unloading. • If necessary, appropriate measures have to be taken according to the relevant instructions. • Any discrepancy found regarding cargo documents or the shipment itself, like missing cargo pieces, or cargo found damaged, etc., must be recorded on the manifest copy on hand. The latter shall be signed by the cargo employee responsible for checking and shall be filed in chronological order as per flight segment/number. • After having checked the AWB and documents to accompany the AWB on completeness and on being in accordance with the Manifest, the original no.2 and copy no.4 of the AWB have to be stamped with the number/date of the incoming flight.

7.1.2. Irregularities

Damaged Cargo	• Damage to a shipment means any change in its original condition, interior or exterior, that may have or in fact has caused a real depreciation, (i.e., a reduction of its value). • The damage can be of the following nature: breakage, distortion and dents, deterioration, spoilage, wetness, fissures, splintering and much alike. Moreover, complete, or partial disappearance, by proven or presumed theft, of the contents out of single packages or of individual packages/cargo pieces can be considered as identical with evident damage. • Noticeably damaged or insufficiently packed shipments or shipments of which the attractive contents are accessible, must not be accepted for carriage. • Leaking or evidently weak packages containing liquids, or other goods which might damage the aircraft, in case of leakage may not be loaded unless duly repaired and perfectly safe for transportation. • In case of a damage noted, the original packaging must never be destroyed. When repacking is necessary, all parts of the original packaging exchanged against new ones must be kept available until ensuing claim has been settled. • It is important that any damage is reported without delay.
Cargo Damage Report (CDR)	• The Cargo Damage Report has to be completed in case of loss or damage to pieces of cargo, regardless of whether damage to its packaging or contents is concerned. To facilitate completion. this form already contains all points and questions necessary for clarifying the case in question. This must be answered fully and accurately. *SPECIMEN (reduced size)*  CROATIA AIRLINES CARGO-Damage Survey/CDS AWB-No. Weight acc. to AWB Airport of Departure Airport of Destination Flight No. Actual weight rcvd Total No. of pieces No. of pieces damaged Last point of loading Difference Type of packaging Type of damage to packaging Damage to contents Fiberboard Wooden box Metal box Wooden crate Wooden barrel Metal barrel Bale Sack, paper Sack, cloth Suitcase Bag,handbag Hoopiron nailed/sealed unpackaged crushed broken torn/ripped wet Tape torn open soiled broken crashed/smashed rottened/wilted Contents leaking injured dead Type of packaging-material Damage apparently caused by Wood shavings Sawdust Paper Tissuepaper Pads Temperature (hot/cold) insufficient packaging improper loading Punch on conveyor belt Further handling When was damage first noticed outer packaging renewed Original-Container replaced Packaging retaped/Packaging recorded onforwarded Hoopiron renewed Average Commissioner notified destroyed (Customs Supervision) in the aircraft unloading aircraft Transport to warehouse in the warehouse on the conveyor belt Take over transfer cargo break-down pallet Weights, marks and numbers of each damaged package: Remarks about damage Was package specially marked and how? Why was packaging insufficient? Any symptoms of pilferage? Explain? Was shipment built-up in a pallet/container or through-unit? If yes, by whom resp. where built-up/transferred? Copy to: Head Office of Operating Carrier Airport of Departure Airport of Destination Transit Station AWB-Copy attached Day and time of inspection Administrational Unit and Signature Others, specify

7.1.2. Irregularities (cont.)

Handling of Damaged Cargo	***At airport of departure*** • Cargo fit for journey: ✓ If damage to the outer packaging, but not to the contents, is evident or suspected, issue a CDR prior to dispatch and repair or replace the outer packaging (box, crate, etc.) whatever necessary; ✓ Shipments offered for transportation in repaired or second-hand packaging, which are considered strong enough to withstand normal handling, may be accepted provided that the information describing the conditions of the packaging is entered in the AWB ("Nature and Quantity of Goods" box). The information must be sufficiently detailed to avoid any possible misunderstanding; ✓ En-route and destination stations must be notified by telex-message of the fact that damage has been recorded, and, if necessary, must be given instructions for the safe handling of the items. • Cargo not fit for journey: ✓ Packages which show traces of damage or show that the packing is obviously too weak to withstand normal handling without damage to contents during transportation, must be refused. ***At transit airport*** • When cargo is found damaged while in transit on the same aircraft, the Carrier's Station Manager and/or representative and/or the aircraft Captain must be informed immediately. These personnel should provide necessary disposal instructions. • Damaged cargo, which may cause damage to aircraft or to other load shall be offloaded immediately and prepare Cargo Damage Report. ***At airport of destination*** • Make a "Damage" note on the AWB and/or the Cargo Manifest. • Ask the unloading staff immediately about the condition of the shipment at the time of unloading in particular how it was loaded, stowed, etc. • When further investigation at a point of loading is deemed necessary (e.g., in case of pilferage), the point of loading must immediately be notified. • In case damage is considered to have occurred prior to arrival (i.e., at airport of departure, point of loading or during the flight), the loading airport and transit airport(s) (if applicable) must always be notified by telex-message. • Investigate the damage and report the details of the damage by means of a Cargo Damage Report.
Transfer of Damaged Cargo	• Before accepting a damaged shipment tendered for transfer to Croatia Airlines by another airline, the measures described in this sub-section must be taken in order to: ✓ Protect Croatia Airlines against unjustified claims; or ✓ To afford Croatia Airlines the opportunity of having recourse against other airlines at a later stage, respectively.

7.1.2. Irregularities (cont.)

Transfer of Damaged Cargo (cont.)	• The transferring carrier should, immediately, execute a Cargo Damage Report of its own, with copy to Croatia Airlines, together with clear remark referring to the damage on all copies of the transfer manifest • The transferring carrier has to be summoned to care the repair or repacking of the damaged shipment and, subsequently, transfer such shipment to Croatia Airlines along with copy of the Cargo Damage Report. • If appropriate, a table of contents should be completed by the transferring carrier in the presence of an employee of the accepting carrier which shall be signed by the employees of both carriers involved. • A copy of both the CDR and TRM (a photograph copy will suffice, if applicable) bearing appropriate remarks shall be attached to the AWB - and addressed to Croatia Airlines at the airport of destination. ***NOTE:*** *It must be clearly and comprehensively marked on the TRM in what condition the shipment or parts thereof had been at the time of transfer or acceptance, respectively; in connection with the CDR, it will be possible to localize the extent of damage at the time of physical transfer.* • In case of transfer of shipments by Croatia Airlines to interline partner(s) similar action must be taken.
Special Procedures	• Shipments will, in principle, only be accepted if adequately packed. • However, the Supervisor may, by the way of exception, deviate from this rule in cases where it is impracticable to return the shipment to the shipper for repacking and provided there is good reason to assume that the transportation can be carried out without damage to the goods, to the aircraft or to other load. • In such cases, efforts should be made to strengthen the packaging, and a proviso clause, as to the conditions of the shipment on acceptance, must be entered in the "Nature and Quantity of Goods". • All other entries in the AWB should be completed in accordance with requirements prescribed. • Proviso Clauses must be sufficiently detailed to avoid any possible misunderstandings as shown in the examples below: ✓ If a steel strap of a crate has loosened or broken and is replaced: ▪ Crate re-strapped. ✓ If no strapping has been used and it is decided to strap cartons for security, insert: ▪ Cartons strapped. ✓ If there is steel strapping but additional strapping of boxes is applied, state: ▪ “Boxes additionally strapped”. • The Proviso Clause shall be entered on all AWB copies and must be certified by the airport code, followed by the initials of the employee handling the case.

7.1.2. Irregularities (cont.)

Suspected Damage	• If, from the condition of a shipment or other facts, a damage to the contents can be assumed, (e.g., rattling noises from inside of a package when moved, humidity or fluids penetrating to the outside packaging telling of a breakage, or when a shipment was exposed to rough handling i.e., the package had dropped down, was crushed etc.)., the contents of a shipment has to be examined before delivery. • A Cargo Damage Repot must be prepared in any case.
Damage to Special Cargo	***Live animals*** • In case of sick or injury to Live Animals, call a veterinary surgeon and state his diagnosis on the CDR. Quote also the instructions given in the AWB and on the "Live Animals" tag. • Infected animals could not be accepted for transportation. • Dead animals must be removed and disposed of, provided this is permitted by local regulations. • An appropriate remark must be made on the CDR. ***Perishable cargo*** • In case of damage to perishable cargo, all stations should have an up-to-date Emergency Plan available, specifying the action to be taken in case the goods are threatened with deterioration. • If time permits, the shipper shall be notified and requested for the disposal instructions.
Pilferage and Theft	• In case of obvious pilferage or theft, it will, on principle, be necessary to inform the local police and other competent authorities (after previous agreement with the Cargo Head Office) and ask them to investigate. • Besides that, action, notification about such incident must be given by means of the Cargo Damage Report.
Joint Inspection	• A Joint Inspection is a formal inspection of the contents of a shipment made in the presence of the Carrier and the representatives of parties with an interest in the shipment, (e.g., shipper, consignee, another carrier, or another interested party). • The object of a Joint Inspection is to ascertain the actual condition of a shipment damaged or supposed to be damaged. • No Joint Inspection is required in case a copy of the Customs Clearance Report on the condition of the shipment can be obtained. • The following requirements must be observed in case of a Joint Inspection: ✓ A Cargo Damage Report must be issued and signed by the representatives of all parties present who must attend personally during the entire period of unpacking, inspection, and repacking. ✓ The shipment must be check-weighed before unpacking and after repacking. • If it is impossible to make a Joint Inspection, an inspection may be made by at least 2 Croatia Airlines officials and shall be executed in the same manner.

7.1.2. Irregularities (cont.)

Delay in Forwarding	***Reporting to airport of departure or destination*** • Booked cargo which is not forwarded as booked (e.g., shortstopped / offloaded /overcarried, etc.). and un-booked cargo which cannot be forwarded within 48 hours, shall always be reported to the airport of departure for information to the Shipper. • Delayed cargo shall be reported by message (SITA; e-mail) to the issuing carrier at airport of departure. The report shall include the reasons for delay and anticipated dispatch details. Cargo which is delayed at airport of departure shall be reported by phone or as locally agreed. ***Special cargo*** • Reporting to airport of destination is compulsory for shipments of AVI, PER, HUM. PRS, DIP as well as for any other commodity for which prearrangements are known to have been made at airport of destination. Information/telex-message shall contain reasons for delay and approximate time of new arrival. • If expressly stated in the AWB (e.g., "Any delay to be reported to Airport of Destination for Information to Consignee"), or if deemed necessary, delays should also be reported to the last carrier at airport of destination. • Transfer airports shall, where necessary, be given copy of the message to cancel previously requested transfer arrangements, etc.
Shortshipped / Offloaded or Overcarried Cargo	• Shortshipped, offloaded or overcarried cargo shall be handled as delayed cargo. • In such cases, the issuing carrier at airport of departure must be advised. The report must include reasons for delay and reforwarding details. ***SHORTSHIPPED CARGO*** • Cargo which has not been loaded at point of loading on the intended flight. • Planned shortshipping shall be handled in accordance with the instructions for offloaded cargo. ***OFFLOADED CARGO*** • Cargo which is removed from the aircraft at an airport between point of loading and point of unloading. • Planned offloaded cargo must be handled as follows: ✓ Offloading in accordance with Loading Priority. All efforts should be made to avoid making part-shipments. ✓ Retain the AWB with the shipments and write "Offloaded at ..."(airport) on the lines concerned the Manifests. Correct total number of packages and total weight. ✓ Written remark "Offloaded at ... " (airport) on the Cargo Manifest, as appropriate.

7.1.2. Irregularities (cont.)

Shortshipped / Offloaded or Overcarried Cargo **(cont.)**	✓ Send offloading/delay message to airport of unloading and have the shipment rebooked. ✓ Check that the offloaded cargo is checked-in again into the cargo warehouse.
Overcarried Cargo	• Cargo which has been carried beyond point of unloading detailed in the Cargo Manifest. • If the shipment has not been located by some other airport, handle according to Missing / Found Procedure.
Rerouting of Shipments	• The routing originally shown on the Air Waybill by the Shipper (or by the issuing carrier on the Shipper's behalf) must be strictly observed, unless: ✓ Such routing is changed to avoid delay in case of emergencies such as weather conditions, mechanical failure or accidents, congestion or embargoes. • Rerouting shall be effected only by the carrier originally entitled to carry from the point of rerouting, except that the issuing carrier may change the routing as long as the cargo is under its custody. • When a consignment is so rerouted, it shall be returned to the route and carrier specified in the Air Waybill at the nearest convenient transfer point in the direction of movement.
Part-Shipment	• A part-shipment is a shipment which, although covered by one original AWB, is forwarded on two or more flights. • Part-shipment should not, whenever practically, be forwarded with different carriers. In case of forwarding by a different carrier, the carrier at destination holding the original AWB must be kept informed of the forwarding details of the subsequent parts which eventually must be delivered to that carrier. ***Handling of part-shipment*** • No part of a shipment shall be dispatched from the airport of origin until complete shipment, including shipping documents, have been accepted. • Part-shipments, if rerouted, shall upon arrival at destination be transferred to the carrier specified in the original AWB as being the carrier of the first part-shipment. • Cargo Manifest shall be issued only for the pieces which have actually been forwarded. • Generally, part-shipment shall not be delayed by waiting for the complete shipment to be on hand. *SPECIMEN (Part-Shipment Label – reduced size)*

7.2. MAIL

7.2.0. Overview

Contents	This section contains the following: 7.2.1. Transportation of Mail 7.2.2. Irregularities

7.2.1. Transportation of Mail

General	• The international transportation of airmail is governed by the regulations developed by the “UPU”, “Universal Postal Union” and published in “Coventional Manual”.
Carrier’s Responsibilities’	• According to airmail contracts or agreements, Croatia Airlines assumes full responsibility for airmail. • This from the moment post office airmail and appropriate delivery bills (CN38, CN41, CN46, CN47) have been accepted from the delivering post office, until Croatia Airlines or it’s appointed agent delivers airmail and delivery bills to the receiving post office. ***NOTE:*** *Appropriate delivery bill (CN38, CN41, CN46, CN47) must be available at every station for a minimum period of two years.*
Secrecy	• Croatia Airlines personnel are obliged to observe postal secrecy. Therefore, they are not permitted to inform any person about postal traffic, to open postal consignments to look through the contents, to give information to third parties or to give anyone the possibility to commit such actions. • Persons who are entrusted with postal functions and infringe postal secrecy, (e.g. persons who destroy or withdraw postal consignments, or withhold them from the addressee or give occasion to anyone to commit such actions), will be penalized according to the Law.
Post Office Responsibilities’	• All mail submitted for transportation by the post office shall be dully and securely packed, marked and covered by appropriate delivery bill (CN38, CN41, CN46, CN47). ✓ Packing: ▪ Mail must be contained in securely closed dispatches (envelopes, bags) properly listed on pertinent mail documents. ✓ Marking: ▪ Each mail bag must be provided with a tag showing the dispatch number, office of origin and destination, airport of transfer and the weight of the various categories of mail.

7.2.1. Transportation of Mail (cont.)

Airmail Documents	• For transportation and accounting of mail shipments following forms are used: ✓ CN 38 Delivery Bill for Priority Mail. ✓ CN 41 Delivery Bill for Surface Air Lifted (SAL) mail. ✓ CN 46 Substitute Delivery Bill. ▪ For mail received at an airport without an accompanying CN38 or CN41; ✓ CN 47 Delivery Bill: ▪ Is used for empty mail bags in return.
Mail Handling Acceptance	• Airmail is high priority traffic and should always reach its destination as soon as possible. • Prior to signing CN38 / 41 by the Airline or Authority responsible for ground services all mailbags, packages, envelopes must be checked if: ✓ Shipment is in good condition, correctly sealed and labelled using CN 35 label, mail conforms with accompanying documents. ✓ Two copies are inserted into a CN45 envelope and accompany the shipment - arrangements for additional copies should be made with the administration. • While mail is in the care of Croatia Ailrines it must be given maximum protection. The procedures should include the following precautions: ✓ Mail is particularly susceptible to weather damage, therefore, airport terminal facilities used for mail traffic should be undercovered. ✓ Facilities used for mail storage should be secure with access restricted to authorized personnel only. ✓ Mail should never be left unattended while awaiting loading onto aircraft or pick-up by post office. ✓ No entry should be allowed to the hold of an aircraft containing mail except authorized personnel only. ✓ Ground transport of mail should be in locked or otherwise secure vehicles. ✓ Mail bags should be counted on and off aircraft and should be handled with care at all times. Any known damage to contents, labels, seals or bags should be reported to post office officials. ✓ Dispatches of mail containing more than one mail bag should always be kept intact (because postal documents are usually attached to one bag only).

7.2.1. Transportation of Mail (cont.)

Delivery	• Upon arrival of the flight, the incoming mail shall be checked against the respective documents and delivered without delay to the post office.
Distribution of Mail Documents	• The loads destined for air transportation are delivered by the postal authorities together with a statement of delivery appropriate delivery bill (CN38, CN41, CN46, CN47)made up in six copies for each intermediate airport and distributed as follows: ✓ The first, after having been signed by the receiving Croatia Airlines office and/or it's appointed representative, it is to be returned to the delivering postal authority. ✓ The second is used by the respective Weight & Balance office for loadsheet preparation. ✓ The third serves for control, statistical and accounting purposes. ✓ The fourth serves as the carrier's load check and is filed at respective Croatia Airlines office at the airport of departure. ✓ The two remaining copies accompany the post shipment in the official blue envelope (AV6) to the destination airport, where, after arrival, are used as follow: ▪ One, after having been signed by the receiving office at destination airport, is filed by the ground handling service designated by Croatia Airlines. ▪ The other accompanies the load to the Post Office indicated.
Transfer Mail	• Conditions of acceptance: ✓ Transshipment of mail must be approved by the postal administration of that country. Transshipment of mail via Republic of Croatia also has to be approved by Croatia Airlines. Mail connecting times for Republic of Croatia have to be defined between Post Office of Republic of Croatia and Croatia Airlines. • Handling ✓ Transfer mail is neither handled nor documented by the post office at the transfer station. The responsibility for the correct handling lies with Crotia Airlines or its Handling Agent. • Documentation ✓ When insufficient copies of delivery bills are received, photocopies can be made from the original form, to allow for proper documentation at transfer point.

7.2.1. Transportation of Mail (cont.)

Mail Manifest	• The Mail Manifest is a detailed list of all mail carried on a specified aircraft on Croatia Airlines account. • Detailed list should include: ✓ Flight number. ✓ Flight date. ✓ Departure airport. ✓ Destination airport. ✓ List of all dispatch numbers planned on the flight. ✓ Number of pieces in the dispatch. ✓ Weight (in kgs) of the dispatch. ✓ Final destination of the dispatch. ✓ Totals (Pieces and weight). ✓ Verification that visual inspection of integrity of dispatches has been performed. ✓ Notification of found dispatch irregularities. ✓ Name op person that prepared the Mail Manifest. • Mail Manifest serves as report to the customs, as statistical and revenue information, as tracking information, as bases for mail status messages and also contains data for aircraft loading. • Within the company the Mail Manifest is necessary working paper and accounting document. • When any change of format, additional entries, or when documents others than the Mail Manifest are requested, such a request will be regarded as deviation from the standard procedure and shall be coordinated with Cargo Handling Office (cargo.handling@croatiaairlines.hr; ZAGFFOU). • The Manifest must be prepared on the basis of the mail documents and must be written in English, except when issued for domestic services. ***Distribution of mail manifest copies*** • Mail Manifest is always issued in the following number of copies: ✓ For domestic services: (7) copies. ✓ For international services: (9) copies. • When the number of Mail Manifest copies mentioned above have been assembled, the Mail Manifest together with the mail documents shall be handed over for dispatch in the document envelope. • The mail documents must be attached to the back of the assembled Mail Manifest pages in exactly the same sequence as listed on each single page.

7.2.1. Transportation of Mail (cont.)

Mail Manifest (cont.)

- The Mail Manifest (for international flights) is distributed as follows:

Airport of Loading

- ✓ 1 copy for Customs Authorities.
- ✓ 1 copy for the Airport Customs Warehouse.
- ✓ 1 copy for the Operations (Loading).
- ✓ 1 copy for the Loadsheet Office.
- ✓ 1 copy for the Accounting Department.
- ✓ 1 copy for the manifesting Cargo Office (filing).

Airport of Unloading (each)

- ✓ 1 copy for Customs Authorities (Transit and/or Inbound clearance).
- ✓ 1 copy for Handling Agent (Unloading).
- ✓ 1 copy for the Airport Customs Warehouse.

SPECIMEN (Mail Manifest)

Mail Manifest 1 / 1

Company originating mail manifest
Aviapartner Cargo Brussels

Airport
BRU, Brussels, Belgium

Airline
OU, Croatia Airlines

Date
2019 FEB 15

Flight Number	STD (Date)	Destination
OU4457	2019 FEB 15	ZAG, Zagreb, Croatia

Container ID	Consignment ID	Despatch Number	Destination of Despatch	Pieces (No. of recs. per Flight / Consignment)	Weight [kg]	Prio/Non Prio	Nature	Remarks
DDD2517AP		90025	BASJJA	1	2.4	PRIO	MAIL	F, EMS
		90026	BASJJA	1	1.4	PRIO	MAIL	F, EMS
		90027	BASJJA	1	15.5	PRIO	MAIL	EMS
		90032	BASJJA	1	6.2	PRIO	MAIL	F
		90061	BASJJA	1	5.9	PRIO	MAIL	F, R, V
		90034	HRZAGB	18	164.1	PRIO	MAIL	F
		90066	HRZAGB	1	1.4	PRIO	MAIL	F, R, V
		90067	HRZAGB	1	1.3	PRIO	MAIL	F, R, V
		90068	HRZAGB	1	1.2	PRIO	MAIL	F, R, V
		90047	HRZAGB	3	1.5	PRIO	MAIL	F
		90048	HRZAGB	3	16.7	PRIO	MAIL	F
		90034	HRZAGC	3	18.8	PRIO	MAIL	F
		90035	HRZAGC	9	62.7	PRIO	MAIL	
		90006	HRZAGC	1	7.6	PRIO	MAIL	F
		90014	MKSKPA	1	6.9	PRIO	MAIL	EMS
		90032	MKSKPB	2	3.6	PRIO	MAIL	F
		90056	MKSKPB	1	12.6	PRIO	MAIL	F, R, V
		90008	MKSKPB	2	2.9	NON	MAIL	F
		90014	HRZAGB	3	2.8	PRIO	MAIL	F
		90006	MKSKPB	2	0.5	PRIO	MAIL	F
		90020	BASJJA	1	4.2	PRIO	MAIL	
		90023	BASJJA	1	0.2	PRIO	MAIL	F
		90024	BASJJA	2	3.9	PRIO	MAIL	
		90029	HRZAGB	1	0.2	PRIO	MAIL	F
		90030	HRZAGB	1	0.2	PRIO	MAIL	F
		90031	HRZAGB	2	2.2	PRIO	MAIL	F
		90032	HRZAGB	1	2.3	PRIO	MAIL	
Total Mail				65	349.2			
Total ULD				1				

7.2.2. Irregularities

Handling and Reporting of Irregularities	• It is assumed, (unless otherwise proven), that all post shipments accepted, uncontested by Croatia Airlines, were, at time of acceptance, in perfect condition. The same rule apply for post shipments handed over by Croatia Airlines to the Postal Authorities. Reservations as to the number of objects handed over, as well to their nature, fastenings and condition, shall immediately be taken up and certified on the appropriate delivery bill (CN38, CN41, CN46, CN47) by the delivering party. • To this effect, all dully noted irregularities must immediately be reported to: ✓ OU Claims Department ("Croatia Airlines", Claim Department, Bani 75b, 10010 Zagreb, Croatia, FAX 385/ 1/ 6160152), for follow up. ✓ If the respective irregularities pose a security risk, OU Security Manager ("Croatia Airlines", Security Manager, Bani 75b, 10010 Zagreb, Croatia, FAX 385/ 1/ 6160198) has to be informed. • Heads of the line stations where mail handling is performed by the Handling Agent must ensure that all mail irregularities are reported to in due time and in accordance with the Croatia Airlines instructions. Station managers and/or Authorized Staff (Handling Agent, Supervision) are also responsible to notify respective Croatia Airlines departments about any changes or additions. • Croatia Airlines Claims Department will as a rule deal with all mail irregularities and replay to complaints received from Croatian Post Authorities (HP). • In case of a foreign post office filing a claim with Croatia Airlines, advise the post office that in accordance with the Post Convention, such claims have to be filed directly with the national postal authorities.
Damaged Mail	• Handling ✓ Damaged Mail shall not be accepted for carriage and mail found damaged after acceptance shall be returned to the local post office. In case of damage of mail on a transit flight, it shall be offloaded and delivered to the local post office against receipted appropriate delivery bill (CN38, CN41, CN46, CN47). The destination station must immediately be notified by telex or e-mail to avoid unnecessary tracing. • Description ✓ The indications listed below are of major importance as regards Croatia Airlines liability and are mandatory in cases of damaged mail: ▪ Deliver damaged mail to the post office against a qualified receipt. ▪ Have weight and conditions of the mail checked. Note that checking of contents shall, if possible, be carried out in the presence of the Croatia Airlines Station Manager and/or Authorized Staff. ▪ Obtain, whenever possible, a statement from the post office, either confirming that the contents are complete or giving a detailed description of the irregularity. ▪ In case that part of the mail items are found to be missing, message similar to missing mail has to be send to all on-line stations. ▪ Irregularity report has to be issued.

7.2.2. Irregularities (cont.)

Damaged Mail (cont.)	• Reporting ✓ Pilferage of mail, (specially VAL): Mail which is in a condition that indicates suspected damage or pilferage must not be accepted from postal authorities or, in case of direct transfer, from the transferring carrier. ✓ When suspected damage or suspected pilferage is discovered after delivery to Croatia Airlines, whether at station of loading, intermediate station or station of unloading, that mail must be delivered immediately to the postal authorities at that station for checking and re-bagging. The mail may then be re-delivered to OU or held for disposal by the postal authorities. ✓ When pilferage is discovered at an intermediate station and, for particular local reasons, it is impractical to deliver the suspect mail to the postal authorities at that station, the bag(s) should be re-sealed by the best available means and re-forwarded on the same aircraft. The station of loading and off-loading must be informed by telex of the incident. ✓ Pilferage of mail, (specially of VAL) mail bags shall immediately be reported to: ▪ OU Security Manager (e-mail: security@croatiaairlines.hr; SITA: ZAGDFOU). ▪ Croatia Airlines Cargo Handling Office (cargo.handling@croatiaairlines.hr); ▪ Station Manager of the respective Station and/or Authorized Staff (in absence of Croatia Airlines representative.
Schedule Irregularities	• In case of operational irregularities which will result in a delay or cancellation of a flight, the local post office shall be informed of the expected length of delay or the reforwarding possibilities.
Shortshipped, Offloaded / Overcarried Mail	• These irregularities must be reported by the station where the mishandlings occur. A telex advice with reforwarding details must be sent to the station(s) of intended offloading, as well as intermediate stations, if applicable.
Missing Mail Documents	• Tracing is to be immediately initiated by the transfer / destination station. Missing VAL mailbags shall be reported to Croatia Airlines Security Manager (e-mail: security@croatiaairlines.hr; SITA:ZAGDFOU). • At transfer / destination station: ✓ If after checking aircraft and all possible locations at airport, and if no shortshipped / offloaded message has been received: ▪ Advice post office. ▪ Send a tracing message to handling agent(s), if any. ▪ Send a tracing message to the loading station and on-line station(s). ▪ In cases of missing VAL mail, copy to Croatia Airlines Security Manager (e-mail: security@croatiaairlines.hr; SITA:ZAGDFOU).

7.2.2. Irregularities (cont.)

Missing Mail Documents **(cont.)**	***NOTE:*** *Unless confirmation of delivery against receipt has been received, the tracing station must check that mail reported found has actually been received.* • Station receiving mail tracers shall: ✓ Check with post office and check all possible locations at airport. ✓ Dispatch a telex reply to tracing station, but only when found (a telex reply must always be sent only when tracer concerns VAL mail). ✓ If found, send details as to were located and forwarding details. • Reporting of missing mail - Positive tracing: ✓ Check that missing mail is actually received and/or delivered against receipt. Note flight details and close the file. • Negative tracing: ✓ The destination post office should be contacted in the case that the missing mail has been received by other means. ✓ If the mail is still missing 20 days after flight arrival, the complete file shall be sent to Croatia Airlines Claims Department. • Received without documents ✓ Request details and copies of documents from loading station. ✓ When loading station can forward copies within 24 hours, an advice as to the total number of mail dispatch will suffice, pending receipt of the document copies. Otherwise, a detailed breakdown per appropriate delivery bill (CN38, CN41, CN46, CN47) is needed to complete substitute documents. Upon receipt of the original documents, cross-check with the substitute documents already issued to accompany the mail to the post office. Any missing mail must be tracked. The loading station is responsible for expediting the necessary documents to the station of intended offloading.
Found Mail Documents	• Found mail is normally wrongly offloaded or overcarried mail and shall be handled according to procedure. • Found documents shall immediately be telex-advised to the intended destination station, giving full details (flight number, date, origin and destination on CN38 (former AV7, number of mailbags).
Mail Without Identification Tag	• When discovering or receiving a mailbag without the official UPU tag the following procedure shall be applied: ✓ Deliver the mail against receipt on a appropriate delivery bill (CN38, CN41, CN46, CN47) or substitute to the local post office, for identification purposes. • Dispatch a message to the destination station as soon as the mailbag is identified, giving reforwarding details.

7.2.2. Irregularities (cont.)

Un-Manifested Mail	• Unmanifested mail is mail which has been loaded at the point of departure without covering appropriate delivery bill (CN38, CN41, CN46, CN47). • It shall be handled either as offloaded / overcarried mail, or mail with missing documents.

7.3. DANGEROUS GOODS

7.3.0. Overview

Contents	This section contains the following: 7.3.1. Dangerous Goods - General 7.3.2. Acceptance of Dangerous Goods 7.3.3. General Handling and Stowing Instructions 7.3.4. Classification of Dangerous Goods 7.3.5. Miscellaneous Dangerous Goods 7.3.6. Radioactive Materials 7.3.7. Wheelchairs or Other Battery Powered Mobility Devices 7.3.8. Handling Labels 7.3.9. NOTOC 7.3.10. Dangerous Goods Irregularities and Reports 7.3.11. Duties of Persons Involved in Processing of Dangerous Goods 7.3.12. Retention of Records 7.3.13. Supervision of Handling Agents for Handling of Dangerous Goods 7.3.14. List of Approved Airports for Transport of Dangerous Goods 7.3.15. Dangerous Goods Training and Training Records

7.3.1. Dangerous Goods - General

Note	• From time-to-time there is a need to issue an addendum to the Ground Operations Manual to cover short notice changes or changes with immediate effect issued by IATA to reflect changes to the content of the Dangerous Goods Regulations. Consequently, addendum will be incorporated in Ground Operations Manual with next normal revision.
Approval	• Croatia Airlines is approved by Croatian Civil Aviation Agency for the Transport of dangerous goods. • Dangerous goods as cargo shall be accepted only to/from airports listed on the "List of Approved Airports for transport of dangerous goods" (refer section 7.3.14). Exempt from this requirement are tissues or organs intended for use in transplantation packed with Dry Ice, shipments containing COVID-19 vaccines packed with Dry Ice and accompanied by data loggers and/or cargo tracking devices containing lithium batteries, and aircraft spare parts consigned by Croatia Airlines. • Aircraft Spares intended as replacements, or which have been removed for replacement for those referred to in IATA DGR 2.5.1.1. (Aircraft Equipment) consigned by Croatia Airlines are not subject to the "*List of Approved Airports for transport of dangerous goods":* ✓ Dangerous goods articles and substances intended as replacements for those referred to in IATA DGR 2.5.1.1. (aircraft equipment) or articles and substances referred to in IATA DGR 2.5.1.1. (aircraft equipment) which have been removed for replacement, must be transported in accordance with the provisions of IATA DGR (e.g. properly packed, marked, labelled and documented). ✓ Dangerous goods articles and substances intended as replacements for those referred to in IATA DGR 2.5.1.2. (consumers goods) and IATA DGR 2.5.1.3. (carbon dioxide, solid) must be transported in accordance with the provisions of IATA DGR. ✓ Battery-powered devices and spare batteries intended as replacements for those referred to in IATA DGR 2.5.1.4. (battery-powered electronic equipment) must be transported in accordance with the provisions of IATA DGR. • Company Materials (COMAT) which are classified as dangerous goods shall be transported in full compliance with all applicable dangerous goods transport requirements of IATA DGR. Personnel preparing COMAT for shipping classified as dangerous goods must be trained commensurate with the functions for which they are responsible. • For carriage of tissues or organs intended for use in transplantation packed with Dry Ice, COVID-19 vaccines packed with Dry Ice and accompanied by data loggers and/or cargo tracking devices containing lithium batteries, and aircraft spares which are dangerous goods between stations which are not listed on the "*List of Approved Airports for transport of dangerous goods"* as minimum following conditions must be met: ✓ ground handling agreement are in place (including general and dangerous goods cargo and mail services), or where ground handling agreements are not in place, duties shall be properly assigned to the ground handling agent(s) concerned in advance of the operation of flight(s) by issuing of ad hoc ground handling request(s).

7.3.1. Dangerous Goods – General (cont.)

Approval (cont.)	• A legible copy of the information to the pilot-in-command must be retained on the ground. In addition, a copy of the notice to the pilot-in-command (NOTOC) or the same information that is required to be provided to the pilot-in-command must be sent to Croatia Airlines Operations Centre soon as possible after the signature by the pilot-in-command has been obtained.
Definition	• Dangerous Goods are articles or substances which are capable of posing a hazard to health, safety, property or the environment and which are shown in the list of dangerous goods in IATA Dangerous Goods Regulations, or which are classified according to these Regulations. • The ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air is the highest regulation for the safe transport of dangerous goods by air. • The IATA Dangerous Goods Regulations (IATA DGR) is an easy-to-use manual based on the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air. It incorporates additional operational requirements, which provide a harmonized system for operators to accept and transport dangerous goods safely and efficiently. • Croatia Airlines use IATA Dangerous Goods Regulations manual in daily practice. • References to the Regulations in this chapter are made to the IATA Dangerous Goods Regulations in lieu of ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air. • IATA Dangerous Goods Regulations is revised annually. Only current edition must be in use.
General	• Croatia Airlines shall ensure that all applicable requirements of IATA Dangerous Goods Regulations are met by subcontracted Handling Agents in all phases of handling Dangerous Goods prior to execution of flight (i.e., acceptance of Dangerous Goods, storage of Dangerous Goods, loading/unloading of Dangerous Goods on aircraft, inspection of loaded/unloaded Dangerous Goods, emergency procedures and information to Pilot-In-Command). • In order to ensure the compliance with the requirements of IATA DGR, Croatia Airlines shall perform quality and safety assessment of the Handling Agent according to the Operations Quality Assurance Programme and Quality Assurance Responsibility for Contractual Arrangements described in the Croatia Airlines Operations Quality System (refer to OM-A 03.02.) which includes the strict training programme and training records assessment of a Handling Agent before airport is listed on the List of Approved Airport for transport of Dangerous Goods.
Information to Pilot-in-Command for Certain Dangerous Goods in Passengers Baggage	• Information must be provided to the Pilot-in-Command when certain dangerous goods permitted in passenger or crew baggage are accepted for carriage. Information must contain following: ✓ the detail of the item accepted (e.g., wheelchair with lithium-ion battery); ✓ the name of the passenger and seat number. ✓ the loading location, for the items loaded in cargo compartment.

7.3.1. Dangerous Goods – General (cont.)

Information to Pilot-in-Command for Certain Dangerous Goods in Passengers Baggage

(cont.)

- It is recommended that Load planning staff inserted this information in a free text under supplementary information (SI) on the loadsheet and to communicate to ramp the required loading location for items loaded in the cargo compartment.
- If this kind of entry is not supported by the loadsheet system, information to the pilot-in-command must be communicated by the ramp agent verbally at the latest when the loadsheet is presented to the pilot-in-command.
- For details regarding Provisions for Dangerous Goods carried by Passengers or Crew refer to PBHM Ch. 10.11.

Terminology and Abbreviations

- Terms used have the following meanings:

Term	Meaning
Acceptance Checklist	A document used to assist in carrying out an acceptance checks on the external appearance of packages of dangerous goods and their associated documents to determine that all appropriate requirements have been met.
Approval	An authorization granted by the appropriate national authority for: (a) transport of those entries listed in Subsection 4.2 of IATA DGR, List of Dangerous Goods as forbidden on passenger and/or cargo aircraft to which Special Provisions A1 or A2 have been assigned in Column M; or (b) other purposes as specified in IATA DGR.
AVI	Live animals
Baggage	Personal property of passengers or crew carried on an aircraft by agreement with the operator.
Batteries, Dry	Sealed, non-vented batteries of the type used in flashlights or for the operation of small apparatus. They contain zinc salts and other solids, or may be of the nickel cadmium type or other combinations of metals. Examples of such batteries are alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries.
Batteries, Wet, Electric Storage	Consist of series of metal plates immersed in an electrolyte. The electrolyte is a dilute sulphuric acid, but for a certain type of battery, the electrolyte is a solution of potassium hydroxide. Both of these electrolytes are corrosive liquids. The casing for the acid containing batteries is commonly plastic. Storage batteries of either of these types, when containing electrolyte, are classed as corrosive liquids. Non-spillable batteries are designed and constructed so as to positively prevent leakage of the electrolyte, irrespective of the position of the battery. This is achieved by the use of jelly type electrolyte or porous absorbent separators or by specially designed filling and venting devices.
CAO	Cargo Aircraft Only
Cargo Aircraft	Any aircraft, other than a passenger aircraft, which is carrying goods or property.
COMAT (Company Materials)	Industry term developed and used by certificate holders to describe a wide array of company materials, parts, and consumable items. COMAT is often shipped to replace installed equipment, serviceable items, or items removed for servicing and repair. Many of these items which are required aboard an aircraft in accordance with the applicable airworthiness requirements and operating regulations are regulated as dangerous goods when removed from the aircraft.
Consumer Commodity	A Consumer Commodity is defined as a material which is packed and distributed in a form intended or suitable for retail sales for the purposes of personal care or household use.
Dangerous Goods Accident	An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

7.3.1. Dangerous Goods – General (cont.)

Terminology and Abbreviations (cont.)

- Terms used have the following meanings (cont.):

Term	Meaning
Dangerous Goods Incident.	An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods, which seriously jeopardizes the aircraft or its occupants, is also deemed to be a dangerous goods incident. (A dangerous goods accident or incident may also constitute an aircraft accident or incident as specified in Annex 13 to the Chicago Convention on International Civil Aviation - Aircraft Accident Investigation.)
EAT	Foodstuffs
EBI	Lithium ion batteries excepted as per Section II of PI 965 (Note: Forbidden on CTN flights)
EBM	Lithium metal batteries excepted as per Section II of PI 968 (Note: Forbidden on CTN flights)
ELI	Lithium ion batteries excepted as per Section II of PI 966 and 967
ELM	Lithium metal batteries excepted as per Section II PI 969 and 970
Exception	A provisions in IATA DGR which excludes a specific item of dangerous goods from the requirements normally applicable to that item.
Excess Baggage (Baggage consigned as cargo)	Baggage which a passenger has presented to check-in as accompanied check baggage, but which exceeds the passenger's checked baggage allowance specified by the operator and which is consequently consigned as cargo in order to be sent to the same destination as the passenger. *Note: This is commonly referred to as "unaccompanied baggage" or "baggage consigned as cargo"*
Exemption	Authorization issued by an appropriate national authority of all States concerned providing relief from the provisions of IATA DGR. The requirements for exemption are given in 1.2.6 of IATA DGR.
FIL	Undeveloped Films / Unexposed Films
Fissile Material	A material containing any of the following fissile nuclides: Uranium-233, uranium-235, plutonium-239, plutonium-241
Freight Container (Non-Radioactive Material)	See **Unit Load Device.**
Freight Container (Radioactive Material only)	An article of transport equipment designed to facilitate the carriage of goods by one or more modes of transport without intermediate reloading. Small freight containers are those, which have either any overall outer dimension less than 1.5 m (5 ft) or an internal volume of not more than 3 m3 (106 ft3). All other freight containers are considered to be large freight containers. Each freight container must meet the following requirements: ✓ it must be of a permanent enclosed character, and rigid and strong enough for repeated use; and ✓ it must be fitted with devices facilitating its handling, particularly in transfer from one mode of transport to another.

7.3.1. Dangerous Goods – General (cont.)

Terminology and Abbreviations (cont.)

- Terms used have the following meanings (cont.):

Term	Meaning
Fuel cell	A fuel cell is an electrochemical device that converts the chemical energy of a fuel to electrical energy, heat and reaction products.
Fuel Cell Cartridge	Fuel cell cartridge means an article that stores fuel for discharge into the fuel cell through a valve(s) that controls the discharge of fuel into the fuel cell. Fuel cell cartridges, including when contained in equipment, must be designed and constructed to prevent fuel leakage during normal conditions of transport.
Fuel Cell Engine	A device used to power equipment and which consists of a fuel cell and its fuel supply, whether integrated with or separate from the fuel cell, and includes all appurtenances necessary to fulfil its function.
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
Handling Agent	An agency, which performs on behalf of the operator some or all of the latter's functions including receiving, loading, unloading, transferring or other processing of passengers or cargo.
HEG	Hatching Eggs
HUM	Human Remains
IATA DGR or DGR	Meaning "International Air Transport Association (IATA) - Dangerous Goods Regulations".
ICAO Technical Instructions or Technical Instruction or ICAO TI or TI	The latest effective edition of the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284), approved and issued periodically in accordance with the procedure established by the ICAO Council.
ICE	Carbon dioxide, solid (Dry Ice)
ID number	A temporary identification number (ID) in the 8000 series assigned to an article or substance for which no UN number has been assigned. (The prefix "ID" must always be used in conjunction with these numbers.)
Incompatible	Describing dangerous goods which, if mixed, would be liable to cause a dangerous evolution of heat or gas or produce a corrosive substance.
LHO	Living Human Organs / Blood
Lithium Battery	"Battery" means two or more cells which are electrically connected together and fitted with devices necessary for use, for example, case, terminals, marking and protective devices. A single cell lithium battery is considered a "cell" and must be tested according to the testing requirements for "cells" for the purposes of IATA DGR and the provisions of subsection 38.3 of the UN Manual of Tests and Criteria (see also the definition for "lithium cell"). *Note: Units that are commonly referred to as "battery packs", "modules" or "battery assemblies" having the primary function of providing a source of power to another piece of equipment are for purposes of the IATA DGR and the provisions of Subsection 38.3 of the UN Manual of Tests and Criteria treated s batteries.*
MAG	Magnetized Material
NOTOC (Notification to Captain / Notification to Pilot-in-Command	Accurate and legible written or printed information, provided to pilot-in-command as soon as practicable prior to departure of the aircraft concerning dangerous goods that are to be carried as cargo. The 'Notification to Captain' informs the flight crew about the dangerous goods loaded on board the aircraft including the loading positions.

7.3.1. Dangerous Goods – General (cont.)

Terminology and Abbreviations (cont.)

- Terms used have the following meanings (cont.):

Term	Meaning
Operator	A person, organization or enterprise engaged in or offering to engage in an aircraft operation.
Overpack	An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage. (Note: a unit load device is not included in this definition.)
Package (Non-radioactive)	The complete product of the packing operation consisting of the packaging and its contents prepared for transport
Packaging (Non-radioactive material)	Receptacles and any other components or materials necessary for the receptacle to perform its containment function and to ensure compliance with the packing requirements.
Packing Groups	An indication of the relative degree of danger presented by various articles or substances within a class or division. Roman numerals I, II, III are used to represent “high danger”, “medium danger”, “low danger” respectively. Criteria for Packing groups have been developed for dangerous goods in classes 3, 4, 8 and divisions 5.1 and 6.1. Some substances in class 9, liquids in division 5.1 and waste material in division 6.2 have been assigned to Packing Groups by experience rather than through the application of any technical criteria.
PEA	Hunting trophies, skin and all articles made from or containing parts of species listed in CITEC.
PEF	Flowers
PEM	Meat
PEP	Fruits and Vegetables
PER	Perishables
PES	Seafood / Fish for human consumption
Premixing burner lighter (“Blue flame” lighter)	Gas lighter in which fuel and air are mixed before supplied for combustion, such as lighters producing a blue flame.
Passenger Aircraft	An aircraft that carries any person other than a crew member, an operator's employee in an official capacity, an authorized representative of an appropriate national authority or a person accompanying a consignment or other cargo.
Pilot-In-Command	The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of the flight.
Proper Shipping Name	The name to be used to describe a particular article or substance in all shipping documents and notifications and, where appropriate, on packaging.
RBI	Fully regulated lithium ion batteries (UN3480) as per Section IA and IB of PI965 (Note: Forbidden on CTN flights)
RBM	Fully regulated lithium metal batteries (UN3090) as per Section IA and IB of PI968 (Note: Forbidden on CTN flights)
RCL	Cryogenic Liquid
RCM	Corrosive substances
RCX	Explosives 1.3C
REX	Reserved for normally forbidden Explosives, Divisions 1.1, 1.2, 1.3, 1.4F, 1.5 and 1.6
RFG	Flammable Gas

7.3.1. Dangerous Goods – General (cont.)

Terminology and Abbreviations (cont.)

- Terms used have the following meanings (cont.):

Term	Meaning
RFL	Flammable Liquid
RFS	Flammable Solid
RFW	Dangerous When Wet
RIS	Infectious substances
RLI	Fully regulated lithium-ion batteries packed in or with equipment (UN3481) as per Section I of PI 966 and 967.
RLM	Fully regulated lithium metal batteries packed in or with equipment (UN3091) as per Section I of PI 969 and 970.
RMD	Miscellaneous Dangerous Goods
RNG	Non-flammable, Non-toxic Gas
ROX	Oxidizer
ROP	Organic Peroxide
RPB	Toxic substances
RPG	Toxic Gas
RSC	Spontaneously Combustible
RRW	Radioactive – White
RRY	Radioactive – Yellow
RSB	Polymeric Beads
RXB	Explosives 1.4B
RXC	Explosives 1.4
RXD	Explosives 1.4D
RXE	Explosives 1.4E
RXG	Explosives 1.4G
RXS	Explosives 1.4S
Salvage Packaging	Special packaging into which damaged, defective, leaking or non conforming dangerous goods packages, or dangerous goods that have spilled or leaked, are placed for purposes of transport for recovery or disposal.
Serious Injury	An injury which is sustained by a person in an accident and which: ✓ requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or ✓ results in a fracture of any bone (except simple fractures of fingers, toes or nose); or ✓ involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or ✓ involves injury to any internal organ; or ✓ involves second- or third-degree burns, or any burns affecting more than 5% of the body surface; or ✓ involves verified exposure to infectious substances or injurious radiation.
State of destination	The country (State) in the territory of which the consignment is finally to be unloaded from aircraft
State of Origin	The country (State) in the territory of which the consignment is to first be loaded on an aircraft.
State of Registry	The country on whose register the aircraft is entered.
State of the Operator	The country (State) in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

7.3.1. Dangerous Goods – General (cont.)

Terminology and Abbreviations (cont.)

- Terms used have the following meanings (cont.):

Term	Meaning
Transport Index (TI) (Radioactive Mat. Only)	A single number assigned to a package, overpack or freight container to provide control over radiation exposure.
UN	United Nations
UN Number	The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances.
Unit Load Device	Any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo. ***Notes:*** *1. An overpack is not included in this definition.* *2. A freight container for radioactive material is not included in this definition.*
VAL	Valuable Cargo

7.3.2. Acceptance of Dangerous Goods

General	• Croatia Airlines will accept dangerous goods shipments only as a cargo with advance arrangements as defined in current IATA DGR. • Articles and substances that are specifically identified by name or generic description in the IATA DGR as being forbidden for transport under any circumstances shall not be carried on any Croatia Airlines aeroplane. • When accepting dangerous goods, the qualified handling agent shall use one of the acceptance check lists published in current IATA DGR or equivalent checklist: ✓ DANGEROUS GOODS CHECKLIST FOR A NON-RADIOACTIVE SHIPMENT; or, ✓ DANGEROUS GOODS CHECKLIST FOR A RADIOACTIVE SHIPMENT; or, ✓ ACCEPTANCE CHECKLIST FOR DRY ICE. • It must be contractually agreed that a copy of the completed acceptance checklist has to accompany the shipping documents during the entire period of transport. • Whenever is shipment rejected, a duplicate of this completed check list has to be given to the shipper. **FORBIDDEN ON 9A-CTG and 9A-CTH !!!** Class 1 (all divisions); Division 2.1; Class 3; Class 4 (all divisions); Class 5 (all divisions); Lithium ion batteries contained in equipment and Lithium ion batteries packed with equipment (UN3481); Lithium metal batteries contained in equipment and Lithium metal batteries packed with equipment (UN3091) carried as cargo, are forbidden on aircrafts bearing registration marks **9A-CTG** and **9A-CTH**. Ban includes any dangerous goods having these hazards, either as primary or subsidiary hazard.
Hidden Dangerous Goods	• Cargo declared under a general description may contain hazardous articles that are not apparent. Such articles may also be found in baggage. With the aim of preventing undeclared dangerous goods from being loaded on an aircraft and passengers from taking on board those dangerous goods which they are not permitted to have in their baggage, cargo acceptance personnel and personnel interfacing with passengers should seek confirmation from shippers and passengers about the contents of any item of cargo or baggage where there are suspicions that it may contain dangerous goods. • The following is a list of general descriptions that are often used for items in cargo or in passengers' baggage and the types of dangerous goods that may be included in any item bearing that description. ✓ "AIRCRAFT ON GROUND (AOG) SPARES" and "AIRCRAFT SPARE PARTS/AIRCRAFT EQUIPMENT" may contain explosives (flares or other pyrotechnics), chemical oxygen generators, unserviceable tire assemblies, cylinders of compressed gas (oxygen, carbon dioxide, nitrogen, or fire extinguishers), paint, adhesives, aerosols, life-saving appliances, first aid kits, fuel in equipment, wet or lithium batteries, matches, etc. *Continued on next page*

7.3.2. Acceptance of Dangerous Goods (cont.)

Hidden Dangerous Goods **(cont.)**	✓ "AUTOMOBILES, AUTOMOBILE PARTS / SUPPLIES" (car, motor, motorcycle) may contain ferro-magnetic material which may not meet the definition for magnetized material, but which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments (for details refer to IATA DGR 3.9.2.2). May also contain engines, including fuel cell engines, carburetors or fuel tanks which contain or have contained fuel, wet or lithium batteries, compressed gases in tire inflation devices, fire extinguishers, shocks/struts with nitrogen, air bag inflators/air bag modules, flammable adhesives, paints, sealants, and solvents, etc. ✓ "BATTERY-POWERED DEVICES / EQUIPMENT may contain wet or lithium batteries. ✓ "BREATHING APPARATUS" may indicate cylinders of compressed air or oxygen, chemical oxygen generators or refrigerated liquefied oxygen. ✓ "CAMPING EQUIPMENT" may contain flammable gases (butane, propane, etc.), flammable liquids (kerosene, gasoline, etc.), flammable solids (hexamine, matches, etc.) or other dangerous goods. ✓ "CARS, CAR PARTS" — see AUTOMOBILES, etc. ✓ "CHEMICALS" may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances. ✓ "COMAT (COMPANY MATERIALS)" such as aircraft parts, may contain dangerous goods as an integral part, e.g., chemical oxygen generators in a passenger service unit (PSU), various compressed gases such as oxygen, carbon dioxide and nitrogen, gas lighters, aerosols, fire extinguishers, flammable liquids such as fuels, paints and adhesives, and corrosive material such as batteries. Other items such as flares, first aid kits, life-saving appliances, matches, magnetized material, etc. ✓ "CONSOLIDATED CONSIGNMENTS (GROUPAGES)" may contain any of the defined classes of dangerous goods. ✓ "CRYOGENIC (LIQUID)" indicates refrigerated liquefied gases such as argon, helium, neon, and nitrogen. ✓ "CYLINDERS" may indicate compressed or liquefied gas. ✓ "DENTAL APPARATUS" may contain flammable resins or solvents, compressed or liquefied gas, mercury and radioactive material. ✓ DIAGNOSTIC SPECIMENS" may contain infectious substances. ✓ "DIVING EQUIPMENT" may contain cylinders (such as scuba tanks, vest bottles, etc.) of compressed gas (air, oxygen, etc.), high intensity diving lamps which can generate extremely high heat when operated in air. In order to be carried safely, the bulb or battery must be disconnected. ✓ "DRILLING AND MINING EQUIPMENT" may contain explosive(s) and/or other dangerous goods. ✓ "DRY SHIPPER (VAPOUR SHIPPER)" may contain free liquid nitrogen. Dry shippers are subject to these Regulations when they permit the release of any free liquid nitrogen irrespective of the orientation of the packaging. *Continued on next page*

Hidden Dangerous Goods **(cont.)**	✓ "ELECTRICAL EQUIPMENT / ELECTRONIC EQUIPMENT" may contain magnetized materials or mercury in switch gear and electron tubes, wet batteries, lithium batteries or fuel cells or fuel cell cartridges that contain or have contained fuel. ✓ "ELECTRICALLY POWERED APPARATUS" (wheelchairs, lawn mowers, golf carts, etc.) may contain wet batteries, lithium batteries or fuel cells or fuel cell cartridges that contain or have contained fuel. ✓ "EXPEDITIONARY EQUIPMENT" may contain explosives (flares), flammable liquids (gasoline), flammable gas (propane, camping gas) or other dangerous goods. ✓ "FILM CREW OR MEDIA EQUIPMENT" may contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet batteries, lithium batteries, fuel, heat producing items, etc. ✓ "FROZEN EMBRYOS" may contain refrigerated liquefied gas or Carbon dioxide, solid (dry ice). ✓ "FROZEN FRUIT, VEGETABLES, ETC." may be packed in Carbon dioxide, solid (dry ice). ✓ "FUELS" may contain flammable liquids, flammable solids, or flammable gases. ✓ "FUEL CONTROL UNITS" may contain flammable liquids. ✓ "HOT AIR BALLOON" may contain cylinders with flammable gas, fire extinguishers, engines internal combustion, batteries, etc. ✓ "HOUSEHOLD GOODS" may contain items meeting any of the criteria for dangerous goods including flammable liquids such as solvent based paint, adhesives, polishes, aerosols (for passengers, those not permitted under B3, Table 3), bleach, corrosive oven or drain cleaners, ammunition, matches, etc. ✓ "INSTRUMENTS" may conceal barometers, manometers, mercury switches, rectifier tubes, thermometers, etc. containing mercury. ✓ "LABORATORY / TESTING EQUIPMENT" may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances, lithium batteries, cylinders of compressed gas, etc. ✓ "MACHINERY PARTS" may contain adhesives, paints, sealants, solvents, wet and lithium batteries, mercury, cylinders of compressed or liquefied gas, etc. ✓ "MAGNETS AND OTHER ITEMS OF SIMILAR MATERIAL" may individually or cumulatively meet the definition of magnetized material (see IATA DGR 3.9.2.2). ✓ "MEDICAL SUPPLIES / EQUIPMENT" may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances or lithium batteries. ✓ "METAL CONSTRUCTION MATERIAL, METAL FENCING, METAL PIPING" may contain ferro-magnetic material, which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments (see IATA DGR 3.9.2.2). ✓ "PARTS OF AUTOMOBILE (CAR, MOTOR, MOTORCYCLE)" may contain wet batteries, etc. *Continued on next page*

7.3.2. Acceptance of Dangerous Goods (cont.)

Hidden Dangerous Goods **(cont.)**	✓ "PASSENGERS BAGGAGE" may contain items meeting any of the criteria for dangerous goods. Examples include fireworks, flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, ammunition, bleach, aerosols (those not permitted under B3, Table 3), etc. ✓ "PHARMACEUTICALS" may contain items meeting any of the criteria for dangerous goods, particularly radioactive material, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances. ✓ "PHOTOGRAPHIC SUPPLIES / EQUIPMENT" may contain items meeting any of the criteria for dangerous goods, particularly heat producing devices, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances or lithium batteries. ✓ "PROMOTIONAL MATERIAL" — see PASSENGER BAGGAGE. ✓ "RACING CAR OR MOTORCYCLE TEAM EQUIPMENT" may contain engines, carburetors or fuel tanks which contain fuel or residual fuel, flammable aerosols, cylinders of compressed gases, nitromethane, other fuel additives or wet batteries, lithium batteries, etc. ✓ "REFRIGERATORS" may contain liquefied gases or an ammonia solution. ✓ "REPAIR KITS" may contain organic peroxides and flammable adhesives, solvent based paints, resins, etc. ✓ "SEMEN" may be packed with Carbon dioxide, solid (dry ice) or refrigerated liquefied gas. See also "DRY SHIPPER". ✓ "SHIPS' SPARES" — may contain explosives (flares), cylinders of compressed gas (life rafts), paint, lithium batteries (emergency locator transmitters), etc. ✓ "SHOW, MOTION PICTURE, STAGE AND SPECIAL EFFECTS EQUIPMENT" may contain flammable substances, explosives or other dangerous goods. ✓ "SPORTING GOODS / SPORTS TEAM EQUIPMENT" may contain cylinders of compressed or liquefied gas (air, carbon dioxide, etc.), lithium batteries, propane torches, first aid kits, flammable adhesives, aerosols, etc. ✓ "SWIMMING POOL CHEMICALS" may contain oxidizing or corrosive substances. ✓ "SWITCHES IN ELECTRICAL EQUIPMENT OR INSTRUMENTS" may contain mercury. ✓ "TOOLBOXES" may contain explosives (power rivets), compressed gases or aerosols, flammable gases (butane cylinders or torches), flammable adhesives or paints, corrosive liquids, lithium batteries etc. ✓ "TORCHES" micro torches and utility lighters may contain flammable gas and be equipped with an electronic starter. Larger torches may consist of a torch head (often with a self-igniting switch) attached to a container or cylinder of flammable gas. *Continued on next page*

7.3.2. Acceptance of Dangerous Goods (cont.)

Hidden Dangerous Goods **(cont.)**	✓ "UNACCOMPANIED PASSENGERS BAGGAGE/ PERSONAL EFFECTS" may contain items meeting any of the criteria for dangerous goods, such as fireworks, flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, bleach, aerosols, etc. (those not permitted under B3, Table 3). ✓ "VACCINES" may be packed in Carbon dioxide, solid (dry ice).
GHS Consumer Labelling (Overview)	• Some everyday household items bear consumer warning labels which may or may not indicate they are classified as dangerous goods in air transport. For this reason, the United Nations created the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
GHS Pictograms	• Products bearing the following GHS labels may indicate that the contents of the package ARE dangerous goods: ***NOTE:*** *When substance is required to show corrosive symbol based solely on classification criteria of "serious eye damage" in the GHS classification, the substance is NOT classified as dangerous goods for air transport.* • Products bearing the following GHS labels (and none of the above) are NOT dangerous goods:
Company Variations	OU-01 – Advance arrangements must be made for all shipments of dangerous goods as defined in IATA Dangerous Goods Regulations (see IATA DGR 1.3.2 and 9.1.2). OU-02 – Small gaseous oxygen or air cylinders required for medical use will only be accepted empty. Should a passenger require supplementary oxygen, this will be provided by operator at a cost with prior arrangements (see IATA DGR 2.3.4.1). OU-03 – Camping stoves and fuel containers that have contained a flammable liquid fuel will not be accepted in passenger's baggage (see IATA DGR 2.3.2.5). OU-04 – Dangerous goods in "Limited Quantities" ("Y" Packing Instructions) will not be accepted for carriage, except Consumer Commodity (ID 8000) (see IATA DGR 2.7 and all "Y" Packing Instructions). OU-05 – Not in use. OU-06 – Biological Substances Category B (UN3373) will not be accepted in airmail (see IATA DGR 2.4). OU-07 – Oxygen generators, chemicals (UN3356) will not be accepted.

7.3.2. Acceptance of Dangerous Goods (cont.)

Company Variations **(cont.)**	OU-08 – Dangerous Goods in salvage packaging will not be accepted for carriage (see IATA DGR 5.0.1.6, 6.0.6, 6.7, 7.1.5 and 7.2.4.10). OU-09 – Class 7, fissile radioactive materials will not be accepted for carriage (see IATA DGR 10.5.13). OU-10 – The shipper must provide a 24-hour emergency telephone number of a person/agency who is knowledgeable of the hazards, characteristics and actions to be taken in case of an accident or incident concerning each of the dangerous goods being transported. This telephone number, including the country and area code, proceeded by the words „Emergency Contact“ or „24 hour Number“ must be inserted on the DGD preferably on the „Additional Handling Information“ box, e.g. „Emergency Contact +47 67 50 0000“.(see IATA DGR 8.1.6.11 or 10.8.3.11) OU-11 – Explosives will not be accepted for carriage, except substances and articles of Division 1.4S. (see IATA DGR 3.1 and 5.1 and Packing Instructions 101-143). OU-12 – Infected animals, dead or alive, will not be accepted for carriage. OU- 13 – Not in use. OU-14 – Dangerous goods in consolidations will not be accepted for carriage, except for UN1845, Carbon dioxide, solid (Dry Ice, UN1845) when used as refrigerant (see IATA DGR 1.3.3, 8.1.2, 9.1.8 and 10.8.1.5). OU-15 – Self inflating rafts, aircraft survival kits, or evacuation slides, are allowed not more than one per aircraft, packed in accordance with Packing Instructions 955 of IATA DGR.

7.3.3. General Handling and Stowing Instructions

General	• Handling, storage, inspection, loading/unloading, segregation of dangerous goods including company material (COMAT) that are dangerous goods, on the aircraft is always subcontracted to a qualified Handling Agent. • Dangerous goods must be loaded/unloaded, segregated, stowed and secured as specified in the current IATA DGR. ***NOTE:*** *Packages of dangerous goods with the label "Cargo Aircraft Only" are only allowed to be transported on cargo aircraft and therefore shall not be loaded on Croatia Airlines aircraft.* • When dangerous goods are loaded in aircraft particular attention must be paid to the: ✓ Handling of packages during their preparation for transport. ✓ The type of aircraft on which they are to be carried. • The method required to load that aircraft, so that accidental damage is not caused through dragging or mishandling of the package.
Principles of Loading	• Dangerous goods must not be carried in an aircraft cabin occupied by passengers or on the flight deck of an aircraft, except as permitted by IATA DGR 2.3.2 to 2.3.5 and 2.5.1. • A package or overpack containing dangerous goods must not be loaded onto an aircraft unless it has been inspected immediately prior to loading and found free from evidence of leakage or damage. Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading from the aircraft. For radioactive materials check if package seals are intact. ***CAUTION:*** *Damaged or leaking packages must NOT be loaded on an aircraft.* • Any package, which appears to be damaged or leaking, must be removed from the aircraft and safe disposal arranged. In the case of leakage, the authorized staff must ensure the remainder of the consignment is undamaged and that no other package, baggage, or cargo has been contaminated: ✓ Contamination found because of the leakage or damage of dangerous goods shall be removed immediately. Croatia Airlines flight personnel, maintenance personnel and ground handling personnel shall ensure that an aircraft declared to be contaminated by dangerous goods is taken out of service, and not returned to service until it has been determined that there is no risk to the health of the operator's personnel and passengers. ✓ In case of damage to Division 6.2 or Class 7 packages, or contamination caused by Division 6.2 or Class 7 substances, or materials refer to IATA DGR Subsection 9.4 for the special responsibilities. An aeroplane which has been contaminated by radioactive materials must be immediately taken out of service and not returned until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the IATA DGR. • The package must agree with the loading list.

7.3.3. General Handling and Stowing Instructions (cont.)

Principles of Loading **(cont.)**	• Labels that have been discovered lost, detached or illegible after acceptance must be replaced by authorized staff in accordance with the information provided on the SHIPPER'S DECLARATION FOR DANGEROUS GOODS. • Liquids must be loaded in an upright position. • Dangerous goods packages in the aircraft must be secured in a manner that will prevent any movement. For packages or overpacks containing radioactive materials, the securing must be adequate to ensure that the separation requirements are met at all times. • Light packages must be protected against heavier cargo. • Incompatible dangerous goods (including other cargo) must be segregated during acceptance, handling, and loading (see Compatibility Table below). • Packages bearing the CAO (CARGO AIRCRAFT ONLY) label must not be loaded on Croatia Airlines flights. • Radioactive Material of Category II and III (RRY) packages must be loaded on bottom of pallet or cargo compartment. They require minimum separation from passenger cabin and flight deck. The distance depends on the TI (transport index) of the package and is shown in Table DGR 10.9.C. • Magnetized materials must be loaded so that headings of aircraft compasses are maintained within the tolerances prescribed by the applicable aircraft airworthiness requirements and, where practical, in locations minimizing possible effects on compasses. Multiple packages may produce a cumulative effect. • Self-reactive substances of Division 4.1 and organic peroxides of Division 5.2 need to be protected from direct sunlight and stored away from all sources of heat in a well-ventilated area. • Live animals should not be loaded close proximity to dry ice and cryogenic liquids. • Loading of wheelchairs (*see GOM 7.3.7*). • Loading of Dry Ice (*see GOM 7.3.5*) • Single packagings with end closures, containing liquids, must be loaded and stowed aboard an aircraft with such closures upwards. • Additional state and/or operator variations must be adhered to. • Handling and loading/unloading must be directly supervised by authorized staff, in case of damage to Dangerous Goods refer to local emergency procedures

7.3.3. General Handling and Stowing Instructions (cont.)

Compatibility Table

***NOTE 1**: Segregation requirements for Lithium-ion batteries (UN3480, IMP codes EBI and RBI); Lithium-metal batteries (UN3090; IMP codes EBM and RBM); and Class 1 (other than Division 1.4S) are not shown as they are forbidden on board Croatia Airlines` airplanes.*

***NOTE 2**: Classes/divisions not included in table or intersections that are not marked with "X" do not require segregation.*

IMP		RXS	RFG	RNG	RCL	RPG	RFL	RFS	RSC	RFW	ROX	ROP	RCM	ELI	ELM	RLI	RLM	AVI	PER	FIL	HEG
	Cl./D	1.4S	2.1	2.2	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	8	9	9	9	9				
RXS	1.4S													X[3]	X[3]	X[3]	X[3]				
RFG	2.1													X[3]	X[3]	X[3]	X[3]				
RCL	2.2																	X			X
RPG	2.3																				
RFL	3										X			X[3]	X[3]	X[3]	X[3]				
RFS	4.1													X[3]	X[3]	X[3]	X[3]				
RSC	4.2										X			X[3]	X[3]	X[3]	X[3]				
RFW	4.3												X	X[3]	X[3]	X[3]	X[3]				
ROX	5.1						X		X					X[3]	X[3]	X[3]	X[3]				
ROP	5.2													X[3]	X[3]	X[3]	X[3]				
RCM	8									X											
RRY	7																	X		X[2]	X
RPB	6.1																				
RIS	6.2																				
ICE	9																	X[1]			X
ELI	9	X[3]	X[3]				X[3]	X[3]	X[3]	X[3]	X[3]	X[3]									
ELM	9	X[3]	X[3]				X[3]	X[3]	X[3]	X[3]	X[3]	X[3]									
RLI	9	X[3]	X[3]				X[3]	X[3]	X[3]	X[3]	X[3]	X[3]									
RLM	9	X[3]	X[3]				X[3]	X[3]	X[3]	X[3]	X[3]	X[3]									

X - Shall not be loaded in close proximity to each other or in a position that would allow interaction between them (not on top of each other, minimum horizontal distance 0.5 m).

7.3.3. General Handling and Stowing Instructions (cont.)

Compatibility Table **(cont.)**	1. Dry Ice and Live Animals must not be loaded in same cargo hold on Airbus A319/320 aircraft type. 2. Refer to Tale 6. “Separation of Radioactive Material from Undeveloped Photographic Film” for minimum separation. 3. Must not be loaded in the same cargo hold.

7.3.4. Classification of Dangerous Goods

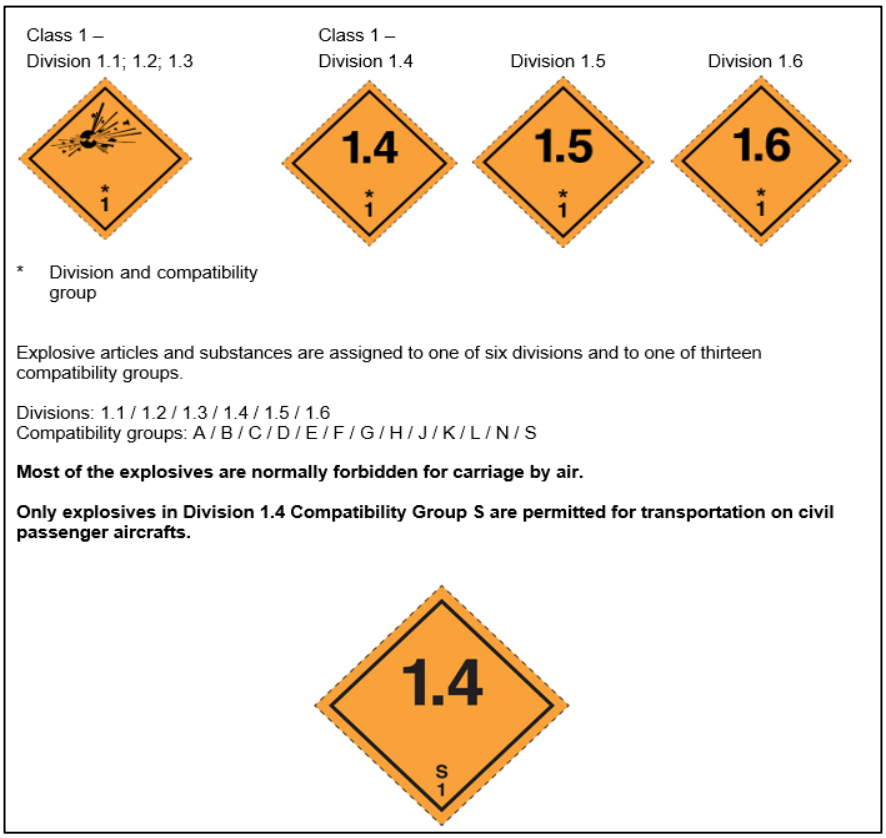
General

- Dangerous Goods are classified in 9 different classes:

CLASS	DIVISION	DESCRIPTION	IMP CODE
Class 1	1.1- 1.6	Explosives	REX/RCX/RGX/RXB/RXC/RXD/RXE/RXG/RXS
Class 2	2.1	Flammable gas	RFG
	2.2	Non-flammable, non-toxic gas	RNG/RCL
	2.3	Toxic gas	RPG
Class 3		Flammable liquids	RFL
Class 4	4.1	Flammable solids	RFS
	4.2	Substances liable to spontaneous combustion	RSC
	4.3	Substances which, in contact with water, emit flammable gas	RFW
Class 5	5.1	Oxidising substances	ROX
	5.2	Organic peroxides	ROP
Class 6	6.1	Poisonous (toxic) substances	RPB
	6.2	Infectious substances	RIS
Class 7		Radioactive material	RRW/RRY
Class 8		Corrosives	RCM
Class 9		Miscellaneous dangerous goods	RMD/RSB/ICE/MAG/RLI/RLM/ RBI/RBM/ ELI/ELM/ EBI/EBM

Class 1

Explosives



7.3.4. Classification of Dangerous Goods (cont.)

<table>
<tr>
<td>Class 2
Gases</td>
<td>
Flammable gas (Division 2.1) (flame may be black or white)

Non-flammable, non-toxic gas (Division 2.2) (gas cylinder may be black or white)

Toxic gas (Division 2.3) Normally forbidden on passenger aircraft.

This class comprises compressed gases, liquefied gases, gases in solution, refrigerated liquefied gases, mixtures of gases, mixtures of one or more gases with one or more vapours of substances of other classes, articles charged with a gas, and aerosols.

A gas is a substance which:
o at 50°C (122°F) has a vapour pressure greater than 300 kPa (3.0 bar, 43.5 lb/in²); or
o Is completely gaseous at 20°C (68°F) at a standard pressure of 101.3 kPa (1.01 bar, 14.7 lb/in2).
</td>
</tr>
<tr>
<td>Class 3
Flammable Liquid</td>
<td>
(flame may be black or white)

Liquids or mixtures of liquids or liquids containing solids in solution or in suspension with a flash point not greater than 60 °C according to the closed-cup test (or not greater than 65.6 °C according to the open-cup test.

Flash point: Lowest temperature at which enough flammable vapour is given off a liquid to be ignited in air when exposed to a source of ignition.
</td>
</tr>
</table>

7.3.4. Classification of Dangerous Goods (cont.)

Class 4

Flammable Solids

Flammable solid
(Division 4.1)

a) Solids, which are readily combustible or may cause or contribute to fire through friction;
b) Self-reactive and related substances, which are liable to undergo a strongly exothermic reaction;
c) Desensitized explosives that may explode if not diluted.

Substance liable to spontaneous combustion (Division 4.2)

Substances that are liable to spontaneous heating under normal conditions encountered in transport, or to heating up in contact with air, and being then liable to catch fire.

Substance which, in contact with water, emits flammable gas (Division 4.3)
(flame may be black or white)

Substances those, by interaction with water are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

7.3.4. Classification of Dangerous Goods (cont.)

Class 5

Oxidizing Substances and Organic Peroxides

Oxidising substance (Division 5.1)

Substances, which, in themselves are not necessarily combustible, but may, generally, cause or contribute to the combustion of other material by yielding oxygen.

Organic peroxide (Division 5.2) (flame may be black or white)

Organic substances, which contain the bivalent, structure -O-O- and may be considered derivatives of hydrogen peroxide in which one or both of the hydrogen atoms have been replaced by organic radicals. Organic peroxides are thermally unstable substances that may undergo exothermic, self-accelerating decomposition.

In addition, they have one or more of the following properties:

- be liable to explosive decomposition
- burn rapidly
- be sensitive to impact or friction
- react dangerously with other substances
- cause damage to the eyes

Class 6

Toxic and Infectious Substances

Toxic substance (Division 6.1)

Substances, which are liable to cause death or injury or to harm human health if swallowed, inhaled or contacted by the skin.

Infectious substance (Division 6.2)

Infectious substances are substances which are known or are reasonably expected to contain pathogens.
Infectious substances must be assigned to UN2814, UN2900, UN3373 or UN3291 as appropriate. Infectious substances are divided into the following categories:

Category A: an infectious substance which is transported in a form that ,when exposure to it occurs, is capable of causing permanent disability, life threatening of fatal disease in otherwise healthy humans or animals. These substances must be assigned to UN2814 which cause disease in humans or both in humans and animals. Infectious substances which cause disease only in animals must be assigned to UN2900.

Category B: an infectious substance which doesn't meet criteria for inclusion in Category A. Infectious substances in Category B must be assigned to UN3373.

The bottom part of the label should bear the inscription:

"INFECTIOUS SUBSTANCE — In case of damage or leakage immediately notify public health authority".

7.3.4. Classification of Dangerous Goods (cont.)

Class 7

Radioactive Material

Category I

T.I.= 0

Category II

0 < T.I. ≤ 1.0

Category III

1.0 < T.I. ≤ 10 and T.I. > 10

These substances (solids, liquids or gases), known as radionuclides or radioisotopes, emit certain types of radiation which penetrates material and can be harmful to health - but which, nevertheless, cannot be detected by any of the human senses (Protective factors: shielding material, keep your distance, time limitation). Other material like data storage media may also be affected by the radiation.

It can be detected and measured by appropriate instruments. The radiation is caused by the atomic decay or transformation and this is called the activity of the element. The unit to be used is the Becquerel (Bq): 1 Bq = 1 atomic decay per second.

Most of the radioactives shipped as aircargo are intended for use in medical diagnosis and treatment and due to the purpose and half-life time they are very urgent perishable consignments.

The Transport Index (T.I.) indicates the radiation level at one-metre-distance from the external surface of the package. The unit to be used for radiation level is Sievert per hour, Sv/h or milliSv/h for smaller units (1 T.I. = 0.01 milliSv/h at 1-metre-distance).

Criticality safety index label

Fissile radioactive materials
FORBIDDEN ON CROATIA AIRLINES FLIGHTS

Class 8

Corrosive

Substances, which, in the event of leakage, can cause severe damage by chemical action when in contact with living tissue or other material (e.g., aluminium).

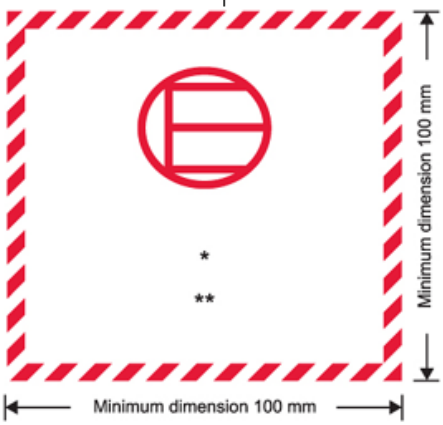
7.3.4. Classification of Dangerous Goods (cont.)

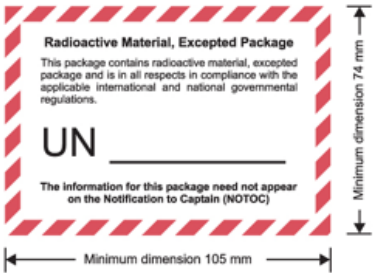
<table>
<tr>
<td>Class 9
Miscellaneous</td>
<td>

Articles and substances, which during air transport, present a danger not covered by other classes.

Class 9 includes, but not limited to, the following articles and substances: aviation regulated solid or liquid (which has narcotic, noxious, irritating or other similar properties, which could cause extreme annoyance or discomfort to passengers and/or flight crewmembers), magnetized material, elevated temperature substances, environmentally hazardous substances, genetically modified organisms and other miscellaneous articles and substances (e.g. vehicles, engines with internal combustion, asbestos, battery-powered equipment or vehicles, life-saving appliances, chemical and first aid kit, zinc dithionite, consumer commodity, dry ice, polymeric beads, etc.).

Lithium battery Class 9 label

For packages containing lithium batteries prepared in accordance with Section IA or IB of PI 965 and Section IA or IB of PI 968 and Section I of PI 966, PI 967, PI 969 and PI 970 the Lithium battery Class 9 label must be used.
</td>
</tr>
<tr>
<td>Excepted Quantity Package Mark</td>
<td>
Dangerous Goods in Excepted Quantities must be marked with Except Quantity Package Mark.


</td>
</tr>
<tr>
<td>Radioactive Material, Excepted Package Mark</td>
<td>
Radioactive Material in Excepted Package must be marked with Radioactive Material Except Package Mark.


</td>
</tr>
</table>

7.3.5. Miscellaneous Dangerous Goods

<table>
<tr><td>Definition</td><td>

- Substances that could not be classified under the eight other classes, but which present a danger during transport.

</td></tr>
<tr><td>Handling and Loading</td><td>

- <u>Expandable polymeric beads (RSB):</u>
  - ✓ A total of not more than 100 kg (220 lb) net weight of expandable polymeric beads (or granules) or plastic moulding materials, referenced to Packing Instruction 957, may be carried in any inaccessible hold on any aircraft.
  - ✓ Expandable polymeric beads (RSB) not allowed in Forward Cargo Hold on Q400.
- <u>Self-inflating rafts, aircraft survival kits or evacuation slides</u>
  - ✓ Is allowed not more than one per aircraft, packed in accordance with Packing Instructions 955 of IATA DGR on board Croatia Airlines flights.
- <u>Magnetized material (MAG)</u>
  - ✓ Magnetized materials must be loaded so that headings of aircraft compasses are maintained within the tolerances prescribed by the applicable aircraft airworthiness requirements and, where practical, in locations minimizing possible effects on compasses. Multiple packages may produce a cumulative effect.
  - ✓ For magnetized material transported under the conditions of an approval described in Packing Instruction 953, loading must be in accordance with conditions specified in the authorizing approval.

NOTE: *Masses of ferro-magnetic metals such as automobiles, automobile parts, metal fencing, piping and metal construction material, even if not meeting the definition of magnetized materials may affect aircraft compasses, as may packages or items which individually do not meet the definition of magnetized material but cumulatively may have a magnetic field strength of a magnetized material.*

- <u>Dry Ice or Carbon Dioxide solid</u>

  Dry Ice maximums in Cargo Holds per aircraft type:

Airbus - A320	230 kg
Airbus - A319	250 kg
Bombardier - DHC-8 Q400 ***Note: Forbidden in Forward Cargo Compartment***	100 kg

NOTE: *Max. quantities for A320F specified in table above, are the max. cumulative quantities of Dry Ice per aircraft. Even distribution through cargo compartments are not considered necessary e.g. all 250 kg may be loaded in Compartment 1 of A319.*

  - ✓ The packaging must permit the release of carbon dioxide gas.

    If ICE has been loaded on main deck, the air-conditioning and ventilation must be on. Before unloading ICE shipments, the compartment must be ventilated due to danger of suffocating.

</td></tr>
</table>

7.3.5. Miscellaneous Dangerous Goods (cont.)

Handling and Loading

(cont.)

- ✓ The structure of compartments, pallets and containers shall be protected against direct contact with dry ice by insulating material.
- ✓ Transit stations and the destination station must ventilate the compartments before entering, because of the danger of suffocation.
- ✓ DRY ICE AND LIVE ANIMALS - In ventilated compartments up to 200 kg, dry ice may be loaded together with live animals, provided they are not loaded in close proximity to each other. Live animals are to be transported on a higher level than dry ice. The dry ice should be loaded before the animals. This is also applicable for the loading of refrigerating units together with live animals in the same compartment.

***EXCEPTION**: These restrictions are not valid for live animal's packed airtight (e.g., tropical fish).*

***NOTE**: Dry Ice must not be loaded together with Live Animals in same cargo hold on Airbus A319/A320 aircraft type. For the purpose of loading Dry Ice and Live Animals, Compartments 4 and 5 (Aft Cargo Hold) on A319 are considered as one single cargo hold. Compartments 3, 4 (Aft Cargo Hold) and compartment 5 (Rear Cargo Hold) on A320 are considered as one single cargo hold.*

- Lithium batteries

To facilitate the loading process, the tables below specify loading restrictions of lithium batteries for Croatia Airlines aircraft types:

Table 9: Lithium batteries loading limitations for Croatia Airlines aircraft types

Battery Type / IMP code / Aircraft Type	**UN3480** Lithium ion batteries	**UN3090** Lithium metal batteries	**UN3481** Lithium ion batteries contained in equipment	**UN3481** Lithium ion batteries packed with equipment	**UN3091** Lithium metal batteries contained in equipment	**UN3091** Lithium metal batteries packed with equipment	
	RBI	**RBM**	**ELI / RLI**	**ELI / RLI**	**ELM / RLM**	**ELM / RLM**	Max. qty. of pack-ages per a/c
A320	**Forbidden**	**Forbidden**	**Allowed**	**Allowed**	**Allowed**	**Allowed**	**10**
A319	**Forbidden**	**Forbidden**	**Allowed**	**Allowed**	**Allowed**	**Allowed**	**10**
Q400	**Forbidden**	**Forbidden**	**Allowed**	**Allowed**	**Allowed**	**Allowed**	**5**

***Note:** Lithium batteries (any type) are forbidden on reg. 9A-CTG and 9A-CTH.*

7.3.6. Radioactive Materials

<table>
<tr><td>Definition</td><td>
Radioactive materials spontaneously and continuously emit ionizing radiation, which can be harmful to the health of humans and animals and can affect photographic or X-Ray film.
NOTE: Class 7, fissile radioactive materials will not be accepted for carriage on Croatia Airlines flights
</td></tr>
<tr><td>Categories</td><td>
For handling purposes, radioactive materials are divided in three categories according to Transport index (TI) which is indicated on a label for RRY II/III packages.
<table>
<tr><th>CATEGORY</th><th>MAX TI</th><th>LABEL</th><th>IMP CODE</th></tr>
<tr><td>I</td><td>0</td><td>
</td><td>RRW</td></tr>
<tr><td>II</td><td>0 < T.I. ≤ 1.0</td><td>
</td><td>RRY</td></tr>
<tr><td>III</td><td>1.0 < T.I. ≤ 10 and T.I. > 10</td><td>
</td><td>RRY</td></tr>
</table>
</td></tr>
<tr><td>Handling and Loading</td><td>

Radioactive materials must not be loaded if the package is damaged.
Radioactive materials must not be loaded if there is no entry for TI on a label for Category II/III.
When loaded, they must be stowed directly on the floor to ensure maximum distance from passengers and crew.
Minimum separation distance from passenger cabin and flight deck as set in IATA DGR 10.9.3.7. The distance depends on the TI (transport index) of the single package or the sum of TI (transport index) in case of group of packages.
Radioactive materials must be tied down or secured by other load. The securing must be adequate to ensure that the separation requirements are met at all times.
Radioactive materials Categories II — Yellow and III — Yellow packages or overpacks are not permitted in Forward Cargo Hold on Q400
Maximum permitted TI (Transport Index) per single package or per group of packages on board aircrafts operate in Croatia Airlines` fleet is limited to 6.0.

</td></tr>
</table>

7.3.6. Radioactive Materials (cont.)

Handling and Loading

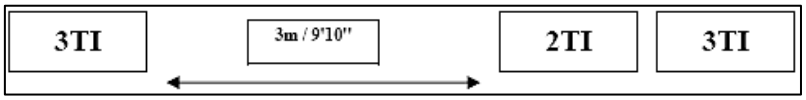
(cont.)

- Separation from external surface of packages containing radioactive material and nearest inside surface of the partitions or floors of the flight deck or other areas occupied by persons shall be no less than specified in table below.

Total sum of T.I.	Minimum Distance (m)
0.1 to 1.0	0.30
1.1 to 2.0	0.50
2.1 to 3.0	0.70
3.1 to 4.0	0.85
4.1 to 5.0	1.00
5.1 to 6.0	1.15

- If packages are grouped together:
  - ✓ minimum distance from each group to the nearest inside surface of the partitions or floors of the flight deck or other areas occupied by persons is the distance applicable to the sum of transport indices within the individual group.
- For separation of packages or groups of packages from each other:
  - ✓ minimum separation distance required for the package or group of packages must be at least three times the distance applicable to the one that has the larger transport indices or sum of transport indices.

  EXAMPLE:



- Separation distance for 5TI is required.
  1. separation distance for 5TI is required.
  2. 5TI→1 meter.
  3. according to the Separation Table (also in IATA DGR 10.9 C).
  4. 1meter multiply with 3 =3meter is minimum separation distance.
- Separation From Live Animals
  - ✓ Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from live animals by a distance of at least 0.5 meters for journeys not exceeding 24 h, and by a distance of at least 1.0 meters for journeys longer than 24h.

7.3.6. Radioactive Materials (cont.)

Handling and Loading

(cont.)

- Separation from Undeveloped Photographic Film
  - ✓ Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from undeveloped photographic films or plates. The minimum separation distances (meters) to be applied from the surface of the packages, overpacks or freight containers to the surface of the packages of undeveloped photographic films or plates are as follows:

"Separation from Undeveloped Photographic Film table"

	Duration of carriage					
Total sum of transport indexes	2 hours or less	2-4 hours	4-8 hours	8-12 hours	12-24 hours	24-48 hours
1	0.4	0.6	0.9	1.1	1.5	2.2
2	0.6	0.8	1.2	1.5	2.2	3.1
3	0.7	1.0	1.5	1.8	2.6	3.8
4	0.8	1.2	1.7	2.2	3.1	4.4
5	0.8	1.3	1.9	2.4	3.4	4.8
10	1.4	2.0	2.8	3.5	4.9	6.9
20	2.0	2.8	4.0	4.9	6.9	10.0
30	2.4	3.5	4.9	6.0	8.6	12.0
40	2.9	4.0	5.7	6.9	10.0	14.0
50	3.2	4.5	6.3	7.9	11.0	16.0

7.3.7. Wheelchairs or Other Battery Powered Mobility Devices

Handling and Loading	• **Battery-powered wheelchairs or other similar mobility devices with non-spillable wet batteries, nickel-metal hydride batteries or dry batteries.** Battery-powered wheelchairs or other similar mobility aids for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g., broken leg), with non-spillable wet batteries which comply with Special Provision A67 or nickel-metal hydride batteries which comply with Special Provision A199 or dry batteries which comply with Special Provision A123 of IATA DGR, subject to the following requirements: a. the mobility aid must be prepared for transport to prevent unintentional activation and non-spillable batteries are not permitted to contain any free or unabsorbed liquid. b. the operator must secure, by use of straps, tie-downs or other restraint devices, a battery powered mobility aid with installed battery(ies). The mobility aid, the battery(ies), electrical cabling, and controls must be protected from damage including by the movement of baggage, mail or cargo. c. the operator must verify that: 1. the passenger has confirmed that the battery(ies) is a non-spillable wet battery that complies with special provision A67, see point a) or nickel-metal hydride battery that complies with special provision A199 or dry battery that complies with special provision A123. 2. the battery terminals are protected from short circuits, e.g., by being enclosed within a battery container. 3. the battery is either: i. adequately protected against damage by the design of the mobility aid and securely attached to the wheelchair or mobility aid. The electrical circuits must be isolated fallowing the manufacturer`s instructions,  or  ii. removed from the mobility aid following the manufacturer`s instructions. d. a passenger my carry a maximum of one spare non-spillable wet battery meeting special provision A67; or two spare nickel-metal hydride batteries meeting special provision A199 or two spare dry batteries meeting special provision A123. e. the operator must ensure that any battery(ies) removed from the wheelchair/mobility aid and any spare batteries are carried in strong, rigid packaging which must be carried in the cargo compartment (see IATA DGR 9.3.14.5 and Figure 9.3. C). f. the operator must inform the pilot-in-command of the location of mobility aid with installed battery(ies), removed battery(ies) and spare battery(ies). g. it is recommended that passengers make advance arrangements with each operator.

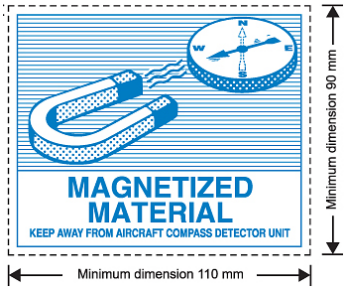
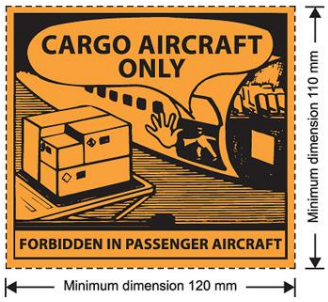
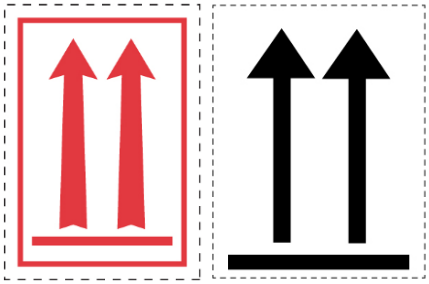
7.3.7. Wheelchairs or Other Battery Powered Mobility Devices (cont.)

Handling and Loading **(cont.)**	• **Battery-powered wheelchairs or other similar mobility devices with spillable batteries** For use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g., broken leg), with spillable batteries, subject to the following conditions: a. the operator must secure, by use of straps, tie-downs or other restraint devices, a battery powered mobility aid with installed battery(ies). The mobility aid, the battery(ies), electrical cabling, and controls must be protected from damage including by the movement of baggage, mail, or cargo. b. the operator must verify that: 1. the battery terminals are protected from short circuits, e.g., by being enclosed within a battery container. 2. the battery(ies) is fitted, were feasible, with spill resistant vent caps. 3. the battery(ies) is either: i. adequately protected against damage by the design of the mobility aid and securely attached to the wheelchair or mobility. The electrical circuits are isolated fallowing the manufacturer`s instructions, or  ii. removed from the mobility aid following the manufacturer`s instructions when the mobility aid cannot be maintained in an upright position, see (c). c. if the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and shipped as cargo. The wheelchair or mobility aid may then be carried as checked baggage without restriction. • **Battery-powered wheelchairs or other similar mobility devices with Lithium Batteries** Lithium-ion battery powered wheelchairs or other similar mobility aids for use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g., broken leg), subject to the following conditions: a. the batteries must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3. b. the operator must secure, by use of straps, tie-downs or other restraint devices, a battery powered mobility aid with installed battery(ies). The mobility aid, the battery(ies), electrical cabling, and controls must be protected from damage including by the movement of baggage, mail or cargo. c. the operator must verify that: 1. the battery terminals are protected from short circuits, e.g., by being enclosed within a battery container. 2. the battery is either: i. adequately protected against damage by the design of the mobility aid and securely attached to the wheelchair or mobility aid. The electrical circuits are isolated following the manufacturer`s instructions, or  ii. removed from the mobility aid following the manufacturer`s instructions (see IATA 9.3.14.6 and Figure 9.3. C). Each battery removed from the mobility aid must not exceed 300 Wh.

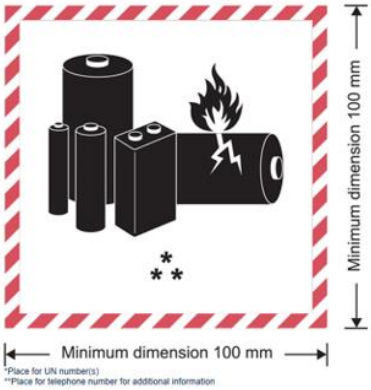
7.3.7. Wheelchairs or Other Battery Powered Mobility Devices (cont.)

Handling and Loading	d. a passenger my carry a maximum of one spare lithium-ion battery not exceeding 300 Wh or two spare batteries each not exceeding 160 Wh. e. the operator must ensure that any battery(ies) removed from the mobility aid and spare battery(ies) are carried in the passenger cabin. The removed or spare battery(ies) must be protected from damage (e.g., by placing each battery in a protective pouch). f. the operator must inform the pilot-in-command of the location of mobility aid with installed battery(ies), removed battery(ies) and spare battery(ies). g. it is recommended that passengers make advance arrangements with each operator. ***NOTE:*** *Acceptance of battery-powered wheelchairs is subject to operator approval. For Croatia Airlines` flights the approval of the operator is granted automatically provided that all required conditions and/or limitations from above are met (see also Subsection 2.3 of IATA DGR).*

7.3.8. Handling Labels

Magnetized Material Label	**Magnetized material**  	**Magnetized material (MAG):** Any material which, when packed for air transport, has a magnetic field strength sufficient to cause a compass deflection of more than 2 degrees at the distance of 2.1 m from any point on the surface of the assembled package (the magnetic field straight at the compass producing a 2-degree deflection is taken to be 0.418 A/m (0.00525 Gauss)). Magnets do not affect humans directly, but can have a significant effect on the direct-reading magnetic compasses or on the master compass detector unit. “Magnetized Material” label must be used on packages and overpacks containing magnetized material.
Cargo Aircraft Only Label	**Cargo aircraft only**  	**Cargo Aircraft Only" label** indicates that package may be transported exclusively by a Cargo aircraft **– FORBIDDEN ON CROATIA AIRLINES FLIGHTS**
Cryogenic Liquid Label	**Cryogenic liquid label** 	The **“Cryogenic Liquid”** handling label must be used in addition to the Non-flammable gas (Division 2.2) hazard label on packages and overpacks containing cryogenic liquids.
Package Orientation Label	**Package orientation**  (red or black)	"**Package Orientation"** (This Way Up) labels must be used on combination packaging and overpacks containing liquid dangerous goods. At least two labels must be affixed (on opposite sides).

7.3.8. Handling Labels (cont.)

Keep Away From Heat Label	Keep away from heat **"Keep away from heat label"** indicates that packages or unit load devices containing packages of self-reactive substances of Division 4.1 and/or organic peroxides of Division 5.2 must be protected from direct sunlight and kept away from sources of heat in a well ventilated area during the course of loading.
Lithium Battery Mark Label	Lithium battery mark  Packages containing lithium batteries prepared in accordance with Section IB of PI 965 and Section IB of PI 968 and Section II of PI 966, 967, 969 and 970 must bear the **Lithium battery mark** in addition to lithium battery Class 9 hazard label**.** **Note:** the requirement for a telephone number to be provided on the mark is removed with 1st of January 2023. Current mark design may continue to be used until 31st of December 2026.

7.3.9. Notification to Captain (NOTOC)

Purpose	• The NOTOC is written information to the Pilot-in-Command about the carriage of dangerous goods on board. • The presence of Dangerous Goods on board must be reported to the Pilot-in-Command, as soon as practicable prior to departure, latest 20 min. prior to departure. ***NOTE:*** *Any change in load and/or loading position must be reported to the Pilot-in-Command, verbally and in writing by changing the NOTOC and loadsheet.*
Responsibilities	• Preparation of NOTOC (entry of all relevant information except loading location on the aircraft) is responsibility of Cargo Handling Agent. • Cargo Handling agent shall forward NOTOC to load control. • Following information must be included in NOTOC: a. the date of flight b. the Air Waybill number (when issued). c. the proper shipping name (the technical name(s) shown on the Shipper`s Declaration is not required) and UN number or ID number as listed in Chapter 4 of IATA Dangerous Goods Regulations. When chemical oxygen generators contained in Protective Breathing Equipment (PBE) are being transported under Special Provision A144, the proper shipping name of “Oxygen generator, chemical” must be supplemented with the statement “Air crew Protective Breathing Equipment (smoke hood) in accordance with Special Provision A144”. d. the class or division, and subsidiary hazard(s) corresponding to label(s) applied by numerals and in the case of Class 1, the compatibility group. e. the Packing Group as shown on the Shipper's Declaration. f. (For non-radioactive material) the number of packages, the net quantity, or gross weight if applicable, of each package, except that this does not apply to dangerous goods where the net quantity or gross weight is not required on the Shipper's Declaration for Dangerous Goods or, when applicable, alternative written documentation and their exact loading location. 1. For a consignment consisting of multiple packages containing dangerous goods bearing the same proper shipping name and UN number or ID number, only the total quantity and an indication of the largest and smallest package at each loading location need to be provided. For consumer commodities, the information provided may be either the gross weight of each package or the average gross weight of the packages as shown on the Shipper`s Declaration. 2. The number of overpacks and an indication of which dangerous goods packages are contained in each overpack. 3. The number of all packed in one package and an indication of which dangerous goods are contained in the package(s).

7.3.9. Notification to Captain (NOTOC), cont.

Responsibilities (cont.)	g. (For radioactive material) the number of packages, overpacks, or freight containers, their category, their transport index, if applicable, and their exact loading location. h. Whether the package must be carried on cargo aircraft only. i. The airport at which the package(s) is to be unloaded, and j. (Where applicable) an indication that the dangerous goods are being carried under a State exemption. ***NOTE 1:*** The following substances and articles are not required to be shown on the Notification to Captain: ✓ Dangerous goods in excepted quantities (REQ); ✓ UN 3373, Biological substance, Category B (RDS); ✓ UN 2807, Magnetized material (MAG), with field strength causing a compass deflection of not more than 2° at the distance of 4.6 m; ✓ UN 3245, Genetically modified organisms, Genetically modified microorganisms; ✓ Lithium ion or lithium metal batteries meeting the provisions of Section II of Packing Instructions 966, 967, 969 and 970 (ELI, ELM); ✓ Radioactive material, excepted packages (RRE): ✓ UN3164, Articles, pressurized, hydraulic and Articles, pressurized, pneumatic when meeting the requirements of Packing Instruction 208 (a.) ***NOTE 2:*** For UN 1845, Carbon dioxide, solid (dry ice), the information required to be shown on NOTOC may be replaced by the UN number, proper shipping name, class, total quantity in each hold on the aircraft and the aerodrome at which the package(s) is to be unloaded. ***NOTE 3:*** For UN3480 (Lithium-ion batteries) and UN3090 (Lithium metal batteries), the information required to be shown on NOTOC may be replaced by UN number, proper shipping name, class, total quantity at each loading location and whether the package must be carried on a cargo aircraft only. For UN3480 (Lithium-ion batteries) and UN3090 (Lithium metal batteries) carried under a State exemption complete information must be provide by NOTOC. • Entry of correct loading location of dangerous goods on board the aircraft and final signature of NOTOC is responsibility of the Ramp Agent. Signed NOTOC shall be transferred to the PIC as soon as practicable prior to departure. • The information to the commander must also include confirmation that there is no evidence that any damaged or leaking packages have been loaded on the aircraft. • This information to the pilot-in-command should be presented on a dedicated form and should not be by means of Air Waybills, “Shipper's Declaration for Dangerous Goods”, invoices, etc. The pilot-in-command must indicate on a copy of the information to pilot-in-command, or in some other way, that the information has been received.

7.3.9. Notification to Captain (NOTOC), cont.

Responsibilities (cont.)	• A legible copy of the information to the pilot-in-command must be retained on the ground. This copy must have an indication on it or with it that the pilot-in-command has received the information. The copy, or the information contained in it must be readily accessible to the designated ground handling agent personnel until after the arrival of the flight. • In addition, a copy of the notice to the pilot-in-command (NOTOC) or the same information that is required to be provided to the pilot-in-command must be automatically sent to Croatia Airlines Operations Control and HUB Centre. **Croatia Airlines Operations Control and HUB Centre contacts:** T: +385 1 616 4522 F: +385 1 660 8190 E-mail: ops.control@croatiaairlines.hr SITA: ZAGOWOU • In addition to the languages, which may be required by the State of the operator, English should be used for the information to the pilot-in-command. • The commander confirms receipt of the NOTOC by his signature.

7.3.10. Dangerous Goods Irregularities and Reports

General	• Dangerous goods, which are not shipped in accordance with IATA DGR, may cause serious damage affecting flight safety, grave environmental contamination to air, water and soil and even endanger personnel and property. • Therefore, the correct emergency handling of personnel and the immediate alarming of Airport Emergency Services, if available, is an unconditional necessity.
Incidents / Accidents Actions	• In case of leakage or damage of DG, the authorized staff must decide if the local emergency procedure must be initiated. Such measure may include: ✓ Isolation of the item and area, if possible. ✓ Notifying the airport emergency services in accordance with local airport procedures. ✓ Evacuation or protection of passengers and staff. ✓ Evacuation or protection of aircraft and other property. ✓ Notify appropriate authorities **ACTIONS:** • Take the following actions in case of Dangerous Goods Incident/Accident: ✓ Notify immediate supervisor who may seek professional assistance. ✓ Identify the dangerous goods (if safe to do so). ✓ Isolate the item and area, if possible. ✓ Avoid contact with the contents of the package. • If the contents come in contact with your body or clothes: ✓ Thoroughly wash off body with plenty of water. ✓ Remove contaminated clothing. ✓ Do not eat or smoke. ✓ Keep hands away from eyes, mouth, and nose. ✓ Seek medical assistance. • Staff involved in such incident should stay on site until their names are noted. • The following process applies: **ON THE RAMP** Dangerous Goods have been accepted for transportation and passed through the warehouse): ✓ Locate and define the source of leakage/damage. ✓ Inform local authority and fire brigade. ✓ Inform local OU station representative. ✓ Inform warehouse operator. ✓ Dangerous Goods Occurrence report has to be written.

7.3.10. Dangerous Goods Irregularities and Reports (cont.)

Incidents / Accidents Actions

(cont.)

IN THE COMPARTMENT

Dangerous Goods have already been loaded and transported:

- ✓ Locate and define the source of leakage/damage.
- ✓ Inform local authority and fire brigade.
- ✓ Inform local OU station representative.
- ✓ inform Commander and Operations Department.
- ✓ Dangerous Goods Occurrence report must be written.

IN THE CARGO WAREHOUSE

Dangerous Goods are in process of being accepted for transportation:

- ✓ Locate and define the source of leakage/damage.
- ✓ Inform local authority and fire brigade.
- ✓ Inform OU local station representative.
- ✓ Dangerous Goods Occurrence report must be written.

Dangerous Goods Emergency Response Chart (Ground Incidents)

HAZARD CLASS, DIVISION AND COMPATIBILLITY GROUP	DANGEROUS GOODS CLASS	HAZARD DESCRIPTION	IMMEDIATE ACTION MINIMAZE LEAKAGE AND CONTACT WITH OTHER CARGO
1.3C 1.3G	EXPLOSIVES (ACCEPTABLE ON CARGO AIRCRAFT ONLY)	FIRE MINOR BLAST HAZARD AND/OR MINOR PROPULSIVE HAZARD	NOTIFY FIRE DEPARTMENT GUARD AGAINST FIRE
1.4B 1.4C 1.4D 1.4E 1.4G		FIRE, BUT OTHER SIGNIFICANT HAZARD	
1.4S	EXPLOSIVES (SAFETY)	SMALL FIRE HAZARD	
2.1 2.2 2.2	FLAMMABLE GAS NON-FLAMMABLE GAS CRYOGENIC LIQUIDE	IGNITIES WHEN LEAKING HIGH PRESSURE CYLINDER BURSTING SUBCOOLING	NOTIFY FIRE DEP. GUARD AGAINST FIRE EVACUATE GOODS-VENTILATE AREA KEEP AWAY MINIMUM 25 m
2.3	TOXIC GAS (ACCEPTABLE ON CARGO AIRCRAFT ONLY)	HIGH PRESURE CYLINDER BURSTING AND TOXIC INHALATION	
3	FLAMMABLE LIQUID	GIVES OFF FLAMMABLE VAPOUR	NOTIFY FIRE DEP. GUARD AGAINST FIRE DO **NOT** USE WATER UNDER ANY CIRCUMSTANCES
4.1 4.2 4.3	FLAMMABLE SOLID SPONTANEOUSLY COMBUS. DANGEROUS WHEN WET	COMBUSTIBLE, CONTRIBUTES TO FIRE IGNITES IN CONTACT WITH AIR IGNITES IN CONTACT WITH WATER	
5.1 5.2	OXIDIZER ORGANIC PEROXIDE	IGNITES COMBUSTIBLES ON CONTACT REACTS VIOLENTLY WITH OTHER SUBSTANCES	NOTIFY FIRE DEP. GUARD AGAINST FIRE DO **NOT** USE WATER
6.1	TOXIC SUBSTANCE	HARMFUL IF SWALLOWED, INHALED OR IN CONTACT WITH SKIN	ISOLATE AREA OBTAIN QUALIFIED ASSIST. DO **NOT** TOUCH **KEEP AWAY** MINIMUM 25 m
6.2	INFECTIOUS SUBSTANCE	CAUSES DISIASES IN HUMANS AND ANIMALS	
7 CAT I 7 CAT II/III	RADIOCTIVE-WHITE RADIOACTIVE-YELLOW	RADIOACTION HAZARDS AND HARMFULL TO HEALT	
8	CORROSIVE	HAZARDOUS TO SKIN AND METAL	NOTIFY FIRE DEP. GUARD AGAINST FIRE AVOID CONTACT WITH SKIN
9	POLIMERIC BEADES MAGNETIZED MATERIAL CARBON DIOXIDE,SOLID MISCELLANEOUS DANGEROUS GOODS	ENVOLVES SMALL QUANTITES OF FLAMMABLE GAS AFFECTS NAVIGATION SYSTEM CAUSES SUBCOOLING/SUFFOCATION HAZARD NOT COVERED BY OTHER CLASSES	AVOID CONTACT WITH SKIN NO IMMEDIATE ACTION REQUIRED

NOTE: *Emergency Response for Incidents/Accidents involving Dangerous Goods is the responsibility of subcontracted Handling Agent who is in charge of shipment at the moment of incident.*

7.3.10. Dangerous Goods Irregularities and Reports (cont.)

Incidents / Accidents Reports	• Croatia Airlines, irrespective of whether the dangerous goods are contained in cargo, mail or baggage shall report any type of dangerous goods accident or incident as soon as possible. • The subcontracted Handling Agent shall report any: ✓ Dangerous goods accident or incident. ✓ Occasion when undeclared or mis-declared dangerous goods are discovered in cargo or mail, and when dangerous goods not permitted under Subsection 2.3 of IATA DGR are discovered either in the baggage or on the person of passengers or crew members. ✓ Occasion when dangerous goods are discovered when not loaded, segregated, separated and secured in accordance with IATA DGR 9.2 and 9.3 and/or as set here in 7.3.2, 7.3.3, 7.3.5, 7.3.6 and 7.3.7, and are discovered to have been carried without information having been provided to the pilot-in-command in accordance with IATA DGR 9.5.1.1 and/or as set here in 7.3.9. to the authorities of the state in which the accident or incident occurred for points (1) and (2) and to the state of origin for point (3), in accordance with the reporting requirements of those appropriate authorities as soon as possible and no later than 72 hours after accident or incident occurred by filling in and sending “Dangerous Goods Occurrence Report (OB-PSU-056)”. • In addition, handling agent shall send “Dangerous Goods Occurrence Report (OB-PSU-056)” to Croatia Airlines Safety Department on e-mail address safety@croatiaairlines.hr and to Croatia Airlines local representative as soon as possible and no later than 72 hours after the accident or incident occurred. ***NOTE:*** *Copies of all relevant documents should be included with the report and whenever possible supplemented with photographs of consignment or item.* • Initial report may be made to the Croatia Airlines Operations Centre, by any means (telephone, telex, fax, SITA, e-mail etc.) which must be followed by a written report according to procedure set above. The report shall contain all data as far as they are known at the time the report is made. ***NOTE:*** *“Dangerous Goods Occurrence Report (OB-PSU-056)” is published and available for download on corporate Intranet.*

7.3.10. Dangerous Goods Irregularities and Reports (cont.)

Dangerous Goods Occurrence Report

(Specimen reduced in size)

CROATIA AIRLINES

Dangerous Goods Occurrence Report

See the Notes on the next page of this form. *Those boxes where the heading is in italics need only be completed if applicable.*

Mark type of occurrence: Accident ☐ Incident ☐ Other Occurrence ☐

1. Operator:	2. Date of occurrence:	3. *Local time of occurrence:*	
4. Flight date:		*5. Flight no.:*	
6. Departure airport:		*7. Destination airport:*	
8. Aircraft type:		*9. Aircraft registration:*	
10. Locattion of occurrence:		11. Origin of the goods:	
12. Description of the occurrence, including details of injury, damage, etc. (if necessary continue on the next page)			
13. Proper shipping name *(including the technical name):*			14. UN/ID no. (when known):
15. Class/division (when known)	*16. Subsidiary risk(s):*	*17. Packing group:*	*18. Category (class 7 only):*
19. Type of packaging:	*20. Packagin specification marking*	*21. No. of packages:*	*22. Quantity (or transport index, if applicable)*
23. Reference no. Air Waybill:			
24. Reference no. of courier pouch, baggage tag, or passenger ticket:			
25. Name and address of shipper, agent, passenger, etc.:			
26. Other relevant information (including suspected cause, any action taken):			
27. Name and tittle of person making report:		28. Telephone no.:	
29.Company/dept.code, E-mail or InfoMail code:		*30. Reporter ref.:*	
31. Address:		32. Date/Signature:	

OB-PSU-056/2 od 22.08.2011.

7.3.11. Duties of Persons Involved in Processing of Dangerous Goods

General	• No Croatia Airlines employee or Subcontracted Handling Agent shall perform any duty concerning dangerous goods unless they have received the appropriate training (IATA DGR 1.5) and unless he has received all information necessary to carry out his responsibilities with regard to that particular shipment. • Knowledge of English language is mandatory.
Information to Passengers and Cargo Warehouse	• Subcontracted handling agent of the station concerned shall ensure that notices warning passengers as to the type of dangerous goods which are forbidden for transport aboard an aircraft are: ✓ Prominently displayed in sufficient number at each of the places at an airport where: ▪ Tickets are issued. ▪ Boarding passes are issued. ▪ Passenger baggage is dropped off. ▪ Aircraft boarding areas. ▪ In baggage claim areas, and ✓ Clearly displayed at any other location where passengers are issued boarding passes and checked baggage is accepted. • When boarding pass is issued by use of self-service kiosks at an airport, handling agent of the station concerned shall ensure that passenger acknowledge and indicate that has been presented with restrictions on dangerous goods in baggage and that he understood the restrictions on dangerous goods in baggage. • These notices shall include visual examples of dangerous goods forbidden from transport aboard an aircraft. • Information on those dangerous goods which may be carried by passengers in accordance with IATA DGR 2.3.2 to 2.3.5 is available on Croatia Airlines web site. • Subcontracted handling agent shall ensure that sufficient notices, prominently displayed, are provided at visible location(s) at cargo acceptance points, giving information about the transport of dangerous goods to alert shippers/agents about any dangerous goods that may be contained in their cargo consignment(s). ***IMPORTANT:*** *Delivery at Aircraft (DAA) is carry-on baggage loaded in aircraft hold at the time of boarding due to limited space in cabin. For purposes of Dangerous Goods Regulations, DAA must be treated as checked baggage. Items of Dangerous Goods which are specifically prohibited from being in checked baggage must be removed from baggage prior to loading in aircraft hold.* ***Baggage intended to be carried in the cabin - placed in the cargo compartment*** *due to limited space in cabin must only contain dangerous goods permitted in checked baggage. When baggage intended as carry-on is taken by the passenger handling staff and placed into the cargo compartment for carriage, they must alert passengers that certain items of dangerous goods are specifically prohibited from being in checked baggage, e.g. spare batteries, mercury barometer, e-cigarettes (see Table 3: Provision for Dangerous Goods Carried by Passengers or Crew) and must be removed from baggage prior to loading in aircraft hold.* ***REFERENCE:*** *For more details, refer to PBHM, chapter 10.11.*

7.3.11. Duties of Persons Involved in Processing of Dangerous Goods, (cont.)

Information to Commander	• The commander of an aeroplane in which dangerous goods are to be carried shall be provided, as early as practicable before departure of the aircraft, latest 20 min. prior to departure, with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo (NOTOC).

7.3.12. Retention of Records

General	• At least one copy of the following documents, appropriate to the transport by air of a dangerous goods, shall be retained on Station File by concerned Handling Agent: ✓ Shipper's Declaration for Dangerous Goods. ✓ Air Waybill. ✓ Acceptance Checklist. ✓ NOTOC. ✓ Dangerous Goods Occurrence Report (if appropriate). ✓ Cargo Manifest / Transfer Cargo Manifest. ***NOTE:*** *For each shipment that was not accepted by acceptance staff, a copy of the documentation as well as the check list (if check list is required) should be retained in file.* • Minimum filing period is 3 (three) months after the flight on which the dangerous goods were transported. • The Training Records must be retained by the employer for a minimum period of thirty-six months from the most recent training completion date and must be made available upon request to the employee or appropriate national authority.

7.3.13. Supervision of Handling Agents for Handling of Dangerous Goods

General	• Croatia Airlines shall ensure, before signing the contract for handling, including handling of dangerous goods, and before including the Airport on the List of Approved Airport for transport of Dangerous Goods that the responsible Handling Agent: ✓ Has a procedure to ensure that notices providing information about dangerous goods are prominently displayed at cargo acceptance locations. ✓ Has a procedure to use an acceptance checklist that is utilized as an aid to ensure compliance with provisions of the IATA DGR. ✓ Is able to identify the person who performed the acceptance check. ✓ Has a procedure that ensures the use of colloquial English, in addition to the language required by the State of Origin, for markings and transport documents related to the shipment of dangerous goods. ✓ Has a procedure to ensure that the Dangerous Goods Acceptance Checklist form is updated on annual basis to reflect the requirements contained in the current edition of the IATA DGR. ✓ Has a procedure to ensure that the Dangerous Goods Acceptance Checklist and shipper documentation including Shipper`s Declaration for Dangerous Goods, if required, and information to the pilot-in-command, are retained in accordance with applicable requirements of the state in which the cargo is accepted, or, if there are no such requirements, in accordance with procedures contained here in and in compliance with the current edition of the IATA DGR. ✓ Have procedures to ensure safe handling of damaged or rejected cargo, including dangerous goods. ✓ Has a procedure to ensure safe disposal of dangerous goods. ✓ Has a procedure to ensure that dangerous goods are separated from other cargo or incompatible materials in accordance with published category restrictions. ✓ Has a procedures for maintaining a complete supply of dangerous goods handling labels, and for ensuring accurate replacement of such labels that are discovered to be lost, detached or illegible on shipments subsequent to the time of acceptance by the Operator. ✓ Has a procedure to ensure that packaging, overpack or freight containers containing dangerous goods have been inspected for evidence of leaks and/or damage. ✓ Has a procedure to ensure that a package or overpack containing dangerous goods is not loaded onto an aircraft unless the package or overpack has been inspected immediately prior to loading and found free from visible leaks or damage. ✓ Has a procedure that designates responsibility to a qualified individual for ensuring the correct loading location of dangerous goods onboard the aircraft. ✓ Has a procedure to ensure that any package that appears to be damaged or leaking shall be removed from the aircraft, and safe disposal is arranged. ✓ Has the procedures, in the case of leakage, to ensure that the remainder of the consignment is in a proper condition for transport by air and that no other package has been contaminated.

7.3.13. Supervision of Handling Agents for Handling of Dangerous Goods (cont.)

General (cont.)	✓ Has the procedures for loading and securing dangerous goods in the aircraft in such a manner that will prevent movement in flight, that could change the orientation of, or cause damage to the package. ✓ Has a procedure to provide the Pilot-in-Command with written information of special loads, including dangerous goods, as soon as possible before the departure of the flight. ✓ Have procedures for use by ground handling personnel in response to a spill or leakage on the aircraft, on the ramp, or in the cargo facility during the transportation of cargo. ✓ Have the procedures for response to ground handling accidents and incidents. ✓ Has a training programme to ensure that personnel who perform accepting, handling, loading, unloading, transfer or other processing of dangerous goods, receive training in the requirements commensurate with their responsibilities in compliance with IATA DGR 1.5. ✓ Has a procedure to ensure that a current copy of the IATA Dangerous Goods Regulations (DGR) is always available at appropriate ground handling facilities. ✓ Have the procedures for reporting dangerous goods accidents and incidents, undeclared or mis-declared dangerous goods discovered in cargo or mail, and dangerous goods not permitted under Subsection 2.3 of IATA DGR discovered in passengers` baggage to the authorities of the state in which the accident or incident occurred, in accordance with the reporting requirements of those appropriate authorities and to the Aircraft Operator as soon as possible and no later than 72 hours after accident or incident occurred. • In order to ensure the compliance with the above requirements and with the requirements of IATA DGR, Croatia Airlines shall perform quality and safety assessment of the Handling Agent according to the Operations Quality Assurance Programme and Quality Assurance Responsibility for Contractual Arrangements described in the Croatia Airlines Operations Quality System (refer to OM-A 03.02.) before airport is listed on the List of Approved Airport for transport of Dangerous Goods. • Croatia Airlines Handling Agent Quality Assurance Audit Checklist (current revision) is based on IATA AHM 060 and covers Air Operations Regulation, IATA DGR, and IOSA requirements.

7.3.14. List of Approved Airports for Transport of Dangerous Goods

General

- Dangerous goods as cargo shall be accepted only to/from airports listed on the List of Approved Airports for transport of dangerous goods with exception for tissues or organs intended for use in transplantation packed with Dry Ice, COVID-19 vaccines packed with Dry Ice and accompanied by data loggers and/or cargo tracking devices containing lithium batteries,and Aircraft Spares consigned by Croatia Airlines (see 7.3.1).

AIRPORT	
AMS	Schiphol Amsterdam Airport
BRU	Brussels Airport
CDG	Paris Charles de Gaulle Airport
CPH	Copenhagen Airport
FRA	Frankfurt Airport
LHR	London Heathrow Airport
MUC	Munich Airport
OSI	Osijek Airport
SJJ	Sarajevo International Airport
SKP	Skoplje Alexander the Great Airport
SPU	Split Airport
VIE	Vienna International Airport
ZAG	Zagreb Airport
ZRH	Zurich Airport

7.3.15. Dangerous Goods Training and Training Records

Croatia Airlines Operational Staff Training and Training Records	• Croatia Airlines Dangerous Goods Training Programmes are in compliance with ICAO Doc.9824-AN/905, SPA.DG.105 and IATA DGR 1.5 and approved by Croatian Civil Aviation Agency. Dangerous Goods Training Programmes are published in company document Annex 21 (Dangerous Goods Training Program) to OM-D. • Training and assessment have to be provided or verified upon employment of a person on any function associated with the transport of dangerous goods by air. Recurrent training and assessment must take place within 24 months of previous training to ensure knowledge is current, unless a competent authority has defined a shorter period. However, if recurrent training and assessment is completed within the final three months of validity of the previous training and assessment, the period of validity extends from the month on which the recurrent training and assessment was completed until 24 months from the expiry month of that previous training and assessment. An assessment shall be undertaken following training to verify course objectives, evaluate and confirm that knowledge has been transferred successfully and the trainees have achieved the competency required to perform the assigned functions. • A certificate must be issued confirming successful completion of the training and assessment. • All Croatia Airlines Ground Operations Staff are receiving the security training in accordance with the Croatia Airlines` Security Programme (OP-SCU-001) which fulfill the required elements of IATA DGR 1.7.2.2 Dangerous Goods Security Training and is included in Ground Refresher training. Records of DGR Training for Croatia Airlines Ground Operations Staff are kept in Personal Files in Operations Training Department.
Subcontracted Handling Agents Personnel	• The personnel of Handling Agents which are subcontracted, on behalf of Croatia Airlines to perform accepting, storage, handling, loading, unloading, inspection, transfer, or other processing of dangerous goods, must receive training in the requirements commensurate with their responsibilities in compliance with IATA DGR 1.5. • In order to ensure the compliance with the requirements mentioned above, Croatia Airlines shall perform quality and safety assessment of the Handling Agent according to the Operations Quality Assurance Programme and Quality Assurance Responsibility for Contractual Arrangements described in the Croatia Airlines Operations Quality System (refer to OM-A 03.02.) which includes the strict training programme and training records assessment of a Handling Agent before airport is listed on the List of Approved Airport for transport of Dangerous Goods (see 7.3.14.)

7.4. SPECIAL LOADS – GENERAL

<table>
<tr><td>General</td><td>

Shipments are termed "Special" if their nature requires:

✓ Special precautions to protect the aircraft, the personnel handling the shipment, other shipments, or the shipment itself.
✓ Special attention and care to avoid inconvenience or discomfort to passengers when shipments are loaded into passenger aircraft.
✓ Special procedures to be followed on acceptance, loading, carriage and delivery.
✓ Special shipments have to be positioned for loading segregated from other cargo.

Any inquiry in respect of interpretation or exceptions of these regulations must be directed to Croatia Airlines Cargo Handling and Cargo Sales Departments (cargo.handling@croatiaairlines.hr; cargo@croatiaairlines.hr) will advise in cases of doubt and evaluate individual inquiries and decide in conjunction with respective internal departments and Government authorities.
The pre-advice (pre-clearance) message procedure as necessary for particular handling activities/prearrangements at the airport of unloading (airport of transfer or destination) shall be adhered to - using the applicable special handling codes.
In case of an irregularity, the concerned office must inform the station of departure, transfer, and destination immediately.

</td></tr>
<tr><td>Storage</td><td>

Handling agent cargo terminals must be equipped with specifically configured facilities appropriate for storage of special cargo-dangerous goods, radioactive materials and other special cargo such as, human remains, live animals , perishables, valuable cargo and fragile goods.

</td></tr>
<tr><td>Special Handling Codes</td><td>

Special handling requirements must be expressed by the following codes (other codes are not permissible):

<table>
<tr><th>Handling Code</th><th>Explanation</th></tr>
<tr><td>AOG</td><td>Aircraft parts, aircraft on ground</td></tr>
<tr><td>AVI</td><td>Live Animals</td></tr>
<tr><td>BIG</td><td>Outsized Cargo</td></tr>
<tr><td>CAO</td><td>Cargo Aircraft Only</td></tr>
<tr><td>DGR</td><td>Dangerous Goods</td></tr>
<tr><td>DIP</td><td>Diplomatic Mail</td></tr>
<tr><td>EAT</td><td>Foodstuffs</td></tr>
<tr><td>HEA</td><td>Heavy Cargo (150 kg and over per piece)</td></tr>
<tr><td>HEG</td><td>Hatching Eggs</td></tr>
<tr><td>HUM</td><td>Human Remains in Coffins (not required for urns)</td></tr>
<tr><td>ICE</td><td>Dry-Ice Shipments</td></tr>
<tr><td>LHO</td><td>Live Human Organs / Fresh Blood</td></tr>
<tr><td>PER</td><td>Perishable Cargo</td></tr>
<tr><td>VAL</td><td>Valuable Cargo</td></tr>
</table>
</td></tr>
</table>

7.5. MISCELLANEOUS SPECIAL LOAD

7.5.0. Overview

Contents	This section contains the following titles: 7.5.1. Company Mail (COM) 7.5.2. Diplomatic Shipments (DIP) 7.5.3. Films (FIL) 7.5.4. Foodstuffs for Human Consumption (EAT) 7.5.5. Fruits and Vegetables 7.5.6. Flowers / Live Plants 7.5.7. Hatching Eggs (HEG) 7.5.8. Human Remains (HUM) 7.5.9. Living Human Organs and Fresh Blood Plasma (LHO) 7.5.10. Magnetized Materials (MAG) 7.5.11. Valuable Cargo (VAL) 7.5.12. Perishable Cargo 7.5.13. Wet Cargo 7.5.14. Heavy and Bulky Items (BIG / HEA) 7.5.15. Baggage Shipped as Cargo (UBAG) 7.5.16. EIC Shipments (EIC) 7.5.17. Service Cargo

7.5.1. Company Mail (COM)

Definition	• Company Mail is one of the most important means of internal communication within Croatia Airlines. • The following is considered Company Mail: ✓ All correspondence pertaining to Company matters. ✓ Newspapers, magazines, books, photos, drawings and press cuttings related to aviation. ✓ Office material, printed forms, timetables, manuals, own advertising material. ✓ Own airline revenue documents. ***NOTE:*** *Private letters and parcels may under no conditions be forwarded in the company mail as it may lead to withdrawal of the privilege to carry company mail free of postage.*
General	• Company mail may be sent between: ✓ Croatia Airlines offices. ✓ Croatia Airlines and its general agents, general sales agents, handling agents and related services. ✓ Croatia Airlines and IATA, ICAO, other aviation authorities and other STAR ALLIANCE members. • Company mail must be weighed and documented. The mass must be mentioned on the loadsheet. • Maximum weight: ✓ Total amount of Company Mail must not exceed 10 kg (not more than 2 kg per package). ✓ Heavy and large Company Mail shipments shall be forwarded as Service Cargo. ***EXCEPTION:*** *Documents for revenue accounting, which must be forwarded as Company Mail.*
Dispatching of Company Mail	• The Company Mail must be dispatched as follows: ✓ In the respective company mail envelopes or other envelopes identified by the carrier's or agent's name. ✓ In the respective company mail grey bags, tied with a company mail label, which must be marked with the 3-letter destination code, flight number and weight. ✓ Co-Mail / Comat must be screened before loading into aircraft. ✓ Co-Mail to stations not served by the carrier is subject to transportation by foreign carriers ("by courtesy of..."). ✓ Items subject to customs clearance may not be sent by company mail.

7.5.1. Company Mail (COM), cont.

Dispatching of Company Mail (cont.)	• Croatia Airlines Staff (Station Manager, Assistant Station Manager, Ground handling Specialist) are responsible for: ✓ Correct handling and loading of mail bags; ✓ Collecting mail destined for his station, town offices and various departments at airport and its deliverance. ***NOTE:*** *Station Zagreb – Handling by Croatia Airlines co-mail officer, supervised by OU Staff.*
Stowing	• With the baggage to the same destination, preferably near the compartment door. • Company mail envelopes may be handed by station manager to the Purser (Flight Crew). Company mail envelope is then stowed with other documents of the flight and handed over to station manager at destination station. • The loading position of the company mail bag(s) must be marked on the LDM with the remark “COM”, followed by the loading position and the weight, if more than 2 kg. ***EXAMPLE:*** *.COM / 1 / 10*
Company Mail Tag and Envelopes	

7.5.2. Diplomatic Shipments (DIP)

General	• A Diplomatic Shipment containing official correspondence, documents, and other articles intended for official use with certain legal protections, transported between: ✓ A state government and its foreign diplomatic offices (embassies/consulates). ✓ Two diplomatic offices of a state government, or ✓ A state government and an international organization (i.e., United nations). • Subject to the provisions of the Vienna Convention on Diplomatic Relations, diplomats, diplomatic and government couriers, their personal baggage and "diplomatic bags", **are not exempted from security screening.** • Subject to the provisions of Article 27/Paragraph 3. of the Vienna Convention on Diplomatic Relations, "diplomatic bags" will be screened using the x-ray equipment. • Croatia Airlines for objective reasons and on the basis of a risk assessment, may allow that the Croatian government diplomatic bags could be exempt from screening or to be subjected to special security procedures. • Any package, envelope, bag, suitcase, skid, pallet or container may be considered as Diplomatic Shipment. There are no limitations on size or shape specified. According to the Convention diplomatic shipments must bear visible external marks (e.g., "diplomatic pouch" or "diplomatic bag") and bear the official seal of the sending entity. Properly designated diplomatic pouches transported in either the cabin or cargo hold of an aircraft are considered as being "accompanied" by a diplomatic or a diplomatic courier, whenever he/she travels as a passenger on the same flight. • Whenever a diplomatic shipment is transported – accompanied or unaccompanied – the shipper/courier who is entitled to inviolability himself, must provide a diplomatic passport or a document indicating his status and the number of diplomatic pouches he is responsible for transporting (VCDR, Article 27.5). • Only goods protected by the VCDR (confirmed by the embassy/ consulate) may be booked as DIP. Embassies/consulates are required ensure that Article 27.4 of the VCDR is observed ("only diplomatic documents or articles intended for official use"). ***NOTE:*** *Diplomatic goods, which are not entitled to the protections of the VCDR Article 27 are not considered as diplomatic shipments and may not be transported as DIP, e.g., articles for the personal use of a diplomatic agent or family members forming part of his family. Such articles must be booked as Diplomatic Cargo with detailed description of goods (e.g., household goods). According to VCDR, Article 36 their articles are exempted from all customs duties and taxes. However, Diplomatic Cargo is not entitled to immunity from search and seizure.*
Types of DIP	• Diplomatic Mail: ✓ As "Diplomatic Mail" are considered shipments of diplomatic nature specified by the shipper on the mentioned certificate to be "Diplomatic Mail" (DIP MAIL). The confidential nature and the significance of diplomatic mail require utmost care and surveillance when handling such shipments. • Diplomatic Cargo: ✓ Means any goods or property of a government other than "diplomatic mail" which are declared on the certificate as "diplomatic cargo" or "diplomatic bag". Such diplomatic shipments are handled and charged for as normal cargo.

7.5.2. Diplomatic Shipments (DIP) cont.

Restrictions	• Croatia Airlines undertakes the carriage and responsibility of diplomatic shipments from airport to airport only and only for carriage served by Croatia Airlines. • Not even in cases of irregularities may such diplomatic shipments be forwarded by another carrier's flight. • Diplomatic shipments of other than the Croatian Government or its accredited representatives abroad may be accepted as normal cargo only.
Responsibility	• Diplomatic shipments must be kept under constant watch by Croatia Airlines employees from acceptance to delivery. • Any Croatia Airlines employee having acknowledged receipt of a diplomatic bag will be held personally responsible for the shipment as long as it is under his supervision. The only release from this responsibility is the legible receipt of a person who, according to regulations, is responsible to handle or to take delivery of the diplomatic bag.
Acceptance	• On acceptance of diplomatic shipments thorough check must be ensured on: ✓ Proper labelling and marking. ✓ Number of pieces according to the entries on Air Waybill / Manifest as well as identification labels tags. ✓ Proper condition of packaging (i.e., bags) and of the seals. ***NOTE:*** *Diplomatic shipments must not be accepted for carriage if they are not properly sealed or if damaged.* • On acceptance of diplomatic shipments, it must be strictly observed that: ✓ Old markings/labels are removed or obliterated. ✓ Identification tags are used and properly affixed to each shipment.
Handling Instructions	• The following handling instructions shall be given: ✓ In the AWB: “Diplomatic Cargo" in the column "Nature and Quantity of Goods". "Declaration of Diplomatic Immunity" (which indicate that the contents are official correspondence for which special security measures are required), must always be attached to the Air Waybill. ✓ In the Manifest: The declaration of contents according to the AWB must be entered in the column "Nature of Goods"; The handling code "DIP" must be shown in the column "For Use by Operator only". ✓ In the telex message: Abbreviation "DIP".

7.5.2. Diplomatic Shipments (DIP) cont.

Delivery	• The following delivery procedure has to be strictly respected: ✓ Delivery should be made as soon as possible. The diplomatic bag shall be handed over to the consignee against receipt. ✓ The name of the person collecting the DIPLOMATIC bag/shipment as shown in the diplomatic Passport or other Credentials issued by the respective Embassy or Government Agency and number of the document of authorization shall be recorded and taken to the AWB-file. ✓ If the person claiming delivery fails to prove his/her authorization (e.g., does not present diplomatic passport etc.), the Croatia Airlines representative/employee in charge has to check with the Embassy concerned by phone whether the person is entitled to collect the Diplomatic Shipment on hand.
Irregularities	• In case of delays during transportation such as late arrival or interruption of flights, missed connections, incorrect routings etc. the cargo office involved shall care for quickest on forwarding on the first available Croatia Airlines flight, unless other instructions are received. • The station holding a miscarried Diplomatic Bag must immediately inform about irregular handling, i.e., delay messages and notification of the cargo offices at the airport of departure and destination, (in case of transshipment additionally at the airport of transfer). • The airport of departure must immediately upon receipt of irregularity message, inform the shipper and, if applicable, ask for his instructions, to the station holding the Diplomatic Bag (by e-mail and/or SITA message) with copy to airport of destination). • The airport of destination must keep the consignee informed about delayed shipment. • The cargo offices at the airports of departure and destination shall be notified immediately about the damage occurred and the action taken (including forwarding details). • In case where no diplomatic representative of the respective state is located at the place where such damage was noticed, the shipment should be on forwarded after having reconditioned the damaged piece as properly as possible. An appropriate remark shall be made on the "Original for Consignee" of the AWB (original 2), e.g., "Bag found damaged" etc.

7.5.3. Films (FIL)

Segregation

- Unexposed and/or undeveloped films (FIL) must be segregated from radioactive material of categories II and/or III (RRY) as per table below well considering the total time of carriage.

Total sum of TI	Duration of carriage (in hours)					
	2 or less	2 - 4	4 - 8	8 - 12	12 - 24	24 - 48
	Minimum distance (in metres)					
1	0.40 m	0.60 m	0.90 m	1.10 m	1.50 m	2.20 m
2	0.60 m	0.80 m	1.20 m	1.50 m	2.20 m	3.10 m
3	0.70 m	1.00 m	1.50 m	1.80 m	2.60 m	3.80 m
4	0.80 m	1.20 m	1.70 m	2.20 m	3.10 m	4.40 m
5	0.80 m	1.30 m	1.90 m	2.40 m	3.40 m	4.80 m
10	1.40 m	2.00 m	2.80 m	3.50 m	4.90 m	6.90 m

7.5.4. Foodstuffs for Human Consumption (EAT)

General	• Refers to foodstuff other than fish, meat, fruits, and vegetables. Separate regulations exist for: ✓ Fruits and vegetable (PEP), refer to 7.5.5 "Fruits and vegetables". ✓ Fresh fish salted fish and seafood, frozen fish, and seafood (PES). ✓ Meat and meat products (PEM). ✓ PES and PEM must be treated as wet cargo, refer to 7.5.13 "Wet Cargo". ***IMPORTANT:*** *EAT shipments are to be loaded in compartments where low temperature and be maintained.*
Segregation	• EAT are not to be stowed in the same compartment with: ✓ Toxic Substances (RPB). ✓ Infectious Substances (RIS). ✓ Diagnostic specimens, clinical specimens (RDS). • EAT shall not be loaded in the same compartment, (if possible), with: ✓ Strong smelling animals (AVI). ✓ Baggage. ***NOTE:*** *Normally adequate separation between EAT, PEM, PEP, PES and AVI is required.* • EAT shall be adequately separated from: ✓ Human remains in coffins (HUM). ***NOTE:*** *Separation may be achieved by either placing normal cargo between the two incompatible loads or by separate tie-down.* ***REFERENCE:*** *See "Compatibility Table", chapter 7.3.3.*
Handling, Acceptance and Loading	• Handling, acceptance and loading of perishable goods shall be in accordance with requirements of the IATA Perishable Cargo Manual. ***REFERENCE:*** *For more details, refer to "Perishable Cargo", 7.5.12 and "Wet Cargo", 7.5.13.*

7.5.5. Fruits and Vegetables (PEP)

General	• Temperature conditions and segregation from other loads, refer to 7.5.4. “Foodstuffs for Human Consumption (EAT)”. • When fruit or vegetables are loaded, care shall be taken to ensure that enough space for air circulation is left between the packages. This is particularly important to fresh fruit and vegetables having high moisture content (e.g. grapes, berries, salad etc.).
Handling, Acceptance and Loading	• Handling, acceptance and loading of perishable goods shall be in accordance with requirements of the IATA Perishable Cargo Manual. ***REFERENCE:*** *For more details, refer to “Perishable Cargo”, 7.5.12 and “Wet Cargo”, 7.5.13.*

7.5.6. Flowers / Live Plants (PEF)

General	• These products are regarded - besides their classification as perishables - to be "sensitive goods", because - besides perishing - damages such as break-age, bending etc. are likely to occur due to improper physical handling, (e.g. during loading the aircraft, ramp transportation, storage etc.). • Flowers shall be stowed so as to avoid direct contact with the compartment floor or walls. • Flowers shall not be stowed in the same hold as fresh fruit or vegetables due to ethylene gas produced by vegetables which may deteriorate flowers. • Special handling labels like "Fragile", "This Way Up" etc. have to, therefore, be observed.
Handling, Acceptance and Loading	• Handling, acceptance and loading of perishable goods shall be in accordance with requirements of the IATA Perishable Cargo Manual. ***REFERENCE:*** *For more details, refer to "Perishable Cargo", 7.5.12 and "Wet Cargo", 7.5.13.*

7.5.7. Hatching Eggs (HEG)

General	• General rules for handling of hatching eggs (HEG): ✓ Never to be exposed to extreme heat or cold. ✓ Temperatures above 27°C will cause incubation to start and thus ruin the shipment, whereas temperatures below 5°C will kill the embryos. ✓ In case of very cold or very hot weather, the transfer from the cargo department to the aeroplane is to be done as late as possible. ✓ During flight, the temperature must be maintained between 10°C and 15°C. ✓ Flight crew must be informed of the temperature requirements via the NOTOC.
Segregation	• Hatching eggs are not to be loaded in close proximity to: ✓ Cryogenic liquids (RCL). ✓ Dry ice (ICE). ✓ Radioactive materials categories II and III (RRY): distance of minimum 1 m (3 ft., 4 in.) required.
Loading on the Aircraft	• Hatching eggs shall be loaded in a horizontal position. DO NOT stack more than five (5) boxes high. ***CAUTION:*** *The loading of hatching eggs and day-old chicken on the same pallet or within the same BULK compartments is not permitted.* • Supporting and Lashing: ✓ If eggs are placed on top of other cargo, it has to be ensured that cargo can properly support the eggs. Supporting cargo, whether below or around the eggs must be tied down properly, so that it cannot shift and crush the eggs. • Position in the Aircraft: ✓ Hatching eggs shall be stowed in the aircraft so that they do not have to be walked-on or shifted to reach other cargo.
Handling, Acceptance and Loading	• Handling, acceptance and loading of perishable goods shall be in accordance with requirements of the IATA Perishable Cargo Manual. ***REFERENCE:*** *For more details, refer to "Perishable Cargo", 7.5.12 and "Wet Cargo", 7.5.13.*

7.5.8. Human Remains (HUM)

General	• In principle, non cremated human remains in coffins may be carried in any compartment, provided weight and dimensions do not exceed the maximum limitations. ***IMPORTANT:*** *Carriage of Human Remains in coffins is not possible on Dash8 Q400.* • No special rules exist for handling and stowing of funeral urns, provided they are suitably packed. • Human remains (not cremated), must be contained in a hermetically sealed inner coffin of lead or zinc inside a wooden coffin. The wooden coffin may be protected from damage by an outer packing and covered by canvas or tarpaulin so that the nature of its contents is not apparent. • Governmental regulations and orders (e.g. permits, packaging requirements etc.) concerning export/import or transit and/or referring to required documents to accompany shipment (e.g. death certificate, mortuary pass, sanitary certificate) have to be observed (refer to TACT Rules, Information by Countries). • Non-cremated human remains may be carried only when prior reservation for the whole route has been confirmed. • HUM Shipment MUST BE mentioned in NOTOC. The Pilot in Command shall be informed.
Handling Instructions	• The following handling instructions shall be given: ✓ In the AWB: ▪ Handling code "HUM" (only applicable for remains in coffin) in box "Nature and Quantity of Goods". ✓ In the Manifest: ▪ HUM in the column "For Use by Operator Only". ✓ Marking: ▪ "This side up" label. ✓ Specials: ▪ Might have to be handled as HEA.
Loading Instructions	• Coffins must be placed on supporting planks and tied down with ropes or straps, following the normal regulations on loading and securing. • The coffin must be kept in a horizontal position during handling and stowing. • The coffin must be loaded/unloaded with care and respect. • The coffin is only to be loaded in the lower compartments. • The coffin must be covered with a canvas so that the nature of the shipment is not apparent. • To prevent contamination of the compartment floor, a plastic sheet completely surrounding the coffin must be put underneath the load

7.5.8. Human Remains (HUM), cont.

Segregation	• Human Remains are not to be stowed in the same compartment with: ✓ Foodstuff (EAT); ✓ Fruits and vegetables (PEP); ✓ Meat and meat products (PEM); ✓ Fresh fish, salted fish and seafood, frozen fish and seafood (PES); ✓ Live human organs and fresh blood plasma (LHO). • Human remains are not to be loaded in close proximity of Live Animals.
Urns	• Loading and carriage is permitted without special restrictions. No remark on the loadsheet. • Funeral urns containing cremated remains must be packed in an outer box which is efficiently protected against breakage. The outside covering must be entirely neutral and must conceal the content of the box. • Mourning ceremonies on the apron should be avoided.

7.5.9. Living Human Organs and Fresh Blood Plasma (LHO)

General	• General rules for handling of Living Human Organs and Fresh Blood Plasma (LHO): ✓ Usually cooled with Dry Ice (ICE) or Cryogenic Liquids (RCL) and thus to be handled accordingly; ✓ Handling instructions given on the Air waybill or other attached documents must be strictly observed; ✓ LHO are normally transported as manifested cargo, and are booked under handling code "LHO". ***NOTE:*** *Exceptionally and in very urgent cases only, LHO may be accepted unmanifested and handed over to the Flight Crew for transport. If available, a copy of the request/delivery document telex showing a description of the drug / human organ, the name of the recipient as well as that the person collecting it from the aircraft shall be handed over to the crew in these cases.* ✓ Urgent LHO may be carried in the cabin in the care of the crew, if the size allows proper stowage in the cabin. ✓ For urgent LHO shipment, the departure station must notify the station of transfer and the receiving station by separate telex, giving flight number, date, code and position. ✓ No special pre-advice is required for non-urgent blood shipments (serum and plasma). ✓ LHO shipments must be mentioned on the NOTOC (column “Other Special Load). ***IMPORTANT:*** *Croatia Airlines will accept LHO shipments without responsibility on its part for loss or damage due to change of climate, temperature, altitude or other exposure.*
Handling in Delay Situations	• In the event of delay, actions shall be taken to prevent deterioration of the load such as: ✓ Provision of air-conditioning of the aircraft. ✓ Transferring the perishable cargo to warehouse with adequate facilities such as air-conditioning or cold store. ✓ Offloading and rebooking/transferring to another flight. ✓ Monitoring the temperature and refilling the dry ice supply (in case refrigeration containers are used).
Loading	• If loaded in a lower compartment the shipment must be stored at an easily accessible place (e.g. door section). • If loaded in the cabin, following locations shall be used: ✓ A319/320: wardrobe (FWD cabin) ✓ DASH 8 Q400: wardrobe (FWD cabin).

7.5.9. Living Human Organs and Fresh Blood Plasma (LHO), cont.

Segregation

- The following table shows the minimum separation distance required between LHO and other objects:

Material	Separation Distance
Radioactive Material Categories II and III (RRY)	2m
Toxic Substances	Adequate separation
Infectious Substances (RIS)	Adequate separation
Human Remains in Coffins (HUM)	Adequate separation
Live Animals	Adequate separation

LHO Label (specimen)

7.5.10. Magnetized Materials (MAG)

General	• Magnetized Material (MAG) may be trensported on board of an aircraft without limitations. ***NOTE:*** *For special handling and loading instructions refer to section "Miscellaneous Dangerous Goods", 7.3.5.*
Responsibility	• The Cargo Handling Department is responsible that Magnetized Materials are packed according to the relevant packing note of the IATA Dangerous Goods Regulations (DGR) before accepted fro transport. • The Cargo Handling Department is responsible to inform the operations department if other cargo for the same flight is sensitive to Magnetized Material (i.e. Undeveloped Films (FIL), Press Material, etc.). ✓ This information must be entered in plain text in the loadsheet or in the Loadmessage (LDM) under Supplementary Information "SI". ✓ Ensure that cargo which is sensitive to Magnetized Material is not loaded next to Magnetized Material.

7.5.11. Valuable Cargo (VAL)

General	• Referring to the IATA TACT (The Air Cargo Tarrif and Rules), Valuable cargo is defined as: ✓ Any article having a declared value of carriage of USD 1000.00 (or equivalent) or more, per gross kilogram except in the United Kingdom GBP 450.00, or more per gross kilogram. ✓ Gold bullion (including refined and unrefined gold in ingot form), dore bullion, gold specie and gold in the form of grain, sheet, foil, powder, sponge, wire, rod, tube, circles, mouldings and castings, platinum, platinum metals (Palladium, iridium, ruthenium, osmium and rhodium) and platinum alloys in the form of grain, sponge, bar, ingot, sheet, rod, wire, gauze, tube and strip (but excluding those radioactive isotopes of the above metals and alloys which are subject to restricted articles labelling requirements). ✓ Legal banknotes, traveller's cheques, securities, shares, share coupons and stamps (excluding mint stamps from United Kingdom) and ready for use bank cards and/or credit cards. ✓ Diamonds (including diamonds for industrial use), rubies, emeralds, sapphires, opals and real pearls (including cultured pearls). ✓ Jewellery consisting of diamonds, emeralds, sapphires, opals and real pearls (included cultured pearls). ✓ Jewellery and watches made of silver and/or gold and/or platinum. ✓ Articles made of gold and/or platinum, other than gold and/or platinum plated. • In addition, the following commodities must be handled as VAL: ✓ Airline tickets, MCOs and PTAs. ✓ Blank credit cards shipped from or to Head office under cover of a corporate cargo air waybill marked "Valuable Cargo". • Write 'Valuable Cargo' in the 'Nature and Quantity of Goods' column of the air waybill. • For providing adequate security, special handling procedure are required for valuable cargo; • Information on value, contents, rutting and storage must be kept confidential; the details absolutely necessary for handling purposes shall be made available only to the personnel directly involved; • Croatia Airlines has no value limit per shipment as far as Company liability is concerned. This includes shipments with a "Declared value for carriage". • Shipments of extraordinary value must upon request of shipper / agent, be handled as VAL and are subject to the class rate surcharge (refer to IATA TACT), and the valuation charge as per IATA TACT if applicable, (i.e. for VAL as defined under respective chapter in IATA TACT). ***REFERENCE:*** *Refer to IATA TACT "Information by carrier for interline shipments".*

7.5.11. Valuable Cargo (VAL), cont.

<table>
<tr><td>Loading</td><td>

A valuable cargo and those vulnerable goods, which have to be handled like valuable cargo, shall be loaded in the individual aircraft types:
<table>
<tr><th>Aircraft type</th><th>Loading locations</th></tr>
<tr><td>A319 / 320</td><td>net section compartment 51/52</td></tr>
<tr><td>DASH 8 Q400</td><td>AFT Comp.</td></tr>
</table>

Whenever possible, mixed loading of valuable cargo and passenger baggage is not recommended.
It is the duty of the station:

✓ To indicate the loading position according to the loading instruction to the Cargo Agent.
✓ To inform the Pilot in Command verbally about the loading and loading position of valuable cargo.

Diplomatic consignments of Republic of Croatia have priority over VAL consignments.
First loading station has priority over subsequent stations.
Coordination has to be ensured through reservations or directly between the stations concerned.

</td></tr>
<tr><td>Mode “Open Hold” Cargo Compartments (in case of large shipments only)</td><td>

Conditions:

✓ The loading must be supervised by authorized staff (a designated responsible OU staff, Handling Agent), who, prior to loading, shall examine the external conditions of the shipment, ensuring the seals are intact.
✓ The number of pieces loaded must correspond with the total indicated on the Cargo Manifest.
The station file copy of the Cargo Manifest must certify that the checks and the loading have been correctly performed.
✓ The authorized staff (OU staff, Handling Agent staff), must send a telex-preadvice message indicating the compartment number.

</td></tr>
<tr><td>Airport of Departure</td><td>

Filling and sealing of the security bags/VAL boxes must be supervised and checked by authorized staff (OU and/or Handling Agent).
This has to be certified on the station file copy of the cargo manifest and the contents sheet.
The contents sheet must be issued in duplicate.
It must show the serial number(s) of the security bag/VAL boxes used, respective seals numbers used, the AWN No., the destination and the number of packages stowed into each bag/ box.
Copy of the contents sheet shall be placed into the security bag/VAL box.
The original shall be attached to the station file copy of the cargo manifest.
Alternately, the details required for a detailed piece check per security bag/VAL box may be included in the telex preadvise.

</td></tr>
</table>

7.5.11. Valuable Cargo (VAL), cont.

Airport of Destination	• The offload check must be performed by the authorized staff (OU and/or Handling Agent). • The VAL shipment(s) is examined right under the aircraft when offloaded whether the external condition of the shipment(s) and the seal(s) are intact and not damaged and if the seal number(s) coincides with the preadvice telex. • The number of VAL pieces correspond with the manifest, VAL preadvice respectively, and the external condition of the parcels and the seals are intact and undamaged.
Documentation	• Valuable Cargo shall be recorded by the station in the loadsheet with the load information code “VAL”; the next station shall be informed by means of the load message (LDM) abbreviated load information message (ALI), container /pallet distribution message (CPM) or the respective WAB-format.

7.5.12. Perishable Cargo (PER)

General

- Perishable goods are goods, the condition, or suitability for the original purpose of which may deteriorate if exposed to undue changes in temperature and humidity or delayed in carriage (e.g. fruit, vegetables, flowers, meat/fish shipments, vaccines, medical supplies etc).
- Handling and acceptance of perishable goods shall be in accordance with requirements of the IATA Perishable Cargo Manual and IATA Temperature Control Regulations Manual.
- As individual procedures are applicable for different kinds of perishable goods, the following different load information codes have to be used:

Goods	Load Information Code
Foodstuffs for Human Consumption	EAT
Living Human Organs and Fresh Blood Plasma	LHO
Hatching Eggs	HEG
Flowers / Live Plants	PEF
Meat and Meat Product	PEM
Fruits and Vegetables	PEP
Fish and Sea Food	PES
Other Perishable Goods	PER

"Perishable Cargo" Label

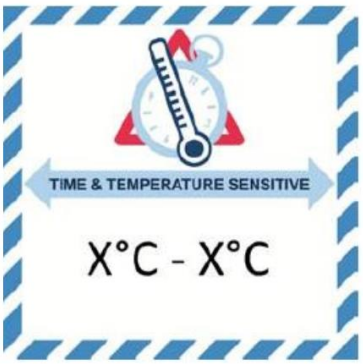
- All packages containing perishable cargo are labelled with 'perishable cargo' label.

ILLUSTRATION:

"Time and Temperature Sensitive" Label

- Healthcare products are all drug products or substances that include – but are not limited to – raw material, active pharmaceutical ingredients (API), excipients, medical devices, biological products, plasma, clinical trial materials or any product identified by the healthcare shipper, at the time of shipment, as temperautre sensitive.
- The temperature range indicated on the "Time and Temperature Sensitive" label always reflects the temperature external (or ambient temperature) to the package allowed during transportation and distribution and not the actual product (internal) temperature.

7.5.12. Perishable Cargo (PER), cont.

"Time and Temperature Sensitive" Label **(cont.)**	• It is the responsibility of the shipper (or designated shipper's agent by service agreement) to ensure the label is applied properly for time and temperature sensitive healthcare cargo shipments booked as such. ***NOTE***: *The lower half of the label must never be left blank and indicate the external transportation temperature range of the shipment. The temperature range must only be shown in Celsius. There must be one temperature range that is identical on AWB, Booking and on the Label.* *ILLUSTRATION:*  ***REFERENCE:*** *For more information refer to the next page and IATA "Temperature Control Regulations" Manual.*
Responsibilities	• Perishables will be accepted, without responsibility on the part of CTN for loss or damage due to change in climate, temperatures or other exposures. • Information pointing to actual or existing embargoes (including import/transit embargoes), and to other restrictions, placed by Croatia Airlines or other airlines/handling companies (e.g. seasonal restrictions, lack of special storage facilities/capacity etc.), shall be strictly observed.
Documentation	• Besides the exact commodity description, the remark "PERISHABLE CARGO", "HATCHING EGGS", "EDIBLE MATERIALS" shall be entered in the box "Nature and Quantity of Goods" of AWB. If necessary, particular information with regard to special handling,(temperature ranges, weight of dry ice etc.) shall be given in box "Handling Information". • Required documents to accompany Air Waybill (AWB) (e.g. phytosanitary certificate, import license) have to be firmly attached to the AWB and to be mentioned in box "Handling Information". • Special handling codes EAT, HEG, LHO or PER shall be entered in box "For Use by Operator Only" of the Manifest; for perishable goods with dry ice as a cooling agent, the code "ICE" shall in addition be entered in this field. • The packages shall be marked with "Perishable" label and, if necessary, with other special handling labels, e.g. "This Way Up" or "Fragile".

7.5.12. Perishable Cargo (PER), cont.

Loading on the Aircraft	• Perishable cargo shall only be accepted for carriage if it is properly packed to avoid damage or contamination to other load or compartments. • Stacking of Single Packages: ✓ Special care shall be taken when stacking single packages containing perishable items (especially in case of fruit, vegetables, live plants) so that the lower layers of the stack are not damaged by the weight of the upper layers. ✓ Pallets with flowers, fruit or vegetables can be covered with plastic foil max.50 cm from the upper rim of the contour, in order to grant a sufficient circulation of air. • Handling as Wet Cargo: ✓ Perishable cargo refrigerated with wet ice or containing fluid/moisture which is liable to leak (e.g. meat, fish or other seafood, fresh, salted smoked or frozen) shall be treated as "Wet Cargo" and handled accordingly. • Dry Ice Used as Cooling Agent: ✓ Perishable cargo refrigerated with dry ice (ICE) shall be handled in accordance with Dangerous Goods Regulations (chapter “Miscellaneous DG”, section 7.3.5); • Procedures for Specific Types of Perishables: ✓ For special procedures applicable for the transportation of fresh meat/fish, hatching eggs (HEG) fresh fruit and vegetables, flowers, live plants, living human organ/fresh human blood (LHO), vaccines and medicines consult instructions given below.
NOTOC	• Perishable goods (including EAT, HEG, LHO) which require special attention during flight, (i.e. recommended temperature or ventilation), shall be entered in form "Special Load - Notification to Captain" in the column "Other Special Load".

7.5.13. Wet Cargo

Definition	• "Wet cargo" means shipments containing liquids or which by their nature may produce liquids and which are not subject to the IATA Dangerous Goods Regulation (DGR). • The following are to be considered as "wet cargo": ✓ Products which contain water or fluids (catering suplies, vegetables, frozen or salted casings /seafood). ✓ Goods where production of liquids is likely (e.g. Live Animals).
General	• During air transportation, all loaded items are affected by changes of temperature, humidity, pressure and vibration. Under these conditions, wet cargo may spill or leak, which could lead to corrosion or other damage to the aircraft structure, or damage to other loads. • To prevent spillage or leakage, the special requirements for shipments conatining wet cargo must be observed. Such shipments must be delivered to the cargo acceptance staff packed absolutely watertight. • The most widely used package is the Styrofoam box due to its good quality against changes in temperature and low weight. • The special handling code for this cargo is specified “WET”. • General rules for handling of Wet Cargo: ✓ Leaking, damaged or weakly packed shipments shall not be loaded. ✓ Avoid crushing of packages when stacked on top of one another, as damp and liquids considerably reduce the strength of certain packaging. ✓ If spilled liquid is discovered in the compartment, apply the procedure decribed in GOM 4.6.‘Unloading Procedures’ and 8.2. Handling, notifying and reporting of Ramp incidents, accidents and other occurences).
Fish and Seafood (Fresh and Frozen) **(PES)**	• Usually packed with dry ice. In this case add code "ICE" on CPM and/or LDM, in addition to code "PES". • A plastic sheet completely surrounding the shipment must be put on the compartment floor and carefully removed (without spilling) when unloading. • Segregation from other load: ✓ Adequate segregation from live animals (AVI) and human remains (HUM); ✓ Not be stowed in the same compartment as toxic articles (RPB, RIS); ✓ If not carried in cooltainers, not to be loaded in the same compartment with shipments requiring a high temperature. ***NOTE:*** *Refer to Compatibility Table in “General Handling and Stowing Instructions”, 7.3.3. and “Foodstuffs for Human Consumptions”, 7.5.4.*

7.5.13. Wet Cargo

Meat and Meat Products	• Refers to fresh and chilled meat packed in double gauze or cardboard boxes. • The following restrictions shall be adhered to when fresh or frozen meat is carried in lower compartment of the passenger aircraft (with or without dry ice): ✓ The structure of the cargo compartments shall be protected by tarpaulins/plastic sheets and insulating material (minimum of 3 layers of strong corrugated paper), and with a layer of packing wool or other insulated material for absorbing any liquids and for insulation purposes. When unlaoding it must be carefully removed (without spilling). ✓ Dry ice shall be kept in wooden box with all sides perforated in order to allow sufficient cooling. A safety hook shall be attached to the top of the box in order to suspend the box from the compartment ceiling. Experience has shown that 5 kg of dry ice per 1000 kg of meat are normally sufficient. ***NOTE:*** *For segregation from other load, see Compatibility Table in "General Handling and Stowing Instructions", 7.3.3. and "Foodstuffs for Human Consumptions", 7.5.4.*

7.5.14. Heavy and Outsized Items (BIG / HEA)

<table>
<tr><td>Definition</td><td>

Heavy Items (HEA):

✓ Single items weighing 150 kg or more which require psecial attention for loading and unloading;

Outsized Items (BIG):

✓ Single items with overall dimensions (length+width+height) of 300 cm or more, which exceed the dimension of one pallet or which can only be loaded with difficulties into bulk compartments.

A HEA and BIG items are to the present regulations any item, which due to its weight and/or size posibly causes:

✓ Loading, offloading and/or lashing difficulties.
✓ Damage to the aircraft.
✓ Excessive ground time.

</td></tr>
<tr><td>General</td><td>

Heavy items must be secured against any movement.

✓ This also applies to such packages which are not marked with a respective heavy-item-label, which, however, are recognized as heavy items due to weight indications on the packages or which due to other circumstances are supposed to be heavy items.

Heavy items shall preferably be loaded on pallets
For items weighing more than 300 kg each, special permission must be obtained from the airline respective departments (cargo@croatiaairlines.hr; cargo.handling@croatiaairlines.hr).
For loading of heavy items in bulk compartments, the following shall be observed:

✓ Heavy items will have to be loaded / unloaded without the risk of damage to the aircraft.
✓ In any case heavy items shall be lashed properly.

Each cargo piece (HEA) has to be marked with special label and, if applicable, with other labels such as "This Side Up" or "Fragile".

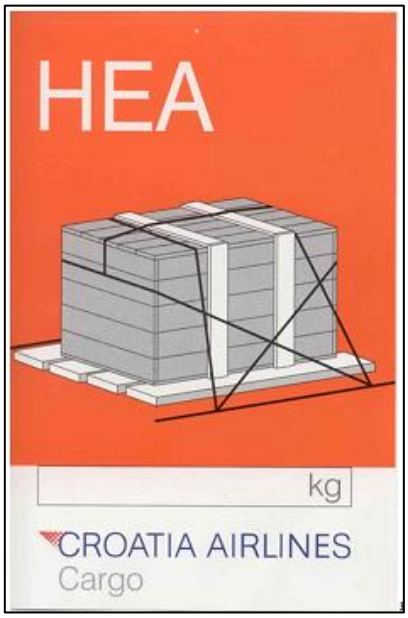
IMPORTANT: The item shall not be accepted if there is any doubt as to the safe performance of the loading and unloading operations.
</td></tr>
<tr><td>Loading Restrictions (HEA)</td><td>

The maximum permissible weight for each heavy item (HEA) depends on:

✓ Aircraft type.
✓ Airport (Handling Agent) facility (equipment and staff).
✓ Scheduled ground times (time needed for loading / unloading).

<table>
<tr><th>AIRCRAFT TYPE</th><th>MAXIMUM WEIGHT</th><th>NUMBER OF PIECES (in total)</th></tr>
<tr><td>A319/320</td><td>300 kg</td><td>3 pcs</td></tr>
<tr><td>DASH8-Q400</td><td>200 kg</td><td>1 pc</td></tr>
</table>
</td></tr>
</table>

7.5.14. Heavy and Outsized Items (BIG / HEA), cont.

Notification	• The 3-letter code HEA and/or BIG must be marked on the LDM/CPM for each compartment position over which the piece is loaded. Complete information (nature, weight, dimensions) must be given in the SI part of the LDM/CPM.
"HEA" Label	
Handling Instructions	• In order to ensure correct performance of loading and unloading as well as safe carriage the following handling instructions must be given: ✓ In the AWB: ▪ Handling code "HEA" and/or "BIG" in the box "Nature and Quantity of Goods". ▪ Weight and dimensions of each heavy piece in the box "Handling Information". ✓ In the Manifest: ▪ The abbreviation "HEA" and/or "BIG" in the column "For Use by Operator Only". ✓ Marking: ▪ "HEA" label. ✓ In the telex message: ▪ Preadvice to the station of unloading requesting special services / advance arrangements. ▪ Always indicate the loading position on the aircraft (compartment).

7.5.14. Heavy and Outsized Items (BIG / HEA), cont.

Loading of Heavy Items (HEA)	• The following loading aspects are to be observed: ✓ Care should be taken when loading and unloading HEA in order to avoid injury to persons, damage to aircraft, equipment and load. ✓ HEA should be packed adequately and loaded to prevent any damage to the aircraft structure or to the rest of the load. ✓ Load spreaders shall be used to prevent exceeding floor loading limitations. ✓ Heavy pieces, when bulk loaded in compartments or net sections, should always be tie-down. ***EXCEPTION:*** *Tie-down is not necessary on single sector flights when compartments/net section is volumetrically full.*
Loading of Outsized Items (BIG)	• An item is defined as outsized item (BIG), if it must be loaded over more than one pallet position due to its dimension. • Loading of oversized cargo is possible by two different methods: **<u>Overlapping piece</u>** ✓ The item will be loaded overlapping on one pallet. ✓ Supporting planks shall be used to provide a minimum distance of 9 cm (3 supporting planks) between the base of the item and the pallet. To secure the pallet and pallet locks and side, restraints shall be used. ✓ The locks underneath the item hall are erected. ✓ The item shall be secured on the pallet by using tie-down straps fastened to or leading over the piece. **<u>Floating pallet</u>** ✓ The item will be loaded on one pallet, which shall be placed in the centre of the cabin. It occupies two pallets positions with its narrow sides in flight direction. In this case locks/restraints must not be used for security of the “floating” pallet; ✓ Using tie-down straps fastened to the aircraft, structure performs the lashing of items loaded on floating pallets. A minimum distance of 50 cm shall be provided between two tie-down rings / stud fittings in the same tie-down track and against the same forces.
Pipes and Bars	• Tubes, bars, beams, and similar items-loaded as single pieces or in bundles-which due to their small cross-section might penetrate the mashes of the pallet net, crash net or the compartment BULK heads, shall be loaded transverse to flight direction whenever possible.

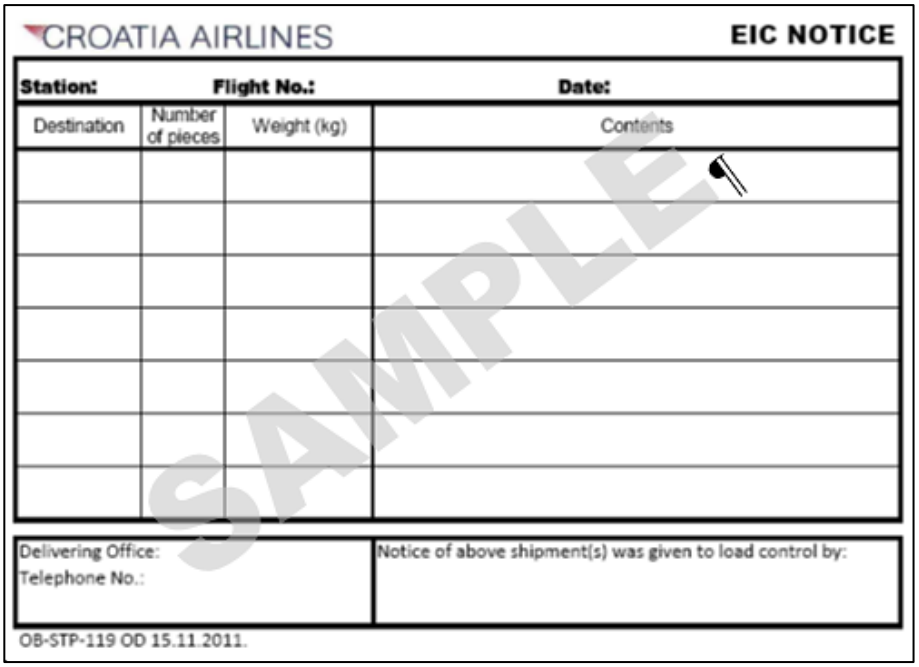
7.5.14. Heavy and Outsized Items (BIG / HEA), cont.

Transportation of Aircraft Engines	• The engine (either completely or partially assembled) is fitted to a special engine air transport stand. The stand will be positioned on the pallet and delivered to the aircraft. • In case of doubts about the proper fastening of the engine to the transport stand, qualified personnel (e.g. station engineer) must check it. • For transportation the engine stand shall be lashed to the pallet by use of straps. In case the shipper performed the lashing, it has to be checked again. • On board the aircraft, the pallet loaded with engine has to be secured either by use of the locking sistem in the compartment or by means of lashing it to the aircraft structure. • On principle, any point of the transport stand-except protective fences - may be used for lashing. The remark “DO NOT LASH HERE” on some transport stands only refers to surface transportation and does not apply to air carriage. ***IMPORTANT:*** *In order to avoid potential damages to the engine, the use of nets for the lashing of transport stands is not permitted.*

7.5.15. Baggage Shipped as Cargo

General	• Unaccompanied baggage (UBAG) may contain only personal wearing apparel and articles of the passenger, which are to be handled and charged at reduced rates. • Baggage-shipped-as-cargo must be delivered to the cargo office at the airport not later than the date of the passenger's departure. • However, it will be within the discretion of Croatia Airlines (and other involved carriers), on which flight(s) the baggage is carried. No guarantee can be given that unaccompanied baggage will be dispatched on the service by which the owner travels, but will be given the priority of dispatch equivalent to cargo booked at the time of its receipt. • If personal effects are packed in suitcases, each suitcase must be well locked. Keys should never be attached to the baggage (risk of pilferage), but enclosed in a strong envelope, properly closed and bearing the following information: ✓ Name and address of consignee. ✓ Air Waybill number. ✓ Number of keys enclosed. • The envelope containing the key(s) must be securely attached to the Air Waybill which shall be endorsed "Key(s) attached in sealed envelope". • In case that suitcases are not possible to lock, endorse the Air Waybill: "Not Locked". In such a case, steel binding (or equivalent) is recommended.
Handling Instructions	• The following handling instructions shall be given: ✓ In the AWB: ▪ A respective indication regarding key(s) has to be given in the box. ✓ In the Manifest: ▪ UBAG in the column "For Use by Operator Only". ✓ In the ticket: ▪ Enter the AWB-number in box "Endorsements/Restrictions" of the passenger coupon of the ticket. ✓ Labelling: ▪ The following labels shall be affixed to each suitcase: ✓ Cargo label. ✓ Two self-adhesive Address. ✓ Sticker bearing the consignee's name and address. ✓ Self-adhesive "Cargo Shipment" band.

7.5.16. EIC Shipments (EIC)

Definition	• Equipment in Compartment (EIC) Shipments are items which are carried in compartments, but which are neither manifested, not included in DOW / DOI data. ✓ Spare parts, tools and equipment in dedicated box* up to 20 kgs. ✓ Stretcher in hold. ✓ Loading accessories. ✓ Catering equipment and food supply for return flights, etc. ***NOTE:*** **Position of the box:A319/320 in Compartment 1; DASH 8 Q400 - Aft Baggage Compartment.*
Marking and Labeling	• Each EIC shipment should be marked with: ✓ The identification label. ✓ The station at which the equipment is controlled (when applicable). ✓ The weight in kg. ***NOTE:****Flight Kit (FKT) shall be identified with a Flight Kit tag not with EIC tag.*
EIC Notice	• In order to consider the EIC in the cargo figures for weight calculation and load planning purposes, the operation department shall be notified about EIC shipments as early as possible in accordance with the local agreements • The delivering office shall complete an EIC Notice which shall contain minimum information and forward it together with the shipment(s) to the loading supervisor. • A copy of the EIC Notice shall be filed with the flight documents.  ***IMPORTANT:*** *This procedure is in the interest of correct weight & balance and proper handling and control of EIC shipment(s).*

CROATIA AIRLINES **EIC NOTICE**

Station: **Flight No.:** **Date:**

Destination	Number of pieces	Weight (kg)	Contents

Delivering Office:
Telephone No.:

Notice of above shipment(s) was given to load control by:

OB-STP-119 OD 15.11.2011.

SAMPLE

7.5.17. Service Cargo

General	• General rules for handling of Service Cargo: ✓ Shall be treated as regular cargo. ✓ Shall be stowed together with other cargo to the same unloading point.
Definition	• Service Cargo is cargo transported free of charge on Croatia Airlines flights. • The following items may be accepted and carried as Service Cargo. ✓ Company shipments such as: ▪ spare parts, ▪ catering supplies, ▪ advertising material, ▪ newspapers, ▪ office material, etc.; ✓ Passengers' "Lost and Found" articles, mishandled cargo and baggage. ✓ Other shipments as authorized by Cargo Sales. ***NOTE:*** *It is strictly forbidden to accept any other shipments as Service cargo, as this would be violation of IATA Regulations.* ***IMPORTANT:*** *Nobody is entitled to authorize forwarding as Service Cargo of any shipment between persons or offices not connected with Croatia Airlines.*
Categories and Priority Status	• Categories: 1. **AOG** - Used for urgently needed aircraft spares and equipment and has priority over all other load. AOG shipments must never be refused or offloaded and shall, through all handling stages be given priority processing. The AOG term is used for: ✓ Aircraft parts and other technical material for Croatia Airlines aircraft without which an interrupted flight could not be continued. ✓ Spare parts of the aircraft utilized by Croatia Airlines to and from line stations and between the technical bases. ✓ Shipments of aircraft parts ordered by Croatia Airlines from foreign suppliers for short-notice modification contract. In case that such shipments have to be transferred to other carriers for onforwarding, the term "AOG" must be used and clearly shown on the Air Waybill. 2. **S-1** - Service 1 cargo is used for urgently needed Company supplies and other shipments of immediate importance. 3. **S-2** - All other items defined as "Service cargo". This category is accepted on space-available basis.

7.5.17. Service Cargo (cont.)

Acceptance	• The acceptance of Service shipments shall be done in the same manner as revenue cargo. • Special Attention should be paid if Service Cargo is subject to the rules of the IATA “Dangerous Goods Regulations” (i.e. gas lighters), or to any other applicable import regulations at the country of destination.
Documentation	• The completion and the issuance of the Croatia Airlines Air Waybill (IATA AWB) and other documents necessary for Service Cargo must conform with the following requirements: ✓ All Service Cargo must as a rule, in addition to other documents, always be accompanied by a packing list / delivery sheet or a “Pro-forma Invoice / Commercial Invoice”. ✓ The nature of each single package must be described giving full details (i.e. description of commodity, quantity, unit and total price per package etc.). ✓ The applicable category of the Service cargo shall be inserted in the box "Commodity Item No." of the AWB, (i.e. S2, S1 or AOG). ✓ The box "Accounting Information" of the AWB shall be completed: "Service cargo" or "For Company Use - not for resale".
Marking and Labeling	• Each piece of Service Cargo shall be marked with "Cargo Identification Label" as normal cargo. • In addition priority status AOG, S1 and S2 is to be inserted in the "Destination" box of the cargo label, (as applicable).

7.6. LIVE ANIMALS

7.6.0. Overview

Contents	This section contains the following: 7.6.1. General Guidelines of Transportation of Live Animals 7.6.2. Protection of Live Animals 7.6.3. Acceptance of Live Animals 7.6.4. Stowing and Loading of Live Animals 7.6.5. Day-Old Chicken or Similar (Poultry) 7.6.6. Bees or Other Insects 7.6.7. Other Live Animals

7.6.1. General Guidelines of Transportation of Live Animals

General	• The application of the regulations in the IATA "Live Animals Regulations (LAR)" manual, is mandatory for the acceptance, handling and air carriage of all species of live animals. ***EXCEPTIONS:*** *Exception of mentioned above is where governmental restrictions or limitation are applicable (see IATA TACT RULES, "Import/Transit/Export Regulations" by countries).*
IATA Live Animals Regulations **(LAR)**	• The IATA Live Animals Regulations (LAR) describe how live animals are delivered for air transport and how the containers must be constructed. • The IATA Live Animals Regulations (LAR) are applicable to: ✓ all airlines which are Members or Associate Members of IATA according to the provisions of Cargo Services Resolution 620. ✓ all airlines which are Members of IATA according to the provisions of Passenger Services Conference Resolutions 780 – Form of Interline Traffic Agreement for Passenger. ✓ all airlines which are party to the IATA Multilateral Interline Traffic Agreement – Cargo • The IATA Live Animals Regulations are accepted by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the World Organization for Animal Health (OIE) as guidelines in respect of transportation of live animals by air. • These Regulations have been used by the Council of Europe as a basis for its code of conduct for the international transport of farm animals. • The European Union (former European Community) has adopted the IATA Live Animals Regulations as the minimum standard for transporting animals in containers, pens, and stalls.
Convention on International Trade in Endangered Species of Wild Fauna and Flora **(CITES)**	• The trade of wildlife is the sale or exchange of animals and plants or their parts and products. The domestic or international trade in wildlife is illegal if it contravenes either domestic or international laws or both. • Trade in CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) protected species and their parts and products is illegal if it violates the provisions of the Convention. • Transnational criminal gangs are exploiting the increasingly interconnected air transport systems to trade wildlife illegally. This illegal trade in wildlife is not only driving many endangered species towards extinction but strengthens criminal networks, poses risks to global health, and threatens nature-based tourism and the communities who depend on it. • In 2015. IATA and CITES signed a Memorandum of Understanding and under this MoU, IATA and CITES have committed to cooperation on the safe and secure transport of CITES specimens and combatting illegal trade in CITES specimens by promoting the implementation and widespread use of agreed upon standards and procedures as described in the IATA Live Animals Regulations and Perishable Cargo Regulations.

7.6.1. General Guidelines of Transportation of Live Animals (cont.)

Responsibilities	• Shipper's Responsibilities: ✓ see IATA "Live Animals Regulations" (LAR), ch.1.2. "Shipper's Responsibilities" • Carrier's Responsibilities: ✓ See IATA "Live Animals Regulations" (LAR), ch. 1.3. "Carrier's Responsibilities" ✓ The responsible station managers (OU staff, if available), OU GHA and OU Cargo Department must make local arrangements with the handling company for the handling of live animals.
Types of AVI	• **Cargo AVI (AVI)** ✓ The accepting Cargo Handling Department is responsible to ensure that these regulations are observed. ✓ All operations related regulations are listed in the following sub-chapters and paragraphs. The station operations department is responsible to ensure adherence to these rules. ✓ Domestic animals (PETS – dogs and cats) of unusual size or other animals must be transported as cargo (AVI). ✓ Special load code for all animals: AVI (exception for thermo-proofed, perishable and airtight packed animals use the special codes PER, AVP or PEB.
	• **Baggage AVI (AVIH)** ✓ Domestic live animals (dog or cat) belonging to a passenger traveling on the same flight. ✓ The accepting Station Operations Department (check-in agent) is responsible to ensure that these regulations implemented in PBHM and GOM are observed. ✓ Special load code. AVIH ✓ Note that 2 dogs or cats may be loaded in one container and this counts as 1 AVIH (see PBHM ch.10.10.2. "Number of Animals per Container").
General Restrictions	• Only animals which appear to be in good health and condition and fit to travel to the final destination may be accepted for carriage by air. • Never load any live animal in bad condition. AVI in bad condition must be refused and banned from transportation. • In case of doubt about health and transportability, do not load the AVI and consult your supervisor or responsible airline staff for clarification. • For Government and Carrier's regulations see IATA "Live Animals Regulations" (LAR), ch.2 "Government Regulations" and ch.3 "Carrier Regulations".

7.6.1. General Guidelines of Transportation of Live Animals (cont.)

Croatia Airlines General and Seasonal Restrictions **(cont.)**	• Croatia Airlines will not accept live animals for carriage in passenger cabin as accompanied baggage. ***NOTE:*** *For exceptions, see PBHM ch.9.6. "Pets in Cabin" and 9.7. "Service Animals".* • **Live Animals sensitive to lower temperatures** ✓ embargo from **November 1st to March 30th**, due to insufficent heat in lower compartment. ✓ such as tropical species, day old chicken, etc. ***EXCEPTION:*** *Live animals that are not likely to suffer from cold weather, (e.g. cats, dogs, etc.), are not subject to this embargo.* • **Live Animals sensitive to higher temperatures** ✓ embargo from **June 1st to September 30th** due to the specific climate conditions that Croatia Airlines cannot control (e.g. at the warehouse, at the ramp, etc.). ✓ such as day old chicken, etc. ***EXCEPTION:*** *Live animals sensitive to higher temperatures will exceptionally be accepted, under special approval of Croatia Airlines, if organization of swift and controlled delivery and pick-up has been arranged by Shipper and Consignee in the shortest possible time before departure and after arrival of the flight.*
Training	• It is mandatory requirement that personnel participating in acceptance and handling of live animals (both passenger check-in and cargo acceptance staff) must be trained in accordance with the standards described in the IATA "Live Animals Regulations" (LAR). • Training records must be available. ***NOTE:*** *For more details regarding Croatia Airlines training requirements, see GOM, ch.6 "Training".*
Embargo's	• Some species may currently be on the Croatia Airlines internal live animal embargo list (to be checked by OU Cargo Sales or Ground Services Department), or may need an additional special permission. NOTE. See PBHM, ch.10.10.2. "Animals in Hold (AVIH)" for further details regarding AVIH embargo procedures.

7.6.2. Protection of Live Animals

Animal Welfare	• The welfare of animals when under the care of ground handling personnel is of paramount importance. • Animal shipments must only be handled by appropriate competent staff. • Disturbance of animal shipments must be minimal. Unauthorized persons and staff must be prohibited from approaching or disturbing animals. • Carrier is responsible to ensure animals are provided adequate protection from the elements and severe weather conditions relative to the species. • Live animals must only be loaded into suitable aircraft compartments authorized by the carrier. • Whenever possible live animals must be protected from: ✓ noise ✓ fumes ✓ drafts ✓ cold surface ✓ bad weather ✓ direct sunlight
Air Supply	• For information on the ventilation system of each aircarft type see GOM, ch.4.5. “Loading Limitations” (4.5.4. – 4.5.6.). • For sufficient air supply and considering that ventilation system in cargo compartment (Airbus fleet) does not exist, following requirements must be fulfilled: ✓ the scheduled block time of the flight must not exceed 4 hours ✓ fill bulk compartment maximum up to two third (2/3) of its volume ✓ keep sufficient distance between cages and between cages and other load (guideline 10 cm) ✓ ventilation outlets of the container must not be blocked by other load, compartment or ULD walls, and if loaded on pallets, not be covered with plastic foils (except fish and molluscs) ✓ to avoid drafts, do not load cages directly in front of air ventilation outlets • At the destination, the compartment doors shall be opened promptly. • If shipments and weather conditions permit, compartment doors are to be kept open during transit ground stops or in case of delays (with or without offloading action).
Cold Surface	• Do not load cages or boxes in: ✓ direct contact with the compartment walls ✓ direct contact with the pallet surface or the compartment floor • Use insulating material (for example, supporting planks, supporting platform or insulating mats), in addition to possibly required absorbent sheets for wet cargo.

7.6.2. Protection of Live Animals, *continued*

Temperature Influence	• In case the outside temperature is not acceptable for the species concerned, especially if it exceeds 29°C or drops below 5°C, the lower compartments used for the transportation of animals must be pre-cooled or heated, respectively, to a suitable temperature prior to loading. This shall be done after consultation with the cockpit crew, whenever possible.

7.6.3. Acceptance of Live Animals

References	• IATA “Live Animals Regulations (LAR)”, chapter 1.3. ”Carrier’s Responsibilities”.
Documentation	• Verify the presence of required documentation, as applicable: ✓ Air Waybill ✓ Shipper’s Certificate ✓ Import/Export permit ✓ Health certificate • For CITES regulated species where and if required: ✓ CITES export permit ✓ Copy of the CITES import permit ***REFRENCE:*** *For more details, see IATA LAR, ch.7 “Documentation”.*
Acceptance and Conformity	• Only animals which appear to be in good health and conditions and fit to travel to the final destination will be accepted for carriage by air. • The shipper is required to declare when animals are pregnant, or have given birth in the last 48 hours. • Special attention must be paid to the following points: ✓ documentation, including Shipper’s Certification and documents required at destination ✓ containers conform to the principle of design ✓ marking and labeling ✓ reservation and routing • When live animals are to be carried by air, carrier must considered several factors, of which the most important are: ✓ type of packaging used ✓ type of aircraft used ✓ the amount of required space in the cargo compartment is available ✓ the environment conditions in those compartments: ▪ ventilation rates and airflow direction ▪ heating or cooling provisions ✓ the environment conditions at intermediate stops and the climatic effects on ground during loading, unloading and ground transport ✓ the best possible location within the cargo compartments ✓ the presence of other load affecting the animals ✓ the necessity of of in-flight attendance ✓ the availability of ground storage facilities

7.6.3. Acceptance of Live Animals, *continued*

Animal Welfare	• See GOM, ch.7.6.2." Protection of Live Animals".
Regulations	• Carrier must ensure all state and operator variations are complied with. ***REFERENCE:*** *IATA "Live Animals Regulations (LAR)", chapter 2.*
Live Animal Acceptance Checklist	• A Live Animal Acceptance Checklist must be completed for each consignment. • Croatia Airlines uses the IATA checklist. ***REFERENCE:*** *IATA "Live Animals Regulations (LAR)", ch.7.6.*
Carrier's Liability	• Carrier will not be liable for any loss, damage or expense arising from death due to natural causes, or death or injury of any animal caused by the conduct or acts of the animal itself, or of other animals such as biting, kicking, goring or smothering, nor for that caused or contributed to by the condition, nature or propensities of the animal, or by defective packing of the animal, or by the inability of the animal to withstand unavoidable changes in its physical environment inherent to the carriage by air. In no event will the carrier be liable for death or injury to an animal attendant caused, or contributed to, by the condition, conduct or acts of animals. ***REFERENCE:*** *IATA "Live Animals Regulations (LAR)".*

7.6.4. Stowing and Loading of Live Animals

References	• IATA “Live Animals Regulations (LAR)”, chapter 10.” Handling Procedures”.
Stowing and Loading Instructions	• Live animals must only be loaded into suitable aircraft compartments authorized by Croatia Airlines. • Only animals which appear to be in good health and condition and fit to travel to the final destination may be accepted for carriage by air. Never load any live animal in bad condition. AVI in bad condition must be refused and banned from transportation. • Live Animals are only to be accepted for carriage if properly packed in accordance with the IATA “Live Animals Regulations (LAR)”. • Do not load live animal containers into closed Unit Load Device (ULD), with the exception of animals that follow the container requirements CR51-CR52, CR56-CR59, CR62-CR66 (e.g., fish, molluscs). • From acceptance to delivery at the destination animals shall be protected from noise, fumes, drafts, direct sunlight, and bad weather conditions, whenever possible. • The maximum stowing density for breathing animals is 50kg/m^3. • Live animal containers must always be: ✓ inspected prior to loading ✓ loaded in an upright and level position. Avoid unnecessary tilting and jolting of containers ✓ secured against movement during take-off, flight, or landing ✓ stowed in such a way that there is enough distance to other containers and other load to guarantee a sufficient air supply • Live animal containers must not be: ✓ loaded directly on the floor of the compartment, but placed on spreader boards (planks) to prevent the transfer of cold from the airframe to the container ✓ stowed underneath other load ✓ loaded on top of other load ✓ loaded directly in front or below air ventilation outlets • Following kinds of live animals must be handled as WET cargo: ✓ mammals ✓ fish ✓ moluscs Plastic or absorbent sheets for WET cargo must be placed underneath the containers to avoid contamination of the compartment floor. • When special care for the animal is required, e.g. during transit stops, containers should be accessible. • Precautions must be taken to prevent other load from shifting, falling or leaning onto the live animal container.

7.6.4. Stowing and Loading of Live Animals, *continued*

Stowing and Loading Instructions **(cont.)**	• Animals should be loaded as close as possible to the aircraft departure time with the compartment door open as long as possible. They should not be left standing unnecessarily in the open, nor on standing aircraft when the departure is delayed. • Necessary equipment and facilities to unload the live animals at destination should be made available prior to the aircarft arrival. • At destination or transit stations (even if there are no loading activities), the compartment doors shall be opened as quickly as possible. ***NOTE:*** *For further details regarding protection and segregation of live animals, see GOM, ch. 7.6.2. "Protection of Live Animals" and section "Segregation" of this section.*
Securing	• Live animal containers, cages or transport boxes must always be secured against movement during take-off, flight or landing. ***NOTE:*** *For plastic kennels do not use tie-down straps.* • On pallets preferably use the pallet net. • Securing of live animals load into bulk comparments: ✓ preferably use a separate net sector, or ✓ tie-down all other load in the same net sector If this is not possible: ✓ load only baggage (preferably soft bags), low density cargo, mail bags or similar into the same net sector (max. weight per unlashed piece is 50 kg) ✓ distribute the load evenly over the floor of the net sector and max. up to the height of the smallest animal cage in this net sector ***IMPORTANT:*** *Leave some space around the containers (cages, boxes) for ventilation* ✓ whenever possible load the containers (cages, boxes) at the AFT end (in flight direction) of the net sector to avoid pressing of the other load on the live animal shipments during braking action after touch-down
Segregation	• **IMPORTANT:** For segregation of live animals from other special loads see Compatibility Table in GOM, ch.7.3.3. "General Handling and Stowing Instructions". • Live animals shall not be loaded in close proximity to other loads which may have a negative effect on their health and welfare. • Live animals must not be loaded and stored in close proximity to hot or frozen (high or low temperature) packages (containers) and must be separated from other live animals or other cargo requiring broad different ambient temperatures. • Animals which are natural enemies (e.g. cats and dogs) may be loaded in the same hold provided they are not in sight of one another. • Female animals in heat must be stowed as far away as possible from male animals. • Shipments of laboratory animals must be segregated from other animal shipments to reduce the risk of cross-infection or contamination. • Animals must not be loaded in close proximity to foodstuff.

7.6.4. Stowing and Loading of Live Animals, *continued*

Segregation (cont.)	• Live animals must not be stored or loaded close to human remains (HUM). • Animals must not be loaded in close proximity of dangerous goods (DG): ✓ cryogenic liquids (e.g. liquid argon and nitrogen) ✓ Carbon dioxide, solid (dry ice) ✓ shipments packed in dry ice As the vapor emitted by Carbon dioxide, solid (dry ice) are heavier than air, they concentrate on the lower level of the hold. Therefore, live animals should be stowed above packages containing Carbon dioxide, solid (dry ice). For insects, the use of dry ice within the package may be perimtted. ***NOTE:*** *In certain circumstances Carbon dioxide, solid (dry ice) may be packed with live animals as a coolant (e.g. bees). All other requirements for the transport of Carbon dioxide, solid (dry ice) must be meet.* When live animals are loaded with packages, overpacks or freight containers bearing the radioactive labels of Categories II-Yellow or III-Yellow, the following separation distances must be maintained: ▪ 0.5 m (19.5 in) or more for journeys of 24 hours or less, and ▪ 1.0 m (39 in) or more for journeys of more than 24 hours ***NOTE:*** *For radioactive material bearing the Category I-White label, separation is not considered necessary.*
Loading Possibilities and Limitations	• The number of live animals (incl. domestic, breeding or zoo animals) in hold and containers/crates/kennels are limited per aircraft type to: ✓ maximum dimension based on the dimensions of the compartment door opening and maximum dimension table. ✓ maximum quantity in the compartment. ✓ maximum single item weight. ✓ ventilation rate of the compartment. ***REFERENCE:*** *For loading limitations and specific aircraft type compartment loading guide refer to GOM, ch.4.5."Loading Limitations", 4.5.4."A319 Compartments Loading Guide", 4.5.5."A320 Compartments Loading Guide" and 4.5.6."Dash 8 Q-400 Compartments Loading Guide".* • If loading of live animals is planned, for which no loading regulations are published in GOM, or if exceeding of the permissable maximum amount is necessary, a specail request and permission must be asked from Cargo Sales Department (cargo@croatiaairlines.hr) and Cargo Handling Office (cargo.handling@croatiaairlines.hr). Same applies if deviations from loading procedures become necessary. • Aircraft compartments used for transportation of live animals (livestock) shall not be filled by more than 2/3 of their volume in order to guarantee a sufficient air supply (see ch.7.6.2."Protection of Live Animals"). For Airbus fleet (A319/A320): ✓ from 250 kg of live animal in one compartment (hold), no additional baggage/cargo/mail inload permitted

7.6.4. Stowing and Loading of Live Animals, *continued*

Loading Possibilities and Limitations (cont.)

- Depending on the actual dimensions of the live animal container/cage/box/kennel (refer to IATA "Live Animals Regulations (LAR)", ch.8) animal shipment might have to be handled and loaded as heavy and outsized item (HEA/BIG).
- The table below shows operational limitations on **domestic animals (AVIH/AVI cargo and/or baggage - cats and dogs)** in hold per aircraft type:

AIRCRAFT TYPE	COMPARTMENT	NUMBER OF CONTAINERS / CRATES / KENNELS	MAX. DIMENSIONS
A319	Forward Hold (1)	1 (see Notes)	125x85x85 cm
	Aft Hold (4,5)	2 in hold 4 (see Notes)	125x85x85 cm
A320	Forward Hold (1)	2 (see Notes)	125x85x85 cm
	Aft Hold (3,4)	2 (see Notes)	125x85x85 cm
	Rear Hold (5)	n/a	n/a
Dash 8 Q400	Forward Hold (5)	n/a	n/a
	Aft Hold (6)	1 (see Notes)	80x55x55 cm

Notes:

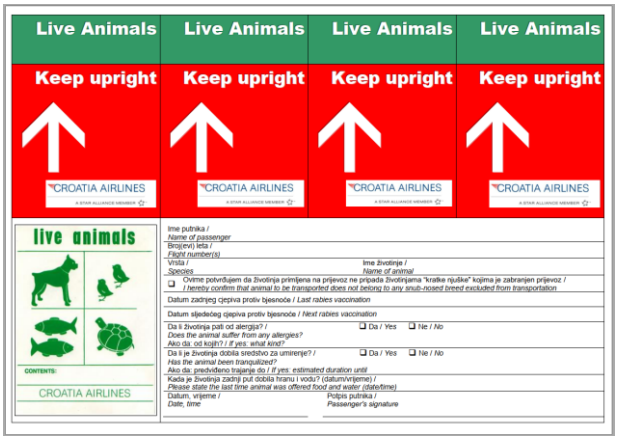
1. Allowances given in this table includes baggage AVI (AVIH) and cargo AVI (AVI) – domestic animals, e.g., cats and dogs only.
2. Due to ventilation rate of cargo compartments (holds) restrictions, any additional animals in hold, on top of the maximum number indicated in the table depends on remaining load capacity (baggage/cargo/mail load, see 3.) and must be confirmed by Croatia Airlines Cargo Department (cargo@croatiaairlines.hr) and/or Cargo Handling Office (cargo.handling@croatiaairlines.hr).
3. Acceptance depends on remaining load capacity – max. weights and container/cage dimensions applicable).
4. Acceptance of two animals of comparable size in one container is possible, if they are used to cohabitation and each animal is able to move, stand or lie in the container/cage and provided they do not exceed the total maximum weight.

Number of Domestic Animals (Cats and Dogs) per Container

- Only one animal per container (see exceptions below).
- Acceptance of two animals of comparable size in one container is possible, if they are used to cohabitation and each animal is able to move, stand or lie in the container/cage and provided they do not exceed the total maximum weight.
- Weaned puppies or kittens may travel well together in the same primary enclosure and they must be from the same litter.

IF THE ANIMAL IS	THEN YOU MAY ACCEPT PER CONTAINER
adult	2 animals of comparable size and up to 14 kg each
young (up to 6 months)	3 animals (up to 14 kg/30 lbs each)

7.6.4. Stowing and Loading of Live Animals, *continued*

Watering and Feeding the Live Animals	• Cats and dogs may be given water, if necessary. Only water suitable for human consumption may be given (no iced water). • Generally, it is not necessary to feed live animal in transit. If this is required in transit, it is the Shipper's responsibility to make advance arrangements for feeding. • Animal food and/or other items shall be entered in the box "Handling Information" of the Air Waybill.
Live Animals Container Requirements	• See IATA "Live Animals Regulations (LAR), chapter 8." Container Requirements", PBHM, ch.10.10.2." Animals in Hold (AVIH)" and GOM, section "Stowing and Loading Instructions" of this chapter.
Marking and Labeling	• See IATA "Live Animals Regulations (LAR)", chapter 9. "Marking and Labeling" and PBHM, ch.10.10.2. "Animals in Hold". • Examples of Croatia Airlines stickers: AVI sticker AVIH sticker 
AVIH Embargo	• See PBHM, ch.10.10.2." Animals in Hold (AVIH)".
Snub-nosed Breed Restrictions	• See PBHM, ch.10.10.2." Animals in Hold (AVIH)".
Fighting Dogs	• See PBHM, ch.10.10.2." Animals in Hold (AVIH)".
Irregularities	• Delay of, or damage/injury to live animal shipment must be handled as a priority. • In the event of unexpected incidents, cargo offices and/or handling agents en-route have to take care for feeding and watering of animals - along with other, possibly required, precautionary measures in accordance with IATA "Live Animals Regulations (LAR)". In case of doubt, nearest official veterinarian should be contacted

7.6.4. Stowing and Loading of Live Animals, *continued*

Documentation **Handling Instructions**	• Refer to IATA "Live Animals Regulations (LAR), ch.7. • The following handling instructions shall be given. • **AIR WAYBILL** ✓ in the field "Nature and Quantity of Goods": ▪ in capital letters "LIVE ANIMALS", name of species/breed and number of animals ✓ in the field "Handling Information": ▪ Shipper's certification for live animals attached and ▪ documents to accompany AWB like certificate of vaccination/health, permits for import, transit, etc. • **MANIFEST** ✓ live animals' acceptance check list: ▪ "AVI" in the column "For Use by Operator Only" ▪ all columns must be fulfilled and assigned by authorized Handling agent or Shipper according to IATA "Live Animals Regulations (LAR)" ▪ must be attached to AWB and Shipper's certification • **MARKING AND LABELING** ✓ label "Live Animals" properly completed, and animal species entered ✓ label "This side-up" to each animal container • **MESSAGES** ✓ in the telex message include abbreviation "AVI" • **SPECIALS** ✓ might have to be handled as HEA • **NOTOC** ✓ shall be completed for each live animal transport and handed over to the flight deck (pilots) ✓ it makes no difference if the live animals are shipped as cargo or as checked baggage

7.6.5. Day-Old Chicken or Similar (Poultry)

General	• Observe all rules of "Protection of Live Animals" (GOM, ch.7.6.2.), "Stowing and Loading of Live Animals" (GOM, ch.7.6.4.) and IATA "Live Animals Regulations (LAR)". • A poultry is common name for day-old chicks, young turkey poultry, ducklings, and goslings. • Day-old chickens are extremely sensitive to draft and temperature conditions, therefore risk of mortality is very high.
Protection	• Preferred temperature range: 12°C – 18°C. • Adverse weather conditions such as direct sunlight, rain, wind, or cold are particularly harmful to these animals. **IMPORTANT:** Day-old chicken shall be delivered to the aircraft for loading as late as possible. • Due to their extensive production of heat (especially when shipped in large quantities), day-old chicken shall always be loaded in a way that both adequate air supply and air circulation are ensured. • If possible, especially if the outside temperature exceeds 25°C, the compartments concerned shall be pre-air conditioned. The cooling air must not blow directly towards the chicken. • In case chicken are loaded on pallets and transit stations are not equipped with air conditioning units, the chicken pallets have to be unloaded and stored in a protected, shaded area during ground time.
Bulk Loading	• Boxes must not have direct contact with the compartment walls or the compartment floor. • Put at least one layer of insulating material, for example supporting planks, supporting platform, or insulating mat, between the boxes and the compartment walls or floor. • Maximum stacking: 5 layers of chicken boxes. • Minimum distance between the top layer and the compartment ceiling: 20 cm (about 8"). • Keep an empty space of minimum 10 cm (about 4") around every stack for sufficient air circulation. • Tie down the individual stacks so that these spaces will stay during flight.
Loading on Pallets	• Load pallets with day-old chicken in the hold door area, whenever possible. • When loading other cargo in the same compartment (hold), maximum weight of poultry can be obtained my multiplying 20 Mg per sqm of poultry by the remaining volume (sqm) of the compartment (hold). • When building up a pallet: ✓ boxes must bever have direct contact with the pallet surface ✓ put at least one layer of insulating material, for example supporting planks, supporting platform, or insulating mat between the boxes and the pallet surface

7.6.5. Day-Old Chicken or Similar (Poultry), *continued*

Loading on Pallets **(cont.)**	✓ put the chicken boxes on planks laid out parallel to the longer pallet side, if possible (this give more stability) ✓ use spacers, if available ✓ maximum stacking in the compartment (hold): ▪ 10 layers of carton boxes, or ▪ 12 layers of plastic boxes
Information to Cockpit	• NOTOC.
Messages	• Enter the remark “LIVE CHICKS” in all messages about load on board under SI.
At Transit Stations	• If day-old chicken is in transit and internal or external air-conditioning of the compartment (hold) is not possible during ground time: ✓ chicken must be unloaded and stored in a protected, shaded area during ground time
At Destination	• Open the hold doors as quickly as possible. • Unload day-old chicken as soon as possible.

7.6.6. Bees or Other Insects

General	• Observe all rules of “Protection of Live Animals” (GOM, ch.7.6.2.), “Stowing and Loading of Live Animals” (GOM, ch.7.6.4.) and IATA “Live Animals Regulations (LAR)”.
Protection	• Avoid cold draft. • Preferred temperature range: 5°C – 20°C • If outside temperatures exceed 25°C during transit or during longer transfer times to connecting flight: ✓ spray water on and through the ventilation grids of the bee boxes, if possible
Loading	• Use spacers to separate bee boxes from each other. • Boxes must not have direct contact with the compartment walls and the compartment floor. • Put at least one layer of insulating material, for example supporting planks, supporting platform, or insulating mat between the boxes and the compartment walls or floor.

7.6.7. Other Live Animals

General	• Observe all rules of “Protection of Live Animals” (GOM, ch.7.6.2.), “Stowing and Loading of Live Animals” (GOM, ch.7.6.4.) and IATA “Live Animals Regulations (LAR)”.

7.7. CARGO AND MAIL HANDOVER

7.7.0. Overview

Contents	This section contains the following: 7.7.1. Cargo and Mail Handover

7.7.1. Cargo and Mail Handover

General	• The procedures address the handover process between Cargo Handling (cargo warehouse) and Ground Handling (ramp) departments.
Handover Point	• Depending on the airport infrastructure and/or local agreements, the handover of cargo/mail to the ramp should be done at a dedicated handover point.
Responsibilities	• Depending on local agreements, transportation from the cargo warehouse to the ramp may be performed by either cargo personnel or ground handling personnel. • At the handover point: ✓ receive all documentation and instructions for the specific flight. ✓ make sure that any GSE used for transportation is serviceable for both loose cargo/mail and/or built up ULDs. ✓ comply with any limitations regarding the maximum number of dollies in a “train of dollies” as per local requirements. ✓ expect all cargo/mail to ensure that: ▪ the cargo/mail intended for transport is the correct cargo/mail for the departing flight(s). ▪ the cargo/mail has no signs of being tampered with. ▪ no damage has occurred during the transport process. ▪ no nets, ropes, straps, protective materials, etc. are able to drag on the ground or get jammed in rollers, ball-mats or wheels. ▪ all built-up cargo/mail is safe to move and will not shift, roll or topple. ▪ all dollies are serviceable and all restraints are engaged to secure the ULD on the dollies. • Hand over all documentation, pouches and special instructions for the applicable flight, as per operating airline procedures. • Ensure the cargo/mail is protected from adverse weather conditions, if applicable. ***NOTE:*** *For more details refer to section 4.1.4. “Positioning of Load”.*

7.8. AIRCRAFT BALLAST

7.8.0. Overview

Contents	This section contains the following: 7.8.1. Ballast

7.8.1. Ballast

General	• Ballast is used to eliminate trim difficulties when the available load or special loading instruction requires an adjustment. ✓ Each ballast bag must weight 25 kg. It must be filled with gravel. ✓ Only bags in perfect condition shall be stowed into the aircraft to avoid that gravel gets into the cargo compartments and thereby causes damage to aircraft or load. ✓ Ballast bags must always be stowed next to the compartment door, never amongst after load. Ballast must be of loaded at every station. ✓ When ballast is required for the next flight sector, it shall be loaded again as last item. ✓ Ballast shall not be returned to the station of unloading except the ballast which is borrowed and which is expressly requested by the station of unloading to be returned. ***IMPORTANT:*** *On DASH 8 – Q400 ballast of 200 kg is mandatory in zone cargo compartment 6 (aft cargo)* ***for training flights only*** *(crew code 2+0 and 3+0).*

8. CROATIA AIRLINES SAFETY MANAGEMENT

8.0. Overview

Contents	This chapter contains the following sections: 8.1. Croatia Airlines SMS 8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences 8.3. Airside Safety Investigation Procedure 8.4. Emergency Response Procedures 8.4.0. Overview 8.4.1. Emergency Response Actions 8.4.2. Emergency Evacuation of Passenger and Aircrew 8.4.3. Emergency Evacuation of Ground Personnel (No Aircrew Present)

8.1. Croatia Airlines SMS

General	• Safety Management System is used in Croatia Airlines to ensure the efficient and effective evaluation of Croatia Airlines' experience relating to safety occurrences, as well as to the promulgation of related information. • One of the main roles of the System is to achieve and maintain high levels of safety performance and risk awareness by all operations personnel. Furthermore, Risk Management which includes Risk Assessment is implemented as an integral part of Safety Management System. • This shows the intended nature of the System in Croatia Airlines: to move beyond mere compliance with regulatory requirements (Safety by compliance) further to the higher state – the positive safety culture within Croatia Airlines (Prevention by Planning). • The System is designed to be proactive when dealing with safety and is even intended to be predictive in finding systemic deficiencies within the company. • The System is based on Error Management principles saying that errors do and will occur as long as humans' function in complex environments. As "zero error" state is not an attainable goal Croatia Airlines Safety Management System is using all available data to understand the causes of errors so appropriate actions can be taken to prevent recurrence, minimize the number of errors and consequences should there be a recurrence. • Actions include and are not limited to changing policy, procedures, training, promulgation of information, minimizing exposure (reducing frequency or stopping operation etc. • The System basically covers five distinct elements within Croatia Airlines: ✓ **OPERATIONS** (flight risk analysis and contact with regulatory authorities (Safety Operations), Cabin Operations, Flight Operations including Flight preparation (operations engineering and flight dispatch), Ground Operations (including dangerous goods), contact with manufacturers (Technical pilots)). ✓ **MAINTENANCE AND ENGINEERING**. ✓ **SECURITY.** ✓ **ERCM.** ✓ **ATO.** • Croatia Airlines has an integrated Quality and Safety Management System subordinated directly to the Accountable Manager. It is a companywide System originating at the top management level and spreading throughout and therefore making Safety – Everybody's business". • To achieve above, it is essential that there is full and free reporting of all occurrences that affect safety. In most cases, shared experiences of errors are the first signal in developing trends. • The Safety Action Group uses reports to come up with corrective actions through the process of Risk Management (includes Risk Assessment). • A corrective action on a developing trend in early stages is the very essence and the main purpose of the proactive Safety Management System. In the predictive part of the System, the Safety Action Group assesses the influence of the reported occurrence to safety areas other than the most obvious and/or reported one. ***REFERENCE:*** *For more details, refer to OM-A, chapter 03.01.*

8.1. Croatia Airlines SMS (cont.)

Allocation of Duties and Responsibilities	• Safety Operations is a part of Quality, Safety and Security Office which is subordinated directly to the Accountable Manager. • Safety Manager has direct access to the Accountable Manager and all management. He is authorized to conduct audits/inspections in connection with any aspect of the operation. • The Department is staffed as follows: ✓ Safety Manager Operations, part time position (office). ✓ Safety Operations Specialist full time position and Cabin Safety Coordinator, part time position (office). ✓ Ground Safety Coordinator, part time position (outpost ZAG airport). ✓ Quality and Safety Manager Technical. ✓ Safety Pilot fleet Q400, part time position (office). ✓ Safety Pilot fleet A32F, part time position (office). ✓ FSAG manager, part time position (office). • Duties and responsibilities of Ground Safety Coordinator are: ✓ Develop and maintain a part of the SMS related to ground operations. ✓ Develop and maintain documents related to ground operations safety/security and emergency procedures. ✓ Manage the use of ground operations safety/security reports. ✓ Distribution of ground operations safety/security documents to ground operations staff. ✓ Analysis of trends. ✓ Promulgation of information throughout CTN. ✓ Liaise with all relevant CTN departments. ***NOTE:*** *Duties and responsibilities for other Safety Department members are described in OM Part A, chapter 03.03. "Allocation of duties and responsibilities".*

8.1. Croatia Airlines SMS (cont.)

Safety Policy	• All Operations Personnel and Maintenance personnel involved (technical finding) should therefore report any events affecting safety (by means of an Air Safety Report, Bird/Wildlife strike Report, Confidential Report, Fatigue Report, Operations Control Log, Voyage Report, Cabin Safety Report, **Ground Safety Report**, Internal Occurrence Reporting System or directly to Safety Manager Operations or Quality Manager) and cooperate fully throughout any investigation. • The purpose of an internal investigation is to establish facts and cause, to prevent a recurrence. The purpose is not to apportion blame or liability. **As a matter of general safety philosophy: the right questions to ask will always be what happened, why it happened and how to prevent it from reoccurring?** • Questions like who has done it and how to sanction the person - shall, must and will be dismissed immediately. ***Croatia Airlines shall not institute any disciplinary procedures in response to the reporting of any occurrence affecting safety, unless behaviours like wilful violations, reckless conduct (gross negligence) or destructive acts has been detected.*** • To the above ends, procedures exist to ensure that all acquired information will be treated in confidence. • Analysis, Hazard Identification and Risk Management and identification of trends will be produced primarily from filed reports through Croatia Airlines Reporting System, Flight Data Monitoring, received reports from ATC, Airport or CAA, Internal Investigations and information obtained by company Quality System. However, Safety Manager Operations and the Safety Action Group will address any credible report on safety regardless of the form it came in (e.g., verbally communicated). However, Safety Manager Operations and the Safety Action Group will address any credible report on safety regardless of the form it came in (e.g., verbally communicated). • Information and instructions regarding safety of operations shall be communicated to all involved personnel through periodic safety reports, Company NOTAMs, circular letters, Safety Monthly Review publications, Technical Quality Bulletin, Ground Refresher Safety Review, revisions of relevant parts of manuals, procedures and handbooks and/or revisions of initial and recurrent training programs. ***REFERENCE:*** *Refer to OM-A, chapter 03.01. A.*
Just Culture	• As stated in Safety Policy Croatia Airlines has established a Just Culture in which front-line operators or other persons are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, willful violations and destructive acts are not tolerated. Also, Croatia Airlines will protect the identity, to the extent permissible by the law, of any employee who provides flight safety information through established reporting system. **Shared Values** • Culture is defined as a set of beliefs, values and attitudes that are shared by a society. • Similarly, the Croatia Airlines Just Culture is a set of values and attitudes that are expected to be shared by everyone at every level of the organization.

8.1. Croatia Airlines SMS (cont.)

Just Culture (cont.)

- Diligence, vigilance, openness, fairness, individual responsibility, and mutual trust are common and essential values at all levels and in all activities.
- We expect from each person within the organization to adhere to these common values and to actively foster these Just Culture principles continuously. Executives and managers shall make an effort to reflect these company values in all their interactions and communication with staff and third parties.
- The aim is to create an atmosphere of trust in which everyone is encouraged for providing essential safety-related information - but in which is clear where the line must be drawn between acceptable and unacceptable behavior.

Principles

- A Just Culture supports learning from incidents with safety improvement as the primary goal. Any safety event, especially human factor and organizational related occurrences will be firstly considered as a valuable opportunity to improve operations through experience, feedback and lessons learned.
- The following key elements are required:

Trust

- All involved should actively foster mutual trust and respect and promote support and cooperation to build the necessary trust. Trust is the first prerequisite for system functioning.

Independence

- Safety Operations is part of Quality, Safety and Security office and is independent of other organizational units within the Company. All safety reported occurrences are kept within Safety Operations.

Reporting

- Reporting system is established to provide easy access to various reports so every employee can report any occurrence that affects or might affect safety. Received reports are de-identified and only collected data from reports are used for the maintenance and improvement of safety.

Motivation and Promotion

- All employees are encouraged to report all-safety related occurrences, without prejudice, including those which are not listed in mandatory occurrence report list within 72 hours of becoming aware of the occurrence, unless exceptional circumstances prevent this. The importance of reporting is always addressed during training/refresher courses.

8.1. Croatia Airlines SMS (cont.)

Just Culture (cont.)	Acknowledgement and feedback • Acknowledgement and feedback are given to every report received and processed by Safety Operations. Additionally, significant occurrences, all incidents and accidents and lessons learned are communicated to all staff via defined publication as part of safety promotion. **Just Culture Model** • All investigations shall be conducted objectively and confidentially without prejudice and based only on collected facts. The investigation must not be done to apportion blame and must not be restricted only to the individual error but shall also address other causal/contextual factors and latent conditions such as company standards and procedures, training, supervision, as well as practices and circumstances prevalent at the time of the incident. ***NOTE:*** *Details on conducting an internal investigation are described in OM-A, Ch. 03.01 B2 Internal Investigation.* • All human actions can be defined in terms of the contribution of three basic elements: 1. INTENTIONS that specify an immediate goal or the behavior required to achieve an outcome. 2. ACTIONS that occurred subsequent to the intention. 3. CONSEQUENCES of the actions taken. • Four types of unsafe behaviour: 1. **Human error** – when there is general agreement that the individual should have done other than what they did. 2. **Negligent conduct** – negligence is conduct that falls below the normal standard. It applies to person who fails to use the reasonable level of skill expected of a person engaged in that particular activity, whether by omitting to do something that a prudent and reasonable person would have done in the circumstances. 3. **Reckless conduct (gross negligence)** – more culpable than negligence. It involves person taking a conscious unjustified risk, knowing that there is a risk that harm would probably result from the conduct, and foreseeing the harm, he or she nevertheless took the risk. According to Regulation 376/2014: situations where there has been a manifest, severe and serious disregard of an obvious risk and profound failure of professional responsibility to take such care as is evidently required in the circumstances, causing foreseeable damage to a person or property, or which seriously compromises the level of aviation safety. 4. **Willful violations** - when the person knows about or foresees the result of the action but continues and performs it regardless. • Following behaviors **will require** disciplinary action: 1. Willful violations. 2. Reckless conduct (gross negligence). 3. Destructive acts.

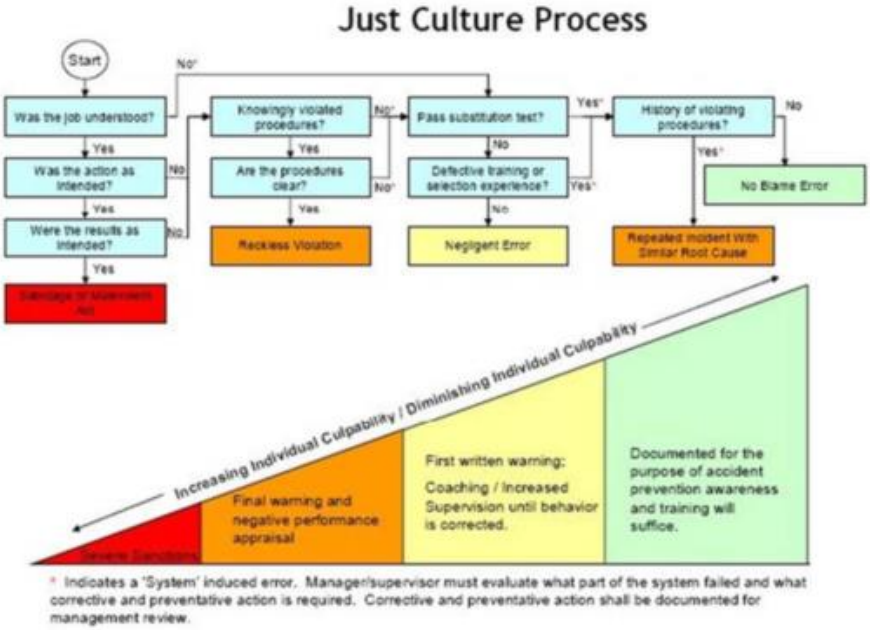
8.1. Croatia Airlines SMS (cont.)

Just Culture (cont.)

- Following behavior **may require** disciplinary action:
  1. Failing to report occurrences as required in this section (additional reference OM-A Ch. 11.01 B1 Mandatory Occurrence Reporting) which represents major risk, and the report would clearly result in safety improvement.
- In order to achieve an impartial and clear assessment of accountability of any safety occurrence, a Just Culture Decision Tool shall be used. This tool shall be used during any internal investigation.

Just Culture Decision Tool

- The following diagram shows the methodology used to help decide on the culpability of an unsafe act. If there are various unsafe actions that have contributed to the same occurrence, it is applied separately for each action. The answers to each question must be based upon the factual information gathered during the human performance-oriented investigation.
- The four stages include:
  1. **Intended act (Behavior identification)**: Review the factual, non-judgmental, human performance-oriented investigation data. The first question in the decision table refers to intention, and if both actions and consequences were intended then it is possible that the offending conduct may be addressed outside of the company (as sabotage or malevolent act).
  2. **Deliberate violation of the rules**: Study whether violations are promoted, tolerated, or discouraged.
  3. **Substitution Test**: Ask if another person (equally motivated, equally competent, and comparably qualified) would made the same error under similar circumstances. If “yes” the person who made error is probably blameless, if “no”, were there system induced reasons (such as insufficient training, experience)? If not, then negligent behavior should be considered.
  4. **Repetitive errors**: The final question asks whether the person has committed unsafe acts in the past.



8.1. Croatia Airlines SMS (cont.)

Safety Objectives	• Safety performance measurement of an SMS includes the definition of Safety Performance Indicators (SPI), Safety Performance Targets, Alert Values and Action Plans. These SPI targets and alert values are representative of the generic hazards in the everyday operation. In order to trend these hazards SPI database is established. • The safety objectives should be linked to the Safety Performance Indicators, safety performance targets, alert values, and action plans. • At the beginning of each year Safety Manger Operations shall present Safety Performance Indicators to the Safety Action Group members and discuss the new alert and target values. Once agreed these values represent Safety Goals in next year cycle. These Safety Goals are recorded and distributed to all personnel trough Monthly Safety Review. Safety Goals are part of Management Safety Review presentation and are subject to Accountable Manager approval. ***REFERENCE:*** *For more details, refer to OM-A, chapter 03.01. A1.* **Senior Management Responsibilities** • Senior management must also establish safety objectives, as well as the standards of safety performance from own area of responsibilities. These safety objectives and standards of safety performance must be linked to the SPI. The safety objectives must identify what the organization in this area wants to achieve and lay out the steps the organization needs to take to achieve the objectives.
Safety Review Board	• Safety Review Board is a high-level committee that considers matters of strategic safety in support of accountable manager's safety accountability. Safety Review Board meeting is held at least once a year or more often if necessary. • It is chaired by Accountable Manager and composed of COO, Head of Quality, Safety and Security, Postholder Flight Operations, Postholder Training, Postholder Ground Operations, Postholder Maintenance, Quality Manager Operations, Quality and Safety Manager Technical, Safety Manager Operations and any other person if required. ***REFERENCE:*** *For more details, refer to OM-A, chapter 03.01. A2.*
Safety Action Group (SAG)	**Safety Action Group (SAG)** • Safety Action Group is established as a standing group to assist or act on behalf of the Safety Review Board. Safety Action Group meeting is held at least once a month or more often if necessary. • The function of Safety Action Group is to monitor operational safety performance through evaluation of data and occurrences collected in accordance with chapter 03.01 B – "Acquisition of Information". • Members of the Safety Action Group are Safety Manager Operations, Postholder Flight Operations, Quality Manager Operations, Postholder Crew Training, Chief Pilots, Safety Pilots, Technical Pilots, Quality and Safety Manager Technical, Cabin Safety Coordinator, Ground Safety Coordinator and any other person if required. ***REFERENCE:*** *For more details, refer to OM-A, chapter 03.01. A3.*

8.1. Croatia Airlines SMS (cont.)

Fatigue Safety Action Group (FSAG)	**Fatigue Safety Action Group (FSAG)** • The Fatigue Safety Action Group (FSAG) is responsible for coordinating all activities related to fatigue. • This includes responsibility for gathering, analysing, and reporting on data that facilitates the assessment of fatigue-related risk among flight crewmembers. • The FSAG exists to improve safety and is focused on enhancing safety and does not get involved in industrial issues. • The FSAG is subordinated to SAG, and all provided recommendations must be: ✓ relevant for specific operations ✓ based on scientific data ✓ consistent with the company's business objectives. • Members of the Fatigue Safety Action Group are Fatigue manager, Member of Crew scheduling department, Operations Control Officer, Cockpit Crew representative, Cabin Crew representative, Member Safety Operations and any other person if required. ***REFERENCE:*** *For more regarding FSAG tasks and other details, refer to OM-A, chapter 03.01.A4.*
Acquisition of Information	• The SMS is based on systematic and comprehensive understanding of current safety situation so that all risks can be recognized and assessed in time and proper prevention and correction measures introduced. In order to obtain as complete and realistic safety picture as possible, all available sources shall be used. • These include (but are not limited to): ✓ Air Safety Reports ✓ Bird/Wildlife strike Reports. ✓ Confidential Reports. ✓ Fatigue Reports. ✓ Cabin Safety Reports. ✓ Internal Occurrence Reporting System. ✓ Ground Safety Reports. ✓ Voyage Reports. ✓ Internal Investigation. ✓ Flight Data Monitoring and DMT readouts. ✓ Flight Data Recorder and Cockpit Voice Recorder readouts. ✓ Operations Control Log (OCL) from Operations Control Centre. ✓ ATC, Airport and CAA reports. ✓ Noise reports. ✓ Information obtained by company Quality System (audits, inspections, observations).

8.1. Croatia Airlines SMS (cont.)

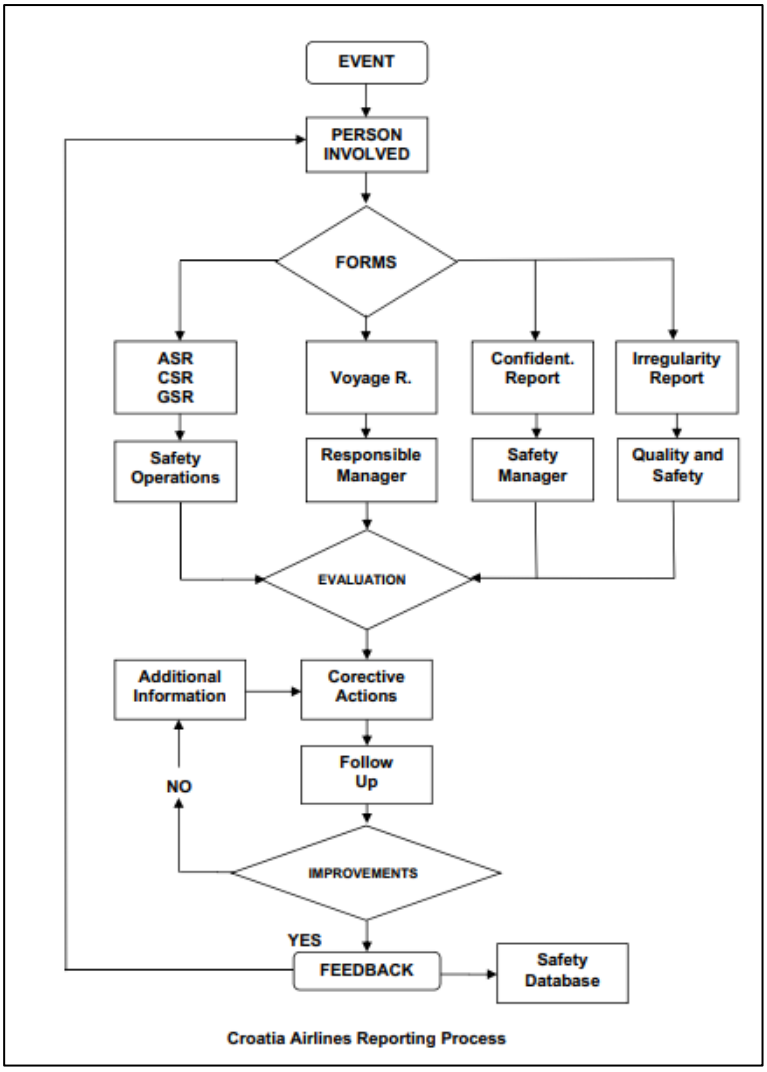
Acquisition of Information (cont.)	✓ Safety publications. ✓ Conferences and seminars. ✓ Questionnaires. ✓ Safety reports from other similar operators. ✓ Operations Centre information. ✓ Credible verbal reports to Safety Manager. ✓ Safety Performance Indicators. **Database storage and Backup Procedure** • All filed reports are kept within Q-Pulse Occurrence and Incident modules on Q-Pulse server (ctnqpulse). All other safety related data are kept in Q-Pulse Risk module and in electronic versions on CTN server (ctn-6fps) in Safety_backup folder. The backup is made once a week and always last two versions can be restored. • Database for Technical services (SMS-Library) is hosted on Share Point Server located on “hotel-2” server. The backup is made on daily basis.

8.1. Croatia Airlines SMS (cont.)

Croatia Airlines Reporting Process

- Reporting process within company is achieved through Q-Pulse reporting system. Reports can be filed via three different channels, via mobile App, Intranet (Crew portal) and Internet (web browser). Mobile App Server URL: https://qpulse.croatiaairlines.hr/qpulse5webservices/services Internet web browser address: https://qpulse.croatiaairlines.hr/reporting.
- All Incidents, Accidents and Occurrences that might affect safety of the operation must be reported.

If in doubt whether to report or not – DO REPORT.



Croatia Airlines Reporting Process

REFERENCE: *For more details, refer to OM-A, chapter 03.01. B.*

Ground Safety Report

- GSR is used by Ground Crew and shall be submitted to the Safety Operations via Q-Pulse reporting system using mobile App, Intranet (Crew portal) or Internet (web browser). It shall be used to report any occurrence that affects or could affect safety of flight operation. The report fields are filtered to reflect Croatia Airlines flight operation.

8.1. Croatia Airlines SMS (cont.)

Croatia Airlines Reporting Process **(cont.)**	**Ground Safety Report (cont.)** • They can be filled by selecting a choice from drop down menu, by ticking the box or by inserting free text. All fields have search function. Fields marked with star (*) are compulsory fields and must be filled. Question mark near the field shows detailed explanation of the field. Attachment in a form of file or image can be submitted with report. Based on the GSR, Safety Operations will report occurrence to "Croatian Civil Aviation Agency" and "Air, Maritime and Railway Traffic Accident Investigation Agency" as stated in this chapter. **Ground Damage Report** • GDR is used by Ground Crew and shall be submitted to the Safety Operations via Q-Pulse reporting system using mobile App, Intranet (Crew portal) or Internet (web browser). It shall be used to report any damage caused to the Croatia Airlines aircraft. The report fields are filtered to reflect Croatia Airlines flight operation and are in line with IATA GADM programme. They can be filled by selecting a choice from drop down menu, by ticking the box or by inserting free text. All fields have search function. Fields marked with star (*) are compulsory fields and must be filled. Question mark near the field shows detailed explanation of the field. Attachment in a form of file or image can be submitted with report. Based on the GSR, Safety Operations will report occurrence to "Croatian Civil Aviation Agency" and "Air, Maritime and Railway Traffic Accident Investigation Agency" as stated in this chapter. According to IATA GADM programme rules details about incident will be submitted to IATA GADM database. **Dangerous Goods Occurrence Report** • Dangerous Goods Occurrence Report form (OB-PSU-056) is used by Ground Operations staff to report any type of dangerous goods occurrence. Information from the report is used by the Safety Operations to report the occurrence to Authority on the prescribed form issued by Authority. The form may be obtained by printing it from the Quality System Intranet page and Link for Handling Agent. ***NOTE.*** *More information regarding Croatia Airlines reporting process can be found in section 8.1.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences.*

8.1. Croatia Airlines SMS (cont.)

Safety Performance Indicators	• Real time Safety performance is achieved through the use of Safety Performance Indicators. • Purpose of the Safety Performance Indicators (SPI) is support and control in the Risk Management Process, but also it supports the relation with authorities. SPI are expressed in term of number of occurrences / number of operation X 1000 in a period of time. • The actual values of the indicators are not intended to be direct measures of safety, although safety performance can be inferred from the results achieved. The numerical value of any individual indicator may be of no significance if treated in an isolated manner but can be made significant when considered in the context of the performance of other indicators. • Therefore, it is important to understand that the SPI will not tell us what action is needed, but where the action is needed. Sometimes the SPI will be used as early possible warnings and will require an investigation to analyse the relevance of the warning. • A spectrum of Reactive, Proactive and Predictive indicators should be used. At first, it is essential to establish a structure. Next step is fine-tuning. • Croatia Airlines Safety Operations established a set of SPI. Each graph shows the actual value of the SPI, year average, and Alert or Target value. The purpose is to constantly monitor the trend of specific occurrences. In addition to monitoring the changes and trends, it may also be necessary to compare the indicators against identified targets and goals to evaluate performance strengths and weaknesses. This set of SPI is not constant and is subject to change. SPI targets shall be challenging in one hand but in other hand realistic. • It should be recognized that while indicators provide valuable information in the effective management of safety performance, they are just one of a set of tools, including: regulatory inspection, quality assurance, audits, self-assessment etc. needed to assess operational safety performance. The integration of information compiled yields the best results. **State Safety Plan (SSP)** • State Safety Plan defined safety risks: ✓ Runway excursion risks. ✓ Airspace infringement risk. ✓ Mid-air collision risk. ✓ Controlled flight into terrain (CFIT) risk. ✓ Loss of control in flight risk. ✓ Runway incursion (RI) risk. ✓ Ground operation risk. ✓ Laser attack risk. ✓ Bird / Animal strike. ✓ Air/Ground communication risk.

8.1. Croatia Airlines SMS (cont.)

Safety Performance Indicators (cont.)	• According to State Safety Plan (SSP) Croatia Airlines Safety Operations established set of SPI. SPI's are stored in Safety Database. **Follow-up and Evaluation** • The SPI Programme, including the indicators and metrics, should be periodically reviewed, and evaluated. It is important to remember that developing an effective SPI Programme is an iterative process, the Programme should be refined as experience is gained. • This will help to ensure that the indicators are well defined and continue to correspond with the subjects that the Croatia Airlines wants to measure. In addition, it will provide the basis for determining whether the process and the metrics are appropriate for Croatia Airlines and the indicators provide the type of information needed for an understanding of trends over time. **Trend Analysis** • Watch status - one month above alert value. • Yellow status - two consecutive months above alert value. • Red status - three consecutive months above alert value. Alert status - three consecutive months of Red status ***REFERENCE:*** *Refer to OM-A, chapter 03.01. B18.*
SMS Coordination	**GADM Program – IDX (Incident Data Exchange)** • Croatia Airlines is active member of IATA Global Aviation Data Management (GADM) programme contributing data to Incident Data Exchange (IDX) service. IDX combines previous STEADES and GDDB (Ground Damage Database) programme into a single system to collect and analyze safety and security incidents. The IDX is a worldwide, aggregated, de-identified database of incident reports including flight operations, cabin, ground operations safety and security occurrences which can be used, among other things, to improve safety performance and operational efficiency. It offers a secure environment providing participants with a seamless experience to view aggregated data against standards and benchmarked with other counterparts. **Other Providers** • In order to achieve highest degree of Safety information promulgation between national service providers (ATC, airports) and Croatia Airlines it is necessary to coordinate the action plans and exchange safety related information. This is achieved through membership in Local Runway Safety Teams of major airports in Croatia and through organized meetings or workshops. **SAFCO – Star Alliance Safety Committee** • Croatia Airlines is a member of Star Alliance and consequently Star Alliance Safety Committee. The meetings are carried out regularly on yearly basis and it is strongly recommended to participate in these meetings. The main purpose of Safety Committee is to monitor, review and revise standards in the areas of Safety, share information via SAFCO workspace and to establish common set of Star Alliance SPI for the purpose of trending and information sharing.

8.1. Croatia Airlines SMS (cont.)

Hazard Identification and Risk Management	**Concept of safety (Doc 9859)** Safety is the state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.
	A hazard is defined as a condition or an object with the potential to cause injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function (ICAO DOC (9859)).
	Hazard identification and safety risk management are the core processes involved in the management of safety. They are neither new, nor have they been developed as a consequence of recent interest in safety management and, in particular, safety management systems (SMS). **Understanding Hazard:** • Hazards are latent in nature and difficult to identify. There is a tendency to confuse hazard with their consequences. • Hazard identification is the process where unsafe conditions which can create hazards are identified and after that the characteristics of the hazard are defined. • Means of identifying hazards for Safety Management: ✓ REACTIVE – Hazard identification from actual events (occurrences, accidents or incidents); ✓ PROACTIVE – Mandatory and Voluntary reporting systems (ASR, VR, CSR, OCL, GSR, etc.) ✓ PREDICTIVE – Predictive safety data collection is essential system. Examples are: Confidential Reporting System, Flight Data Analysis, normal operation monitoring, brainstorming. • Hazard identification is an on-going process. It is duty of responsible Manger to evaluate risks and identify hazards in daily operation. After the hazard is identified HARM – Hazard Identification and Risk Management Form (OB-QMS-009) shall be filled by responsible manager and signed by Quality or Safety Manager Operations. The form is then stored in Safety Database.

8.1. Croatia Airlines SMS (cont.)

Hazard Identification and Risk Management **(cont.)**	**<u>Triggers of Hazard Identification</u>** • These four conditions should trigger more in-depth and far-reaching hazard identification activities: ✓ Any time the organization experiences an unexplained increase in safety-related events (e.g., defects in GRH – unloading aircraft compartment(s) in previous Station). ✓ Any time major operational changes are foreseen, introducing of new aircraft type, new routes – CHANGE MANAGEMENT. ✓ Before and during periods of significant organizational change (merger & acquisition). ✓ Any change affecting the scope of certificate or operation specification or any of the elements of operator's management system as required ORO.GEN.200(a)(1) and (a)(2). • Mandatory hazard identification shall be applied for cases including but not limiting to: ✓ An increase in safety-related events. ✓ Change Management. ✓ Operation to new un-familiar and potentially dangerous airport (Chief Pilot decision). ✓ Change of aircraft type. ✓ Rapid growth, mergers, acquisition, or downsizing. ✓ Significant change in Operation Procedures. ✓ Significant weather phenomena (e.g., volcanic ash). ✓ Embodiment of Service Bulletin (SB) with operational consequences (Maintenance action). ✓ As result from Quality or Safety Investigation. ✓ As result of Quality and Safety audit/inspection of contracted activities. • After Hazard identification, associated risk shall be identified. Risk is the assessed potential for adverse consequences resulting from a hazard. It is the probability that during a defined period of activity, the hazard will result in an accident or serious incident. • Risk is defined as the chance of injury or loss, and it is expressed in terms of severity and probability. • For each associated risk, a risk assessment must be done and consequently, if applicable, risk mitigation. For the risk assessment generally the Risk Assessment Matrix shall be used, but in some cases the risk can be interpreted in term of LOW, MED or HIGH. After the risk mitigation process is defined, follow up activities shall be recorded, and the form shall be signed by Quality or Safety Manager Operations. Finally, the form is stored in Safety Database.

8.1. Croatia Airlines SMS (cont.)

<table>
<tr><td>Hazard Identification and Risk Management

(cont.)</td><td>SAFETY LOOP

REFERENCE: Refer to OM-A, chapter 03.01. C.</td></tr>
<tr><td rowspan="2">Risk Management</td><td>Safety Risk Definition</td></tr>
<tr><td>Safety risk is defined as the assessment, expressed in terms of predicted probability and severity, of the consequences of a hazard, taking as reference the worst foreseeable situation.

Risk Management is a decision-making process, which involves the identification of risks, assessing their implications, deciding on a course of action, and evaluating the results. It is a continuous process, and the purpose is the identification, analysis and elimination or control to acceptable level of identified hazards or occurrences.

Risk Management comprises of Risk Assessment and Risk Mitigation. Risk Mitigation is achieved through corrective actions that reduce the Risk Probability or the Risk Severity. The general aim in Croatia Airlines is to prevent the event from reoccurring at all if possible.

Croatia Airlines has adopted an ICAO model of Risk Assessment.

This model has been modified to better "fit" the specific operating environment and mentality. Below is a description of the Risk Assessment Process. The Risk Assessment Process is a very important tool which helps the Safety Manager Operations, members of the Safety Action Group and every employee or department of Croatia Airlines to determine the relevance of the safety related occurrence. Furthermore, it helps in comparing different occurrences and producing a statistical table or a graph which shows an overall state of Safety per specific time period. Basically, the Risk Assessment assigns a number to an occurrence (the Risk Factor). Numbers allow for comparison between different occurrences and show the relative seriousness of the occurrence itself. Depending on the Risk Factor (the higher the Risk Factor, the more serious the occurrence), the Safety Manager Operations prepares the initial proposal of corrective measures that should mitigate the risk. The occurrence is presented on the Safety Action Group as described above, and Safety Action Group assigns the Risk Factor and Responsible Manager who is responsible for mitigation.</td></tr>
</table>

8.1. Croatia Airlines SMS (cont.)

Risk Management (cont.)

RISK PROBABILITY

- Probability of unsafe situation. Defining the Risk Probability helps to determine if the occurrence is an isolated event, or a trend (and its magnitude) has developed.

FREQUENT	Likely to occur many times (has occurred frequently)
OCCASIONAL	Likely to occur sometimes (has occurred infrequently)
REMOTE	Unlikely, but possible to occur (has occurred rarely)
IMPROBABLE	Very unlikely to occur (not Known to have occurred)
EXTREMELY IMPROBABLE	Almost inconceivable that the event will occur

Risk Probability	Upper Boundary	Occurrences	Lower Boundary
Frequent	Always	10 per day	5 per day
Occasional	4 per day	Once per day	4 per week
Remote	3 per week	Once per week	3 per month
Improbable	2 per month	Every two months	3 per year
Extremely improbable	2 per year	Every year	First time

RISK SEVERITY

- Potential severity of unsafe situation (considering worst case scenario).

CATASTROPHIC	Equipment destroyed or multiple deaths.
HAZARDOUS	A large reduction in safety margins or physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely. Serious injury or death to a number of people or major equipment damage.
MAJOR	A significant reduction in safety margins or a reduction in the ability of the operators to cope with the adverse operating conditions as a result of increase in workload or as a result of conditions impairing their efficiency. Serious incident or injury to persons.
MINOR	Nuisance. Operating limitations. Use of emergency procedures. Minor incident.
NEGLIGIBLE	Little consequences.

RISK FACTOR

- Risk Factor is obtained through combination of Risk Probability and Risk Severity and expressed in alphanumeric form.

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely improbable 1	1A	1B	1C	1D	1E

Risk Factor is obtained through combination of Risk Probability and Risk Severity and expressed in alphanumeric form.

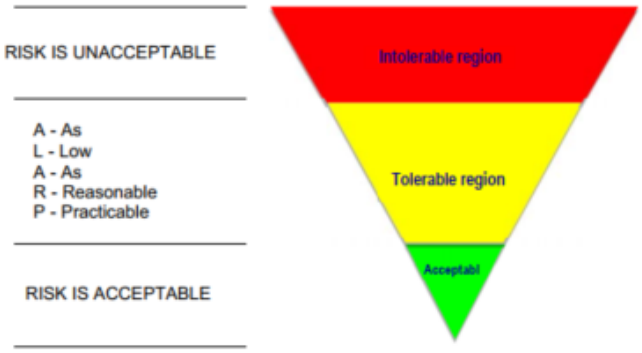
5A - HIGH - unacceptable risk, operation must be stopped or a major corrective action necessary
2B - MEDIUM - risk acceptable with corrective action and monitoring, may require higher management decision
1D - LOW / NONE - acceptable risk

8.1. Croatia Airlines SMS (cont.)

Risk Management (cont.)

RISK MITIGATION

- Safety Action Group agrees on the corrective actions already taken by the Safety Manager Operations and decides if additional measures are to be taken to further mitigate risk. Risk Management is achieved through measures that reduce Risk Probability and/or Risk Severity. For occurrences that are assessed as being Medium Risk after the mitigation, a constant monitoring is required. Safety Manager Operations will report statistics and safety evaluations or the reoccurring Medium Risk events. The Safety Action Group may at one point decide that further corrective measures are to be taken to further mitigate the risk should a negative trend become obvious. After Safety Action Group evaluation, the Responsible Manager takes the responsibility to implement and monitor corrective action.



It is important to understand that there is no such thing as absolute safety.

Risks have to be managed to a level “as low as reasonably practicable”- ALARP. This means that the risk must be balanced against the time, cost and difficulty of taking measures to reduce or eliminate the risk. RISK MANAGEMENT is identification, analysis and elimination, and/or mitigation to an acceptable level that organization is able to accept.

Risk Mitigation Strategies

In order to eliminate or mitigate the risk it is important to understand three basic models used in Safety Management System.

1. Avoidance – The operation or activity is cancelled because risks exceed the benefits of continuing the operation or activity.
2. Reduction –The operation or activity is subject to limitations, or action is taken to reduce the magnitude of the consequences of the accepted risks. This means to reduce the probability or severity of associated risk.
3. Segregation of exposure – Action is taken to isolate the effects of the consequences of the hazard or build-in redundancy to protect against it.

Mitigation Control

After Risk Management process it is necessary to monitor the effectiveness of corrective actions. The duty of Safety Manager Operations is monitoring of the effectiveness of corrective action and Responsible Manager shall monitor the neediness of that measure.

The points of monitoring are original circumstances that may differ in time due to environment, procedure, equipment… etc. change. Therefore, it is essential to state whether corrective actions are permanent or temporary measure.

8.1. Croatia Airlines SMS (cont.)

Risk Management (cont.)	Mitigation Control (cont.) Permanent corrective action should be recorded, and constant monitoring of the initial hazard and effectiveness is required. For temporary corrective measures besides recording, constant monitoring of the general hazard and effectiveness it is important to monitor the neediness for that particular measure considering above mentioned changes. Senior Management Responsibilities Based on Safety Action Group decision Accountable Manger has authority to accept or not to accept mitigation strategies. This is not applicable to RED (HIGH) risk factor which is intolerable region. Subsequently any operation or event in RED (HIGH) category is unacceptable under the existing circumstances. Operations must cease until the risk is reduced to at least the Medium Risk The final authority to accept operation in TOLERABLE REGION (MEDIUM) lies with Accountable Manager. This is applicable after evaluation of a specific hazard (in written form) is received from Safety Action Group. The Accountable Manager may require COST/BENEFIT analysis and decides whether the assessed risk is acceptable or there is a need for further mitigation. If a decision is to further mitigate the risk, it must be clearly stated to the Safety Action Group committee ***REFERENCE:*** *For more details, refer to OM-A, chapter 03.01.C1.*

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences

Introduction	• Operations Manual (OM-A, chapter 11.01). The following procedures have been established to govern the handling of emergency situations by both, ground, and flight personnel. These procedures shall be applied unless the circumstances of an emergency situation require deviations from there on. It must be understood that it is impracticable to establish rules governing every possible type of emergency. Croatia Airlines and Handling Agent / Supervision personnel concerned are therefore expected to act according to their best judgement in each individual situation. Emergency action by ground personnel shall be initiated in the event information received from any reliable source, or lack of information from an aircraft, indicates that the aircraft may have encountered an emergency. **IMPORTANT:** *All safety related information being received by any Croatia Airlines, other than Safety Operations, shall be forwarded to the Safety Manager without delay.*
Occurrence	• Any safety / security related event which endangers or which, if not corrected or addressed, could endanger an aircraft, its occupants or any other person and includes in particular an accident or serious incident. *EXAMPLES OF GROUND OCCURRENCES:* • **Security occurrence -** any threat by person(s) and/or organization(s) against Croatia Airlines: ✓ Unruly passengers. ✓ Baggage traveling without passenger. ✓ Passenger boarded by system but not on board. ✓ People with unauthorized access to restricted areas (no expired, wrong access cards), etc. • **Dangerous Goods occurrence: -** attempted transport of forbidden goods; mishandled packing during transport. If dangerous goods are noticed during and/or after acceptance: ✓ Unsuitable packed. ✓ Leaking, spilling. ✓ Wrong documentation. ✓ Not allowed for transport as per IATA-DGR (as summarized in PBHM, chapter 10.11 and GOM, chapter 7.3.10.). ✓ Obviously imposing a hazard to operations. ✓ Not or wrongly declared dangerous goods (detected in checked-in baggage or cargo shipments during aircraft loading and/or security control). • **Ground occurrence -** any event other than accident, incident, serious incident, serious injury and fatal injury, reflecting a non-conformity with an OU process and/or procedure: ✓ e.g., carry-on baggage was not controlled according to procedure.

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Incident	• An occurrence, other than accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
Serious Incident	• An incident involving circumstances indicating that there was a high probability of an accident and is associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until all such personnel have disembarked.
Accident	• An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which: ✓ a person is fatally or seriously injured as a result of: ▪ being in the aircraft; or, ▪ direct contact with any part of the aircraft, including parts which have become detached from the aircraft; or ▪ direct exposure to jet blast. except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew, or, • The aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, the aircraft skin (such as small dents or puncture holes), and those resulting from hail or bird strike (including holes in the radome), or, • The aircraft is missing or is completely inaccessible.
Serious Injury	• An injury which is sustained by a person in an accident, and which involves one of the following: ✓ Hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received. ✓ A fracture of any bone (except simple fractures of fingers, toes or noes). ✓ Lacerations which cause severe haemorrhage, nerve, muscle, or tendon damage. ✓ Injury to any internal organ. ✓ Second or third degree burns or any burns affecting more than 5% of the body surface. ✓ Verified exposure to infectious substances or harmful radiation.

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Fatal Injury	• An injury which is sustained by a person in an accident, and which results in his or her death within 30 days of the date of the accident.
Occurrence Reporting	• Each handling company is responsible to ensure the proper and timely reporting of aircraft damages, injuries, and safety relevant incidents at their station. • In the event of an incident or accident, the work must stop, the scene must be frozen and isolated, and the event shall be immediately reported to the line management airline representative and as required, to local authorities. • Safety Operations is the Croatia Airlines focal point of the occurrence reporting process. • Any damage to an aircraft must be notified immediately to flight crew and maintenance (station engineer, if available).
Ground Safety Report (GSR)	• GSR is used by Ground Crew and shall be submitted to the Safety Operations via Q-Pulse reporting system using mobile App, Intranet (Crew portal) or Internet (web browser). It shall be used to report any occurrence that affects or could affect safety of flight operation. The report fields are filtered to reflect Croatia Airlines flight operation. • They can be filled by selecting a choice from drop down menu, by ticking the box or by inserting free text. All fields have search function. Fields marked with star (*) are compulsory fields and must be filled. Question mark near the field shows detailed explanation of the field. Attachment in a form of file or image can be submitted with report. Based on the GSR, Safety Operations will report occurrence to “Croatian Civil Aviation Agency” and “Air, Maritime and Railway Traffic Accident Investigation Agency” as stated in this chapter.
Ground Damage Report	• GDR is used by Ground Crew and shall be submitted to the Safety Operations via Q-Pulse reporting system using mobile App, Intranet (Crew portal) or Internet (web browser). It shall be used to report any damage caused to the Croatia Airlines aircraft. The report fields are filtered to reflect Croatia Airlines flight operation and are in line with IATA GADM programme. They can be filled by selecting a choice from drop down menu, by ticking the box or by inserting free text. All fields have search function. Fields marked with star (*) are compulsory fields and must be filled. Question mark near the field shows detailed explanation of the field. Attachment in a form of file or image can be submitted with report. Based on the GSR, Safety Operations will report occurrence to “Croatian Civil Aviation Agency” and “Air, Maritime and Railway Traffic Accident Investigation Agency” as stated in this chapter. According to IATA GADM programme rules details about incident will be submitted to IATA GADM database.
Dangerous Goods Occurrence Report	• Dangerous Goods Occurrence Report form (OB-PSU-056) is used by Ground Operations staff to report any type of dangerous goods occurrence. Information from the report is used by the Safety Operations to report the occurrence to Authority on the prescribed form issued by Authority. The form may be obtained by printing it from the Quality System Intranet page and Link for Handling Agent.

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Confidential Reporting Scheme (CR)	• Any Croatia Airlines employee, including flight crew, cabin crew and ground personnel, involved in an accident or occurrence which affects or might affect flight safety (in the air and on the ground) may confidentially describe in detail such an incident or occurrence using this form. ***REFERENCE:*** *More information can be found in OM-A (chapter 11.01.F3).*
Irregularity Report (IR)	• This report is used to report quality issues to the Quality Management System. ***REFERENCE:*** *More information can be found in OM-A (chapter 11.01.F4)*
Reportable Incidents	• In case of any incident listed below send an immediate report by any means of communication channels (phone, SITA, e-mail) with as many details as available to: ✓ Operations Control & Hub Centre (ops.control@croatiaairlines.hr, hub.control@croatiaairlines.hr; SITA: ZAGOWOU and ZAGKKOU); ✓ To the responsible Area Management (in Croatia: to the respective superior department). • In addition, complete and send a Ground Safety Report as soon as possible. GSR shall be submitted to the Safety Operations via Q-Pulse reporting system using mobile App, Intranet (Crew portal) or Internet (web browser) ***IMPORTANT:*** *User's credentials:* Link: https://qpulse.croatiaairlines.hr/Reporting Username: handling.agent Password: CTN2020 • Reportable Incidents are: ✓ Injury or damage on ground or during flight. ✓ Aircraft damage or contamination. ✓ Loading irregularities. ✓ Incidents with possible influence on scheduled operation. ✓ Birth on board. ✓ Death on board. ✓ Illness of passenger during flight. ✓ Illness of Crew members.
Injury or Damage on Ground	• Report these incidents that happened while the aircraft was on ground, excluding taxiing: ✓ Fire or explosion by which passengers or personnel are injured or died, or which damaged any load or property of Croatia Airlines. ✓ Injuries or damage during towing or push-back. ✓ Accidents caused by vehicles on the ramp involving passengers, personnel, or load.

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Injury or Damage on Ground (cont.)	✓ Damage to any part of the aircraft. ✓ Structural overloading of a hold or loading position. ✓ Damages caused by the aircraft.
Injury or Damage During Flight	• Report these incidents that happened while the aircraft was on ground, including taxiing: ✓ Passenger related incidents according to illness, birth, and death on board. ✓ Fire or explosion on board of an aircraft. ✓ Damage caused by jet blast during taxiing or take-off. ✓ Collisions with vehicles, ground equipment, load, or other obstructions. ✓ Bird strike (information received from Flight Crew, Airport Authorities, or ATC). ✓ Damages to engines that make engine change necessary. ✓ Skidding of aircraft from runway or taxiway, undershoot or overrunning. ✓ Landings with ground contact of the engines.
Aircraft Damage or Contamination	• A reportable occurrence is any damage to an aircraft providing it happened: ✓ While parked at gate / stand or other parked area. ✓ During marshalling or using stand guidance. ✓ During de-icing. ✓ While being towed. ✓ In case of near miss (no actual damage). ✓ In case of slide deployment. ✓ In hangar. • If the damage or contamination was caused by dangerous goods: ✓ Observe all regulations given in" Dangerous Goods Irregularities", section. 7.3.10. • In case the damage or contamination was caused by the third parties: ✓ A letter of recourse shall be completed and handed over to the originator. ✓ One copy of this letter has to be attached to the Ground Damage Report as well as any additional records (photos, witness reports, etc.).

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Aircraft Damage or Contamination (cont.)	• In case of damages or contamination of a Croatia Airlines aircraft: ✓ Immediately contact and report finding to the Flight Crew and/or Station Manager and Station Mechanic (if available). ✓ Make sure that any possible evidence is secured by (for example): ▪ Taking photos. ▪ Securing any items which have or may have caused damage (FOD, etc.). ▪ Securing witness reports. ▪ Drawing a sketch of the location and position of aircraft, vehicles or persons involved. ✓ Report and survey all damages or contaminations in order to: ▪ Ensure that all necessary actions are initiated quickly and properly. ▪ Avoid disadvantages in the settlement of insurances. ▪ Optimize the settlement of recourses. ▪ Gain knowledge on prevention of damages or contamination. ✓ Initial reporting: Immediately (within 24 hours) send a Ground Damage Report via link https://qpulse.croatiaairlines.hr/Reporting Username: handling.agent Password: CTN2020
Loading Irregularities	• Examples: ✓ Insufficient securing of load. ✓ Shifted load. ✓ Incompatibility errors, etc.
Incidents With Possible Influence on Scheduled Operation	• Report following incidents, if they had (have, may have) an influence on scheduled operation of Croatia Airlines or other airlines: ✓ Strikes, ✓ Riots, ✓ Disasters (earthquake, flood, etc.), ✓ Aircraft accidents of other carriers, ✓ Short notice implementation of rules and regulations by an Authority (e.g., noise abatement rules), ✓ Bomb or sabotage threats against airports, other airlines, etc.

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Birth on Board	• In the event that a child is born during flight, the Commander must notify the next landing place in advance. • When aircraft land at your Station: ✓ Inform the Airport Police and Airport Authorities. ✓ Arrange an ambulance and doctor to be readily available upon arrival of the aircraft. • On arrival, the Commander shall complete a report (use the Voyage Report form – Board Book) in duplicate containing all necessary details about occurrence) and signed by the Commander and two other Crew members. • The original of this report is to be handed over to the local Police Authorities (copy in flight folder). • Station Manager (if available) or Station Representative (Handling agent or Supervision) are responsible to: ✓ Send a brief message with the main facts of the Commander Report to: ▪ Operations Control & HUB Centre (ops.control@croatiaairlines.hr, hub.control@croatiaairlines.hr; SITA: ZAGOWOU, ZAGKKOU) ▪ Fill the Ground Safety Report (see GSR procedure).
Death on Board	• In the event that a passenger dies during a flight, the Commander shall notify the Croatia Airlines Station Manager or Station Representative at the next point of landing of the following particulars: ✓ Full name of the deceased passenger. ✓ Citizenship. ✓ Time of death. ✓ Station of embarkation. ✓ Destination. ✓ Whether accompanied by relatives or friends. • Station manager or Station Representative shall immediately inform: ✓ The local Police and Airport Authorities. ✓ The medical officer of the Airport. ✓ The next of kin (NOK) through Customer Service (in Croatia) or Croatia Airlines local branch office (abroad). ✓ Operations Control & HUB Centre (ops.control@croatiaairlines.hr, hub.control@croatiaairlines.hr; SITA: ZAGOWOU, ZAGKKOU). • After landing, the Commander shall complete a report in duplicate (Voyage Report form – Board Book) and: ✓ The original of this Report is to be handed over to the competent local Police Authorities. ✓ The copy shall be filled in the flight folder.

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Death on Board (cont.)	• The official physician (e.g., District physician or Airport medical officer) in coordination with local Police Authorities will decide whether a forensic medical examination is to be made. • Station Manager or Station Representative will: ✓ Check that the death certificate requirements are complied. ✓ Arrange all necessary formalities. ✓ Fill and send Ground Safety Report to Ground Safety Coordinator within 24 hours (see GSR procedure). • Costs in connection with the deceased may be advanced by the Station. Final settlement concerning costs and/or legal actions shall be coordinated with Croatia Airlines Legal Department. • A medical certificate made out by the official physician, stating that the remains can be transported without risk of infection, must accompany the documents that are necessary for the clearance of the remains.
Illness of Passenger During Flight	• If a passenger becomes ill during flight, and medical attention is advisable or necessary, the Commander will decide on: ✓ Continuation to the scheduled destination (if the illness is not critical, or if the destination is already nearby). ✓ Diversion to a nearer Croatia Airlines Station along the route (if the illness is critical). ✓ Diversion to the nearest Airport (if the illness or injury is so serious that the life of the passenger is endangered and any minute counts). • If the aircraft will land at an Airport with Croatia Airlines Station Manager or Station Representative, he/she will: ✓ Inform Airport Authorities. ✓ Arrange doctor and ambulance to be readily available upon arrival. ✓ Provide them with all information about the illness or injury, as given by the Commander as detailed possible. ✓ Report illness of passenger on board only, if a diversion was necessary or other irregularity occurred to: ▪ Operations Control & HUB Centre (ops.control@croatiaairlines.hr, hub.control@croatiaairlines.hr; SITA: ZAGOWOU, ZAGKKOU) ▪ To the responsible area management. ✓ Additionally, complete and send Ground Safety Report (GSR), see GSR procedure) within 24 hours.

8.2. Handling, Notifying and Reporting of Ramp Incidents, Accidents, and other Occurrences (cont.)

Illness of Crew Member	• If a crew becomes ill at a station outside the home base, the crew member informs: ✓ The Commander of the flight concerned. ✓ In addition, the respective Station Manager (Responsible Manager). • If necessary, make sure that the ill crewmember receives medical treatment. • If the crew member is grounded by doctor's advice: ✓ Immediately inform CTN Operations Centre (ZAGOWOU) • The message shall contain the following details: ✓ Name and initials of the ill crew member. ✓ Function (e.g., Captain, First Officer, Purser, etc.) • Additionally, complete and send a detailed Ground Safety Report (GSR) within 24 hours. • After recovering of the ill crew member: ✓ Immediately inform CTN Operations Centre (ZAGOWOU) whether the crewmember is ready for duty again or for return home only. • If a necessary medical treatment causes expenses for the crew member: ✓ The Station Manager or Station Supervision Representative may pay in advance by collecting the original receipts or settling the incoming doctor's bills.

8.3. Airside Safety Investigation Procedure

General	• The investigation process will be conducted in a logical way by collecting and analysing factual information in order to identify root causes, contributing and human factors.
Factual Information	• Gather actual information including photographs, testimonials, reports, sketches, video footage and any other relevant information. • The level of investigation must be determined: ✓ **basic investigation**–an inquiry to identify the key elements that led to the event. ✓ **formal investigation**–a formal inquiry with all involved and legally required internal and external parties.
Investigation Procedure	• Gather all information available about the event: ✓ Identify the circumstances leading up to the event. ✓ Review all reports pertaining to the event. ✓ Collect all available data (CCTV and other video footage, photographs, objects, testimonials, sketches, maps). ✓ Identify the people involved and any witnesses. ✓ Gather all relevant factual information concerning the people involved (roster, training records, medical information related to the event, if possible, employee records, assigned task, all reports, any other). ✓ Gather all relevant factual information concerning the technical, environmental, and infra structural conditions. • Conduct interviews with all individuals involved and any witnesses. • Conduct a confirmation site visit if possible. • Confirm whether a SOP is published and available for the task being performed. • Identify human factors: ✓ Communication. ✓ Stress and timing. ✓ Fatigue. ✓ Loss of situational awareness. ✓ Health condition. ✓ Use of available resources. ✓ Staff feedback related to the SOP. ✓ Teamwork. ✓ Knowledge retention and competence.

8.3. Airside Safety Investigation Procedure (cont.)

Investigation Procedure (cont.)	• Technical factors: ✓ use of a GSE. ✓ preventive and corrective maintenance records. ✓ current technical condition. ✓ suitability for the task.
Analysis	• Analyse the event by: ✓ Describing the sequence of events as they occurred for each person/element involved. ✓ Identifying any failures in the tasks performed in relation to written instructions. ✓ Identifying any causal links between events. ✓ Documenting a chronological sequence of events that led to the incident/accident supported by factual information. ✓ Determining which failures contributed to the accident based on factual evidence in relation to the sequence of events. ✓ Identifying pre-existing and/or new hazards that contributed to the event.
Conclusion and Causes	• Specify: ✓ Root causes. ✓ Contributing factors. ✓ Human factors.
Investigation Follow-up	• Follow-up the investigation by: ✓ Establishing the following for each root cause: ▪ corrective action requests. ▪ preventive actions requests. ✓ Making safety recommendations that: ▪ Address the root causes, contributing and human factors identified as a part of the investigation. ▪ Ensure corrective and preventive action requests will be issued to the line management. ▪ Provides line management with corrective action plans to address the root causes, contributing and human factors for approval. ▪ Ensure that an Action plan implementation is confirmed through a monitoring/audit process. ▪ Ensure that the Human factors in Airside Safety Investigations form is completed.

8.4. Emergency Response Procedures

8.4.0. Overview

Contents	This section contains the following: 8.4.1. Emergency Response Actions 8.4.2. Emergency Evacuation of Passenger and Aircrew 8.4.3. Emergency Evacuation of Ground Personnel (No Aircrew Present)

8.4.1. Emergency Response Actions

General	• The following actions are to be carried out in the event of an emergency in accordance with operating airline and/or Ground Service Provider (GSP) / Handling Agent Emergency Response Plan and local regulations. ***NOTE:*** *Croatia Airlines ERCM Manual (OP-ERP-001) is available on Intranet and Link for Handling Agents.*
Communication	• With the operating airline: ✓ Notify the operating airline. ✓ Establish a Crisis Control Center. ✓ Provide regular situation reports. ✓ Maintain the flow of communications/actions. ✓ Identify and assemble translators. • With the airport and other authorities: ✓ Liaise with airport emergency services and local authorities. ✓ Prepare the location and facilities to be used. ✓ Provide the GSE upon request from the authorities in command. • With the GSP: ✓ Inform GSP staff. ✓ Conduct an initial briefing. • With the pax, crew and victims, relatives, and media: provide regular updates.
General Requirements	• Deploy of the emergency response team. • Provide liaison staff at the emergency location. • Provide initial financial assistance to passengers as agreed with the operating airline.
Passengers and Crew	• Assist with the collection of information from passengers, crew and victims. • Provide assistance and secured private facility for passengers. • Provide assistance and secured private facility for crew members. • Assist in repatriation and/or onward travel.
Cargo, Baggage and Mail	• Assist with the inventory of cargo, baggage and mail carried on the aircraft. • Safeguard from loss or damage the baggage, cargo and mail. • Arrange for secure storage.

8.4.1. Emergency Response Actions

Documentation	• Establish station emergency data sheet with contacts, grid maps, facility info sheets. • Maintain current emergency contact information of the operating carrier, GSP and local authorities. • Collect, preserve, secure, and restrict all documentation pertaining to the emergency and make available to the operating airline. • Support the verification of the passenger list. • Maintain a log of events and action taken. • Maintain detailed expense documentation relating to services provided during an emergency.
Relatives	• Assist with the collection of information from family members. • Provide assistance and secured private facility to family members. • Assist with reuniting passengers and family members.
Facilities	• Provide emergency response facilities for airline permanent and deployed staff. • Assist in the arrival, set-up, and operations of the operating carrier's Go team. • Determine appropriate support services that may be required for continuing emergency operations. • Arrange for security at all carriers' premises at the airport.

8.4.2. Emergency Evacuation of Passengers and Aircrew

General	• In the event of an emergency situation occurring during ground handling operations, evacuation of an aircraft may be necessary. • The safety of passengers and staff in such circumstances is of utmost importance.
Responsibilities	• It is the responsibility of each agency (carrier, handling company, and airport) involved in handling operations to ensure that personnel are made aware of their specific responsibilities in the event of an emergency situation. • All organizations shall instruct and train their staff in the procedures that must be enacted in emergency situations. • The procedures must clearly define responsibility for directing passengers and staff to a safe assembly area as appropriate to the type of emergency and the conditions at the time. ***IMPORTANT:*** ***The decision and method of evacuation will be dependent on the circumstances and at the discretion of the aircraft Commander or designated authority.***
Evacuation Routes and Safe Areas	• Both routes and safe areas must be kept clear of equipment and other obstructions at all times to enable their safe use by passengers who will not be in familiar surroundings. • Ideally, they should be well signposted or painted on the ground. • Should an evacuation occur staff should muster passengers in a safe area away from and upwind of the aircraft until the Emergency Services arrive.
Types of Emergencies	• Typically, procedures would address an aircraft evacuation due to: ✓ Fuel spill. ✓ Aircraft fire. ✓ Dangerous goods incident. ✓ Security incident.
Fuel Spill	• All fuel spills, irrespective of size, must be regarded as a potential source of fire. • Follow this procedure if smell of fuel, fuel spill or excessive fuel spillage is observed: ✓ Stop fuelling operation immediately/ Activate Emergency fuel shut-off. ✓ Immediately alert the Aircraft Commander and Airport Emergencies Services. ✓ APU, GPU and/or engines or electrical equipment in the fuelling zone must be shut down and all further electrical switching avoided. ✓ Handling personnel must leave the fuelling zone. • Depending on the situation Aircraft Commander will decide about further steps to be taken. • If occurs necessity for the evacuation of passengers and aircrew, it will be conducted according to Croatia Airlines Cabin Safety Procedures Manual (OP-KOU-001, Ch.4 “Emergency Procedures”, Ch.4.3.3 “Controlled Disembarkation”) and in accordance with local airport procedures.

8.4.2. Emergency Evacuation of Passengers and Aircrew (cont.)

Fuel Spill (cont.)	• Once Emergency Services arrive, they will take over responsibility for the incident. They will ensure all passengers and aircrew are at a safe distance from the Aircraft, that evacuees are not obstructing additional Emergency Services arriving at the scene. *NOTE: For more information refer to section 2.3.1. "Fuelling/De-fuelling Procedures".*
Aircraft Fire	• **In case of fire on, or in the vicinity of an aircraft:** ✓ The Flight Crew on board the aircraft must be alerted immediately so that controlled disembarkation, or ✓ Emergency evacuation can start according to Croatia Airlines "Cabin Safety Procedures Manual (OP-KOU-001)", ch.4 "Emergency Procedures", section 4.3.3 "Controlled Disembarkation" and local airport procedures ✓ Immediately alert the Airport Emergency Services. ✓ Attempt to extinguish the fire with the portable fire extinguisher (spilled liquids and other combustible materials and for landing gear brake fires). • **Aircraft engine fire:** ✓ May not be fought by means of fire extinguishers used by ground staff. ✓ Are fought by flight crew by means of the engine fire extinguishing system. ***IMPORTANT:*** *Once Emergency Services arrive, they will take over responsibility for the incident. They will ensure all passengers and aircrew are at a safe distance from the Aircraft, that evacuees are not obstructing additional Emergency Services arriving at the scene.*
Dangerous Goods Incident	• An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in: ✓ Injury to a person, property, or environmental damage. ✓ Fire. ✓ Breakage. ✓ Spillage. ✓ Leakage of fluid or radiation. ✓ or other evidence that the integrity of the packaging has not been maintained. • Any occurrence relating to the transport of dangerous goods which seriously jeopardizes an aircraft, or its occupants is also deemed to be a dangerous goods incident. (A dangerous goods accident or incident may also constitute an aircraft accident or incident as specified in Annex 13 to the Chicago Convention on International Civil Aviation - Aircraft Accident Investigation.). • In case of leakage of Dangerous Goods or if Radioactive Material or infectious substances are involved, the authorized staff must decide if the local emergency procedure must be initiated.

8.4.2. Emergency Evacuation of Passengers and Aircrew (cont.)

Dangerous Goods Incident (cont.)	Such measures may include: ✓ Evacuation or protection of passengers and staff. ✓ Evacuation or protection of aircraft and other property. ✓ Isolation of the item and area, if possible. ✓ Notifying the airport emergency services, in accordance with local airport procedures. • Depending on the situation, PIC will decide about further steps to be taken. • If occurs necessity for the evacuation of passengers and aircrew, it will be conducted according to Croatia Airlines Cabin Safety Procedures Manual (OP-KOU-001, Ch.4.3.3 "Controlled Disembarkation") and local airport procedures. ***IMPORTANT:*** *Once Emergency Services arrive, they will take over responsibility for the incident. They will ensure all passengers and aircrew are at a safe distance from the Aircraft, that evacuees are not obstructing additional Emergency Services arriving at the scene.* ***NOTE:*** *Dangerous Goods Incident in Warehouse and on the Ramp does not require evacuation of an aircraft.* ***REFERENCE:*** *For more information refer to GOM, section 7.3.10. "Dangerous Goods Irregularities and Reports".*
Security Incidents	• Types of security incidents: ✓ Bomb threat (on the aircraft or in the vicinity of aircraft). ✓ Hijacking. ✓ Sabotage. ✓ Other unlawful interference with operations. • Actions to be taken: ✓ Immediately alert Airport Police Department. ✓ Immediately alert Airline Representative and Aircraft Commander. ✓ Inform Airport authorities. ✓ Inform Airline Operations and Security Department. ✓ Handling personnel must leave aircraft zone. • If occurs necessity for the evacuation of passengers and aircrew, it will be conducted in coordination with Airport Police Commander according to Croatia Airlines Cabin Safety Procedures Manual (OP-KOU-001, Ch.4 "Emergency Procedures", Ch.4.3.3 "Controlled Disembarkation") and local airport procedures. ***IMPORTANT:*** *All actions must be coordinated with the Airport Police Department and under their command decision.* ***REFERENCE:*** *For more information refer to Croatia Airlines "Security Programme" (OP-SCU-001).*

8.4.3. Emergency Evacuation of Ground Personnel (No Aircrew Present)

General	• Emergency evacuation of ground personnel may be required when there is no aircrew on board due to various types of emergencies (e.g., fuel spillage, aircraft fire, dangerous goods incidents, security incidents etc.). • Procedures for dealing with the evacuation of aircraft should be covered in the local airport procedures. • All organizations shall instruct and train their staff in the procedures that must be enacted in emergency situations. • The procedures must clearly define responsibility for directing involved personnel to a safe assembly area as appropriate to the type of emergency and the conditions at the time.
Responsibility for Empty Aircraft	• Station Mechanic or Authorized Staff (OU staff, supervision, etc.) must be present on board all time during ground activities (cleaning, fuelling, catering service, etc.).
Actions to be Taken	• Immediately alert persons on board. • Immediately alert Airline representative (station mechanic, station manager, operations department). • Immediately alert Airport Emergency Services. • If occurs necessity for the evacuation of Ground Personnel it will be conducted according to local airport procedures and by Croatia Airlines Station Mechanic who is responsible for empty aircraft and must be present on board all time during ground activities (cleaning, fuelling catering service etc.). • All personnel and vehicles (except emergency, medical and rescue) must leave aircraft zone immediately. ***IMPORTANT:*** *Once Emergency Services arrive, they will take over responsibility for the incident. They will ensure all passengers and aircrew are at a safe distance from the Aircraft, that evacuees are not obstructing additional Emergency Services arriving at the scene.*